

**CHAPTER 33**  
**SAFEGUARDS DURING CONSTRUCTION OR DEMOLITION**

**SECTION BC 3301**  
**GENERAL**

**3301.1 Scope.** The provisions of this chapter shall govern the conduct of all construction or demolition operations with regard to the safety of the public and property. For regulations relating to the safety of persons employed in construction or demolition operations, *OSHA Standards* shall apply.

**3301.1.1 Responsibility for safety.** Nothing in this chapter shall be construed to relieve persons engaged in construction or demolition operations from complying with other applicable provisions of law, nor is it intended to alter or diminish any obligation otherwise imposed by law on the owner, construction manager, general contractor, contractors, materialmen, registered design professionals, or other party involved in a construction or demolition project to engage in sound design and engineering, safe construction or demolition practices including but not limited to debris removal, and to act in a reasonable and responsible manner to maintain a safe construction or demolition site.

**3301.1.2 Fire Code.** In addition to the requirements of this chapter, construction or demolition operations shall also be conducted in conformance with the *New York City Fire Code*.

**3301.2 Contractors.** Contractors, construction managers, and subcontractors engaged in building work shall institute and maintain safety measures and provide all equipment or temporary construction necessary to safeguard all persons and property affected by such contractor's operations.

**3301.3 Site Safety Managers, Coordinators and Superintendent of Construction.** A Site Safety Manager or Site Safety Coordinator must be designated and present on the construction or demolition of major buildings as defined by and in accordance with Section 3310. A Superintendent of Construction is required for the construction or demolition of such other buildings identified pursuant to rules promulgated by the commissioner.

**3301.4 Inspection of operations.** Inspection of operations for compliance with the provisions of this chapter may be performed by, or under, the authority of the person superintending the work. Unless otherwise specified by the provisions of this chapter, inspection and test reports relating to operations within the scope of this chapter shall be maintained by the permit holder or the person responsible for the inspection and made available to the department upon request.

**Exception:** Operations specifically required by this code to be inspected only by a registered design professional or special inspector.

**3301.5 Inspection of equipment.** Any equipment or device, except hand tools, that would affect public safety when operated shall be inspected by the person superintending the work or by his or her designated representative before the equipment or device is used on a specific job. Such inspection shall be made, and every defect or unsafe condition shall be corrected before use is permitted.

Any unsafe equipment or device shall immediately be made safe or removed from the site. Periodic inspection of equipment shall be performed during construction or demolition operations, and a record of such inspections shall be kept at the site for the duration of the work and made available to the department upon request.

### **3301.6 Sizes and stresses of materials and equipment.**

**3301.6.1 Sizes.** All sizes and dimensions prescribed in this chapter are minimum requirements. Lumber sizes are nominal or commercial except where stated otherwise.

**3301.6.2 Stresses.** Temporary equipment and constructions shall be designed so that the allowable stress values for the material as specified by this code are not exceeded.

**3301.6.3 Design capacity.** No structure, device, or equipment, whether permanent or temporary, including all partly or fully completed elements or sections of the building, shall be loaded in excess of its design capacity.

**3301.7 Design.** Whenever design is required by the provisions of this chapter, such design shall be executed by, or under, the supervision of a registered design professional who shall cause his or her seal and signature to be affixed to any drawings or specifications that may be required for the work unless specifically indicated by this chapter that the design may be executed by another individual. All such documents shall be kept at the site for inspection by the commissioner for the duration of the job.

**3301.8 Accident reporting.** The department shall be notified promptly, in accordance with the circumstances, of all accidents at construction or demolition sites.

**3301.9 Required signs.** The signs required below in Sections 3301.9.1 to 3301.9.6 shall be constructed of  $\frac{3}{4}$  inch (19 mm) plywood or sheet metal. The letters on the required signs shall be black on white background.

The required signs must be in place 24 hours prior to commencement of any construction or demolition activity and remain visible at the site until all work is completed. The signs shall be no larger than that needed to accommodate the required information in letters no less than 3 inches (76 mm) high.

**Exception.** Where construction or demolition operations are limited to the interior components of the building.

**3301.9.1 New buildings or demolitions.** At sites where a new building or full demolition permit is required, a sign with the statement “TO ANONYMOUSLY REPORT UNSAFE CONDITIONS AT THIS WORK SITE THAT ENDANGER WORKERS, CALL 311” in both English and Spanish shall be posted at a height of no more than 12 feet (3658 mm) above the ground on each perimeter of the site fronting a public thoroughfare.

**3301.9.2 Construction sites.** At a height of no more than 12 feet (3658 mm) above the ground on each perimeter of a construction site fronting a public thoroughfare, a sign shall be erected containing the following information:

1. The name, address and telephone number of the owner of the property;
2. The name, address and telephone number of the general contractor; and
3. The phone number for reporting complaints.

In addition, copies of all permits shall be displayed in a conspicuous location readily visible by the public.

**3301.9.3 Demolition sites.** At a height of no more than 12 feet (3658 mm) above the ground on each perimeter of a demolition site fronting a public thoroughfare, a sign shall be erected containing the following information:

1. The name, address, and telephone number of the owner of the property;
2. The name, address, and telephone number of the demolition contractor; and
3. The phone number for reporting complaints.

In addition, copies of all permits shall be displayed in a conspicuous location readily visible by the public.

**3301.9.4 Major buildings.** At all major building sites as defined in Section 3310, the following information shall be included, in both English and Spanish. The information may be included on the required construction or demolition sign, or on a separate sign placed at a height of no more than 12 feet (3658 mm) above the ground on each perimeter of the construction or demolition site fronting a public thoroughfare:

1. The telephone numbers of the department special units in charge of complaints on major buildings as identified pursuant to department rules; and
2. The telephone number of the department of transportation.

**3301.9.5 Sidewalk sheds.** Following the receipt of a permit to erect a sidewalk shed, the permit holder shall post a readily visible sign on the sidewalk shed. Such sign shall include:

1. The name, address, and telephone number of the permit holder;
2. The permit number; and
3. The expiration date of the permit. .

**3301.9.6 Scaffolds and Hoists.** Following the receipt of a permit to erect or suspend a scaffold, or erect a material or personnel hoist, the permit holder shall post a sign. Such sign shall be plainly visible from the street and include the name, address, telephone number of the permit holder, and permit number. The sign shall also include the expiration date of the permit.

The sign shall either be:

1. Affixed to the scaffold, runback structure, or a protective structure described in Section 3307. When attached to a scaffold or runback structure, the effects of wind on the sign shall be taken into consideration by a qualified individual in accordance with the provisions of Section 3314.3; or
2. Placed at the job site in at least one place readily visible to the public.

**3301.10 Obscured lawful signs.** When a protective structure is constructed in accordance with Section 3307, a temporary sign may be posted on such protective structure when the structure is adjacent to any building and obscures from view a lawful and existing sign. The temporary sign shall comply with the following requirements:

1. The temporary sign shall be securely fastened to the face of the protective structure at a location directly in front of such business storefront;
2. No projecting temporary signs shall be permitted, and all temporary signs shall be limited to a maximum height of 4 feet (1219 mm), and when affixed to a sidewalk shed shall not project above the parapet;
3. No temporary signs shall be permitted on the ends of any protective structure, unless the lawful and existing sign would otherwise be obscured from view by a deck or parapet of a sidewalk shed or bridge; and
4. No temporary sign shall project below the deck of any sidewalk shed.

**SECTION BC 3302**  
**DEFINITIONS**

**3302.1 Definitions.** The following words and terms shall, for the purposes of this chapter, have the following meanings.

**ARCHITECT.** See Chapter 1 of Title 28 of the *Administrative Code*.

**ARTICULATING BOOM CRANE.** A power operated machine for lifting or lowering a load and moving it horizontally that utilizes a boom consisting of a series of folding pin connected structural members, typically manipulated to extend or retract by power from hydraulic cylinders, with or without a hoisting mechanism integral to the machine.

**AXIS OF ROTATION.** The vertical axis around which the crane superstructure rotates.

**AXLE.** The shaft or spindle with which or about which a wheel rotates. On truck and wheel mounted cranes it refers to an automotive type of axle assembly including housing, gearing, differential, bearings and mounting appurtenances.

**BASE (MOUNTING):** The base or carrier on which the rotating superstructure is mounted such as a truck, crawler or platform.

**BEARER (PUTLOG).** A horizontal transverse scaffold member (which may be supported by legs or runners) upon which the scaffold platform rests and joins scaffold uprights, posts, poles, and similar members.

**BOOM.** A section or strut, of which the heel (lower end) is affixed to a base, carriage or support, and whose upper end supports a cable and sheaves where the load is lifted by means of wire rope and a hook.

**BOOM POINT.** The outward end of the top section of the boom, containing the hoist sheave assembly.

**BRAKE.** A device used for retarding or stopping motion by friction or power means.

**BUCKET HOIST.** A power or manually operated suspended bucket contained by guide rails used for raising or lowering material exclusively and controlled from a point outside the conveyance.

**CABLEWAY.** A power operated system for moving loads in a generally horizontal direction in which the loads are conveyed on an overhead cable, track or carriage.

**CERTIFICATE OF APPROVAL.** A certificate issued by the department upon review and approval of the engineering and testing of a specific make and model of hoisting equipment to ensure compliance with the applicable provisions of this code and its referenced standards

**CERTIFICATE OF OPERATION.** A certificate issued by the department annually upon satisfactory inspection of the hoisting equipment holding a certificate of approval to ensure that the equipment continues to be in compliance with this code and its referenced standards.

**CERTIFICATE OF ON-SITE INSPECTION.** A certificate issued by the department based on a site specific approval of the placement, founding and operation of hoisting equipment.

**COMMERCIAL TRUCK MOUNTED CRANE (BOOM TRUCK).** A crane consisting of a rotating superstructure (center post or turntable), boom, operating machinery, and one or more operator's stations mounted on a frame attached to a commercial truck chassis, usually retaining a payload hauling capability whose power source usually powers the crane. Its function is to lift, lower, and swing loads at various radii.

**CLAMSHELL.** A shovel bucket with two jaws which clamp together by their own weight when it is lifted by a closing line.

**COMPETENT PERSON.** One who is capable of identifying existing predictable hazards in the surroundings or conditions that are unsanitary, hazardous or dangerous, and who has authorization to take prompt corrective measures to eliminate such hazards.

**CONSTRUCTION.** The excavation, erection, alteration, and repair of buildings or any component parts, including all operations incidental thereto.

**CORNER SCAFFOLD (ANGLE SCAFFOLD).** A suspended scaffold consisting of an assembly of two or more platforms connected non-linearly and designed and manufactured to fit around a corner or a projecting part of a building.

**COUNTERWEIGHT.** Weight used to supplement the weight of the machine in providing stability for lifting loads.

**CRANE.** A power operated machine for lifting or lowering a load and moving it horizontally which utilizes wire rope and in which the hoisting mechanism is an integral part of the machine. The definition of a crane shall also include articulating boom crane, regardless of whether it has a hoisting mechanism integral to the machine.

**CRAWLER CRANE.** A crane consisting of a rotating superstructure with a power plant, operating machinery, and boom, mounted on a base and equipped with crawler treads for travel. Its function is to lift, lower, and swing loads at various radii.

**DEBRIS NET or NETTING.** A netting of a fine mesh of a size and strength sufficient to catch debris such as falling tools and materials.

**DEMOLITION.** Full or partial demolition.

**DEMOLITION, FULL.** The dismantling, razing, or removal of all of a building or structure, including all operations incidental thereto.

**DEMOLITION, PARTIAL.** The dismantling, razing, or removal of structural members, floors, interior bearing walls, and/or exterior walls or portions thereof, including all operations incidental thereto.

**DERRICK.** An apparatus consisting of a mast or equivalent member held at the end by guys or braces, with or without a boom, for use with a hoisting mechanism and operating ropes, for lifting or lowering a load and moving it horizontally.

**DRUM.** The cylindrical member around which a rope is wound for raising and lowering the load or boom.

**ENGINEER.** See Chapter 1 of Title 28 of the *Administrative Code*.

**FULL DEMOLITION.** See “Demolition, Full.”

**GUARDRAIL SYSTEM (SCAFFOLD).** A vertical barrier as described in Section 3314.8 consisting of, but not limited to, top rails, midrails and posts, erected to prevent falling from a scaffold platform or walkway to lower levels.

**GUY.** A rope used to steady or secure the mast or other members in the desired position.

**HEAVY DUTY SIDEWALK SHED.** A sidewalk shed designed to carry a live load of at least 300 pounds per square foot (1465 kg/m<sup>2</sup>).

**HOISTING MACHINE.** A power operated machine used for lifting or lowering a load, utilizing a drum and a wire rope, excluding elevators. This shall include but not be limited to a crane, derrick, cableway and hydraulic lifting system, and articulating booms.

**HOISTING MECHANISM.** A hoist drum and rope reeving system used for lifting and lowering loads.

**HOISTING EQUIPMENT.** Equipment used to raise and lower personnel and/or material with intermittent motion.

**JIB.** An extension attached to the boom point to provide added boom length for lifting specified loads. The jib may be in line with the boom or offset to various angles in the vertical plane of the boom.

**JUMP (JUMPING).** The process of adding or removing mast or tower sections to equipment that has already been erected.

**LAY.** That distance measured along a wire rope in which one strand makes one complete helical convolution about the core or center.

**LIGHT DUTY SIDEWALK SHED.** A sidewalk shed designed to carry a live load of at least 150 pounds per square foot (732.3 kg/m<sup>2</sup>)

**LOAD (WORKING).** The external load, in pounds (kilograms), applied to the crane or derrick, including the weight of auxiliary load attaching equipment such as lower load blocks, shackles and slings.

**LOAD RATINGS.** Crane and derrick ratings in pounds (kilograms) established by the manufacturer in accordance with standards set forth in rules promulgated by the commissioner.

**LOAD RATING CHART.** A full and complete range of manufacturer's crane load ratings at all stated operating radii, boom angles, work areas, boom lengths and configurations, jib lengths and angles (or offset), as well as alternative ratings for use and nonuse of optional equipment on the crane, such as outriggers and extra counterweights, that affect ratings.

**LOWER LOAD BLOCK.** The assembly of hook or shackle, swivel, sheaves, pins and frame suspended by the hoisting ropes.

**MAST-CLIMBING WORK PLATFORMS.** A powered device consisting of an elevating platform mounted on a base or chassis and mast, that when erected is capable of supporting personnel, material, equipment and tools on a deck or platform that is capable of traveling vertically in infinitely adjustable increments to reach the desired work level.

**MATERIAL HANDLING EQUIPMENT.** A power or manually operated platform, bucket, car or cage that moves horizontally and is mainly used for transporting material during construction, alteration, repair or demolition of a building or structure.

**MATERIAL HOIST (MATERIAL HOISTING EQUIPMENT).** A power or manually operated platform, bucket, car or cage that moves vertically and is used for raising or lowering material exclusively during construction, alteration, repair or demolition of a building or structure, and is controlled from a point outside the conveyance.

**MOBILE CRANE.** A commercial truck mounted crane, crawler crane, wheel mounted crane (multiple control stations), or wheel mounted crane (single control station).

**MOBILE SCAFFOLD.** A powered or unpowered, portable, caster, track or wheel-mounted supported scaffold.

**MULTI-POINT ADJUSTABLE SUSPENSION SCAFFOLD.** A suspension scaffold consisting of a platform(s) that is suspended by more than two ropes from overhead supports and equipped with a means to raise and lower the platform to the desired work levels.

**OUTRIGGER (CRANE).** Extendable or fixed members attached to the mounting base that rest on supports at the outer ends used to support the crane.

**OUTRIGGER (SCAFFOLD).** The structural member of a supported scaffold used to increase the base width of a scaffold in order to provide support for and increased stability of the scaffold.

**OUTRIGGER BEAM (THRUSTOUT).** The structural member of a suspension scaffold or outrigger scaffold that provides support for the scaffold by extending the scaffold point of attachment to a point out and away from the structure or building.

**OUTRIGGER SCAFFOLD.** A supported scaffold consisting of a platform resting on outrigger beams (thrustouts) projecting beyond the wall or face of the building or structure, the inboard ends of which are secured inside the building or structure

**PARTIAL DEMOLITION.** See “Demolition, Partial.”

**PERSONNEL HOIST.** A mechanism and its hoistway, equipped with a car that moves vertically on guide members, used for hoisting or lowering workers or workers and materials for the construction, alteration or demolition of a building structure or other work

**PLATFORM.** A work surface elevated above lower levels. Platforms can be constructed using individual wood planks, fabricated planks, or fabricated decks.

**POWER BUGGIES.** An automotive vehicle designed or used for the transportation of materials on or about construction or demolition sites. It shall not include automobiles, motor trucks, general purpose tractors, or excavating or material handling machinery.

**QUALIFIED PERSON.** A person who by possession of a recognized degree, certificate or professional standing, or who by knowledge, training and experience, has demonstrated his or her ability to solve or resolve problems related to the subject matter, the work or the project.

**REGISTERED DESIGN PROFESSIONAL.** An architect or engineer.

**ROPE.** Wire rope unless otherwise specified.

**RUNBACK STRUCTURE.** A temporary system of hoistway landing runways, vertical supports and horizontal diaphragms designed to bridge between the hoistway and the parent structure and to transmit both vertical and horizontal loads to the supporting structure and/or foundation.

**SCAFFOLD.** Any temporary elevated platform and its supporting structure (including points of anchorage) used for supporting workers or workers and material. Includes supported scaffold, suspension scaffold and mobile scaffold.

**SINGLE-POINT ADJUSTABLE SUSPENSION SCAFFOLD.** A suspension scaffold consisting of a platform suspended by one rope from an overhead support and equipped with means to permit the movement of the platform to desired work levels.

**STANDARD GUARDRAIL SYSTEM (SCAFFOLD).** See Guardrail System (Scaffold).

**STRUCTURAL NET or NETTING.** A system of nets capable of complying with the prototype test described in ANSI A10.11-1989.

**SUPERSTRUCTURE.** The rotating upper frame structure of the machine and the operating machinery mounted thereon.

**SUPPORTED SCAFFOLD.** One or more platforms supported by outrigger beams, brackets, poles, legs, uprights, posts, frames, including pre-fabricated frames that are mechanized but not motorized, or any similar rigid support, including back structures connecting hoistways to buildings, and including structures where sidewalk protection is constructed as an integral part of the apparatus.

**SUSPENSION SCAFFOLD.** One or more platforms suspended by ropes or other means from an overhead structure.

**SUSTAINED WIND.** Winds with a one minute average duration lasting for a one hour period or longer.

**SWING.** Rotation of the superstructure for movement of loads in a horizontal direction about the axis of rotation.

**TOWER.** A vertical structural frame consisting of columns and bracing that are capable of supporting working and dynamic loads and transmitting them to the support(s).

**TOWER CRANE.** A power operated hoisting machine that utilizes a vertical tower with a rotating superstructure and includes a load boom (jib) in order to lift or lower a load and move it horizontally.

**TRANSIT.** The moving or transporting of a crane from one job site to another.

**TRAVEL.** The function of the machine moving from one location to another on a job site.

**TWO-POINT SUSPENSION SCAFFOLD (SWING STAGE).** A suspension scaffold consisting of a platform supported by hangers (stirrups) suspended by two ropes from

overhead supports and equipped with means to permit the raising and lowering of the platform to desired working levels.

**WHEEL MOUNTED CRANE (MULTIPLE CONTROL STATIONS).** A crane consisting of a rotating superstructure, operating machinery, and operator's station and boom, mounted on a crane carrier equipped with axles and rubber-tired wheels for travel, a power source(s), and having separate stations for driving and operating. Its function is to lift, lower, and swing loads at various radii.

**WHEEL MOUNTED CRANE (SINGLE CONTROL STATION).** A crane consisting of a rotating superstructure, operating machinery, and boom, mounted on a crane carrier equipped with axles and rubber-tired wheels for travel, a power source, and having a single control station for driving and operating. Its function is to lift, lower, and swing loads at various radii.

## **SECTION BC 3303** **SAFEGUARDS AND MAINTENANCE OF SITE**

### **3303.1 Equipment.**

**3303.1.1 Machinery.** All exposed, electrically charged, moving or otherwise dangerous parts of machines and construction or demolition equipment shall be located, guarded, shielded, or barricaded so as to prevent contact by the public.

**3303.1.2 Service lines and conduits.** Hose lines, wires, ropes, pipes, chains and conduits shall be located so that they will not constitute a tripping hazard. Where it is necessary to carry such lines across sidewalks, or any public way, they shall either be suspended at least 8 feet (2438 mm) above the walks, or suitable chamfered planks or a pedestrian bridge shall be provided.

**3303.1.3 Contractors sheds.** Contractors sheds and offices located within 30 feet (9144 mm) of new construction or existing buildings shall be made of metal or other noncombustible material. Fire retardant treated wood may be used when protected from the weather.

**3303.1.4 Internal combustion-powered equipment.** In addition to the requirements of this chapter, the use of internal combustion-powered equipment shall also comply with the *New York City Fire Code*.

### **3303.2 Utilities.**

**3303.2.1 Existing services.** The location of all existing utilities and service lines shall be determined and adequate measures taken, or devices provided, to safeguard the public and property before such utilities are disturbed. If any utility is to be removed, relocated, or have its service interrupted, the utility company or city agency affected shall be notified at least 72 hours in advance.

**3303.2.2 Maintaining essential services.** Fire preventive, sanitary, or other facilities that have been provided for the protection of life, health, and property shall be continuously maintained and protected unless authorization is obtained from the agency having jurisdiction to temporarily or permanently disconnect such facility.

**3303.2.3 Electrical work.** All temporary electrical equipment and wiring shall meet the requirements of the *New York City Electrical Code*, and shall be maintained in compliance with such requirements. Portions of permanent electrical installations may be used for temporary operations provided the requirements of the *New York City Electrical Code* are met.

The person superintending the work shall notify the utility company affected at least 72 hours before the commencement of work that may affect a power line, above or below ground.

**3303.2.4 Sanitary facilities.** Sanitary facilities shall be provided during construction, remodeling, or demolition activities in accordance with the *New York City Plumbing Code*.

**3303.3 Obstruction of sidewalks and streets.** No street or sidewalk shall be closed either in whole or in part without a permit from the department of transportation. Such permit shall be displayed at the job site.

The closing or temporary use of streets or sidewalks or the obstruction of any part thereof shall comply with the requirements of the department of transportation.

#### **3303.4 Housekeeping.**

**3303.4.1 Maintenance.** All areas used by the public shall be maintained free from ice, snow, grease, debris, equipment, materials, projections, tools, or other items, substances, or conditions that may constitute a slipping, tripping, or other hazard.

**3303.4.2 Waste dumpsters, debris boxes and skip boxes.** Waste dumpsters, debris boxes and skip boxes shall comply with the following:

1. Waste dumpsters, debris boxes and skip boxes shall be secured by rope, cable or chocking at wheels at the end of the workday in order to prevent movement. Such waste dumpsters, debris boxes and skip boxes shall not be placed at the edge of the building at any time, except when being moved from the floor or building.
2. Containers containing debris or waste shall be covered at the end of the workday and at any time when full to near the rim. Containers need not be

covered when they are not in use or while stored in a fully enclosed space at the end of the workday.

**3303.4.3 Containers.** Sufficient containers of metal, canvas, plastic or other material acceptable to the commissioner shall be available for the storage of all garbage and debris.

**3303.4.4 Debris.** Debris control shall comply with the following:

1. All debris shall be cleaned off floors daily.
2. The roof of the sidewalk shed and the street shall be cleaned of construction or demolition debris daily.
3. A daily inspection shall be made for construction or demolition debris on all floors and if the building is a major building, such inspection shall be noted in the site safety log.

**3303.4.5 Storage of materials during construction or demolition.** Materials stored on the floors of a building during construction or demolition operations shall comply with Sections 3303.4.5.1 and 3303.4.5.2.

**3303.4.5.1 Housekeeping.** Housekeeping shall be conducted as follows:

1. When not being used, materials, equipment and tools that might fall from levels above areas used by the public shall be kept away from edges or openings.
2. When exterior walls are not in place, stored material shall be kept at least 10 feet (3048 mm) back from the perimeter of the building. However, when the floor area is less than 1,000 square feet (304.8 square meters), stored material may be kept not less than 5 feet (1524 mm) back from the perimeter of the building.
3. Material may be stored between 5 and 10 feet (1524 and 3048 mm) back from the perimeter of the building when such material weighs less than 750 pounds (340.2 kg).
4. Material stored on floors of a building or elsewhere on the site shall be secured when not being used.

**3303.4.5.2 Storage of materials at top working floors.** Storage of materials at top working floors shall comply with the following:

1. Material may be stored within 2 feet (610 mm) of the edge of a building provided that such material is stored not more than two stories below the

stripping operation on concrete structures, or the uppermost concrete floor on steel frame structures. Such material shall be secured against accidental movement. Storage of material on all other floors shall conform to Section 3303.4.5.1 and shall be secured when not being used.

2. No material shall hang over the edge of a building unless banded and braced preparatory to relocation at the end of the workday. Where such material is so banded and braced, it may overhang the floor of the stripping operation by not more than one-third of its length so long as it is relocated on the next workday for concrete operations.
3. Where the steel mill and lumber mill are located, material may overhang for relocation until the next workday. No more than two floors shall be designated as steel mills or lumber mills.

**3303.4.6 Storage of combustible material and equipment.** Storage of combustible material and other material and equipment that may present a fire hazard shall comply with the *New York City Fire Code*.

**3303.5 Removal of waste material.** Waste materials shall be removed in a manner that prevents injury or damage to persons, adjoining properties and public rights-of-way.

**3303.5.1 Removal of combustible waste material.** Combustible waste material or combustible debris shall not be permitted to accumulate, and shall be removed from the site at reasonable intervals in accordance with the requirements of the *New York City Fire Code*.

**3303.5.2 Dropping or throwing prohibited.** No material shall be dropped or thrown outside the exterior walls of a building.

**3303.5.3 Clogging.** Precautions shall be taken to prevent concrete or mortar washings, sand, grit, or any other material that would cause clogging from entering a sewer or drain.

**3303.5.4 Air pollution.** The provisions of the *Air Pollution Control Code* shall apply in order to prevent particulate matter from becoming airborne.

**3303.5.2 Chutes.** Chutes used in association with the removal of materials shall comply with Sections 3303.5.2.1, 3305.2.2, 3305.2.3, and 3305.2.4.

**3303.5.2.1 Enclosures.** Chute enclosures shall comply with the following requirements:

1. Material chutes that are at an angle of more than forty-five degrees with the horizontal shall be entirely enclosed on all sides, except for openings at the floor levels for the receiving of materials. Such openings shall not

exceed 48 inches (1219 mm) in height, measured along the wall of the chute, and all openings, except the top opening, shall be closed and secured when not in use.

2. Chutes at an angle of less than forty-five degrees with the horizontal may be open on the upper side.

**3303.5.2.2 Chute construction.** Chute construction shall comply with the following requirements:

1. Every chute used to convey waste material from a building shall be rigidly supported and braced throughout its height. Chutes less than 24 inches (610 mm) in maximum dimension shall be constructed of not less than 1-inch (25.4 mm) (nominal) wood or 1/8 inch (3.18 mm) thick steel. Chutes more than 24 inches (610 mm) in maximum dimensions shall be constructed of not less than 2-inch (51 mm) (nominal) wood or 3/16 inch (4.76 mm) thick steel.
2. Chutes shall be provided with a metal impact plate where material is forced to change direction while falling.
3. A gate shall be provided at the lower end of every chute to control the loading of material into trucks and to close the chute at all other times. Splashboards or baffles shall be erected to prevent materials from rebounding into the street or under the sidewalk shed.
4. A bumper or curb at least 4 inches by 4 inches (102 by 102 mm) in section shall be provided at each chute opening where such opening is level with, or below, the floor or platform. Every space between the chute and the edge of the opening in the floor or platform shall be solidly planked.

**3303.5.2.3 Fire retardant construction.** When used in the following applications, all chutes constructed of combustible material shall be covered on the exterior with corrugated steel sheeting having a minimum thickness of 24 gauge through their entire height. Alternatively, chutes shall be constructed of non-combustible material:

1. Chutes exceeding 75 feet (22 860 mm) in height.
2. Alteration, repair or partial demolition of buildings where the main use or dominant occupancy is in Group I.

**3303.5.2.4 Supports.** All structural supports of material chutes shall be of noncombustible material.

**3303.6 Escape hatches.** Where salamanders or other heating equipment are used to provide temporary heating during the placing of concrete for a floor, an escape hatch shall be provided from the floor where the concrete is being placed and shall extend through at least one story immediately below such floor. The escape hatch shall be located as near to the center of the building as practical.

**3303.6.1 Required ladders and metal shields.** The escape hatch shall be constructed with at least two ladders enclosed in a metal shield. The ladders shall extend from a distance of 3 feet (914 mm) above the floor under construction to at least two stories below, unless such floor is less than two stories above the lowest floor. The metal shield shall enclose the ladders on all sides from the top of the floor where the concrete is being placed to at least the top of the floor next below. The inside dimensions between faces of the shield shall be not less than 3 feet 8 inches (1118 mm).

**3303.6.2 Shield space and decking.** The space between the shield and the perimeter of the opening in the floor under construction and also between the shield and the perimeter of the opening in the floor next below, shall be decked over with 2-inch (51 mm) or heavier planking covered with plywood or sheet metal so as to make the decking smoke tight. At the termination of the ladders, the opening in the floor shall be covered completely with 2-inch (51 mm) planking or other material of equivalent strength.

**3303.7 Fire prevention and fire protection.** Fire fighting equipment, access at the construction or demolition site and the conduct of all construction or demolition operations affecting fire prevention and fire fighting shall comply with the *New York City Fire Code*.

**3303.7.1 Water supply.** No hazardous or combustible material shall be kept at the site unless water supply for fire protection, either temporary or permanent, is available at the site.

**3303.7.2 Fire extinguishers.** Fire extinguishers shall be provided in accordance with the *New York City Fire Code*.

**3303.8 Standpipe systems during construction, alteration or demolition.** During construction, alteration or demolition operations, standpipe systems shall comply with the following:

- 1.** When work reaches a height greater than 75 feet (22 860 mm) in a building for which a standpipe system will be required, a permanent or temporary standpipe meeting the requirements of Section 905 shall be kept in readiness at all times for use by fire fighting personnel. The system shall be a dry system when freezing conditions may be encountered.

2. Existing standpipe systems in structures undergoing demolition shall be maintained as dry standpipes. At the commencement of demolition, the standpipe risers shall be capped above the outlet on the floor immediately below the floor being demolished so as to maintain the standpipe system on all lower floors for Fire Department use. Standpipe hose, nozzles and spanners are not required to be maintained and may be removed at any time. Siamese hose connections shall be kept free from obstruction and shall be marked by a metal sign reading, "Standpipe Siamese Connection" and by a red light at night.
3. The standpipe system may be used for water supply necessary to demolition operations. In freezing weather, such standpipe system shall be completely drained after use to prevent freezing. Existing standpipe systems shall not be utilized to convey compressed air unless the standpipe consists of two or more risers. In such case and upon fire department approval, one of the risers may be used to convey compressed air to any floor or portion of the premises.

**3303.9 Elements to be maintained during remodeling and additions.** Required exits, existing structural elements, fire protection devices and sanitary safeguards shall be maintained at all times during remodeling, alterations, repairs or additions to any building or structure.

**Exception:** When such required elements or devices are being remodeled, altered or repaired and adequate alternate provisions are made.

**3303.10 Repair and alteration operations in occupied buildings.** Where repairs or alterations are conducted in occupied buildings, barricades, signs, drop cloths, and other protective means shall be erected as required to provide reasonable protection for the occupants against hazard and nuisance. In buildings containing occupied dwelling units, all work shall be performed in accordance with a tenant protection plan as required by Chapter 1 of Title 28 of the *Administrative Code*.

**3303.11 Maintenance of exits during construction or demolition.** Required means of egress shall be maintained at all times during construction or demolition.

**Exception:** Where there are approved temporary means of egress systems and facilities.

**3303.11.1 Stairways required.** Where a building has been constructed to a height greater than 50 feet (15 240 mm) or four stories, or where an existing building exceeding 50 feet (15 240 mm) in height is altered or demolished, at least one temporary lighted stairway shall be provided, unless one or more of the permanent stairways are erected or maintained as the construction or demolition progresses.

**3303.11.1.1 Maximum distance.** The maximum distance between the working deck of a building under construction or demolition and the highest floor accessible to a temporary or permanent stair shall be no more than 40 feet or 4

floors. In concrete construction, the working deck is the floor being formed. In steel construction the working deck is the floor where the metal decking and steel components are being placed before concrete is poured.

**3303.12 Temporary elevator or hoist.** Whenever construction or demolition work reaches a height greater than 75 feet (22 860 mm), at least one elevator meeting the requirements of Chapter 30, or a hoist meeting the requirements of Section 3318 shall be kept in readiness at all times for Fire Department use. The maximum distance between the highest accessible floor from a temporary elevator or hoist and the working deck of the building under construction or demolition shall be no more than 75 feet (13 716 mm) or 7 floors. In concrete construction, the working deck is the floor being formed. In steel construction the working deck is the floor where the metal decking and steel components are being placed before concrete is poured.

If the travel of the hoist cannot be increased due to inclement weather, it shall be increased by the end of the next working day.

### **3303.13 Abandoned and discontinued operations.**

**3303.13.1 Fencing.** If any construction or demolition operation is abandoned, discontinued or interrupted, a solid fence meeting the requirements of Section 3307.7 shall be provided to protect the public from potential hazards on the site.

**3303.13.2 Filling and grading.** When permits have expired and when no permits have been issued within three months of the cessation of excavation operations, the lot shall be filled and graded to eliminate all steep slopes, holes, obstructions, or similar sources of hazard.

Fill shall consist of clean, noncombustible material. The final surface shall be graded in such a manner as to drain the lot, eliminate pockets in the fill, and prevent the accumulation of water, without damaging any foundations on the premises or on adjoining property.

**3303.14 Drainage.** No condition shall be created as a result of construction or demolition operations that will interfere with natural surface drainage.

Water courses, drainage ditches, etc., shall not be obstructed by refuse, waste building materials, earth, stones, tree stumps, branches, or other debris that may interfere with surface drainage or cause the impoundment of surface waters.

## **SECTION BC 3304** **EXCAVATION**

**3304.1 Scope.** The provisions of this section shall apply to all excavations, including those made for the purposes of taking earth, sand, gravel, or other material, as well as for

purposes of construction or demolition. During excavation, the provisions of Section 3309 for the protection of adjoining property shall also apply.

**3304.2 Excavation and fill.** Excavation and fill operations shall be conducted in such a manner that life and property are not endangered.

**3304.2.1 Removal of wood.** Stumps and roots shall be removed from the soil to a depth of at least 12 inches (305 mm) below the surface of the ground in the area to be occupied by the building. Wood forms which have been used in placing concrete, if within the ground or between foundation sills and the ground, shall be removed before a building is occupied or used for any purpose. Before completion, loose or casual wood shall be removed from direct contact with the ground under the building.

### **3304.3 Notification.**

**3304.3.1 Notification of the department.** No earthwork within the property line shall commence unless the permit holder notifies the department, via phone or electronically, at least 24 hours, but no more than 48 hours prior to the commencement of such work. The notification shall state the date that such earthwork is to commence. Should the notification date fall on a weekend or official holiday, the permit holder shall notify the department on the last business day before the commencement date.

In the event that the earthwork does not begin on the date provided in the notification to the department, the permit holder shall notify the department of its cancellation not more than 24 hours prior to but no later than the date for which the earthwork was scheduled. Should the cancellation date fall on a weekend or an official holiday, the permit holder shall notify the department on the next business day after the intended commencement date. The permit holder shall notify the department of a new intended commencement date pursuant to the provisions above.

The commissioner may issue a stop work order if there is a failure to provide notice as required in this section and if the work is found to violate any of the provisions of this code, the *Zoning Resolution*, or other applicable laws or rules. Upon the issuance of such stop work order, the work shall be stopped for a minimum of three business days to enable the department to take any other appropriate action to ensure that the earthwork is being performed in a safe manner. The earthwork shall not recommence until the stop work order has been lifted.

#### **Exceptions:**

1. Hand excavation work that extends 5 feet (1524 mm) or less below the grade existing at the time of earthwork commencement and is 2 feet (610 mm) or more from an existing foundation. This exception shall not apply to any hand excavation work performed anywhere in existing or demolished basements or cellars that adjoin existing foundations.

2. Excavations for geotechnical observation that do not exceed 10 feet (3048 mm) in length, width or diameter and that are excavated under the supervision of a registered design professional.
3. Work on cemetery grounds for burials.
4. Emergency work performed by the Department of Housing Preservation and Development (HPD) or other agency as directed by the commissioner or work on unsafe buildings performed by HPD or other agency pursuant to a precept.

**3304.3.2 Notification of adjacent building owners.** When an excavation to a depth of 5 to 10 feet (1524 mm to 3048 mm) is to be made within 10 feet (3048 mm) of an adjacent building, or when any excavation over 10 feet (3048 mm) is to be made anywhere on the site, the person causing an excavation to be made shall provide written notice to the owners of the adjacent building or buildings not less than 10 days prior to the scheduled starting date of the excavation. The written notice shall provide a description of the work to be performed, the timeframe and schedule, and contact information of the person causing the excavation and of the department.

**3304.3.3 Underground construction operations.** Whenever excavation or drilling, for any purpose, to a depth greater than 100 feet (30 480 mm) is proposed in a block that has any part of its boundary falling within 500 feet (152 m) horizontal distance from the centerline of any water tunnel as measured at or near the surface (the "Corridor"), or whenever excavation of any depth is proposed within 200 feet (60 960 mm) of any subway, an approval and permit shall be obtained from the New York City Department of Environmental Protection and from the New York City Transit Authority, respectively. The owner of the premises or the contractor shall notify the New York City Department of Environmental Protection or the New York City Transit Authority prior to commencement of any such activity. The issuance of any permit or approval by the department shall not relieve the applicant of the obligation to comply with any approval or permitting requirements of the New York City Department of Environmental Protection or the New York City Transit Authority.

**3304.3.3.1 Excavations requiring permit from the New York State Department of Environmental Conservation.** Whenever drilling or excavation is planned deeper than five hundred (500) feet below grade, a permit may be required from the New York State Department of Environmental Conservation. The issuance of any permit or approval by the department shall not relieve the applicant of the obligation to comply with any approval or permitting requirements of the New York State Department of Environmental Conservation. Whenever any drilling for borings or geothermal wells is planned, the owner of the premises or the contractor shall notify the New York State Department of Environmental Conservation prior to commencement of such activity to determine if a permit is necessary.

### **3304.4 Protection of sides of excavations.**

**3304.4.1 Shoring and bracing and sheeting.** The sides of all excavations, including related or resulting embankments, that are 5 feet (1524 mm) or greater in depth or height measured from the level of the adjacent ground surface to the deepest point of the excavation, shall be protected and maintained by shoring, bracing, sheeting, sheet piling, or by other retaining structures as may be necessary to prevent the sides of the excavation from caving in before permanent supports are provided. Such methods of protection shall be subject to special inspection in accordance with the provisions of Chapter 17.

Alternatively, excavation sides may be sloped not steeper than 45 degrees or stepped so that the average slope is not steeper than 45 degrees with no step more than 5 feet (1524 mm) high, provided such slope does not endanger any structure, including subsurface structures. Deviation from the foregoing limitations for cut slopes shall be permitted only upon the completion of a soil investigation report acceptable to the commissioner.

**Exception: Rock cut excavation.**

**3304.4.1.1 Sheet piling and bracing.** Sheet piling and bracing used in trench excavations shall be at least equivalent in strength to that specified in Tables 3304.4.1.1(1) and 3304.4.1.1(2).

**TABLE 3304.4.1.1 (1)**  
**MINIMUM SIZES OF TIMBER BRACING AND TIMBER SHEET PILING FOR**  
**TRENCHES FOUR FEET WIDE OR LESS<sup>a</sup>**

Depth of Trench, (ft.)	Sheet Piling		Stringers		Cross Bracing	
	Size (in.)	Horizontal Spacing (ft.)	Size (in.)	Vertical Spacing (ft.)	Size (in.)	Horizontal Spacing (ft.)
Hard and solid soil						
5-10.....	2 x 6	6	2 x 6	6	2 x 6	6
10-15.....	2 x 6	4	2 x 6	6	2 x 6	4
More than 15...	2 x 6	tight	4 x 8	4	4 x 8	6
Soil likely to crack or crumble						
5-10.....	2 x 6	3	2 x 6	5	2 x 6	5
10-15.....	2 x 6	2	2 x 6	4	2 x 6	4
More than 15...	2 x 6	tight	4 x 10	4	4 x 10	6
Soft, sandy filled-in loose soil						
5-10.....	2 x 6	tight	4 x 6	6	4 x 6	6
10-15.....	2 x 6	tight	4 x 6	5	4 x 6	6
More than 15...	2 x 6	tight	4 x 12	4	4 x 12	6
Where hydrostatic pressure exists						
To 10.....	2 x 6	tight	6 x 8	4	6 x 8	6
More than 10...	3 x 6	tight	6 x 10	4	6 x 10	6

**Note for Table 3304.4.1 (1):** <sup>a</sup> Steel sheet piling and bracing of equivalent strength may be substituted for wood sheet piling and timber bracing.

**Note:** For SI: 1 inch = 25.4 mm

**TABLE 3304.4.1.1 (2)**  
**MINIMUM SIZES OF TIMBER BRACING AND TIMBER SHEET PILING FOR**  
**TRENCHES FOUR TO EIGHT FEET WIDE<sup>a</sup>**

Depth of trench, (ft.)	Sheet Piling		Stringers		Cross Bracing	
	Size (in.)	Horizontal Spacing (ft.)	Size (in.)	Vertical Spacing (ft.)	Size (in.)	Horizontal Spacing (ft.)
Hard and solid soil						
5-10.....	2 X 6	6	4 X 6	4	4 X 6	6
10-20.....	2 X 6	tight	6 X 6	4	6 X 6	6
More than 20...	2 X 6	tight	6 X 8	4	6 X 8	6
Soil likely to crack or crumble						
5-10.....	2 X 6	3	4 X 6	4	4 X 6	6
10-20.....	2 X 6	tight	6 X 6	4	6 X 6	6
More than 20...	2 X 6	tight	6 X 8	4	6 X 8	6
Soft, sandy filled-in loose soil						
5-10.....	2 X 6	tight	4 X 6	4	4 X 6	6
10-20.....	2 X 6	tight	6 X 6	4	6 X 6	6
More than 20...	2 X 6	tight	6 X 8	4	6 X 8	6
Where hydrostatic pressure exists						
To 10.....	2 X 6	tight	6 X 8	4	6 X 8	6
More than 10...	3 X 6	tight	6 X 10	4	6 X 10	6

**Note for Table 3304.4.1 (2):** <sup>a</sup> Steel sheet piling and bracing of equivalent strength may be substituted for wood sheet piling and timber bracing.

**Note:** For SI: 1 inch = 25.4 mm

**3304.4.2 Rainstorms.** All sides or slopes of excavations or embankments shall be inspected after rainstorms, or any other hazard-increasing event, and safe conditions shall be restored.

**3304.4.3 Fence.** Every site with an excavation shall be enclosed with a fence that meets the requirements of Section 3307.7.

**3304.4.4 Guardrail.** A standard guardrail that meets the requirements of Section 3307.8, or a solid enclosure at least 3 feet 6 inches (1067 mm) high shall be provided along the open sides of excavations, except that such standard guardrail or solid enclosure may be omitted from a side or sides when access to the adjoining area is precluded, or where side slopes are one vertical to three horizontal or flatter.

**3304.4.5 Placing of excavation equipment and excavated material.** Excavated material and superimposed loads such as equipment and trucks shall not be placed closer to the edge of the excavation than a distance equal to one and one-half times the depth of such excavation, unless the excavation is in rock or unless the sides of the excavation have been sloped or sheet piling (or sheeted) and shored to withstand the lateral force imposed by such superimposed loads. When sheet piling is used, it shall extend at least 6 inches (152 mm) above the natural level of the ground. In the case of open excavations with side slopes, the edge of excavation shall be taken as the toe of the slope.

**3304.4.6 Mechanical diggers.** Where trenching more than 5 feet (1524 mm) in depth is done by a mechanical digger, the required protection shall follow the boom as closely as practical.

**3304.5 Underpinning requirements.** The requirements of Section 1814 shall apply.

**3304.6 Retaining walls.** The requirements of Section 1806 shall apply.

**3304.7 Access.** Every excavation shall be provided with a safe means of ingress and egress that is kept available at all times.

**3304.8 Drainage.** All excavations shall be drained and the drainage maintained as long as the excavation continues or remains. Where necessary, pumping shall be used, provided proper permits are obtained from the New York City Department of Environmental Protection.

## **SECTION BC 3305** **ERECTION OPERATIONS**

**3305.1 Protection of pedestrians and adjoining property.** During erection operations, the applicable provisions of Sections 3307, 3308, and 3309 shall apply.

**3305.2 Structural steel assembly.** The requirements of Section 2205.6.4 shall apply.

**3305.3 Concrete formwork.** The requirements of Section 1906 shall apply.

**SECTION BC 3306**  
**DEMOLITION**

**3306.1 Scope.** All full demolition and partial demolition operations shall be performed in accordance with the requirements of this section.

**3306.2 Protection of pedestrians and adjoining property.** Demolition operations shall not commence until the applicable pedestrian and adjoining property protection is in place as required by Sections 3307, 3308, and 3309.

**3306.2.1 Safety zone.** A safety zone approved by the commissioner shall be provided around the demolition area. Fences that meet the requirements of Section 3307.7 shall be erected to prevent persons other than workers from entering such safety zone.

**Exception.** Partial demolition operations limited to the interior components of the building where mechanical demolition equipment, other than handheld devices, are not used.

**3306.3 Notification.** The permit holder shall notify the department and adjoining building owners prior to the commencement of full and partial demolition operations in accordance with Sections 3306.3.1 and 3306.3.2.

**3306.3.1 Notification of the department.** The permit holder shall notify the department via phone or electronically, at least 24 hours, but no more than 48 hours prior to the commencement of such work.

**3306.3.2 Notification of adjoining property owners.** Adjoining property owners shall be notified of upcoming demolition operations in writing not less than 10 days prior to the scheduled starting date of the demolition. The written notice shall provide a description of the work to be performed, the timeframe and schedule, and contact information of the person causing the demolition and of the department.

**Exception.** Partial demolition operations limited to the interior components of the building where mechanical demolition equipment, other than handheld devices, are not used.

**3306.4 Mechanical demolition.** Where mechanical demolition equipment, other than handheld devices, is to be used in the full or partial demolition of a building or is to be used to remove debris or move material, approval of the commissioner for the use of the mechanical demolition equipment must be obtained prior to the commencement of demolition operations.

Unless permitted by the commissioner, mechanical demolition equipment shall not be used where a building or portion thereof occupied by one or more persons is located within the safety zone.

**3306.5 Submittal documents for demolition.** Where mechanical demolition equipment, other than handheld devices, are to be used in the full or partial demolition of a building from within the building, or are to be used within the building to remove debris or move material, documents prepared by or under the supervision of an engineer must be submitted and approved by the department before demolition work begins. The documents shall be professionally certified by the engineer. The approved set of documents shall be kept at the site at all times and be accessible for inspection. At a minimum, the demolition documents shall include the following:

1. Plans, sections, and details of the building or portion thereof to be demolished clearly showing the extent, sequence, and means and methods of demolition.
2. Listing and description of all proposed demolition equipment, other than hand held devices, to be used in demolition, including the scope of equipment work and positioning of equipment on the existing structure. Description of equipment shall include calculations showing adequacy of the existing structure to support loads imposed by such equipment. If more than one piece of demolition equipment is proposed to be used at the same time, the effect of the simultaneous loads imposed on the existing structure shall be described and investigated.
3. Bracing and shoring necessary to support all demolition operations and equipment through all sequences of full or partial demolition.
4. Description of compliance with the provisions of Section 3306.9.

**3306.5.1 Partial Demolition operations.** The registered design professional of record shall submit details of the partial demolition operation as part of the construction documents filed for alteration of the building provided:

1. Where mechanical demolition equipment, other than handheld devices, is used, construction documents shall show compliance with all the requirements of Section 3306.5.
2. Where mechanical demolition equipment is not used, the registered design professional shall show at a minimum:
  - 2.1. Plans, sections, and details of the building or portion thereof to be demolished clearly showing the extent, sequence, and means and methods of demolition.
  - 2.2. Bracing and shoring necessary to support all demolition operations through all sequences of the partial demolition.

2.3. Description of compliance with the applicable provisions of Section 3306.9.

**3306.6 Special inspection.** Where mechanical demolition equipment, other than handheld devices, is to be used in the full or partial demolition of a building from within the building, or is to be used within the building to remove debris or move material, such demolition operation shall be subject to special inspection in accordance with the provisions of Chapter 17. The special inspector shall visit the site a minimum of three times: before demolition operations start, during demolition, and at the conclusion of demolition.

**3306.7 Demolition of weakened structures.** Where a structure to be demolished has been partially wrecked or weakened by fire, flood, explosion, age, or other causes, it shall be shored or braced to the extent necessary to permit orderly full demolition or partial demolition without collapse. The necessary measures to ensure a safe demolition shall be determined by the owner's registered design professional and shall be approved by the commissioner.

**3306.8 Full and partial demolition of structural steel, reinforced concrete, and heavy timber construction.** Steel, reinforced concrete and heavy timber construction shall be demolished column length-by-column length and tier-by-tier. Any structural member that is being dismembered shall not support any load other than its own weight, and such member shall be chained or lashed in place to prevent any uncontrolled swing or drop.

Structural members shall not be thrown or dropped from the building, but shall be slowly and carefully lowered by hoists equipped with adequate brakes and non-reversing safety devices.

**3306.9 Full demolition and partial demolition operations.** In addition to the requirements of Article 105 of chapter 1 of Title 28 of the *Administrative Code*, the following requirements shall apply to all full demolition and partial demolition operations.

**3306.9.1 Utilities and service lines.** Service utility connections shall be discontinued and capped, and certifications to that effect issued by the representative utility company shall be filed with the department.

**Exception.** Partial demolition operations.

**3306.9.2 Party wall exits, fire exits.** No party wall balcony or horizontal fire exit shall be demolished, removed, or obstructed in any manner that would destroy the full effectiveness of such fire exit as a means of egress, unless a substitute means of egress meeting the requirements of Chapter 10 has been provided.

**3306.9.3 Dust.** Dust producing operations shall be wetted down to the extent necessary to control the dust.

**3306.9.4 Water accumulation.** Provision shall be made to prevent the accumulation of water or water damage to any foundations on the premises or to the adjoining property.

**3306.9.5 Temporary elevators and standpipe systems.** See Sections 3303.8 and 3303.12 for requirements.

**3306.9.6 Sprinkler systems.** When existing sprinkler systems with siamese hose connections are present in structures undergoing full or partial demolition, such systems shall be maintained as a non-automatic sprinkler system. When demolition starts, the sprinkler risers shall be capped immediately below the floor being demolished so as to maintain the sprinkler system on all lower floors for Fire Department use. Siamese hose connections shall be kept free from obstruction and shall be marked by a metal sign reading "Sprinkler Siamese Connection" and by a red light at night.

**3306.9.7 Use of explosives.** The use of explosives in demolition operations shall conform to the requirements and limitations imposed by the *New York City Fire Code* and Section 3312.

**3306.9.8 Hazards to be removed.** Hazards shall be removed in accordance with the following requirements:

1. Before commencement of actual demolition, all glass in windows, doors, skylights, and fixtures shall be removed.
2. In any structure more than 25 feet high (7620 mm), any window or other exterior wall opening that is within 20 feet (6096 mm) of a floor opening used for the passage of debris from floors above shall be solidly boarded up or otherwise substantially covered, unless such window or opening is so located as to preclude the possibility of any person being injured by material that may fall from such window or opening.
3. Before demolition is started, the cellar and all floors shall be thoroughly cleaned of combustible materials and debris. All fixtures and equipment that would cause voids in the fill shall be removed. If the cellar is to be filled to grade, the first floor construction shall be removed and the existing cellar floor shall be broken up to the extent necessary to provide ground drainage and prevent accumulation of water. If the cellar is not to be filled, positive cellar drainage shall be provided.
4. All asbestos shall be removed and certifications to that effect shall be filed with the department and the Department of Environmental Protection.

**3306.9.9 Walls.** Demolition of walls and partitions shall comply with the following requirements:

1. Demolition of walls and partitions shall proceed in a systematic manner, and all work above each tier of floor beams shall be completed before any of the supporting structural members are disturbed.
2. Sections of masonry walls shall not be loosened or permitted to fall in such masses as to affect the carrying capacity of floors or the stability of structural supports.
3. No wall, chimney, or other structural part shall be left in such condition that it may collapse or be toppled by wind, vibration or any other cause.
4. No section of wall with a height more than 22 times its thickness shall be permitted to stand without bracing designed by a registered design professional.
5. Where brick or masonry chimneys cannot be safely toppled or dropped, all materials shall be dropped down on the inside of such chimneys.
6. All enclosed vertical shafts and stairs shall be maintained enclosed at all floors except the uppermost floor being demolished, and all work on the uppermost floor shall be completed before stair and shaft enclosures on the floor below are disturbed. All hand rails and banisters shall be left in place until actual demolition of such floor is in progress.

**3306.9.10 Floors.** No bearing partition shall be removed from any floor until the floor framing system on the floor above has been removed and lowered. All header beams and headers at stair openings and chimneys shall be carefully examined, and where required shall be shored from the cellar floor through successive floors. All operations shall be continually inspected as the work progresses to detect any hazards that may develop.

**3306.9.11 Storage of material.** Material shall not be stored on catch platforms, working platforms, floors, or stairways of any structure, except that any one floor of a building to be demolished may be used for the temporary storage of material when such floor can be evaluated by an engineer and proven to be of adequate strength to support one and one-half times the load to be superimposed. Such evaluation by the engineer shall be maintained by the permit holder and made available to the department upon request.

Storage spaces shall not interfere with access to any stairway or passageway, and suitable barricades shall be provided so as to prevent material from sliding or rebounding into any space accessible to the public. All material shall be safely piled

in such storage locations in a manner that will not overload any part of the structure or create any hazard.

**3306.9.11.1 Examination.** Before any material is stored on any floor, the existing flooring adjacent to bearing walls, shear walls, beams and columns shall be removed and the connections of the floor framing system to the bearing walls, shear walls, beams and columns shall be carefully examined by a competent person to ascertain their condition and adequacy to support such material. If the connections are found to be in poor condition or inadequate to support the stored material, no material shall be deposited on the floor until these connections are shored from the cellar floor through each successive floor or otherwise strengthened to safely support such material.

**3306.9.11.2 Removal of floor slabs for storage.** In buildings of noncombustible construction, floor slabs to an elevation of not more than 25 feet (7620 mm) above the legally established curb level may be removed to provide temporary storage for debris, provided that:

1. The stored debris is piled with sufficient uniformity to prevent lateral displacement of interior walls or columns as determined by a registered design professional.
2. The height of the piled material will not burst the exterior walls due to horizontal loading as determined by a registered design professional.
3. The operation does not otherwise endanger the stability of the structure.

**3306.9.11.3 Cellar storage.** Debris stored in the cellar shall not be piled above the level of the adjacent exterior grade unless the contractor provides sheet-piling, shoring, bracing, or such other means necessary to insure the stability of the walls and to prevent any wall from collapsing due to horizontal loading created by the debris as determined by a registered design professional.

**3306.9.12 Removal of material.** Debris, bricks, and similar material shall be removed through openings in the floors of the structure, or by means of chutes, buckets, or hoists that comply with the provisions of this chapter. Openings in any floor shall not aggregate more than 25 percent of the area of that floor unless it can be shown by submission from a registered design professional to the satisfaction of the commissioner that larger openings will not impair the stability of the structure.

Every opening used for the removal of debris in every floor, except the top or working floor, shall be provided with a tight enclosure from floor to floor, equivalent to that afforded by planking not less than 2 inches (51 mm) in thickness. As an alternative, in buildings not more than 6 stories in height, such openings may be protected by a tight temporary covering equivalent to that afforded by planks not less than 2 inches (51 mm) in thickness and laid close. Wherever such covering has been

temporarily removed to permit debris removal, floor openings shall be protected by standard guardrails that meet the requirements of Section 3307.8. Such covering shall be promptly replaced in position upon the ceasing of such work at the end of each workday.

Every opening not used for the removal of debris in any floor shall be solidly planked over.

**3306.9.13 Rodent extermination.** A licensed exterminator shall effectively treat the premises for rodent extermination as per the requirements of the Department of Health and Mental Hygiene.

**Exception.** Partial demolition operations.

**3306.10 Completion of Demolition Operations.** All work required for structural stability and permanent waterproofing of adjacent buildings must be completed prior to demolition sign-off.

At the completion of demolition operations, unless new construction is to follow within a period of three months, the site shall be graded, drained, or otherwise protected as provided in Section 3303.13.

## **SECTION BC 3307** **PROTECTION OF PEDESTRIANS**

**3307.1 Protection required.** Pedestrians shall be protected during construction, alteration, remodeling, or demolition activities as required by this section and the rules of the Department of Transportation. Signs shall be provided to direct pedestrian traffic.

**3307.1.1 Signs.** Other than as specified in Section 3301.10, there shall be no information, pictorial representation, or any business or advertising messages posted on a sidewalk shed, bridge, fence, or other structure listed in this section that is erected at the construction or demolition site.

Where a protective structure required by this section obscures from view a lawful existing sign, a temporary sign may be installed in accordance with Section 3301.10.

No illuminated signs shall be permitted on any protective structure required by this section.

**3307.2 Sidewalks and walkways.** A sidewalk, walkway, or temporary walkway shall be provided for pedestrian travel in front of every construction or demolition site unless the Department of Transportation authorizes the sidewalk to be fenced or closed.

**3307.2.1 Temporary walkways.** Temporary walkways shall be of sufficient width to accommodate the pedestrian traffic, but in no case shall it be less than 5 feet (1524 mm) in width, and shall be provided with a durable walking surface.

All temporary walkways shall be illuminated at all times either by natural or artificial light. The level of illumination shall be the equivalent of that produced by 200 watt, 3400 lumen minimum, standard incandescent lamps enclosed in vandal-proof fixtures and spaced 15 feet (4572 mm) apart and 8 feet (2438 mm) above the floor level. Artificial lighting units shall be inspected nightly; and burned out or inoperative units shall be replaced or repaired immediately.

Temporary walkways shall be provided with adequate slopes so that they are accessible and shall be designed to support all imposed loads, and in no case shall the design live load be less than 150 pounds per square foot (732.3 kg/m<sup>2</sup>).

Where permission has been granted by the Department of Transportation to locate a temporary walkway beyond the curb line, such temporary walkway shall be provided with a guardrail in accordance with the Department of Transportation's requirements.

**3307.2.2 Foot bridges.** Foot bridges shall be of sufficient width to accommodate the pedestrian traffic, but in no case shall it be less than 5 feet (1524 mm) in width, and shall be provided with a durable walking surface.

All foot bridges shall be illuminated at all times either by natural or artificial light. The level of illumination shall be the equivalent of that produced by 200 watt, 3400 lumen minimum, standard incandescent lamps enclosed in vandal-proof fixtures and spaced 15 feet (4572 mm) apart and 8 feet (2438 mm) above the floor level. Artificial lighting units shall be inspected nightly; and burned out or inoperative units shall be replaced or repaired immediately.

Foot bridges shall be provided with adequate slopes so that they are accessible and shall be designed to support all imposed loads and in no case shall the design live load be less than 150 pounds per square foot (732.3 kg/m<sup>2</sup>). The walkway on such bridge shall be provided with guardrails for its entire length and shall have cleats to prevent slipping. Where planks are used to pave the walkway, they shall be laid close and securely fastened to prevent displacement. Planks shall be of uniform thickness, and all exposed ends on ramps shall be provided with beveled fillers to eliminate tripping hazards.

**3307.3 Protection of sidewalks, walkways and temporary walkways.** Unless the street is officially closed to the public during construction or demolition operations pursuant to a permit from the Department of Transportation, the following minimum safeguards shall be provided for the protection of the public.

**Exception.** Partial demolition operations limited to the interior components of the building.

**3307.3.1 Sidewalk shed.** A sidewalk shed that meets the requirements of Section 3307.6 shall be erected as follows:

1. When a structure higher than 40 feet (12 192 mm) is to be constructed and the horizontal distance from the top of the structure to the inside edge of the sidewalk, walkway or temporary walkway is equal to one-half or less of the height of the structure.
2. When a structure higher than 25 feet (7620 mm) is to be demolished and the horizontal distance from the top of the structure to the inside edge of the sidewalk, walkway or temporary walkway is equal to one-half or less of the height of the structure, or when a structure 25 feet (7620 mm) or less is to be demolished and a sidewalk shed is required by the commissioner as part of a safety zone per Section 3306.2.1.
3. When, regardless of the height of the structure or the horizontal distance between the structure and the sidewalk, walkway or temporary walkway, material or debris is to be moved by a hoist, crane, derrick, or chute over a sidewalk, walkway or temporary walkway that is not closed to the public.
4. When a portion of a facade over 40 feet (12 192 mm) above curb level is being altered or repaired and the horizontal distance from the portion of the structure being altered or repaired to the inside edge of the sidewalk, walkway or temporary walkway is less than one-half the height of the structure being altered or repaired.

**Exception:** Access to walkways that are not under the jurisdiction of the Department of Transportation, and that are located in an area that is within a distance equal to or less than half the height of the highest work area, may be closed off by the authority having jurisdiction in lieu of providing a sidewalk shed provided the walkway is not required as part of the means of ingress or egress for a building.

**3307.3.2 Fence.** All new construction or demolition sites, regardless of the height of the building to be constructed or demolished, shall be enclosed with a fence that meets the requirements of Section 3307.7.

A fence may be used in lieu of a sidewalk shed when a structure higher than 40 feet (12 192 mm) is to be constructed, or a structure higher than 25 feet (7620 mm) is to be demolished, and the horizontal distance from the structure being built or demolished to the inside edge of the sidewalk, walkway or temporary walkway is between one-half and three-quarters of the height of the structure.

**3307.3.3 Guardrail.** For cases that do not fall within the circumstances described in Sections 3307.3.1 and 3307.3.2, a standard guardrail that meets the requirements of Section 3307.8 may be constructed along the inside edge of the sidewalk, walkway or temporary walkway. The rail shall be returned at its ends to the extent necessary to effectively close off the site.

If permission to close the sidewalk has been obtained from the Department of Transportation, the railing may be constructed along the curb or outside of the curb to such extent as approved by the Department of Transportation.

**3307.3.4 Openings.** Openings in sidewalk sheds, fences, barriers, and railings for loading and unloading purposes shall be kept closed at all times except during actual loading and unloading operations.

**3307.4 Warning signs and lights.** Warning signs and lights shall be installed to protect the public from the hazards of construction or demolition sites in accordance with Sections 3307.4.1 to 3307.4.3.

**3307.4.1 Obstructions and openings.** Where a material pile or other obstruction, or an excavation, opening, or other hazard is located in or adjacent to a public way, such hazard shall be indicated by red flags or signs during daylight hours, and by red lanterns, red lights, oil flares, flashing beacons, lighted signs, or equivalent devices from sunset to sunrise. Such warning devices shall be located no more than 30 feet (9144 mm) apart.

**3307.4.2 Dangerous areas.** In areas where special danger to the public exists, such as at vehicle entrances and exits, hoisting areas, points of storage of explosives or highly flammable material, or discharge ends of chutes, descriptive warning signs shall be provided. Such warning signs shall contain the word "DANGER" in prominent letters and, where in, or adjacent to, a public way, shall be illuminated from sunset to sunrise. Barricades and/or designated personnel shall be provided to the extent necessary to keep the public away from such areas or to guide them around the areas.

**3307.4.3 Vehicular traffic.** Whenever any work is being performed over, on, or in close proximity to a highway, street, or similar public way, control and protection of traffic shall be provided by barricades, signals, signs, flagperson, or other devices, equipment, and personnel in accordance with the requirements of the Department of Transportation.

**3307.5 Watchperson and flagperson.**

**3307.5.1 Watchperson.** Where a building being constructed or demolished occupies a ground area between 5,000 square feet (1524 m<sup>2</sup>), and 40,000 square feet (12 192 m<sup>2</sup>), a competent watchperson shall be on duty at the site during all hours when operations are not in progress. Where the construction or demolition area occupies a ground area of more than 40,000 square feet (12 192 m<sup>2</sup>), at least one additional

watchperson shall be on duty for each additional 40,000 square feet (12 192 m<sup>2</sup>) of construction or demolition area, or fraction thereof. The watchperson shall be familiar with the location of street fire alarm boxes and the location and use of fire fighting equipment on the job site.

**3307.5.2 Flagperson.** A flagperson shall be provided whenever intermittent operations are conducted on, or adjacent to, areas open to use by persons other than workers, or when dangerous operations, such as blasting, may affect such areas.

**3307.6 Sidewalk sheds.** Sidewalk sheds shall be erected when required by Section 3307.3.1. No sidewalk shed shall be erected without a permit in accordance with the requirements of Chapter 1 of Title 28. Following the receipt of a permit to erect a sidewalk shed, the permit holder shall post a sign on the sidewalk shed that meets the requirements of Section 3301.9.5.

Every sidewalk shed deck shall be designed and constructed as a heavy duty sidewalk shed to carry a live load of at least 300 pounds per square foot (1464.6 kg/m<sup>2</sup>). However, a light duty sidewalk shed constructed to carry a live load of 150 pounds per square (732.3 kg/m<sup>2</sup>) foot may be used when the building to be constructed, altered, or demolished is less than 100 feet (30 480 mm) in height.

**Exception:** Sidewalk sheds that provide a base for a scaffold or contractor's shed shall be designed by an engineer to have a live load capable of supporting the scaffold or contractor's shed plus an additional 200 pounds per square foot (976.4 kg/m<sup>2</sup>). No storage is allowed on sidewalk sheds that support scaffolds or contractor sheds unless the sidewalk shed has been designed to have a live load capable of supporting the scaffold or contractor's shed, the total storage load, and an additional 200 pounds per square foot (976.4 kg/m<sup>2</sup>). The ground where the shed is to be constructed shall be examined by an engineer to determine it is capable of supporting the total load.

**3307.6.1 Sidewalk shed required.** When a sidewalk shed is required for the construction or alteration of a structure, the work shall stop at a height of 40 feet (12 192 mm) unless, and until, the sidewalk shed has been completed. Such shed shall remain in place until the structure is enclosed, all exterior work completed and the sash is glazed above the second story, the exterior of the facade is cleaned down, and until completion of all outside handling of material, equipment and machinery, and all dismantling of material hoists, or climber or tower cranes including the use of a derrick in their removal, above the second story.

When a sidewalk shed is required for the demolition of a structure, the sidewalk shed shall be completed before any demolition work is performed. Such shed shall remain in place until the structure has been razed to the height of the shed.

**3307.6.2 Areas to be protected.** Protection shall be provided for those sidewalks or walkways that are in front of the building to be constructed, altered, or demolished. Sidewalks or walkways in a plaza or other similar space that lead from the street to an

entrance or exit into or out of the building that cannot be officially closed shall be similarly protected.

Where deemed necessary by the commissioner, the deck shall cover the entire width of the sidewalk or walkway in front of the building, except for reasonably small clearances at the building line and the curb. In all other instances, the sidewalk shed shall protect the sidewalk or walkway to a minimum 5 foot (1524 mm) width. Sidewalk sheds may extend beyond the curb to such extent as may be approved by the Department of Transportation pursuant to a permit from such department.

Unless constructed solely to comply with Section 3307.3.1, item 3, sidewalk sheds shall extend 5 feet (1524 mm) past the building when the building is less than 100 feet (30 480 mm) in height, and 20 feet (6096 mm) past the building when the building is over 100 feet (30 480 mm) in height, regardless of whether such extensions are in front of the property being developed or in front of adjacent property. Extensions of sidewalk sheds complying with the foregoing shall be constructed so as not to unreasonably obstruct, either visually or physically, entrances, egress, driveways, and show windows of adjacent properties.

**3307.6.3 Design of sidewalk sheds.** All sidewalk sheds shall be designed by an engineer.

**Exception:** Sidewalk sheds that follow a standard design approved by the department or the Board of Standards and Appeals.

**3307.6.4 Construction of sidewalk sheds.** Sidewalk sheds shall be constructed in accordance with the following:

1. Sidewalk sheds shall be constructed out of wood, steel, or other materials having equivalent strength and suitability.
2. The members of the sidewalk shed shall be adequately braced and connected to prevent displacement or distortion of the framework. Where posts supporting the shed deck are placed beyond the curb, such posts shall be protected against displacement by vehicles as directed by the Department of Transportation. Such placement shall require a permit from the Department of Transportation.
3. The upright members of the sidewalk shed shall be plumb. The tolerance is L/100. L is measured as the distance from the ground to the first x-brace or bottom of the beam.
4. The deck of the sidewalk shed shall consist of planking closely laid, and made tight.

5. Unless the top deck of the sidewalk shed is built solidly against the face of the structure in such a manner that no material can fall onto the sidewalk, the side of the shed toward the structure shall be solidly sealed with wood or other suitable material for the full height of the shed. Solid sliding or in swinging gates may be provided as necessary for the proper prosecution of the work.
6. The outer side and ends of the deck of the shed shall be provided with a substantial enclosure at least 3 feet 6 inches (1067 mm) high. Such enclosure may be vertical or inclined outward at approximately 45 degrees, and shall consist of boards laid close together and secured to braced uprights, of galvanized wire screen not less than no. 16 steel wire gage with a ½ inch (13 mm) mesh, of corrugated metal, or of solid plywood. Temporary removal of portions of the enclosure shall be permitted for handling material.
7. All sidewalk sheds shall provide protection for the full width of the shed extending upward at an angle of 45 degrees from the ends of the deck and outward a horizontal distance of at least 5 feet (1524 mm) beyond the ends of the shed. Such sloping end protection shall be constructed to meet the requirements of numbered items two and three with substantial outriggers bearing on and securely attached to the deck.
8. The passageway under the shed shall have a minimum clear ceiling height of 8 feet (2438 mm).

**3307.6.5 Use and maintenance of sidewalk sheds.** The use of sidewalk sheds shall be in accordance with the following:

1. Material and debris shall not be stored on sidewalk sheds unless the shed has been so designed for storage in accordance with rules promulgated by the commissioner.
2. The underside of sidewalk sheds shall be lighted at all times either by natural or artificial light. The level of illumination shall be the equivalent of that produced by 200 watt, 3400 lumen minimum, standard incandescent lamps enclosed in vandal-proof fixtures and spaced 15 feet (4572 mm) apart and 8 feet (2438 mm) above the floor level. Artificial lighting units shall be inspected nightly; and burned out or inoperative units shall be replaced or repaired immediately.

**3307.7 Fences.** When required by this code, fences shall be at least 8 feet (2438 mm) high, and constructed of wood or other suitable material. They shall be built solid for their entire length, except for openings with solid sliding or in swinging gates as are required for the proper prosecution of the work, and for viewing panels, which shall be blocked with plexiglass or equivalent nonfrangible material.

The fence shall be constructed along the inside edge of the sidewalk, walkway or temporary walkway. If permission to close the sidewalk has been obtained from the Department of Transportation, such fence may be erected along the curb or outside of the curb to such extent as approved by the Department of Transportation. The fence shall be returned at its ends to the extent necessary to effectively close off the site.

**3307.8 Standard guardrail.** A standard guardrail shall consist of a 2 inch by 4 inch (51 by 102 mm) wood top rail or equivalent capable of withstanding, without failure, a force applied in any downward or horizontal direction at any point along its top edge of at least 200 pounds (90.7 kg). The guardrail shall be not less than 3 feet (914 mm) nor more than 3 feet 6 inches (1067 mm) above the platform and there shall be a 1 inch by 4 inch (25 by 102 mm) wood intermediate rail midway between the top rail and the floor or standard toeboard, both supported by 2 inch by 4 inch (51 by 102 mm) wood posts spaced not more than 8 feet (2438 mm) apart.

To provide necessary openings for intermittent operations one or more sections of a required railing may be hinged or supported in sockets. When supported in sockets, rails shall be so constructed that they cannot be jolted out. A button or hook may be used to hold the rail in a fixed position. Substantial chains or ropes may be used to guard such openings in standard railings. Where so used, the chains or ropes shall be taut at the same height as the rails of the standard railing.

In lieu of wood construction, posts and rails may be constructed of at least 1¼ inch (32 mm) diameter standard pipe of at least 2 inch by 2¼ inch (51 by 57 mm) angles. Spacing of rails and posts shall be as required above

**3307.8.1 Standard toeboard.** Where a toeboard is required, it shall be at least 5½ inches (140 mm) high and constructed of metal, wood, or other substantial material. It shall be installed along the edge of the floor, opening, platform, ramp, or runway. Such standard toeboard shall be securely fastened to the posts and installed so that no open space exists between the floor and the standard toeboard.

**3307.9 Safety netting.** Safety netting shall be provided as required by Section 3308.

**3307.10 Repair, maintenance and removal.** Pedestrian protection required by this chapter or by the Department of Transportation shall be maintained in place and kept in good order for the entire length of time pedestrians may be endangered. The owner or the owner's agent, upon the completion of the construction or demolition activity, shall immediately remove sidewalk sheds, fences, guard rails, temporary walkways, debris and other obstructions and leave such public property in as good a condition as it was before such work was commenced.

In the event the Department of Transportation must repair, maintain, or install intersection control signs or electrical equipment, including traffic signals or street lighting poles at a location where pedestrian protection required by this chapter is located, such pedestrian protection shall be removed as directed by the department of buildings as

long as the removal is deemed to be safe and, if necessary, suitable appropriate pedestrian protection that does not interfere with the work of the Department of Transportation is installed.

## **SECTION BC 3308** **SAFETY NETTING**

**3308.1 Safety netting during construction or demolition operations.** Horizontal and vertical safety netting shall be provided when required below. Safety netting is required in addition to the sidewalk sheds, fences, and other pedestrian protection required by Section 3307.

**Exception:** A supported scaffold may be used in lieu of horizontal safety netting provided the bottom, outer faces and ends of the scaffold are enclosed with debris netting or its equivalent so as to prevent the falling of material and debris.

**3308.1.1 Vertical netting.** When in the course of construction the building reaches a height of 4 stories or 40 feet (12 192 mm), vertical safety netting shall be maintained at each story except at the story at grade, the story immediately above the sidewalk shed and the roof level where a parapet is installed.

**3308.1.2 Horizontal netting during exterior wall construction.** When exterior walls are being constructed, altered or repaired at a height greater than 6 stories or 75 feet (22 860 mm), horizontal safety netting shall be provided on the sides of the structure where the structure is not enclosed. A structure shall be considered to be enclosed when the permanent facade is completed except for the windows. Such windows shall be protected to a height specified in Section 3308.3 unless there is a sill not less than 2 feet 6 inches (762 mm) in height and vertical mullions or piers with a maximum opening of 5 feet (1524 mm) and a non-corrosive wire cable capable of withstanding a load of at least 200 pounds (90.7 kg) applied in any direction except upward.

**3308.1.3 Horizontal netting during new construction and structural additions.** When during the course of construction the building reaches a height of 6 stories or 75 feet (22 860 mm), horizontal safety netting shall be maintained at a level not more than two stories or 30 feet (9144 mm) below the stripping operation on concrete structures or the uppermost finished (and walkable) concrete floor on steel frame structures. The horizontal safety netting may be removed after the formwork for the topmost level of concrete is removed or after the topmost level of concrete for a steel building is poured.

**3308.1.4 Horizontal netting during demolition.** When demolition of the exterior walls or the roof of a structure occurs at a height greater than 6 stories or 75 feet (22 860 mm), horizontal safety netting shall be provided. The horizontal safety netting shall be constructed and maintained not more than two stories or 30 feet (9144 mm) below the story from which the exterior walls and roof are being removed until the

demolition has progressed to within six stories or 75 feet (22 860 mm) off the ground or adjoining roof level

**3308.1.5 Horizontal netting and tarpaulins.** When tarpaulins encase one or more floors immediately below the finished concrete floor in order to maintain temporary heat, the horizontal nets may be located no more than three floors below the finished concrete floor.

**3308.1.6 Designated crane and derrick lifting areas.** Required horizontal safety netting may be omitted in designated crane and derrick lifting areas so long as such lifting area is as indicated on the crane application and on the site safety program.

**3308.2 Horizontal safety netting requirements.** Horizontal safety netting shall consist of a horizontal system of nets and their supports that meet requirements set forth in department rules, and shall include a structural net lined with a debris net of a size and strength sufficient to catch falling tools and materials.

Horizontal safety netting shall project outward horizontally from the edge of the floor a minimum distance of 10 feet (3048 mm).

**3308.3 Vertical safety netting requirements.** Vertical safety netting shall consist of a vertical system of nets and their supports that meet requirements set forth in department rules. Vertical safety netting shall be of a fine mesh of a size and strength sufficient to contain falling tools and materials. Wall opening screens, grills or tarpaulins may be used in lieu of vertical safety netting, provided that they shall be of such construction and mounting as to retain debris.

On every story where vertical safety netting is required, it shall extend from the floor to a height of not less than 60 inches (1524 mm). Vertical safety nets and their components shall also meet the requirements set forth in rules promulgated by the commissioner.

**3308.4 Responsibility.** The holder of the work permit and his or her designee shall be responsible for the installation and maintenance of all horizontal and vertical netting, and for complying with the requirements of this section.

**3308.5 Appeals.** Where requests are made regarding interpretations, consultations, and reconsiderations of safety netting, the commissioner may, in specific cases, modify these regulations where proper methods are proposed to be employed.

Any appeal shall state the specific relief requested and shall make reference to the Site Safety Program, where applicable, the practical difficulty, proposed equivalencies consistent with public safety, and any stipulations.

**SECTION BC 3309**  
**PROTECTION OF ADJOINING PROPERTY**

**3309.1 Protection required.** Adjoining public and private property shall be protected from damage during construction or demolition work. Protection must be provided for footings, foundations, party walls, chimneys, skylights and roofs. Provisions shall be made to control water run-off and erosion during construction or demolition activities.

**3309.2 License to enter adjoining property.** The responsibility of affording any license to enter adjoining property shall rest upon the owner of the adjoining property involved; and in case any tenant of such owner fails or refuses to permit the owner to afford such license, such failure or refusal shall be a cause for the owner to dispossess such tenant through appropriate legal proceedings for recovering possession of real property.

**3309.3 Physical examination.** When permission to enter upon adjoining property has been obtained, a physical examination of such property shall be conducted by the person causing the construction or demolition operations prior to the commencement of the operations and at reasonable periods during the progress of the work. Observed conditions shall be recorded by the person causing the construction or demolition operations, and such records shall be made available to the department upon request.

**3309.4 Excavation or filling operations affecting adjoining property.** Regardless of the excavation or fill depth, the person who causes an excavation or fill to be made shall, at all times and at his or her own expense, preserve and protect from damage any adjoining structures, provided such person is afforded a license in accordance with the requirements of Section 3309.2 to enter and inspect the adjoining buildings and property, and to perform such work thereon as may be necessary for such purpose. If the person who causes the excavation or fill is not afforded a license, such duty to preserve and protect the adjacent property shall devolve to the owner of such adjoining property, who shall be afforded a similar license with respect to the property where the excavation is to be made.

No excavation work to a depth of 5 to 10 feet (1524 mm to 3048 mm) within 10 feet (3048 mm) of an adjacent building, or an excavation over 10 feet (3048 mm) anywhere on the site shall commence until the person causing an excavation to be made has documented the existing conditions of all adjacent buildings in a pre-construction survey.

**3309.4.1 Additional safeguards during excavation.** The following additional requirements shall apply during excavation:

1. The person causing the excavation shall support the vertical load of the adjoining structure by proper foundations, underpinning, or other equivalent means where the level of the foundations of the adjoining structure is at or above the level of the bottom of the new excavation.
2. Where the existing adjoining structure is below the level of the new construction or demolition, provision shall be made to support any increased

vertical or lateral load on the existing adjoining structure caused by the new construction or demolition.

3. Where the new construction or demolition will result in a decrease in the frost protection for an existing foundation below the minimums established in Section 1805.2.1, the existing foundation shall be modified as necessary to restore the required frost protection.

**3309.4.2 Support of party walls.** Where a party wall will be affected by excavation, regardless of the depth, the person who causes the excavation to be made shall preserve such party wall at his or her own expense so that it shall be, and shall remain, in a safe condition. Where an adjoining party wall is intended to be used by the person causing an excavation to be made, and such party wall is in good condition and sufficient for the uses of the existing and proposed buildings, it shall be the duty of such person to protect such party wall and support it by proper foundations, so that it shall be and remain practically as safe as it was before the excavation was commenced.

**3309.5 Underpinning.** Whenever underpinning is required to preserve and protect an adjacent property from construction or excavation work, the person who causes the construction or excavation work shall, at his or her own expense, underpin the adjacent building provided such person is afforded a license in accordance with the requirements of Section 3309.2 to enter and inspect the adjoining buildings and property, and to perform such work thereon as may be necessary for such purpose. If the person who causes the construction or excavation is not afforded a license, such duty to preserve and protect the adjacent property shall devolve to the owner of the adjoining property, who shall be afforded a similar license with respect to the property where the excavation is to be made.

**3309.6 Foundation operations affecting adjacent properties.** Whenever subsurface operations are conducted that may impose loads or movements on adjoining property, such as driving of piles, compaction of soils, or soil solidification, the effects of such operations on adjoining property and structures shall be monitored .

Where placement of a foundation will cause changes in the ground water level under adjacent buildings, the effects of such changes on the stability and settlement of the adjacent foundations shall be investigated and provision shall be made to prevent damage to such buildings.

When, in the opinion of the commissioner, a potential hazard exists, elevations of the adjacent buildings shall be recorded by a registered design professional at intervals of 24 hours or less as determined by the commissioner to ascertain if movement has occurred.

**3309.7 Retaining Structures.** When the regulation of a lot requires the ground on such lot to be raised or lowered and kept higher than the ground of the adjoining lot, provided the ground of such adjoining lot is not maintained at a grade lower than in conformity

with the street or streets on which it is situated, or where an excavation has been made or a fill placed on any lot meeting the curb level requirements, and the adjoining land is maintained at a grade in conformity with or lower than the streets or streets on which it is situated, and is without permanent structures other than frame sheds or similar structures, a retaining structure shall be constructed for the safe support of adjoining ground, unless the bank between the adjoining properties is maintained at a safe angle of repose. Any necessary retaining wall shall be built and maintained jointly by the owners on each side, unless otherwise agreed to by both owners.

**3309.7.1 Surplus Retaining Structures.** Where any owner maintains his or her ground either higher or lower than the legal regulation prescribed in the *Administrative Code*, the surplus retaining structure that may be necessary to support such height or provide for such excavation shall be made at the sole expense of such owner, and any additional thickness that may be required shall be built on the land of such owner.

**3309.7.2 Removal of Retaining Structures.** Any retaining structure erected as provided above, standing partly on the land of each owner, may be removed by either owner when the original reason for the erection of such retaining structure ceases to exist.

**3309.8 Adjoining walls.** When any construction or demolition operation exposes or breaches an adjoining wall, including load bearing and non load-bearing walls as well as party walls and non party walls, the person causing the construction or demolition operation shall, at his or her own expense, perform the following:

1. Maintain the structural integrity of such walls, have a registered design professional investigate the stability and condition of the wall, and take all necessary steps to protect such wall.
2. Maintain all required fire exits and passageways or provide substitutions meeting the requirements of this code.
3. Cut off close to the walls all beams in party walls, remove stub ends without weakening existing masonry, clean beam pockets of loose mortar, bend over all wall anchors at the beam ends in the standing wall, and brick-up all open beam holes with sound brick and cement mortar.
4. During demolition operations, where the floor beams of the adjacent building bear on the party wall, the person causing the demolition shall ascertain that such beams are anchored into the wall and, where such anchorage is lacking, shall provide anchorage or otherwise brace the standing wall.
5. During demolition operations, all non load-bearing chimney breasts, projections and any other debris exposed on party walls shall be examined and monitored by the person causing the demolition. Removal of such items shall be made under

the supervision of a registered design professional only if the stability of the adjacent building or structure will not be affected. All openings shall be bricked up flush on the exterior side of the party wall. All masonry that is in poor condition shall be pointed and patched.

**3309.9 Weatherproof integrity of adjoining buildings.** Where the waterproof integrity of an adjoining wall or building has been impaired due to construction or demolition operations, the person causing the construction or demolition operations shall, at his or her own expense, provide all necessary measures to permanently waterproof the adjoining wall or building in order to restore the weatherproof integrity of such adjoining wall or building. This shall include, but is not limited to:

1. Bending over and flashing all roofing material of adjoining buildings;
2. Sealing and permanently waterproofing all doors or other openings in party walls;
3. Properly sealing all cornices, where cut;
4. Pointing up and making waterproof any walls and parapets and any walls that have been disturbed;
5. Removing all exposed furring, lath, and plaster on party walls; and
6. Removing, replacing, and firmly anchoring any loose wall material.

**3309.10 Protection of roofs, skylights, chimneys, etc.** Whenever any building is to be constructed or demolished above the roof of an adjoining building, it shall be the duty of the person causing such building to be constructed or demolished to protect the roof, skylights and other roof outlets of the adjoining building from damage, and to use every reasonable means to avoid interference with the use of the adjoining building during the course of construction or demolition. Such person shall be afforded a license in accordance with the requirements of Section 3309.2 to enter and inspect the adjoining building and perform such work thereon as may be necessary for such purpose; otherwise, the duty of protecting the roof, skylights and other roof outlets of the adjoining building shall devolve upon the owner of such adjoining building.

In addition, any person having the duty to alter or maintain chimneys of any adjoining building under and pursuant to the provisions of this code or the *New York City Mechanical Code* or other applicable laws and rules, shall likewise be afforded a license in accordance with the requirements of Section 3309.2 to enter and inspect such adjoining building and perform such work thereon as may be necessary for such purpose; otherwise, such duty shall devolve upon the owner of such adjoining building.

**3309.11 Protection of trees.** No trees outside the property line within the public right of way shall be disturbed or removed without the permission of the commissioner of the department of parks and recreation. Protection meeting the requirements of the

department of parks and recreation shall be provided around the trunks of all such trees, and written notification shall also be made to the department of parks and recreation at least 48 hours prior to commencement of such work. No deleterious, caustic, or acid materials shall be dumped or mixed within 10 feet (3048 mm) of any such tree, nor shall salt for the removal of ice or snow be applied when runoff will drain to a tree.

**SECTION BC 3310**  
**REQUIREMENTS FOR THE CONSTRUCTION OR DEMOLITION**  
**OF MAJOR BUILDINGS**

**3310.1 Scope.** This section outlines the requirements for site safety programs for major building construction or demolition that are in addition to the other applicable requirements of this chapter. These requirements are not intended to supersede other applicable city, state or federal requirements that address site safety and construction or demolition activity.

**3310.2 Major buildings.** A major building is a building proposed to have any of the following characteristics:

1. Be constructed to a height of 10 or more stories;
2. Be constructed to a height of 125 feet (38 100 mm) or more;
3. Have a lot coverage of 100,000 square feet (30 480 m<sup>2</sup>) or more regardless of height; or
4. As designated by the commissioner.

**3310.3 Site safety plan and site safety program required.** No permit shall be issued for the construction or demolition of a major building, or for the alteration of the façade of a major building when a sidewalk shed is required until a site safety plan that meets the requirements of Chapter 1 of Title 28 of the *Administrative Code* has been approved by the department.

**Exceptions:**

1. A site safety plan and site safety program is not required for the alteration of the façade of a major building between 10 and 14 stories in height.
2. A site safety plan and site safety program is not required for partial demolition operations in major buildings where the partial demolition operation is limited to the interior components of the building and where mechanical demolition equipment, other than handheld devices, are not used.

**3310.4 Required signs.** The requirements of Section 3301.9 shall apply.

**3310.5 Requirement for a site safety manager or coordinator.** A site safety manager certified by the department in accordance with the requirements of Chapter 4 of Title 28 of the *Administrative Code* is required for the construction or demolition of a major building, or the alteration of the façade of a major building when a sidewalk shed is required.

**Exceptions:**

1. A site safety coordinator certified by the department in accordance with the requirements of Chapter 4 of Title 28 of the *Administrative Code* may be used instead of a site safety manager for major buildings between 10 and 14 stories or 125 to 200 feet (38 100 to 60 960 mm) in height.
2. A site safety manager or coordinator is not required for the alteration of the façade of a major building between 10 and 14 stories in height.
3. A site safety manager or coordinator is not required for partial demolition operations in major buildings where the partial demolition operation is limited to the interior components of the building and where mechanical demolition equipment, other than handheld devices, are not used.

**3310.6 Designation of site safety manager and site safety coordinator.** It shall be the responsibility of the builder/owner, agent, construction manager, or general contractor (the "Contractor") to designate a site safety manager or coordinator who must be present on a construction or demolition site when required, and who shall be responsible for all site safety requirements as specified in this chapter.

In the event that an alternate manager or coordinator will be acting as the full-time safety manager or coordinator for a period longer than two weeks, the department must be so notified. Any permanent change of site safety manager or coordinator requires immediate notification of the department. No proposed alternate manager or coordinator shall have as his or her primary duty the job of site safety manager or coordinator on any other construction or demolition project.

**3310.7 Contractor's responsibility.** The contractor shall notify all of its supervisory personnel and all of its subcontractors working on the construction or demolition site of the name and responsibilities of the site safety manager or coordinator. The contractor shall state to its directly employed personnel and also to its subcontractors that the site safety manager or coordinator is responsible for monitoring compliance with laws and rules governing site safety, and that they are required to obey and implement all orders and directives relating to safety requirements.

In the event the site safety manager or coordinator discovers violation of the site safety regulations, he or she shall immediately notify the person or persons responsible for creating the violation, whether these persons are employed by the contractor or by subcontractors. If the site safety manager or coordinator is unable to obtain the

cooperation of these persons in correcting the violation, he or she shall inform his or her direct supervisor immediately and request that the supervisor order the necessary corrective action. If the supervisor of the site safety manager or coordinator is not present at the site or is otherwise unavailable, the site safety manager or coordinator shall notify any other supervisory personnel of the contractor present on the job or any other responsible manager or officer of the contractor. All such violations and corrective work shall be recorded in the daily log.

### **3310.8 Site safety manager's and coordinator's responsibility.**

**3310.8.1 Monitor compliance.** It is the responsibility of the site safety manager or coordinator to monitor compliance with the safety requirements of this chapter and to perform all other safety duties assigned by the owner or contractor to meet legal requirements.

The site safety manager or coordinator) shall meet on a weekly basis with the designated representative of each subcontractor to ascertain that all subcontractors are complying with the applicable provisions of this chapter.

**3310.8.2 Notification.** The site safety manager or coordinator shall immediately notify the department directly if he or she discovers any of the following conditions in the routine performance of the job:

1. A person is operating a crane, derrick or hoisting equipment on the site without a permit and refuses to desist from operating the equipment;
2. A crane is being operated by an unlicensed operator and such unlicensed operator refuses to desist from operating the crane;
3. No flagperson is present during crane operation where required by this chapter;
4. Sidewalk sheds required by the site safety plan are not in place during construction or demolition activity;
5. Permits have not been issued for the sidewalk sheds;
6. The designer and/or supplier of sidewalk sheds has not certified that the sheds have been erected in accordance with the approved plans; or
7. There has been an accident involving the public, or private or public property.

**3310.8.2.1 Responsibility.** Upon proper notification to the department of the existence of any of the above-noted circumstances, any responsibility the site safety manager or coordinator has under this code arising out of, relating to, or as a result of the existence of that circumstance, shall cease.

**3310.8.3 Inspections.** It shall be the responsibility of the site safety manager or coordinator to inspect personally, on a regular basis, specific areas and items on the construction or demolition site, as prescribed by rules promulgated by the commissioner, and to notify responsible personnel employed by the general contractor, construction manager or any subcontractor when violations of this chapter occur. The site safety manager or coordinator shall maintain a log of the inspection in accordance with the requirements set forth in rules promulgated by the commissioner.

**3310.8.4 Reasonable prudence.** In addition to the above requirements, the site safety manager or coordinator shall use reasonable prudence to ensure that safety is maintained at the job site as job conditions dictate.

## **SECTION BC 3311** **EXPLOSIVE POWERED AND PROJECTILE TOOLS**

**3311.1 Approved.** All explosive powered and projectile tools shall be approved by the commissioner or other approved agency.

### **3311.2 Projectile tools.**

**3311.2.1 Basic requirements.** Design and construction of the tool must be such as to safely retain all internal pressures that may occur during its operation. The discharge mechanism shall be such that the projectile cannot be discharged by dropping the tool. The discharge mechanism shall be such that the discharge of each projectile shall be dependent on a separate and distinct act by the operator, and all safety features shall be durable.

A tool shall have such other characteristics as the commissioner may find necessary. Such other characteristics may include devices and materials external to the tool itself but associated with its function, and may also include in respect to high velocity projectile tools the basic requirements set forth above for explosive powered tools that discharge projectiles with comparable velocities.

**3311.2.2 Maintenance.** Every projectile tool shall be properly maintained. No such tool shall be used if any part necessary to retain internal pressures or to prevent accidental discharge of a projectile is not in sound and operable condition.

**3311.2.3 Operation.** The operation of projectile tools shall comply with the following:

1. A projectile tool shall be operated only by an authorized operator who shall be the owner, lessee, or other person having custody of the tool, or any other person whom he or she may authorize to operate it.

2. While a projectile tool is in the care and custody of an authorized operator, no other person shall handle or in any way utilize or modify it.
3. No authorized operator of a projectile tool shall leave it unattended while it is in a condition to discharge a projectile.
4. No person shall use a projectile tool for any purpose other than that for which it was manufactured.
5. No person shall point a projectile tool at another person or hold it at an angle that allows the projectile to fly free.
6. No person shall use a projectile tool in such a way as to endanger persons who may be in the vicinity.

**3311.3 Explosive powered tools.** The provisions of ANSI A10.3-1995, as modified in Section 3311.4 shall apply. The storage, handling and use of explosives shall comply with the *New York City Fire Code* and Section 3307.4.2.

**3311.4 Modifications to ANSI A10.3-1995.** The text of ANSI A10.3-1995 shall be modified as indicated in Sections 3311.4.1 through 3311.4.11.

**3311.4.1 ANSI A10.3-1995, Section 4.2.2.** Delete Sections 4.2.2.2, 4.2.2.3 and 4.2.2.4 in their entirety and modify Section 4.2.2.1 to read as follows:

4.2.2.1 Medium-velocity tools, indirect-acting (piston) type, as defined in section 3, shall not be accepted.

**3311.4.2 ANSI A10.3-1995, Section 4.2.3.** Delete Sections 4.2.3.2, 4.2.3.3 and 4.2.3.4 in their entirety and modify Section 4.2.3.1 to read as follows:

4.2.3.1 High velocity tools, direct-acting or indirect-acting type, as defined in section 3, shall not be accepted.

**3311.4.3 ANSI A10.3-1995, Section 5.6.** Add a new section 5.6 to read as follows:

5.6 Selection of load. No employer shall knowingly furnish to an employee for use in a tool any cartridge or load not suitable for safe use in that tool, whether by reason of excessive power, improper design or poor material. The operator shall use due care to select the proper cartridges or power loads, or other means of controlling the force of the explosion so that the tool develops no more than the necessary pressure to bring about the desired penetration. In doing so, the operator shall be guided by the manufacturer's specifications.

5.6.1 Proper Load. When doubt exists as to proper load, the operator shall make a trial shot to test the surface and the strength of the material to be

penetrated. The trial shot shall be made with the lowest power level and then increasing strength until a proper fastening is made. During this test, the operator and all bystanders shall adhere to all safety rules including but not limited to wearing goggles and hard hats required for the job.

**3311.4.4 ANSI A10.3-1995, Section 7.11.** Add the following sentence at the beginning of section 7.11:

7.11 The operator shall always verify the thickness and type of material into which the stud, pin or fastener is to be driven.

**3311.4.5 ANSI A10.3-1995, Section 9.4.** Add a new section 9.4 to read as follows:

9.4 Storage of power loads shall be in accordance with the requirements of the *New York City Fire Code* and regulations of the Fire Department.

**3311.4.6 ANSI A10.3-1995, Section 10.3.1.** Add a new section 10.3.1 to read as follows:

10.3.1 The authorized instructors' card shall list the specific model(s) of powder actuated tool(s) for which training may be given.

**3311.4.7 ANSI A10.3-1995, Section 10.6.** Add a new section 10.6 to read as follows:

10.6 All authorized instructors shall hold a Certificate of Fitness issued by the Fire Department.

**3311.4.8 ANSI A10.3-1995, Section 11.4.1.** Add a new section 11.4.1 to read as follows:

11.4.1 The qualified operator's card shall list the specific model(s) of powder actuated tool(s) that may be used.

**3311.4.9 ANSI A10.3-1995, Section 11.6.** Add a new section 11.6 to read as follows:

11.6 All qualified operators shall hold a Certificate of Fitness issued by the Fire Department.

**3311.4.10 ANSI A10.3-1995, Section 12.** Add a new section 12 to read as follows:

12 Equipment Acceptance.

12.1 Powder-actuated tools using ammunition (power loads) shall be approved by the commissioner or other approved agency.

12.2 Labeling. A certificate or label indicating that the tool is approved shall be attached to the toolbox or operator's manual and shall be made available for inspection upon request of the commissioner.

**3311.4.11 ANSI A10.3-1995, Section 13.** Add a new section 13 to read as follows:

13 Fire Department Requirements.

13.1 The requirements of the *New York City Fire Code* and regulations of the Fire Department shall apply.

**SECTION BC 3312**  
**EXPLOSIVES AND BLASTING**

**3312.1 General.** All handling, transporting, and use of explosives shall comply with the *New York City Fire Code* and Section 3307.4.2. The use of explosives is strictly prohibited unless the written consent of the commissioner and the Fire Department is obtained.

**SECTION BC 3313**  
**FLAMMABLE AND COMBUSTIBLE MIXTURES, COMPRESSED GASES,**  
**AND OTHER HAZARDOUS MATERIALS**

**3313.1 General.** The transportation, handling, storage, installation, connection, ventilation, and use of all volatile flammable oils, flammable and combustible mixtures, compressed gases, and other hazardous materials shall comply with the *New York City Fire Code*, and shall also be safeguarded in accordance with the requirements of Section 3307.4.2.

**SECTION BC 3314**  
**SCAFFOLDS**

**3314.1 Scope.** All scaffolds shall be erected and maintained so that the safety of public and property will not be endangered by falling material, tools or debris, or by collapse of the scaffold.

**3314.1.1 Notification of scaffolding accidents.** The permit holder or person directly in charge of any scaffolding equipment shall immediately notify the commissioner following any accident involving scaffolding equipment. Following an incident, no person shall permit either of the following, without the permission of the commissioner:

1. Use of such scaffolding equipment; or

2. Removal of the scaffolding equipment or any part thereof from the area of the job site.

**3314.2 Permit.** Supported scaffolds 40 feet (12 192 mm) or more in height, outrigger scaffolds, and suspension scaffolds, including all supports, fastenings, connections and details, shall not be erected or installed unless and until a written permit has been issued by the commissioner on the basis of plans, drawings, and specifications. Copies of the permit shall be posted in a conspicuous location at the site visible to the general public. Copies of the approved plans shall be maintained at the site and made available to the commissioner upon request.

**Exceptions:**

1. Any two-point suspended scaffold supported by a parapet using C-hooks that meet the requirements of Section 3314.10.2. In lieu of a permit, no person shall use or install such a two-point suspended scaffold supported by a parapet using C-hooks without notifying the department in a form and manner specified by the department at least 24 hours, but no more than 48 hours prior to the commencement of such use or installation.
2. Any suspended scaffold or outrigger scaffold on new construction, or on alterations where the operation of the scaffold is confined within the property and the site is protected in accordance with Section 3307.
3. Window washing equipment that is permanently anchored to the building or structure by a davit.

**3314.2.1 Signs.** Following the receipt of a permit to erect or suspend a scaffold, the permit holder shall post a sign that meets the requirements of Section 3301.9.6. Such sign shall be clearly visible from the street. Other than as required by Section 3301.10, there shall be no information, pictorial representation, or business or advertising messages posted on a scaffold.

**3314.3 Design of scaffolds.**

**3314.3.1 Design.** All supported scaffolds 40 feet (12 192 mm) or more in height, outrigger scaffolds, and suspension scaffolds, including all supports, fastenings, connections, and details shall be designed in accordance with the provisions below.

Each scaffold and its components shall be capable of supporting, without failure, its own weight and at least four times the maximum intended load applied or transmitted to it in accordance with Section 3314.3.3. Each suspension rope, including connecting hardware, used on non-adjustable suspension scaffolds shall be capable of supporting, without failure, at least six times the maximum intended load applied or transmitted to the rope.

Where applicable, scaffolds and their connections to the building or structure shall be designed for wind loads as prescribed in Section 1609.

Copies of the plans, drawings, and specifications for all supports, fastenings, connections, and details shall be kept at the site and made available to the commissioner upon request.

**3314.3.1.1 Supported scaffolds.** Supported scaffolds between 40 feet and 75 feet (12 192 mm and 22 860 mm) must be designed by a qualified person or company or a registered design professional. Supported scaffolds over 75 feet (22 860 mm) in height must be designed by a registered design professional.

**3314.3.1.2 Outrigger scaffolds.** Outrigger scaffolds must be designed by a registered design professional.

**3314.3.1.3 Suspension scaffolds.** Two-point suspended scaffolds having a support structure with a height from the roof or floor of less than 15 feet (4572 mm) must be designed by a licensed master or special rigger, or a registered design professional. All other suspension scaffolds must be designed by a registered design professional.

**3314.3.1.4 Excess loads.** Scaffolds with loads exceeding 75 pounds per square foot (366.15 kg/m<sup>2</sup>) shall be designed by a registered design professional.

**3314.3.1.5 Frame scaffold brackets.** Where brackets are used for any purpose other than the support of workers, the scaffold and brackets shall be designed by an engineer.

**3314.3.1.6 Parapet clamps.** Where parapet clamps are used to support a vertical load, a registered design professional shall verify that the supporting structure will not be overstressed.

**3314.3.1.7 Multiple trades.** When more than one trade is to use a scaffold simultaneously, the scaffold shall, at a minimum, be designed for a minimum of 50 pounds per square foot (244 kg/m<sup>2</sup>).

**3314.3.2 Plans.** When plans are required by this section, they shall include a plan view, an elevation view, details of anchorage, scaffold designation in accordance with Section 3314.3.3 and, for supported scaffolds, the number of planked levels and the number of levels to be loaded simultaneously.

**3314.3.3 Loading.** All scaffolds shall be designed for one of the intended loads described in Section 3314.3.3.1 to 3314.3.3.4. No scaffold shall be loaded in excess of the maximum load for which it is designed. Loads shall not be concentrated so as to cause stresses in excess of the allowable values designated for the applicable material described in this code.

**3314.3.3.1 Light duty scaffold.** The light duty scaffold is to be used for loads up to 25 pounds per square foot (122.05 kg/m<sup>2</sup>), and is intended for use by carpenters, painters, or others of similar trades. It shall not be used to support loads more severe than those imposed by such workers and a minimum amount of lightweight materials.

**3314.3.3.2 Medium duty scaffold.** The medium duty scaffold is to be used for loads up to 50 pounds per square foot (244.1 kg/m<sup>2</sup>), and is intended for use by bricklayers, plasterers, pipe fitters or other similar trades. It shall not be used to support loads more severe than those imposed by such workers and a moderate amount of their materials.

**3314.3.3.3 Heavy duty scaffold.** The heavy duty scaffold is to be used for loads up to 75 pounds per square foot (366.15 kg/m<sup>2</sup>), and is intended for use by stone masons. It shall not be used to support loads more severe than those imposed by such workers and a reasonable supply of their materials.

**3314.3.3.4 Extra heavy duty scaffold.** The extra heavy duty scaffold is to be used for loads exceeding 75 pounds per square foot (366.15 kg/m<sup>2</sup>) and shall be designed in accordance with Section 3314.3.1.4.

**3314.3.4 Fire retardant construction.** With the exception of the planking, the following scaffolds shall be constructed of noncombustible materials:

1. Exterior scaffolds exceeding 75 feet (22 860 mm) in height.
2. Interior scaffolds exceeding 21 feet (6.4 mm) in height.
3. All scaffolds used in the alteration, repair, or partial demolition of buildings in occupancy groups I-1 to I-4.

#### **3314.4 Installation and use of scaffolds.**

**3314.4.1 Installation.** Scaffolds that require a permit or design shall be erected and installed in accordance with the construction documents, drawings, and specifications for the scaffold. Upon completion of the installation of the scaffold, an inspection report verifying that the scaffold has been installed in accordance with the design drawings, construction documents and specifications shall be prepared by the designer, installer, or an approved inspection agency designated by both the designer and installer.

**3314.4.2 Maintenance and repair.** All scaffolds shall be maintained in a safe condition. No scaffold shall be altered, removed or partially dismantled while it is in active use, unless done by a qualified person.

Every damaged or weakened scaffold shall be immediately repaired or secured and shall not be used until satisfactory repairs have been completed, and the scaffold is inspected under the provisions of Section 3314.4.3.

**3314.4.3 Inspections.** All scaffolds, except for suspended scaffolds, shall be inspected daily before each use by a competent person designated by the trade(s) using the scaffold. A record of such daily inspections shall be maintained and available at the site where the scaffold has been erected. Suspended scaffolds shall be inspected in accordance with Section 3314.4.3.1.

**3314.4.3.1 Inspection of suspended scaffolds.** Before use, all suspended scaffolds shall be inspected daily by the licensed rigger or his or her foreman in accordance with Section 404 of Title 28 of the *Administrative Code*, or the licensed sign hanger or his or her foreman in accordance with Section 415 of Title 28 of the *Administrative Code*, or the superintendent of construction if the work is not performed by or under the supervision of a licensed rigger or sign hanger in accordance with the exception to Section 404.1 of Title 28 of the *Administrative Code* and Section 415.2 of Title 28 of the *Administrative Code*.

A record of such inspections shall be kept and maintained at the job site and shall be readily available and presented to department personnel upon request. The record shall be signed by the individual responsible for the inspection and shall also show the individual's name clearly and legibly printed.

**3314.4.4 Storage of material and debris.** Material and debris susceptible to dislodgment shall not be stored on scaffolds while work is not being performed.

**3314.4.5 Requirements for workers who erect, repair, maintain, modify or remove supported scaffolds.** Only workers with experience in erecting, repairing, maintaining, modifying, or removing supported scaffolds shall be employed to perform this work. They shall be supervised by a designated superintendent or foreman who shall enforce such measures as necessary for the protection of the public and property.

Workers who erect, repair, maintain, modify and remove supported scaffolds 40 feet (12 192 mm) or more in height must, at a minimum, have completed a training program or course that is at least 32 hours long, and must complete an 8 hour refresher program or course every 4 years thereafter. The training program or course shall be based on the United States Department of Labor Occupational Safety and Health Department ("OSHA") scaffold safety and training guidelines and the scaffold requirements of this chapter. The training program or course shall be conducted by a registered New York State Department of Labor apprenticeship training program or by an educational institution or school chartered, licensed or registered by the New York State Department of Education and presented by an instructor(s) authorized under the applicable provisions established by OSHA for construction safety.

Successful completion of the training program or course shall be evidenced by a dated scaffold certificate of completion issued by the provider of the training program or course. The certificate or a copy thereof, shall be readily available to the commissioner upon request, and shall be deemed valid for four years from its date of issuance.

Workers who erect, repair, maintain, modify, or remove a sidewalk shed that provides a base for a scaffold 40 feet (12 192 mm) or more in height are subject to the above requirements.

**3314.4.6 Requirements for workers who use a supported scaffold.** Every worker who uses a supported scaffold to perform his or her job tasks shall complete a 4-hour training program or course, and a 4-hour refresher program or course every four years thereafter, that includes instruction on the nature of electrical hazards, fall and falling object hazards, material handling on scaffolds, and the maximum intended load and load-handling capacities of scaffolds. The training program or course shall be conducted by a registered New York State Department of Labor apprenticeship training program or by an educational institution or school chartered, licensed or registered by the New York State Department of Education, and presented by an instructor(s) authorized under the applicable provisions established by OSHA for construction safety.

Successful completion of the training program or course shall be evidenced by a dated scaffold user certificate issued by the provider of the training program or course. The certificate, or a copy thereof, shall be readily available to the commissioner upon request, and shall be deemed valid for four years from its date of issuance.

**3314.4.7 Requirements for workers who erect or use suspension scaffolds.** Workers who erect, repair, maintain, modify, remove or use suspension scaffolds shall meet the requirements set forth in rules promulgated by the commissioner.

**3314.5 Platform construction.** Platforms on all working levels of a scaffold shall be fully planked or decked between the front uprights and the guardrail system supports in accordance with Sections 3314.5.1 through 3314.5.6.

**Exception:** Platforms used solely as walkways or used solely by workers performing scaffold erection and dismantling shall be planked to provide safe working conditions.

**3314.5.1 Platform spacing.** Each platform unit shall be installed so that the space between adjacent units and the space between the platform and the uprights is no more than 1 inch (25 mm) wide except where a qualified person can demonstrate that a wider space is necessary.

**3314.5.2 Maximum span for wood plank.** All lumber used in scaffolds or their supports shall be at least equal in strength and quality to construction grade lumber in accordance with Section 2301. See Table 3314.5.2 for the maximum span for scaffold planks.

**TABLE 3314.5.2**  
**MAXIMUM PERMISSIBLE SPANS FOR TWO-INCH PLANK**  
**USED ON SCAFFOLDS**

Material	Full Thickness Undressed Lumber			Lumber of Nominal Thickness		
Working Load (psf).....	25	50	75	25	50	75
Permissible Span (ft.)...	10	8	6	8	6	5

**Note:** For SI: 1 inch = 25.4 mm

**3314.5.3 Minimum overhang.** The end of a platform shall extend over the centerline of its support a minimum of 6 inches (152 mm) unless cleated or otherwise restrained by hooks or equivalent means.

**3314.5.4 Maximum cantilever.**

**3314.5.4.1 Ten feet or less.** The end of a platform 10 feet (3048 mm) or less in length shall not extend over the centerline of its support more than 12 inches (305 mm) unless the platform and its tiedown are designed by a qualified person or the platform has guardrails to prevent access to the cantilevered end.

**3314.5.4.2 More than ten feet.** The end of a platform more than 10 feet (3048 mm) in length shall not extend over the centerline of its support more than 18 inches (457 mm) unless the platform and its tiedown are designed by a qualified person or the platform has guardrails to prevent access to the cantilevered end.

**3314.5.5 Platform tiedown.** All platforms shall be tied down, cleated or otherwise restrained by hooks or equivalent means to prevent dislodgment.

**3314.5.6 Platform deflection.** Platforms shall not deflect more than  $1/60$  of the span when loaded.

**3314.6 Footings and anchorage.** The footings and anchorage for every scaffold shall be sound and rigid, capable of carrying the maximum load without excessive settlement or deformation and secure against movement in any direction. Supports such as barrels, boxes, loose brick, loose stone, or other unstable materials shall not be used.

**3314.6.1 Safe points of anchorage.** Safe points of anchorage include structural members of a building. Window cleaners anchors, window frames, mullions, handrails, standpipes, vents and other piping systems, electrical conduit, outrigger beams, counterweights or similar elements shall not be used as anchors or braceback points.

**3314.6.2 Lifeline anchorage.** Lifeline anchorage shall be fastened to a fixed safe point of anchorage, shall be independent of the scaffold, and shall be protected from sharp edges and abrasion.

**3314.6.3 Lifelines and suspension ropes.** Lifelines, tiebacks, and suspension ropes shall each be attached to a different point of anchorage.

**3314.6.4 Scaffolds supported on structure.** Loads from supported and suspended scaffolds imposed on an existing roof or floor or similar structure shall not be concentrated so as to cause stresses in excess of the allowable values designated for the applicable material described in this code.

**3314.7 Outrigger beams.** Outrigger beams shall be made of structural metal or equivalent strength material and shall be restrained to prevent movement.

**3314.7.1 Overhang.** The overhang of outrigger beams shall not exceed that specified by the design and the inboard length of beam shall be at least one and one-half times the outboard length.

**3314.7.2 Wire rope suspenders.** The wire rope suspenders shall be securely fastened to the outrigger beams by steel shackles or equivalent means. The shackles and outrigger beams shall be placed so that the ropes will hang vertically.

**3314.8 Guardrail system and toeboards.** Except for scaffold platforms 6 feet (3048 mm) or less above the ground, the open sides and ends of every scaffold platform shall be provided with a guardrail system and toeboard, unless otherwise specified for the particular type of scaffold. The guardrail system shall be installed before the scaffold is released for use by workers other than the workers who are erecting or dismantling the scaffold.

**3314.8.1 Mesh installation.** Where it is possible for the public to pass under, or next to a scaffold, the space between the top rail and toeboard shall be enclosed with a wire screen composed of not less than no. 18 steel wire gage with a maximum ½ inch (13 mm) mesh or equivalent synthetic safety netting. For the purpose of this provision the term "where it is possible for the public to pass under, or next to a scaffold" shall mean when the setback from the scaffold to the area used by the public is a distance equal to or less than half the height of the scaffold.

**3314.8.2 Top edge height.** The top edge height of the top rails or equivalent member shall be installed between 38 inches and 45 inches (965 and 1143 mm) above the platform surface.

**3314.8.3 Midrail installation.** When midrails, screens, mesh, intermediate vertical members, solid panels, or equivalent structural members are used, they shall be installed between the top edge of the guardrail system and the scaffold platform.

**3314.8.4 Midrail height.** When mid-rails are used, they shall be installed at a height approximately midway between the top edge of the guardrail system and the scaffold platform.

**3314.8.5 Screen or mesh height.** When screens or mesh are used, they shall extend from the top edge of the guardrail system to the scaffold platform and along the entire opening between supports.

**3314.8.6 Intermediate support spacing.** When intermediate supports such as ballisters or additional rails are used, they shall not be more than 19 inches (483 mm) apart.

**3314.8.7 Top rail design.** Each top rail or equivalent member of a guardrail system shall be capable of withstanding, without failure, a force applied in any downward or horizontal direction at any point along its top edge of at least:

1. 100 pounds (45.4 kg) for any guardrail systems installed on a single-point adjustable suspension scaffold or a two-point adjustable suspension scaffold; or
2. 200 pounds (90.7 kg) for guardrail systems installed on all other scaffolds.

**3314.8.8 Top rail deflection.** When loads specified in Section 3314.8.7 are applied in the downward direction, the top edge shall not drop below the heights above the scaffold platform as prescribed in Section 3314.8.2.

**3314.8.9 Midrail design.** Midrails, screens, mesh intermediate vertical members, solid panels, and equivalent structural members of a guardrail system shall be capable of withstanding, without failure, a force applied in any downward or horizontal direction at any point along the midrail or other member of at least:

1. 75 pounds (34 kg) for any guardrail systems installed on a single-point adjustable suspension scaffold or a two-point adjustable suspension scaffold; or
2. 150 pounds (68 kg) for guardrail systems installed on all other scaffolds.

**3314.8.10 Toeboards.** A toeboard shall be erected along the edge of the platform and shall be solid or with openings of not more than 1 inch (25 mm) along its longest dimension.

**3314.8.10.1 Toeboard design.** Toeboards shall be capable of withstanding, without failure, a force of at least 50 pounds (22.7 kg) applied in any downward or horizontal direction at any point along the toeboard.

**3314.8.10.2 Toeboard height.** The top edge of the toeboard shall be at least 3 ½ inches (89 mm) high from the level of the walking/working surface and there shall be not more than a ¼ inch (6 mm) clearance above the walking/working surface.

**3314.9 Supported scaffold.** Supported scaffolds shall meet the following requirements:

**3314.9.1 Height-to-base ratio.** A supported scaffold with a height-to-base ratio (including outriggers supports, if used) of more than four to one (4:1) shall be restrained from tipping by guying, tying, bracing or equivalent means as follows:

1. Guys, ties or braces shall be installed at locations where horizontal members support both inner and outer legs.
2. Guys, ties, or braces shall be installed according to the manufacturer's recommendations, or as designed in accordance with Section 3314.3, or at a minimum, the first guy, tie or brace shall be installed at a horizontal member

and not more than a distance 4 times the least plan dimension from the base support and be repeated vertically at locations of horizontal members every 20 feet (6096 mm) or less thereafter for scaffolds 3 feet (914 mm) wide or less and every 26 feet (7925 mm) or less thereafter for scaffolds greater than 3 feet (914 mm) wide. The top guy, tie, or brace shall be placed no further than 4 times the least plan dimension from the top. Such guys, ties, or braces shall be installed at each end of the scaffold and at horizontal intervals not to exceed 30 feet (9144 mm) measured from one end (not both) towards each other.

3. Guys, ties, braces, or outriggers shall be used to prevent tipping of supported scaffolds in all circumstances where an eccentric load, such as a cantilevered work platform, is applied or is transmitted to the scaffold.

**3314.9.2 Foundation.** Supported scaffold poles, legs, posts, frames and uprights shall bear on base plates and mud sills or other adequate firm foundation.

**3314.9.3 Plumb.** Supported scaffold poles, legs, posts, frames, and uprights shall be plumb and braced to prevent swaying and displacement. The tolerance shall not exceed  $L/100$ , where L is the distance measured from the ground or grade elevation to the first X-brace or bottom of the first bearer or frame horizontal member.

**3314.10 Suspended scaffold.** Suspended scaffolds shall meet the requirements of Sections 3314.10.1 through 3314.10.10.

**3314.10.1 Installation and use.** Suspended scaffolds shall be erected and operated in such a manner that suspension elements are vertical and in a plane parallel to the wall at all times. The installation or change of position of any suspended scaffold shall be performed under the supervision of a licensed master or special rigger, or a licensed sign hanger, or his designated foreman who shall ensure the safety of such operation.

Suspended scaffolds shall be inspected in accordance with the requirements of Section 3314.4.3.1.

**3314.10.2 Support.** All suspended scaffold support devices, such as outrigger beams, C-hooks, parapet clamps, and similar devices shall rest on surfaces capable of supporting at least 4 times the load imposed on them by the scaffold operating at the rated load of the hoist. The support shall be inspected by a competent person prior to installation.

**3314.10.3 Outrigger beam location.** Outrigger beams shall be placed perpendicular to the face of the building or structure.

**Exception:** Where a licensed rigger or engineer can demonstrate to the commissioner's satisfaction that it is not possible to place an outrigger beam perpendicular to the face of the building or structure, the outrigger beam may be placed at a different angle, provided opposing angle tiebacks are used.

**3314.10.4 Outrigger beam stabilization.** The inboard ends of the suspended scaffold outrigger beam shall be stabilized by bolts or other direct connections to the floor or roof deck, or they shall have their inboard ends stabilized by counterweights.

**Exception:** Multi-point adjustable suspended scaffolds shall not be stabilized by counterweights.

**3314.10.5 Outrigger beam installation.** Outrigger beams shall be installed with all bearing supports perpendicular to the beam centerline and shall set and maintain the web in a vertical position. The shackle or clevis with which the rope is attached to the outrigger beam shall be placed directly over the centerline of the stirrup.

**3314.10.6 Counterweight material.** Counterweights shall be made of a non-flowable material. Sand, gravel and similar materials that can be easily dislocated shall not be used.

**3314.10.7 Counterweight securement.** Counterweights shall be secured by mechanical means to the outrigger to prevent accidental dislodgment.

**3314.10.8 Counterweight removal.** Counterweights shall not be removed from an outrigger beam until the scaffold is disassembled.

**3314.10.9 Tieback location.** Tiebacks shall be installed perpendicular to the face of the building, or opposing angle tiebacks shall be installed. Single tiebacks installed at an angle are prohibited.

**3314.10.10 Support devices.** Suspended scaffold support devices, such as C-hooks, cornice hooks, roof hooks, roof irons, parapet clamps or other similar devices shall meet the following requirements:

1. Support devices shall be made of steel, wrought iron or materials of equivalent strength.
2. Such devices shall be supported by bearing blocks.
3. Support devices shall be secured against movement by tiebacks installed at right angles to the face of the building or structure or by opposing angle tiebacks installed and secured to a structurally sound point of anchorage as prescribed in Section 3314.6.
4. Tiebacks shall be equivalent in strength to the hoisting rope.

**3314.11 Suspension rope.** When winding drum hoists are used on a suspended scaffold, they shall contain not fewer than four wraps of the suspension rope at the lowest point of scaffold travel. When other types of hoists are used, the suspension ropes shall be long

enough to allow the scaffold to be lowered to the level below without the rope end passing through the hoist, or the rope end shall be configured or provided with means to prevent the end from passing through the hoist.

**3314.11.1 Repaired rope.** The use of repaired wire rope as suspension rope is prohibited.

**3314.11.2 Rope replacement.** Ropes shall be replaced or removed if any of the following conditions exist, and as otherwise prescribed by rule of the department:

1. Any physical damage that impairs the function and strength of the rope.
2. Presence of kinks that might impair the tracking or wrapping of the rope around the drum(s) or sheave(s).
3. Presence of abrasion, corrosion, scrubbing, flasttening or peening causing the loss of more than one-third of the original diameter of the outside wires.
4. Heat damage caused by a torch or any damage caused by contact with electrical wires.
5. Evidence that the secondary brake has been activated during an overspeed condition and has engaged the suspension rope.

**3314.11.3 Shielding.** Suspension ropes shall be shielded from heat-producing processes.

**3314.11.4 Corrosive substances.** When acids or other corrosive substances are used on a scaffold, the ropes shall be shielded, treated to protect against corrosive substances, or made of a material that will not be damaged by the corrosive substance being used.

**3314.11.5 Arcing prevention.** Precautions shall be taken to prevent the possibility of arcing through the suspension wire rope.

**3314.11.5.1 Insulated thimble.** An insulated thimble shall be used to attach each suspension wire rope to its hanging support. Excessive suspension wire rope and any additional independent lines from grounding shall be insulated.

**3314.11.5.2 Insulating material.** The suspension wire rope shall be covered with insulating material extending at least 4 feet (1219 mm) above the hoist. If there is a tail line below the hoist, it shall be insulated to prevent contact with the platform. The portion of the tail line that hangs free below the scaffold shall be guided or retained or both so that it does not become grounded.

**3314.11.5.3 Protective covers.** Each hoist shall be covered with insulated protective covers.

**3314.11.5.4 Grounding conductor.** In addition to a work lead attachment required by the welding process, a grounding conductor shall be connected from the scaffold to the structure. The size of the connector shall be at least the size of the welding process work lead, and this conductor shall not be in series with the welding process or the work piece.

**3314.11.5.5 Disconnected grounding lead.** If the scaffold grounding lead is disconnected at any time, the welding machine shall be shut off.

**3314.11.5.6 Welding rod or lead.** An active welding rod or uninsulated welding lead shall not be allowed to make contact with the scaffold or its suspension system.

**3314.11.6 Wire rope clips.** There shall be a minimum of three wire rope clips installed a minimum of six rope diameters apart. The clips shall be retightened to the manufacturer's specifications after initial loading. U-bolt clips shall not be used at the point of suspension. When U-bolt clips are used, the U-bolt shall be placed over the dead end of the rope and the saddle shall be placed over the live end of the rope.

## **3314.12 Wood pole scaffolds.**

**3314.12.1 Standard designs.** All wood pole scaffolds 40 feet (12 192 mm) high or less shall be constructed in accordance with the minimum nominal sizes and maximum spacings shown in Tables 3314.12.1 (1) through 3314.12.1 (6). Wood pole scaffolds more than 40 feet (12 192 mm) high shall be designed in accordance with Section 3314.3.

**TABLE 3314.12.1 (1)**  
**MINIMUM SIZE AND MAXIMUM SPACING OF MEMBERS OF SINGLE**  
**WOOD POLE LIGHT DUTY SCAFFOLDS**

Uniformly Distributed Load	Not to Exceed 25 psf				
Max. height of scaffold.....	20'	40'	60'		75'
Poles or uprights (min.).....	2" x 4"	3" x 4"	4" x 4"	Top 60' 4" x 4"	Lower Sect. 4" x 6"
Pole foundation (min.).....			2" x 9"		
Max. pole spacing (longitudinal).....			10' - 0"		
Max. width of scaffold.....			5' - 0"		
Bearers or putlogs (min.).....		3" x 4" or 2" x 6" (on edge)			
Ledgers (minimum):					
With 6'-0" pole space.....			1" x 6" (on edge)		
With 10'-0" pole space.....			1 1/4" x 9" (on edge)		
Vertical spacing of ledgers (max.).....			7'-0"		
Non-supporting stringers.....			1" x 4"		
Tie-ins.....			1" x 4"		
Bracing.....			1" x 4"		
Planking:					
Not more than 6' span.....			1 1/4" x 9"		
Up to 10' span.....			2" x 9"		
Toeboards.....			1" x 6"		
Guard rails.....			2" x 4"		

**Note:** For SI: 1 inch = 25.4 mm

**TABLE 3314.12.1 (2)**  
**MINIMUM SIZE AND MAXIMUM SPACING OF MEMBERS OF SINGLE**  
**WOOD POLE MEDIUM DUTY SCAFFOLDS**

Uniformly Distributed Load	Not to exceed 50 psf				
Max. height of scaffold.....	20'	40'	60'	75'	
				Top 60'	Lower Sect.
Poles or uprights (min.).....	3" x 4" or 2" x 6"	4" x 4"	4" x 6"	4" x 6"	4" x 6"
Pole foundation (min.).....			2" x 9"		
Max. pole spacing (longitudinal)...			8' - 0"		
Max. width of scaffold.....		5' - 0"		8' - 0'	
Bearers or putlogs (min.).....	3" x 4" or 2" x 8" (on edge)			3" x 5" or 2" x 9" (on edge)	
Max. spacing of bearers or putlogs.			8' - 0"		
Ledgers (minimum).....			2" x 9" (on edge)		
Vertical spacing of ledgers (max.)..			7' - 0"		
Non-supporting stringers.....			1" x 6" or 1 1/4" x 4"		
Tie-ins.....			1" x 6"		
Bracing.....			1" x 6"		
Planking:					
Not more than 6' span.....			1 1/4" x 9"		
Up to 8' span.....			2" x 9"		
Toeboards.....			2" x 9"		
Guard rails.....			2" x 4"		

*\*\*As enacted but 6" x 6" probably intended.*

**Note:** For SI: 1 inch = 25.4 mm

**TABLE 3314.12.1 (3)**  
**MINIMUM SIZE AND MAXIMUM SPACING OF MEMBERS OF SINGLE**  
**WOOD POLE HEAVY DUTY SCAFFOLDS**

Uniformly Distributed Load	Not to exceed 75 psf				
	20'	40'	60'	Top 60'	Lower Sect.
Max. height of scaffold.....	20'	40'	60'	75'	
Poles or uprights (min.).....	3" x 4" or 2" x 6"	4" x 4"	4" x 6"	4" x 6"	6" x 6"
Pole foundation (min.).....			2" x 9"		
Max. pole spacing (longitudinal)...			6' - 0"		
Max. width of scaffold.....		5' - 0"		8' - 0"	
Bearers or putlogs (min.).....		3" x 5"		3" x 6" or 2" x 9"	
Max. spacing of bearers or putlogs.			6' - 0"		
Ledgers (minimum).....			2" x 9" (on edge)		
Vertical spacing of ledgers (max.)..			7' - 0"		
Non-supporting stringers.....			2" x 4"		
Tie-ins.....			1" x 6"		
Bracing.....			1" x 6"		
Planking.....			2" x 9"		
Toeboards.....			2" x 9"		
Guard rails.....			2" x 4"		

**Note:** For SI: 1 inch = 25.4 mm

**TABLE 3314.12.1 (4)**  
**MINIMUM SIZE AND MAXIMUM SPACING OF MEMBERS OF**  
**INDEPENDENT WOOD POLE LIGHT DUTY SCAFFOLDS**

Uniformly Distributed Load	Not to exceed 25 psf				
	20'	40'	60'	Top 60'	Lower Sect.
Max. height of scaffold.....	20'	40'	60'		75'
Poles or uprights (min.).....	2" x 4"	3" x 4" or 2" x 6"	4" x 4"	4" x 4"	4" x 6"
Pole foundation (min.).....			2" x 9"		
Max. pole spacing (longitudinal):					
With 1 1/4" x 9" ledgers.....			6' - 0"		
With 2" x 9" ledgers.....			10' - 0"		
Max. pole spacing (transverse).....			10' - 0" <sup>a</sup>		
Ledgers (minimum).....		1 1/4" x 9" (on edge) or 2" x 9"			
Vertical spacing of ledgers (max.)			7' - 0"		
Bearers (minimum).....		1 1/4" x 9" (on edge)			
Non-supporting stringers.....			1" x 4"		
Bracing.....			1" x 4"		
Planking:					
Not more than 6' span.....			1 1/4" x 9"		
Up to 10' span.....			2" x 9"		
Toeboards.....			1" x 6"		
Guard rails.....			2" x 4"		

**Note for Table 3314.12.1 (4):** <sup>a</sup> Total base dimension in both directions to be at least 25 per cent of height.

**Note:** For SI: 1 inch = 25.4 mm

**TABLE 3314.12.1 (5)**  
**MINIMUM SIZE AND MAXIMUM SPACING OF MEMBERS OF**  
**INDEPENDENT WOOD POLE MEDIUM DUTY SCAFFOLDS**

Uniformly Distributed Load	Not to exceed 50 psf				
	20'	40'	60'	Top 60'	75' Lower Sect.
Max. height of scaffold.....					
Poles or uprights (min.).....	3" x 4" or 2" x 6"	4" x 4"	4" x 6"	4" x 6"	6" x 6"
Pole foundation (min.).....			2" x 9"		
Max. pole spacing (longitudinal)...			8' - 0"		
Max. pole spacing (transverse).....			10' - 0" <sup>a</sup>		
Ledgers (minimum).....			2" x 9" (on edge)		
Vertical spacing of ledgers (max.)			6' - 0"		
Bearers (minimum).....			2" x 9" (on edge)		
Non-supporting stringers.....			1 1/4" x 4" or 1" x 6"		
Bracing.....			1" x 6"		
Planking:					
Not more than 6' span.....			1 1/4" x 9"		
More than 6' span.....			2" x 9"		
Toeboards.....			2" x 9"		
Guard rails.....			2" x 4"		

**Note for Table 3314.12.1 (5):** <sup>a</sup> Total base dimension in both directions to be at least 25 per cent of height.

**Note:** For SI: 1 inch = 25.4 mm

**TABLE 3314.12.1 (6)**  
**MINIMUM SIZE AND MAXIMUM SPACING OF MEMBERS OF**  
**INDEPENDENT WOOD POLE HEAVY DUTY SCAFFOLDS**

Uniformly Distributed Load	Not to exceed 75 psf				
Max. height of scaffold.....	20'	40'	60'	75'	
				Top 60'	Lower Sect.
Poles or uprights (min.).....	4" x 4"	4" x 4"	4" x 6"	4" x 6"	6" x 6"
Pole foundation (min.).....			2" x 9"		
Max. pole spacing (longitudinal)...			6' - 0" <sup>a</sup>		
Max. pole spacing (transverse).....			10' - 0" <sup>a</sup>		
Ledgers (minimum).....			2" x 9" (on edge)		
Vertical spacing of ledgers (max.)			5'-0"		
Bearers (minimum).....			2" x 9" (on edge)		
Non-supporting stringers.....			1 1/4" x 9"		
Bracing.....			1" x 6"		
Planking.....			2" x 9"		
Toeboards.....			2" x 9"		
Guard rails.....			2" x 4"		

**Note for Table 3314.12.1 (6):** <sup>a</sup> Total base dimension in both directions to be at least 25 per cent of height.

**Note:** For SI: 1 inch = 25.4 mm

**3314.12.2 Erection and removal.** When a new working level is desired, the existing planks shall be left undisturbed until the new working level is framed. As the platform level is abandoned with the progress of the work, all members other than the planking, railing and toeboards shall be left intact. When removing a scaffold, the sequence of removing the members shall be the reverse of that used in erection.

**3314.12.3 Materials and construction for wood pole scaffolds.** Wood pole scaffold materials and construction shall comply with the following requirements:

1. All lumber used in wood pole scaffolds or their supports shall be at least equal in strength and quality to construction grade lumber in accordance with Section 2301.
2. All lumber and timber shall be fastened at the various joints with sufficient nails or bolts of a suitable size to produce a secure joint capable of withstanding the design load. Table 3314.12.3 provides minimum requirements for size and number of nails. All nails shall be driven full length.
3. Any other suitable material, or dimensions other than those indicated, may be used for wood pole scaffold construction provided it is at least equivalent in strength and suitability to the comparable wood scaffold it is designed to replace, and approval of the commissioner has been obtained.

**TABLE 3314.12.3**  
**SIZE AND NUMBER OF NAILS REQUIRED FOR**  
**SCAFFOLD CONSTRUCTION**

Thickness of Smaller Member (in.)	Trade Size of Nail	Length of Nail (in.)
1	8d	2 ½
2	20d	4
3	60d	6
4	—	8

  

Width of Smaller Member (in.)	Minimum Number of Nails Required
4	2
6	3
8	4
10	5
12	5

**Note:** For SI: 1 inch = 25.4 mm

**3314.12.4 Poles.** Wooden scaffold poles shall be plumb and the foot ends shall be secured against lateral movement. Where wood poles are spliced, the squared end of the upper section shall bear uniformly on the squared end of the lower section and the two ends shall be rigidly fastened together with two or more wood splice plates, each at least 4 feet (1219 mm) in length. The plates shall be placed at right angles to each other, shall overlap the abutting ends of the pole equally, and shall have a combined sectional area not less than 50 percent of the cross sectional area of the pole. Splicing of adjacent poles shall be staggered. Splices shall be close to ledgers, but so located as not to interfere with the fastenings.

**3314.12.5 Bracing.** Wood pole scaffolds shall be braced and stayed to prevent movement away from the building. Diagonal or equivalent bracing shall be provided to prevent the poles from moving in a direction parallel to the building face and shall be so installed that every spliced section of every pole is braced to adjacent poles.

**3314.12.6 Planking.** Where planks are butted end to end, parallel putlogs or bearers shall be provided not more than 8 inches (203 mm) apart so that the butted ends rest on separate putlogs or bearers. Ends shall be nailed or cleated.

Where platform planks are used with overlapping ends, the ends of both the upper and lower planks shall overlap the putlog or bearer by at least 6 inches (152 mm).

Planks shall be laid close together and shall be of sufficient length to extend over three bearers.

**3314.12.7 Connections.** Ledgers shall not be spliced between poles but shall overlap the poles at each end by at least 4 inches (102 mm). Where ledgers lap each other, bearing-blocks attached to the pole shall be provided to support the ledger.

The ends of all wooden braces shall overlap the nailed fastenings by an amount sufficient to prevent the ends of the braces from splitting.

**3314.12.8 Putlogs for single pole scaffolds.** All putlogs shall be set with the greater dimension vertical and shall be long enough to project beyond the outer edge of the poles by at least 12 inches (305 mm). Putlogs shall be supported on the ledger and located against the side of the poles and fastened to either the pole or the ledger. The other end of the putlog shall rest in the wall of the building, with at least a 4 inch (102 mm) bearing, and shall not be notched or cut down, except for light duty scaffolds, which may be notched or cut down to fit into a space made by the removal of a brick. In such cases, the notch shall be made on the top of the putlog just deep enough to permit it to be inserted in the hole in the wall.

**3314.12.9 Bearers for independent pole scaffolds.** Bearers shall be set with their greater dimensions vertical, and shall be long enough to project over the ledgers beyond the outer row of poles by at least 12 inches (305 mm) and beyond the inner

row of poles by at least 2 inches (51 mm). Bearers shall be supported on the ledgers, located against the sides of the poles and fastened to the ledgers.

### **3314.13 Fabricated frame scaffolds.**

**3314.13.1 Bracing.** Frames and panels shall be braced by cross, horizontal or diagonal braces or a combination thereof, which secure vertical members together laterally.

**3314.13.2 Vertical joining.** Frames and panels shall be joined together vertically by coupling or stacking pins or equivalent means. Where uplift can occur, the frames or panels shall be locked together vertically by pins or equivalent means.

**3314.13.3 Frame scaffold brackets.** Brackets used to support cantilevered loads shall be seated with side-brackets parallel to the frame and end-brackets at 90 degrees to the frames, shall not be bent or twisted from these positions and shall be used only to support light duty loads as defined in Section 3314.3.3, unless the design provisions of Section 3314.3 have been met.

**3314.14 Outrigger scaffolds (thrust out).** Outrigger scaffolds (thrust out) shall not be used for loading in excess of 50 pounds per square foot (244.1 kg/m<sup>2</sup>) (medium duty).

**3314.14.1 Outrigger beams.** The fulcrum point of the beam shall rest on a secure bearing at least 6 inches (152 mm) in each horizontal dimension. The beam shall be secured against movement and shall be securely braced against tipping at both the fulcrum point and the inboard end.

**3314.14.2 Inboard supports.** The inboard ends of outrigger beams shall be securely fixed to resist all vertical, horizontal, and torsional forces. Pull-out tests for adhesive and expansions anchors, if used, shall be approved by the commissioner.

### **3314.15 Two-point adjustable suspension scaffolds.**

**3314.15.1 Width and support.** Two-point suspension platforms shall be at least 20 inches (508 mm) but not more than 36 inches (914 mm) in width unless designed by an engineer. Each end of the platform shall be supported by a stirrup or hanger that meets the requirements of Section 3315.15.2, and the platform shall be securely fastened thereto. Not more than two hangers or stirrups shall be used to support one scaffold.

**3314.15.2 Hangers or stirrups.** Hangers or stirrups shall be of steel or wrought iron. Each such hanger shall be formed to properly fit the platform and the hoist mechanism. The hanger or stirrup shall be placed at least 6 inches (152 mm) but not more than 18 inches (457 mm) from the end of the platform unless the manufacturer specifies otherwise.

**3314.15.3 Fiber suspension rope.** The use of fiber rope shall be limited to light duty two-point suspension scaffolds. Fiber rope shall be at least equivalent in strength and suitability to  $\frac{3}{4}$ -inch (19 mm) grade #1 unspliced manila rope.

Fiber rope susceptible to damage from corrosive substances shall not be permitted for or near any work involving the use of corrosive substances

Fiber rope shall not be used where the upper block is more than 100 feet (30 480 mm) or ten stories above the ground or roof setback.

All blocks shall fit the size of rope they carry, and shall be constructed so as not to chafe the rope.

**3314.15.4 Combination.** Two or more two-point suspension scaffolds shall not be combined into one by bridging the distance between them or by any other form of connection.

**3314.15.5 Number of workers.** Not more than two workers shall be permitted to work on one scaffold at one time except where the scaffold is designed to hold more. Written permission from the commissioner shall be required for more than two workers on the scaffold.

**3314.15.6 Device to raise, lower, and hold the scaffold.** Every two-point suspension scaffold shall be equipped with an approved device to raise, lower or hold the scaffold in position.

**3314.15.7 Platforms.** The platforms of every two-point suspension scaffold shall be ladder-type, plank-type, beam-type, light-metal type, or another type acceptable to the commissioner.

**3314.16 Corner and angle scaffolds.** Corner and angle scaffolds shall comply with the following:

**3314.16.1 Motors.** As many motors as needed shall be provided to maintain the stability of the platform under all operating conditions.

**3314.16.2 Maximum number of people.** The number of people allowed on a corner or angle scaffold shall not be more than the number of motors required to keep the scaffold stable, unless otherwise designed by an engineer.

**3314.16.3 Permit application.** The following equipment information shall be submitted by an engineer with the permit application for corner and angle scaffolds:

1. Plans and details of the equipment;
2. Load capacity and distribution charts;

3. Certification from the engineer that he/she has reviewed the manufacturer's design calculations and testing or prepared sufficient calculations of his/her own and found them to conform to this code; and
4. Any supporting data, drawings, or calculations.

**3314.16.4 Inspection.** The equipment setting for corner and angle scaffolds shall be inspected by the department prior to its use. Additional inspection by the department shall be required each time the equipment is moved to a different position.

**3314.17 Multiple-point adjustable suspension scaffolds.** Multiple-point suspension scaffolds shall comply with the following:

1. All multiple-point suspension scaffolds shall be supported by wire ropes. The use of fiber ropes is not permitted;
2. Provision shall be made to prevent supports from slipping off the ends of outrigger beams;
3. Platform bearers shall be of metal; and
4. During raising or lowering, the levels of the various sections of the scaffolds shall be kept uniform and the differential height between sections shall be minimized.

**3314.18 Manually-propelled, free-standing scaffolds.** All manually-propelled free-standing scaffolds shall meet the following requirements:

1. Work platforms shall be tightly planked for the full width of the scaffold, except for necessary entrance openings. Planks shall be secured in place;
2. Platforms shall have a guardrail system;
3. Where a ladder is used to approach a platform, the ladder shall be secured to the scaffold;
4. Handholds shall be provided for safe passage from the ladder to the platform;
5. Unless temporarily braced to an adjacent structure, the ratio of the platform height to the least base dimension shall be such as to assure stability, but in no case shall such height be more than four times the least base dimension;
6. Provisions shall be made to prevent the scaffold from falling during movement from one location to another;
7. While the scaffold is in use, it shall rest upon a stable footing and shall stand plumb. The casters or wheels shall be locked in position; and

8. While the scaffold is being moved, no person shall be permitted to ride on it, and all tools, equipment and material shall be removed.

**3314.19 Mast-climbing work platform.** Mast-climbing work platforms, including all supports, fastenings, connections, and details shall not be erected or installed unless and until a written permit has been issued by the commissioner on the basis of construction documents, drawings, and specifications. Copies of the written permit application shall be kept at the site and made available to the commissioner upon request. Such permit shall be issued in accordance with rules promulgated by the commissioner.

## **SECTION BC 3315** **STRUCTURAL RAMPS, RUNWAYS, AND PLATFORMS**

**3315.1 Ramps and runways.** Ramps and runways (including elevated walkways) shall comply with the requirements of Section 3315.1.1 through 3315.1.5.

**3315.1.1 Construction.** All runways and ramps shall be constructed, braced and supported to resist lateral displacement and all vertical loads, including impact.

**3315.1.2 For motor vehicle use.** Runways and ramps for the use of motor vehicles may consist of an earthfill or may be structurally supported. Such runways and ramps shall have a clear width of not less than 12 feet (3658 mm) with timber curbs at least 8 inches by 8 inches (203 mm by 203 mm) placed parallel to, and secured to, the sides of the runway or ramp. The flooring of structurally supported ramps shall consist of no smaller than 3 inch (76 mm) planking full size, undressed, or equivalent material, with spans designed for the loads to be imposed.

**3315.1.3 For use of workers.** Runways and ramps for the use of workers shall be at least 1 foot 6 inches (457 mm) in clear width. Where used for wheelbarrows, handcarts, or hand-trucks, runways and ramps shall be at least 3 feet (914 mm) in clear width. Flooring shall consist of at least 2 inch (51 mm) planking spanning as permitted by Table 3314.5.2, laid close, butt-joined, and securely fastened.

**3315.1.4 Slope limitations.** Ramps shall have a slope not steeper than one in four. If the slope is steeper than one in eight, the ramp shall be provided with cleats spaced not more than 14 inches (356 mm) apart and securely fastened to the planking to afford a foothold. Spaces in the cleats may be provided for the passage of the wheels of vehicles. The total rise of a continuous ramp used by workers carrying material or using wheelbarrows, hand-carts, or hand-trucks shall not exceed 12 feet (3658 mm) unless broken by horizontal landings at least 4 feet (1219 mm) in length.

**3315.1.5 Guardrail required.** All runways and ramps located more than 5 feet (1524 mm) above the ground or floor shall be provided with a standard guardrail and standard toeboard that meets the requirements of Section 3307.8 on open sides.

Where it is possible for the public to pass under, or next to, runways or ramps, the space between the top rail and the standard toeboard shall be enclosed with a wire

screen composed of not less than no. 18 steel wire gage with a maximum ½ inch (12.7 mm) mesh.

**3315.2 Platforms.** Platforms shall comply with the requirements of Sections 3315.2.1 through 3315.2.2.

**3315.2.1 Planking.** Platforms used as working areas, or for the unloading of wheelbarrows, hand-trucks, or carts shall have a floor consisting of at least 2 inch (51 mm) planking spanning as permitted by Table 3314.5.2. Platforms for the use of motor trucks shall have a floor of at least 3 inch (76 mm) planking, full size, undressed or equivalent materials with spans designed for the loads to be imposed. Planking shall be laid close and shall be butt-joined and securely fastened.

**3315.2.2 Guardrail required.** Every platform more than 5 feet (1524 mm) above the ground or above a floor shall be provided with a standard guardrail and standard toeboard that meets the requirements of Section 3307.8, except that the side of the platform used for the loading or unloading of vehicles may be protected by a timber curb at least 8 inches by 8 inches (203 mm by 203 mm) for motor trucks or 4 inches by 4 inches (102 mm by 102 mm) for wheelbarrows and hand-trucks in lieu of the standard guardrail and standard toeboard.

Where it is possible for the public to pass under, or next to, platforms, the space between the top rail and the standard toeboard shall be enclosed with a wire screen composed of not less than no. 18 steel wire gage with a maximum ½ inch (12.7 mm) mesh.

**3315.3 Special requirements where power buggies are used.** Runways, ramps, platforms, and other surfaces upon which power buggies are operated shall meet the following minimum requirements:

1. They shall be designed by a qualified person.
2. They shall be able to sustain, without failure, at least four times the maximum live load for which they are intended.
3. The minimum width, inside of curbs, for any ramp, runway, or platform shall be 2 feet (610 mm) wider than the outside width of any power buggy operated thereon without passing, and 3 feet (914 mm) wider than twice such buggy width in the places where passing occurs.
4. All runways shall be essentially level transversely.
5. Curbs shall be furnished along all buggy traffic paths that are nearer than 10 feet (3048 mm) horizontally to any unenclosed area, shaft, or other open space into which or through which a fall of more than 12 inches (305 mm) from such surface is possible, except as set forth in numbered item seven.

6. Where curbs are not required because the buggy is operated on a surface not over 12 inches (305 mm) above another surface, the lower surface shall be strong enough to sustain the loaded vehicle in the event of a fall thereon.
7. Curbs may be omitted at actual dumping points more than 12 inches (305 mm) above other surfaces if the edge over which dumping occurs is provided with bumpers or other means that will effectively stop the buggy from running over the edge while dumping.
8. Curbs must be at least 7 inches (178 mm) high, securely fastened, and capable of resisting side impact, and shall be equivalent to at least 2 inch by 8 inch (51 mm by 203 mm) plank set on edge against uprights securely fastened and braced at not more than 4 foot (1219 mm) intervals.

### **SECTION BC 3316** **HOISTING EQUIPMENT**

**3316.1 Scope.** Hoisting equipment shall meet and be used in accordance with the requirements of this section. Material hoists and bucket hoists shall also meet the requirements of Section 3317, personnel hoists shall also meet the requirements of Section 3318, and cranes and derricks shall also meet the requirements of Section 3319.

**3316.2 Requirements.** Hoisting equipment, its supports and runback structures shall be installed, operated, and maintained to eliminate hazard to the public or to property. It shall be unlawful to operate any such equipment that is not provided with a positive means for preventing the unauthorized operation of such machine. The means whereby such machines may be made inoperative shall be accepted by the department.

**3316.3 Notification of hoisting accidents.** The owner or person directly in charge of any hoisting equipment shall immediately notify the commissioner following any accident involving hoisting equipment. Following an incident, no person shall permit either of the following, without the permission of the commissioner:

1. Use of such hoisting equipment; or
2. Removal of the hoisting equipment or any part thereof from the area of the job site.

**3316.4 Permit.** Permits for hoisting equipment shall comply with the requirements of Sections 3316.4.1 through 3316.4.5.

**3316.4.1 Acceptance of equipment.** Hoists and all pre-manufactured runback structures shall be approved for use by the commissioner or other agency acceptable to the commissioner

**Exception:** Cranes and derricks shall meet the requirements of Section 3319.3.

**3316.4.2 Posting of permits.** Permits, or duplicates of the permits, shall be posted in a conspicuous location in the car or on the equipment.

**3316.4.3 Construction documents.** Copies of the written permit application and approved construction documents shall be kept at the site and made available to the commissioner upon request.

**3316.4.4 Permit signage.** Following the receipt of a permit to install a hoist, the permit holder shall post a sign that meets the requirements of Section 3301.9.6. Such sign shall be clearly visible from the street.

**3316.4.5 Other temporary signage.** Other than as specified in Section 3301.10, there shall be no information, pictorial representation, or any business or advertising messages posted on the hoisting equipment or runback structure.

**3316.5 Design, construction and inspection.** Hoisting equipment, its supports and runback structures shall be designed, constructed and inspected in accordance with rules promulgated by the commissioner.

**3316.6 Rope inspection and replacement.** All ropes used in hoisting equipment shall meet the inspection and replacement requirements specified in rules promulgated by the commissioner.

**3316.7 Operation.** Only operators designated by the person causing such hoisting equipment to be used shall operate such hoisting machinery. Operators and signalmen/signalwomen shall be qualified for the operation they perform. The operator shall be responsible for making the machine inoperative before he or she leaves the machine.

**3316.7.1 Use.** Hoisting equipment, its supports and runback structures shall be operated in compliance with the manufacturing specifications, the requirements of this code, and rules promulgated by the commissioner. If there is a discrepancy, the stricter requirement shall be met.

**3316.7.2 Use during installation, jumping, dismantling, or alteration.** Personnel and building materials connected with or related to the building project shall not be moved by the hoist while it is being installed, jumped, dismantled or altered.

**3316.8 Maintenance.** Hoisting equipment, its supports and runback structures shall be maintained in compliance with the manufacturing specifications and rules promulgated by the commissioner. If there is a discrepancy, the stricter requirement shall be met.

**SECTION BC 3317**  
**MATERIAL HOISTS AND BUCKET HOISTS**

**3317.1 Scope.** Material hoists and bucket hoists shall meet the requirements of this section and Section 3316.

**3317.2 Permit.** The equipment user or his or her designated representative shall obtain a written permit issued by the commissioner on the basis of construction documents, drawings and specifications prior to erecting or installing all power-operated, material hoists, including any runback structure or supports.

**Exception:** Power-operated, non-guided material hoists with a maximum capacity of one ton or less and installed on new construction, or on alterations where the operation of the hoist is confined within the property and the site is protected in accordance with Section 3307.

**3317.3 Design, inspection, and operation.** Material hoists, bucket hoists and their components shall be designed, inspected, and operated in accordance with rules promulgated by the commissioner.

**3317.4 Construction.** Material hoists, bucket hoists and their components shall be constructed in compliance with the manufacturing specifications, the requirements of this code, and rules promulgated by the commissioner. If there is a discrepancy, the stricter requirement shall be met.

Upon completion of the installation of the hoisting equipment and/or its runback structure, an inspection report verifying that the hoist has been installed in accordance with the design drawings, construction documents and specifications shall be prepared by the designer, installer or an approved inspection agency designated by both the designer and installer.

**3317.5 Operation.** Notwithstanding any other provision of law, material hoists with a manufacturer's capacity over one ton shall be operated only by persons holding a Class A or Class B Hoisting Machine Operators License except during installation, jumping, dismantling or alteration operations.

## **SECTION BC 3318** **PERSONNEL HOISTS**

**3318.1 Scope.** Personnel hoists shall meet and be used in accordance with the requirements of this section and Section 3316.

**3318.2 Permit.** The equipment user or his or her designated representative shall obtain a written permit issued by the commissioner on the basis of construction documents, drawings and specifications prior to erecting or installing all power-operated, material hoists, including any runback structure or supports.

**3318.3 Design and inspection.** Personnel hoists and their components shall be designed and inspected in accordance with rules promulgated by the commissioner.

**3318.4 Construction.** Personnel hoists and their components shall be constructed in compliance with the manufacturer's specifications, this code, and rules promulgated by the commissioner. If there is a discrepancy, the stricter requirement shall be met.

Upon completion of the installation of the hoisting equipment and/or its runback structure, an inspection report verifying that the hoist has been installed in accordance with the design drawings, construction documents and specifications shall be prepared by the designer, installer or third party designated by both the designer and installer and acceptable to the commissioner.

**3318.5 Operation.** Personnel hoists and their components shall be operated in accordance with this code and rules promulgated by the commissioner.

When the hoist is equipped with manual controls, the hoist shall be operated by a competent qualified operator. Only the operator authorized by the equipment user shall operate the hoist.

**3318.5.1 Making safety devices inoperative.** No person shall at any time make any required safety device or electrical protective device inoperative except when necessary during tests, inspections and maintenance.

Immediately upon completion of the tests, inspections and maintenance, such devices shall be restored to their normal operating condition in conformance with the applicable requirements of this section.

## **SECTION BC 3319** **CRANES AND DERRICKS**

**3319.1 Scope.** The construction, installation, inspection, maintenance and use of cranes and derricks shall be in conformance with the requirements of this section, Section 3316, and with rules promulgated by the commissioner.

**3319.2 Operation.** Riggers and hoisting machine operators shall be licensed as required by Chapter 4 of Title 28 of the *Administrative Code*.

**3319.3 Requirements.** No owner or other person shall authorize or permit the operation of any crane or derrick without a certificate of approval, a certificate of operation and a certificate of on-site inspection.

### **Exceptions:**

1. The requirements of this section shall not apply to excavating or earth-moving equipment, except cranes used with clamshells.

2. The requirements of this section shall not apply to cranes or derricks performing an emergency use pursuant to the lawful order of the head of any department.
3. The requirements of this section shall not apply to mobile cranes, including jibs and any other extensions to the boom not exceeding 50 feet (15 240 mm) in length and with a manufacturer's rated capacity of 3 tons (2722 kg) or less.
4. The requirements of this section shall not apply to mobile cranes, including jibs and any other extensions, exceeding 50 feet (15 240 mm) but not exceeding 135 feet (41 148 mm) in length, and with a manufacturer's rated capacity of 3 tons (2722 kg) or less, except that a certificate of operation, as provided for in Section 3319.5, shall be required. The requirement for a certificate of operation shall not apply to such a crane used exclusively as a man basket. The commissioner may, by rule, exempt other mobile cranes of limited size from any or all requirements of this section.
5. The requirements of this section shall not apply to hoisting machines permanently mounted on the bed of material delivery trucks that are used exclusively for loading and unloading such trucks, provided that the length of boom does not exceed the length of the truck bed by more than 5 feet (1524 mm) and that any material transported thereon shall not be raised more than 2 feet (610 mm) in the unloading process. Operators of such equipment shall be exempt from licensing requirements described in Chapter 4 of Title 28 of the *Administrative Code*.
6. The requirements of this section shall not apply to cranes or derricks used in industrial or commercial plants or yards not used for the construction of the facility. Floating cranes, floating derricks, and cranes and derricks used on floating equipment shall also be exempt from the requirements of this section. Operators of such equipment shall be exempt from the licensing requirements described in Chapter 4 of Title 28 of the *Administrative Code*.
7. The requirements of this section shall not apply to augurs, churn-drills and other drilling equipment not used for hoisting any objects. Operators of such equipment shall be exempt from the licensing requirements described in Chapter 4 of Title 28 of the *Administrative Code*.
8. The requirements of this section shall not apply to derricks having a maximum rated capacity not exceeding 1 ton (907 kg).
9. The requirements of this section shall not apply to mechanic's truck with a hoisting device when used in activities related to the maintenance and repair of construction-related equipment.

10. The requirements of this section shall not apply to articulating boom cranes that do not have an integral hoisting mechanism, and that are used exclusively for loading and unloading of trucks or trailers, provided that the length of boom does not exceed 135 feet (41 148 mm) and that any material transported thereon shall not be raised more than 100 feet (30 480 mm) in the unloading process. Operators of such equipment shall be exempt from licensing requirements described in Chapter 4 of Title 28 of the *Administrative Code*.

**3319.4 Certificate of approval.** Certificates of approval shall comply with the following:

1. The manufacturer, owner, or designated representative of a crane or derrick for which a certificate of approval is sought shall file an application for such certificate of approval and provide such information as set forth in rules promulgated by the commissioner.
2. Upon the department's approval of the application described in item 1 above, the department shall issue a certificate of approval for the equipment and an approval of the submitted load rating chart.
3. A new certificate of approval shall be required when a crane or derrick is modified or altered to increase the boom length, jibs or any extensions to the boom beyond the maximum approval length or when the load ratings are increased.

**3319.5 Certificate of operation.** Certificates of operation shall comply with the following:

1. The commissioner shall issue the initial certificate of operations for the crane or derrick with certificate of approval upon satisfactory inspection and test indicating that such crane or derrick is in a safe operating condition. The initial certificate of operation shall expire one year from the date of issuance.
2. The owner of a crane or derrick covered by the certificate of operation shall renew the certificate of operation each year.
3. If the owner of the covered crane or derrick applies for renewal of a certificate of operation within not more than 60 nor less than 30 days prior to the date of its expiration, such owner may continue to use the covered crane or derrick until the department grants or denies a new certificate;
4. When a crane or derrick configuration is changed to increase the boom length, jibs or any extensions to the boom beyond the maximum approval length or when the load ratings are increased, a new certificate of operation shall be required. In such a case, the crane or derrick may not be operated until the new certificate of operation is obtained.

5. An application for a new certificate of operation shall be submitted when attachments that affect the stability or structure of the crane or derrick are added. Calculations and load rating charts as required by rules promulgated by the commissioner shall be submitted with the renewal request.

**3319.6 Certificate of on-site inspection.** Certificates of on-site inspection shall comply with the following:

1. The equipment user, or his or her designated representative, shall obtain a certificate of on site inspection for the use of any crane or derrick used for construction or demolition purposes at each job site. Such application for the certificate of on-site inspection shall include information set forth in rules promulgated by the commissioner.
2. Upon approval of the application, a copy of such approval shall be given to the applicant. It shall be unlawful to operate the equipment that is the subject of the approval until it has been inspected and found to be satisfactory by the department as set forth in rules promulgated by the commissioner. Upon inspection and a finding of satisfactory compliance, the approval shall be deemed a certificate of on-site inspection, which shall expire one year from the date of issuance. A certificate of on-site inspection may be renewed in accordance with rules promulgated by the commissioner;
3. The certificate of on-site inspection is y valid only if the conditions and statements contained in the approved application are complied with and the crane or derrick is operated in conformance with the provisions of this section and the rules applicable thereto.
4. A certificate of on-site inspection is not required for cranes or derricks performing work exempted from such requirement by rules promulgated by the commissioner.

**3319.7 Temporary certificates.** The commissioner may issue temporary certificates of approval, operation and on-site inspection for any crane or derrick during the pendency of an application for certificates of approval and operation upon inspection and upon such analysis and testing as the commissioner may deem necessary. The commissioner may revoke such temporary certificates if the application is denied.

## **SECTION BC 3320** **MATERIAL HANDLING EQUIPMENT**

**3320.1 Scope.** Material handling equipment shall meet and be used in accordance with the requirements of this section.

**3320.2 Requirements.** Material handling equipment shall be installed, operated, and maintained to eliminate hazard to the public or to property. It shall be unlawful to operate any such equipment that is not provided with a positive means for preventing the

unauthorized operation of such machine. The means whereby such machines may be made inoperative shall be acceptable to the commissioner.

**3320.3 Operation.** Only operators designated by the person causing such machinery to be used shall operate material handling machinery. Operators and signalmen/signalwomen shall be experienced at the operation they perform. The operator shall be responsible for making the machine inoperative before he or she leaves the machine.

**3320.3.1 Loading.** Loading of material handling equipment shall be conducted in accordance with the following requirements:

1. Material handling equipment shall not be loaded in excess of the rated load specified by the manufacturer. When necessary, manufacturer load ratings shall be reduced to take into account effects of wind, ground condition and operating speed.
2. Rated load capacities and required charts shall be conspicuously posted on all material handling equipment or on the job site and shall be available to the commissioner at all times.
3. All loads shall be properly trimmed to prevent the dislodgment of any part during raising, lowering, swinging or transit.
4. Suspended loads shall be securely slung and properly balanced before they are set in motion.

**3320.3.2 Refueling.** Refueling of material handling equipment shall be conducted in accordance with the following requirements:

1. The engine shall be stopped during refueling, except as otherwise provided in rules promulgated by the commissioner.
2. Open lights, flames, or spark-producing devices shall be kept at a safe distance while refueling an internal combustion engine.
3. No person shall smoke or carry lighted smoking material in the immediate vicinity of the refueling area.
4. "No smoking" signs shall be conspicuously posted in all fueling or fuel storage areas.
5. Fuel shall be kept in containers that meet the requirements of the Fire Department.
6. All other requirements of the Fire Department shall be satisfied.

**3320.4 Notification of accidents involving material handling equipment.** The owner or person directly in charge of any material handling equipment shall immediately notify the commissioner following any accident involving material handling equipment. In such a case, no person shall permit either of the following without the permission of the commissioner:

1. Use of such material handling equipment; or
2. Remove of the material handling equipment or any part thereof from the area of the job site.

**3320.5 Conveyors.** Conveyors shall meet the requirements of Sections 3320.5.1 through 3320.5.3.

**3320.5.1 Walkways.** Walkways along belt conveyors or bucket conveyors shall be kept free of materials and, where 5 feet (127 mm) or more above the ground, shall be provided with a standard guardrail and standard toeboard that meets the requirements of Section 3307.8 along the outside of the walkway. The standard guardrail and standard toeboard may be omitted on the side toward the belt if the walkway is located adjacent to the conveyor.

**3320.5.2 Trippers.** Where trippers are used to control discharge, a device for throwing the belt or bucket drive into neutral shall be installed at each end of the runway.

**3320.5.3 Spillage.** Where conveyor belts cross any traveled way, trays shall be installed to catch spillage and overhead protection shall be provided for persons or traffic passing beneath.

**3320.6 Trucks.** Trucks shall meet the requirements of Sections 3320.6.1 and 3320.6.2.

**3320.6.1 Maintenance.** All parts and accessories of trucks shall be kept in repair. Brakes shall be maintained so that the vehicle with full load may be held on any grade that may be encountered on the job. Provision shall be made for the immediate application of wheel blocks to trucks traversing ramps steeper than one in ten.

**3320.6.2 Loading.** Trucks shall not be loaded beyond the manufacturer's rated capacity, nor beyond the legal load limit, where applicable. The loads shall be trimmed before the truck is set in motion to prevent spillage. Loads that project beyond the sides of the truck, or that may be dislodged in transit, shall be removed or securely lashed in place.

**3320.7 Power buggies.** Power buggies shall meet the requirements of Sections 3320.7.1 and 3320.7.2.

**3320.7.1 Responsibilities of employers and workers.** Employers and workers shall have the following responsibilities regarding power buggies:

1. Every person causing a power buggy to be used shall provide trained and competent operators and shall carry out or enforce all provisions of this section pertaining to the use, operation, and maintenance thereof.
2. No person other than the operator assigned by the employer shall operate a power buggy. A power buggy shall be in the charge and custody of the operator assigned, and no other person shall in any way interfere with or handle it, nor shall the operator cause or permit any other person to do so.
3. No power buggy shall be operated unless it is in good operating condition and is so constructed that it is stable under conditions of normal use.

**3320.7.2 Operation and construction.** Power buggies shall be operated and constructed in accordance with the requirements of Section 3320.7.2.1 through 3320.7.2.4.

**3320.7.2.1 Brakes.** Every power buggy shall be provided with brakes and tire surfaces capable of bringing it to a full stop within 25 feet (635 mm) on a level surface that is similar to the one on which it will be used and at full rated load and maximum design speed. Brakes shall be capable of being fixed in engagement to hold the full load stationary on a 25 percent grade.

**3320.7.2.2 Accidental starting.** All movement controls of every power buggy shall be so arranged or shielded that they cannot be inadvertently engaged or the buggy accidentally set in motion.

**3320.7.2.3 Parking on grades.** No power buggy shall be left unattended on any grade sufficiently steep to cause it to coast if free of engine and brake resistance.

**3320.7.2.4 Use on ramps, runways and platforms.** Power buggies shall not be used on ramps, runways, or platforms that do not meet the requirements of Section 3315

**3320.8 Lift and fork trucks.** Lift and fork trucks shall meet the requirements of Sections 3320.8.1 through 3320.8.4.

**3320.8.1 Load capacity.** A metal plate with readily legible etched or stamped figures giving the capacity rating in pounds shall be attached to every lift or fork truck.

**3320.8.2 Maintenance.** All parts and accessories of lift or fork trucks shall be kept in repair and with brakes adequate to maintain the fully loaded vehicle on any grade that may be encountered on the job.

**3320.8.3 Loading.** No lift or fork truck shall be loaded beyond its capacity rating. No hand-operated pallet truck loaded so that any point on the load is at a greater height than 4 feet 6 inches (1418 mm) above the floor shall be moved by pushing unless handled by two persons.

**3320.8.4 Prohibited use.** No lift or fork truck shall be in motion when the loaded forks are elevated higher than necessary to clear obstructions, except as may be required for positioning, picking up, or depositing the load.

**3320.9 Hand propelled vehicles.** Hand propelled vehicles shall be constructed and braked to withstand the loads to be carried and shall be maintained in repair. Vehicles with loose parts shall not be used.

**3320.10 Mixing machines.** Where the public may have access to the working area near charging skips, standard guardrails that meet the requirements of Section 3307.8 shall be erected to enclose the area under the raised skip and the mixing machine. Each time before raising or lowering the charging skip, the operator shall ascertain that no one is in the danger zone.

**3320.11 Jacks.** Jacks shall meet the requirements of Sections 3320.11.1 through 3320.11.5.

**3320.11.1 Marking.** The rated capacity of every jack shall be legibly marked in a prominent location on the jack by casting or stamping. The manufacturer shall designate the intended supporting point of the load and the maximum permissible length of lever and force applied.

**3320.11.2 Overtravel to be limited.** Every jack shall, where practicable, be provided with a positive stop to prevent overtravel; otherwise an indicator to clearly show overtravel shall be provided on the jack.

**3320.11.3 Maintenance.** Lubrication and operation of jacks shall be in accordance with the recommendations of the manufacturer.

**3320.11.4 Foundations.** Jacks shall rest on a firm, level foundation adequate to support the load.

**3320.11.5 Blocking required.** When the object has been lifted to the desired height, blocking or cribbing shall be immediately placed under it if the jack does not have built-in safety devices such as stop-rings, locknuts, or place-in cylinder sleeves.

**3320.12 Cableways.** The construction, installation, inspection, maintenance and use of cableways shall be in conformance with rules promulgated by the commissioner.