

FORM 570



GOVERNMENT OF NEWFOUNDLAND AND LABRADOR
Department of Transportation and Works
Highway Design Division

SECTION 570 INSTALLATION OF CONCRETE SIDEWALK

INDEX

570.01 SCOPE

570.02 MATERIALS

570.03 PREPARATION WORK

570.04 FORMWORK

570.05 PLACING THE CONCRETE

570.06 JOINTS

570.07 CURING THE CONCRETE

570.08 TRIMMING

570.09 PROTECTION OF SIDEWALK FROM TRAFFIC AND PEDESTRIANS

570.10 MEASUREMENT FOR PAYMENT

570.11 BASIS OF PAYMENT

570.01 SCOPE

This specification covers the requirements for the construction of concrete sidewalk on a prepared bed of Granular Base Course.

570.02 MATERIALS

Concrete to use in constructing the sidewalk shall conform to the following specific requirements:

CLASS OF CONCRETE	40MPa AT 28 DAYS
AGGREGATE	20mm MAXIMUM SIZE
AIR CONTENT	6% ± 1%
SLUMP	60mm ± 20mm

All concrete shall conform with the requirements of Section 904 "Concrete Structures".

Material for forming isolation joints shall be 12 mm thick bituminous fibre material of depth equal to the depth of the sidewalk.

Material for forming control joints shall be 12 mm thick bituminous fibre material for the set-in- place type, or a bituminous filler material for the groove or saw-cut type.

All materials including formwork, shall be supplied by the Contractor.

570.03 PREPARATION WORK

Should excavation be required prior to placing the bed for the sidewalk, then such work shall be carried out and paid for in accordance with Section 206 "Grading of Cuts".

When fill is required prior to placing the bed for the sidewalk, then this work shall be carried out in accordance with Section 204 "Grading of Fill".

FORM 570

After the site has been graded, as described above, a bed shall be laid composed of Selected Granular Base Course Granular "B". The bed shall be laid to the lines and grades as staked by the Engineer.

At those places where a sidewalk is to be placed behind a drop curb, then the bed shall be graded in such a way that will allow the finished sidewalk to have a configuration as shown in the drawing in Section 1276 "Typical Drop Curb with Sidewalk Layout".

The compacted depth of the bed should not be less than 100 mm. The bed shall be compacted to not less than 95% of the Standard Proctor Density) ASTM D698-78).

570.04 FORMWORK

After the bed has been prepared, suitable forms shall be placed to conform to the lines and grades furnished by the Engineer.

Formwork shall conform to the requirements of Section 907 "Formwork and Falsework".

The forms shall be placed as to provide for a slope of 2% towards the curb, or for such other slopes as may be set by the Engineer.

At those places where a sidewalk is to be placed behind a drop curb, then the forms shall be set so as to obtain a finished concrete surface and joints as shown in the drawing in Section 1276 "Typical Drop Curb with Sidewalk Layout", Section 1278 "Paraplegic Ramps".

570.05 PLACING THE CONCRETE

Sidewalk may be placed in isolation or it may be placed adjacent to a curb.

The thickness of the sidewalk slab shall be not less than 125 mm. The width shall be as staked by the Engineer.

Concrete shall be placed in accordance with the requirements of Section 904 "Concrete Structures".

As soon as the concrete has been placed and consolidated, it shall be struck off true to grade and cross-section, by an oscillating movement of a straight-edge or template inclining towards the curbing with an inclination of 2% or such other slope as may be determined by the Engineer.

The surface shall then be floated with a wooden flat until the mortar flushes to the top, and the entire surface presents a tight and compact appearance. No deviation of greater than 3 mm in a 3 m straight edge shall be tolerated. The divisions between each block shall be marked, rounded, and tooled with proper finishing tools in the neatest possible manner, and to the approval of the Engineer. The jointing tool shall have a radius of 12 mm. Under no circumstances will it be permitted to grout any portion the sidewalk which does not in the opinion of the Engineer present a satisfactory surface. Such portion or portions must be entirely removed and replaced by the Contractor, to the satisfaction of the Engineer, without extra remuneration.

570.06 JOINTS

When the sidewalk is to be placed adjacent to another structure, such as a curb, then the Contractor shall place a full length isolation joint between the back of the structure and the sidewalk. Isolation joints shall be placed at all places where a change in slope on the sidewalk occurs such as adjacent to drop curbs and tapered curbs. See drawing in Section 1276 "Typical Drop Curb with Sidewalk Layout" for an illustration of the location of isolation joints behind a curb and also at places where a change in slope of the sidewalk occurs.

Isolation joints shall also be placed around all water services, lamp posts, hydrants, and utility poles which occur within the limits of the sidewalk. The joint material shall be set so as not to protrude above the surface of the sidewalk.

FORM 570

Control joints shall be constructed adjacent to all transverse control or isolation joints in the curb and gutter. In addition control joints shall be placed at intervals not more than 2 m apart. They shall have a depth of not less than one quarter the thickness of the sidewalk, and extend the full width of the sidewalk. The cast-in -place control joint shall consist of 12 mm wide bituminous filler material of length equal to the width of the sidewalk. Alternative control joints may be cut using a saw or made with a tool before the concrete is completely set. The cuts or groove shall be between 3 mm and 5 mm wide. This groove or saw-cut type of control joint shall be completely filled with a bituminous filler material when the concrete is dry. Immediately prior to the filling, the groove or saw-cut shall be thoroughly cleansed of all dust and particles of foreign matter.

Construction joints shall be built at convenient stopping places in the placement of the concrete. They may be either a butt type joints, or an isolation type joint. They shall be built at the end of each day's construction or when there is a delay in the supply of concrete and cold joints may develop.

570.07 CURING THE CONCRETE

Concrete shall be cured in accordance with the requirements of Section 904 "Concrete Structures".

570.08 TRIMMING

After the removal of the forms and after the initial curing of the concrete, the Contractor shall grade and tamp adjacent other material against the exposed edges of the sidewalk to form shoulders to the sidewalk. These shoulders shall be made trim to slightly proportions.

570.09 PROTECTION OF SIDEWALK FROM TRAFFIC AND PEDESTRIANS

The Contractor shall use barricades, watchmen, or other means, to protect all sidewalk surfaces from harm by traffic or pedestrians, until the Engineer authorizes the sidewalk to be opened to public use.

The Contractor shall at all times prior to the opening to traffic provide suitable bridging as other means of access to adjacent properties.

570.10 MEASUREMENT FOR PAYMENT

This item will be measured by the length and width as laid according to the instructions of the Engineer and such measurements will be computed into square metres, rounded to one decimal place.

570.11 BASIS OF PAYMENT

Payment at the contract price for installation of concrete sidewalk shall be compensation for labour, materials, and equipment-use to supply and place formwork and concrete, to construct joints, to provide and place joint filler, to cure the concrete, to protect the sidewalk from traffic, to provide suitable bridging, to remove the forms, to shoulder the exposed edges of the sidewalk with adjacent other material, and to tamp the O.M. shoulders of the sidewalk.

Selected Granular Base Course Granular "B", for providing the bed shall be paid for in accordance to the Contract Unit Price for Selected Granular Base Course Granular "B", but any additional labour required to place this bed as specified shall be considered compensated for in the contract price for concrete sidewalk.

570.12 Concrete Acceptance and Reduced Payment Criteria on Concrete Located in Concrete Sidewalk

Concrete on a project for sidewalk, and also as defined by its specified strength at 28 days, must have an average tested strength at 28 days equal to or greater than that specified for payment at the bid price.

Concrete for concrete sidewalk having an average strength of less than that specified will be accepted into the job at a reduced payment, provided the difference between specified strength and tested strength

FORM 570

is no greater than 5MPa. If the average of tests in a particular predefined portion of concrete sidewalk is less than that specified by more than 5MPa then that concrete shall be rejected.

When concrete is rejected, those provisions outlined in CSA-A23.1-94 shall be followed to determine whether or not the concrete may remain in the work. Such work will be done at the Contractors cost. Notwithstanding the above, should the concrete remain in the work it will be subject to a reduction, as outlined below, for having a strength less than that specified.

Concrete for concrete sidewalk otherwise acceptable but having an average strength deficiency as tested of less than 5 MPa compared with that specified, will be accepted but the bid price for all concrete in the predefined portion will be reduced according to the following procedure:

For concrete work where the Unit Price Table states the unit to be square metres the adjusted price shall be calculated as follows:

$$\$(\text{Adjusted Concrete Price}) = (\text{Tested Strength} / \text{Specified Strength}) \times \$(\text{Bid Concrete Unit Price})$$

Division of the sidewalk into predefined portions will be done by the Engineer as the concrete placement is carried out. A predefined portion shall generally be established as that concrete placed within one operation.

There will be no bonus payment under the contract when the average strength is in excess of the specified strength.