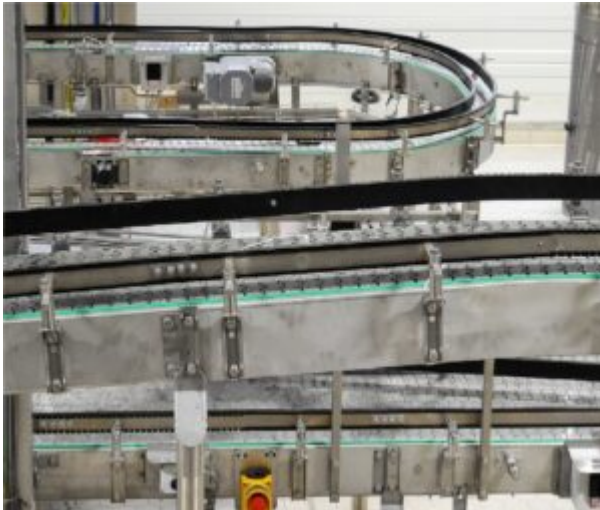


# General Conveyor Requirements



For more information on this topic, see **“MACHINERY & EQUIPMENT: 5 Key Elements of Compliance with Conveyor Requirements”**

## KNOW THE LAWS: General Conveyor Requirements

Here are the general requirements for conveyors under the OHS regulations in each jurisdiction:

FED	<p><u>Canada OHS Regulations:</u> Subject to Sec. 14.51(2), the design, construction, operation and maintenance of each conveyor, cableway or other similar motorized materials handling equipment must meet the standards set out in ASME B20.1-1993, Safety Standard for Conveyors and Related Equipment, dated 1993, as amended from time to time [Sec. 14.19].</p>
AB	<p><u>OHS Code 2009:</u> 1. If an elevated conveyor belt passes over a walkway, an employer must ensure that the conveyor: a. has side walls high enough to prevent materials from falling from it; and b. runs in a trough strong enough to carry the weight of a broken chain, rope, belt or other material that falls from the conveyor [Sec. 372(1)]. 2. A worker must use a walkway to cross over a conveyor belt if the conveyor belt is: a. moving; or b. motionless but hasn't been locked out in accordance with Part 15 [Sec. 372(2)]. 3. A worker must not cross under a moving conveyor belt except at a walkway [Sec. 372(3)]. 4. A worker must cross over a conveyor belt using a bridge that's at least one metre wide and has adequate guardrails [Sec. 373(1)]. 5. Despite the above, a worker may cross over a conveyor belt at a location other than a bridge if the belt is locked out [Sec. 373(2)]. 6. A worker must cross under a moving conveyor belt at a designated place where the worker is protected from moving parts of the conveyor and from material falling from the belt [Sec. 373(3)].</p>
BC	<p><u>OHS Regs.:</u> 1. Unless otherwise permitted by this Regulation, a conveyor must meet the requirements of <i>ANSI Standard ANSI/ASME B20.1-1993, Safety Standards for Conveyors and Related Equipment</i> [Sec. 12.22]. 2. A belt conveyor must have accessible nip points of spools and pulleys guarded to prevent contact by a worker [Sec. 12.23]. 3. The moving parts of a screw-type conveyor must be guarded from contact by a worker [Sec. 12.24(1)]. 4. Each guard on a screw-type conveyor must be secured by fasteners requiring a tool for removal [Sec. 12.24(2)]. 5. If the feed point for a conveyor can't be guarded because of the work process, any workers required to be in the area must have and use suitable devices and tools that prevent the worker from contacting moving parts of the conveyor system [Sec. 12.25]. 6. A conveyor must have guards or sideboards to prevent material from falling from the conveyor into areas occupied by workers if the falling material presents a hazard of impact injury or burn [Sec. 12.27]. 7. A conveyor must have an emergency stopping system unless worker access to the conveyor is prevented by guarding [Sec. 12.28(1)]. 8. The conveyor emergency stopping system must be designed and installed so that the system will activate as a worker falls onto the conveyor, or if a fallen worker on the conveyor moves an arm or leg off to one side of the conveyor [Sec. 12.28(2)]. 9. If a conveyor emergency stopping system uses a pull wire, the system must activate by a pull of the wire in any direction, or by a slack cable condition [Sec. 12.28(3)]. 10. The conveyor emergency stopping system must be designed and installed so that after an emergency stop, manual resetting is required before the conveyor can be restarted [Sec. 12.28(4)]. 11. A conveyor must not be restarted after an emergency stop until inspection has determined it can be operated safely [Sec. 12.28(5)].</p>
MB	<p><u>Workplace Safety &amp; Health Reg.:</u> 1. An employer must ensure that a conveyor has an emergency stopping system that's readily accessible to workers working at the conveyor unless worker access to the conveyor is prevented by guarding or other means [Sec. 16.19(1)]. 2. An employer must ensure that a conveyor emergency stopping system is designed and installed so that manual resetting is required before the conveyor can be restarted after an emergency stop [Sec. 16.19(2)]. 3. An employer must ensure that a conveyor can't be restarted after an emergency stop until an inspection has determined that the conveyor can be operated safely [Sec. 16.19(3)]. 4. When the emergency stopping system uses emergency stop pull-cords, an employer must ensure that: a. the pull-cords are clearly visible and readily accessible at the operator's normal control station and at other appropriate points; and b. the system is activated when: i. the pull-cord is pulled in any direction, ii. the pull-cord breaks, or iii. the failure of a single spring in the pull-cord assembly occurs [Sec. 16.20]. 5. If an elevated conveyor crosses over a place where a worker may pass or work, an employer must ensure that a suitable guarding system is provided to prevent materials on the conveyor from falling on the worker [Sec. 16.21].</p>

General Reg.:

1. An employer must ensure that a conveyor is constructed and installed so that:
  - a. sufficient clearance is provided between the material transported and any fixed or moving object;
  - b. shearing points between moving and stationary parts are avoided; and
  - c. the conveyor isn't able to feed onto a stopped conveyor [Sec. 255(1)].
2. An employer must ensure that a power driven conveyor to which an employee has access is provided with emergency stop devices at:
  - a. loading and unloading stations;
  - b. drive and take up sections; and
  - c. other convenient places along the run of the conveyor [Sec. 255(2)].
3. An employer must ensure that a conveyor installed underground or in any other place where a belt fire of the conveyor may endanger the life of an employee is:
  - a. made of fire resistive material; or
  - b. protected by an adequate automatic fire extinguishing system [Sec. 256(1)].
4. Where it's necessary to maintain a fire separation between parts of a building, an employer must ensure that a spiral chute conveyor is:
  - a. enclosed in a shaft made of fire resistive material with doors at each end of the shaft; or
  - b. provided with automatic fire doors or draft checks when the chute of the conveyor passes through the parts of the building [Sec. 256(2)].
5. An employer must ensure that a conveyor that carries a load up an incline is equipped with an anti-rollback device [Sec. 257].
6. Where employee access to an elevated conveyor is necessary, an employer must ensure that the elevated conveyor has a walkway along its entire length that isn't less than 500 mm wide and is equipped with guardrails [Sec. 258(1)].
7. Where an employee is required to cross over a conveyor, an employer shall ensure that adequate crossing facilities are provided [Sec. 258(2)].
8. Where there's danger of injury to an employee from material falling from a conveyor, an employer must ensure that sheet metal or screen guards are installed under or alongside the conveyor if it isn't entirely enclosed so as to prevent the material from falling [Sec. 259(1)].
9. Where there may be danger of injury to an employee who's in proximity to a belt conveyor, an employer must ensure that the conveyor is provided with adequate safeguards extending one metre from the pulleys and along the sides of the conveyor [Sec. 259(2)].
10. An employer must ensure that an inclined bucket conveyor is enclosed with a solid safeguard that has one or more wire glass windows and that isn't less than 2.1 m in height extending to the full height of the conveyor [Sec. 259(3)].
11. An employer must ensure that a screw conveyor is placed in metal troughs fitted with secured covers of not less than 3 mm thick metal plates in removable sections or of other material that provides equivalent protection [Sec. 259(4)].
12. An employer must ensure that when a screw conveyor is fed from the floor level, adequate safeguards are provided around the opening [Sec. 259(5)].
13. An employer must ensure that an enclosed or pneumatic conveyor used for carrying combustible or flammable material of an explosive nature is provided with an adequate explosion prevention system or with safety relief vents leading as directly as possible to the outside air and not connecting with any chimney pipe, vent or flue used for any other purpose [Sec. 260(1)].
14. Where non-escape of materials being carried on an enclosed conveyor is essential, an employer must ensure that safety relief vent outlets on the conveyor are provided with counter-balanced relief valves [Sec. 260(2)].
15. An employer must ensure that a fan for a pneumatic conveyor is:
  - a. made of fire resistive material;
  - b. secured to a substantial support or foundation;
  - c. located, arranged and guarded so as to afford ready and safe access for maintenance; and
  - d. provided with remote controls in addition to normal operating controls [Sec. 260(3)].
16. Where flammable materials are passed through the fan of a pneumatic conveyor, an employer must ensure that the blades and spiders of the fan are made of non-ferrous material and the casing of the fan is lined with non-ferrous material [Sec. 260(4)].
17. An employer must ensure that intake openings of fans for a pneumatic conveyor are protected with metal screens or gratings [Sec. 260(5)].
18. Where material is fed by hand into a pneumatic conveyor 300 mm in width or larger, an employer must ensure that precautions are taken to prevent an employee from being drawn into the opening [Sec. 260(6)].
19. An employee must not:
  - a. stand on the supporting frame of a conveyor while loading or unloading the conveyor or when clearing blockages on the conveyor unless the conveyor is stopped and locked out, or
  - b. ride on a conveyor [Sec. 261(1)].
20. An employee must remove heavy or bulky articles by hand from a moving conveyor at designated stations only [Sec. 261(2)].

OHS Regs. 2012:

1. Except as otherwise provided in these regulations, a conveyor must meet the requirements of ANSI Standard ANSI/ASME B20.1-1993 "Safety Standards for Conveyors and Related Equipment" [Sec. 100(1)].
2. A conveyor must have guards or sideboards to prevent material from falling from the conveyor into areas occupied by workers where the falling material creates a risk of injury [Sec. 100(2)].
3. A conveyor must have an emergency stopping system except where worker access to the conveyor is prevented by guarding [Sec. 100(3)].
4. Where a conveyor emergency stopping system uses a pull wire, the system must activate by a pull of the wire in any direction, or by a slack cable condition [Sec. 100(4)].
5. A conveyor emergency stopping system must be designed and installed so that after an emergency stop, manual resetting is required before the conveyor can be restarted [Sec. 100(5)].
6. A conveyor must not be restarted after an emergency stop until inspection has determined it can be operated safely [Sec. 100(6)].

OHS General Reg.:

1. An employer must ensure that a conveyor is constructed or installed so that:
  - a. there's adequate clearance between the material transported on the conveyor and a fixed or moving object;
  - b. pinch points that a person may come into contact with are adequately guarded; and
  - c. the conveyor can't feed onto a stopped power-driven conveyor, or that written procedures are established that provide an equivalent level of safety [Sec. 93(2)].
2. Where a person in the workplace has access to a power-driven conveyor, an employer must ensure that emergency stop devices are installed at designated work stations and other appropriate locations along the run of the conveyor to ensure the safety of a person in the workplace [Sec. 93(3)].
3. Where a person is required to cross over a conveyor, an employer must:
  - a. provide an adequate means of crossing the conveyor; and
  - b. identify the crossing point by adequate means [Sec. 94(1)].
4. No person in a workplace shall:
  - a. ride on a conveyor; or
  - b. stand on the supporting frame of a conveyor [Sec. 94(2)].
5. Despite the above, a person may stand on the supporting frame of a conveyor if the conveyor has been locked out [Sec. 94(3)].
6. Where a conveyor is installed at a height that may result in falling objects causing injury to a person, an employer must ensure that:
  - a. it's equipped with guards or other adequate protection to prevent the material from falling from the conveyor to the workplace below; or
  - b. adequate barriers are installed that prevent a person from being under the conveyor while it's running [Sec. 95].
7. Where the rollback of the load or belt creates a hazard to a person at the workplace, an employer must ensure that an anti-rollback device is installed on a conveyor that carries a load up an incline to prevent the belt or the load from rolling back [Sec. 96].

OHS Regs.:

- If an elevated conveyor crosses over an area where a worker could pass or work, an employer must ensure that suitable precautions are taken to prevent materials on the conveyor from falling on the worker [Sec. 123].

General Safety Reg.:

1. The nip-points of belt conveyors must be guarded against contact by a person [Sec. 109].
2. The moving parts of screw-type conveyors must be guarded against contact by a person [Sec. 110].
3. When it's impracticable to guard feed-points, workers must be provided with, and must use, suitable tools or devices to prevent them from coming into contact with moving parts [Sec. 111].
4. A conveyor that operates over an area used by workers must be designed and equipped to prevent material or parts from falling into the area [Sec. 112].
5. No person shall cross a conveyor other than at an established walkway [Sec. 113].
6. Where a conveyor constitutes a hazard to a person, that person must be protected by the installation of guardrails or shall wear a safety-belt or other effective means of restraint [Sec. 114(1)].
7. The protection mentioned above must be provided on conveyors where a person might fall onto a conveyor or where the accessible sides of a conveyor are located less than 91.44 cm (36 in.) above the level of adjacent floors, platforms or walkways [Sec. 114(2)].
8. No person shall be permitted on a conveyor until it has been locked out [Sec. 115].
9. A conveyor that poses a hazard to workers must be equipped with emergency stopping devices, located near the conveyor, or workers must wear safety-belts or other effective means of restraint [Sec. 116(1)].
10. An emergency stopping device referred to above must be so arranged that, after an emergency stop, the conveyor can only be restarted after manually resetting the stopping device [Sec. 116(2)].
11. No conveyor shall be restarted after an emergency stop until it has been inspected to determine that it can be operated safely [Sec. 116(3)].

**\*Note:** The above reflects the current law at the time of publication. The new OHS regulations that took effect in NWT on June 1, 2015 are expected to take effect in NU eventually.

Industrial Establishments Reg.:

1. Portions of conveyors or other moving machinery that aren't visible from the control station, and where starting up may endanger any worker, must be equipped with automatic start-up warning devices [Sec. 33].
2. Guards must be provided beneath conveyors:
  - a. that pass over any worker; or
  - b. from which falling material, including broken conveyor parts, may be a hazard to any worker [Sec. 34].

OHS Regs.:

1. The employer must ensure that a "conveyor" [sic] is so constructed and installed that:
  - a. sufficient clearance is provided between the material transported and fixed or moving object;
  - b. hazardous shearing points between moving and stationary parts are avoided;
  - c. no conveyor can feed onto a stopped conveyor [Sec. 30.16(1)].
2. The employer must ensure that a power driven conveyor to which an employee has access is provided with emergency stop devices at:
  - a. loading and unloading stations;
  - b. drive and take up sections; and
  - c. other convenient places along the run of the conveyor [Sec. 30.16(2)].
3. The employer must ensure that an elevated conveyor, where employee access is necessary, is provided with a walkway along its entire length which isn't less than 450 mm (18 in.) wide and is equipped with guardrails [Sec. 30.17(1)].
4. Where an employee must cross over a conveyor, the employer must ensure that adequate crossing facilities are provided [Sec. 30.17(2)].
5. Where there is danger of injury to an employee from material falling from a conveyor, the employer must ensure that sheet metal or screen guards are installed under a conveyor which isn't entirely enclosed [Sec. 30.18(1)].
6. The employer must ensure that a belt conveyor is provided with adequate guards extending 1,060 mm (40 in.) from the pulleys and along the sides of the conveyor where there's danger of injury to an employee [Sec. 30.18(2)].
7. The employer must ensure that a screw conveyor is placed in metal troughs fitted with secured covers of not less than 3.2 mm thick metal plates in removable sections or other equivalent protection [Sec. 30.18(3)].
8. The employer must ensure that when a screw conveyor is fed from the floor level, adequate safeguards are provided around the opening [Sec. 30.18(4)].
9. Unless the conveyor is stopped and locked out, an employee must not stand on the supporting frames of an open conveyor while loading, unloading or when clearing blockages [Sec. 30.19(1)].
10. An employee must remove heavy or bulky articles by hand from a moving conveyor at designated stations only [Sec. 30.19(2)].

Reg. respecting occupational health and safety:

1. Machine guidance tracks such as those of conveyors, gantries or machines used for transporting persons or things, can only be crossed in the following cases:
  - a. at places protected and so designated;
  - b. according to a procedure ensuring worker safety; and
  - c. at any place where they can be crossed safely, in the case of a slow-moving conveyor [Sec. 20].
2. The carrying elements of conveyors must be designed to safely support the loads that are hauled [Sec. 265].
3. Belts, chains, gears, drive-shafts, drums, sheaves, chain pinions of conveyor installations must be guarded, if these parts are located 2.1 m or less above the floor or the working platform [Sec. 266].
4. Conveyors must preferably not be installed above passages and work stations; otherwise they must be provided with guardrails to prevent the falling of objects [Sec. 267].
5. Subject to Sec. 324, an aerial conveyor must be equipped with a footbridge in compliance with Sec. 31, when there's a danger of falling, and when workers must circulate on the conveyor [Sec. 268].
6. When a conveyor is in operation, it's prohibited to climb onto the moving part or to stand on the conveyor frame. This prohibition doesn't apply to conveyors designed specifically for moving people and used for such purpose, or to slow-moving conveyors to which workers may safely have access [Sec. 269].
7. The emergency stop device of a conveyor to which workers have access comprises several control devices located at loading and unloading piers as well as at other points along the conveyor's itinerary. In addition, these devices have the following features:
  - a. they're easily visible;
  - b. one single action activates them; and
  - c. they're clearly identified.
8. The resetting of the emergency stop device after it's used shall not by itself cause the start-up of the machine, except if the conveyor is moving slowly and workers can have access to it safely [Sec. 270].
9. A bucket conveyor must be:
  - a. covered on all sides and from top to bottom; and
  - b. equipped with doors or removable panels to facilitate inspection, cleaning and repairs. These panels must be equipped with an interlocking device [Sec. 271].

OHS Regs.:

Where an elevated conveyor crosses over a place where a worker may pass or work, an employer, contractor or owner must ensure that suitable precautions are taken to prevent materials on the conveyor from falling on the worker [Sec. 117].

OHS Reg.:

1. Conveyors must meet the requirements of ANSI Standard B20.1-2000, *Safety Standards for Conveyors and Related Equipment*, or other similar standard acceptable to the director [Sec. 7.13(1)].
2. A conveyor must have guards or sideboards to prevent material from falling in areas occupied by workers if the falling material poses a hazard [Sec. 7.13(3)].
3. A worker must not walk in or on a conveyor, or remove a guard or safety device, unless the conveyor has been de-energized and locked out [Sec. 7.13(4)].
4. A conveyor must have an emergency stopping system, unless guarding prevents access to the conveyor and possible contact with the moving parts [Sec. 7.13(5)].
5. A conveyor emergency stopping system as required above must be designed and installed so the system:
  - a. activates if a worker falls onto the conveyor, or if a fallen worker on the conveyor moves an arm or leg off to one side of the conveyor;
  - b. activates by the pull of the wire or cord in any direction or by a slack cable condition if a pull wire or cord is used as an emergency stopping device; and
  - c. reactivates only after the controls have been manually reset after an emergency stopping [Sec. 7.13(6)].
6. Conveyors must only be restarted after an emergency stop if the conveyor has been inspected to determine that it can be operated safely [Sec. 7.13(7)].
7. The moving part of a screw type conveyor shall be properly guarded to prevent worker contact and the guard secured in place with fasteners that require tools to remove [Sec. 7.13(8)].
8. Elevated conveyors must have walkways with guardrails over them if workers must walk across them [Sec. 7.13(9)].
9. Each time a conveyor is started, an audible warning alarm must sound prior to movement of the conveyor [Sec. 7.13(10)].