

# Stacking & Storing Material – Know the Laws of Your Province



**General OHS stacking rules vary by province.**

OHS regulations of each jurisdiction include requirements for stacking, storing and piling of materials at a workplace. Here's a summary of the rules in each part of Canada.

## OHS Materials Storage & Stacking Requirements

### FEDERAL

All materials, goods and things must be stored in workplace so as to ensure that: (1) The maximum safe load carrying capacity of the floor or other supporting structures isn't exceeded; (2) Employees aren't required manually to lift materials, goods or things in a way that would lead to overextension or excessive strain; (3) (a) light in the storage area isn't reduced below the levels required by Part VI of the Regulation; (b) there's no obstruction or encroachment of passageways, traffic lanes or exits; (c) the safe operation of motorized or manual materials handling equipment isn't impeded; (d) the ready access to or the operation of firefighting equipment isn't obstructed; (e) the operation of fixed fire protection equipment isn't interfered with; and (f)

there's no risk to any employee's health or safety (*COHS Regs.*, Sec. 14.50)

## **ALBERTA**

(1) Employer must ensure that pallets used to transport or store materials or containers are loaded, moved, stacked, arranged and stored so as not to endanger workers; (2) Employer must ensure that racks used to store materials or equipment are: (a) designed, constructed and maintained to support the load placed on them, and (b) placed on firm foundations that can support the load; (3) Worker must report any damage to a storage rack to employer as quickly as practicable; and (4) Employer and workers at site must take all reasonable steps to prevent storage racks from being damaged to the extent that their integrity as structures is compromised (*OHS Code*, Sec. 187)

## **BRITISH COLUMBIA**

(1) Material and equipment must be placed, stacked or stored in a stable and secure manner with stacked material or containers stabilized as necessary by interlocking, strapping or other effective means of restraint to protect the safety of workers; (2) Employer must ensure that storage racks that are 2.4 m (8 ft) or taller in height, as measured from the floor to the top of the highest shelf level of the storage rack, or under 2.4 m (8 ft) in height, if the materials and products are loaded on or unloaded off the storage rack by other than manual means, are: (a) capable of safely supporting the items stored on them, (b) designed and constructed in accordance with good engineering practice, and (c) used in accordance with the specifications and instructions of the manufacturer or a professional engineer; (3) Employer must ensure that a qualified person installs and uninstalls the storage rack, in whole or in part, in accordance with the instructions of the

manufacturer or a professional engineer; (4) Employer must ensure that the instructions of the manufacturer or a professional engineer for safely loading, unloading and maintaining the storage rack are readily available in the workplace to workers; (5) Employer must ensure that the rated capacity of the storage rack is clearly posted near the storage rack and readily visible to workers; (6) Employer must ensure that any structural modification, including reconfiguration, of the storage rack is carried out in accordance with the specifications of the manufacturer or a professional engineer; (7) Employer must ensure that a qualified person: (a) inspects the storage rack (i) for wear, corrosion, damage, missing or incompatible parts, and signs of fatigue, and (ii) at regular intervals that will prevent the development of unsafe working conditions, (b) makes a record of the results of each inspection, and (c) provides the record to the employer; and (8) Employer must ensure that: (a) regular maintenance is done on the storage rack, and (b) wear, corrosion, damage, missing or incompatible parts, and signs of fatigue are repaired or replaced in accordance with the specifications and instructions of the manufacturer or a professional engineer (*OHS Reg., Secs. 4.43 ' 4.43.1*)

## **MANITOBA**

(1) Employer must ensure that: (1) All racks and frames used to store materials, equipment, machines or tools are: (a) designed, constructed and maintained to support the load placed on them; and (b) placed on firm foundations that can support the load; (2) Commercially manufactured racks and frames are installed, used and maintained in accordance with the manufacturer's specifications; (3) Racks that exceed a 3:1 height-to-depth ratio are suitably anchored, externally braced or properly secured to a building or structure; (4) All racks and frames used outdoors to store materials, equipment, machines or tools are designed, constructed and maintained to support loads placed on them by wind, wind gusts and other

environmental conditions; (5) Materials are stored on level and stable platforms and are not piled to a height that could endanger the stability of the pile; (6) Bricks or other masonry building materials are not piled more than 2 m high, unless the pile is tapered back to one half-block per tier above the 2-metre level; (7) Structural steel material, including poles, pipe, or bar stock, are stacked in racks or frames, or otherwise suitably restrained to prevent movement; (8) Bagged or loose materials are supported to prevent movement; and (9) If materials are stored outdoors, the effect of wind, wind gusts and other environmental conditions are considered when determining the manner of stacking and storing the material (*WSH Regs.*, Secs. 7.4 and 7.6)

## **NEW BRUNSWICK**

(1) Employer must ensure that materials, machines or equipment aren't stored or located in a place of employment so as to create a hazard to an employee; (2) Employer must establish a code of practice for safely breaking up of clogs in bulk material stored in a bin, hopper or process vessel and ensure a copy is readily available near the bin, hopper or process vessel; (3) Employer must ensure that unconsolidated bulk material that's stockpiled is: (a) regularly inspected for hazardous conditions, and (b) found to be in a safe condition before an employee is allowed to work close to or on top of the pile; (4) Where unconsolidated bulk material is stockpiled and removed via powered mobile equipment, employer must ensure that: (a) the working face of the unconsolidated bulk material is sloped at an angle of repose, or (b) the vertical height of the working face of the unconsolidated bulk material is no more than 1.5 m above the maximum reach of the equipment; (5) Where the face of unconsolidated bulk material that's stockpiled is undermined via use of powered mobile equipment, employer and any employee who undermines the material must each ensure that the undermining: (a) is restricted to the depth of the bucket of the powered mobile equipment, and (b)

is permitted only when the approach by the operator of the powered mobile equipment is at a 90 degree angle to the face of the material; (6) Employer must ensure that piled solid material is: (a) located so as not to interfere with: (i) illumination, (ii) ventilation, (iii) means of access and egress, (iv) passageways or traffic lanes, (v) the operation of machines, (vi) sprinklers and firefighting equipment, or (vii) electrical panels or energized electrical lines; (b) located on a firm foundation strong enough to support the load; (c) located so that the pile is not resting against a partition or wall of a building unless the partition or wall is strong enough to support the load; (d) stacked in a stable manner; and (e) protected from conditions that may damage the structural integrity of any container used to store the material; and (7) Employer must ensure that pipe and bar stock is stacked: (a) on storage racks, or (b) where storage racks aren't practical: (i) in layers resting on wood strips with stop bars fixed on the ends, or (ii) on metal bars with upturned ends, so that the storage or withdrawal of the stock doesn't create a hazard (*OHS Gen. Reg.*, Secs. 15, 55 – 57)

## **NEWFOUNDLAND**

(1) Material and equipment must be placed, stacked or stored in a stable and secure manner that doesn't constitute a hazard to a worker who's in the area or manually stacking the items; and (2) Stacked material or containers must be stabilized where necessary by interlocking, strapping or other effective means of restraint (*OHS Regs.*, Sec. 31)

## **NOVA SCOTIA**

(1) If lifting or moving a thing or person may pose a hazard to the health or safety of any person at the workplace, employer must ensure that: (a) adequate and appropriate lifting and moving equipment is provided; and (b) training and

instruction on the appropriate method of performing the lifting and moving is provided in accordance with the equipment manufacturer's instructions, or, where there are no equipment manufacturer's instructions, in accordance with adequate work methods and lifting and moving techniques; (3) Employer must ensure that piled material is: (a) located so as not to interfere with: (i) illumination, (ii) ventilation, (iii) means of access and exit, (iv) passageways or traffic lanes, (v) the operation of machines, (vi) sprinklers and firefighting equipment, or (vii) electrical panels or energized electrical power lines; (b) located on a firm foundation that is able to support the load; (c) located so that the pile isn't resting against a partition or wall of a building unless it's designed to support the load; (d) arranged in a manner that makes it stable; (e) protected from conditions that may significantly damage the structural integrity of any container used to store the material; and (f) regularly inspected for hazards; (4) If pipes, bar stock or other material or objects may create a hazard by rolling, employer must ensure that the piled material is stacked in a manner to prevent rolling; (5) If unconsolidated bulk material is stockpiled, employer must: (a) ensure it's inspected by a competent person to determine if it's in a safe condition before a person is allowed to work close to or on the pile; and (b) comply with Sections 185 to 189 of the Regs.; (6) If unconsolidated bulk material is stockpiled and removed via powered mobile equipment, employer must ensure that: (a) the working face of the unconsolidated bulk material is sloped at the angle of repose; (b) the vertical height of the working face of the unconsolidated bulk material is no more than 1.5 m above the maximum reach of the equipment; or (c) the work is performed in accordance with written specifications and a written safe work procedure certified by an engineer, following consultation with the workplace JHSC or safety representative, if any; (7) If the face of unconsolidated bulk material is undermined or undercut by means of powered mobile equipment, employer must ensure that the undermining or

undercutting is: (a) restricted to the depth of the bucket of the powered mobile equipment; (b) permitted only when the approach of the powered mobile equipment is at a 90° angle plus or minus 5° to the face of the material; and (c) performed in accordance with written specifications and a written safe work procedure certified by an engineer, following consultation with the JHSC or safety representative, if any; and (8) If unconsolidated material is loaded or unloaded from a vehicle or equipment, employer must ensure that adequate precautions are taken to ensure that the vehicle or equipment doesn't overturn (*Occ. Safety Gen. Regs.*, Secs. 26, 32 -34)

## ONTARIO

(1) Material, articles or things must be lifted, carried or moved in such a way and with such precautions and safeguards, including protective clothing, guards or other precautions to ensure that the lifting, carrying or moving doesn't endanger any worker; (2) Material, articles or things must be transported, placed or stored so that they won't tip, collapse or fall, and can be removed or withdrawn without endangering any worker; (3) Material, articles or things that must be removed from a storage area, pile or rack, must be removed so as not to endanger any worker; (4) Cylindrical objects stored on their side must be piled symmetrically with each unit in the bottom row chocked or wedged to prevent motion; and (5) Barrels, drums or kegs that are piled on their ends must have two parallel planks placed on top of each row before another row is added (*Indust. Ests. Regs.*, Secs. 45 – 48)

## PRINCE EDWARD ISLAND

(1) Employer must ensure that a temporary storage structure is designed and constructed to safely withstand safely the loads imposed by the material to be stored, and not loaded in excess

of safe loading; (2) Employer must ensure that building materials or equipment aren't placed or stored on a permanent or temporary structure so as to exceed the safe loadings of the structure or any part of it; (3) Employer must ensure that no building material is stored, stacked or piled within 1,800 mm (72 in.) of: (a) a floor or roof opening; (b) the open edge of a floor or roof; or (c) an excavation; (4) Employer must ensure that material is piled so that the piles don't interfere with: (a) the adequate distribution of natural or artificial light; (b) the proper operation of machines or other equipment; (c) the unobstructed use of passageways or traffic lanes; (5) Material piles must be placed on firm foundations not liable to settle and shall be subject to weight control, as required by the OHS Division, so as not to overload the floors; (6) Material must not be piled against partitions or walls of buildings when it's known that the partition or wall isn't strong enough to withstand the pressure; (7) Material must not be piled to a height that would render the pile unstable; (8) When piling heavy bagged material: (a) the mouths of the bags must be placed inwards; (b) bags must be cross-tied; and (c) a step back of one bag must be made at the first 1,500 mm (5 ft.) level and at each additional 900 mm (3 ft.) of height; (9) Employer must ensure that masonry units are stacked: (a) on level wooden planks, a platform or other level base; (b) in tiers throughout a pile; (c) so that a vertical face of a pile isn't over 1,800 mm (72 in.) in height; (d) when the pile exceeds 1,800 mm (72 in.) in height, by progressively stepping the pile back from the vertical face; (e) when the pile exceeds 1,800 mm (72 in.), with wood strips between tiers to prevent toppling; and (f) with header units in the pile where necessary to provide stability; and (10) Reinforcing steel and pipe must be stacked in substantially supported and broad racks or frames, unless other provision is made to prevent their movement sideways (*OHS Gen. Regs., Part 43*)



## QUÉBEC

(1) Piling of materials must be performed such that the piles don't obstruct: (a) the proper distribution of natural or artificial lighting; (b) the proper operation of machines or other facilities; (c) traffic in passages, aisles, stairs, elevators and near doors; (d) access to electric panels; (e) access to showers and other emergency equipment; (f) the efficient operation of automatic sprinkler systems or access to firefighting equipment; the distance between the pile and sprinkler must not be less than 450 mm; (2) No material may be piled against building walls or bulkheads unless it's been previously determined that the walls or bulkheads can withstand the lateral pressure; and (3) Material may not be piled to a height that may compromise the stability of the pile (*OHS Regs.*, Secs. 288 to 290)

## SASKATCHEWAN

(1) Employer, contractor or owner must ensure that: (a) no material or equipment is placed, stacked or stored so as to constitute a hazard to workers; and (b) stacked materials or containers are stabilized, if necessary, by interlocking, strapping or other effective means of restraint; and (2) Employer, contractor, owner or supplier must ensure that: (a) pallets are maintained in a manner that will permit safe lifting of the pallets and the pallets' loads by a forklift truck or other device; and (b) racks for the storage of material or equipment are: (i) designed, constructed and maintained to support any load placed on the racks; and (ii) erected on a firm foundation (*OHS Regs.*, Secs. 9-18 to 9.19)

## NORTHWEST TERRITORIES & NUNAVUT

(1) Employer must ensure that: (a) material or equipment isn't placed, stacked or stored so as to constitute a hazard to

workers; and (b) stacked material or containers are stabilized, if necessary, by interlocking, strapping or other effective means of restraint; and (2) Employer or supplier must ensure that: (a) pallets are maintained to permit safe lifting of the pallets and their loads by a forklift or other device; and (b) racks for the storage of material or equipment are: (i) designed, constructed and maintained to support loads placed on the racks, and (ii) erected on a firm foundation (*OHS Regs.*, Secs. 135 to 136)

## YUKON

(1) Materials and equipment must be placed, stacked or stored so as not to constitute a hazard to workers; (2) Stacked containers and materials must be stabilized by interlocking strapping or other effective means of restraint; (3) Pallets must be stacked and maintained in a manner that permits safe lifting of the pallets or pallet loads by a forklift, truck or other device; (4) Storage racks and foundations must be designed, constructed and maintained to support the load placed on them; (5) Material or equipment to be moved by a crane or similar hoisting equipment must not be stored under or near an overhead energized electrical conductor; (6) Blocking, support chains, wire ropes, metal bands and rigging components must be removed from equipment and material in a way that doesn't endanger a worker; (7) Piling of solid material must be: (a) carried out in a manner that doesn't interfere with: (i) illumination, (ii) ventilation, (iii) means of access and egress, (iv) passageways or traffic lanes, (v) the operation of the machines, (vi) sprinklers and firefighting equipment, and (vii) electrical panels or energized electrical lines; (b) located on a firm foundation strong enough to support the load; (c) located so that the pile isn't resting against a partition or wall of a building unless the wall is sound or made strong enough to support the load; (d) protected from conditions that may damage the structural integrity of any container used to store the

material; and (e) piled to a height that doesn't render the stockpile unstable; (8) Pipe or bar stock must be stacked: (a) on storage racks, or (b) where storage racks aren't practicable (i) in layers resting on wood strips with stop bars fixed on the ends, or (ii) on metal bars with upturned ends, so that the storage or withdrawal of the stock doesn't create a hazard; (9) When piling heavy bagged material, the bags must be: (a) placed so the mouths of the bags are facing inward; (b) cross-tied; and (c) piled; (10) Loaded boxes, crates or cartons must be piled on the side having the largest area, unless instruction has been given to the contrary; (11) Piles of boxes, crates or cartons must be cross-tied by suitable means; (12) Loaded cartons must not be piled to a height that will collapse the lowest carton. so a step-back of one bag is made at the first 1.5 m (5 ft.) high level and at each additional 1 m (3 ft.) height; (13) The lowest carton on the pile must be protected against moisture on the ground or floor; (14) Lumber piles must be: (a) piled neatly, (b) supported above ground, (c) stacked with horizontal or slightly inclined layers separated by pieces of material between lifts, and (d) stabilized by means of transversal supports, where a pile is more than 1.2 m (4 ft.) high; (14) Where cylindrical objects, such as empty barrels, drums, large pipes or rolls of paper are: (a) piled on their sides: (i) the pile must be symmetrical and stable, and, (ii) every unit in the bottom row must be carefully wedged, or (b) piled on their ends: (i) the piles must be low, and (ii) two planks must be laid side by side on top of each row before another row is started; and (15) Masonry units must be stacked: Stacking bricks: (a) on planks, a platform, or other level base; (b) in interlocking layers covering the entire area of the stacks; (c) in such a way that the height of the vertical face of a stack doesn't exceed 1.8 m (6 ft.), and (d) when the height of the stockpiling exceeds 1.8 m (6 ft.): Cross-tied piles (i) with wooden transversal supports between the layers to prevent the pile from collapsing, and, (ii) bound together, so as to ensure the stability of the pile (*WSCA Regs., Part 8*)