

NOTE:

\*Text bounded by asterisk\* reflects concepts that were NOT discussed at the previous meeting.

[Text in brackets and highlighted] are questions, information, options or new material.

## 1400 Scope

(a) This standard applies to power-operated equipment used in construction that can hoist, lower and horizontally move a suspended load. Such equipment includes, but is not limited to: articulating cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes); industrial (such as carry-deck cranes); service/mechanic trucks with a hoisting device; a crane on a monorail; tower cranes (such as fixed jib (“hammerhead boom”), luffing boom and self-erecting); pedestal cranes; portal cranes; overhead/bridge cranes; straddle cranes; side-boom tractors; derricks; and variations of such equipment, except for equipment listed in paragraph (c).

(b) *Attachments.* This standard applies to equipment included in paragraph (a) when used with attachments. Such attachments, whether crane-attached or suspended include, but are not limited to: hooks, magnets, grapples, clamshell buckets, orange peel buckets, concrete buckets, drag lines, personnel platforms, augers or drills and pile driving equipment.

(c) *Exclusions.* This Subpart does not cover:

(1) equipment included in paragraph (a) that has been converted or adapted for a non-hoisting/lifting use. Such conversions/adaptations include, but are not limited to, power shovels, excavators and concrete pumps.

(2) power shovels, backhoes and excavators.

(3) automotive wreckers and tow trucks when used to clear wrecks and haul vehicles.

(4) service trucks with mobile lifting devices designed specifically for use in the power line and electric service industries, such as digger derricks (radial boom derricks), when used in these industries for auguring holes and to set power and utility poles. [need explanation for why this is excluded]

(5) vehicle-mounted aerial devices (for lifting personnel) and self-propelled elevating work platforms.

(6) hydraulic jacking systems [we will re-evaluate this when we discuss gantry cranes]

- (7) stacker cranes.
- (8) powered industrial trucks (forklifts).
- (9) mechanic's truck with a hoisting device when used in activities related to equipment maintenance and repair.
- (10) equipment that hoists by using a come-a-long or chainfall.
- (11) dedicated pile drivers.

(d) *Limited requirements.* The only requirements in this standard that apply to equipment with a manufacturer-rated hoisting/lifting capacity of 2000 pounds or less are in Sections 14XX through 14XX.

#### **1401 General Requirements**

Sections 1410 – 14XX (and the sections they refer to) apply to all equipment except equipment with a manufacturer-rated hoisting/lifting capacity of 2000 pounds or less.

#### **1410 Assembly/disassembly – Selection of Manufacturer or Employer Procedures**

When assembling and disassembling equipment (or attachments), the employer shall comply with either:

- (a) all manufacturer procedures applicable to erecting and dismantling, or
- (b) employer procedures for safe erecting and dismantling. Employer procedures may be used instead of manufacturer procedures only where the employer can demonstrate that the procedures used meet the requirements in section 14XX through 14XX.

#### **14XX Assembly/disassembly – General Requirements (applies to all assembly and disassembly operations)**

- (a) ~~Oversight~~ *Supervision – Competent-qualified person.* Assembly/disassembly must be ~~overseen~~ supervised by a person who meets the criteria for both a competent person and a qualified person (“competent-qualified person”), or by a competent person who is assisted by one or more qualified persons (“supervision team”).
- (b) *Knowledge of procedures.* The competent-qualified person/supervision team supervising the assembly/disassembly operation must understand the assembly/disassembly procedures.
- (c) *Review of procedures.* The competent-qualified person/supervision team supervising the assembly/ disassembly operation must review the erecting/dismantling procedures immediately prior to the commencement of erecting/dismantling unless the competent-

qualified person/ supervision team has applied them to the same type and configuration of equipment (including accessories, if any) with sufficient frequency, or sufficiently recently, so that they are already known and understood.

(d) *Crew instructions.* Before commencing assembly/disassembly operations, the competent-qualified person supervising the assembly/disassembly operation must determine that the crew members understand all of the following:

- (1) Their tasks.
- (2) The hazards associated with their tasks.
- (3) The hazardous positions/locations that they need to avoid.

(e) *Unexpected crane movements.* The operator shall not move any aspect of the equipment (or load) until the operator:

- (1) Knows where the employees working on the assembly/disassembly operation are located.
- (2) Sounds a warning that is understood by the assembly/disassembly workers as a signal that some aspect of the equipment (or load) is about to be moved.
- (3) Allows time for the assembly/disassembly workers in areas that are in danger from the movement of the equipment (or load) that is about to take place to get clear.

(f) *Working under the boom.* Employees must not be under the boom, except for: in-the-air assembly operations and reeving the hoist line. For in-the-air assembly operations and reeving the hoist line, the competent-qualified person/ supervision team must implement procedures that minimizes the risk of unintended dangerous movement and minimizes the duration and extent of exposure under the boom.

(g) *Addressing specific hazards.* The competent-qualified person/ supervision team supervising the assembly/disassembly operation must address all hazards associated with the operation with methods to protect the employees from them, including, but not limited to, the following:

- (1) *Site and ground bearing conditions.* Site and ground conditions must be adequate for safe assembly/disassembly operations and to support the equipment during assembly/disassembly.
- (2) *Blocking material.* The size, amount, and method of stacking blocking must be sufficient to sustain the loads and maintain stability.

(3) *Proper location of blocking.* When used to support lattice booms, blocking must be appropriately placed to:

- (i) Protect the structural integrity of the equipment, and
- (ii) Prevent dangerous movement and collapse.

(4) *Calculating assist crane loads.* When using an assist crane, the loads that will be imposed on the assist crane at each phase of assembly/disassembly must be calculated before assembly/disassembly begins in order to prevent exceeding manufacturer instructions, recommendations, specifications and limitations for the assist crane.

(5) *Lattice boom and jib pick points.* The point(s) of attachment of rigging to a lattice boom (or lattice boom sections or jib or jib sections) must be suitable for preventing structural damage and facilitating safe handling of the boom/ boom sections.

[Need diagram to insert]

(6) *Center of gravity.*

- (i) The center of gravity of the load must be identified unless that is unnecessary for the method used for maintaining stability.
- (ii) Where there is insufficient information to accurately identify the center of gravity, measures designed to prevent unintended dangerous movement resulting from an inaccurate identification of the center of gravity must be used. (See Non-mandatory Appendix XX for examples of techniques).

(7) *Stability upon pin release.* The load must be rigged to maintain stability upon the release of the pins.

(8) *Snagging.* Suspension ropes and pendants must be allowed to catch on the boom connection pins or cotter pins.

(9) *Loss of backward stability.* Backward stability must be considered before swinging the upperworks.

[Insert illustration (without text) from pg 191 of Ontario Handbook]

(10) *Wind velocity.* Wind velocity must be considered so that the capacity of the equipment is not exceeded.

(11) *Capacity limits.* During all phases of assembly/disassembly, manufacturer recommendations, specifications and limitations for maximum loads imposed on the

equipment, equipment components (including rigging), and lifting lugs and equipment accessories must be met for the equipment being assembled/disassembled.

(h) *Secondary braking device.* If the equipment has a boom hoist pawl or secondary brake, the pawl or secondary brake must be activated while the boom is being held during an assembly/disassembly operation.

(i) [Reserved]

(j) *Cantilevered boom sections.* Manufacturer instructions, recommendations and limitations on the maximum amount of boom supported only by cantilevering shall not be exceeded.

(k) *Weight of components.* The weight of the components must be readily available.

(l) [Reserved]

(m) *Components and Configuration.* The selection of components and configuration of the equipment (including pendant length), must be in accordance with manufacturer instructions, recommendations, limitations, and specifications. Where these are unavailable, a registered professional engineer familiar with the type of equipment involved must approve the selection and configuration of components. [Should this be in writing?] [Add post-assembly inspection here or in Inspections section?]

(n) *Manufacturer prohibitions.* The employer must comply with all manufacturer prohibitions.

**14XX Assembly/disassembly – Additional requirements for assembly/disassembly of booms and jibs (applies to both the use of manufacturer procedures and employer procedures).**

(a) *Dismantling (including shortening) booms and jibs.*

(1) None of the pins in the pendant are to be removed (partly or completely) when the pendant is in tension.

[Insert new diagram]

(2) None of the pins (top and bottom) on boom sections located between the pendant attachment points and the crane body are to be removed (partly or completely) when the pendant is in tension.

[Insert Diagrams A, B and C].

(3) None of the top pins on boom sections located on the cantilevered portion of the boom being removed (the portion being removed ahead of the pendant attachment points) are to be removed (partly or completely) until the cantilevered section to be removed is fully supported.

[Insert diagrams D and E]

(b) *Assembly of booms and jibs.*

(1) *Wind velocity.* Wind velocity must be considered before lifting the boom (or boom section or jib or jib section) off the ground.

#### **1411 Assembly/Disassembly – Employer Procedures – General Requirements**

(a) When using employer procedures instead of manufacturer procedures for erecting or dismantling, the employer shall ensure that the procedures are designed to:

(1) Prevent unintended dangerous movement, and to prevent collapse, of part or all of the equipment.

(2) Provide adequate support and stability of all parts of the equipment during the assembly/disassembly process.

(3) Position employees involved in the assembly/disassembly operation so that their exposure to unintended movement or collapse of part or all of the equipment is minimized.

(4) Incorporate all manufacturer prohibitions.

(b) *Qualified person.* Employer procedures must be developed by a qualified person.  
[still under discussion]

(c) *Certification.* Employer procedures must be certified by a qualified person and by the employer.  
[still under discussion]

#### **14XX Assembly and Disassembly – Employer Procedures – Additional Requirements for operations in the air.**

These requirements apply where the employer demonstrates that it is infeasible to use some or all of the blocking or similar support under the boom (such as a truck bed) that would be necessary to prevent unintended dangerous movement, and to prevent collapse, of part or all of the equipment. [Is this what is meant by in-the-air assembly/disassembly?]

- (a) ~~Each member of the erecting/dismantling crew must be a qualified person.~~
- (b) Each member of the assembly/disassembly crew must understand the assembly/disassembly procedures.
- (c) The crew leader must review the erecting/dismantling procedures with the crew immediately prior to commencement of assembly/disassembly.
- (d) *Hazards associated with removing pins.* In addition to addressing other hazards associated with assembly/disassembly, when using an assist crane and removing pins, the procedures used must meet the following requirements:

\_\_\_\_\_  
\_\_\_\_\_

[Is this paragraph (d) necessary?]

#### 1412 Operation – Procedures

- (a) The employer shall comply with all manufacturer procedures applicable to the operation of equipment, including its use with attachments.
- (b) *Unavailable operation procedures.*
  - (1) Where the manufacturer procedures are unavailable, the employer shall ensure compliance with all procedures necessary for the safe operation of the equipment and attachments.
  - (2) Procedures for the controls must be developed by a qualified person.
  - (3) Procedures related to the capacity of the equipment must be developed and signed by a registered professional engineer familiar with the equipment.
- (d) *Accessibility.*
  - (1) All procedures applicable to the operation of the equipment, including rated load capacities (load charts), recommended operating speeds, special hazard warnings, instructions and operators manual, shall be readily available in the cab at all times for use by the operator.
  - (3) Where load capacities are available in the cab only in electronic form: in the event of a failure which makes the load capacities inaccessible, the operator must immediately cease operations or follow safe shut-down procedures until the load capacities (in electronic or other form) are available.

(e) Postings. In addition to the requirements in paragraph (d), special hazard warnings must be conspicuously posted [so that it is in view of the operator.] [We will make this specific to electrical hazards and move to electrical hazards section]

#### **14XX Authority to stop operation**

The operator shall be responsible for those operations under the operator's direct control.[what does this mean? What is its purpose?] Whenever there is any doubt as to safety, the operator shall have the authority to stop and refuse to handle loads until safety has been assured [should we add: "by a qualified person" ?].

**1413 Signals – General Requirements** [NOTE: we have not yet revised this section the last draft]

[NOTE: U.S. Army Corps of Engineers: "A signal person must be used when point of operation, meaning the load travel and the area near and at load placement is not in full view of the operator."]

(a) *Types of signals.* Signals to crane operators must be by hand, voice, audible, or new signals.

(b) Hand, voice, or audible signals.

(1) The Standard Method must be used (see Appendix \_\_ for hand; \_\_ for voice; \_\_ for audible).

(2) *Exception:* where use of the Standard Method is infeasible, or where an operation or use of an attachment is not covered in the Standard Methods, Non-standard hand, voice or audible signals may be used. The following requirements apply to the use of Special Signals:

(i) *Non-standard signals.* The lift supervisor (where there is one), crane operator and signal person shall contact each other prior to the operation and agree on non-standard hand, voice or audible signals.

(c) *New signals.* Signals other than hand, voice or audible signals may be used where the employer demonstrates that the following requirements are met:

(1) Provides at least equally effective communication as Standard Method signals.

(2) There is an industry consensus standard for the new signal.

[Should new signals only be allowed where others are infeasible?]

(d) *Suitability*. The signals used (hand, voice, audible, or new), and means of transmitting the signals to the operator (such as direct line of sight, video, radio, etc.), must be appropriate for the site conditions.

[NOTE: Corps of Engineers: "Hand, unamplified voice and unamplified audible signals may not be used when the distance between the operator and the signal person is more than 100 feet."]

(e) During all crane operations the ability to transmit signals between the crane operator and signal person shall be maintained. If that ability is interrupted at any time, the operator shall safely stop all operations until it is reestablished and a proper signal is given and understood.

(f) If the operator becomes aware of a problem with the lift and needs to communicate with the signal person, the operator must safely stop all operations. Crane operations shall not resume until the operator and signal person agree that the problem has been resolved.

(g) Only one person gives signals at a time, except for emergencies (see paragraph (7)).

(h) Anyone who becomes aware of a problem with a lift may alert the operator or signal person by giving the emergency stop signal.

(i) All directions given to the crane operator by the signal person shall be given from the operator's direction perspective.

(j) Signals for multiple simultaneous crane functions may be given only where:

(1) the employer [which employer?] determines that, considering the capabilities of the crane and the experience and skill of the operator and signal person, such operation can be done safely.

(2) either the load is in full view of the operator or the hook is empty.

#### **14XX Radio, telephone or other electronic transmission of signals.**

(1) The equipment used to transmit signals shall be tested before beginning [the lift] [lift operations] [crane/derrick operations] to ensure that the signal transmission is clear and reliable.

(2) Signal transmission must be through a dedicated channel.

#### **14XX Voice signals – additional requirements**

(1) Prior to beginning [lift operations], the lift supervisor (if there is one), crane operator, and signal person, shall contact each other and review the Standard Voice Signals (see Appendix \_\_\_).

(2) Each voice signal shall contain the following three elements, given in the following order:

- (i) Direction.
- (ii) Distance and/or speed.
- (iii) Stop command.

(3) *Communication with multiple cranes/derricks.* Where the signal person is in communication with more than one crane/derrick, a system for identifying the crane/derrick each signal is for must be used, as follows:

- (i) for each voice signal, prior to giving the direction, the signal person shall identify the crane/derrick the signal is for, or
- (ii) an equally effective method of identifying the crane/derrick the signal is for must be used.

[Should (3) apply to all types of signal communication, or just voice?]

**14XX Hand signal chart.** Hand signal charts must be either posted on the equipment or readily available at the site.

#### **14XX Signal Person Qualifications**

(a) The employer [which employer?] shall ensure that each signal person meets the Qualification Requirements in paragraph (e) prior to giving any signals.

(b) *Documented qualifications.* The requirement in paragraph (a) is met where the employer has documentation from a qualified evaluator showing that the signal person meets the Qualification Requirements (see paragraph (e)).

(c) Where the employer does not have documentation showing that the signal person meets the Qualifications Requirements in paragraph (e), the employer is prohibited from using the individual as a signal person unless a comprehensive assessment demonstrates that the Qualification Requirements have been met. That assessment must include:

- (1) A verbal or written examination of the individual to determine if they know, understand and are competent in the application of the Standard Method for the signals used.
- (2) Observation of the individual giving signals during trial lifts.

(d) If subsequent actions by the signal person indicate that the individual may not meet the Qualification Requirements, the employer must not allow the individual to continue working as a signal person until a comprehensive assessment (or re-assessment) is made in accordance with paragraph (c) that confirms that the individual meets the Qualification Requirements.

(e) *Qualification Requirements.* Each signal person must:

- (1) Know and understand the Standard Method (see Appendices \_\_, \_\_, and \_\_) for the type of signals used.
- (2) \*Be competent in the application of the Standard Method for the type of signals used, in light of the equipment and conditions at the site.\*

**14XX . Requirements for equipment with a manufacturer-rated \*hoisting/lifting capacity\* below 2000 pounds.**

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**14XX Operational Aids**

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**14XX Inspections**

(a) *New and modified equipment.* Prior to initial use, new equipment and equipment that has been modified must be inspected by a [qualified person?] [competent-qualified person?] to determine if it meets the requirements of [this section?] [manufacturer instructions, recommendations, limitations, and specifications, or, where these are unavailable, the instructions, recommendations, limitations, and specifications of a registered professional engineer familiar with the type of equipment involved?]

(b) *Post-assembly.*

- (1) Upon completion of assembly, the equipment must be inspected by a [qualified person] [competent-qualified person] to determine if it is configured in accordance with manufacturer instructions, recommendations, limitations, and specifications. Where these are unavailable, the [qualified person] [competent-qualified person] must determine if it is configured in accordance with the instructions, recommendations, limitations, and specifications of a registered professional engineer familiar with the type of equipment involved.  
[Should this paragraph be moved to the assembly/disassembly section?]

(2) Any aspect of the configuration that fails to meet the requirements in paragraph (1) shall be corrected prior to using the equipment.

(c) *Pre-shift.*

(1) Equipment shall be visually inspected prior to each shift by a [competent person]; the inspection shall include observation for deficiencies during [trial] operation. ([Disassembly is not required as part of this inspection unless the results of the visual inspection or trial operation indicate that further investigation necessitating disassembly is needed]). At a minimum this inspection shall include the following:

- (i) All control mechanisms for maladjustments [interfering with proper operation?]
- (ii) All control [and drive?] mechanisms for excessive wear of components and contamination by lubricants, water or other foreign matter.
- (iii) Air, hydraulic, and other pressurized lines for deterioration or leakage, particularly those which flex in normal operation.
- (iv) Hooks and latches for deformation, chemical damage, cracks, or wear.
- (v) Wire rope reeving for compliance with the manufacturer's specifications.
- (vi) Electrical apparatus for malfunctioning, signs of excessive deterioration, dirt or moisture accumulation.
- (vii) Hydraulic system for proper fluid level.
- (viii) Tires (when in use) for proper inflation and pressure.
- (ix) Ground conditions around the equipment for proper support, including ground settling under and around outriggers, ground water accumulation, or similar conditions.
- (x) The equipment for level position.
- (xi) The equipment for level position after each move and setup.
- (xii) [Safety devices, including, but not limited to, boom angle indicators, boom stops, boom kick-out devices, anti-two block devices, and load moment indicators where required]. [or: Operational aids for proper functioning. (if we use "operational aids", then what is definition of that?)]

(2) If any deficiency in (i) through (xi) is identified, an immediate determination shall be made by the [competent person] as to whether the deficiency constitutes a hazard. If the deficiency is determined to constitute a hazard, the equipment shall be removed from service until the deficiency has been corrected.

(3) If any deficiency in (xii)(safety devices/operational aids) is identified, [this will then refer to section on safety devices/operational aids].

(4) Pre-shift inspections of the equipment's wire rope shall be done in accordance with section \_\_\_\_\_ .

(5) A qualified rigger (a rigger who is also a qualified person) shall inspect the rigging prior to each shift in accordance with 1926.251.

[Paragraph on operator authority to stop moved into separate section]

(d) *Monthly*. Each month the equipment shall be inspected in accordance with paragraph \_\_\_\_\_ (pre-shift inspections). The results of this inspection shall be documented.

(e) *Annual/periodic*.

(1) At least each year the equipment shall be inspected in accordance with paragraph \_\_\_\_\_ (pre-shift inspections).

(2) In addition, at least once a year, the equipment shall be inspected for the following:

(i) Deformed, cracked, or corroded members in the equipment structure (including the boom and, if equipped, the jib).

(ii) Loose bolts or rivets.

(iii) Cracked welds.

(iv) Cracked or worn sheaves and drums.

(v) Worn, cracked or distorted parts such as pins, bearings, shafts, gears, rollers and locking devices.

(vi) Excessive wear on brake and clutch system parts, linings, pawls and ratchets.

(vii) Operational aids for significant inaccuracies (see section \_\_\_\_\_ [operational aids]).

- (viii) Gasoline, diesel, electric, or other power plants for performance [what is the safety concern on this?] and compliance with safety requirements [such as?]
- (ix) Excessive wear of chain drive sprockets and excessive chain stretch.
- (x) Travel steering, braking, and locking devices, for malfunction.
- (xi) Excessively worn or damaged tires.
- (xii) Hydraulic, pneumatic and other pressurized hoses, fittings and tubing, as follows:
  - (A) Evidence of leakage at the surface of the flexible hose or its junction with the metal and couplings.
  - (B) Blistering or abnormal deformation of the outer covering of the hose.
  - (C) Leakage at threaded or clamped joints that cannot be eliminated by normal tightening or application of manufacturer procedures.
  - (D) Evidence of excessive abrasion or scrubbing on the outer surface of a hose, rigid tube, or fitting. Means shall be taken to eliminate the interference of elements in contact or otherwise protect the components. [this needs to be moved to the repair section].
- (xiii) Hydraulic and pneumatic pumps and motors, as follows:
  - (A) Loose bolts or fasteners.
  - (B) Leaks at joints between sections.
  - (C) Shaft seal leaks.
  - (D) Unusual noises or vibration.
  - (E) Loss of operating speed.
  - (F) Excessive heating of the fluid.
  - (G) Loss of pressure.
- (xiv) Hydraulic and pneumatic cylinders, as follows:

- (A) Drifting caused by fluid leaking across the piston.
- (B) Rod seals leakage.
- (C) Leaks at welded joints.
- (D) Scored, nicked, or dented cylinder rods.
- (E) Dented case (barrel).
- (F) Loose or deformed rod eyes or connecting joints.

(xv) Hydraulic filters, as follows:

- (A) Evidence of rubber particles on the filter element. If found, check for hose, D-ring or other rubber component deterioration.
- (B) Metal chips or pieces on the filter. If found, check for pump, motor or cylinder failure.

(3) If under the manufacturer's inspection instructions an item/ condition listed in paragraph (i) needs to be inspected sooner than annually, then the manufacturer's instructions shall apply for scheduling the inspection of that condition.

(4) If the manufacturer specifies that an item/condition not listed in paragraphs (1) or (2) is to be inspected, then that item/condition shall be inspected in accordance with the manufacturer instructions.

(5) The inspections under this section shall be documented.

(f) *Equipment not in regular use.*

(1) Equipment that has been idle for 1 month or more, but less than 6 months, shall be inspected by a [qualified person] in accordance with the requirements of paragraph (c)(Pre-shift inspection) before being placed in service [what does "placed in service" mean? Does this mean that it will be inspected twice before it is used – this inspection plus the pre-shift inspection?].

(2) Equipment that has been idle for 6 months or more shall be inspected by a qualified person in accordance with paragraph (e) (annual/periodic inspection) before being placed in service.

(3) *Stand-by cranes.* Stand-by cranes shall be inspected by a [qualified person] in accordance with the requirements of paragraph (c)(Pre-shift inspection) before being placed in service. [Same question as in (1)].

[What do we do about cranes “exposed to adverse environmental conditions?].

(4) If the manufacturer’s inspection instructions call for a more rigorous inspection, then the manufacturer’s instructions shall apply to this inspection.

CDAC Working Draft

## DEFINITIONS

- Attachments* means any device that expands the range of tasks that can be done by the equipment. These include, but are not limited to: an auger, drill, magnet, pile-driver, and personnel platform.
- Audible signal* means a signal made by a distinct sound or series of sounds. Examples include, but are not limited to, sounds made by a bell, horn, or whistle.
- Come-a-long* means a mechanical device typically consisting of a chain or cable attached at each end that is used to facilitate movement of materials through leverage.
- Chainfall* see come-a-long.
- Crew Leader* A worker who is both a competent person and a qualified person, who oversees an erecting/dismantling operation.
- Dedicated pile-driver* is a machine that is designed to function exclusively as a pile-driver. These machines typically have the ability to both hoist the material that will be pile-driven and to pile-drive that material.
- Dedicated Channel* A line of communication [assigned to] [used by] only one signal person and crane/derrick.
- In-the-air assembly operations* [Need definition]
- Operation* \_\_\_\_\_
- Operational aids* [Need definition]
- Procedures* include, but are not limited to: instructions, [diagrams],[recommendations], warnings, specifications, protocols and limitations
- Paragraph* refers to a paragraph in the same section of this Subpart that the word paragraph is used, unless otherwise specified.
- Qualified Evaluator* means an entity that has demonstrated that it is competent in accurately assessing whether individuals meet the Qualification Requirements in this Subpart for a signal person.

*Qualified Person* means a person who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training and experience, successfully demonstrated the ability to solve/resolve problems relating to the subject matter, the work, or the project.

*Section* means a section of this Subpart unless otherwise specified.

*Standard* means this Subpart unless otherwise specified.

*Special hazard*

*Warnings* means warnings of site-specific hazards (for example, proximity of power lines)

*Standard*

*Methods* means the protocols in Appendices for hand, voice and audible signals.

*Unavailable*

*procedures* means procedures that are no longer available from the manufacturer or have not been supplied by the manufacturer.

*Equipment* means equipment covered by this subpart.