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Series 138  
Série des 138

## WITHDRAWAL

October 2017

### Standards in series Fencing products

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**CAN/CGSB-138.1-96**

Fabric for Chain Link Fence (ICS 91.090)

**CAN/CGSB-138.2-96**

Steel Framework for Chain Link Fence (ICS 91.090)

**CAN/CGSB-138.3-96**

Installation of Chain Link Fence (ICS 91.090)

**CAN/CGSB-138.4-96**

Gates for Chain Link Fence (ICS 91.090)

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**CAN/CGSB-138.2-96**

Monture en acier pour clôture grillagée (ICS 91.090)

**CAN/CGSB-138.3-96**

Installation des clôtures grillagées (ICS 91.090)

**CAN/CGSB-138.4-96**

Barrière pour clôture grillagée (ICS 91.090)



Canadian  
General  
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**CAN/CGSB-138.3-96**

Supersedes CAN/CGSB-138.3-M80

# Installation of Chain Link Fence

WITHDRAWN



**National Standard of Canada**

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# INSTALLATION OF CHAIN LINK FENCE

WITHDRAWN

Prepared by the  
Canadian General Standards Board 

Approved by the  
Standards Council of Canada 

Published February 1996 by the  
Canadian General Standards Board  
Ottawa, Canada K1A 1G6

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*Acknowledgment is made for the translation of this National Standard of Canada by the Translation Bureau of the Department of the Secretary of State.*

## CANADIAN GENERAL STANDARDS BOARD

## INSTALLATION OF CHAIN LINK FENCE

**1. SCOPE**

- 1.1 This standard applies to the installation of chain link fence used in commercial and industrial applications. It gives the requirements for chain link fence installation in earth, rock, or rock with overburden of earth.
- 1.2 The testing and evaluation of a product against this standard may require the use of materials and/or equipment that could be hazardous. This document does not purport to address all the safety aspects associated with its use. Anyone using this standard has the responsibility to consult the appropriate authorities and to establish appropriate health and safety practices in conjunction with any existing applicable regulatory requirements prior to its use.

**2. REFERENCED PUBLICATIONS**

- 2.1 The following publications are referenced in this standard:
- 2.1.1 Canadian General Standards Board (CGSB)  
CAN/CGSB-138.1 – Fabric for Chain Link Fence  
CAN/CGSB-138.2 – Steel Framework for Chain Link Fence  
CAN/CGSB-138.4 – Gates for Chain Link Fence.
- 2.1.2 Canadian Standards Association (CSA)  
CAN/CSA G164 – Hot Dip Galvanizing of Irregularly Shaped Articles.
- 2.1.3 National Research Council of Canada  
National Building Code of Canada.
- 2.2 A reference to a regulation is always to the latest issue. A dated reference is to the issue specified. An undated reference is to the latest issue, unless otherwise specified by the authority applying this standard. The sources are given in the Notes section.

**3. TERMINOLOGY**

- 3.1 The following definitions apply in this standard:

**Bottom tension wire** (Fil tendeur inférieur)

Wire installed between fence posts to provide for attachment of chain link fence fabric.

**Brace rail** (Traverse de renfort)

A tubular or fabricated steel section used for bracing terminal posts.

**Fence post** (Poteau de clôture)

An upright tubular or fabricated steel member for supporting fencing material.

**Line posts** (Poteaux intermédiaires)

Fence posts spaced at regular intervals between terminal posts throughout each stretch of fence.

### **Terminal posts (Poteaux terminaux)**

Fence posts which include corner, end, gate and straining posts:

#### **Corner Posts (Poteaux d'angle)**

Fence posts positioned at corners and changes of direction greater than ten degrees.

#### **End Posts (Poteaux d'extrémité)**

Fence posts positioned at the ends of a stretch of fence.

#### **Gate Posts (Poteaux de barrière)**

Two fence posts forming a gateway.

#### **Straining Posts (Poteaux de renfort)**

Fence posts positioned at changes in grade greater than thirty degrees.

### **Top rail (Traverse supérieure)**

A tubular or fabricated steel section continuously joined by means of sleeves or couplings throughout each stretch of fence extending between terminal posts.

### **Top tension wire (Fil tendeur supérieur)**

Wire installed between fence posts as an option to the top rail.

### **Truss rod (Tige de contreventement)**

Solid steel rod used for bracing terminal posts.

### **Wire ties (Fils d'attache)**

Wire that is used to tie chain link fence fabric to line posts, top rails or bottom wires.

## **4. GENERAL REQUIREMENTS**

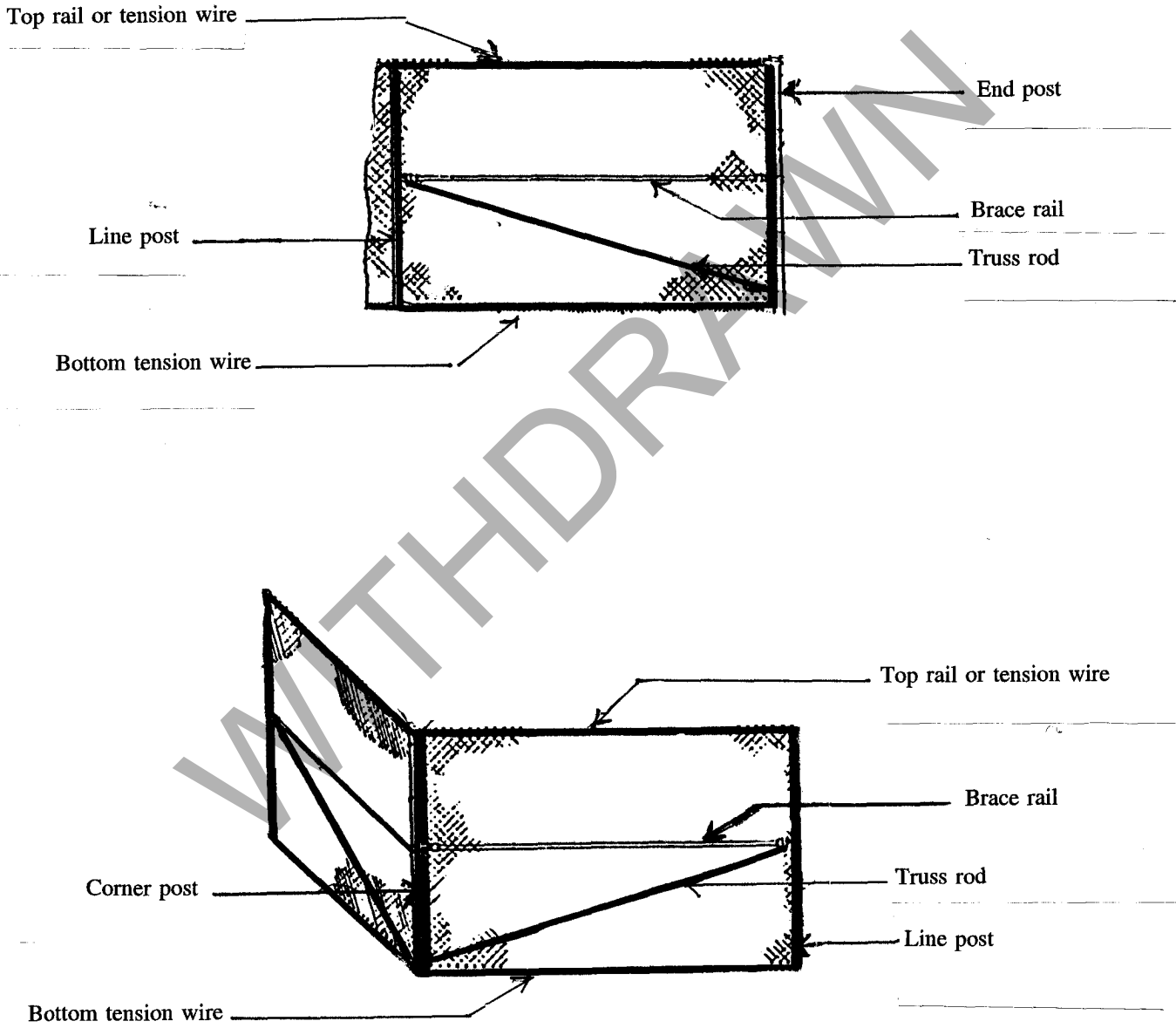
- 4.1 All materials entering into the chain link fence installation shall be of high quality in every respect. All workmanship shall be in accordance with accepted standards of modern engineering practice. Chain link fence fabric covered by this standard shall be in accordance with CAN/CGSB-138.1.
- 4.2 Chain link fence framework and gate components covered by this standard shall be in accordance with CAN/CGSB-138.2 and CAN/CGSB-138.4 respectively.
- 4.3 Construction, including material and workmanship, shall be free from any characteristics or defects which may render the installed chain link fence unsuitable for the intended purpose.
- 4.4 At the completion of the installation, all debris shall be removed from the site. Earth removed from post holes shall be spread over the area adjacent to the fence lines unless disposal is otherwise specified by the authority applying this standard (par. 7.1).

## **5. DETAILED REQUIREMENTS**

- 5.1 **Line and Level** — The fence shall be so installed that on completion it is truly on the line as specified (par. 7.1). The top of the fence shall follow approximately the profile of the natural ground or the grade levels as specified (par. 7.1).
- 5.2 **Terminal Posts** — The location of terminal posts, comprising end, gate, corner and straining posts, shall be as specified (par. 7.1). A corner post shall be installed at changes of direction greater than ten degrees. A straining post shall be installed at changes in grade greater than thirty degrees. All terminal posts shall be installed in a vertical position.



5.2.1 Brace rails and truss rods are recommended at corners where a top tension wire is used, and may also be installed where a top rail is used (Figure 1 and Note 1).



**FIGURE 1**  
**Application of Brace Rail and Truss Rod**

*Note 1: Brace rails and truss rods must be used together in order to increase the strength of the framework.*

- 5.3 **Line Posts** – Line posts shall be spaced at intervals not to exceed 3.1 m when measured from centre to centre between terminal posts. In determining the post spacing, measurement shall be made parallel to the slope of the natural ground, or grade when specified (par. 7.1). All line posts shall be installed in a vertical position.
- 5.4 **Footing Design and Construction** – The basis for any footing design shall be the National Building Code of Canada. The footing (or mechanical device embedded directly in soil) shall be capable of withstanding the specified loadings of terminal and line posts for the type of soil or rock existing at the site where the fence is to be installed. The footing must have resistance to frost heave and, in general, shall conform to the following requirements:
- The depth of footing shall not be less than frost penetration in an average year unless otherwise specified (par. 7.1). Footings for corner posts should be 300 mm deeper than for line posts.
  - There shall be no enlargement of the upper part of the footing. For augered cylindrical footings, the top 250 mm of concrete shall be formed to prevent this condition and to provide a smooth surface to break the frost grip of the surface soil.
  - All materials used in footing construction shall be durable. Concrete shall exhibit a minimum strength of 20 MPa after 28 d. Any embedded steel components shall be hot-dip galvanized in accordance with the requirements of CAN/CSA G164.
- 5.4.1 **Soil Footings (Note 2)** – The procedure followed in constructing soil footings shall require earth-augering the hole, plumbing and setting the post and filling the hole with concrete. Figure 2 shows details and dimensions for typical soil footing designs in average soil conditions, based on the use of galvanized steel pipe conforming to CAN/CGSB-138.2 as fence post material. The dimensions shown shall be treated as minimum dimensions unless a detailed soil investigation has been made and footings designed in accordance with the requirements specified in par. 5.4.

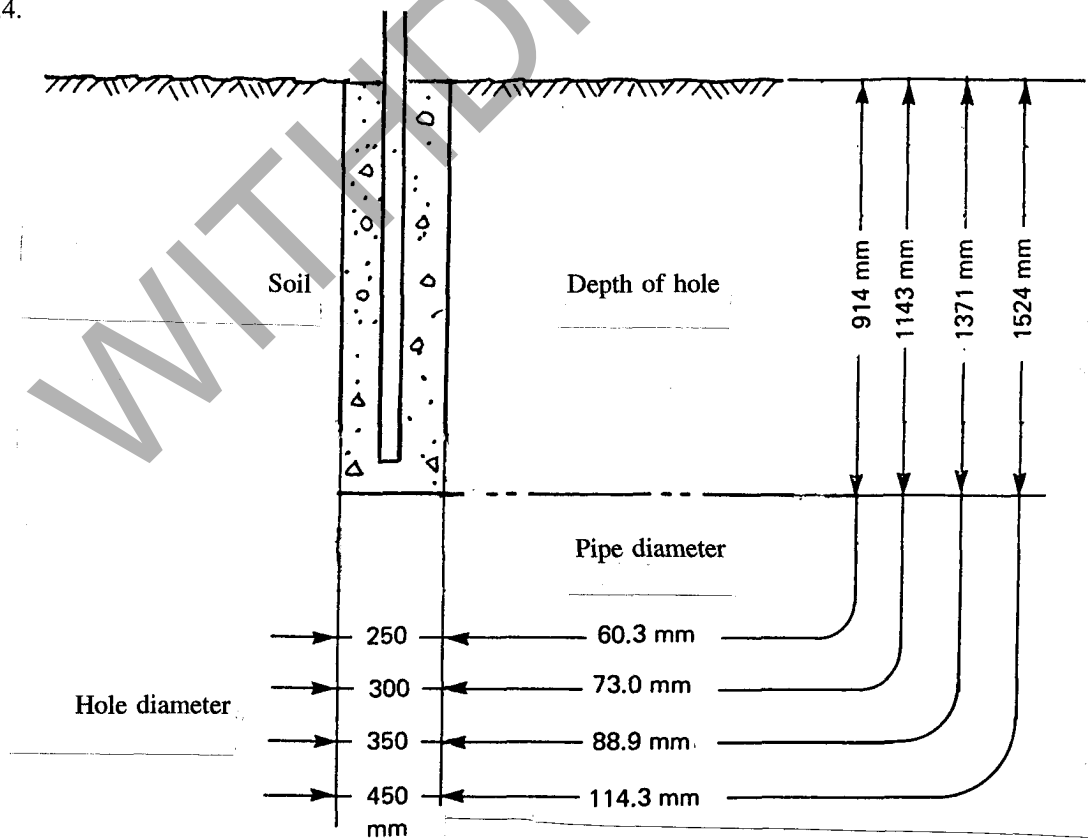
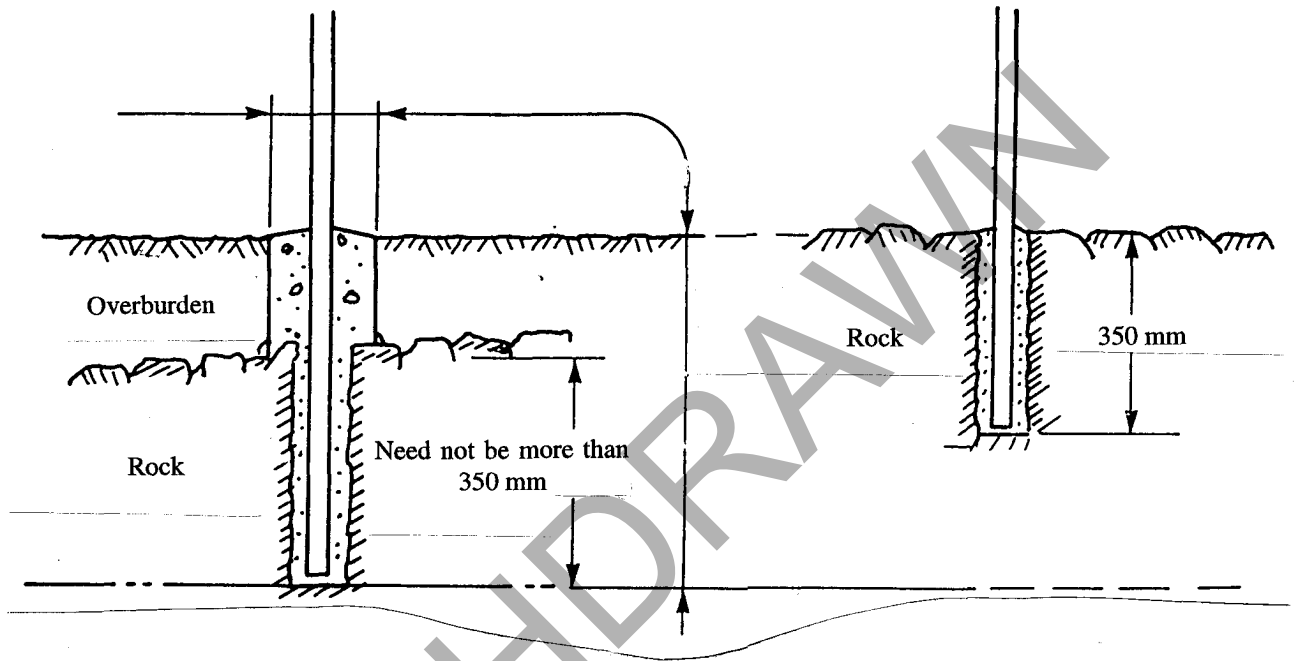


FIGURE 2

Footing in Average Soil Conditions

*Note 2: Footing construction is not suitable where the soil is unstable, or in fill that has not been properly consolidated, or in areas subject to unusually severe frost or frost heaving.*

- 5.4.2 **Solid Rock Footings** – Figure 3 shows a typical design of footing in solid rock where there is overburden. Figure 4 shows the footing in solid rock where there is no overburden. In each case, the hole in the solid rock is approximately 25 mm larger than the diameter of the pipe and, after the post has been set and plumbed, the hole is filled with grout consisting of one part Portland cement and three parts clean, well-graded sand. Other approved grouting materials may be used when specified (par. 7.1).



**FIGURE 3**  
**Footing in Partly Solid Rock**

**FIGURE 4**  
**Footing in Solid Rock**

- 5.5 **Post Setting** – All fence posts shall be plumb and aligned accurately. They may be anchored directly in rock with grout. In such cases and where concrete is not provided between rock level and grade level, the height of fence for design sizing purposes in accordance with CAN/CGSB-138.2 shall be taken as the height above grade plus the distance from grade level to rock level or the overall length of the post, whichever is less. Backfill around footings shall be thoroughly stamped in 150 mm layers. Soil unsuitable for consolidation shall not be used. Where earth augering is used, the hole shall be free of water and any loose soil in the bottom of the footing shall be removed.
- 5.6 **Chain Link Fence** – The chain link fabric shall be installed on the outside of the fence unless requirement for installation on the inside of the fence is specified (par. 7.1). The fabric shall be stretched taut approximately 50 mm above the natural ground or grade level and securely fastened to the fence posts. The fabric shall be tailored for each span of fence and attached independently at all terminal posts. Fastening to line posts shall be with wire ties, metal bands or clips, or other approved methods, attached at maximum 400 mm intervals. The top edge of the fabric shall be fastened to the top rail with wire ties at intervals not exceeding 600 mm. The bottom edge of the fabric shall be fastened to the bottom wire with wire ties at intervals not exceeding 600 mm. Rolls of fabric shall be joined by weaving a single strand of fabric into the ends of the rolls to form a continuous mesh.

## 6. INSPECTION

- 6.1 All parts of the chain link fence installation shall be visually inspected to determine their conformance with the workmanship, design, and dimensional requirements of this standard.

## 7. NOTES

7.1 **Options** – The following options must be specified in the application of this standard:

- a. Requirement for disposal of earth removed from post holes (par. 4.5)
- b. Line and level requirements for fence installation (par. 5.1)
- c. Location of terminal posts (par. 5.2.1)
- d. Grade specification (par. 5.3)
- e. Depth of footing (par. 5.4.3.1)
- f. Grouting materials (par. 5.4.6)
- g. Requirement for installation of chain link fabric on inside of fence (par. 5.6.1).

## 7.2 Sources of Referenced Publications

- 7.2.1 The publications referred to in par. 2.1.1 may be obtained from the Canadian General Standards Board, Sales Centre, Ottawa, Canada K1A 1G6. Telephone (613) 941-8703 or 1-800-665-CGSB (Canada only). Fax (613) 941-8705.
- 7.2.2 The publication referred to in par. 2.1.2 may be obtained from the Canadian Standards Association, Standards Sales, 178 Rexdale Blvd., Etobicoke (Toronto), Ontario M9W 1R3.
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