



GENERAL SPECIFICATION FOR WEIGHING OF MATERIALS

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102.01	SCOPE

This specification covers the requirements for the weighing of materials where payment is based on mass.

102.02 REFERENCES

This specification refers to the following standards, specifications, or publications:

[American National Standards Institute \(ANSI\)](#)

[MH10.8.1-2005](#) American National Standard for Materials Handling - [Automatic Identification and Data Capture Techniques Used in Shipping, Receiving, and Transport Applications](#)~~Bar Code Symbols on Unit Loads and Transport Packages~~ ([ANSI MH10.8M-1983](#))

[Government of Canada Weights and Measures](#)

Government of Canada Weights and Measures Act 1985, (R.S.C., 1985, c. W-6)
Government of Canada Weights and Measures Regulations, 1990 (C.R.C., c. 1605)
[Government of Canada Weights and Measures Specifications Relating to Non-automatic Weighing Devices \(1998\) \(SI/98-81\)](#)

102.03

DEFINITIONS

For the purpose of this specification the following definitions apply:

~~Limits of Error:~~ means the ~~in-Service Limits of Error contained definition~~ in the Government of Canada Weights ~~and & Measures Act~~ Measures Regulations.

~~Weigh Scales, Weigh Scale machines:~~ means any device used in mass measurement and includes temporary and permanent weigh scales that meet the requirements of the Government of Canada Weights and Measures Act, Regulations, and Specifications. ~~that measures mass and has a moving or a moveable part that has or can have an effect on the accuracy of the device.~~

102.04

DESIGN AND SUBMISSION REQUIREMENTS ~~– Testing and Certification of Scales~~

102.04.01

~~Testing Procedures~~ Submission Requirements

102.04.01.01

Certification of Scales

102.04.01.01.01

General

~~The Contractor shall give the Contract Administrator minimum of 48 h in advance of any test to be carried out on the weigh scales.~~

A copy of the Measurement Canada scale certifications, shall be submitted to the Contract Administrator within 5 Days of issuance.

102.04.01.01.02

Sample Weigh Ticket

A sample weigh ticket from each source shall be submitted to the Contract Administrator 2 weeks prior to delivery of the material to its intended destination.

~~102.04.02~~ 101.01.03

~~Portable~~ Temporary Weigh Scales

In addition to the certification of weigh scales and sample weigh ticket requirements, temporary weigh scales shall be tested and certified according to Section 7 of the Measurement Canada Field Inspection Manual - Non Automatic Weighing Devices.

~~A completed copy of the "Heavy Duty Scale Inspection Report", form CCA-1409 of the Consumer and Corporate Affairs Department, the Federal Government of Canada shall be sent to the nearest office of the District Inspector of the Weights and Measures Division in each of the following circumstances:~~

- ~~a. After the initial installation on a contract and before use on that contract.~~
- ~~b) When the scale is moved to a new location.~~
- ~~c) When the scale has undergone adjustments, alterations or repairs to the weighing mechanism.~~
- ~~d) When weighing is resumed after winter suspension a seasonal shutdown period.~~
- ~~e) When digital heads are changed or added.~~

~~A duplicate copy of the above report shall be view in the scale house or trailer before weighing operations commence and at all times thereafter~~

~~102.04.03~~ ~~Permanently Installed Scales~~

~~Permanently installed scales shall show a Government of Canada certificate of inspection.~~

~~Where a rejection tag is on display and the Government of Canada certificate of inspection is shown as not currently in effect, but subsequent alterations, adjustments or repairs have been carried out, verification of this work is required by the Contract Administrator and should either be on display or located on file in the scale house or trailer. Verification shall be documented on a form CCA-1409 including the following minimum requirements:~~

~~a. Date work carried out.~~

~~b. Items required, altered or adjusted.~~

~~c. Name and signature of person performing the work and name of firm or organization responsible for the work.~~

~~102.04.04~~ ~~Conveyor Scales~~

~~Conveyor scales shall be certified by an Inspector of the Government of Canada, Weights and Measures.~~

~~a. After the initial installation on a contract and before use on that contract.~~

~~b. After every relocation on that contract.~~

102.06 EQUIPMENT

102.06.01 General

~~Weigh scales shall be provided that meet the requirements of the Government of Canada Weights and Measures Act, Regulations and Specifications, when items that require measurement for payment by weighing are specified in the Contract Documents. Where the contract includes items that require measurement for payment by weighing, weigh scales shall be provided which meet the requirements of the *Government of Canada Weights and Measures Act and Regulations* for the purposes for which they are to be used.~~

102.06.02 Scale Houses or Trailers

~~Scales shall be installed according to Section 24 and 60 of the Government of Canada Weights and Measures Specifications Relating to Non-Automatic Weighing Devices.~~

~~Each scale house or trailer shall be properly ventilated, clean, dry and weathertight, with a minimum floor space of 4.5 m² and minimum head room of 2.1 m. It shall be equipped with windows that can be opened and closed from inside and that provide the weigher, while seated at the scale or console, an unobstructed view of the vehicle being weighed, the scale, and the approach ramp.~~

~~Each scale house or trailer shall also have the following:~~

- a) A free sliding window or other approved means for passing out weigh tickets.
- b) Screens for doors and windows.
- c) A door located remotely from the scale platform suitable for the occupant's unobstructed exit in case of fire.
- d) Theft and vandal-proof locking devices for doors and windows.
- e) Door key for the weigher.
- f) Table, chair, and bench, so that the weigher can be seated during weighing operations in front of the scale or console.
- g) Heating equipment sufficient to maintain the temperature in the scale house at 20°C.
- h) Adequate lighting to facilitate office work.
- i) Fuel, for heating and lighting.
- j) —Sanitary facilities within 100 m of the scale house or trailer.

102.06.032 Platform-Weigh Scales

~~Platform-Weigh~~ scales shall be of sufficient capacity and dimension ~~so as~~ to fully contain the loaded vehicle or coupled vehicle combination in one setting and ~~so as~~ to permit weighing of the entire load in one operation. Weighing of various axle combinations in more than one operation ~~will shall~~ not be permitted. ~~Scale supports, foundations, and approaches shall be according to the Government of Canada Weights and Measures Specifications Relating to Non-automatic Weighing Devices. shall be adequate to support the largest gross load without any settlement occurring during the weighing operation. Scale pits shall be properly drained. Substantial retaining walls, which may be concrete, shall be built at each end of the scale platform to support the entrance and exit ramps. These retaining walls shall be of sufficient strength and so placed as to support the ramp material without binding on the ends of the platform.~~

~~In order to minimize the effect of impact loads on the scale adjustment and to reduce the effect of vehicle braking and kickback on the scale platform and scale adjustments, the approach ramp shall be constructed conforming to the weights and measures requirements on a straight and level grade at the same elevation as the scale platform. Vehicles shall enter and leave the platform at a maximum speed of 8.0 km/h.~~

~~The scale platform and mechanism shall at all times be maintained clean and free from encumbrances such as gravel, asphalt, snow and ice. The mass indicator mechanism shall be enclosed in the scale house or trailer.~~

The ~~platform-weigh~~ scale shall be equipped with a ~~direct-cable~~ connection to the computer for the purpose of sending mass measurements.

A ~~printing device printer~~ connected by direct ~~cable~~ connection to the computer shall be capable of electronically producing, in black print only, tickets conforming to the requirements specified in ~~this special provision the Mass Measurements subsection.~~

102.06.03 Conveyor Scales

~~In order to ensure that the required operating temperature has been reached, electric power for conveyor scales shall be applied to the weighing system at least 30 min before the commencement of weighing.~~

~~Each conveyor scale shall be provided with a calibration chain certified by the testing agency of the Government of Canada and readily available at all times.~~

~~The mass recording device shall clearly indicate the mass so that weigh tickets can be conveniently completed by the weigher.~~

~~The mass recording device shall be enclosed in the scale house or trailer.~~

~~Span calibration controls shall be sealed during the period of operation and accessible only to the testing personnel.~~

~~102.06.04~~ ~~Scale Houses or Trailers~~

~~Each scale house or trailer shall be properly ventilated and shall be clean, dry and weathertight, with a minimum floor space of 4.5 m² and minimum head room of 2.1 m. They shall be equipped with windows which can be opened and closed from within and from which the weigher, while seated at the scale or console, has an unobstructed view of the vehicle to be weighed, the scale platform or conveyor and the approach ramp.~~

~~Each scale house or trailer shall also have the following:~~

- ~~a) A free sliding window or other approved means for passing out weigh tickets.~~
- ~~b) Screens for doors and windows.~~
- ~~c) A door located remotely from the scale platform suitable for the occupant's unobstructed exit in case of fire.~~
- ~~d) Theft and vandal-proof locking devices for doors and windows.~~
- ~~e) Door key for the weigher.~~
- ~~f) Table, chair and bench, so that the weigher can be seated during weighing operations in front of the scale or console.~~
- ~~g) Heating equipment sufficient to maintain the temperature in the scale house at 20°C.~~
- ~~h) Adequate lighting to facilitate office work.~~
- ~~i) Fuel, for heating and lighting.~~
- ~~j) Sanitary facilities within 100 m of the scale house or trailer.~~

102.07 CONSTRUCTION

102.07.01 Weighing Mass Measurements

102.07.01.01 Mass Measurements Certification of Weigh Scale

Any certificate issued by Measurement Canada, shall be on display or available in the scale house or trailer.

The Contract Administrator shall be notified a minimum of 48 hours in advance of any Measurement Canada certifications to be carried out on the weigh scales.

A copy of any document issued by Measurement Canada shall be submitted to the Contract Administrator within 5 Days of issuance, for each of the following circumstances:

- a) When the scale is moved to a new location.
- b) When the scale has undergone adjustments, alterations or repairs.
- c) When weighing is resumed after a seasonal shutdown period.
- d) When digital heads are changed or added.
- e) When the scale is not within the limits of error.

102.07.01.02 Operation of Weigh Scale

In order to minimize the effect of impact loads on the scale adjustment and to reduce the effect of vehicle braking and kickback on the weigh scale and weigh scale adjustments, the approach ramp shall be constructed conforming to the weights and measures requirements on a straight and level grade at the same elevation as the weigh scale. Vehicles shall enter and leave the weigh scale at a maximum speed of 8.0 km/h.

The weigh scale and mechanism shall be maintained clean and free from encumbrances which can include, but are not limited to the following:

- a) Gravel;
- b) Asphalt;
- c) Manufactured granular/stone;
- d) Recycled asphalt pavement;
- e) Soil;
- f) Mud;
- g) Vegetation;
- h) Snow;
- i) Ice; and
- j) All other debris.

The mass indicator mechanism shall be enclosed in the scale house or trailer.

102.07.01.03 Weigh Scale

~~The Contractor shall provide p~~Personnel to conduct the mass measurements shall be provided.—The mass measurements shall be sent to the printing deviceprinter using a print command on the computer.—Any form of override of the printing process, except total transaction rejection, shall~~will~~ not be allowed.

The system shall be capable of detecting vehicle overloads, and of automatically signalling overload occurrence to the personnel conducting the mass measurements~~system operator~~.

102.07.01.04 Weigh Ticket

Tickets shall be supplied by the Contractor. Bar codes shall be printed directly onto the weigh ticket or onto labels. Bar coded labels shall be affixed to the Owner's copy of the ticket before it leaves the weigh scale building.

The following information shall be displayed as bar code groups printed in a column or left to right configuration:

a) Truck Number

b) Tare Weight

c) Net Weight

d) Ticket Number

~~a) Truck Number~~

~~b) Tare Weight~~

~~c) Net Weight~~

~~d) Ticket Number~~

The words "Truck", "Tare", "Net", and "Ticket" must appear beneath each appropriate bar code group.

Conventional alphanumerics shall be used elsewhere on the ticket to express the exact information contained in the bar codes.

Automated reading failure rates greater than one reading failure in twenty tickets scanned, when and attributable to the density or configuration of the bar codes, are not acceptable. Where such rates of reading failure occur, the Contractor must take corrective action to enhance the bar code symbology to an acceptable level immediately following notification of the problem.

The bar code symbols shall be according conform to the American National Standard for Materials Handling - Automatic Identification and Data Capture Techniques Used in Shipping, Receiving, and Transport Applications Bar Code Symbols on Unit Loads and Transport Packages (ANSI MH10.8.1M-200519983) for three3 of nine9 bar code (Code 39).

The minimum bar code height shall be 6.4 mm or 15 percent of the bar code length, whichever is greater.

In addition to the bar code group information, each weigh ticket shall contain the following:

- a) Licence plate number of unit(s)
- b) Time and date of transaction
- c) Truck Owner
- d) Contract number
- e) Type of material
- f) Source of material
- g) Gross weight
- h) Overload notation
- i) Running total of each material
- j) A place for the checker to sign

The Contractor shall supply the weigh ticket, to the Contract Administrator, once the material has been delivered to its intended destination.

For each Contract, the following reports shall be produced daily:

- a) Truck register, including allowable gross weight for all vehicles;
- b) Truck tare report for all vehicles, including old and new tares, and time recorded;
- c) Summaries for each type of material; and
- d) Summaries for all cancelled loads.

The above reports shall be available~~submitted~~ for to the Owner~~Contract Administrator pick-up~~ at the end of each daily operations or before start-up the following Day.

~~A sample weigh ticket from each source must be supplied to the Owner two weeks prior to delivery of the material.~~

102.07.01.052 Scale Location

Scales for weighing hot mixed asphaltic concrete shall be located at the asphalt mixing plant. ~~—~~ Scales for weighing other materials shall be installed at locations selected by the Contractor.

~~Where~~When material is from a commercial source, the tickets issued at the source are acceptable providing the weighing operation meet the requirements specified in this specification~~conforms to this specification~~.

~~When, in the opinion of~~If the Contract Administrator determines that, waste or loss of material is occurring between the above scale location and the material's intended destination, ~~on the contract occurs~~, the hauling operation may be terminated. Hauling may only resume once a scale is installed sufficiently close to the intended destination to eliminate the potential for waste or loss and is acceptable to the Contract Administrator. until a scale has been provided on a site which is approved by the Contract Administrator and which is close enough to the intended destination to preclude the possibility of waste or loss.

102.07.01.063 Vehicle Tares

102.07.01.063.01 General

Vehicles shall be tared for all weighing operations with the normal hauling complement of driver, accessories, and fuel. A copy shall be provided to the Contract Administrator upon request.

The same scale shall be used for truck taring, and establishing gross vehicle mass, and determining the mass of the material to be delivered, ~~with the exception at~~ commercial sources, where separate tare scales are permitted within the same pit or quarry, provideding that the electronics are interfaced from one scale to the other.

Each truck and each coupled vehicle combination shall have a distinguishing number prominently displayed where it will be readily visible to the weigher.

102.07.01.063.02 Weighing Non-Liquid Materials

When a platform scale is being used on the eContract, the tares of the hauling vehicles shallwill be determined randomly at least once daily, and more frequently if required by the Owner.

102.07.01.063.03 Weighing Liquid Materials

Weighing of liquid materials shall only be carried out on permanently installed scales with an automatic printing devices.

102.07.01.06.04 Access to Weigh Scales

During Contract working hours, access to the weigh scales, scale house, and trailers shall be provided to peace officers, enforcement officers, Measurement Canada personnel, and representatives of the Owner for the purposes of verifying weigh scale certificates, checking the mass of the vehicle loads employed on the Contract, and so that weighing records may be examined.

~~102.07.01.03.04~~ ~~Volumetric Measurement~~

~~Where specified in the Contract as an alternative to weighing, a metering device, conforming to the Government of Canada Weights and Measures Act and Regulations thereto, shall be used in the conversion of liquid volume, to an equivalent mass in tonnes, using the factor specified in the Contract.~~

~~102.07.01.04~~ ~~Checking of Weigh Scales by Enforcement Officers~~

~~During normal contract working hours weigh scales shall be at the disposal of Provincial Police Officers and enforcement officers of the Owner for the purpose of checking the mass of the loads of vehicles employed on this contract.~~

~~Scale houses or trailers shall be accessible during normal contract working hours so that weighing records may be examined.~~

102.07.02 Quality Control

102.07.02.01 Scale Accuracy

All quality control checks shall be carried out on weigh scales to ensure scale accuracy is within the limits of error according to the Government of Canada Specifications Relating to Non-automatic Weighing Devices.

When a scale is to be found in error, the scale is no longer acceptable for use. To make the scale acceptable for use, the Government of Canada Weights and Measures Regulations shall apply.

102.07.02.02 Limits of Error

A scale is considered to be in error when:

- a) It exceeds the limits of error but less than three times the limits of error. In this case, the Owner will accept material measured for payment by the scale for a period of 48 hours from the time the scale exceeded the limits of error; or
- b) It exceeds three times the limits of error. In this case, the Owner shall immediately cease to accept material measured for payment by the scale.

The Contract Administrator shall be immediately notified when the weigh scale is found to be in error.

When a scale is determined to be in error, it shall no longer acceptable for use. To make the scale acceptable for use, the Government of Canada Weights and Measures Regulations shall apply.

102.08 QUALITY ASSURANCE

102.08.01 Scale Accuracy

102.08.01.01 Scale Accuracy Inspection

The Owner reserves the right to check the accuracy of the scales at any time.

~~102.08.01.01 Conveyor Scales~~

~~The Owner reserves the right to check the accuracy or test the Contractor's scales at any time.~~

102.08.01.02 Limits of Error

~~Where-When a scaledevice is found to be in error, as specified in the Limits of Error clause, the scale shall no longer be acceptable for use. in excess of the Limits of Error but less than three times the Limits of Error, the Owner shall accept material measured for payment by the device for a period of 48 hours from the time the Contractor is notified in writing that the error exceeds the Limits of Error.~~

~~When a device is found to be in error, in excess of three times the Limits of Error, the Owner will immediately cease to accept material measured for payment by the device.~~

~~102.08.01.01 Conveyor Scales~~

~~A conveyor scale test shall be conducted a minimum of twice weekly or as required by the Owner. A minimum ten minute run is required for this test.~~

~~The material shall be collected in truck boxes and the total mass for each truck recorded. The material shall be reweighed on a recently verified platform scale, arranged for by the Contractor, and the material mass compared. The maximum allowable variation between the truck scale mass and the conveyor scale mass shall not exceed 0.5%. The test results are to be recorded and available at all times.~~

~~The Contractor shall be responsible for arranging the use of the platform scale.~~

102.10 BASIS OF PAYMENT

102.10.01 Weighing

Payment at the Contract price for the tender items that require the weighing of material shall be included in the Ccontract price of the item(s) for the associated materials or work. ~~to be placed or the work to be done and Payment~~ shall be deemed to include full compensation for all labour, Equipment, ~~and M~~material,

certifications, scale maintenance, and Equipment accuracy required to ~~carry out~~complete the weighing operation. In addition, it includesing any delay or inconvenience ~~due~~resulting from ~~to any~~ checking or testing carried out by, or at the request of, the Owner.