Environmental, Health, and Safety (EHS) Minimum Performance Standards for Construction

Global Real Estate and Construction (GRC)
Corporate Environment, Health and Safety (EHS)
Rev. 1.4: August, 2018
CON-38 / PRO-21b

Table of Contents

Contractor EHS Program Section I

1. *Purpose / Objective* 3
2. *Scope:* 3
3. *Responsibilities:* 3
4. *Objective:* 3
5. *Definitions* 4
6. *Applicability* 4
7. *Minimum Performance Standards* 5
8. *Contractor Evaluation (s)* 5
9. *Required Components of EHS Plan* 6
10. *Contractor Qualification (s)* 6
11. *Disciplinary Action* 7
12. *Task Planning* 7
13. *Audits and Inspections* 7
14. *Stop Work Procedures* 7
15. *Job-Site Logistics Plan* 7
16. *Accident Prevention Signs* 8
17. *Posting of Emergency Phone Numbers* 8
18. *Building Egress* 8
19. *Movement of Material* 8
20. *Accidents, Injuries, Emergencies and Near Misses* 8
21. *Working at Heights* 9
22. *Forklifts and other powered industrial equipment* 11
23. *Fire Prevention and Protection* 11
24. *Hazardous Energy* 12
25. *Excavations* 13
26. *Confined Spaces* 14
27. *Personal Protective Equipment* 14
28. *Hazardous Chemicals and Materials* 14
29. *Asbestos* 15
30. *Lead Based Paint* 15
31. *Silica* 15
32. *Compressed Gas Cylinders* 15
33. *Cranes, Rigging and Helicopters* 16
34. *Environmental Requirements for Contractors* 18
35. *Solid and Hazardous Waste* 20
36. *ISO 14001 Environmental Management System (EMS)* 21
37. *Emergency Response Plan* 21

Contractor EHS Program Section II

38. BD's commitment to measuring construction safety performance **21**

39. BD's Construction Leading, Core 4 ..... **23**

- *A. Toolbox Talks (by contractor)* **23**
- *B. Job Hazard Analysis (JHA's)* **23**
- *C. Safety Engagement* **24**
- *D. Site Safety Orientations* **24**

40. BD's Construction Lagging, Core 3 ..... **25**

- *A. Labor (aka "man") Hours* **25**
- *B. OSHA Recordable Incidents* **25**
- *C. TRIR/TRFR (Total Recordable Incident/Frequency Rate)* **25**

Table1. Examples: Medium & High Risk Work Requiring JHA **26**

Attachment 1 : BD Global Construction Safety: **29**

Attachment 2: Crane Hand Signals **30**

Document Revision History: **31**

Attachment 3: Contractor Acknowledgement **32**

1. Purpose / Objective

A. This document establishes minimum global safety standards for any and all construction activities.

2. Scope:

A. These safety standards applies to the entire scope of a construction project (design, construction, commissioning and hand over) for any facilities (i.e. offices, manufacturing, distribution centers, warehouses, laboratories, and any other type of building/facility not specifically stated) that BD owns, leases, and operates, or will own, lease, and operate.

B. Construction projects include new facilities, expansions, major renovations and utility infrastructure.

C. This document identifies examples of medium & high risk tasks that require Job (or task) Hazard Analysis, review and additional approvals before proceeding (refer to table #1).

D. An external 3rd-party Safety Officer may be required, either by local law/regulation, or per BD's CON-36 (Project Risk Assessment Tool), which is built into CON-39 (Construction Service Request Form). BD Associate may perform the duties of a 3rd- party Safety Officer provided that the Associate meets these (3) criteria:

1) Performance of this role, by a BD Associate, must be in compliance with local laws/regulations
2) The Associate must meet all of the criteria within Table # 2
3) The Associate must be approved by BD's Global Construction Project Manager and Global Construction Safety Manager

3. Responsibilities:

A. The BD site project manager is responsible for addressing the requirements of this Standard.

B. Global Construction (GC) is responsible for ensuring that all BD construction projects meet the requirements of this Standard and to provide assistance to the BD local site project manager with implementation of this Standard.

C. The businesses are responsible for contacting Global Construction (GC) prior to engaging an architectural/engineering designer, general contractor/constructor, or other such consultant and/or supplier.

D. The contractor (aka vendor) is responsible for notifying Global Construction of any injuries requiring off site treatment, and the monthly EHS Connect Construction monthly safety data upload as outlined in "BD Core Four-Three" section of this document.

4. Objective:

A. This global construction safety standard (the "Standard") establishes minimum requirements for construction activities for BD's facility construction projects, globally.

B. To ensure all Construction Management/General Contractors, contractors and sub-contractors (all tiers) provide a workplace free of uncontrolled hazards to people, the environment and our sites during construction projects.

C. To clearly state the contractor's obligation to develop and comply with an EHS Plan. Further to ensure that all of its elements are implemented fully on the project site for the scope awarded to the contractor.

D. To ensure all BD projects are aligned with BD standards and local jurisdictional requirements.

5. Definitions

A. BD Contractor Representative (BDCR)

i. Any BD associate (e.g. project engineer, departmental or functional manager, supervisor, lead, etc.) who serves as the contractor's main contact (i.e., the person who solicits and oversees contractor work).

B. Construction work

i. Building, altering, improving, repairing, renovating or demolishing facilities and structures; installing new equipment, coating and structural remodeling or repair.

C. Hazard Analysis

i. A job planning process that identifies the steps necessary to perform an activity, identifies anticipated related hazards and identifies controls to eliminate or minimize hazards to the extent feasible.

D. Service and maintenance work

i. Activities to keep equipment or a structure in proper condition through routine, scheduled or anticipated measures without having to significantly alter the equipment or structure in the process. For equipment, this generally means keeping the equipment working properly by taking steps to prevent its degradation or failure.

6. Applicability

A. BD has established the following standards, outlined below, as the minimum requirements for all construction projects

i. OSHA CFR 29-1926 & 1910 **https://www.osha.gov**

ii. NFPA (National Fire Protection Agency) **http://www.nfpa.org**

iii. NEC (National Electrical Code) also known as NFPA 70 **http://www.nfpa.org**

iv. ANSI (American National Standards Institute) & ASME (American Society Mechanical Engineers) Crane standard B30.5 **http://www.ansi.org**

v. ANSI (American National Standards Institute) & ASME (American Society Mechanical Engineers) Rigging B30.10, B30.20 & B30.26 **http://www.ansi.org**

vi. EPA (USA) Local Environmental Regulations as applicable **https://www.epa.gov**

B. The above requirements apply to all Contractors, subcontractors, vendors and suppliers (into all tier levels) for BD construction projects worldwide.

C. These performance requirements may be amended and/or supplemented into more stringent requirements by Site or Project specific provisions.

D. Contractor(s) must also follow all applicable international, national, state, provincial, county, municipal or local laws or regulations.

E. Any waiver or amendment to the minimum requirements in these documents must be ratified in writing by BD's Global Real Estate and Construction (GRC) Project Manager and or GRC's Global Safety Manager, if necessary.

F. The above requirements apply to all Contractors, subcontractors, vendors and suppliers (into all tier levels) for BD construction projects worldwide. This also includes local BD site management or contractor (vendor) specific provisions.

G. Contractor(s) must also follow all applicable and or more stringent requirements by international, national, state, provincial, county, municipal or local laws or regulations. This also includes local BD site management or contractor (vendor) specific provisions.

7. Minimum Performance Standards

A. As a precondition, prior to commencing any field work, contractors shall submit their corporate EHS plan(s) for BD's review and comment.

B. Contractors should review this Minimum Performance Standards document and be prepared to comply with all of its elements. This document will become part of the final contract document.

8. Contractor Evaluation (s)

A. Contractors and their sub-contractors shall provide the following information when engaging in a contractor review and evaluation process:

   i. During contractor evaluation meeting(s), contractors must present an overview of EHS contract requirements and expectations as outlined in this document.

   ii. BD and contractor representatives shall review the following requirements for compliance of EHS project specific requirements and work scope challenges and present any specific requirements presented during the contractor evaluations and interviews.

   iii. This includes reviewing the following provided by contractor's:

      - History of Safety and Environmental Regulation Violations
      - Injury and Loss History (OSHA 300 log, or equivalent)
      - Total Recordable Incident Rate (TRIR) or Total Recordable Frequency Rate (TRFR)
      - Experience Modification Rate (EMR)
      - Job and Task Hazard Analysis (JHA) procedures and results
      - Written Safety Programs

B. Reviewing the outline of safety requirements in the work contract and in contractor manuals so there is a clearly communicated expectation of workplace safety. Topics to review include:

   i. Company and contractor safety responsibility and emergency contact information.

   ii. A description of hazardous areas, equipment, materials, and tasks at the worksite.

   iii. Safety programs that govern the safe work practices for the contracted job.

   iv. Equipment, tools, and supplies that the contractor or the employer need to provide.

   v. Personal Protective Equipment (PPE) required at the worksite and for job tasks.

vi. Training and certifications that contracted employees need prior to conducting work.

vii. Reporting requirements and procedures for injuries, illnesses, hazards, and safety concerns.

viii. The expectation for a drug and alcohol free workplace

C. At evaluation conferences, BD and contractor representatives shall review the above requirements for compliance of EHS project specific requirements and work scope challenges and present any specific requirements presented during the contractor evaluations and interviews.

9. Required Components of EHS Plan

A. EHS Staffing

i. Engage an on-site full time professional EHS Manager. Additional EHS professionals are at the discretion of the contractor to achieve the contractual EHS requirements. BD reserves the right to request a different EHS manager if expectations are not met.

B. Contractor Orientation and Training

i. Contractors performing construction work must designate a competent person before start-up and ensure that this individual is onsite whenever work is conducted. Related training records must be made available to BD upon request within a reasonable timeline.

C. Training

i. Contract employees (including site managers, supervisors and foreman) must attend BD EHS Orientation before staring work at any BD locations and annually thereafter as required by site or location procedures and policies.

D. Other Training

i. Contractors shall ensure that their associates are properly trained and maintain the relevant training documentation and necessary certifications to perform task in accordance to applicable laws regulations, BD policies and project specific safety and health plans.

E. Definition:

i. The competent person by definition is on who is capable of identifying existing and predictable hazards in the surroundings or working conditions with are unsanitary, hazardous or dangerous to employees and who has authorization to take prompt corrective measure to eliminate them.

10. Contractor Qualification (s)

A. As part of the formal RFP process, potential contractors, sub-subcontractors and suppliers shall submit their EHS plan and safety data outlined within this section.

B. Ensuring proposed contractors (all tiers) provide the following data for review and discussion:

i. Review of injuries over the last three (3) year period. This includes contractors
   - EMR
   - OSHA logs (Data logs for non US-based contractors)
   - TRIR/TRFR trending data

ii. Company should provide a copy of their EHS Corporate Policy with visible commitment to ZERO injuries, incidents and illnesses prevention.

11. Disciplinary Action

A. Contractors should have a disciplinary process which will ensure compliance with the EHS plan.

B. Contractors (or individual contract associates) who violate governmental regulation, project-specific safety and health plans, or company policies may be subject to dismissal from the site at the discretion of the facility.

12. Task Planning

A. A Job Hazard Analysis (JHA) should be conducted before any medium or high risk work that is being performed (enclosure). BD retains the right to request a JHA based upon the scope of the work.

B. At a minimum JHA should consist of the following:

i. JHAs must be approved by the General Contractor (GC) and/or Construction Manager

ii. JHAs must detail any actions taken to reduce hazards and communicated to all parties involved.

13. Audits and Inspections

A. At a minimum, conduct weekly audits to ensure compliance with the EHS plan and applicable regulations

B. The contractor must submit records of all audit reports, findings, and corrective actions monthly, via BD's EHS Connect system, and be retained through the Project close out.

14. Stop Work Procedures

A. BDCRs have the authority to stop contractor work when violations are identified and permit resumption of activities when appropriate.

15. Job-Site Logistics Plan

A. The Contractor shall prepare a Site Logistics Plan, which should be coordinated with local BD EHS and local management staff prior to the start of work.

B. The Site Logistics Plan should define areas for contractor parking, mustering, pedestrian and vehicle egress, material storage, waste collection, temporary facilities (site trailers), work areas, temporary hoarding, phasing, temporary utilities and crane locations (if applicable).

C. Job site Demarcation - Any specification for post in or fencing off a construction site shall be clearly established between the BD and contractor and be integrated into project specific safety and health plans, where applicable

D. Postings and barriers used outdoors must capable of withstanding weather conditions without failure or loss of message

16. Accident Prevention Signs

A. Contractors shall provide and post appropriate accident prevention signs (e.g. Hard hat area, safety glasses requirements, no thru traffic, construction personnel only etc.) That meet OSHA 29 CFR 1910.145 and 1926.200 specifications or equivalent regulatory requirements of the jurisdiction having authority. They shall be posted at all site entrances and exits.

17. Posting of Emergency Phone Numbers

A. Emergency numbers shall be posted at construction sites. At locations where posting is not feasible, all contract employees must be familiar with appropriate emergency procedures including emergency phone numbers.

18. Building Egress

A. Contractors shall not obstruct, block or permanently close any building exit, exit door, exit passageway, or any other part of a building's means of egress or any portion thereof without prior approval from the BD, who will consult with local EHS as appropriate

19. Movement of Material

A. Materials shall be brought to the job site by a predetermined route and time schedule as specified by the BD Representative.

B. Contractors shall keep such routes clean and free of debris.

20. Accidents, Injuries, Emergencies and Near Misses

A. Reporting

i. An EHS plan shall be available that describes how contractors will investigate and report safety and environmental incidents.

ii. Contractor shall submit to BD a weekly incident summary in addition to investigation requirements noted in this document.

iii. Contract employees must immediately report work related accidents, injuries, illnesses, near misses and incidents (spills) to contractor supervisors. These individuals shall notify the BD immediately.

B. Emergency

i. Contractor shall have a communicate plan that explains the actions to be taken in case of an emergency and to initiate a timely emergency response

C. Medical Care

i. Contractors shall have arrangements in place for minor first aid and medical treatment. Arrangement shall be determined prior to starting work.

ii. Contractors must report to BD any worker injury(s) that require off site medical treatment or care. The BD point of contact needs to be ***notified as soon as possible of the occurrence and no later than two (2) hours after the injury occurred.***

D. Incident Reporting and Investigation

i. The EHS plan must describe how contractors will investigate and report safety and environmental incidents

ii. ***Submit a preliminary (injury, accidents, near misses & property damage) to BD point of contact within 24 hours.***

iii. Contractors must submit a completed incident report to their BD point of contact ***within (2) two weeks*** of the incident's occurrence. BD may require a follow up conference call or meeting with contractor to review final report and corrective actions proposed and or implemented.

iv. Contractor must submit to BD site representative a monthly incident summary in addition to investigation requirements noted in this document via EHS Connect system

21. Working at Heights

A. Fall Protection

i. Contractors shall comply with fall protection requirements aligned with OSHA 29 CFR 1926.500-503 or equivalent regulatory requirements of the jurisdiction having authority.

ii. In accordance with fall protection standards for construction, employees exposed to fall hazards of (6) feet / (3.5) meters or more shall be protected from falling by the use of a guardrail, work positioning, or personal fall arrest systems (PFAS). Such protection shall also be used for work above dangerous equipment even if the fall hazard is less than six feet.

iii. A review shall be conducted by the contractor supervisor to determine the structural integrity of the surface, how fall protection will be incorporated and any potential impacts to BD operations.

iv. Performing work task from ladders is not a preferred practice of BD. Performing task works at height(s) from by personnel should be performed from a scissor's, boom lift, A-frame stepladder or an approved ladder with a built in standing/work platform (by the manufacturer). Fall protection while operating in boom and scissors lifts is a best practice and preferred by BD.

B. Steel Erection

i. Contractors shall comply with OSHA2 CFR1926.750-753 or equivalent local regulatory requirements.

ii. A hazard analysis shall be performed by the contractor and approved by the BDCR prior to starting steel erection work.

C. Aerial Work Platforms

i. Contractors who use aerial work platforms shall comply with applicable OSHA standards or equivalent regulatory requirements of the jurisdiction having authority. These devices must be constructed in accordance with applicable ANSI standards and inspected, used, maintained, and repaired in accordance with manufacturer instructions.

D. Scaffolds

i. Scaffold erection and use shall comply with OSHA 29 CFR 1926.450 thru 454 or equivalent regulatory requirements of the jurisdiction having authority.

ii. A competent person who possesses proper training and experience in scaffold erection shall be onsite during scaffold erection, alteration, or dismantling

iii. The competent person shall determine the feasibility and safety of using personal fall protection during these activities. When the use of personal fall protection is deemed not feasible or unsafe, this determination must be documented and retained by the contractor.

iv. The competent person shall conduct scaffold inspections during each shift

v. Employees who erect, alter, use, and dismantle scaffolds must be appropriately trained.

E. Portable Ladders

i. Contractors shall comply with OSHA 29 CFR 1926,1050-1060 or equivalent regulatory requirements in your country

ii. Portable ladders shall be inspected for defects prior to each use and used, maintained and repaired in strict accordance with manufacturer' instructions.

iii. Defective ladders shall be removed from service immediately.

F. Roof Work

i. The following rules apply to roof work:

- Smoking is prohibited.
- Substances other than water must not be poured into roof drains.
- BDCR approval is required before hoisting equipment onto roofs.
- Dropping material from roof tops without the use of a chute is prohibited.
- Materials and debris must be cleaned and cleared from roof tops daily. Any materials, tools or other remaining equipment must be securely anchored.
- Roof membrane penetrations and roof openings must be covered with warning signage during off hours.
- Employees shall be protected from falling from side or through roof openings with the use of guardrails, safety nets, and covers capable of supporting weight secured in place and with warning label or personal fall arrest systems on roofs with unprotected sides and edges.
- A fall protection strategy should be outlined in the Project Safety Plan

- Propane Tanks shall be:
  (a) equipped with a pressure regulator at the tank
  (b) equipped with burner over-temp cutout separate from the temp control circuit
  (c) protected from vehicle or equipment impact
  (d) located outdoors in a well-ventilated area (i.e. not in a pit or other area that would be conducive to vapor accumulation)
  (e) equipped with a shutoff valve installed on the LP gas line for each appliance attached, as close to the appliance as possible (in addition to the line installed at the tank)
  (f) must be at least (10) ft. / (3) meters from the building structure (up to 6,000 lb / 3000 kg capacity) and at least (25) ft. / (8) meters from the building for larger tanks.

22. Forklifts and other powered industrial equipment

A. Forklifts and other Powered Industrial Trucks (PIT) shall only be operated by trained and experienced personnel in accordance with 29 CFR 1926.250-252 or equivalent regulatory requirements of the jurisdiction having authority.

B. Recharging of batteries for electric vehicles is permitted only in areas designated for that purpose.

C. Powered industrial trucks, mobile equipment, and forklifts shall be equipped with operational ROPS (Roll-Over Protective Structure) and backup alarms

D. Seatbelts shall be available and worn when operating any powered industrial trucks, mobile equipment, and forklifts

E. Contractors are not permitted to use BD forklift or other PITs unless a specific agreement is made between the contractor and BDCR.

23. Fire Prevention and Protection

A. Fire Extinguishers

   i. Contractors shall provide fire extinguishers which are rated for multipurpose applications. One extinguisher is required for every (3,000) square feet / (278) square meters of construction area.

B. Storage of Flammable Liquids

   i. Storage of flammable liquids in construction trailers is prohibited. Flammable liquid storage outside of an approved storage cabinet in any room must be limited to (25) gallons / (94) liters. A maximum of (60) gallons / (227) liters, aggregate, may be kept on hand in any one fire area when stored in an approved cabinet.

   ii. Flammable liquids must be stored in secondary containment, which is capable of containing the entire content of a spill from the primary container

C. Hot Work

i. Cutting, welding, brazing, grinding, burning, soldering, and other spark or flame producing operations (i.e. hot works) must be performed in accordance with 29 CFR 1926 or equivalent regulatory requirements of the jurisdiction having authority.

ii. An FM Global hot work permit signed by the contractor supervisor and cosigned by the BDCR or designee is required for hot work.

iii. Fire extinguishers, curtains, blankets, and other applicable safety equipment associated with hot work must be supplied by the contractor.

iv. A Hot Work Permit is also required before using electric tools or other spark producing equipment in hazardous locations/classified areas (eg. Class 1, II or III)

D. Fire Protection Impairment

i. If the fire protection system is placed out of service (impairment) during construction, maintenance or any other valid purpose, timely and accurate fire protection impairment reporting helps safe guard property from fire and potential costly business interruption. The red tag permit system should be utilized and impairment communicated to Factory Mutual.

24. Hazardous Energy

A. Electrical Safety

i. Temporary electrical power, hookups, connections and materials must comply with the National Electric Code (NEC/NFPA 70) or equivalent.

ii. Temporary light stringers shall be made of heavy duty cord and be inspected regularly to ensure that burned out or broken bulbs are immediately replaced.

iii. Flexible cords to be rated for hard or extra-hard usage per NEC requirements. All cords shall be indelibly marked approximately every foot along the length of the cord. Reference 29 CFR 1926.405(a)(2)(ii)(J)]:

- Examples markings are: S, ST, SO, and STO for hard service, and SJ, SJO, SJT, and SJTO for junior hard service

iv. Where temporary wiring is permitted it shall be secured and placed a minimum of (8) feet / (2.5) meters above the floor.

v. Electrical equipment, including portable hand tools, must be properly grounded or double insulated.

vi. Work on live electrical circuits panels is very dangerous and is strongly discouraged. If this work must be completed it is to be performed in accordance with the safety precautions prescribed in NFPA 70E.

vii. Power distribution system (overhead lines, transformers, substation) to be performed in accordance with requirements in ANSI/IEEE C-2

viii. Ground fault interruption (GFCI) equipment must be used throughout construction areas.

- GFCI should be tested at least every (3) months

ix. Unprotected circuits are not permitted.

x. Electrical tools and extension cords shall be inspected before use to ensure proper grounding and to identify cracked housings, damaged insulation, and other electrical problems. Damaged tools and cords shall be removed from service immediately.

B. Lock-Out/Tag-Out

i. Contractors shall control exposure to hazardous energy as required by OSHA 29 CFR1926, 29 CFR 1910.147 or equivalent regulatory requirements of the local jurisdiction.

ii. BD develops written energy control procedures prior to performing most lock/tag-out activities associated with BD-owned equipment. BD will provide these documents where applicable and available. Where they do not exist, written energy control procedures must be developed prior to commencing work.

iii. Contractors must supply locks and keep records of to whom they are assigned. Each lock must only have one key.

iv. Tags shall include the names of the contract employee, contactor, and project title.

25. Excavations

A. Excavations work shall be complied in accordance with 29 CFR 1926.650-652 or equivalent.

B. Contractors shall perform a hazard analysis before excavation work. Underground obstruction/utilities shall be properly marked before digging in accordance with applicable local or regional rules.

C. Care must be taken when machine excavating in proximity of utilities, foundation and other obstructions. When excavation operations approach the estimated location of underground obstruction, their exact location shall be identified by hand digging or an equivalently safe method.

D. The BDCR shall be immediately notified of damage to existing underground utilities and services. Such damage shall be promptly repaired by the contractor at the contractor's expense.

E. Excavations that are five feet or greater in depth must be protected from cave in or collapse by appropriate protective systems as defined by OSHA 29 CFR 1926. 652 or equivalent regulatory requirements of the local jurisdiction.

F. A Registered Professional Engineer (PE) must approve, in writing the use of steel plates for shoring.

G. No excavated material shall be stored or placed closer than (2) feet / (0.6) meters to the edge of the excavation.

H. Excavations must be enclosed with protective fencing or an equivalent barrier material at the end of each shift. Open trenches located on roads used by emergency or delivery vehicles shall be covered with steel plates designed to withstand the maximum anticipated load. Plates shall be supplied by the contractor.

26. Confined Spaces

A. Contractors shall comply with confined space entry requirements of OSHA 29 CFR 1910.146 or equivalent regulatory requirements of the local jurisdiction.

B. BDCR will inform the contractors of any hazards associated with space to be entered. Depending on the scope and magnitude of the site, existing BD permit required confined spaces prior to entry.

C. Contractors shall provide adequately trained entry supervisor, authorized entrant(s), attendant and atmospheric tester (if applicable) for their permit required confined space entries.

D. Entry is prohibited when onsite rescue plan and or services are unavailable or otherwise incapable of providing rescue services.

E. Contractors must supply equipment (e.g. non-entry rescue equipment, personal protective equipment, communication equipment, etc.) for permit required confined space entries.

27. Personal Protective Equipment

A. General Requirements

i. Contractors shall properly select, supply, use and maintain personal protective equipment (PPE) as required in OSHA 29 CFR 1926 & 1910 Subpart I or equivalent regulatory requirements of the jurisdiction having authority.

ii. PPE must be selected by a competent individual and be made available prior to the start of the work requiring its use.

iii. Employees required to wear PPE must be trained prior to its use.

iv. The following PPE, at a minimum, shall be supplied and used by contractors who perform construction work.

v. Hard hats (in construction areas and areas where there is a potential for head injuries from electrical, striking, bumping, or falling or flying object hazards.)

vi. Safety glasses with side shield (meeting the requirement of ANSI Z87 or equivalent)

vii. Sturdy work shoes or boots. Steel toe, electrical, metatarsal, slip and puncture resistant shall be worn as necessary.

viii. Long pants and a minimum of a t-shirt

28. Hazardous Chemicals and Materials

A. Chemical Hazard Communication

i. Contractors shall establish a site-specific written hazard communication program which meets the requirements in OSHA 29 CFR 1910.1200(e) or equivalent local regulatory requirements prior to the commencement of work.

ii. The BDCR shall provide the contractor with access to the Safety Data Sheets (SDS) of hazardous chemicals related to BD operations, to which contractors may be exposed.

iii. Contractors shall maintain a list of hazardous chemicals brought on site and ensure that associated SDSs are readily available to everyone on the site.

iv. Contractors shall inform their employees of BD related hazardous chemicals, ways to control exposures and the location of more information.

29. Asbestos

A. Asbestos containing material (ACM) exists throughout many BD buildings. Asbestos may be present in items such as, but not limited to, sheetrock joint, thermal system insulation, floor tile, roofing materials, fire proofing, lab benches, fume hood components, joint compound, concrete block filler materials and heavy exterior paints etc.

B. The BDCR shall advise the contractor of the existence and or/extent of ACM before a project begins.

C. Questions that arise during construction/maintenance regarding the composition of material shall be referred to the BDCR immediately.

D. Materials that are suspected to contain asbestos must not be removed or disturbed. Sampling and analysis will be coordinated with the BDCR. Sampling results will be promptly conveyed to the contractor.

E. Abatement activities shall only be performed by state licensed contractors or equivalent and in accordance with applicable laws and regulations. All efforts shall be taken to eliminate the release of ACM as the result of contractor activities.

30. Lead Based Paint

A. Lead abatement shall be performed by a state licensed contractors aligned with OSHA 29 CFR 1926.62 or equivalent local regulatory requirements.

B. Minor removals of small areas containing lead-based paint may be performed by contractors if the removal is incidental to the actual work being conducted (e.g. demolition of block wall containing lead paint). Such removals, however, shall be conducted in accordance with OSHA 29 CFR 1926.62 or equivalent local regulatory requirements. These steps must be addressed by the project specific safety and health plans, if applicable.

31. Silica

A. Contractors shall conduct a hazard analysis before performing work that may generate silica dust to ensure that necessary exposure controls and monitoring plans are in place and that necessary training is conducted.

32. Compressed Gas Cylinders

A. The following rules apply to compressed gas cylinders used by contractors:

i. Cylinders shall be temporarily labeled with the name of the contractor, contact name and phone number.

ii. Cylinders shall be stored in an upright position and secured with hardwired chain, or equivalent, around the upper section of the body.

iii. Cylinder carts shall be used whenever feasible for transporting and securing cylinders.

iv. Empty cylinders shall be tagged and marked “EMPTY”.

v. Regulators shall be removed at the end of each shift and valve protection caps shall be replaced.

vi. Cylinders must not be bumped or rolled.

vii. Leaking or defective cylinders are to be removed from service immediately.

viii. Oxygen and fuel gas cylinders shall be stored at least (20) ft. / (6.5) meters apart or separated by a (5) foot / (1.5) meters high fire barrier rated at (30) minutes.

ix. Full and empty cylinders shall be protected from excessive heat, snow and ice, and separated when in storage.

33. Cranes, Rigging and Helicopters

A. Crane operators shall comply with the following rules:

i. Crane Operators shall be certified by a recognized agency (e.g. NCCCO/NCCER, or other)

ii. A safety zone must be established outside of construction areas when crane booms or helicopters will extend outside of the area for material handling.

iii. Performing a site evaluation of the crane's work zone, including the path to and from that work zone before and after the completion of the project.

iv. Evaluating the crane's work zone's necessary proximity to power lines. (20 ft. clearance must be kept at all times unless the power line's voltage is more than 35,000 volts, in which case the clearance required increases to 50 ft.)

v. Inspecting the crane and equipment – must be done by competent, trained personnel

vi. Provide crane safety training before any operators are allowed to use the equipment

vii. Provide crane operator & rigger training before any workers are allowed to use the equipment

viii. Crane Assembly/Erection Plan - only qualified, trained workers may oversee the erection of a crane and inspect it for damage

ix. Crane Dismantling plan – because the newly built structure may make dismantling

B. Lift Plan

i. Lift plan must meet or exceed OSHA 1926.1432

C. Rigging & Signaling

i. Contractors shall comply with OSHA 29 CFR 1926.550-556 or equivalent regulatory requirements of the jurisdiction having authority.

ii. Contractors shall ensure that rigging is maintained in a safe condition and inspected before each use.

iii. For the purpose of definition, this document shall apply during any and all construction and facility maintenance activities. This document shall also apply for any crane and rigging activity where 75% of the crane, gantry or derrick's rated capacity is exceed.

iv. A certified rigger is a person who has been trained and certified to handle and move loads. The level of certification depends upon the individual's training, knowledge, skill base, and ability to perform functions related to the selection, inspection, and proper use of rigging equipment.

v. This person may be a safety professional or qualified in a craft or trade and carry an occupational title such as iron worker, electrician, carpenter, millwright, mechanic, laborer, mason, longshoreman, lineman, pipe fitter, boilermaker, and the like. (The persons described in the categories above will be referred to as rigger even though they carry another occupational title.)

D. Certified Rigger Level I

i. NCCCO identifies the following job duties for Rigger Level I certification. A Certified Rigger Level I can perform simple, repetitive rigging tasks when the load weight, center of gravity, the rigging, and rigging configuration are provided or known by the rigger through experience or on-the-job training prior to the rigging activities. Specifically, Level I Riggers should be able to demonstrate or have knowledge of how to:

- Inspect rigging before use
- Identify and attach rigging with basic knowledge of hitch configurations, capacities, and basic knots
- Recognize associated hazards
- Signal operations
- Use various types of rigging equipment and basic hitches and their applications

E. Certified Rigger Level II

i. NCCCO states in addition to knowing and demonstrating Rigger Level I knowledge and skills, a Certified Rigger Level II can select rigging components and procedures based on rigging capacity. A Level II Rigger can perform the following rigging tasks unsupervised:

- Estimate load weight and center of gravity
- Identify lift points
- Determine and select rigging based on loading
- Perform pre-use inspection of rigging and lift points
- Identify and attach rigging with knowledge of hitch configurations and load angle factors, rigging capacities, and load integrity
- Understand load dynamics and associated hazards

ii. As applicable, Level II Riggers will also have a working knowledge of hoisting equipment, winches, jacks, industrial rollers, and similar equipment.

F. Rigging / Signal Person - Qualifications

i. Meets OSHA or more stringent local qualification standard for rigging and signalperson.

ii. Qualification compliance card issued by accredited training center that is acceptable to BD (that follows an approved curriculum: example NCCCO

G. Rigger I / Signal Person - Qualifications

i. Meets or exceeds OSHA or more stringent local qualification standard for rigging and signalperson accepted by BD.

ii. Certification issued by an accredited training center acceptable to BD

iii. Minimum certification for Rigging & Signaling: Level One and Signal Person Certifications equivalent or more stringent than NCCCO standard.

H. Rigger II - Certification

i. Meets or Exceeds OSHA or more stringent local qualification standard for rigging and signalperson.

ii. Certification issued by accredited training center equivalent or more stringent to National Commission for Certification of Crane Operators (NCCCO).

iii. All Crane, Rigger & Signaler qualifications/certifications must be pre-approved by BD safety representative.

iv. BD utilizes the NCCCO crane operator certification courses as the basis for recognizing crane operator, Rigger and Signaler certifications. Examples of NCCCO approved courses are the following:

- NCCCO Written & Practical Exams
- Large Telescopic Boom Cranes (swing cab/rough terrain)
- Small Telescopic Boom Cranes (fixed cab/boom truck)
- Lattice Cranes (Crawler or Truck)
- Articulated Boom (knuckle-boom) Cranes
- Digger Derricks
- Tower Cranes
- OSHA Compliant Rigging & Signal Person
- NCCCO Recognized Standard Hand signals (Reference Attachment 2)

I. Cranes and Helicopters

i. Contractors shall comply with OSHA 29 CFR 1926.550-556 or equivalent local regulatory requirements.

ii. The contractor shall conduct a hazard analysis and coordinate the scheduling and planning of crane or helicopter use with the BDCR before either device is brought onsite.

iii. The BDCR and contractor must also review building layouts and ensure that appropriate personnel are provided to isolate and secure all areas below lifting activities.

34. Environmental Requirements for Contractors

A. The contractor must make provision for spill containment for outside storage of chemical and petroleum products used during the project (e.g., diesel and lube oils, coating, solvents, cleaning agents, caustic or acidic compounds etc.) Drums and other containers must be stored in impermeable secondary containers or on impervious surfaces (e.g. concrete, asphalt paving or plastic sheeting) that are bermed to prevent any spillage from entering the soil or sewer openings. Absorbent berms can be used as barriers around storage areas if berms or curbing cannot be constructed. Non-compatible materials such as acids and organic solvents must be separated. For storage of hazardous chemicals or petroleum products inside any of the buildings, floor drains must be covered or materials must be placed within impermeable secondary containment.

B. Material On-site

i. Adequate emergency equipment such as sand, absorbent booms, etc. must be kept readily available by the contractor for containment and cleanup of any spilled materials.

ii. Contractors should align with local BD Site Policies with respect to the type of materials prohibited from the site.

C. Hazardous Waste Generation

i. Contractors must follow federal, state and local regulations for any projects generating hazardous wastes such as paint residues, solvents, cleaning solutions, etc. Prior to generating the waste, contractors must notify the BD Contractor Representative about the waste to be generated so appropriate arrangements for proper storage and disposal can be made.

D. Storage of Hazardous Waste

i. Storage of hazardous waste must be in a designated area authorized in advance by either the BDCR or BD Environmental department. The same guidelines for petroleum product and hazardous material storage also apply to hazardous waste storage. Contractors must also follow any additional waste transfer, inspection, signage and contingency requirement designated by the BDCR. Storage on site can be for no more than (90) days. Contractors must arrange for disposal of material.

E. Accidental Spills

i. Contractors must follow local spill response guidelines. All efforts shall be made to prevent any materials from entering the soil, waterways or sewer openings. Sand, absorbent berms, sewer covers, etc. shall be used as appropriate. The contractor will be responsible for the containment and cleanup effort under BD supervision.

F. Excavation

i. For construction activity involving excavation and stockpiling of fill material, measures must be undertaken to prevent rainwater run-off from carrying solids to the storm water sewers. Storm sewer opening are to be protected by hay bales, berms, and or filter fabric. Plastic coverings shall be secured on stockpiled soil to prevent erosion. Roadways and exposed work areas shall be swept daily to eliminate any soil from entering the storm water system

ii. No excavated soil may be removed from by BD site without specific approval from the Environmental Manager/coordinator for the site.

iii. If during excavation the contractor discovers unexpected soil contamination (evidenced by odor, color or presence of non-aqueous liquid) excavation will stop immediately. Notify the BD Contractor Representative who will consult with local Environmental Coordinator/Manager.

G. Storm Water

i. Storm water drains which discharge to either on site surface waters or to a public waterway shall be protected from any sources and no discharges are permitted to these sewers. Similarly, no discharges of wastewater are permitted to on site waters or adjacent public waterways.

ii. Storm Water Pollution Prevention Plan and Permit (US) are required for construction sites > (1) acre

H. Wastewater Discharges

i. Wastewater discharges to the sanitary or industrial sewers shall not contain the following:

ii. Pollutants which may create a fire or explosion hazard.

iii. Pollutants which can case corrosive damage to the sewers or cause the discharge to drop below a pH of (6.0) or exceed a pH of (9.0).

iv. Check with local municipality for temperature limit of waste water discharge.

v. Solid or viscous materials in amounts that could cause obstruction to the sewage flow

I. Discharge to Ground

- Discharge to the ground must be approved by the local Environmental Manager/Coordinator and must meet permit conditions, if applicable.

J. Hazardous Material

i. The EHS Plan must describe the procedure by which Contractors (all tiers) will properly handle hazardous materials and shall include the following at a minimum:

ii. A list identifying all hazardous materials to be used on the project, with SDSs, and have SDSs on site immediately available

iii. Specifications for proper segregation and storage of the chemicals. https://www.sciencemadesimple.com/fractions-decimals.html

iv. Notification to BD in writing of all hazardous materials brought on site that have a HMIS rating of greater than (2) or in excess of (55) gallons / (209) liters.

K. Air Quality

i. Contractors must follow local air quality regulations.

35. Solid and Hazardous Waste

A. The EHS Plan or Site Logistics Plan shall address how solid waste and hazardous waste will be managed; minimum contents include:

B. Solid Waste

i. Describe how construction generated debris will be handled and recycled.

ii. Recyclable solid wastes include: wood, cardboard, glass, paper, aluminum, plastic ferrous materials.

C. Hazardous Waste

i. Describe method to properly collect, identify, and label hazardous wastes

ii. Identify the disposal plan, including removal of Hazardous Materials brought on-site by Contractor.

D. Decontamination/Demolition

i. The EHS Plan must ensure that decontamination, demolition, and work plans are reviewed by BD prior to commencement of work.

ii. Prior to any demolition work, contractor (all tiers) shall contact BD to review the scope of the demolition work and agree on any precautions/actions that need to be taken because of existing conditions (lead, asbestos or other contaminants) in the building /area.

iii. The contractor is responsible for ensuring applicable elements of city, state, and local codes are complied with.

iv. Written demolition engineering plan is required in US territories. Check local, state and country requirements for required plans.

36. ISO 14001 Environmental Management System (EMS)

A. Contractors shall follow the site EMS requirements as established and communicated.

37. Emergency Response Plan

A. The EHS Plan must describe the project specific Emergency Response Plan, minimum contents are as follows:

i. Names and contact numbers of those responsible (and their back-ups) to make decision during an emergency

ii. Defined roles and responsibilities for each person on the construction management staff who have defined roles during an emergency.

iii. Defined communication systems used to ensure efficient communication with affected project personnel, responders and BD as appropriate

iv. Escalation path for reporting spills that meet or exceed a local jurisdiction level to an authorized BD construction representative upon discovery.

Contractor EHS Program Section II

BD's CORE 4-3 (Leading & Lagging Indicators)

38. BD's commitment to measuring construction safety performance

A. BD's Core 4-3

i. Safety is a priority for all, but every organization has a point person who is directly in charge of the safety program. These people measure the effectiveness of safety programs, monitor workplace incident reports, lead the way with new safety initiatives and generally champion a safe workplace at all turns. Safety professionals have lots of indicators to consider when evaluating safety, so we have developed a quick guide to cover the basics that will allow those new to the safety team to hit the ground running with the most effective and transformative metrics.

How "Leading Indicators" differ from "Lagging Indicators"

BD is committed to improving construction worker safety worldwide!
Our goal is ZERO incidents and injuries!

B. Safety Metrics

i. The two groups of metrics safety professionals encounter most are leading and lagging indicators. While both help measure the effectiveness of organizational safety, there are key differences between the two.

- **Leading Indicators:** A leading indicator is a measure preceding or indicating a future event used to drive and measure activities carried out to prevent and control injury. Leading indicators are focused on future safety performance and continuous improvement. (aka-Proactive)
- **Lagging Indicators:** Lagging indicators measure a company's incidents in the form of past accident statistics. These are the bottom-line numbers that evaluate the overall effectiveness of safety at your facility. They tell you how many people got hurt and how badly. (aka-Reactive)

i. Historically most contractors are accustomed to tracking safety results by measuring past accidents (lagging indicators), it is also important to track how effective your safety culture is at preventing future incidents (leading indicators). Here are some examples of both.

Examples – Leading Indicators

Safety Training: implement year-round safety training programs to educate all employees about jobsite safety, new equipment and emergency response.

Employee Perception Surveys: acquire feedback from employees to find out how safe they feel doing their jobs. This information can help guide the safety training.

Safety Audits: random checks of safety procedures, equipment and employee knowledge.

Examples – Lagging Indicators

Injury Frequency and Severity: use data from previous injury reports to establish baseline. This data can show where extra education and attention to safety is needed.

Lost Workdays: the amount of workdays lost due to injury. This gives you a number on which you can aim to improve.

Worker's Compensation Cost: a financial impact stat that can be used to showcase the financial gain that implementing more proactive safety measures can bring.

ii. On their own, neither lagging nor leading indicators paint a clear enough picture to effectively change safety culture. However, combine the two by measuring factors that can precede or indicate a future event (lagging indicators) and implementing policies that focus on training, awareness and development (leading indicators), and your organization can begin to change its safety culture. This will drastically cut the rate of future health and safety issues.

iii. While this leading vs. lagging indicators overview gives some fuel to get started, BD has created a program to measure construction safety performance.

It will be the contractor(s) responsibility to upload the CORE 4-3 data into BD's EHS-Connect system

BD's Leading 4 Indicators to be measured

39. BD's Construction Leading, Core 4

A. Toolbox Talks (by contractor)

i. Description: "Toolbox Talks", "Toolbox Topics", "Safety Chats", "Tailgate Meetings" or whatever your organization calls them is a brief safety talk or meeting about a specific subject at the beginning of the shift. These talks can be done in a variety of ways but are typically a brief (2-5 minute) interactive discussion meeting on something safety related. Toolbox Topics are used to cover a variety of short safety training subjects and to remind employees each day before they go to work, the importance of being safe.

ii. BD requires the contractor to up-load the quantity of "tool box talks" being performed per project into BD's EHS Management system EHS Connect

B. Job Hazard Analysis (JHA's)

i. Also known (not limited to) as AHA's, JSA's, APP's, pre-task assessments, pre-work evaluations, etc.

ii. Prevention of costly workplace injuries and illnesses begins with identifying hazards.

iii. JHA is one practical approach recommended to identify hazards and possible solutions to reduce or eliminate hazards. JHAs focus on hazard identification at the job task level. When conducting a JHA, always consider the full range of safety and health hazards, from machine safety to high noise levels to chemical and biological exposures.

iv. When conducting JHAs
   - Observe each job task;
   - Talk with employees about routine and infrequent tasks, near misses, and safety concerns; and
   - Review company injury and illness records, safety committee minutes, and incident reports to learn more about hazardous tasks.

v. JHAs may be used at workplaces to identify potential noise, atmospheric contaminants, or musculoskeletal risk factors; however, in-depth evaluation of worker exposures using special equipment and procedures is often necessary to do before you complete a JHA

C. Safety Engagement

i. Employees who are engaged are more likely to be highly involved and engaged in their work. If an employee is not engaged, they are less focused on their work and more likely to make mistakes. This has significant implications for industries in which safety is an important factor. Research has shown that "engaged employees are motivated to work safely" and non-engaged employees are more susceptible to "burnout" (Nahrgang, Mortenson & Hoffman, 2011; Gonzalez-Roma et al. 2016).

ii. BD's contractors shall upload the follow information into the EHS-Connect system so the BD is able to track the following data points per project;
   - BBS (Behavior Based System) Observations performed
   - Site Safety Audits
   - GOOD Catch/GOOD Save(s) incidents by employees
   - Stop Work Occurrences
   - Lessons learned incident sharing
   - Near Miss reporting

D. Site Safety Orientations/Inductions

i. Construction work can be dangerous, and though workers ultimately are responsible for their own safety, it behooves you to provide orientation for new workers. Experienced construction workers also can benefit from reminders and repeated training as well as updates on new technology your company is using and new procedures you may have implemented.

ii. As BD has worldwide construction projects going at any one time, BD's intent here is to track the number of site safety orientations performed or provided to both site workers and visitors, not the content or length.

iii. The data points the contractor shall upload into EHS-Connect will be:

- Number of site safety worker orientations (counted per worker, not per session)
- Number of site visitor orientations performed (counted per visitor, not per session)

BD's Lagging 3 Indicators to be measured

40. BD's Construction Lagging, Core 3

A. Labor (aka "man" or "person") Hours

i. The concept of labor hours, also known as "man" hours, measures the total number of hours put into a project or work performed in the course of a day by all employees combined. In the construction industry, labor hours can be compared against productivity to gain quantifiable insight into how much each employee contributes to the income gained from a specific job. This can help you to keep costs under control while providing strategic insight for managing employees' schedules, assignments and roles efficiently.

ii. BD requires contractors (vendors) to provide project labor hours uploaded into our EHS-Connect program.

B. OSHA Recordable Incidents

i. An OSHA recordable is an injury, illness, or death that OSHA deems to be recordable under its recordkeeping regulations. The answer to your question is that giving a medication, dose or a treatment that "requires a prescription" makes an injury "recordable" under OSHA guidelines.

ii. BD requires our contractors (vendors) to notify BD representative(s) of any OSHA recordable injuries and/or when taking injured employees off site for medical treatment the same work day as the incident or injury occurs. This information shall also be uploaded in BD's EHS-Connect system

C. TRIR/TRFR (Total Recordable Incident/Frequency Rate)

i. The TRIR is a commonly used indicator that measures a company's Total Recordable Injury Rate and adjusts for the number of hours a facility works. It does not matter how many employees there but is a function of the number of recordable injuries and the numbers to hours worked (usually including salary and hourly).

ii. BD's EHS Connect program, upon contractor (vendor) data metrics being uploaded, will automatically calculate the vendors TRIR data.

Table1. Examples: Medium & High Risk Work Requiring JHA (not an inclusive listing)

Topic(s)	*Description of class of high risk work*
Scaffolding	***Basic Scaffolding work involving any of the following:*** • modular or pre-fabricated scaffolds • cantilevered materials hoists with a maximum working load of 500 kilograms • ropes • Material Lifting wheels (AKA gin wheels/ hoisting wheels) • safety nets and static lines, and **Intermediate Scaffolding work involving any of the following:** • cantilevered crane loading platforms • cantilevered scaffolds • spur scaffolds • barrow ramps and sloping platforms • scaffolding associated with perimeter safety screens and shutters • mast climbing work platforms, and • Tube and coupler scaffolds (including tube and coupler covered ways and gantries).bracket scaffolds (tank and formwork).
	Advanced Scaffolding work involving any of the following: • cantilevered hoists • hung scaffolds, including scaffolds hung from tubes, wire ropes or chains • Suspended scaffolds.
Fall Hazards	• Any location where at working at height, roof or boom lift
Trenching & Excavations	• T & E work at depths greater than 10' (3 meters)
Confined Space(s)	A confined space is an area with a limited or restricted means for entry or exit, and it is not designed for continuous employee occupancy. Examples of confined spaces include, but are not limited to, underground vaults, tanks, storage bins, manholes, pits, silos, process vessels, and pipelines.
Rigging & Lift Planning	**Basic Rigging** work involving any of the following: • **Lift Plan is required:** • structural steel erection • hoists • pre cast concrete members of a structure • safety nets and static lines • mast climbing work platforms • perimeter safety screens and shutters, and • Cantilevered crane loading platforms.

	Intermediate Rigging work involving any of the following: • **Lift Plan is required** • hoists with jibs and self-climbing hoists • cranes, conveyors, dredges and excavators • tilt slabs • demolition of structures or plant, and Dual lift **Advanced Rigging** work involving any of the following: • **Lift plan is required** • gin poles and shear legs • flying foxes and cable ways • guyed derricks and structures, and suspended scaffolds and fabricated hung scaffolds
Electrical work	• Live (energized) work • Power supply line(s) • Substation
Erection Activities	• Roofing • Decking • Steel/Columns • Framing
Tower crane	***All Crane work Requires Lift Plan*** • Use of a tower crane
Self-erecting tower crane	Use of a self-erecting tower crane
Derrick crane	Use of a derrick crane
Portal boom crane	Use of a portal boom crane
Bridge and gantry crane	Use of a bridge crane or gantry crane that is: • controlled from a permanent cabin or control station on the crane • Remotely controlled and having more than 3 powered operations, including the application of load estimation and slinging techniques to move a load.
Vehicle loading crane	Use of a vehicle loading crane with a capacity of 10 metric tons or more, including the application of load estimation and slinging techniques to move a load.
Non slewing mobile crane	Use of a non-slewing mobile crane with a capacity exceeding 3 tons
Slewing mobile crane—with a capacity up to 20 tons	Use of a slewing mobile crane with a capacity of 20 tons or less

Slewing mobile crane—with a capacity up to 60 tons	Use of a slewing mobile crane with a capacity of 60 tons or less
Slewing mobile crane—with a capacity up to 100 tons	Use of a slewing mobile crane with a capacity of 100 tons or less
Slewing mobile crane—with a capacity over 100 tons	Use of a slewing mobile crane with a capacity exceeding 100 tons
Materials hoist	Use of a materials hoist
Personnel and materials hoist	Use of a personnel and materials hoist
Boom type elevating work platform	Use of a boom-type elevating work platform where the length of the boom is 36 feet (11 meters) or more
Concrete placing boom	Use of a concrete placing boom
Reach stacker	Operation of a reach stacker of greater than 3 tons capacity that incorporates an attachment for lifting, moving and travelling with a shipping container, but does not include a portainer crane
Forklift truck	Use of a forklift truck other than an order picking forklift truck
Order picking forklift truck	Use of an order picking forklift truck
Standard boiler operation	Operation of a boiler with a single fuel source that does not have a pre heater, superheated or economizer attached
Advanced boiler operation	Operation of a boiler, including a standard boiler, which may have one or more of the following: • multiple fuel sources • pre-heater • superheated • economizer
Steam turbine operation	Operation of a turbine that has an output of 500 kilowatts or more and: • is multi wheeled • is capable of a speed greater than 3600 revolutions per minute • has attached condensers • has a multi-staged heat exchange extraction process.
Reciprocating steam engine	Operation of a reciprocating steam engine where the diameter of any piston exceeds 250 millimeters

Attachment 1

BD Global Construction Safety:

Criteria for use of In-house (BD associate) Construction Safety Officer vs. 3rd party Construction Safety Officer for Professional Services

The BD associate selected to perform in-house Construction Safety Officer professional duties must satisfy the following three (3) conditions:

1. Have construction specific safety credential (s). At a **minimum** must possess the OSHA 30 hour for Construction (CFR 1926) or a higher credential. Higher credentials include the following:

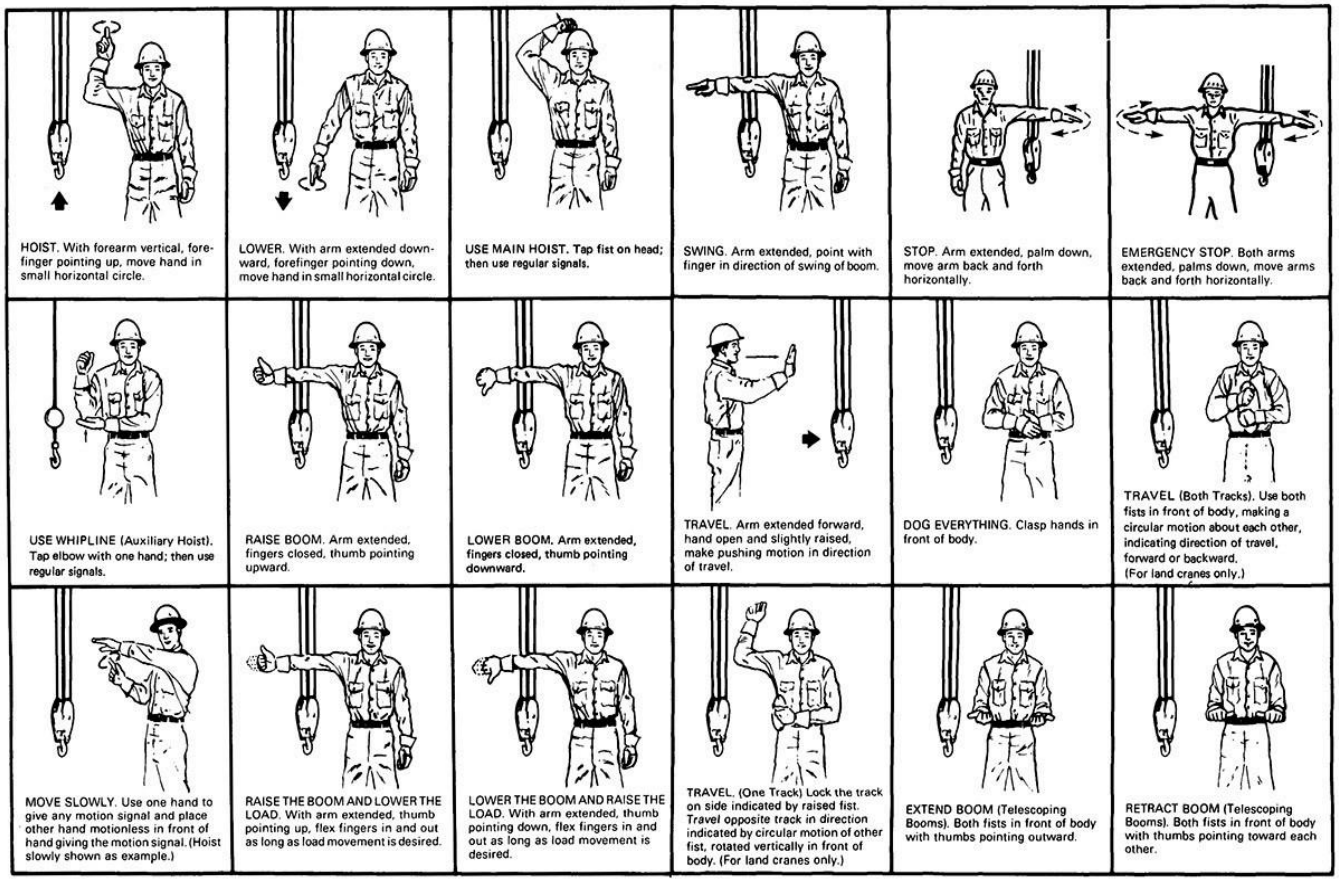
    - STSC (Safety Trained Supervisor-Construction) certified by the BCSP
    - CHST (Construction Health Safety Technician) certified by the BCSP
    - ASP (Associate Safety Professional) certified by the BCSP
    - CSP (Certified Safety Professional) certified by the BCSP
    - RSM (Registered Safety Manager) certified by the IBOEHS
    - RSP (Registered Safety Professional) certified by IBOEHS
    - Misc. Other safety training credentials related to construction to be evaluated on a case by case basis. Example: Europe's C.S.C.S. [Construction Skills Certification Scheme] credentialing.

2. Must have some relevant construction experience specific to supporting safety that can be documented (the associate preferably will have been assigned to a project where the majority of their time was to support a construction project).

3. The BD project location/Site Leadership Team, at which the construction project is occurring, will commit in writing (email is acceptable) that they will enable adequate time (3 hrs/day at minimum), for the BD associate to be solely dedicated to supporting the construction project.

Attachment 2

Crane Hand Signals



Document Revision History:

REV. #	*Date*	*Change Description*	*Responsible*
01	10/01/2017	NEW	Robert Hume
02	12/15/2017	1.2 – added note regarding RECON Project Risk Assessment	Robert Hume
03	05/24/2018	Added PREAMBLE, Attachment 2	Robert Hume
04	08/27/2018	1.4- Section I Updated (Crane/Rigging/Signaler), Modified Attachment 3, Updated Appendix, Contractor Acknowledgement	Robert Hume

CONTRACTOR SAFETY ORIENTATION ACKNOWLEDGEMENT FORM

Complete and return this page

1. I will notify the location where services are being rendered of any hazardous materials I and/or my staff members may be exposed to while working on a BD Campus. I have informed my staff members of the hazards they may encounter.

2. I will supply my staff members with all pertinent safety equipment needed to perform their job in accordance with the task being completed and verify it is properly tested and used as required.

3. Prior to bringing a chemical on site I agree to supply a current Material Safety Data Sheet (SDS) for all materials covered under the OSHA Hazard Communication Standard (29 CFR 1910.1200) that my team or sub-contractors or I will be using or bringing on a BD Campus.

4. I understand that any and all processes observed on these premises are considered confidential, which I agree not to use or divulge.

_____ _____

NAME OF CONTRACTING COMPANY DATE

_____

CONTRACTOR SUPERVISOR (print)

_____ _____

CONTRACTOR SUPERVISOR (signature) DATE