Sprinkler Impairment

1.0 Purpose

1.1. The purpose of this procedure is to provide a system that minimizes the risks associated with sprinkler system impairment. Unplanned sprinkler impairment as a result of broken heads, dislodged pipes, out-of-service systems during major demolition and/or construction, or an emergency impairment resulting from a broken supply line or service outage may pose a risk of flooding and/or the spread of fire. In the event of flooding, mold may then become a hazard which must be cleaned, and the source of moisture eliminated.

2.0 Scope

2.1. This procedure applies to all sprinkler impairments -whether planned (for replacement, repair, or maintenance work), or unplanned. See Utility Avoidance Policy for more information.

3.0 Responsibility

3.1 Project Management

3.1.1. BNB Project Management & Supervision are responsible for:

3.1.1.1. Issuing, signing, logging, posting, tracking, and closing out all sprinkler impairments.
3.1.1.2. Tracking all current and outstanding impairments and ensuring that subcontractors receive appropriate notice if impairment is not properly closed out by the planned restoration date and that reinstatement must occur as soon as possible.
3.1.1.3. Ensuring that sprinkler sections and valves are clearly marked and labeled so that specific sections can be found easily in the event of an emergency.
3.1.1.4. Ensuring all sprinkler valves are in working order.
3.1.1.5. Identifying Halon fire suppression systems and working with the property owner to establish protective measures.

3.2 Workers

3.2.1. Workers responsible for the fire sprinkler impairment shall request permission from BNB prior to the impairment of the fire sprinkler system. After restoring the impaired fire sprinkler system, the responsible workers shall notify BNB.

4.0 Definitions

4.1. Foam Fire Suppression System - typically used in areas exposed to severe fire hazards and helps to contain the fire more effectively than water. It can be used with either a wet or dry system, and in certain cases, water may be mixed with the foam to better fight the fire or increase pressure in the pipes.

4.2. Dry Chemical Fire (Gaseous) Suppression System - typically used in areas where water damage is a primary concern, such as museums or computer rooms. These systems use traditional sprinkler pipes and heads but rely on carbon-based chemicals such as halon to suppress the fire. Halon works by absorbing the oxygen in the room, which keeps the fire from spreading.

4.3. Impairment – a condition resulting from an event that causes all or part of a fire sprinkler system to be out of service.

4.4. Emergency Impairment - Unplanned sprinkler impairment resulting from a broken sprinkler line or head, or a break or outage of the sprinkler supply water service.

4.5. **Planned Impairment** - Planned sprinkler impairment for maintenance, alteration, or construction activities.

4.6. **Designated Ownership Contact** - Person designated by the owner to contact for all activities relating to the fire sprinkler impairment. (Building Owner/Property Manager/Building Engineer)

5.0 Procedure

5.1 Planned Impairments

5.1.1. When applicable, the following are guidelines for when sprinkler impairment is planned:

5.1.1.1. Notify local fire department
5.1.1.2. Provide additional firefighting equipment
5.1.1.3. Ensure adequate control of sprinkler system and labeling/tagging of affected valves
5.1.1.4. Ensure adequate training/job planning
5.1.1.5. Plan to do the work when the facility is not operating, and/or shutdown hazardous processes, if possible.
5.1.1.6. Follow applicable lock-out tag-out procedures when applicable.
5.1.1.7. Cap all sprinkler heads or otherwise provide appropriate protection in work areas prior to contractor commencing work.
5.1.1.8. Prohibit all Hot Work during fire sprinkler impairment:
5.1.1.8.1. There may be instances where elements of the system are isolated specifically for hot work activities. In such cases, fire watch procedures and any other appropriate precautions as per the pre-task plan (PTP) must be implemented.
5.1.1.8.2. Make ready fire hoses / fire extinguishers (confirm that fire extinguishers and/or fire hoses are on hand and in working order at every entrance and exit point of the affected work area)
5.1.1.8.3. Confirm a fire watch is in place and appropriate notifications have been made.
5.1.1.9. The fire watch must be trained in the use of fire extinguishing equipment and be familiar with the Project Specific Fire Prevention Plan.
5.1.1.10. Any proposed modifications to the building sprinkler system (via submittal of engineering and/or shop drawings) must be approved and permitted by the PTP. NOTE: In some instances, drawings may also require certification from an engineer.
5.1.1.11. Standard Impairment Controls
5.1.1.11.1. Whenever a sprinkler system is to be impaired, the applicable subcontractor/vendor must request permission from BNB Project Management & Supervision.
5.1.1.11.2. BNB Project Management & Supervision is to notify:
5.1.1.11.2.1. the local Fire Department, the alarm monitoring service, and security for all impairments.
5.1.1.11.2.2. the Designated Ownership Contact of any sprinkler impairment.
5.1.1.11.2.3. any tenants affected by the sprinkler impairment if building is occupied.

5.2 Un-Planned Impairments

5.2.1. When applicable, the following are guidelines for when sprinkler impairment is not planned (emergency impairment):
5.2.1.1. If an emergency impairment occurs, stabilize the situation and initiate impairment precautions with BNB Project Management & Supervision.
5.2.1.2. Correct/repair the cause of the impairment.

5.2.1.3. Ensure fire watch is in place.

5.2.2. BNB Project Management & Supervision is to:

5.2.2.1. notify the Safety Manager and Designated Ownership Contact. Details are to include the time of impairment, apparent cause of the impairment, expected duration of the impairment, and extent of the impairment to building systems.

5.2.2.2. see that an Incident Report Form is completed by the appropriate parties and distributed within 24 hours of the incident.

5.2.2.3. notify the Divisional Safety Manager and Designated Ownership Contact when the impairment is cleared.

5.3 Hazards

5.3.1. In the event of a sprinkler system impairment that uses water, the following are potential hazards:

5.3.1.1. Flooding

5.3.1.2. Water Intrusion (See Environmental Policy)

5.3.1.3. Mold

5.3.1.4. Electrical Shock

5.3.1.5. Property Damage

5.3.1.6. Illness from contact with stagnant water inside fire lines

5.3.1.7. In the event of a Halon sprinkler system impairment, a potential hazard is Asphyxiation.

5.4 Hazard Controls

5.4.1 Engineering Controls

5.4.1.1. Cap, cover, flag, or otherwise protect sprinklers that have the potential to be damaged

5.4.2 Administrative Controls

5.4.2.1. In facilities where sprinklers are energized and must not be damaged (see Pressurized Lines Policy):

5.4.2.1.1. Personnel must be trained on avoiding contact with sprinklers and lines

5.4.2.1.2. Signage and / or caution tape may be posted to warn personnel about the location(s) of sprinkler(s)

5.4.2.1.3. Stop blocks or other barricades may be used to prevent personnel/equipment travel into areas where sprinklers may be contacted

5.4.2.1.4. Make available sprinkler damage kits

5.4.2.1.5. Inform crews of sprinkler system shut-off method

5.5 Training

5.5.1. Personnel who work near sprinkler heads should be trained on:

5.5.1.1. The hazards of sprinkler impairment during New Hire Orientation

5.5.1.2. Notification, shut-off and response procedures for emergency impairment

6.0 References

NFPA 15-17

FEDOSHA 29 CFR 1910.159 – Automatic Sprinkler Systems

7.0 Attachments

Hot Work Permit

Demolition Permit

Pre-Task Plan

Aerial Work Platform Inspection Checklist

Steel Erection

1.0 Purpose

1.1. Steel erection is a potentially high-risk task, so it is imperative that proper control measures are utilized to prevent incidents during steel erection. Certain control measures may eliminate hazards, but the process of risk elimination must be started in advance of the work taking place. This standard outlines the hazards and controls associated with steel erection.

2.0 Scope

2.1. Any BNBuilders project that will erect steel must use this standard as a guideline for ensuring proper control measures are in place to eliminate risk. Steel erection activities include hoisting, connecting, welding, bolting, and rigging structural steel, steel joists and metal buildings; installing metal deck, siding systems, miscellaneous metals, ornamental iron and similar materials; and moving from point-to-point to perform these activities.

3.0 Responsibility

3.1 Designers/Architects/Engineers

3.1.1. Designers/Architects/Engineers have the responsibility to eliminate risk through design of the structure and/or process by using methods such as off-site fabrication and assembly.

3.2 Project Management

3.2.1. BNB Project Management and Supervision has the duty to ensure that controls have been enacted as early and effectively as possible to eliminate risk. They must communicate with the steel erection subcontractor well in advance of the subcontractor's mobilization on site.

3.2.2. BNB Project Management and Supervision must ensure that steel erection subcontractors are provided with a written notification to proceed (see attachment).

3.2.3. BNB Project Management and Supervision must ensure adequate access roads into and through the site for the safe delivery and movement of derricks, cranes, trucks, other necessary equipment, and the material to be erected.

3.2.4. BNB Project Management and Supervision must ensure a firm, properly graded, drained area, adequately compacted to support the intended loads, readily accessible to the work with adequate space for the safe storage of materials and the safe operation of the erector's equipment.

3.3 Subcontractors

3.1.1. Subcontractors are responsible for attending the preconstruction meeting.

3.4 Workers

3.4.1. Workers engaged in steel erection are responsible for working in a safe manner and following safety requirements.

4.0 Definitions

4.1. **Competent Person** - One who can identify existing or predictable hazards in surroundings or working conditions which are dangerous to employees who is authorized by the nature of their position to take prompt corrective action. This person must have knowledge of the requirements for steel erection.

4.2. Multiple Lift Rigging - A rigging assembly manufactured by wire rope rigging suppliers that facilitates the attachment of up to 5 independent loads to the hoist rigging of crane.

5.0 Procedure

5.1 Hazards

5.1.1. Hazards associated with steel erection have potentially lethal repercussions if not properly controlled. Hazards may consist of inclement weather, falls, struck-byes, unstable loads, unsafe rigging practices, structural collapse, crane tip overs, fire, flash burn, electrical shock, property damage, injury, and more.

5.2 Engineering Controls

5.2.1. Fall Prevention:

5.2.1.1. Reduce the number of people who need to work at height, e.g. through off site manufacture or prefabrication. Give priority to collective measures over individual measures, e.g. fixed edge protection is preferable to every worker wearing fall prevention equipment. Consider the addition of nets/outrigger platforms to cover shafts/openings below the work. Other fall exposures could be controlled by using aerial work platforms to access the work area. Another engineering control is to install steel posts either inside of curbs or attached to the outside of the curb. This practice will enable decking contractors to utilize the guardrail cables for fall protection at the openings—see photos below.

5.2.2. Struck by Prevention:

5.2.2.1. Control falling objects by installing netting or other overhead protection. Barricade the area within swing radius of crane counterweights to prevent access by personnel.

5.3 Administrative Controls

5.3.1. An administrative control to reduce the consequences of dropped items would be to establish controlled access zones around the area underneath of steel erection activities. Signage and barricades could be used to delineate the area and prevent unauthorized access. Workers should tether equipment such as hand/power tools, hard hats, ladders, tape measurers, etc. when possible and the amount of materials stored at heights should be kept to a minimum.

5.3.2. In the event of inclement weather such as high wind or lighting storms, operations may need to be suspended.

5.4 Personal Protective Equipment (PPE)

5.4.1. In addition to the required minimum PPE, additional PPE for steel erection activities may include leathers, ear plugs, face shields, personal fall protection, etc.

5.5 Training

5.5.1. *Personnel must be trained according to the tasks they're engaging in. Typically, most steel erection personnel will need at least one of the following trainings/certifications:*

5.5.1.1. Certified crane operator
5.5.1.2. Certified rigger
5.5.1.3. Certified signal person
5.5.1.4. Aerial work platform training
5.5.1.5. Welding certification as applicable
5.5.1.6. Connector training

5.5.2. *Steel erection training requirements:*
- 5.5.2.1. Multiple lift rigging procedures
- 5.5.2.2. Connector procedures
- 5.5.2.3. Controlled decking zone procedures
- 5.5.2.4. Ladder selection and use

5.5.3. *Fall Hazard Training:*
- 5.5.3.1. Recognition and identification of fall hazards in the work area
- 5.5.3.2. The use and operation of guardrail systems (including perimeter safety cable systems), personal fall arrest systems, positioning device systems, fall restraint systems, safety net systems, and other protection to be used
- 5.5.3.3. The correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection systems to be used
- 5.5.3.4. The procedures to be followed to prevent falls to lower levels and through or into holes and openings in walking/working surfaces and walls; and the fall protection requirements for structural steel erection
- 5.5.3.5. Procedures for erecting, maintaining, disassembling, and inspecting the fall protection systems to be used
- 5.5.3.6. Site-specific fall prevention plan

6.0 References

FED / OSHA 1926 Subpart R – Steel Erection

7.0 Attachments

Crane Pick Plan

Utility Avoidance

1.0 Purpose

1.1. The purpose of this policy is to ensure any work in close proximity to utilities is carried out in a manner that supports our goal of Freedom from Danger.

2.0 Scope

2.1. Any scope of work that involves the penetration of the ground or a structure whether by hand or machine or is located in proximity to overhead utilities must be executed in accordance with this standard. Activities covered by this standard range from saw cutting, jackhammering, coring, trenching, excavating, demolition, boring, drilling, grading, mass excavation, etc.

3.0 Responsibility

3.1 Project Management & Supervision

3.1.1. BNB Project Management & Supervision are responsible for:

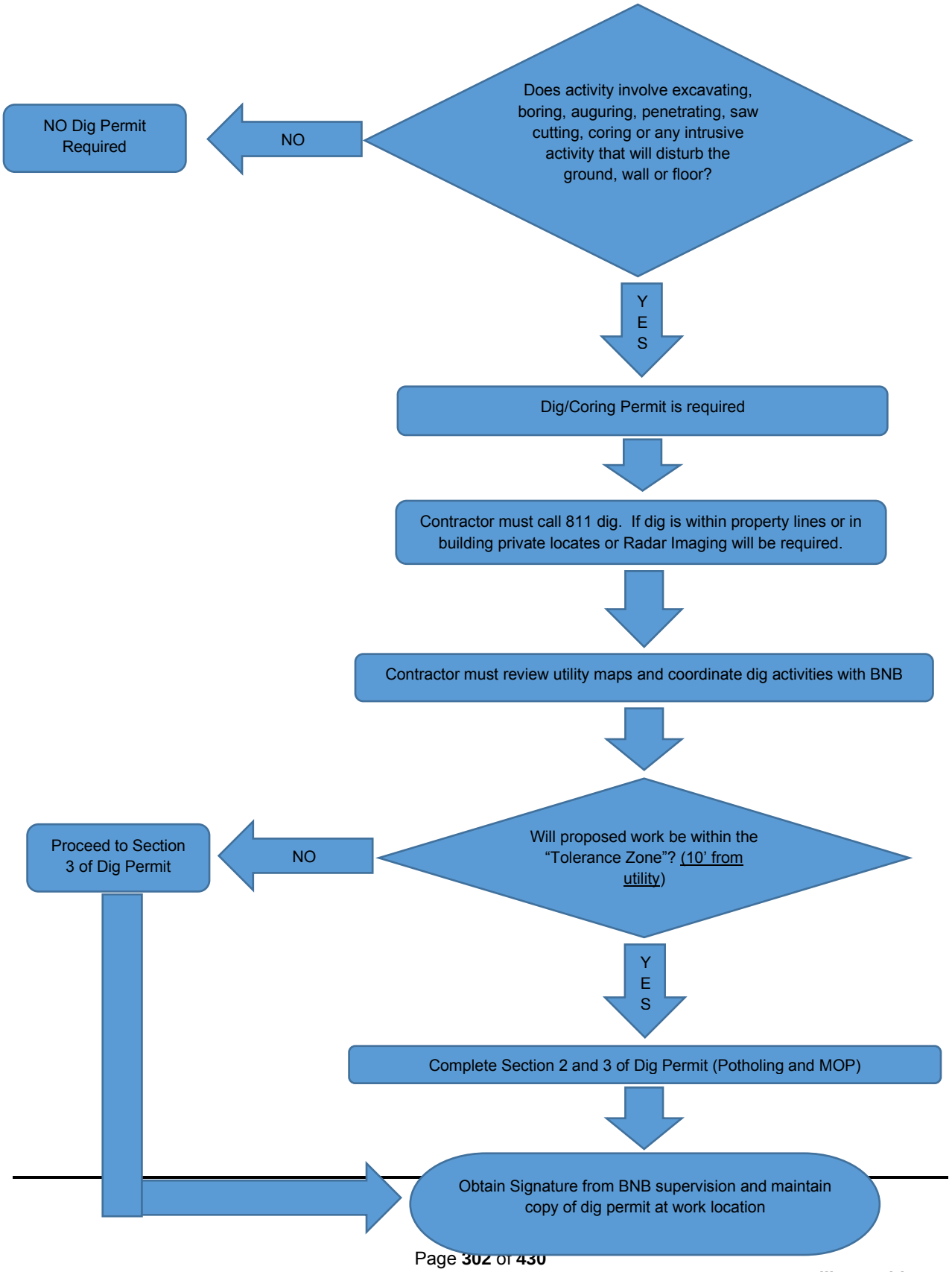
3.1.1.1. ensuring compliance with this standard;
3.1.1.2. acquiring safety submittals from subcontractors;
3.1.1.3. setting up and hosting pre-dig meetings;
3.1.1.4. ensuring completion and filing of "Dig Permits" and "Overhead Utility Permits"

3.2 Subcontractors

3.2.1. Subcontractors are responsible for following the requirements of this program, submitting required submittals to the BNB Project Team, attending pre-dig meetings, and completing "Dig Permits" and "Utility Avoidance Checklist".

4.0 Definitions

4.1. **Proximity** – nearness in place
4.2. **Strike** – Unwanted contact with an energized utility
4.3. **Overhead Utility** – Typical overhead utilities are power lines such as those running along sidewalks
4.4. **Underground Utility** – Typical underground utilities are gas, water, sewer, storm drain, and communications
4.5. **Potholing** – The act of digging with only hand tools or vacuum/water extraction methods
4.6. **Proximity Warning Device** – A piece of equipment that assists operators who may become distracted or unable to see the dangerous overhead high voltage power lines in their work area


Does activity involve excavating, boring, auguring, penetrating, saw cutting, coring or any intrusive activity that will disturb the ground, wall or floor?
NO
NO Dig Permit Required
YES
Dig/Coring Permit is required
Contractor must call 811 dig. If dig is within property lines or in building private locates or Radar Imaging will be required.
Contractor must review utility maps and coordinate dig activities with BNB
Will proposed work be within the "Tolerance Zone"? (10' from utility)
NO
Proceed to Section 3 of Dig Permit
YES
Complete Section 2 and 3 of Dig Permit (Potholing and MOP)
Obtain Signature from BNB supervision and maintain copy of dig permit at work location

5.0 Procedure

5.1 Underground Utilities Procedures

5.1.1. Required Submittals for Subcontractors

5.1.1.1. For activities involving the penetration of the ground's surface, the Subcontractor shall submit the following in addition to typically required safety documents prior to starting work:

5.1.1.1.1. the name(s) of the designated "Competent Person" with supporting documentation indicating training and competency. (No excavating or work in excavations will be allowed without the Competent Person onsite and supervising these operations at all times).

5.1.1.1.2. A Job Hazard Analysis that adequately addresses the task(s) involving penetration of the ground's surface and safe measures for preventing utility strikes.

5.2 New Utility Procedures

5.2.1. All new underground electrical utilities will be encased in concrete that is dyed red. CDF will not be used for duct banks.

5.2.2. Duct banks will be installed a minimum of 4' below finish grade when possible.

5.2.3. When duct banks are installed less than 4' deep the entire trench will be filled with concrete up to rough grade if possible.

5.2.4. Warning signs will be posted at source of electrical and at feed location (i.e. sign at panel and tower crane).

5.2.5. Duct bank locations will be marked with red paint with regularly scheduled re-marking to ensure lines are identified at all times.

5.2.6. On sites where ground conditions (mud) obscure locate paint/markings stakes or delineators will be installed every 20' to identify utilities route.

5.2.7. Newly installed underground utilities will be incorporated into existing Live Utility Map.

5.2.8. Location of all underground utilities will be reviewed at:

5.2.8.1. Preparatory meetings with subcontractors.

5.2.8.2. New Hire Orientations.

5.2.8.3. Weekly safety meetings.

5.2.9. When working within 10' of newly installed utilities the following steps must be taken:

5.2.9.1. Contractor performing work must call for locates prior to work and coordinate with BNB to ensure new utilities are identified prior to dig.

5.2.9.2. Radar Imagine affected area as needed.

5.2.9.3. MOP must be submitted 1 week prior to scheduled work.

5.2.9.4. JHA must be submitted 1 week prior to scheduled work.

5.2.9.5. Dig Permit must be completed.

5.2.9.6. Core Drilling / Saw Cutting Checklist.

5.2.10. MOP, JHA, Utilities Permit, must be reviewed day of work with BNB Staff, all workers involved in planned utilities.

5.3 Live Utility Map Requirements

5.3.1. Live Utilities Awareness Map shall be generated at start of all projects.
5.3.2. Applicable utility phone numbers must be included on Live Utilities Map.
5.3.3. Map colors must match AWPA color codes as outlined below.
5.3.4. Valve locations must be indicated on map.
5.3.5. Dimensions/depth shall be outlined on map as necessary
5.3.6. Newly installed utilities shall be incorporated into map.
5.3.7. Maps shall be dated to ensure most recent version is posted.
5.3.8. Map shall be incorporated into sub preparatory meetings, jobsite orientations and be posted in job shack, jobsite office and on safety board.

5.4 Strike Prevention Procedures

5.4.1. Every effort must be made to **remove or de-energize utilities as the first** order of business.

5.4.2. If a utility is properly identified, shut down, and "safed-off" via lock out tag out, and the utility is struck during an activity, BNB does **not** consider the event a utility strike, but it **would be considered property damage** and must be repaired by the party responsible for the damage.

5.4.3. Note, lock out tag out must be performed by a qualified person and testing must verify a zero-energy state for the utility.
5.4.4. When within three (3) feet or 36 inches in any direction of known utilities that are energized, hand digging, or vacuum excavation is required.

5.5 Potholing Procedures

5.5.1. Potholing is performed to verify the location and depth of utility lines and potholing procedures shall be followed to prevent damage to the identified underground utilities. Before ground-penetrating activities begin, potholing for the utilities will take place. Potholing will be done using hand labor or a vacuum excavation system. NOTE: Utilities typically identified by locate services have a three-foot safe zone. In other words, the utility should be within a ten-foot zone of either side of the markings.

5.5.2. Potholing will be performed to locate the utility. The utility **MUST** be found prior to the start of excavation operations. The soil must be excavated in 6" lifts (approximately) by hand to verify that no utilities are present. If utilities are located, then the utilities must be exposed by hand. The proper tools that can be used for handwork are shovels and pry bars (or other tools of this nature), OR vacuum excavation systems. At no time should a pickaxe or other similar tools be used. Before using a vacuum excavation system, contact the utility owner to determine if the utility owner will allow the use of a vacuum system. Not all utility owners allow the use of vacuum systems for locating the utility.

5.5.3. **Do not assume that the utility will continue on the same line and grade**. If any damage occurs to any line, contact the utility company, the utility engineer and the project superintendent IMMEDIATELY. An Incident Report must be completed IMMEDIATELY by the BNB Project Team. **All existing utilities will be located, marked and visually verified prior to starting any operation. Locate markings must be protected as applicable. It is recommended that time-stamped photos be taken of markings prior to breaking ground.**

5.5.4. Underground Utility Pothole Spacing and Frequency - Any deviation from this procedure will require approval from the BNB Project Manager. The following spacing and frequency requirements will be followed on all projects:

5.5.5. Life threatening utilities such as gas, forced sewer mains, water mains and electrical services will be exposed through the entire length of the excavation.

5.5.6. Gas and electric lines within 25 feet of your work area will be potholed and marked every 25 feet to verify that the line has not changed directions.

5.5.7. Gas and electric lines outside the 25 feet of the work zone will be potholed at least once on each end of the limits of the excavation to verify Underground Service Alert and the utility plans.

5.5.8. Communication Lines- Fiber-optic lines will be potholed every 25 feet within the work area. Telephone/Cable lines will be potholed every 50 feet within the work area. IF there is any damage to a fiber optic line, DO NOT LOOK INTO THE FIBER OPTICS. THE LIGHT WAVES GOING THROUGH THE FIBER OPTICS CAN CAUSE SERIOUS EYE INJURIES.

5.5.9. Other Utilities:

5.5.9.1. Will be potholed every 25 feet for lines less than 8" in diameter.
5.5.9.2. Will be potholed every 50 feet for lines 8" though 24" in diameter.
5.5.9.3. Will be potholed every 100 feet for lines greater than 24" in diameter.

5.5.9.4. At least two (2) potholes must be obtained for each utility within the work zone regardless of the size of the work area.

5.5.10. Utilities in Roadways:

5.5.10.1. Utilities that are located within the roadway will be potholed.

5.5.10.2. Street plates will be obtained to cover a pothole when there is live traffic on the roadway. The street plates shall be of sufficient size and thickness to allow traffic to safely drive over them by pre-grind to allow the trench plates to be flush with the horizontal plane. The street plates shall be secured in place in accordance with the local, state and/or federal requirements.

5.5.10.3. For roadway work not scheduled to be excavated in the current operation, an asphalt patch will be placed over the pothole. This will be done after all pothole information has been recorded and the pothole has been offset using stakes and ribbon.

5.5.11. *Utility Locating*.

5.5.11.1. Subcontractors shall locate and identify all utilities prior to the start of ground-penetrating activities. Equipment operators must understand the locations and types of utilities.

5.5.11.2. Prior to the start of any excavation a utility locate service must be contacted. Each state has a different locate service with specific rules outlining their services. It is very important to understand the state or local guidelines in advance of your excavation. Typically locate companies require 2 days advanced notice before performing a locate. Before calling for locate services, the excavation area must be pre-marked with white paint, stakes or flags. In addition, newly constructed work IS NOT covered (i.e. drainage, electrical subcontractor new installations, etc.) and shall be located by other means. The Subcontractor engineer, foreman, or superintendent responsible for this work will be contacted to verify what has been constructed and an appropriate as-built requested. The One Call service can be contacted by calling 811.

5.5.12. Utility Color Markings - The following colors and symbols have been adopted by all utilities for marking underground utilities:

Blue	Water
Orange	Telephone, Railroad, Cable TV
Green	Sewer, Storm Drain
Red	Street Lighting, Electric, Traffic Signals (may be orange)
Yellow	Gas

	Pink	Survey
	White	Proposed Excavation
	Purple	Reclaimed Water, Irrigation, and Slurry Lines

5.4.5. Dig Permits:

5.4.5.1. A Dig Permit is required for all operations which penetrate the original ground surface. The Subcontractor foreman of each operation is responsible for ensuring that the Dig Permit, Job Hazard Analysis (JHA) and Pre-Task Plan (PTP) and all necessary drawings are available at the operation and in the cab of the excavator, backhoe, etc. The operator is ultimately responsible and will be held accountable to ensure the operation does not proceed without a valid Dig Permit. The BNB Management will verify that the Dig Permit has been properly completed.

5.4.5.2. The following documents will be attached before being distributed to the foreman and operator:

5.4.5.2.1. A signed copy of the Job Hazard Analysis (JHA).
5.4.5.2.2. A Pre-Task Plan (PTP) must be completed by the crew and signed by all members.
5.4.5.2.3. The page of the Topography & Utility Plan sheets for the work zone that the permit covers. Any utility relocations that have been completed before the start of the operation must be clearly noted on these drawings.
5.4.5.2.4. A copy of the Utility Plan sheets for the work zone the permit covers. Notes and highlights must be made on these drawings to indicate which runs have been installed.

5.4.5.3. Unintentional Uncovering of a Utility (known or unknown utility):

5.4.5.3.1. If during the course of excavation, a utility has been exposed, it is the Subcontractors' responsibility to inspect and support these facilities prior to backfilling. If damage of any kind is discovered, or any suspicion of damage exists, call the utility engineer so documentation can take place. The utility engineer will then notify the utility owner.
5.4.5.3.2. All unidentified underground utilities that are discovered during the course of excavation activities shall be marked on the As Built Plans and the BNB Project Manager shall be IMMEDIATELY notified.

5.4.6. Reporting Requirements:

5.4.6.1. If a utility strike/hit does occur, several reporting steps are required:

5.4.6.1.1. First and foremost, clear and secure the area if there is potential for further exposure to hazardous environments.
5.4.6.1.2. Contact the appropriate utility owner to inform them of the damage so they can inspect and repair, if necessary.
5.4.6.1.3. Notify the Utility Engineer and BNB Project Superintendent.
5.4.6.1.4. The Subcontractor shall complete the Incident Report Form and transmit it to the BNB Project Manager.

5.4.7. Overhead Utilities Procedure:

5.4.7.1. Any equipment having the ability to work under, cross underneath, and/or reach over overhead electrical lines will follow the guidelines set forth by OSHA in 1926.1408, 1926.1411, & 1926.600.

BNB recommends that equipment working in close proximity to overhead electrical lines be equipped with a Proximity Warning Device (PWD) to notify the operator and/or operatives surrounding the equipment of the proximity to the danger zone.

5.4.7.2. If working near overhead electrical lines, the Subcontractor will install **"DANGER OVERHEAD POWERLINES"** signs at all designated equipment crossings. This sign must state the voltage of the overhead line. For all other utilities, the Subcontractor will install **"DANGER OVERHEAD UTILITY"** signs to warn of the overhead hazard. For all other equipment traveling underneath overhead utilities, to include use of on-road or off-road haul trucks transporting dirt / materials to the project a **"NO DUMP ZONE"** will be established to eliminate dumping within 50' of either side of the overhead line. The Subcontractor will identify the **"NO DUMP ZONE"** through the use of signage.

5.4.7.3. Subcontractor will provide a full-time spotter(s) whenever any equipment has the ability to work under, cross underneath, and / or reach over overhead utility lines, for example, electrical, cable, phone, fiber-optic, etc. This spotter will assume no other duty and be equipped with air horn, reflective vest, and red flag.

5.4.7.4. Subcontractor will limit equipment travel underneath overhead utilities to designated areas only. To prevent equipment from traveling underneath lines, the Subcontractor will install a means of protection. At a minimum, protection will consist of yellow poly rope with red flagging.

5.4.7.5. Subcontractor will protect all guy wires and utility poles from contact with equipment operating in the area through the use of barricades (water-filled barricade, temporary concrete barrier, or pipe bollards). If installed on a road project and within the clear zone of an active travel lane all barriers must be installed per the Department of Transportation (DOT) Index & Manual on Uniform Traffic Control Devices (MUTCD).

5.5 Hazards

5.5.1. The accidental exposure to utilities could result in an injury or even fatality. Injury could be caused by explosion, fire, electrical shock, asphyxiation, struck-by hazards, and more.

5.5.2 Hazard Controls

5.5.3.1. If utility conflicts are found, a potential option for hazard elimination would be to change the plans to avoid being in proximity with existing utilities. Effort must be taken to have the utility conflicts related to the scope of work removed or relocated prior to commencing work. If, after contacting the appropriate utility companies, the utility cannot be removed or relocated prior to commencing, then additional means and methods shall be employed following the hierarchy of controls identified below.

5.5.3 Engineering Controls

5.5.3.1. If utilities in proximity of the work cannot be eliminated/relocated, then the next preferred control is to raise the height of overhead utilities or insulate the wires.

5.5.4 Administrative Controls

5.5.4.1. Administrative controls could be the installation of warning signs, use of spotters, use of protective barricades, proximity warning/control devices for equipment, and/or use of technology to visually identify utilities.

5.5.5 Personal Protective Equipment

5.5.5.1. Personal Protective Equipment controls could consist of grounded cabs on equipment, insulated/rated gloves, rated face shields, and/or reflective vests.

5.6 Training

5.6.1. BNB Operations personnel and all subcontractor personnel engaged in excavation or work in proximity to overhead lines must be trained on this standard and BNB's Avoidance Policy. Subcontractor employees engaged in excavation activities must be "Dig Safe" trained before working on an excavation operation. This training is also required for personnel involved in the completion of the Dig Permit.

6.0 References

OSHA 1926.1408

OSHA 1926.1411 – Power Line Safety

OSHA 1926.600 - Equipment

7.0 Attachments

Dig Permit

Core Drilling / Saw Cutting Checklist

Subcontractor Requirements

Utility Avoidance - Best Practices

Walking and Working Surfaces

1.0 Purpose

1.1. The purpose of this standard is to establish requirements for the design, maintenance, and use of walking and working surfaces and stairs.

2.0 Scope

2.1. This policy applies to walking and working surfaces and stairs at BNB projects and offices.

3.0 Responsibility

3.1 Project Management

3.1.1. BNB Project Management & Supervision are responsible for preplanning walking and working surfaces and stairways for each project. For example, the use of ladders to access work areas on different levels should be identified during preconstruction, so effective controls such as a temporary stair tower may be put in place during construction. During construction, BNB Project Management & Supervision are responsible for inspecting walkways, stairs, and other surfaces to ensure a safe workplace.

3.2 Workers

3.2.1. Workers are expected to maintain all walkways and stairs in a safe condition throughout the workday and report any issues to management. Work areas must be cleaned up at a pace consistent with production and waste-generating activities. If their work will close an emergency exit or walkway, they must work with BNB Project Management & Supervision.

4.0 Definitions

4.1. Debris – Materials, supplies, equipment, trash, etc. that have accumulated during work activities.
4.2. Floor Holes - an opening measuring less than twelve inches but more than one inch in its least dimension in any floor, roof, platform, or surface through which materials but not persons may fall, such as a belt hole, pipe opening, or slot opening.
4.3. Floor Openings - an opening measuring twelve inches or more in its least dimension in any floor, roof, platform, or surface through which persons may fall.
4.4. Unprotected sides and edges means any side or edge (except at entrances to points of access) of a stairway where there is no stair rail system or wall 36 inches (.9 m) or more in height, and any side or edge (except at entrances to points of access) of a stairway landing, or ladder platform where there is no wall or guardrail system 39 inches (1 m) or more in height.
4.5. Unstable Ground – earth material that because of its nature or the influence of related conditions cannot be depended upon to remain in place without extra support.
4.6. Walking and Working Surface - any area including, but not limited to, floors, a roof surface, bridge, the ground, and any other surfaces whose dimensions are forty-five inches or more in all directions, through which workers can pass or conduct work.
4.7. Wall opening - an opening at least thirty inches high and eighteen inches wide, in any wall or partition, through which persons may fall, such as an opening for a window, a yard arm doorway, or chute opening.

5.0 Procedure

5.1 General

5.1.1. Walkways, stairways and roadways shall be kept clear to allow the safe movement of persons, material and equipment.
5.1.2. Electrical cords, hoses, ropes, conduit, pipe and other hazards shall not be placed in walkways, stairways and work areas in such a manner as to create a tripping hazard. Examples of acceptable

methods for avoiding a tripping hazard include: taping the items down, running the items along the area edge or barricading the area.

5.1.3. Impalement protection must be installed on rebar or other similar objects in walkways.

5.1.4. Barricades, fencing, and other materials in public areas can't have hardware, locks, protrusions, or irregular surfaces on the public side that a person could strike against, or snag/catch their clothes or body parts on.

5.1.5. Fencing shall be secure. Fence bases that have the potential to cause a tripping hazard shall be labeled, coned and secured.

5.1.6. Minimum 28-inch wide aisles will be provided at all times

5.1.7. Emergency exits and evacuation routes shall be clearly marked and kept clear at all times

5.1.7.1. A clean work area prevents slips, trips and falls and helps safety and production.

5.1.7.2. Clean as you go and at the end of each day.

5.1.7.3. Materials must be stored in an orderly manner.

5.1.7.4. Spills and leaks are to be cleaned up immediately.

5.1.7.5. Round containers can be trip hazards and can be easily kicked off a floor.

5.1.7.6. When a building or structure has only one point of access between levels, that point of access shall be kept clear to permit free passage of employees. When work must be performed or equipment must be used such that free passage at that point of access is restricted, a second point of access shall be provided and used.

5.1.7.7. When a building or structure has two or more points of access between levels, at least one point of access shall be kept clear to permit free passage of employees.

5.1.8 Open Holes

5.1.8.1. Floor hole and floor opening covers shall be secured against displacement and adequately marked with the word "Hole" or "Cover".

5.1.8.2. All covers must be designed to support without failure 4 times the intended load.

5.1.8.3. Hole covers need a tapered/beveled edge to be flush with the existing surface to minimize trip hazards.

5.1.8.4. Cover and secure roof/floor openings wider than 2" and never leave them unprotected and/or unattended.

5.1.8.4.1. Guardrails can be used in lieu of covers.

5.1.8.4.2. Equipment should not travel over hole covers—hole covers may be constructed to prevent equipment from being able to travel over the cover.

5.1.9 Cords, hoses, lines, etc.

5.1.9.1. Cords, hoses, etc. in public areas must have ADA-compliant covers to protect them from damage and give safe passage to the public.

5.1.9.2. Correct tripping hazards such as cords, hoses or debris in work areas or paths of travel.

5.1.9.2.1. Extension cords, hoses, welding leads, etc., must be run safely overhead in all stairs, aisles, and exit areas.

5.1.10 Elevated Walking and Working Surfaces

5.1.10.1. When working/walking surfaces are 6' or greater in height, proper fall protection methods must be used.

5.1.10.1.1. BNB will approve perimeter access points for material handling. Personal fall protection must be put in place before cables or rails are taken down, or holes uncovered. Barricade the area, place signage, and leave a spotter.

5.1.10.1.2. Barricades must be a minimum of 10' from edges.

5.1.10.2. Never remove guardrails or warning barricades without permission from BNB Project Management & Supervision.
5.1.10.3. Railings and toe boards shall be provided along all unprotected and open sides, edges, and surfaces 6' above ground levels.

5.1.11 Guardrails

5.1.11.1. Guardrails must be provided at floor openings, open sides, and/or leading edges or personal fall protection must be used.

5.1.11.2. Guardrails or wire cables must follow these requirements:

5.1.11.2.1. shall have a vertical height within the range of 42 inches to 45 inches from the upper surface of the top rail to the floor, platform, runway, or ramp level. (Note: the permissible tolerance on height dimensions is one inch).
5.1.11.2.2. The maximum deflection for the top rail when a load of 200 pounds is applied in any direction at any point on the top rail shall not exceed 3 inches in any direction.
5.1.11.2.3. Mid-rail/cable and toe boards must be installed and able to withstand 150 lbs.
5.1.11.2.4. Guardrails or wire cables will not be used for anchoring personal fall arrest/restraint.
5.1.11.2.5. Upright supports for a wood guardrail system shall be spaced no greater than every 8 ft. on center.

5.1.12 Stairways

5.1.12.1. Temporary stair towers or prefabricated stairs should be used to access different building levels.
5.1.12.2. Never use stairs and ramps that are incomplete, incorrectly constructed, improperly installed, or damaged.
5.1.12.3. Stairs, ladders, and ramps must be inspected before use.
5.1.12.4. A stairway or ladder shall be provided at all personnel points of access where there is a break in elevation of 19 inches or more, and no ramp, runway, sloped embankment, or personnel hoist is provided. Stairways must extend to the uppermost floor that has been planked or decked if steel framed.
5.1.12.5. Stair steps must be illuminated with at least 5-foot candles of light
5.1.12.6. Stairway openings must be guarded on all sides except the entrance.
5.1.12.7. Snow and Ice must be removed from stairs before they are allowed to be used.
5.1.12.8. Stairways shall be at least 24 inches in width and shall be equipped with stair rails, handrails, treads, and landings.
5.1.12.9. Railings and toe boards shall be installed around stairwells.
5.1.12.10. Temporary stairways that will not be a permanent part of the structure on which construction work is being performed shall be at least 24 inches in width. The stairway shall have landings at each floor, or level, of not less than 30 inches in the direction of travel and extend at least 24 inches in width at every 12 feet or less of vertical rise.
5.1.12.11. Stairs shall be installed between 30° and 50° from horizontal.
5.1.12.12. Unprotected sides and edges of stairway landings shall be provided with railings.
5.1.12.13. Metal pan landings and metal pan treads, when used, shall be secured in place before filling with concrete or other material.
5.1.12.14. All parts of stairways shall be free of hazardous projections, such as protruding nails.

5.1.12.15. Slippery conditions on a stairway shall be eliminated before the stairway is used to reach another level.

5.1.12.16. Stairways having four or more risers or rising more than 30 inches (76 cm), whichever is less, shall be equipped with:

5.1.12.16.1. At least one handrail; and
5.1.12.16.2. A stair rail consisting of a top rail and mid-rail along each unprotected side or edge.
5.1.12.16.3. The height of stair rails shall be not less than 36 inches from the upper surface of the stair rail to the surface of the tread, in line with the face of the riser at the forward edge of the tread.
5.1.12.16.4. Mid-rails shall be located at a height midway between the top edge of the stair rail and the stairway steps.
5.1.12.16.5. Screens, mesh, or other material, when used in lieu of mid-rails, shall extend from the top rail to the stairway step, and along the entire opening between top rail supports.
5.1.12.16.6. Handrails and the top rails of stair rails shall be capable of withstanding, without failure, a force of at least 200 pounds (890 n) applied within 2 inches of the top edge, in any downward or outward direction, at any point along the top edge.
5.1.12.16.7. Stair and handrails shall be so surfaced as to prevent injury to employees from punctures or lacerations, and to prevent snagging of clothing.
5.1.12.16.8. Handrails shall provide an adequate handhold.
5.1.12.16.9. Except during stairway construction, foot traffic is prohibited on stairways with pan stairs where the treads and/or landings are to be filled in with concrete or other material at a later date, unless the stairs are temporarily fitted with wood or other solid material at least to the top edge of each pan.
5.1.12.16.10. Except during stairway construction, foot traffic is prohibited on skeleton metal stairs where permanent treads and/or landings are to be installed at a later date, unless the stairs are fitted with secured temporary treads and landings long enough to cover the entire tread and/or landing area.
5.1.12.16.11. Treads for temporary service shall be made of wood or other solid material, shall cover the full width and depth of the stair and shall be supported to prevent undue deflection.

5.1.13 Ramps

5.1.13.1. Ramps must have non-skid surfaces.
5.1.13.2. Ramps or runways shall be not less than 20 inches in width and shall be secured and supported so as to avoid deflection and springing action.
5.1.13.3. Securely fastened cleats or other means shall be used on inclined runways that are sloped two feet in 10 feet or more to improve the footing. Where cleats are used, they shall be eight inches or more in length and not more than 16 inches apart.
5.1.13.4. When planks are used for raised walkways, runways, or sidewalks, they shall be secured against displacement. Planks shall be uniform in thickness and all exposed ends shall be provided with beveled cleats to prevent tripping.
5.1.13.5. Wheelbarrow ramps over three feet high shall be not less than two feet, six inches wide and secured at each end to prevent ramp from sliding. Platform planks shall be firmly cleated together.

5.2 Hazards

5.2.1. Potential hazards associated with inadequate walking/working surfaces and stairs may be trips, slips, falls, electrical shock, damage to equipment, etc.

5.3 Hazard Controls

5.3.1 Engineering Controls

5.3.1.1. Personnel should locate their equipment and materials in areas where they will not protrude in walkways.

5.3.1.2. Instead of using ladders to access different levels, temporary or permanent stairways can be installed and used.

5.3.2 Administrative Controls

5.3.2.1. Housekeeping must be sufficient throughout the workday and conducted in accordance with Housekeeping. Inspections should be conducted daily to ensure walking and working surfaces are kept in proper condition. Signage may be posted to remind workers to keep walkways clear.

5.3.3 Personal Protective Equipment

5.3.3.1. All personnel must wear sturdy boots with ankle protection and hard soles. No running shoes of any kind are permitted on work sites**.** NO SAFETY TOE TENNIS SHOES ALLOWED.

5.3.4 Training

5.3.4.1. Personnel will receive site-specific training on walking and working surfaces during New Hire Orientation. In addition, employees who use stairways should receive additional training as necessary.

6.0 References

FED / OSHA 29 CFR 1926 Subpart X

FED / OSHA 29 CFR 1910 Subpart D & I – Walking Working Surfaces and Personal Fall Protection Systems

7.0 Attachments

Fall Protection Plan

Pre-Task Plan

Demolition Permit

Aerial Work Platform Inspection Checklist

Scaffolding Inspection Checklist

Welding, Cutting & Hot Work

1.0 Purpose

1.1. Each year numerous deaths from explosions, electrocutions, asphyxiation, falls and crushing injuries are associated with welding activities. In addition, numerous health hazards are associated with exposure to fumes, gases, and ionizing radiation formed or released during welding, cutting, and brazing, including heavy metal poisoning, lung cancer, metal fume fever, flash burns, and welder's flash (burn to eyes). Diligent and proper enforcement of this standard will protect our work, property, and the ongoing operations of our projects.

2.0 Scope

2.1. This standard applies to welding, cutting, grinding, and other hot-work related activities that take place on BNB projects. Hot work activities consist of open flames, heat, arcs, and / or sparks.

3.0 Responsibility

3.1 Project Management

3.1.1. BNB Project Management is to convey the requirements of this program to BNB personnel or subcontractors who engage in hot-work operations prior to the start of their work. Project Management must ensure that adequate HS&E documentation has been submitted, including a Hot-Work Permit, Respirator Fit Testing Data (if applicable), Pre-Task Plan, and any Air Monitoring documentation associated with the work. Project Management must also check with local municipalities pertaining to hot work permitting.

3.2 Supervision

3.2.1. Supervision should understand safe practices and enforce company safety policies and procedures associated with hot-work operations. Supervisors are to ensure a Hot-Work Permit has been completed and reviewed by BNB prior to the start of work. Also, supervision must ensure that hot-work operations are carried out in compliance with the requirements of the Hot-Work Permit.

3.3 Workers

3.3.1. Workers must be responsible for safe work practices related to Hot-Work operations. Shall operations not be performed safely with controlled hazards; workers shall cease all hot work operations. Equipment operators should tag and remove defective equipment. Repairs shall be made only by qualified personnel and in accordance with the manufacturer's recommendations.

4.0 Definitions

4.1. **Competent Person** – One who can identify existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them

4.2. **Hydraulic Back-Pressure Valve / Hydraulic Seal / Hydraulic Flash Arrester / Hydraulic Valve and Backflow Check Valve –** Terms used interchangeably to mean a device designed and constructed to prevent a flash-back from reaching a fuel gas source, manifold or cylinder and to prevent accidental mixing of fuel gas and oxygen by reserve flow.

4.3. **Welder and Welding Operator –** Any operator of electric or gas welding and cutting equipment

4.4. **Qualified Person, Attendant or Operator –** A person designated by the employer who by reason of training, experience, or instruction has demonstrated the ability to safely perform all assigned duties and, when required, is properly licensed in accordance with federal, state, or local laws and regulations

4.5. **Fire Watch –** An individual listed on the Hot-Work Permit with required training on the inspection and use of fire-fighting equipment. The Fire Watch is to continuously monitor the work area during Hot-Work and for 30 minutes after the Hot-Work is completed

4.6. Hot Work – Any work involving burning, welding, or similar operations as defined above that is capable of initiating fires or explosions
4.7. Hot-Work Permit (HWP) – A multi-part form consisting of instructions, identification of who will be involved in the Hot-Work operations, location of the Hot-Work operations, the nature of the Hot-Work operation, and precautions to be taken prior to and during Hot-Work operations

5.0 Procedure

5.1 General Procedures

5.1.1. Refer to the Confined Spaces policy for ventilation and other requirements for hot work in confined spaces.
5.1.2. Inspect the immediate work area and areas adjacent, beneath and above the immediate work area for combustible and/or flammable materials or liquids.
5.1.3. Cover all wood planking, scaffolds, wooden forms, and flammable and/or combustible materials or liquids within 35ft. of the work area that cannot be removed, with approved fire-retardant blankets, pads, curtains, covers and/or shields.
5.1.4. When hot work is performed at an elevated location, consider sparks or slag that can fall and land under the hot work operation.
5.1.5. At least one fully charged and operable fire extinguisher that is appropriate for the type of possible fire must be immediately available at the hot work location.
5.1.6. Adequate ventilation is required for all hot work operations.
5.1.7. The floor is swept clean within 35ft. of the work area.
5.1.8. Combustible floors are protected with approved fire-retardant blankets, pads, curtains, covers and/or shields.
5.1.9. Special precautions should be taken for heating pipes or other metal that is in contact with combustibles, walls, partitions, ceilings, or roofs.
5.1.10. Sprinkler heads and/or sensors must be protected if hot work is done in close proximity to an automatic fire detection or suppression system. Systems may need to be placed in test mode during hot work activities.

5.1.11. Hot work is not allowed in the following areas:

5.1.11.1. In areas not authorized by BNB Management.
5.1.11.2. In the presence of explosive atmospheres (e.g. gases, vapors, liquids, or dusts).
5.1.11.3. In areas where explosive atmospheres could potentially develop.
5.1.11.4. In areas with an accumulation of combustible dusts.

5.2 Fire Watch Procedures

5.2.1. The fire watch must:

5.2.1.1. See Fire Prevention Policy for more information.
5.2.1.2. Be familiar with the Project Specific Fire Prevention Plan.
5.2.1.3. Be aware of the inherent hazards of the work area and of the hot work.
5.2.1.4. Stop hot work operations if unsafe conditions develop and shall notify management and the supervisor for reassessment of the conditions.
5.2.1.5. Have fire-extinguishing equipment readily available and is to be trained in its' use.
5.2.1.6. Be familiar with the facilities and procedures for sounding an alarm in the event of a fire.
5.2.1.7. Watch for fires in all exposed areas.
5.2.1.8. Extinguish fires only when the fires are within the capacity of the fire-extinguishing equipment available and sound an alarm according to the Project Specific Fire Prevention Plan.

5.2.1.9. Follow specific Hot Work Permit instructions.
5.2.1.10. Additional fire watch personnel might be necessary when working in close proximity to open shafts, elevated heights, or where sparks can travel through openings.

5.3 Hot-Work Permits (HWPs)

5.3.1. HWPs shall be completed:

5.3.1.1. For welding, cutting, grinding, and other hot-work activities.
5.3.1.2. Prior to hot work activities commencing.
5.3.1.3. For up to one work shift with the exception of exterior construction such as steel erection or reinforcing steel which may be completed for up to one week.

5.3.2. HWP Process

5.3.2.1. Personnel who are to engage in hot work obtain a permit from BNB.
5.3.2.2. Personnel completes permit section 1.
5.3.2.3. Personnel gives completed permit to BNB Supervisor.
5.3.2.4. BNB Supervisor verifies adequacy of the permit.
5.3.2.5. BNB Supervisor and personnel sign Part 1.
5.3.2.6. BNB Supervisor retains Part 1.
5.3.2.7. Personnel takes Part 1A and retains it for records.
5.3.2.8. Personnel fills out and displays permit at the location of the hot work.
5.3.2.9. BNB Supervisor to retain HWP until conclusion of the project.

5.4 Gas Welding and Cutting Operations

5.4.1. Personnel conducting Gas Welding and Cutting Operations must:

5.4.1.1. Inspect torches, hoses, valves and cylinders prior to use and immediately remove defective equipment from service.
5.4.1.2. Keep oxygen fittings, cylinders, caps, couplings, regulators, hoses, and other apparatus away from and free of oil and grease. Do not handle oxygen cylinders while wearing oily gloves.
5.4.1.3. Ensure flashback arrestors/check valves are installed at all oxygen and fuel gas regulator gauges.
5.4.1.4. Use only hose couplings that cannot be unlocked or disconnected by means of a straight pull.
5.4.1.5. Keep hoses clear of walkways, ladders, and stairways.
5.4.1.6. Use a spark lighter (striker) to light torches. Do not use matches and/or lighters.
5.4.1.7. Do not strike an electrode against a cylinder to strike an arc.
5.4.1.8. Ensure that hot sparks, hot metal or cut pieces do not fall on cylinders, hoses, machinery, combustible material, legs, feet, or persons below.
5.4.1.9. Shut off cylinder valves and bleed regulators and hoses at the end of each shift.

5.5 Arc Welding and Cutting Operations

5.5.1. Personnel conducting arc welding and cutting activities must:

5.5.1.1. Inspect equipment prior to use and immediately remove damaged equipment from service.
5.5.1.2. Use and position screens or shields properly in order to protect workers and the public from arc ray exposure during Arc Welding and Cutting Operations.
5.5.1.3. Never overload welding cables or operate with poor connections.

5.5.1.4. Never strike an electric arc on a gas cylinder.
5.5.1.5. Use only properly designed metal electrode holders.
5.5.1.6. Never dip hot electrode holders in water.
5.5.1.7. Dispose of discarded electrode stubs properly, as they can create a slip/trip/fall hazard.
5.5.1.8. Ensure that the frame of the welding machine is properly grounded.
5.5.1.9. Welding/cutting/ground cables must be in operable condition with no visible damage.
5.5.1.10. Never attach a ground cable to a pipeline containing gases or flammable liquids.
5.5.1.11. Keep cables clear of walkways, ladders, and stairways. String all cables overhead with non-metallic hangers if needed.
5.5.1.12. Ensure that cables are protected from equipment damage (e.g. forklifts, scissor lifts, etc.).
5.5.1.13. Locate grounds as close to the work location as possible to prevent arcing.
5.5.1.14. Stop operations if unsafe conditions develop and notify management and the supervisor for reassessment of the conditions.

5.6 Cylinder Handling

5.6.1. Personnel handling cylinders must:

5.6.1.1. Store, move or use cylinders in an upright position.
5.6.1.2. Close valves, remove regulators, and replace valve safety caps before moving or storing.
5.6.1.3. Move cylinders by tilting and rolling them on their bottom edges; by use of a bottle cart; or with motorized equipment. Never lay cylinders on their sides and roll them.
5.6.1.4. Store Oxygen cylinders separated from fuel-gas cylinders or combustible materials (especially oil or grease), a minimum distance of 20 feet or by a noncombustible barrier at least 5 feet high having a fire-resistance rating of at least one-half hour.
5.6.1.5. Never use cylinders as rollers or supports whether full or empty.
5.6.1.6. Never drop cylinders or permit them to strike one another violently, even when empty.
5.6.1.7. Use bottle carts, chains, or other steadying devices to keep cylinders from being knocked over while in use.
5.6.1.8. Ensure cylinders are marked with the chemical or trade name of the gas.
5.6.1.9. Keep storage areas free of debris and other combustible materials.
5.6.1.10. Open cylinder valves slowly to prevent damage to the regulator.
5.6.1.11. Close and tighten the gland nut when the valve on a fuel gas cylinder is opened and there is a leak around the valve stem. If this action does not stop the leak, the cylinder shall be properly tagged, removed from the work area, and taken outdoors away from personnel and sources of ignition. The supplier shall promptly be notified of the leaking cylinder valve and the supplier's instructions shall be followed.
5.6.1.12. Position cylinders where they will not be struck by sparks, hot slag, or flame, and where they cannot become part of an electrical circuit.
5.6.1.13. Never take cylinders containing oxygen, acetylene into confined spaces.
5.6.1.14. Not use acetylene at a pressure in excess of 15 pounds per square inch gauge pressure.
5.6.1.15. Not use oxygen as a substitute for compressed air.

5.6.2. Before a regulator to a cylinder valve is connected, the valve shall be opened slightly and closed immediately ("cracking"). The person cracking the valve shall stand to one side of the outlet, not in front of it. Never crack a valve near ignition sources.

5.6.3. In the event that fuel gas should leak from the cylinder valve, rather than from the valve stem, and the gas cannot be shut off, the cylinder shall be properly tagged, removed from the work area, and taken

outdoors away from personnel and sources of ignition. The supplier shall promptly be notified of the leaking cylinder valve and the supplier's instructions shall be followed.

5.7 Hazards

5.7.1. Hazards related to hot work may consist of uncontrolled ignition of flammable gas, personnel or public injury, property damage, uncontrolled release of high-pressure gases, fire and/or explosion, electrical shock, struck-by, injury to eyes, skin, and lungs, and potential death.

5.8 Hazard Controls

5.8.1. Engineering Controls

5.8.1.1. If possible, eliminate the presence of flammable/combustible materials during the design phase at or around planned welding activities to mitigate potential fire hazards during construction.
5.8.1.2. Alternate methods to hot work should be considered where practical. For example, repetitive cutting of metal studs may be performed at a central location where no combustibles are present, bolting in lieu of welding, or prefabrication offsite.

5.8.2. Administrative Controls

5.8.2.1. Combustibles should be moved to a designated safe distance from the work or have combustibles properly shielded against ignition, if the work cannot be moved.
5.8.2.2. If fire hazards cannot be removed, guards or fire blankets should be used to confine the heat sparks and slag and to protect the immovable fire hazards.
5.8.2.3. Make sure that the welding area is watched for one-half hour after welding is completed to ensure that no sparks or smoldering fires are present.
5.8.2.4. Complete hot work permits and assign fire watch as necessary.

5.9 Personal Protective Equipment

5.9.1. Welders must wear:

5.9.1.1. Non-flammable gloves with gauntlets
5.9.1.2. Appropriate foot protection
5.9.1.3. Aprons (leather) and or shirts that have leather sleeves and collars
5.9.1.4. Helmets, hoods, and face shields designed to attach to a standard hardhat
5.9.1.5. Eye protection
5.9.1.6. Cutting goggles must be worn with oxyacetylene cutting activities
5.9.1.7. Respiratory protection:
5.9.1.8. Outdoors: Respirators are required for any operation involving stainless steel, beryllium, cadmium, lead, or mercury. For other materials, respirators may be required when natural or mechanical ventilation is insufficient to prevent exposure to airborne contaminants.
5.9.1.9. Indoors: Respirators shall be used when local exhaust or mechanical ventilation is not feasible or able to prevent listed exposure limits.
5.9.1.10. Enclosed spaces: Supplied-air respirators shall be used when local exhaust ventilation is not an effective means for preventing potentially hazardous exposures.

5.10 Training

5.10.1. Only authorized and trained individuals shall be permitted to perform hot work operations.

5.10.2. Fire watch personnel must be trained in the use of fire extinguishing equipment and be familiar with the Project Specific Fire Prevention Plan. Personnel performing hot work activities must have adequate training and experience to perform their duties safely. Personnel operating arc welding equipment and gas-shielded welding equipment must be competent. Personnel handling fuel gas must be instructed on safe practices.

6.0 References

FED / OSHA 1926 Subpart J - Welding and Cutting

FED / OSHA 1910.251-255 – Welding, Cutting, and Brazing

American Welding Society Standards

7.0 Attachments

Hot-Work Permit

Pre-Task Plan

Demolition Permit

Confined Space Entry Permit

Wildfire Smoke & Outdoor Air Quality

1. Purpose

1.1. Air quality can be negatively impacted by wildfires, SMOG, agricultural activities, and other atmospheric emissions. This Policy is intended to provide a guideline to monitor, evaluate and respond to changing conditions as a result of environmental impacts such as wildfires which may affect the Safety and Health of our employees.

2. Scope

2.1. This section applies to workplaces where the current Air Quality Index (AQI) for PM2.5 is 151 or greater in California or 69 or greater in Washington, regardless of the AQI for other pollutants, and where BNB should reasonably anticipate that our employees may be exposed to atmospheric contaminants such wildfire smoke, SMOG, agricultural activities and other contaminants.

2.2. The following workplaces and operations are exempt:

2.2.1. Enclosed buildings or structures in which the air is filtered by a mechanical ventilation system and the employer ensures that windows, doors, bays, and other openings are kept closed to minimize contamination by outdoor or unfiltered air.

2.2.2. Enclosed vehicles in which the air is filtered by a cabin air filter and the employer ensures that windows, doors, and other openings are kept closed to minimize contamination by outdoor or unfiltered air.

2.2.3. BNB demonstrates that the concentration of PM2.5 in the air does not exceed a concentration that corresponds to a current AQI of 151 or greater by measuring PM2.5 levels at the jobsite location.

2.2.4. Employees exposed to a current AQI for PM2.5 of 151 or greater for a total of one hour or less during a shift.

3. Responsibility

3.1. Project Management & Supervision

3.1.1. BNB management and supervision will be responsible for relaying AQI information when it is at or exceeds 151 in California or 69 in Washington. Management and supervision are also responsible for ensuring that the monitoring of the current air quality index for PM 2.5 is less than 151 (CA) or 69 (WA). However, if the air quality is at or greater than 151, regardless of the AQI for other pollutants, voluntary respirator use of the N95 or equivalent APF 10 will be provided along with the Voluntary Respirator Use Form.

3.2. Workers

3.2.1. All employees working on a BNB project are highly encouraged to utilize available PPE provided while working during wildfire smoke and other air quality contaminant events and to inform BNB management of air quality hazards at the jobsite. This includes worsening of air quality and any adverse symptoms that may be the result from unhealthy or hazardous air quality such as asthma attacks, difficulty breathing, and chest pain. The "Voluntary Respirator Use Form" must be completed prior to donning any supplied respirator.

4. Definitions

4.1. Current Air Quality Index (Current AQI). The method used by the U.S. Environmental Protection Agency (U.S. EPA) to report air quality on a real-time basis. Current AQI is also referred to as the "NowCast," and represents data collected over time periods of varying length in order to reflect present conditions as accurately as possible.

4.2. Washington Air Quality Advisory (WAQA) The method used by the Washington State Department of Ecology to report air quality on a real-time basis. It represents data collected over time periods of varying length in order to reflect present conditions as accurately as possible.

4.2.1. The current AQI is divided into six categories as shown in the table below, adapted from Table 2 of Title 40 Code of Federal Regulations, Part 58, Appendix G.

Air Quality Index (AQI)	
Categories for PM2.5	Levels of Health Concern
0 to 50	Good
51 to 100	Moderate
101 to 150	Unhealthy for Sensitive Groups
151 to 200	Unhealthy
201 to 300	Very Unhealthy
301 to 500	Hazardous

4.3. NIOSH. The National Institute for Occupational Safety and Health of the U.S. Centers for Disease Control and Prevention. NIOSH tests and approves respirators for use in the workplace.

4.4. PM2.5. Solid particles and liquid droplets suspended in air, known as particulate matter, with an aerodynamic diameter of 2.5 micrometers or smaller.

4.5. Wildfire Smoke. Emissions from fires in "wildlands," as defined in Title 8, section 3402, or in adjacent developed areas.

5. Procedure

5.1. Atmospheric Monitoring

5.1.1. BNB shall determine employee exposure to PM2.5 for jobsites covered by this section before each shift and periodically thereafter, as needed to protect the health of the employee, by any of the following methods:

5.1.2. California or Other Regions Not Regulated by Local Authorities

5.1.2.1. Check AQI forecasts and the current AQI for PM2.5 from any of the following: U.S. EPA AirNow website, U.S. Forest Service Wildland Air Quality Response Program website, California Air Resources Board website, local air pollution control district website, or local air quality management district website; or

5.1.2.2. Obtain AQI forecasts and the current AQI for PM2.5 directly from the EPA, California Air Resources Board, local air pollution control district, or local air quality management district by telephone, email, text, or other effective method.

5.1.3. Washington

5.1.3.1. Check PM2.5 forecasts and the current PM2.5 from any of the following: Washington Air Quality Advisory website, Air Quality WA mobile app, Washington Smoke Information website, U.S. EPA AirNow website, EPA AirNow mobile app, U.S. Forest Service AirFire website, Local Clean Air Agency website; or

5.1.3.2. Obtain PM2.5 forecasts and the current PM2.5 directly from the Department of Ecology, Local Clean Air Agency, U.S. EPA, EPA EnviroFlash.info, or local clean air agency by telephone, email, text, or other effective method; or

5.1.3.3. Measure PM2.5 levels at the work location in accordance with Appendix A in WAC Chapter 296-62-085.

5.1.3.4. If an index such as WAQA or AQI are used, the employer must use following table to find the equivalent WAQA or AQI for PM2.5.

NowCast $PM_{2.5}$ in Micrograms per Cubic Meter ($\mu g/m^3$)	NowCast Washington Air Quality Advisory (WAQA)	NowCast Air Quality Index (AQI)
20.5$\mu g/m^3$	101	69
55.5$\mu g/m^3$	173	151

5.2. Communicating to employees

5.2.1. BNB Safety Department will disseminate air quality information on a daily basis to effectively communicate the hazards of unhealthy or hazardous air quality to all affected employees. Employees are encouraged to inform BNB supervision of unhealthy or hazardous air quality at the jobsite. The communication shall include the following procedures:

5.2.1.1. Informing employees of the current AQI for PM2.5 prior to the start of work.

5.2.1.2. Provide protective measures to employees to reduce their unhealthy or hazardous air quality exposures.

5.2.1.3. Encouraging employees to inform their employer of worsening air quality; and any adverse symptoms that may be the result of unhealthy or hazardous air quality exposure such as asthma attacks, difficulty breathing, and chest pain.

5.3. Engineering Controls

5.3.1. BNB shall reduce employee exposure to PM2.5 to less than a current AQI of 151 by engineering controls whenever feasible, for instance by providing enclosed buildings, structures, or vehicles where the air is filtered. If engineering controls are not sufficient to reduce exposure to PM2.5 to less than a current AQI of 151, then the BNB shall reduce employee exposures as much as feasible. In Washington this will be considered and encouraged at AQI 69, and mandatory at 151.

5.4. Administrative Controls

5.4.1. Whenever engineering controls are not feasible or do not reduce employee exposures to PM2.5 to less than a current AQI of 151, BNB shall implement administrative controls, if practicable, such as relocating work to a location where the current AQI for PM2.5 is lower, changing work schedules, reducing work intensity, or providing additional rest periods. In Washington this will be considered and encouraged at AQI 69, and mandatory at 151.

5.5. PPE

5.5.1. When required by this policy a N95 respirator equivalent APF 10 or higher shall be provided for voluntary use. (See Voluntary Respirator Use Form)

5.6. Training

5.6.1. As required in our "Freedom from Danger", BNB shall provide employees with effective training and instruction.

5.6.1.1. For California employees training requirements shall be in accordance with CSO 5141.1 Appendix B

5.6.1.2. For Washington employees training requirements shall be in aligned with the WAC 296-62-085 Appendix B

5.6.2. Training topics for all employees will include, at a minimum:
- 5.6.2.1. The health effects of wildfire smoke
- 5.6.2.2. The right to obtain medical treatment without fear of reprisal
- 5.6.2.3. How employees can obtain the current concentration of PM2.5 in the air
- 5.6.2.4. The requirements of WAC 296-62-085 wildfire smoke rule (for projects in Washington)
- 5.6.2.5. The employer's methods to protect employees from wildfire smoke
- 5.6.2.6. The importance, limitations, and benefits of using a respirator when exposed to wildfire smoke
- 5.6.2.7. How to properly put on, use, and maintain the respirators provided by the employer

5.6.3. Supervisor Training will be provided to all supervisors prior to supervising employees performing work that exposes the worker to PM 2.5 that exceed their respective region's threshold for implementing worker protections (AQI 151/69). Supervisors will be trained in the following topics:
- 5.6.3.1. The procedures the supervisor must follow to implement the applicable provisions of WAC 296-62-085 Wildfire Smoke or CSO 5141.1
- 5.6.3.2. he procedures the supervisor must follow if an employee exhibits adverse symptoms of wildfire smoke exposure, including appropriate emergency response procedures; and
- 5.6.3.3. Procedures for moving or transporting employees to an emergency medical service provider, if necessary. Local emergency facilities are located in each projects Site Specific Safety Plan and Crisis Management Plan.

5.7. Medical procedures in place for treatment of related symptoms

5.7.1. If an employee has any of the following symptoms stated below that may be related to the exposure of unhealthy or hazardous air quality, they will need to report such symptoms their immediate supervisor:
- 5.7.1.1. Irritation to the lungs
- 5.7.1.2. Persistent coughing
- 5.7.1.3. Phlegm, wheezing, or difficulty breathing

5.7.2. Upon notification of symptoms from an employee, the supervisor will monitor the employee to determine if medical attention is necessary. If medical attention is necessary, the supervisor will implement the BNB Crisis Management Plan reporting and response procedures and facilitate the appropriate medical attention. Employees will not be penalized for seeking medical attention.

5.8. Notifications and Responses

5.8.1. Supervisors will report directly to the assigned BNB safety professional if they have an employee report symptoms related to wildfire smoke exposure.

6. References

CFR29 1926 Subpart D – Occupational Health and Environmental Controls

7. Attachments

7.1. BNB Respiratory Protection Program
7.2. Air Quality Guide for Particle Pollution
7.3. Voluntary Respirator Use Form

Working over Water

1.0 Purpose

1.1. This policy provides guidelines and recommendations for construction work carried out on, adjacent to or over water where hazard to personnel exists.

2.0 Scope

2.1. This policy applies to all BNB projects where personnel are potentially exposed to hazards while working over water.

3.0 Responsibility

3.1 Project Management

3.1.1. BNB Project Management & Supervision are responsible for conducting a preconstruction risk assessment to identify work tasks that may be adjacent to or over water where hazards to personnel exists. Control measures must be identified and followed up with to ensure implementation in the field. It is the responsibility of BNB Project Management & Supervision to ensure that these conditions are satisfied to prevent unprotected working over water.

3.1.2. It is the responsibility of BNB Project Management & Supervision to ensure that personnel potentially exposed to working over water have and follow an adequate Site-Specific Working over Water Plan (WOW Plan). Submittals that must be received and reviewed by BNB Project Management & Supervision consist of:

3.1.2.1. Site-Specific Working over Water Plan

3.1.2.1.1. Job/Activity Hazard Analysis (JHA)
3.1.2.1.2. Pre-Task Plan (PTP)
3.1.2.1.3. Competent Person
3.1.2.1.4. Responsibilities
3.1.2.1.5. Rescue equipment and procedures
3.1.2.1.6. Lifesaving equipment to be used
3.1.2.1.7. Fall protection measures
3.1.2.1.8. Proof of training on:

3.1.2.1.8.1. The employer's safety programs and procedures
3.1.2.1.8.2. Fall awareness for working over water
3.1.2.1.8.3. Equipment to be used (use, installation, maintenance, storage, etc.)
3.1.2.1.8.4. Competent person
3.1.2.1.8.5. OSHA 30
3.1.2.1.8.6. CPR and First Aid
3.1.2.1.8.7. Site-specific hazards
3.1.2.1.8.8. Rescue equipment and procedures
3.1.2.1.8.9. Lifesaving and personal protective equipment

3.1.2.2. Lastly, BNB Project Management & Supervision must "inspect what we expect" by monitoring field conditions to ensure that Working over Water Plans are adequate and appropriately followed.

3.2 Workers

3.2.1. Workers engaged in working over water are responsible for following their employer's safety program, procedures, and WOW Plan. Foremen are responsible for ensuring JHAs and daily pre-task plans are conducted, understood, and followed by their crew members. Competent persons are responsible for ensuring that their WOW Plan is adequate, amended as needed, communicated, and followed by crew members.

4.0 Definitions

4.1. **Barge** - An unpowered, flat bottom, shallow draft vessel including scows, car floats and lighters. For purposes of this section, the term does not include ship shaped or deep draft barges.
4.2. **Body harness** - Straps which may be secured about the employee in a manner that will distribute the fall arrest forces over at least the thighs, shoulders, chest and pelvis with means for attaching it to other components of a personal fall arrest system.
4.3. **Bulwark –** The side of a ship above the upper deck.
4.4. **Coamings -** A raised border around an opening in a deck, roof, or floor, designed to prevent water from running below.
4.5. **Competent Person** - Purposes of this part means a person who is capable of recognizing and evaluating employee exposure to hazardous substances or to other unsafe conditions and is capable of specifying the necessary protection and precautions to be taken to ensure the safety of employees as required by the particular regulation under the condition to which it applies.
4.6. **Gangway** - Any ramp-like or stair-like means of access provided to enable personnel to board or leave a vessel including accommodation ladders, gangplanks and brows.
4.7. **Gunwale** - The upper edge of the side or bulwark of a vessel.
4.8. **Jacob's ladders** - A hanging ladder having ropes or chains supporting wooden or metal rungs or steps.
4.9. **Lifeline** - A component consisting of a flexible line for connection to an anchorage at one end to hang vertically (vertical lifeline), or for connection to anchorages at both ends to stretch horizontally (horizontal lifeline), and which serves as a means for connecting other components of a personal fall arrest system to the anchorage.
4.10. **Lower levels** - Those areas or surfaces to which an employee can fall. Such areas or surfaces include but are not limited to ground levels, floors, ramps, tanks, materials, water, excavations, pits, vessels, structures, or portions thereof.
4.11. **Personal fall arrest system** - a system used to arrest an employee in a fall from a working level. It consists of an anchorage, connectors, body belt or body harness and may include a lanyard, a deceleration device, a lifeline, or a suitable combination of these. As of January 1, 1998, the use of a body belt for fall arrest is prohibited.
4.12. **Positioning device system** - A body belt or body harness system rigged to allow an employee to be supported at an elevated vertical surface, such as a wall or window, and to be able to work with both hands free while leaning.
4.13. **Qualified person** - A person who by possession of a recognized degree or certificate of professional standing, or who, by extensive knowledge, training, and experience, has successfully demonstrated the ability to solve or resolve problems related to the subject matter and work.
4.14. **Restraint (tether) line** - A line from an anchorage, or between anchorages, to which the employee is secured in such a way as to prevent the employee from walking or falling off an elevated work surface. Note: A restraint line is not necessarily designed to withstand forces resulting from a fall.
4.15. **Rope grab** - A deceleration device which travels on a lifeline and automatically, by friction, engages the lifeline and locks so as to arrest the fall of an employee. A rope grab usually employs the principle of inertial locking, cam/level locking or both.
4.16. **Skiff -** A flat-bottomed open boat of shallow draft, having a pointed bow and a square stern and propelled by oars, sail, or motor.
4.17. **Vessel** - Every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on water, including special purpose floating structures not primarily designed for or used as a means of transportation on water.

5.0 Procedure

5.1 Protection against drowning

5.1.1. When work is being carried out in an exposed position where there is a foreseeable risk of falling into water and it is impracticable to provide guardrails at the edges over water, personnel must wear a lifejacket or use a buoyancy aid. Rescue equipment should be provided.
5.1.2. Guardrails and toeboards should be installed at edges where persons are liable to fall from height or into water. The guardrails should have adequate strength and should be securely fixed to a height between 39-45 inches above the ground or floor.
5.1.3. A minimum of two workers is required for operations when water is entered.

5.1.4 Elevated Work Platforms

5.1.4.1. The design, construction, and use of elevated work platforms should comply with Scaffolds. Every edge of an elevated work platform from which a person might fall into water should be guard railed.

5.1.5 Mobile Equipment

5.1.5.1. If equipment is used on a site near water, concrete barricades should be installed at the water's leading edges whenever practicable.
5.1.5.2. During earth filling work (e.g. reclamation work) in which installation of concrete barricades is impracticable, equipment should not get near the edge of a temporary earth slope. The distance between any wheel of the equipment and the edge of the slope should not be less than ten feet. The fill materials deposited by the equipment should be spread and compacted by crawler track-mounted equipment, such as a bulldozer.
5.1.5.3. When crawler track-mounted equipment works at the edge of a permanent slope, overhanging of any part of the crawler track should not be permitted.
5.1.5.4. When operating aerial work platforms near or over water, lift occupants are not required to tie off because in the event that an error occurred that resulted in the employees being in the water, being tied-off would exacerbate the drowning hazard.

5.1.6 Concrete Barricades

5.1.6.1. When concrete barricades are required, they should be substantially constructed to a height at least 42 inches above the working surface, at a distance of at least ten feet from the edge near water.

5.1.7 Edges over water (i.e., leading edges, wall/floor openings, unprotected edges)

5.1.7.1. Every edge over water where a person is liable to fall from height or into water, should be provided with guardrails and toeboards. Please reference Walking and Working Surfaces and Fall Protection for additional information.

5.1.8 Safety Nets

5.1.8.1. Provisions to eliminate the risk of falling should always be the first consideration. However, if this is not practicable, use of suitable and adequate safety nets, harnesses, and lanyards attached continuously to a suitable and secure anchorage should be considered.

5.1.8.2. A safety net should be installed as close as possible to the working level and in compliance with the level specified by the manufacturer. Manufacturer's recommended procedures must be followed for assembly and disassembly.

5.1.9 Safe means of access and egress

5.1.9.1. Every means of access and egress should be kept safe. Every edge from which a person might fall from height or into water should be provided with guardrails and toeboards. The means of access and egress should also be clear of any cargo lifting area and so located that no suspended load passes over it.

5.1.9.2. Every opening affecting safe use of the means of access and egress should either be fenced or be securely covered. If a means of access has been rendered unsafe for any reason, a controlled access zone must be established (i.e., physical barriers should be erected and warning notices prohibiting its use should be posted at every approach).

5.1.9.3. The means of access and egress and its immediate approaches should have non-slippery surfaces and should so far as is reasonably practicable be gritted. It should be kept free from any slippery material, obstruction or hazard caused by projecting fixtures or fittings. If such fixtures or fittings cannot be removed immediately, it should be suitably fenced off, painted or marked to alert users of the access and egress.

5.1.9.4. The means of access and egress should be kept in position as long as it is required. It should be well lit and properly maintained. At least two satisfactory means of escape should be available for use in an emergency.

5.1.10 Access to and from Vessels, Wharves, Floats, Barges, and/or Boats

5.1.10.1. Ramps for access of vehicles to or between barges shall be of adequate strength, provided with side boards, well maintained, and properly secured.

5.1.10.2. Unless employees can step safely to or from the wharf, float, barge, or river towboat, either a ramp or a safe walkway shall be provided.

5.1.10.3. When dredge discharge pipelines are used as walkways, they shall be provided with a flat surface walkway at least 12 inches wide, anchored to the pipeline to prevent displacement. A railing providing at least a single rail or taut rope 42 to 45 inches high shall be provided along one side. When rope is used, it shall be at least as strong as 3/4-inch diameter Manila or at least 3/8-inch diameter wire rope, or equivalent.

5.1.10.4. Catwalks or platforms shall be at least 20 inches wide with railings provided at all locations over bodies of water more than 4 feet deep. Planks for such use at those locations subject to immersion shall be rough sawn and treated to resist rot. Railings shall be installed.

5.1.10.5. When the upper end of the means of access rests on or is flush with the top of the bulwark, substantial steps properly secured and equipped with at least one substantial hand rail not less than thirty-four (34) inches or more than thirty-eight (38) inches above the tread nosing shall be provided between the top of the bulwark and the deck.

5.1.10.6. Obstructions shall not be laid on or across the gangway, ramp, catwalk or other means of access. The means of access shall be adequately illuminated for its full length.

5.1.10.7. Jacob's ladders shall be of the double rung or flat tread type. They shall be well maintained and properly secured. A Jacob's ladder shall either hang without slack or be pulled up entirely.

5.1.11 Working Surfaces of Barges

5.1.11.1. Employees shall not be permitted to walk along the sides of barges with coamings more than 5 feet high unless there is a 3-foot clear walkway or a grab or a taut hand line is provided.

5.1.11.2. Decks and other working surfaces shall be maintained in a safe condition.

5.1.11.3. Employees shall not be permitted to pass fore and aft, or over, or around deck loads, nor shall employees be permitted to walk over deck loads from rail to coaming, unless there is a safe passage.

5.1.11.4. If it is necessary for an employee to stand at the outboard or inboard edge of the deck load where less than 36 inches of bulwark, rail, coaming, or other protection exists, the employee shall be provided with a suitable means of protection against falling from the deck load.

5.1.12 Rescue Procedures

5.1.12.1. A rescue team should be organized to deal with emergency situations, such as incidents. Every member of the team should be trained in rescue and emergency procedures. At least one of the members should be certified in CPR and First Aid.

5.1.12.2. First aid supplies, a stretcher, and a portable AED should be provided and kept readily accessible for emergency use.

5.1.12.3. Notices in English and the predominant language should be posted in prominent positions, especially at edges near water, stating the following:

5.1.12.3.1. the locations and types of the rescue and life-saving equipment;
5.1.12.3.2. the location of the room, if any, for treatment of injuries;
5.1.12.3.3. the names of members of the rescue team; and
5.1.12.3.4. the means of communication.

5.1.13 Emergency procedure

5.1.13.1. Emergency procedures should be identified in BNB's Crisis Management Program and the WOW plan.

5.1.13.2. The procedures should be expressed clearly in writing and should at least include the following:

5.1.13.2.1. sounding the alarm for emergency including calling the police by dialing '911';
5.1.13.2.2. activating the rescue team;
5.1.13.2.3. dealing with emergency situations;
5.1.13.2.4. providing and using emergency and first aid facilities;
5.1.13.2.5. stating routes for rescue operation if necessary; and
5.1.13.2.6. sending rescued persons to hospital for medical treatment due to immersion in water (possibly polluted) or injury.
5.1.13.2.7. BNB's Crisis Management Plan and the WOW plan's emergency procedures should be posted in prominent locations.
5.1.13.2.8. All personnel should be trained on the emergency procedures. Drills and practices should be held regularly so as to ensure that all personnel are familiar with the emergency procedures.
5.1.13.2.9. The emergency procedures should be updated regularly so as to suit the progress of construction work. Drills and practices held can also help to identify the areas of weakness for improvement.

5.1.14 Rescue equipment

5.1.14.1. The following safety devices shall be provided for and used by employees at those locations where the danger of drowning exists. EXCEPTION: Where employees are 100% protected by railings, nets, personal fall arrest, etc.
5.1.14.2. Employees shall be required to wear U. S. Coast Guard approved personal flotation devices that are marked or labeled Type I PFD, Type II PFD, or Type III PFD, or a U.S. Coast

Guard approved Type V PFD that is marked or labeled for use as a work vest for commercial use or for use on vessels.

5.1.14.3. U. S. Coast Guard approved 30-inch ring buoys with at least 150 feet of 600-pound capacity line shall be readily available for emergency rescue operations. Distance between ring buoys shall not exceed 200 feet.

5.1.14.4. One or more lifesaving boats, either manually or power-operated, shall be provided and readily accessible at all times. Lifesaving boats shall be properly maintained, ready for emergency use and equipped with oars and oarlocks attached to the gunwales, boathook, anchor, ring buoy with 50 feet of 600-pound capacity line and two life preservers. Oars are not required on boats that are powered by an inboard motor.

5.1.14.5. Where, because of swift current, lifeboats cannot be used, a line shall be stretched across the stream with tag lines or floating planks trailing in the water at intervals not to exceed 6 feet. If this is impracticable, some other arrangement for providing effective lifelines near the water surface shall be provided.

5.1.14.6. The employer shall ensure that there is in the vicinity of each barge in use at least one portable or fixed ladder which will reach from the top of the apron to the surface of the water. If the above equipment is not available at the pier, the employer shall furnish it during the time that the barge is in use.

5.1.14.7. All items of rescue equipment provided should be checked daily so as to ensure that they are in their proper locations and in good serviceable condition. All personnel should be informed of the functions and limitations of each item of equipment and be trained on how to use it properly.

5.1.14.8. Buoyant lifelines should be fiber ropes made of polypropylene with nominal diameter not less than 5/16" (8mm).

5.1.14.9. Grab lines should be provided where practicable, for the purpose of giving a person in water something to grab onto in emergency. The grab line provided should be of buoyant type and of sufficient length to accommodate high and low tides. A marker float at the free end of the grab line should be provided and trailing ends of undue length should be avoided so as to prevent the boats nearby from coming in contact with the grab line.

5.1.14.10. Lifebuoys, each fitted with a buoyant lifeline should be set at suitable locations but not exceeding 165 feet (50m) intervals along the edges over water where work is being carried out. Each buoyant lifeline should be knotted at every 10 feet (3m) to assist handhold and have a length of about 100 feet (30m).

5.1.14.11. The lifebuoys should be constructed of either cork with canvas covering, or of polyurethane foam with a rigid PVC cover. It is normally of 30 inches (760mm) outside diameter and 18 inches (455mm) inside diameter. For night work, a self-activating light should be fitted to it.

5.1.14.12. Rescue lines should be provided where practicable. Each rescue line should at least consist of a buoyant lifeline and a floatation device. Throwing the device out to a person in water can allow the person to grab the lifeline and he/she can be hauled to safety.

5.1.14.13. To achieve the best result, a lifebuoy or rescue line should be thrown as near as possible to a person in the water. If a tide is running, it should be thrown on the upstream side.

5.1.14.14. At least one rescue boat should be provided and kept ready for immediate use whenever personnel are employed to work over or adjacent to turbulent or tidal water where rescue of them would have to be carried out by boat. The rescue boat may be a rigid or an inflatable vessel. It should be properly maintained so that it is operational at any time and in good condition.

5.1.14.15. The rescue boat should be power-driven with a fixed self-starting engine. Effective two-way radio communication should be set up between the rescue boat and the management on the shore. If night work is to be carried out, a powerful swivel-mounted spotlight should be installed on the rescue boat so that any person fallen into water can be spotted easily.

5.1.14.16. The rescue boat should be fitted with grab lines and provided with at least one lifebuoy fitted with a minimum 50 feet (15m) long buoyant lifeline. For a large rescue boat, it should also be provided with an overside boarding ladder or equivalent means to help rescue any unconscious person from the water.

5.1.14.17. The rescue boat should be marked clearly to show its intended use and it should not be permitted to use as a working vessel or an ordinary means of transport. First aid equipment including a bulb syringe for clearing a person's airway and blankets for covering the rescued person should be provided. The first aid equipment should be suitably protected from getting wet.

5.1.14.18. The rescue boat should be manned by competent boatmen who should be trained in rescue and emergency procedures and should have completed a course in CPR/first aid. The boatmen should be competent in swimming, and they should be at least equipped with buoyancy aids while they are patrolling on board. So far as is reasonably practicable, there should be at least two boatmen on a rescue boat so that one is always free to rescue the person in water.

5.2 Hazards

5.2.1. The following is a list of construction scopes where water may be a potential hazard:

5.2.1.1. Bridge building
5.2.1.2. Marine works (i.e., wharfs, barges, decks, etc.)
5.2.1.3. Machinery or pipework installations over water
5.2.1.4. Dams, dykes, retaining walls, etc.

5.2.2. "Water" does not have to be just seawater, either. It can include any work on, over, or adjacent to:

5.2.2.1. Rivers or streams
5.2.2.2. Lakes or lagoons
5.2.2.3. Water storage areas
5.2.2.4. Sewage processing plants and pipelines
5.2.2.5. Sediment ponds
5.2.2.6. Etc.

5.2.3. The one major hazard involved in any of these examples is the possibility of a fall into the water, and drowning. Work on wastewater systems or locations (i.e., sewage plants, outlets, etc.) also presents health hazards which must be recognized.

5.2.3.1. Work over stagnant water, sewage ponds, or in fact any contaminated water, presents special hazards. Should it be necessary, personnel will be inoculated against the several diseases which can be prevalent in these conditions, before starting on the job. ANY injury where the skin is broken, no matter how slight, MUST be treated with disinfectant immediately. Water quality even in rivers cannot be guaranteed.

5.2.3.2. Hazards also exist in the use of machinery on barges, wharfs, decks, etc. where stability becomes a major issue. A barge (unless it is a jack-up type) makes an unstable base, especially when operating machinery. Be careful of loading, and watch weight distribution. In these conditions, personnel MUST be aware of the hazards created with water swell.

5.2.3.3. Working on any site will usually involve wearing a tool belt and often heavy clothing, all of which will weigh a person down and make getting back to the surface very difficult.

5.2.3.4. Several areas along the coast have large tidal rises and falls. This can mean a carefully planned work sequence is needed to ensure that nobody gets trapped by a rising tide. NOAA (National Oceanic and Atmospheric Administration), local newspapers, etc. have detailed tide tables.

5.2.3.5. Especially at rivers and earth-bank canals, erosion can create hazards by undercutting and washing away the banks. What may have been a safe working area one day, could be hazardous after overnight rain.

5.2.3.6. Heavy rain in the catchment/basin area of a river can lead to river levels rising suddenly, and the water flow speeding up dramatically. This can apply quite some distance from the rain area, and with little warning.
5.2.3.7. (This can also affect falsework, scaffolding and temporary structures!)

5.2.3.8. Working alongside or over sea water can expose personnel and their equipment to the effects of salt spray. This can have a serious effect on skin and clothing, metal tools, and especially electrical equipment. Skin care is essential, as is clean and dry clothing and footwear.
5.2.3.9. Tools and metal items will need regular cleaning, and protection with a spray such as WD40 or similar lubricant. Salt can severely corrode and rust metals.

5.2.3.10. Tidal surges and boat wakes can create trapping hazards when working on barges or working platforms alongside piles, wharves, fixed access ladders, etc.

5.2.3.11. Any work where water and electricity have the potential to mix, require careful planning and operation.
5.2.3.12. The power supply to the job will have been determined to provide the safest possible conditions, and personnel MUST use any protective systems provided such as ground fault circuit interrupter, etc. Pay special attention to cord insulation and wrap cord connections with a waterproofing medium.

5.2.3.13. Use a tether device with power tools to stop them from falling into the water if they are dropped. NEVER use a power tool near any breaking waves.

5.2.3.14. Personnel must be aware that working over water can make footing slippery and hazardous. Be prepared for these conditions and ensure that personnel are always using the necessary safety equipment.

5.2.4. Potentially hazardous or unfavorable site conditions which will likely affect the safety of the workplace should be considered in the planning and design of the construction project.

5.2.4.1. These may include the following:

5.2.4.1.1. sites with strong tides, winds or waves;
5.2.4.1.2. sites which are too remote from the city center or hospitals;
5.2.4.1.3. sites which have restricted space for maneuvering, such as those for temporary storage;
5.2.4.1.4. the activities of other contractors including sub-contractors within the sites;
5.2.4.1.5. adjacent maritime activities; and
5.2.4.1.6. emission of noise, toxic gases, harmful chemicals or dust from processes on or around the sites.

5.2.5. Weather conditions that could have an adverse effect on the work over water include rain, high wind or typhoon, and those causing poor visibility, such as fog, marine layer, mist or glare.

5.3 Personal Protective Equipment

5.3.1. Life vests are required when personnel are within six feet of the water's edge except when 100% fall protection is in place (i.e., guardrails, personal fall arrest systems, etc.) or when personnel are inside of equipment/machinery.
5.3.2. Footwear with non-slippery soles should be worn while at work near water.
5.3.3. Employees working over or near water, where the danger of drowning exists, shall be provided with U.S. Coast Guard-approved life jacket or buoyant work vests. Prior to and after each use, the buoyant work vests or life preservers shall be inspected for defects which would alter their strength or buoyancy. Defective units shall not be used.
5.3.4. Personnel who have a foreseeable risk of falling into water should wear a lifejacket. Buoyancy aids are considerably inferior in performance to lifejackets. Use of a buoyancy aid will only be appropriate if the wearer is a proficient swimmer working close to the shore and he/she will unlikely be incapacitated by the environment. Instructions on the suitability of the equipment for specific situations should be sought from the manufacturers.
5.3.5. A lifejacket or buoyancy aid should fit the wearer and should allow the wearer freedom in action and movement. It should not unduly restrict his/her vision, hearing or breathing, nor contain any component causing injury to the wearer in normal use.
5.3.6. The lifejacket or buoyancy aid should have distinctive and easily visible color. Retro-reflective material should also be affixed on its surface which is normally above the water when it is in use. Its protective cover should be made of robust material which is resistant to abrasion, puncture and molten metal splash.
5.3.7. The lifejacket or buoyancy aid should preferably be provided with a whistle (for day work) and/or a self-activating light (for night work) which can aid in locating the wearer to facilitate rescuing.
5.3.8. The lifejacket or buoyancy aid should be properly maintained in a good serviceable condition. Prior to and after each use, it should be checked by the user for defect which might alter its strength or buoyancy. Any defect observed should be reported to the appropriate supervisor. Defective units should not be used.

5.4 Training

5.4.1. All employees who are placed in a work situation where there is potential exposure to working over water must be trained on the PTP / JHA related to the work. Employees must have also gone through the Site-SpecificOrientation.

6.0 References

FED/OSHA 29 CFR 1926.106 Subpart E – Personal Protective and Life Saving Equipment

7.0 Attachments

JHA

Pre-Task Plan

Fall Protection Work Plan

Attachments

BNB BNBuilders	HIGH-LIFT POLICY	Code #	Oper-19A
		Rev.	0
		Date	June-2018
		Original Date	June-2018

Aerial Work Platform (Scissor Lift/Boom Lift) Inspection

Company Name _____ **Contact Number** _____

Type of Lift _____ **Model or Equip Number** _____

DATE		MON	TUE	WED	THU	FRI	SAT	SUN
Initials of person performing inspection								
Has the operator been instructed in the safe operation of this type of lift?		Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N
Inspection Item & Description **Pass Fail Status**		**P/F**	**P/F**	**P/F**	**P/F**	**P/F**	**P/F**	**P/F**
1	Operating and emergency controls are in proper working condition - - EMO button or Emergency Stop Device.							
2	Upper drive control interlock mechanism is functional (i.e., foot pedal, spring lock, or two hand controls).							
3	Emergency lowering function operates properly.							
4	Lower operating controls successfully over-ride the upper controls.							
5	Both upper and lower controls are adequately protected from inadvertent operation.							
6	Control panel is clean & all buttons/switches are clearly visible (no fire proofing, paint over spray, etc.)							
7	All switch & mechanical guards are in good condition and properly installed.							
8	All Safety Indicator lights work.							
9	Drive controls function properly & accurately labeled. (up, down, right, left, forward, back).							
10	Motion alarms are functional.							
11	Safety decals are in place and readable.							
12	All guardrails are sound and in place, including basket chains.							
13	Work platform & extension slides are clean, dry, & clear of debris.							
14	Work platform extension slides in and out freely with safety locking pins in place to lock setting on models with extension platforms.							
15	Inspect for defects such as cracked welds, fuel leaks, hydraulic leaks, damaged control cables or wire harness, etc.							
16	Tires and wheels are in good condition, with adequate air pressure if pneumatic.							
17	Braking devices are operating properly.							
18	The manufacturer's operations manual is stored on unit.							

Workplace Assessment

Survey work area for potential hazardous operating conditions prior to use of lift. Ensure all the hazards identified are addressed in pre task planning with sufficient strategies to mitigate the hazards and or risks	**Are Conditions Present ☑**						
Floor conditions: Drop offs, holes, uneven surfaces, sloped floors, etc.	O	O	O	O	O	O	O
Housekeeping: debris, floor obstructions, cords, construction material/ supplies, etc.	O	O	O	O	O	O	O
Hazardous Energy: Electrical power cables or panels, chemical lines, gas lines, drain lines, utilities, etc.	O	O	O	O	O	O	O
Overhead obstructions: tight working conditions, adjacent structures, pipe racks, ceiling grids, etc.	O	O	O	O	O	O	O

BNB BNBuilders	Alternative Methods Documentation Form	Cod: Oper-9C	
		Rev.0	Dec-18

Use with Chapter 296-809 WAC, Confined Spaces

Location of the Space	
Entry Date:	**Entry Duration:**
List of Entrants	
List of Physical Hazards in the space	**List of (Potential or Actual) Atmospheric Hazards in the space**
List each action taken to eliminate physical and atmospheric hazards in the space	
Action:	**Description:**
Ventilation	
Is forced air ventilation required?	**YES** / **NO**
If "Yes", specify the type of ventilation (I.E. Local exhaust). Are multiple units required?	Amount of ventilation (CFM or AC/Hr)
Air Monitoring	

BNB BNBuilders	Alternative Methods Documentation Form	Cod: Oper-9C	
		Rev.0	Dec-18

Substance Monitored:	Unit:	Permissible Levels:		Monitoring Results:	
				Initial Test:	Peak Reading During Entry:

Instruments used for Air Monitoring

Model Number or Type	Calibration Date:	Calibration Check Date:

Additional Notes about the space and entry (including whether evacuation was necessary)

Person Responsible for Ensuring the Space is Safe to Enter:

Name:	Job Title:
Signature:	

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ASSURED GROUNDING POLICY

Project: _____

Electrical sub responsible: _____

Competent Person: _____

The person above shall be designated as the competent person, pursuant to WAC 296-155-447. This person shall be capable of identifying hazards relating to grounding and shall have the authority to see that any corrections are made. The procedure described is suitable for compliance with the requirements of WAC 296-155-447. It is BNB's to establish and implement an Assured Grounding Conductor Program to test for continuous circuitry on:

(a) Cord sets and receptacles **NOT** a part of the permanent wiring of buildings or structures.

(b) All electrical equipment and tools used in processes of construction or alterations.

POLICY

Ground Fault Circuit Interrupters (GFCI) are required by the codes for all 120 volt, single phase, 15-20 ampere receptacle outlets which are not a part of the permanent wiring of a building on a construction project. As an alternative to the Ground Fault Circuit Interrupter requirement, it will be the policy of the BNBuilders to instruct employees **NOT** to use any equipment that does not meet the requirements of the Assured Grounding Program.

PROCEDURE

All equipment to be used shall be tested, identified and coded using the following procedures, with the exception of the "double insulated" system, which need not be tested.

TESTING

- All equipment shall be tested before first use for grounding and continuity of the circuitry.
- Equipment returned to service following repairs shall be tested for continuity before being used.
- Tests shall be done quarterly, at intervals not exceeding one every three months.
- Tested equipment shall be identified by use of color-coding. Two (2) colors shall be used. First color to identify the quarter and the second to identify the month within the quarter.
- Equipment shall be visually inspected before use each day for external defects, including deformed or missing pins, insulation damage and indication of possible internal damage. Equipment shall not be used until repaired, retested and recorded.

RECORDING

The tests shall be recorded on the safety inspections scheduled and retained at the jobsite!

EMPLOYER CP_____

1st Quarter – White - White/Yellow /Blue
2nd Quarter – Green - Green/Yellow /Blue
3rd Quarter – Red - Red/Yellow/Blue
4th Quarter – Orange - Orange/Yellow/Blue

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ASSURED GROUNDING COLOR CODING SCHEME

Month/ Quarter	Quarterly	Monthly
JANUARY	WHITE	WHITE
FEBRUARY		YELLOW
MARCH		BLUE
APRIL	GREEN	GREEN
MAY		YELLOW
JUNE		BLUE
JULY	RED	RED
AUGUST		YELLOW
SEPTEMBER		BLUE
OCTOBER	ORANGE	ORANGE
NOVEMBER		YELLOW
DECEMBER		BLUE

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Assured Grounding Program

Policy:
Ground Fault Circuit Interrupters (GFCI) are required by the captioned codes for all 120 volt, single phase, 15-20 ampere receptacle outlets which are not a part of the permanent wiring of a building or structure of/ or on a construction project. As an alternative to the Ground Fault Circuit Interrupter requirement, it will be the policy of the undersigned to instruct employees ***not*** to use any equipment that does not meet the requirements of the Assured Grounding Program.

Procedure:
All equipment to be used on the construction site shall be tested, identified and coded using the following procedures, with the exception of the "double insulated" system, which need not be tested.

Testing:

- ☑ All Equipment shall be tested before first use for grounding and continuity of the circuitry.
- ☑ Equipment returned to service following repairs shall be tested for the continuity before being used.
- ☑ Tests shall be done quarterly, at intervals not exceeding one every three months.
- ☑ Tested equipment shall be identified by way of color-coding. Two (2) colors shall be used. First color to identify the quarter and the second to identify the month within the quarter.
- ☑ Equipment shall be visually inspected before use each day for external defects, including deformed or missing pins, insulation damage and indication of possible internal damage. Equipment shall not be used until repaired, re-tested and results recorded.

All tests shall be recorded and attached to the site-specific schedule and retained at the job site.

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ASSURED EQUIPMENT GROUNDING CONDUCTOR PROGRAM TRACKING FORM

COMPANY NAME:_____

COMPETENT PERSON:_____

JOB NAME OR NUMBER_____

LOCATION	DATE TESTED	ACTION, IF ANY	REASON- A-B-C-D	TESTED BY CP

*REASON FOR TEST:

A. BEFORE FIRST USE.

B. BEFORE EQUIPMENT IS RETURNED TO SERVICE FOLLOWING ANY REPAIRS

C. MONTHLY INSPECTION OR AFTER INCIDENT

D. QUARTERLY TESTING/INSPECTION

COMPANY AUTHORIZED SIGNATURE:

BNB

CONFINED SPACE ENTRY PERMIT

Cod: Oper-9B	
Rev.1	Dec-18

Company		**Project**			**Date**	
Location of Confined Space					**Time**	
Entry Supervisor Name					**Signature**	
Entry Attendant(s) Name(s)						
Authorized Entrant(s) Name(s)						

If 'NO' to all questions in Step 1 (below), this space may be entered using the Alternate Entry Procedures (Sign below)

Name	**Signature**

STEP 1 - IDENTIFY HAZARDS

HAZARD	YES	NO	HAZARD	YES	NO
Hazardous Atmosphere (including the potential)			Pre-Opening Hazards		
Sloping or converging walls or floors			Flammables / Fire		
Engulfment / Entrapment			Toxic Gases / Corrosive		
Any other serious safety hazard			Hazardous Energy		
Type of serious hazard			Conditions Outside		
If 'YES' to any question in section A (above) the space must be classified as PERMIT REQUIRED. Other serious safety hazards are those in which an injurt of serious nature is reasonably likely to occur if specific controls are not applied.			Falls/ Falling Objects		
			Lighting / Noise		
			Biological Hazards		
			Other		

STEP 2 - IDENTIFY CONTROLS

PRE-ENTRY AIR TESTING			PROCEDURE	DONE	PROCEDURE	DONE
GAS	ACCEPTABLE	READING	Pre-Entry Checklist		Lighting / Hearing protection	
Oxygen	19.5-23.5%		Oxygen Pre-Entry Reading		Thermal Protection	
LEL	<10%		Chemical Cleanout Electrical		Hydraulic Protection	
Toxics	<PEL / TLV		Ventilation Purge Time		Radiation Protection	
Other			Lock out/ Tag out		Traffic Control / Barricading	
Date of last calibration			Mechanical isolation		Pneumatic Isolation	
Test Instrument and #			Fall Protection		Hot Work	

STEP 3 - IDENTIFY REQUIRED EQUIPMENT

EQUIPMENT	REQUIRED	EQUIPMENT	REQUIRED
Ventilator		PPE	
Respirator		Body Protection	
Atmospheric Monitor		Hearing protection	
Blocking device		Spark-proof tools	
Harness		Ladder/ Safe access	
Tripod - Emergency Escape		Fire Extinguisher	
Ground Fault Provided		Lighting	
Intrinsically safe radio / phone		Other	

STEP 4 - VERIFY ACCEPTABLE ENTRY CONDITIONS ARE IN PLACE

ACTION	DONE	EQUIPMENT	DONE
Review Permit with Attendant and Entrant		All Safety Equipment Available	
Entry Permit Posted at Portal		MSDSs Reviewed	
Preparation / Isolation Procedures Done		Pre-Opening Hazards Eliminated	
Traffic Control / Barricading Done		Employees Task Trained	
Attendant/Entrant Communication Tested		Atmospheric Tests Satisfactory	
Emergency Services		Surrounding Areas Free From Vapors and Other Hazards	

STEP 5 - PERFORM CONTINUOUS MONITORING OF ENTRY

GAS	ACCEPTABLE	TIME	READING	TIME	READING	TIME	READING
Oxygen	19.5-23.5%						
LEL	<10%						
Toxics	<PEL/ TLV						
Other							

LEL = Lower Explosive Limit / PEL = Permissible Exposure Limit / TLV = Threshold Limit Value

STEP 6 - CLOSE OUT PERMIT WHEN ENTRY IS COMPLETE

Post Entry Cancellation of Permit by Confined Space Entry Supervisor _____

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CORE DRILLING/SAW CUTTING CHECKLIST

AUTHORIZATION VALID FOR_____ON____/____/____ONLY.

IDENTIFY LIVE UTILITY/PT CABLES_____

This core drilling/saw cutting checklist is required to be completed prior to conducting any core drilling or saw cutting operation(s). Identify utilities in the area (Electrical, Sprinkler Supply, Gas, Water Supply, Sanitary/Storm Sewer, Process Pipe (Etc.). Applicable Job Hazard Analysis (JHA) and/or Pre-Task Plan, must be completed and attached to this document.

Project: _____

Locate/Scanner Receipt/Ticket #_____ Date Scanned: __/____/____

- ❑ Has the core or saw cutting location been reviewed and approved by the structural engineer or architect?
- ❑ If available, have As-Builts and other drawings been reviewed to determine utility/drop beam/P.T. cable locations?
- ❑ Has imaging been done by 3rd party to locate P.T. cables and other utilities (in house scanning only is NOT allowed)? (GPR/X-ray/Other)
- ❑ Did BNB supervisor accompany scanner during scanning process?
- ❑ Does imaging need to be conducted from the underside of slab? If so, did markings get transferred to the top side?
- ❑ Is penetration laid out the correct distance away from PT cable? (at least 3-inches away)
- ❑ Is penetration the correct distance away from rebar? (1-inch away, or approval from engineer to cut rebar)
- ❑ Is penetration the correct distance away from electrical conduit? (at least 3-inches away)
- ❑ Penetrations in slab greater than ¾-inch have been scanned by 3rd party (This includes roto-hammering for anchors)
- ❑ If there is electrical in the slab, has it been de-energized by the electrician, locked and tagged out?
- ❑ Have you checked to see if there are other utilities on the underside of the slab you need to protect?
- ❑ Is there a JHA and/or Pre-Task plan for scope of work?
- ❑ Use pilot hole or exit point tool prior to coring.
- ❑ Is there a plan in place to catch the core drill or saw cut?
- ❑ Delineation with spotter below core drill/saw cut in place?
- ❑ Does the spotter and core driller/saw cutter have radio contact?
- ❑ Does the core driller or saw cutter have proper silica dust control in place per OSHA's Table 1?
- ❑ Are adequate noise control methods prepared?
- ❑ Is the tool operator trained/certified/competent?
- ❑ Are edges or openings protected by curbs or stop-logs to prevent equipment from running over the edges?
- ❑ Has a BNB supervisor walked, reviewed, and approved the core/saw cut location? (Core has been marked green with BNB supervisor's initials next to it)

Activity Start Time:_____ Schedule Completion Time: _____

_____

Contractor Competent Person Assigned to Task (print name): _____

BNBuilders site supervisor has reviewed work plan (BNB Signature): _____

BNBuilders PM or Foreman has reviewed (Signature): _____

Electrical Supervisor has performed lockout tagout if necessary: _____

Date Reviewed:____/____/____ **Reviewed with whom at BNB?:** _____

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CORE DRILLING/SAW CUTTING CHECKLIST

Contractor Signature: _____ Date: _____

I have reviewed this Core Drilling/Saw Cutting Checklist and understand that I am required to carry out the above-described work in accordance with this document, including the attached Job Hazard Analysis (JHA), and Pre-Task Plan.

Print Name	Signature	Company

If there is **ANY conflict** with the core or saw cut, **STOP**, and bring it to BNB's attention. This core or saw cut location should be reviewed with the engineer and architect before continuing. Options that may need to be discussed include but are not limited to; moving the core location, re-routing the system a different way, or surface mounting that particular system. All crews involved in the coring and saw cutting process shall review this document before they start their operations.

Crane Pick Plan

Description of Load _____

Project Name _____

Project Address _____

Date of Pick _____

Crane Provider _____

Owner _____

Owner's Representative _____

BNB Superintendent (Site Supervisor) _____

BNB Project Manager _____

Contractor Responsible _____

Contractor Superintendent _____

Contractor Project Manager _____

Lift Director _____

A/D Director (Mobile Crane) _____

A/D Director (Tower Crane) _____

Narrative
Complete a detailed description of the pick plan.

Pick Permit

Pick Plan Weights

Load	lbs	Wire Rope	lbs
Block	lbs	Rigging	0 lbs
Ball	lbs	Deduction of Jib	lbs
Spreader Bar	lbs		

Total Load	0 lbs

Has load weight been verified? Yes ____ No ____

How? ____

Is this a tandem pick? Yes ____ No ____

Crane Information

Serial #		Outrigger Extension:	Full
Crane Capacity			Half
Boom Radius			N/A
Boom Height			
Boom Angle		Lift Will Be:	Side
Boom Length			Front
Counterweight			Rear
Parts of Line			
Line Capacity		On Crawlers	Extended
			Retracted
Wind Speed Shutdown			N/A

Crane Picks on Rubber Tires Are Not Allowed!

Capacity Verification

Total Load	0	lbs
Crane Capacity		lbs
Lifting Percentage of Crane Capacity:	**#DIV/0!**	

Pick Classification:	Normal Lift	0% - 74%	
	Critical Lift	75% - 89%	
	Engineered Lift	90% - 100%	

Permit Completed By: ____

Site Logistics

Location of Pick

Site Logistics Map Included? Yes ____ No ____

Crane Set Up On: Soil ____ Asphalt ____ Concrete ____

Soil Bearing Pressure

Max Load On Individual Outrigger

Are Underground Utilities Present? Yes ____ No ____

List Utilities

Are Overhead Utilities Present? Yes ____ No ____

List Utilities

Proximity of Overhead Utilities to Pick

Sketch Map of Pick if Not Included

Rigging Information

Shackles				
Type	Capacity	Qty	Weight	Total Weight
			Shackle Weights	0

Synthetic Straps/Slings					
Type/Color	Configuration	Capacity	Qty	Weight	Total Weight
yellow					
blue					
				Synthetic Weights	0

Wire Rope				
Type	Capacity	Qty	Weight	Total Weight
			Wire Rope Weights	0

Chains				
Type	Capacity	Qty	Weight	Total Weight
			Chain Weights	0

Spreader Bars				
Type	Capacity	Qty	Weight	Total Weight
			Spreader Bar Weights	0

Total Rigging Weight	0

Rigging Diagram

Is a Rigging Diagram included? Yes _____ No _____
Sketch Rigging Diagram if not included(Site plan and vertical)

Sign - Off

Contractor Responsible

Contractor Superintendent _____
Contractor Project Manager _____
Contractor Safety Manager _____
(If Required)

BNB

BNB Superintendent _____
BNB Project Manager _____
Safety Director _____
(If Required)

On-Site Pre-Pick Meeting

Lift Director _____
Crane Operator _____
A/D Director (Mobile Crane) _____
A/D Director (Tower Crane) _____
Certified Rigger/Signal Person
Crew Members

_____ _____
_____ _____
_____ _____
_____ _____
_____ _____
_____ _____
_____ _____
_____ _____
_____ _____
_____ _____
_____ _____

Crane Pick Plan Checklist

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BNB	Yes	No	N/A	Notes
Live Utility Map				
Underground Structures				
Soil Bearing Pressure				
Overhead Utilities				
Barricade and Signage Required?				
Building Heights				

Responsible Contractor	Yes	No	N/A	Notes
Detailed Narrative				
Load Weight Verification				
Site Logistics				
Crane Layout				
Rigging Diagram				
Identify Load Pick Points				
Does Load Include Oil/Coolant?				
JHA Complete?				
Engineering for Multiple Crane Pic				
Hoisting Over Occupied Spaces?				
Hoisting in Close Proximity to Powe				
Hoisting Long Lead or High Value Ite				
Engineered Pick? - Stamped Calcs In				
Fall Protection Plan				

Crane Provider	Yes	No	N/A	Notes
Annual Crane Cert.				
Is Customer Named on Insurance Ce				
Crane Serial Number				
Crane Capacity				
Load Charts				
Crane Configuration				
Boom Height/Angle				
Crane Radius				
Load Over Any Outrigger				
Crane Mats/Blocking/Steel Plates				
Certified Crane Operator NCCCO Ca				
Certified Rigger Card				
Communication System?				
Lattice Boom Crane				
Erection/Dismantle Plan				

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DEMOLITION PERMIT

Project: Date:	RESP.	Comments
Good Faith Survey		
Did We Receive a Good Faith Survey?		
If Yes, Does It Satisfy Our Requirements?		
If Not, Need to Complete Material Sampling/Testing		
**Lab Equipment - Do We Have Documentation That It is Clean?		
Have We Sent Copy of Information to Subs / Employees?		
Is the Building Safe to Enter?		
Are There Specific Areas That Are Unsafe to Enter?		
PCB ballasts and fluorescent light bulb disposal Required?		
Type of Demolition		
Select Non Structural Demo?		
Structural Demo - Concrete, Roof, Steel, Wood?		
Lab/Specialty Equipment - Biohazards, Chemicals, Hazmat?		
Demo Methods - Labor, Heavy Equipment, Handtools?		
Building Structure Type		
**If Demo of Post Tension Concrete - Need to Verify Preventatative Measures and/or Destressing Plan		
HAZMAT Concerns?		
Is Building Safe for Equipment Weights? Structural Engineer to Review		
Noise / Vibration Concerns within Building?		
Noise Concerns in Neighborhood?		
Need Industrial Hygienist?		
Required Permits		
Does Demo Require City Permit?		
Abatement Permit?		
Noise Variance Permit?		
Street Use Permit?		

Specialty Tools & Plans		
Air Quality Plan: Air Sniffers, Fans, Fresh Air Supply, Exhaust?		
Temp Protection: Interior / Exterior, Safety Rails, Signage		
Shoring & Support Scaffold?		
Specialty PPE: High Visiblity Clothing, Kevlar Sleeves?		
Internal checklist		
Completed BNB Electrical Demo Checklist? Separate Document		
Completed BNB HVAC Demo Checklist? Separate Document		
Completed BNB Plumbing/Piping Demo Checklist? Separate Document		
Live Utility Plan Completed and Reviewed with Subs?		
**Includes Locations of All Shutoff Valves for Utilities		
**Includes Review of As-Builts & Tenant / Building Owner		
**Includes Utility Locates (Exterior & Interior) Subs to Call Dig Alert #?		
**Need to Pot Hole to Confirm?		
**Includes Identifying Any Electrical or Mechanical Room Outside of Work Area		
If Using Demo Subcontractor - Do We Have Sub Demo Work Plan?		
Site Specific Safety Plan Completed?		
Site Conditions Reviewed By BNB Safety Representative?		
Logistics Plan Completed?		
JHA, PPE Assesment and Pretask Plans Completed?		
**Identified MEP Systems to Remain - Marked in Field?		
**Electrical Sub Confirm Work Area Safe'd Off?		
**Fire Alarm System Shutdown or Put in Test?		
**Fire Sprinkler Drained? Fire Watch Required?		
**Coordinated Shutdowns with Building Owner/Tenant?		
**Shutdowns Require MOP?		
**Hot Work Permits Required?		
Lockout Tag Out Program in Place?		
Existing Equipment Decommissioned (Tanks, HVAC Chemicals, Light Ballasts?)		
Is There a Need for an L&I Consultation?		
Emergency Evacuation Plan in Place?		

Required Training		
2 Hr. Asbestos Awareness Training?		
Lead Awareness/RRP Training?		
Mold Awareness Training?		
Is There Any Other Training Needed for This Project?		

Sign off on Demolition	Signature	Date
BNB Safety Director or General Superintendent		
Site safety representative		
Foreman in charge		
Site Superintendent		

BNB
BN Builders, Inc.

Electrical Demolition Work Plan

The steps below are required to perform Make Safe Activities for demolition:

1. Identify ***all*** electrical circuits feeding into or passing through the area / room – if any conduit cannot be identified, bring it to the attention of BNB/ Owner for further review.
2. Identify all electrical items and conduit for Lock Out Tag Out (LOTO) noted on the demolition plan
3. Submit LOTO circuit list to facilities (CMC)
4. Facilities & electrical contractor to LOTO all identified circuits - (two locks)
5. Verify Zero Energy
    - Identify required PPE
        - Arc Flash Protection – Electrical contractor to identify OSHA PPE requirements based on activities
        - Shock Protection – Hard hat, safety glasses, face shield, long sleeves, leather gloves, pants, work boots – no high vis vest or polyester clothing
    - Use Muti Meter at final termination – verify zero reading
        - A Primary Authorized Person (PAP) and a separate reviewer (BNB) must witness the zero energy reading
        - Fill out and sign BNB's LOTO portion of the Electrical Demo Sign Off Check List
6. Once zero energy is verified at the termination point, mark/ label within 6" in green tape or paint indicating demo.
7. Continue through all remaining LOTO circuits repeating steps 5 & 6
8. Open all 'J' boxes or pull boxes on circuits/ conduit to demo – leave boxes open
9. Perform a redundant test using a pen type inductance tester where applicable – examples including but not limited to: 'J' boxes, pull boxes, found conductors, etc., verifying each conductor again for zero energy – shock protection PPE required
10. Label/ mark each conduit leg within 6" of the box - green for demo or red to stay.
11. Pull conductors or wires as directed by the demo drawings. If wiring is to be coiled up for later use, label/ Tag the end of the wires with the corresponding LOTO information.
12. Label/ mark conduits to demo every 15' and at both sides of the wall as required per demo drawings
13. Make a 6" visual cut or separation at both sides of walls as required.
14. A **ring system** must be utilized for the demo of the conduits. The ring slides forward along the conduit as demo progresses. **Only the conduits with the ring may be cut.**
15. Once complete, fill out remaining portion of the BNB's Electrical Demo Sign off Check List and submit it to the superintendent.
16. Post Demo signs in area – Green is Go (demo), Red is Stay, **No label – STOP!**
17. Demo all green labeled electrical items.

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ELECTRICAL DEMO SIGN OFF CHECK LIST

PROJECT NAME:

ZONE - ROOM - NAME - LOCATION: _____

DISCIPLINE:	CONTRACTOR	RESPONSIBLE PERSON (Print Clearly)	DATE
Electrical - greater than 50V			
List circuits affected: Panels, MCCs, etc.			
Lock Out Tag Out Complete			
Witness			
Verification of Zero Energy in the field			
Witness			
Electrical - greater than 50V complete			

Electrical - less than 50V			
Security System			
Cameras			
Access Control			
Fire Alarm			
Smoke Detectors			
Duct Detectors			
HVAC Controls			
Telecom / Data			
Equipment Alarms / Monitoring Devices			
Miscellaneous			
Electrical - Less than 50V complete			
BNB Quality Control			

ALL UTILITY LAYOUT/ LABELING MUST BE COMPLETE	**GREEN is GO (demo)** Partition boxes are open Visible separation at walls Green markers are required every 15 feet	**RED is STAY** Use red danger tape to identify energized lines Red Markings are required every 15 feet	

BY SIGNING THIS DOCUMENT YOU AGREE THAT YOU HAVE INSPECTED YOUR WORK IN THIS ROOM AND YOUR WORK IS COMPLETE AND PERFORMED CORRECTLY PER CONTRACT DRAWINGS, SPECIFICATIONS AND DEMO REQUIREMENTS. ALL SAFE OFF ACTIVITIES HAVE BEEN COMPLETED.

CC BNB File

BNB
BN Builders, Inc.

HVAC Demolition Work Plan

The steps below are required to perform Make Safe Activities for demolition:

1. Identify ***all*** HVAC systems feeding into or passing through the area / room
2. Verify all Fume exhaust ductwork has been cleaned and no hazardous chemicals are present
    - Obtain a written copy of proof from BNB
3. Identify all systems to demo for Lock Out Tag Out (LOTO) from the demolition plan
4. Submit LOTO list to facilities (CMC)
5. Facilities (CMC) & HVAC contractor to LOTO all identified systems - (two locks)
6. Continue through all remaining LOTO of systems, repeating steps 5, 6 and 7.
7. Perform cut and capping activities.
8. If a Hot Work permit is needed:
    - Verify approval and obtain a hot work permit
    - Verify the fire alarm is on test
    - Using a dedicated fire watch (see BNB/CMC's Fire Watch requirements)
    - Use a 20 lb dedicated fire extinguisher
9. Label/ mark each end of the HVAC duct to be demo'd - green for demo and red to stay.
10. Label/ mark HVAC duct and equipment to demo every 15' and at both sides of the wall as required per demo drawings
11. Make a 6" visual cut or separation at both sides of walls or equipment as required.
12. Once complete, fill out remaining portion of the BNB's HVAC Demo Sign off Check List and submit it to the superintendent.
13. Post Demo signs in area – Green is Go (demo), Red is Stay, **No label – STOP!**
14. Demo all green labeled HVAC items.

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BN Builders, Inc.

HVAC DEMO SIGN OFF CHECK LIST

PROJECT NAME:

ZONE - ROOM - NAME - LOCATION: _____

DISCIPLINE:	CONTRACTOR	RESPONSIBLE PERSON (Print Clearly)	DATE
HVAC			
Supply			
Lock Out Tag Out Complete for each system			
Witness			
All HVAC Supply Cut and Cap/ Isolation/ Make Safe activities are complete			
Exhaust			
Lock Out Tag Out Complete for each system			
Witness			
All HVAC Exhaust Cut and Cap/ Isolation/ Make Safe activities are complete			
Fume Exhaust			
Lock Out Tag Out Complete for each system			
Witness			
All HVAC Fume Exhaust Cut and Cap/ Isolation/ Make Safe activities are complete			
All HVAC Cut and Cap / Isolation/ Make Safe activities are complete			
BNB Quality Control			

ALL UTILITY LAYOUT/ LABELING MUST BE COMPLETE	**GREEN is GO** **(demo)** Visible separation of walls and systems to remain Green markings are required every 15 feet	**RED is STAY** Use red danger tape to identify systems to remain Red Markings are required every 15 feet	

BY SIGNING THIS DOCUMENT YOU AGREE THAT YOU HAVE INSPECTED YOUR WORK IN THIS ROOM AND YOUR WORK IS COMPLETE AND PERFORMED CORRECTLY PER CONTRACT DRAWINGS, SPECIFICATIONS AND DEMO REQUIREMENTS. ALL SAFE OFF ACTIVITIES HAVE BEEN COMPLETED.

CC: BNB File
Subcontractors

BN Builders, Inc.

Plumbing / Piping Demolition Work Plan

The steps below are required to perform Make Safe Activities for demolition:

1. Identify ***all*** plumbing/ piping systems feeding into or passing through the area / room – if any plumbing or piping cannot be identified, bring it to the attention of BNB/ CMC for further review.
2. Verify all piping has been cleaned and no hazardous chemicals are present
    - Obtain a written copy of proof from BNB
3. Identify all systems for Lock Out Tag Out (LOTO) noted on the demolition plan
4. Submit LOTO list to facilities (CMC)
5. Facilities (CMC) & plumbing/ piping contractor to LOTO all identified systems - (two locks)
6. Verify Zero Energy
    - Identify required PPE
    - Is line breaking involved? If so, follow CMC's Line breaking procedures
    - Drain systems
        - A Primary Authorized Person (PAP) (CMC) will verify drain down of each system
        - Fill out and sign BNB's LOTO portion of the Plumbing / Piping Demo Sign Off Check List
7. Once system is drained, mark/ label cut and cap and valve locations with Red Danger Tape
8. Continue through all remaining LOTO of systems, repeating steps 5, 6 and 7.
9. Perform cut and capping or valve installation activities.
10. If a Hot Work permit is needed:
    - Verify approval and obtain a hot work permit
    - Verify the fire alarm is on test
    - Using a dedicated fire watch (see BNB/CMC's Fire Watch requirements)
    - Use a 20 lb dedicated fire extinguisher
11. Label/ mark each end of the plumbing/ piping run to be demo'd - green for demo and red to stay.
12. Label/ mark plumbing/ piping to demo every 15' and at both sides of the wall as required per demo drawings
13. Make a 6" visual cut or separation at both sides of walls or equipment as required.
14. A **ring system** must be utilized for the demo of the plumbing and piping. The ring slides forward along the plumbing or piping as demo progresses. **Only the plumbing or piping with the ring may be cut.**
15. Once complete, fill out remaining portion of the BNB's Plumbing/ Piping Demo Sign off Check List and submit it to the superintendent.
16. Post Demo signs in area – Green is Go (demo), Red is Stay, **No label – STOP!**
17. Demo all green labeled plumbing and piping items.

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BN Builders, Inc.

PLUMBING / PIPING DEMO SIGN OFF CHECK LIST

PROJECT NAME:

ZONE - ROOM - NAME - LOCATION: _____

DISCIPLINE:	CONTRACTOR	RESPONSIBLE PERSON (Print Clearly)	DATE
Plumbing			
List all systems affected			
Lock Out Tag Out Complete for each system			
Witness			
Verification of Zero Energy in the field			
Witness			
Miscellaneous			
All Plumbing Make Safe activities are complete			

Piping			
List all systems affected			
Lock Out Tag Out Complete			
Witness			
Verification of Zero Energy in the field			
Witness			
Miscellaneous			
All Piping Make Safe activities are complete			
BNB Quality Control			

ALL UTILITY LAYOUT/ LABELING MUST BE COMPLETE	**GREEN is GO** **(demo)** Visible separation of walls Cross markings are required every 15 feet	**RED is STAY** Use red danger tape to identify systems to remain Red Markings are required every 15 feet	

BY SIGNING THIS DOCUMENT YOU AGREE THAT YOU HAVE INSPECTED YOUR WORK IN THIS ROOM AND YOUR WORK IS COMPLETE AND PERFORMED CORRECTLY PER CONTRACT DRAWINGS, SPECIFICATIONS AND DEMO REQUIREMENTS. ALL SAFE OFF ACTIVITIES HAVE BEEN COMPLETED.

BNB BNBuilders	DETERMINATION OF CONFINED SPACE	Cod: Oper-9A	
		Rev.0	Apr-17
CONFINED SPACE DETERMINATION			
1	Is the space large enough and so configured to allow bodily entry?	Yes	No
2	Is it not designed for human occupancy?	Yes	No
3	Does the space have limited or restricted means of entry and exit?	Yes	No
If the answer to ALL THREE questions above is YES, the space is considered a Confined Space. **Proceed to next step**			
PERMIT REQUIRED CONFINED SPACE DETERMINATION			
4	Does the space contain or have the potential to contain a hazardous atmosphere?	Yes	No
5	Does the space contain or have the potential for engulfment or entrapment?	Yes	No
6	Does the space contain inwardly Converging Walls ?	Yes	No
7	Does the space contain ANY OTHER serious recognized safety and health hazard?	Yes	No
8	Will the work being performed in the space introduce a safety or health hazard?	Yes	No
If the answer to ANY ONE of the above is YES, the space is considered a Permit Required Confined Space.			
Evaluation performed by		Date	

BNB BNBuilders	DIG PERMIT	Code #	Oper-12A
		Rev.	0
		Date	Jun-2018

AUTHORIZATION DATE: _________ - _________. CONTRACTOR: _____

When any type of excavation including, trenching, concrete cutting or ground penetration of any kind, is planned for a jobsite a **Dig Permit** will be completed. The following information will be addressed and authorized by site **Superintendent and Project Manager** prior to any excavation.

SECTION 1

Project: _____

One Call (811) Ticket # _____ Date Called: _____ / _____ / 20___ Past 45 days? _____ Yes _____ No

Private locates and/or radar imaging (GPR) are **required** if dig/cut is located within property lines or building. Additional radar imaging required after concrete has been removed to ensure no utilities exist under slab location.

Excavation Checklist

- ☐ Area of work is marked in white paint and marked on a copy of site Live Utility Map and dated (Attached)
- ☐ Area has been located by 811 and/or Private Locates (Private Locate Company/Contact: _____)
- ☐ Review area, Locates and mark-up with BNB Superintendent or Project Manager
- ☐ Review Live Utility Map posted in BNB Trailer
- ☐ JHA completed by subcontractor and reviewed by BNB supervision
- ☐ All employees involved in excavation have signed attached attendance sheet.
- ☐ If **NO** utilities are within 10' of proposed excavation proceed to section 3 below.

SECTION 2

The additional requirements outlined below are required for any work operation taking place **within 10 feet of any live utility** (Electrical, Sprinkler Gas, Water Supply, Sanitary/Storm Sewer, Unknown, Etc.). This includes, but is not limited to trenching, excavating, and boring.

- ☐ Pot Hole / Hand Dig to Positively Find Utility
- ☐ **YES** ☐ **NO** Hole cover protection required? If YES, Describe Method of Protection: _____
- ☐ Spotter/Observer must be used if using mechanized digging equipment within Tolerance Zone (only after potholing)
- ☐ Identify location of shut offs for utilities, water, gas, etc. and marked on a copy of the site Live Utility Map. (Attached)
- ☐ JHA complete by subcontractor and reviewed by BNB supervision
- ☐ Affected crew reviewed locates/radar imaging, and JHA the day of proposed excavation with BNB Supervision.
- ☐ All employees involved in excavation have signed attached attendance sheet (See page 2)

Activity Description: _____

Mitigation (How are you not going to hit or cause disruption?): _____

Phone numbers of utilities within 10' of excavating activities: _____

SECTION 3

Activity Start Date/Time: _____ Schedule Completion Date/Time: _____

Purpose for dig: _____ Depth of dig: _____

- ☐ Locate on site Live Utility Map

Subcontractor and Competent Person Assigned to Task: _____

BNBuilders Representative (To be onsite during work): _____

This Live Utility Awareness Work Authorization and associated JHA, Locates, Live Utility Map have been reviewed and authorized by:

Project Superintendent	**Date**
Project Manager	**Date**

BNB BNBuilders	DIG PERMIT	Code #	Oper-12A
		Rev.	0
		Date	Jun-2018

I have reviewed this Live Utility Awareness Work Authorization and understand that I am required to carry out the above-described works in accordance with this document, including the attached Job Hazard Analysis and MOP if within 10' of any live utility.

Authorized Participants: (Attach additional Authorized Participants on separate sheet if necessary)

Print Name	Signature	Company
Print Name	Signature	Company
Print Name	Signature	Company
Print Name	Signature	Company
Print Name	Signature	Company
Print Name	Signature	Company
Print Name	Signature	Company
Print Name	Signature	Company
Print Name	Signature	Company
Print Name	Signature	Company
Print Name	Signature	Company

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DRONE SURVEYING CHECKLIST

Mission Planning

- ❑ Check Airspace restrictions
- ❑ Check for TFR's
- ❑ Check weather forecast
- ❑ Obtain authority to fly over site
- ❑ Obtain BNB Drone Permit
- ❑ Check system for updates
- ❑ Create flight path
- ❑ Save flight path offline

Packing Checklist

- ❑ Aircraft
- ❑ Flight batteries (charged)
- ❑ Controller (charged)
- ❑ Tablet (charged)
- ❑ Memory cards
- ❑ Propellers
- ❑ Tablet cables
- ❑ Operation checklists

Site Prep

- ❑ Check site for obstructions (trees, power lines, elevation change)
- ❑ Check weather for suitability (wind speed, temperature, visibility)
- ❑ Verify Line of Sight(LOS) can be achieved
- ❑ Brief Forward Observer, maintain comms & eye communication
- ❑ Set ground control points
- ❑ Survey ground control points as needed

Preflight Inspection

- ❑ Check Airframe
- ❑ Check batteries for damage
- ❑ Propellers(bendable,not cracked)
- ❑ Motor area (clear?)
- ❑ Camera & Gimbal (cleaned & free)
- ❑ Controller (antenna extended)

Flight Prep

- ❑ Power on controller & aircraft
- ❑ Ensure SD card has enough space
- ❑ Check overall status (green Bar DJI App)
- ❑ Select autopilot mission (map Pilot App)
- ❑ Ensure altitude is right for terrain
- ❑ Upload mission and press start

After Flight

- ❑ Power down & stow all equipment
- ❑ Log flight information in flight logs
- ❑ Download data

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Dropped Object Prevention Evaluation

Complete this evaluation to ensure overhead work is safely conducted. Immediate concerns should be addressed on the spot and documented. For jobs under construction, but not yet above-grade, review this evaluation with the project team to plan ahead and eliminate risk from falling materials.

Date of Evaluation:	
Project Name:	
Name of Evaluator:	

Critical Items	**Yes, No, N/A**
Is overhead protection free of gaps to prevent falling objects?	
Are Controlled Access Zones (CAZs) established below overhead work?	
Are tools tethered when working at height near the exterior/leading edge of a structure, shaft stairway?	
Do personnel working at leading edges only have the required tools in their tool belts, bags etc?	
Are persons authorized to work in CAZs (i.e., dismantling a scaffold or concrete deck form) paying attention to what is going on above them and using spotters when needed?	
Are materials hoisted overactive work areas controlled? (i.e., loose pieces of material are secured, the workforce is warned via horn/whistle and they pay attention to the warning, operators avoid flying loads over personnel, etc).	
Do rigging/tag lines clear obstructions before operators are instructed to "take it away"?	
Do ground-floor entrances in and out of buildings or setbacks have adequate overhead protection?	
Are CAZs maintained with physical barriers and signage that identify who is controlling/restricting the area?	
If danger tape is used for a CAZ, is it only put up while the area is restricted and then taken down when the risk is removed? Is a spotter used to enforce CAZ when danger tape barricade system is not being used?	
Is good housekeeping in effect to prevent loose materials within 8 feet of open edges? Perimeter deck landings kept clear at all times?	
Non-Critical Items	**Yes, No, N/A**
Are trades scheduling work to prevent working over one another?	
During weekly toolbox meetings, is dropped object prevention addressed?	
Are all employees on crew trained in	
Are JHAs for subcontractors reviewed to ensure provisions for dropped-object protection?	
Do PTPs address overhead protection/dropped object prevention? Is BNB staff reviewing these PTPs?	

Comments:_____

_____

_____

BNBuilders

Equipment Use Agreement and Indemnification

Project Name ("Project"): _____
Date: _____
Company: _____

WHEREAS, the Parties to this Equipment and Use Agreement and Indemnification ("Agreement") hereby acknowledge that BNBuilders, Inc. ("BNB"), as General Contractor, will have, located on the Project site, various types of equipment to be used for the construction of the Project referenced above, including without limitation, tools, temporary structures, special cranes, hoists, forklifts, and lifts (together with any and all accessories, attachments, or similar items connected thereto, the "Equipment").

WHEREAS, the Parties to this Agreement hereby acknowledge that the Company stated above will, on occasion, use the Equipment provided by BNB. This Agreement supplements/supersedes any existing agreement between the parties with regard to Company's use of the Equipment.

IT IS AGREED AS FOLLOWS:

Article 1 – Approval

1.1 Use of the Equipment will be permitted only with the specific and written prior approval of BNB's Project Superintendent.

1.2 If written approval is granted, Company agrees not to loan, assign, or allow any third-party to use any Equipment without the specific and written approval of BNB's Project Superintendent. In such instances, any such third-party shall release, defend, and indemnify BNB to the same extent and for the same duration as Company is required to release, defend, and indemnify BNB under the terms of this Agreement.

1.3 BNB reserves the right to remove any operator from the Equipment or take possession of the Equipment at any time and at its sole discretion.

1.4 BNB reserves the right to terminate this Agreement at any time and at its sole discretion.

Article 2 – Inspection

2.1 Upon signing this Agreement or using any Equipment, Company agrees to complete a full inspection of the Equipment by a qualified individual or individuals and will promptly report any problems or defects that it knows or reasonably should have known to BNB's Project Superintendent. Said report shall be in writing and signed by an authorized representative of Company.

2.2 At the moment Company, through any of its agents or employees, begins using any of the Equipment, it agrees that it has satisfied itself to the condition of the Equipment, accepts the Equipment "as is", and waives any and all rights to any claims or causes of action whatsoever as they may relate to defects or deficiencies with the Equipment.

Article 3 – Operation

3.1 Company shall: (i) use the Equipment solely in the conduct of its independent business activities; (ii) use and preserve the Equipment in a careful, proper, and lawful manner; (iii) at its own expense, keep the Equipment in good repair, condition, and working order; and (iv) not make any alterations to the Equipment.

3.2 Company agrees that the use of the Equipment will only be done by individuals that are employees of Company, have been trained in the use and operation of the particular piece of Equipment, and have been authorized to use the Equipment by BNB's Project Superintendent.

3.3 Company, through its agents and employees, agrees to abide by all of the safety rules, requirements, and instructions related to the Equipment being used.

Article 4 – Damage or Repairs

4.1 Company accepts responsibility for any damages or repair costs caused by the Company, its agents, employees, suppliers, or sub-company. Company shall bear the entire risk of loss, theft, damage or destruction of the Equipment from any cause whatsoever (a "Casualty Loss"), whether intentional or unintentional, during the term of this Agreement. In the event of a Casualty Loss, Company shall immediately notify BNB, and, at BNB's option: (i) repair or replace the Equipment with identical property in good condition with clear title thereto in BNB, at Company's sole expense; or (ii) pay to BNB the full value of the Equipment.

4.2 If damage to the Equipment or reconditioning costs are required for the Equipment and it is difficult to ascertain or assign to any specific user the cause of such Casualty Loss, then Company agrees to pay its pro-rata share of repair/reconditioning costs with any other users of the Equipment. The amount of the pro-rata share will be determined by BNB.

Article 5 – Waiver / Limitation of Liability

5.1 Company acknowledges that the Equipment subject to the terms of this Agreement is being provided at the Project site by BNB for the convenience of the Company. Company is not obligated in any way to use said Equipment. As such, Company agrees to waive any and all claims or causes of action whatsoever against the Owner or BNB that relate in any way to Company's use of Builder's' equipment.

5.2 In no event shall BNB be liable or responsible to Company or any other party for: (i) any loss, damage, or injury caused by, resulting from or in any way connected with the Equipment, its operation or its use, or (ii) any incidental, consequential, punitive, or special damages. Company acknowledges and assumes all risks inherent in the operation, use and possession of the Equipment from the time the Equipment is delivered to Company until the Equipment is returned to BNB and will take all necessary precautions to protect all persons and property from injury or damage from the Equipment.

Article 6 – Indemnification

6.1 **Washington State (the following provision shall apply in the State of Washington)**: To the fullest extent permitted by law, Company shall release, defend, indemnify and hold harmless the Owner, its agents and employees, and BNB, its agents and employees, from, for, and against all claims, damages, losses, actions proceedings, taxes, penalties, injuries, deaths, liabilities, and expenses, direct or indirect (including but not limited to costs and attorney's fees incurred on such claims, whether or not suit is initiated, and in proving the right to indemnification) ("Loss"), arising out of or resulting from Company, its agents and employees and anyone directly or indirectly employed by them, using and/or operating and/or accessing in any way the Equipment. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist. For the purposes of the foregoing indemnification provision only and to the fullest extent allowed by applicable law, Borrower specifically waives immunity it may be granted under the Washington State Industrial Insurance Act, RCW Ch. 51.04 or other employee benefit acts. This indemnity shall survive the expiration, termination, or cancellation of this Agreement.

6.2 **Washington State (the following provision shall apply in the State of Washington)**: To the extent a court of competent jurisdiction determines this indemnity provision is subject to RCW 4.24.130, then Company's obligation to defend and indemnify BNB shall be limited as follows: with regard to the indemnity and defense obligations under Section 6.1 arise out of bodily injury to persons or damage to property, such indemnity and defense obligations shall arise regardless of whether such Loss is caused in part by the concurrent or partial negligence of BNB; however, Company shall not be liable to BNB for that portion of any such Loss for bodily injury to persons or damage to property incurred by BNB to the extent of BNB's negligence.

6.3 **California State (the following provision shall apply in the State of California)**: To the fullest extent permitted by law, Company shall release, defend, indemnify and hold harmless the Owner, its agents and employees, and BNB, its agents and employees (collectively, the "Indemnified Parties"), from, for, and against all claims, damages, losses, actions proceedings, taxes, penalties, injuries, deaths, liabilities, and expenses, direct or indirect (including but not

limited to costs and attorney's fees incurred on such claims, whether or not suit is initiated, and in proving the right to indemnification) ("Loss"), arising out of or resulting from Company, its agents and employees and anyone directly or indirectly employed by them, using and/or operating and/or accessing in any way BNB's Equipment. Such obligation shall arise regardless of whether such claim, damage, loss, or expense is caused in part by the concurrent or partial negligence of an Indemnified Party; provided, however, to the extent required by Civil Code section 2782.05, Company's obligations hereunder shall not apply to the extent the Loss arises out of, pertains to, or relates to the active negligence or willful misconduct of an Indemnified Party. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist. The defense and indemnity shall survive the expiration, termination, or cancellation of this Agreement.

Article 7 – Miscellaneous

7.1 **Assignment.** Without BNB's prior written consent, Company shall not: (i) assign, encumber, or in any way dispose of any interest in this Agreement or the Equipment, or (ii) allow the Equipment to be used by anyone other than agents or employees of Company in accordance with the terms of this Agreement.

7.2 **Ownership**: The Equipment is, and shall remain, personal property, owned by BNB, and Company has no rights in the Equipment except as set forth herein.

7.3 **Use in Independent Activities**. Nothing in this Agreement shall be construed to provide for retention by BNB of any right to control, direct, supervise, or otherwise oversee the manner or method by which Company is utilizing the Equipment in its independent business activities or responsibility for the means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the work and services provided by Company.

7.4 **Entire Agreement.** This Agreement (i) represents the entire agreement between Company and BNB with respect to the subject matter covered, (ii) supersedes any prior understandings with respect to that subject matter and (iii) may only be amended in a writing duly executed by both Company and BNB.

Company: _____	**BNBuilders, Inc.**
By: _____	By: _____
Name: _____	Name: _____
Title: _____	Title: _____
Date:	Date:

BNB
BNBuilders

Site-Specific Fall Protection Work Plan Template

1. Fall protection plans shall be prepared by a qualified person and developed specifically for the site where the construction work is being performed.
2. The plan must be maintained up to date and any changes shall be approved by a qualified person.
3. A current copy of the fall protection plan shall be maintained at the job site.
4. The implementation of the fall protection plan shall be under the supervision of a competent person.
5. In the event of a fall or incident, a member of the BNB (enter site name) Project Team must be immediately notified. This plan must be adjusted as applicable.

Date Plan Prepared:

BNB Project Name:

BNB Project Address:

Employer Company Name:

Description of Scope of Work:

Identification of Responsibilities for this Plan				
Role	Name	Phone #	Signature	Date
Qualified Person				
Competent Person				
Foreman				
OSHA 30 Trained Person				
Other				
Other				

Potential fall hazard(s) in the work area		
Description (i.e., roof perimeters)	Location (i.e, "building A")	Height of potential fall

Conventional fall protection systems to be used			
Type of Equipment (i.e., harness)	Manufacturer	Model	Fall hazard to be used for (from above table)

1. **Description of methods for fall protection system(s)...**
- **Assembly:**
- **Disassembly:**
- **Inspection and maintenance:**

2. **Description of procedures for tools, equipment, materials, etc...**
- **Handling:**
- **Storage:**
- **Securing:**

3. **Description of methods for overhead protection for personnel and the public as applicable:**

4. **Other considerations:**

Rescue Plan and Equipment	
Type and name of equipment to be used for rescuing fallen personnel	Location of rescue equipment

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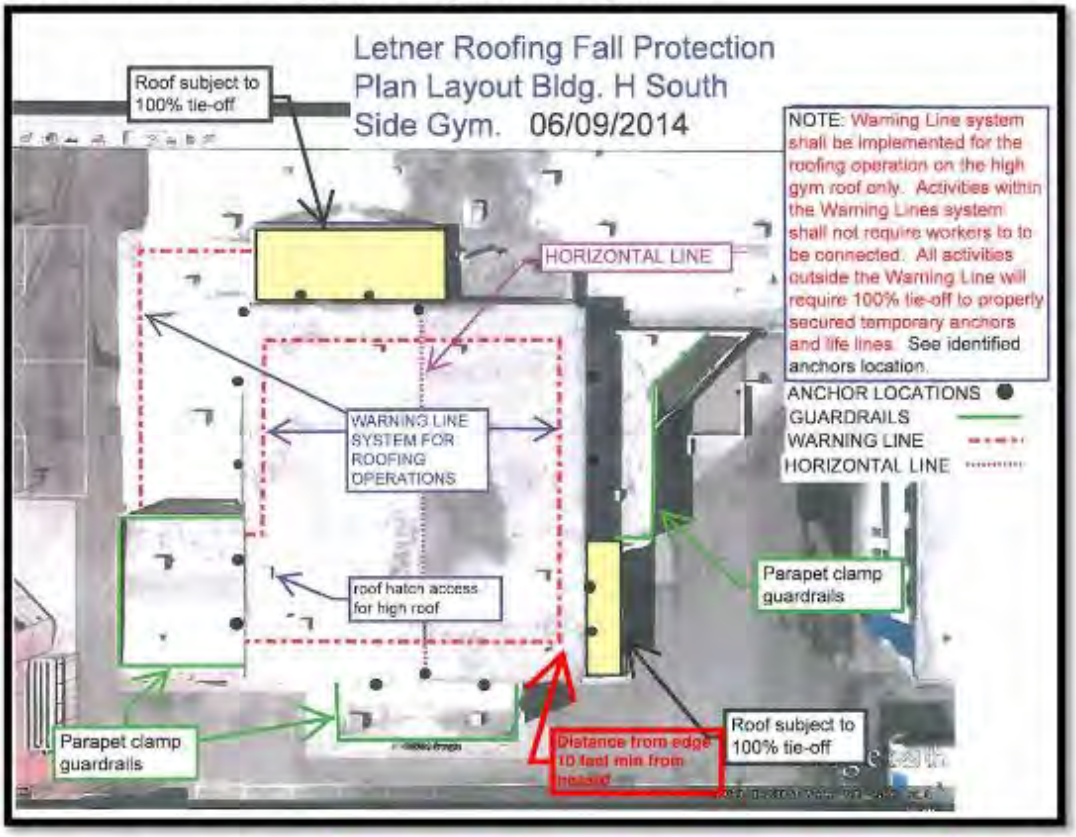
Site-Specific Fall Protection Work Plan Template

Emergency/Incident Contact Information		
Role	Name	Phone #
Emergency Medical Services		
On-Site CPR & First Aid Provider		
BNB Site Safety Manager		
BNB Superintendent		
BNB Project Manager		

Diagram of fall hazards and staging of fall protection systems:



Sample Diagram (Please delete this one and place your diagram here)

FALL PROTECTION TRAINING GUIDE FOR EMPLOYEES

Safety Belt, Harness and Lanyard Inspection and Maintenance

I. ANSI Classification:

Class I	Body belts – used to restrain a person from falling. (High Voltage Electrical Only)
Class II	Chest harness – used for restraint purposes (NOT for vertical free fall hazards).
Class III	Full body harness – used for fall arrest purposes. Can also be used for fall restraint.
Class IV	Suspension/position belt – used to suspend or support the worker. If a fall arrest hazard exists this must be supplemented by use of a safety harness.

II. Inspection Guidelines:

To maintain their service life and high performance, all belts and harnesses must be inspected prior to each use for mildew, wear, damage and other deteriorations. Visual inspection before each use is just common sense. Periodic tests by a trained inspector for wear, damage or corrosion should be part of the safety program. Inspect your equipment daily and replace it if any of the defective conditions in this manual are found.

Belt inspection: High Voltage Electrical ONLY

1. Beginning at one end, holding the body side of the belt toward you, grasp the belt with your hands six to eight inches apart. Bend the belt in an inverted "U" . The resulting surface tension makes damaged fibers or cuts easier to see.

2. Follow this procedure the entire length of the belt or harness. Watch for frayed edges, broken fibers, pulled stitches, cuts, or chemical damage.

3. Special attention should be given to the attachment of buckles and Dee Rings to webbing. Note any unusual wear, frayed or cut fibers, or distortion of the buckles or Dees.

4. Inspect for frayed or broken strands. Broken webbing strands generally appear as tufts on the webbing surface. Any broken, cut, or burned stitches will be readily seen.

5. Rivets should be tight and immovable with fingers. Body side rivet base and outside rivet burr should be flat against the material. Bent rivets will fail under stress.

   Especially note condition of Dee Ring rivets and Dee Ring metal wear pads (if any). Discolored, pitted or cracked rivets indicate chemical corrosion.

6. The tongue, or billet, of the belt receives heavy wear from repeated buckling and unbuckling. Inspect for loose, distorted, or broken grommets. Belts using punched holes without grommets should be checked for torn or elongated holes, causing slippage of the buckle tongue.

FALL PROTECTION TRAINING GUIDE FOR EMPLOYEES

Safety Belt, Harness and Lanyard Inspection and Maintenance cont'd

7. Tongue Buckle:

   Buckle tongues should be free of distortion in shape and motion. They should overlap the buckle frame and move freely back and forth in their socket. Roller should turn freely on frame. Check for distortion or sharp edges.

8. Friction Buckle:

   Inspect the buckle for distortion. The outer bars and center bars must be straight. Pay special attention to corners and attachment to points of the center bar.

9. Sliding Bar Buckle:

   Inspect buckle frame and sliding bar for cracks, distortions, or sharp edges.

   Sliding bar should move freely. Knurled edge will slip if worn smooth. Pay special attention to corners and ends of sliding bar.

Lanyard inspection:

When inspecting lanyards, begin at one end and work to the opposite end. Slowly rotate the lanyard so that the entire circumference is checked. Spliced ends require particular attention. Hardware should be examined under procedures also detailed below, i.e., Snaps, Dee Ring, and Thimbles.

1. Steel

   While rotating the steel lanyard, watch for cuts, frayed areas, or unusual wearing patterns on the wire. Broken strands will separate from the body of the lanyards.

2. Webbing

   While bending webbing over a pipe or mandrel, observe each side of the webbed lanyard. This will reveal any cuts or breaks. Swelling, discolorations, cracks, and charring are obvious signs of chemical or heat damage. Observe closely for any breaks in stitching.

3. Rope

   Rotation of the rope lanyard while inspecting from end to end will bring to light any fuzzy, worn, broken, or cut fibers. Weakened areas from extreme loads will appear as a

noticeable change in original diameter. The rope diameter should be uniform throughout, following a short break-in-period.

FALL PROTECTION TRAINING GUIDE FOR EMPLOYEES

Fall Protection System Considerations

Below are guidelines for worker protection where fall arrest or fall restraint systems are used. Some of this material may be suitable for adding to the written fall protection work plan specified in WAC 296-880-10020.

1. Selection and use considerations:

   The kind of personal fall arrest system selected should match the particular work situation, and any possible free fall distance should be kept to a minimum. Consideration should be given to the particular work environment. For example, the presence of acids, dirt, moisture, oil, grease, etc., and their effect on the system, should be evaluated. Hot or cold environments may also have an adverse affect on the system. Wire rope should not be used where an electrical hazard is anticipated. As required by the Unified Safety Standards for Fall Protection WAC 296-880, the employer must plan to have means available to promptly rescue an employee should a fall occur, since the suspended employee may not be able to reach a work level independently.

   Where lanyards, connectors, and lifelines are subject to damage by work operations such as welding, chemical cleaning, and sandblasting, the component should be protected, or other securing systems should be used. The employer should fully evaluate the work conditions and environment (including seasonal weather changes) before selecting the appropriate personal fall protection system. Once in use, the system's effectiveness should be monitored. In some cases, a program for cleaning and maintenance of the system may be necessary.

2. Testing considerations:

   Before purchasing or putting into use a personal fall arrest system, an employer should obtain from the supplier information about the system based on its performance during testing so that the employer can know if the system meets this standard. Testing should be done using recognized test methods. WAC 296-880-510 Appendix C; contains test methods recognized for evaluating the performance of fall arrest systems. Not all systems may need to be individually tested; the performance of some systems may be based on data and calculations derived from testing of similar systems, provided that enough information is available to demonstrate similarity of function and design.

3. Component compatibility considerations:

   Ideally, a personal fall arrest system is designed, tested, and supplied as a complete system. However, it is common practice for lanyards, connectors, lifelines, deceleration devices, and body harnesses to be interchanged since some components wear out before others. The employer and employee should realize that not all components are interchangeable. For instance, a lanyard should not be connected between a body harness and a deceleration device of the self-retracting type since this can result in additional free fall for which the system was not designed. Any substitution or change to a personal fall arrest system should

be fully evaluated or tested by a competent person to determine that it meets the standard, before the modified system is put in use.

FALL PROTECTION TRAINING GUIDE FOR EMPLOYEES

Fall Protection System Considerations cont'd

4. Employee training considerations:

Thorough employee training in the selection and use of personal fall arrest systems is imperative. As stated in the standard, before the equipment is used, employees must be trained in the recognition of hazards related to a fall and the procedures to minimize those hazards along with the safe use of the system. This should include the following: Application limits; proper anchoring and tie-off techniques; estimation of free fall distance, including determination of deceleration distance, and total fall distance to prevent striking a lower level; methods of use; and inspection and storage of the system. Careless or improper use of the equipment can result in serious injury or death. Employers and employees should become familiar with this material, as well as manufacturer's recommendations, before a system is used. Of uppermost importance is the reduction in strength caused by certain tie-offs (such as using knots, tying around sharp edges, etc.) and maximum permitted free fall distance. Also, to be stressed are the importance of inspections prior to use, the limitations of the equipment, and unique conditions at the worksite which may be important in determining the type of system to use.

5. Instruction considerations:

Employers should obtain comprehensive instructions from the supplier as to the system's proper use and application, including, where applicable:

a. The force measured during the sample force test;
b. The maximum elongation measured for lanyards during the force test;
c. The deceleration distance measured for deceleration devices during the force test;
d. Caution statements on critical use limitations;
e. Application limits;
f. Proper hook-up, anchoring and tie-off techniques, including the proper dee-ring or other attachment point to use on the body harness for fall arrest;
g. Proper climbing techniques;
h. Methods of inspection, use, cleaning, and storage; and
i. Specific lifelines that may be used. This information should be provided to employees during training.

6. Inspection considerations:

Personal fall arrest systems must be regularly inspected. Any component with any significant defect, such as cuts, tears, abrasions, mold, or undue stretching; alterations or additions which might affect its efficiency; damage due to deterioration; contact with fire, acids, or other corrosives; distorted hooks or faulty hook springs; tongues unfitted to the shoulder of buckles; loose or damaged mountings; nonfunctioning parts; or wearing or internal deterioration in the ropes must be withdrawn from service immediately, and should be tagged or marked as unusable, or destroyed.

FALL PROTECTION TRAINING GUIDE FOR EMPLOYEES

Fall Protection System Considerations cont'd

7. Rescue considerations:

When personal fall arrest systems are used, the employer must assure that employees can be promptly rescued or can rescue themselves should a fall occur. The availability of rescue personnel, ladders or other rescue equipment should be evaluated. In some situations, equipment that allows employees to rescue themselves after the fall has been arrested may be desirable, such as devices that have descent capability.

8. Tie-off considerations:

a. One of the most important aspects of personal fall protection systems is fully planning the system before it is put into use. Probably the most overlooked component is planning for suitable anchorage points. Such planning should ideally be done before the structure or building is constructed so that anchorage points can be incorporated during construction for use later for window cleaning or other building maintenance. If properly planned, these anchorage points may be used during construction, as well as afterwards.

b. Employers and employees should at all times be aware that the strength of a personal fall arrest system is based on its being attached to an anchoring system which does not significantly reduce the strength of the system (such as a properly dimensioned eye-bolt/snap-hook anchorage). Therefore, if a means of attachment is used that will reduce the strength of the system, that component should be replaced by a stronger one, but one that will also maintain the appropriate maximum arrest force characteristics.

c. Tie-off using a knot in a rope lanyard or lifeline (at any location) can reduce the lifeline or lanyard strength by 50 percent or more. Therefore, a stronger lanyard or lifeline should be used to compensate for the weakening effect of the knot, or the lanyard length should be reduced (or the tie-off location raised) to minimize free fall distance, or the lanyard or lifeline should be replaced by one which has an appropriately incorporated connector to eliminate the need for a knot.

d. Tie-off of a rope lanyard or lifeline around an "H" or "I" beam or similar support can reduce its strength as much as 70 percent due to the cutting action of the beam edges. Therefore, wire core leading edge lifeline should be used around the beam; or the lanyard or lifeline should be protected from the edge with leading edge softeners; or free fall distance should be greatly minimized.

FALL PROTECTION TRAINING GUIDE FOR EMPLOYEES

Fall Protection System Considerations cont'd

e. Tie-off where the line passes over or around rough or sharp surfaces reduces strength drastically. Such a tie-off should be avoided or an alternative tie-off rigging should be used. Such alternatives may include use of a snap-hook/dee-ring connection, wire rope tie-off, an effective padding of the surfaces, or an abrasion-resistance strap around or over the problem surface. Consider the leading edge lifelines for these applications.

f. Horizontal lifelines may, depending on their geometry and angle of sag, be subjected to greater loads than the impact load imposed by an attached component. When the angle of horizontal lifeline sag is less than 30 degrees, the impact force imparted to the lifeline by an attached lanyard is greatly amplified. For example, with a sag angle of 15 degrees, the force amplification is about 2:1 and at 5 degrees sag, it is about 6:1. Depending on the angle of sag, and the line's elasticity, the strength of the horizontal lifeline and the anchorages to which it is attached should be increased a number of times over that of the lanyard. Extreme care should be taken in considering a horizontal lifeline for multiple tie-offs. The reason for this is that in multiple tie-offs to a horizontal lifeline, if one employee falls, the movement of the falling employee and the horizontal lifeline during arrest of the fall may cause other employees to also fall. Horizontal lifeline and anchorage strength should be increased for each additional employee to be tied-off. For these and other reasons, the design of systems using horizontal lifelines must only be done by qualified persons. Testing of installed lifelines and anchors prior to use is recommended.

g. The strength of an eye-bolt is rated along the axis of the bolt and its strength is greatly reduced if the force is applied at an angle to this axis (in the direction of shear). Also, care should be exercised in selecting the proper diameter of the eye to avoid accidental disengagement of snap-hooks not designed to be compatible for the connection.

h. Due to the significant reduction in the strength of the lifeline/lanyard (in some cases, as much as a 70 percent reduction), the sliding hitch knot should not be used for lifeline/lanyard connections except in emergency situations where no other available system is practical. The "one-and-one" sliding hitch knot should never be used because it is unreliable in stopping a fall. The "two-and-two," or "three-and-three" knot (preferable), may be used in emergency situations; however, care should be taken to limit free fall distance to a minimum because of reduced lifeline/lanyard strength.

9. Vertical lifeline considerations.

As required by the standard, each employee must have a separate lifeline when the lifeline is vertical. The reason for this is that in multiple tie-offs to a single lifeline, if one employee falls, the movement of the lifeline during the arrest of the fall may pull other employees' lanyards, causing them to fall as well.

FALL PROTECTION TRAINING GUIDE FOR EMPLOYEES

Fall Protection System Considerations cont'd

10. Snap-hook considerations:

a. Required by this standard for all connections, locking snap-hooks incorporate a positive locking mechanism in addition to the spring loaded keeper, which will not allow the keeper to open under moderate pressure without someone first releasing the mechanism. Such a feature, properly designed, effectively prevents roll-out from occurring.

b. The following connections must be avoided (unless properly designed locking snap-hooks are used) because they are conditions which can result in roll-out when a nonlocking snap-hook is used:

- Direct connection of a snap-hook to a horizontal lifeline.
- Two (or more) snap-hooks connected to one dee-ring.
- Two snap-hooks connected to each other.
- A snap-hook connected back on its integral lanyard.
- A snap-hook connected to a webbing loop or webbing lanyard.

Improper dimensions of the dee-ring, rebar, or other connection point in relation to the snap-hook dimensions which would allow the snap-hook keeper to be depressed by a turning motion of the snap-hook.

11. Free fall considerations:

The employer and employee should at all times be aware that a system's maximum arresting force is evaluated under normal use conditions established by the manufacturer, and in no case using a free fall distance in excess of 6 feet (1.8 m). A few extra feet of free fall can significantly increase the arresting force on the employee, possibly to the point of causing injury. Because of this, the free fall distance should be kept at a minimum, and, as required by the standard, in no case greater than 6 feet (1.8 m). To help assure this, the tie-off attachment point to the lifeline or anchor should be located at or above the connection point of the fall arrest equipment to harness. (Since otherwise additional free fall distance is added to the length of the connecting means (i.e. lanyard).) Attaching to the working surface will often result in a free fall greater than 6 feet (1.8 m). For instance, if a 6-foot (1.8 m) lanyard is used, the total free fall distance will be the distance from the working level to the body harness attachment point plus the 6 feet (1.8 m) of lanyard length. Another important consideration is that the arresting force that the fall system must withstand also goes up with greater distances of free fall, possibly exceeding the strength of the system.

FALL PROTECTION TRAINING GUIDE FOR EMPLOYEES

Fall Protection System Considerations cont'd

12. Elongation and deceleration distance considerations

Other factors involved in a proper tie-off are elongation and deceleration distance. During the arresting of a fall, a lanyard will experience a length of stretching or elongation, whereas activation of a deceleration device will result in a certain stopping distance. These distances should be available with the lanyard or device's instructions and must be added to the free fall distance to arrive at the total fall distance before an employee is fully stopped. The additional stopping distance may be very significant if the lanyard or deceleration device is attached near or at the end of a long lifeline, which may itself add considerable distance due to its own elongation. As required by the standard, sufficient distance to allow for all of these factors must also be maintained between the employee and obstructions below, to prevent an injury due to impact before the system fully arrests the fall. In addition, a minimum of 12 feet (3.7 m) of lifeline should be allowed below the securing point of a rope grab type deceleration device, and the end terminated to prevent the device from sliding off the lifeline. Alternatively, the lifeline should extend to the ground or the next working level below. These measures are suggested to prevent the worker from inadvertently moving past the end of the lifeline and having the rope grab become disengaged from the lifeline.

13. Obstruction considerations:

The location of the tie-off should also consider the hazard of obstructions in the potential fall path of the employee. Tie-offs that minimize the possibilities of exaggerated swinging should be considered.

14. Other considerations:

Because of the design of some personal fall arrest systems, additional considerations may be required for proper tie-off. For example, heavy deceleration devices of the self-retracting type should be secured overhead in order to avoid the weight of the device having to be supported by the employee. Also, if self-retracting equipment is connected to a horizontal lifeline, the sag in the lifeline should be minimized to prevent the device from sliding down the lifeline to a position that creates a swing hazard during fall arrest. In all cases, manufacturer's instructions should be followed.

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Forklift Pre-Use Inspection

Archive Document – DO NOT DISCARD

Model:		Equipment Number:	
Company:		Hour Meter:	

DATE:								
Initials of person performing inspection:								
Has the operator been instructed in the safe operation of this type of lift and are they certified?		Y / N	Y / N	Y / N	Y / N	Y / N	Y / N	Y / N
Inspection Item & Description (Pass / Fail)		**P/F**	**P/F**	**P/F**	**P/F**	**P/F**	**P/F**	**P/F**
PRESTART								
1	Fork Assembly Structure							
2	Mast/Boom							
3	Hydraulic Lines**							
4	Wheels/Tires**							
5	Axles/Under Carriage							
6	Placards (legible)							
7	Roll Cage – Structural							
8	Operator's Manual							
9	Engine Compartment							
10	All Fluid Levels							
11	Belts							
12	Wiring							
13	Leaks/Hoses**							
START-UP								
1	Seat Belt**							
2	All Gauges							
3	Warning Signs/Placards							
4	Steering (loose)**							
5	Levers/Switches							
6	Lights/Backup Alarm**							
7	Horn**							
FUNCTION CHECK								
1	Lift up/down**							
2	Telescope in/out**							
3	Tilt in/out **							
4	Outriggers							
5	Brakes, Parking Brake**							

***** If any item(s) are found to be missing or defective, the equipment is to be repaired/serviced prior to use.***

Defects Reported

To: _____ Date: _____

Lift Taken Out of Service ❑ Yes ❑ No

Repairs Made

By: _____ Date: _____

WARNING!

HOT WORK IN PROGRESS
WATCH FOR FIRE!

IN CASE OF EMERGENCY CALL 911

INSTRUCTIONS:

Hot Work Supervisor must verify precautions on check list
Complete form and **return** to BNB for signature
Permit is not valid until signed by authorized BNB Supervisor
Approved Permit must be visibly posted in vicinity of hot work

Hot Work Done By:

Employee: _____
Company: _____
Date: _____
Project: _____
Location (bldg/flr): _____
Work Description: _____

I verify that I have examined the above location and ensured all the precautions indicated on the Hot Work Permit have been taken to prevent fire

Hot Work Supervisor Signature _____

I have reviewed this Permit request and authorize the work to proceed for as long as permit is valid and the conditions stated in permit are maintained

BNB Supervisor Signature _____

Permit Expires	Required Fire Watch Duration After Hot Work
Date_____	30 min 60 min 120 min
Time:_____AM/PM	Other _____

BNB

HOT WORK PERMIT

Code: Oper-20A
Rev. 1 Date: Jun -19

BEFORE INITIATING HOT WORK, CAN HOT WORK BE AVOIDED?

This Hot Work Permit is required for any operation involving open flames or producing heat and/or sparks. This includes, but is not limited to: Brazing, Cutting, Grinding, Soldering, Thawing Pipe, Torch Applied Roofing & Welding.ss

REQUIRED PRECAUTIONS CHECKLIST (Check boxes that apply)

- ☐ Available sprinklers, hose streams and extinguishers are serviced/operable.
- ☐ Hotwork equipment inspected and in good condition.
- ☐ Verify if local codes or client have stricter requirements

REQUIREMENTS WITHIN 35FT OF WORK

- ☐ **Idenitfy sprinkler/Gas lines in work area to PROTECT!**
- ☐ Explosive atmosphere in area eliminated.
- ☐ Floors swept clean. Trash picked up.
- ☐ Combustible floors wet down, covered with damp sand or fire-resistive blankets.
- ☐ Remove all combustible material if possible (wood, cardboard, etc)
- ☐ Protect combustibles with fire-resistive tarps or metal shields.
- ☐ All wall, floor, conduits and pipe openings are covered.
- ☐ Fire-resistive tarps suspended beneath work.

WORK ON WALL OR CEILINGS

- ☐ Construction is noncombustible and w/o combustible covering or insulation
- ☐ Combustibles on other side of walls moved away.

WORK ON ENCLOSED EQUIPMENT

- ☐ Enclosed equipment cleared of combustibles.
- ☐ Containers purged of flamable, liquids/vapors.
- ☐ Are respirators or ventilation required?

FIRE WATCH/HOT WORK AREA MONITORING

- ☐ FW will be provided during and for the time specified after hotwork
- ☐ FW Trained in use of extinguishing equip. and in sounding fire alarms.
- ☐ FW Supplied with proper fire extinguishers, hoses, spray cans and equipment.

Fire Watch Signoff			
Work area was monitored for	30 min	60 min	120 min
following hot work and found fire safe.	Signature: _____		

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INCIDENT REPORT

Cod: INC-01B	
Rev. 1	Sep-19

INCIDENT INFORMATION

DATE	6/16/2020	TIME		AM	PM	What was the employee doing just prior to the incident?	
PROJECT		SUPERINTENDENT				Where did the incident occur?	

INCIDENT TYPE	Non-Recordable	Near Miss	Property Damage	Onsite First aid	Worker's comp
Submit PTP and photos	OSHA Recordable	Medical Treatment	Modified Work	Lost time	# Days:

Any Emergency Services called? If yes, who (EMS, Police, etc.)?		Was a post incident drug & alcohol test performed?	

PERSON INJURED OR INVOLVED IN INCIDENT

Name		Employer		Supervisor Name	
Title		Time working on project		Years of experience	
Damaged property (If applicable)				Approx. cost of damages	

INCIDENT DESCRIPTION *Describe what happened, step by step. Be specific and detailed.*

SPECIFIC PART(S) OF BODY INJURED (include location- right, upper, etc.)

N/A

TYPE OF INJURY

Laceration		Fracture		Contusion		Amputation	
Eye injury		Strain		Burns		Other	

IMMEDIATE CAUSES *Check all that apply*

Unsafe Acts	*Check*	*Unsafe conditions*	*Check*	*Related to Supervision / Organization*	*Yes/No*
By-passing safety devices		Congested work area		Was the Employee performing an scheduled task?	N/A
Drug or alcohol use		Defective tools/equipment			
Excess equipment speed		Excessive noise		Was a PTP completed for this task?	N/A
Failure to warn or secure		Fire/explosion hazard		If PTP completed, did it accurately account for, and plan mitigation for, the hazards associated with the task?	N/A
Fatigue		Hazardous substances			
Lack of focus		Improper storage			
Guards not used		Improper tool/equipment		Was appropriate training provided to accomplish this task?	N/A
Improper lifting / loading		Inadequate fall protection			
Improper loading		Inadequate guarding		Was there adequate staffing to perform the required task(s) or operation?	N/A
Improper PPE or PPE not used		Inadequate ventilation			
Improper work technique		Insufficient lighting		Were there adequate policies, or other written instructions for the required task(s) or operation?	N/A
Operating without authorization		Poor housekeeping/layout			
Safety rule violation		Slippery conditions			
Unnecessary haste		Weather conditions		Has there been a Safety Audit of this work area	N/A

Other:	within the past week?	N/A

TYPE OF INCIDENT *Describe details*

Struck or Injured by		Striking Against or Stepping On		Cut, Puncture, Scrape Injury By	
Strain or Injury By		Caught In or Between		Foreign body in eye	
Fall or Slip Injury		Burn or Exposure to Heat/Cold		**Other: Vehicle incidnt**	

POTENTIAL OUTCOME

SEVERITY *How bad could the accident have been?*	**Choose between 1-5**	**PROBABILITY** *What is the chance of the accident happening again?*	**Choose between 1-5**	**Calculate Potential Outcome Severity * Probability**
	1		**4**	**MEDIUM**

1. Noticeable: Minor first aid. Property loss <$5K	1. Practically impossible
2. Serious: Medical treatment. Property loss $5K-$50K	2. Very unlikely
3. Very serious: Work restrictions ≤6 weeks. Property Loss $50K-$100K	3. Unusual but possible
4. Critical: Partial disability. Lost time >6 weeks. Property loss $100K-$1MM	4. Quite possible
5. Catastrophic: Total permanent disability. Death. Property loss >$1MM	5. Almost certain

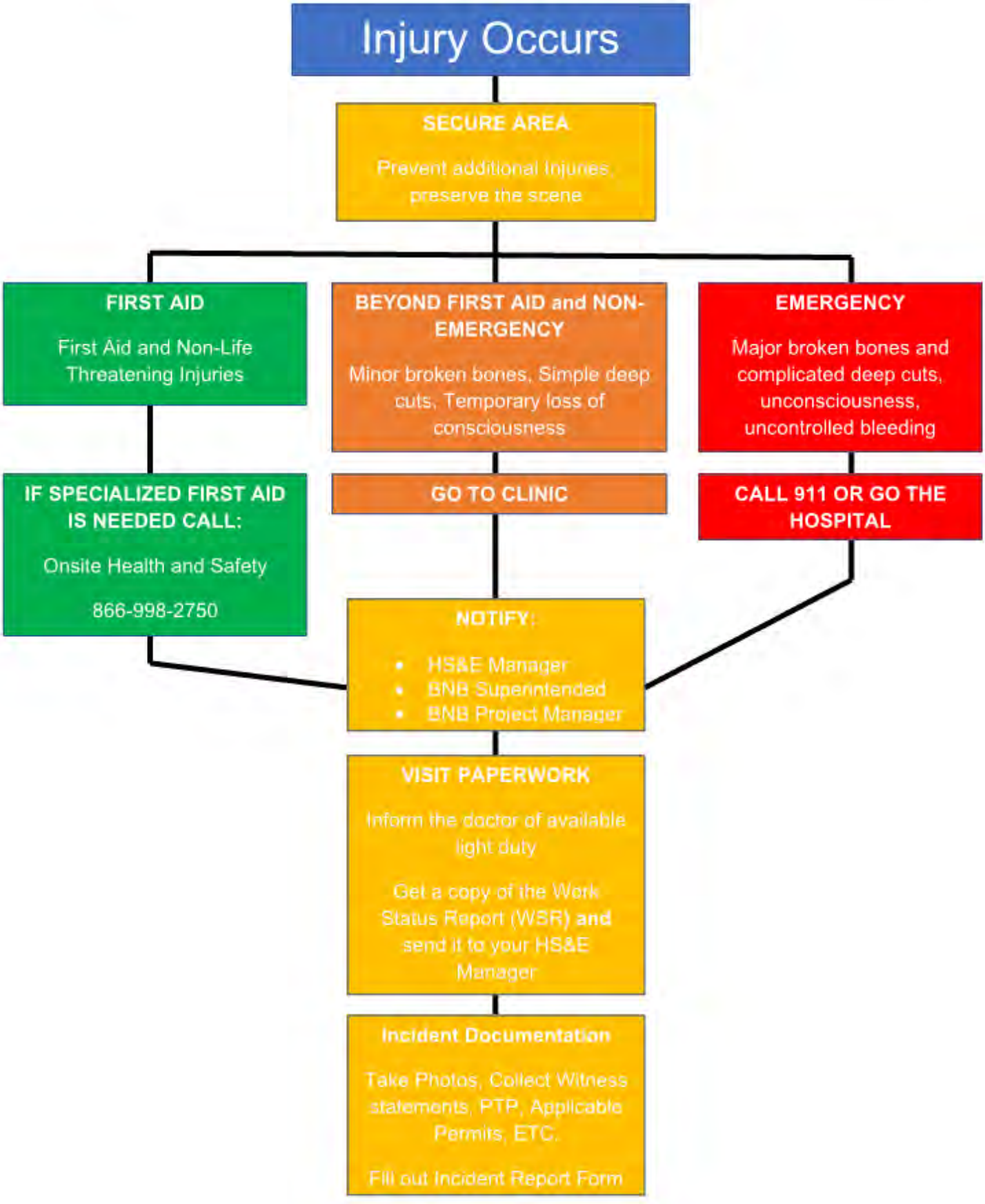
BNB SAFETY AND HEALTH RISK MATRIX

PROBABILITY \ SEVERITY	1	2	3	4	5
5	MEDIUM	HIGH		CRITICAL	
4					
3	LOW	MEDIUM	HIGH	HIGH	
2	VERY LOW	LOW	MEDIUM		
1		VERY LOW	LOW	MEDIUM	

PREVENTIVE ACTIONS to prevent the incident from occurring again

Details	*Deadline*	*Responsible*	*Complete*

Prepared by	


Injury Occurs
SECURE AREA
Prevent additional Injuries, preserve the scene
FIRST AID
First Aid and Non-Life Threatening Injuries
BEYOND FIRST AID and NON-EMERGENCY
Minor broken bones, Simple deep cuts, Temporary loss of consciousness
EMERGENCY
Major broken bones and complicated deep cuts, unconsciousness, uncontrolled bleeding
IF SPECIALIZED FIRST AID IS NEEDED CALL:
Onsite Health and Safety
866-998-2750
GO TO CLINIC
CALL 911 OR GO THE HOSPITAL
NOTIFY:
HS&E Manager
BNB Superintended
BNB Project Manager
VISIT PAPERWORK
Inform the doctor of available light duty
Get a copy of the Work Status Report (WSR) and send it to your HS&E Manager
Incident Documentation
Take Photos, Collect Witness statements, PTP, Applicable Permits, ETC.
Fill out Incident Report Form

Job Hazard Analysis

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ACTIVITY:	DATE:
	PROJECT:
DESCRIPTION OF WORK:	SITE SUPERVISOR:
	REVIEWED BY:
	REVIEW FOR LATEST USE:

WORK ACTIVITY SEQUENCE	POTENTIAL HEALTH & SAFETY HAZARDS	HAZARD CONTROLS
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WORK ACTIVITY SEQUENCE	POTENTIAL HEALTH & SAFETY HAZARDS	HAZARD CONTROLS
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EMPLOYEE PRINTED NAME	EMPLOYEE SIGNATURE	DATE/TIME

SUPERVISOR'S PRINTED NAME	*SUPERVISOR'S SIGNATURE*	*DATE/TIME*
SAFETY OFFICER'S PRINTED NAME	*SAFETY OFFICER'S SIGNATURE*	*DATE/TIME*

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BNB GNBuilders	NEAR MISS REPORT	Cod: Inc-1B	
		Rev. 0	May-18

This form should be completed by an employee who witnesess a near-miss incident, such as: falling objects from height, slip on a slippery surface, etc. The completed form should be turned in to the project supervision.
This is an incident without injury to person or damage to property.

Date/Time:	Project:	Exact location:

NEAR-MISS DESCRIPTION
Describe what happened, step by step. Be specific and detailed.

Root Causes	

LESSONS LEARNED
What could be done to prevent future occurrences

1	*A*
2	
3	

Reported by		Title	

BNB

NOTICE OF SAFETY VIOLATION

GENERAL INFORMATION					
	BNB employee	Name			
	Subcontractor employee	Employer			
Date		Written Warning			
Project		Removal from site			Days #
Employee signature					Permanent
Foreman signature		Termination			(Only BNB employees)
Description					
Additional actions					

Distribution of signed copies:
Subcontractor: CC to PM for subcontractor
BNB: CC to HR

BNB	DAILY PRE-TASK PLAN						
Company		**Project / Job**		**Date**		Rev. 0	Jul-16

Hazards	Exist?		Hazards	Exist?	
	Yes	No		Yes	No
Falls			**Noise**		
From Height			**Vibration**		
On to hazard			**Fire**		
Of objects			Flammables / Combustibles		
(Other)			Ignition Sources		
Electric Shock			(Other)		
Overhead, Buried, Hidden Lines			**Chemicals**		
Cords / Leads			Dust		
Power Sources			Fumes / Gases / Vapors		
(Other)			Toxic / Allergenic		
Caught Between			Acid / Caustic		
Swinging / Rotating Equipment			Explosive / Reactive		
Pinch Points			(Other)		
Materials			**Buildings / Systems**		
Cave In			Charged systems		
(Other)			Hazardous Energy		
Struck by			Stored Energy		
Dropped Objects / Loads			Hazardous Materials / Chemicals		
Flying Material / Debris			Confined Spaces		
Equipment / Traffic			Structural		
Unstable Materials			(Other)		
(Other)			**Location**		
Walking / Working Surfaces			Occupied Space		
Slips / Trips			Public at Risk		
Holes / Uneven Surfaces			Asbestos / Lead		
Access / Egress			Mold		
(Other)			Hazardous Waste		
Material Handling			Medical Waste		
Overexertion / Strains			(Other)		
Cuts / Punctures			**Weather / Environment**		
Storage / Stacking			Heat / Cold		
Mechanical Equipment			Lightning		
Hoisting			Wind		
Hauling / Road Transport			Visibility		
Floor Loading			(Other)		
(Other)					

PPE	Base Required	Additional Needed
Head	Hard Hat (Type I, G)	Type II Hat (side impact) / Class E (electrical)
Eyes	Glasses (ANSI Z87)	Chemical Goggles / Foam lined (dust) / Welding / Laser
Body / Arms	Shirt w/ 4" sleeve	Fall Harness / High Viz / Fire / Chemical / Arc Flash / Cut resistant
Knees / Legs	Long Pants	Knee Pads / Chaps / chemicals
Hands	Light Duty Gloves	Heavy Duty Gloves / Cut Resistant / Chemical / Welding / Thermal
Feet	Sturdy Work Boots	Rubber Boot / Steel Toe / Metatarsal / Electrical / Booties
Face		Plastic Face Shield / Mesh Face Shield / Welding Mask
Ear		Plugs / Muffs / Double
Breathing		Dust Mask / Filtering Respirator / Supplied Air
Other		

DAILY PRE-TASK PLAN

Job / Task Description	

Basic Job Steps	Hazards	Controls / Work Practices
Describe major tasks in order. What will you be doing? What equipment and tools are needed?	Identify the hazards of each step. What could go wrong? What could cause an accident?	Decide what controls are needed. What safe work practices must be used for each hazard? What training is required?

Prepared by:		Date / Time:	

Crew Member Signatures		

Análisis Previo al Trabajo

Contratista		Proyecto		Fecha		Rev. 0	Jul-16

Riesgos	Existe?		Riesgos	Existe?	
	Si	No		Si	No
Caídas			**Ruido**		
De altura			**Vibracion**		
A mismo nivel			**Fuego**		
De objetos			Inflamables / Combustibles		
(Otra opción)			Fuentes de ignición		
Choque Eléctrico			(Otra opción)		
Líneas aéreas / enterradas			**Químicos**		
Cordones / Cables /Alambre			Polvo		
Fuentes de energía			Humos/Gases/Vapores		
(Otra opción)			Tóxico / Alergénico		
Atrapamiento entre			Ácido / Cáustico		
Equipo giratorio/rotatorio			Explosivo / Reactivo		
Puntos de atrapamiento			(Otra opción)		
Materiales			**Edificios / Sistemas**		
Derrumbe			Sistemas cargados		
(Otra opción)			Energía peligrosa		
Golpeado por			Energía almacenada		
Caídas de objetos / Cargas			Materiales peligrosos / Químicos		
Material suelto / Escombros			Espacios confinados		
Equipo / Tráfico			Estructural		
Material inestable			(Otra opción)		
(Otra opción)			**Ubicación**		
Pasadizos/ Plataformas de trabajo			Espacio ocupado		
Resbalones / Tropiezos			Riesgos para el público		
Huecos / Superficie desnivelada			Asbesto / Plomo		
Acceso / Salida			Moho		
(Otra opción)			Residuos peligrosos		
Manejo de materiales			Residuos médicos		
Fatiga / Esguince muscular			(Otra opción)		
Cortes / Pinchazos			**Clima / Ambiente**		
Almacenamiento / Apilado			Calor / Frío		
Equipo mecánico			Relámpago/Rayo		
Levantamiento			Viento		
Transporte/ Transporte por carretera			Visibilidad		
Carga sobre el suelo			(Otra opción)		
(Otra opción)					

EPP	EPP Requerido	Equipo adicional (Circule uno)
Cabeza	Casco (Tipo I, G)	Casco Tipo 2 (impacto lateral) / Tipo E (protección eléctrica)
Ojos	Lentes (ANSI Z87)	Gafas químicas / Espuma forrada / Soldadura / Láser
Cuerpo / brazos	Camisa de mangas 4''	Arnés de seguridad /Chaleco / Fuego / Químico / Resistente al corte
Rodillas / Piernas	Pantalones largos	Rodilleras / Chaps / Químico
Manos	Guantes ligeros	Guantes gruesos / Resistente al corte / Químico / Soldadura / Protección térmica
Pies	Botas de trabajo	Botas de goma / Punta de acero / Metatarsiano / Eléctrica / Cubiertas del zapato
Cara		Protector facial plastico/ Protector facial de malla / Máscara soldadura
Orejas		Tapones / Orejeras / Ambos
Respiración		Máscara de polvo / Respirador purificador de aire / Respirador de aire suministrado
Otra opción		

Análisis Previo al Trabajo

Descripción del trabajo / tarea	

Pasos de trabajo	Riesgos	Metodos de control
Describa los pasos en orden. Qué va a hacer usted? Qué clase de equipos y herramientas son necesarias?	Identifica los riesgos de cada paso. Qué podria salir mal? Qué podria causar un accidente?	Cómo protegemos a los trabajadores? Cuáles son las practicas seguras de cada paso? Qué capacitación es necesaria?

Preparado por:		Fecha / Hora:	

Firma de los trabajadores		

Synthetic Web and Roundsling Inspection Form

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Company: Date:

Project: Inspection by:

Type	Size	Serial #	Ok	Manufactured By:	Scrap	Cut(Surf/Edge)	Abrasion	Hole/Snag/Pull	Burn (Heat/Chemical)	Stitching	Tag	Other	Comments

BNB BNBuilders	DAILY SCAFFOLD CHECKLIST	Code #	Oper-27A
		Rev.	0
		Date	October-2017

Company: _____ Inspected By: _____

Location: _____ Supervisor: _____

The following items should be visually checked prior to working from any scaffolding (daily).

		Yes	No	N/A
1.	Is the footing of the scaffolding sound and rigid, capable of supporting the weight. (Bricks or blocks are not acceptable)			
2.	Did a competent person erect, dismantle or move the scaffold?			
3.	Are all the scaffold components the same manufacturer and type?			
4.	Is a complete guardrail system in place? i.e. top rail (42"), midrail (22"), and toe boards (2x4 min.).			
5.	Were damaged scaffold components repaired or replaced?			
6.	Is the maximum span for 2"x12" planks 8 ft.			
7.	Is all planking or platforms overlapped by a minimum of 12", and secured from movement?			
8.	Is there an access ladder, stairs or other safe means of access?			
9.	Do the scaffold planks extend over their end supports 6" but not more than 12"?			
10.	Is there overhead protection provided for people on scaffold exposed to overhead hazards?			
11.	Is fall protection feasible to use when erecting scaffold?			
12.	Are the poles, legs, or uprights of the scaffold, plumb and rigidly braced to prevent swaying and displacement?			
13.	Is the scaffold properly braced by cross-bracing or diagonal braces, or both, for securing vertical timbers together?			
14.	Where uplift may occur, are vertical members locked together by pins or other equivalent suitable means?			
15.	Is scaffold level and plumb?			
16.	Are sills properly placed and adequate size?			
17.	Have screw jacks been used to level and plumb scaffold, instead of unstable objects (concrete blocks, bricks, etc.)?			
18.	Are base plates and/or screw jacks secured to sills and frame?			
19.	Is the scaffold securely guyed or tied to a building or structure, when the height exceeds four times its minimum base dimension?			
20.	Has scaffold been tied to structure at least every 30 feet in length and 26 feet in height?			
21.	Is each work deck fully planked?			
20.	Is handrail netting or covered walkway installed if workers pass through or under the scaffold?			
21.	Have workers on scaffold been trained on scaffold safety?			

BNB BNBuilders	SHAFT WORK ENTRY PERMIT	Code #	Oper-14B
		Rev.	0
		Date	Jan-2018
		Original Date	Jan-2018

NOTICE: *Work in the Shaft Requires a JHA and Pre-Task Plan to be completed and all Hazards identified must be mitigated before any work begins. Please attach JHA and PTP to permit.*

Date: _____ Hours: _____ Project: _____

Company Performing Work: _____

Description of Work: _____

Supervisor of Crew in Shaft: _____ Trade: _____ Phone Number: _____

Complete the below checklist:

	Yes	No	NA
Is the Shaft a Permit Required Confined Space? If yes, please complete a confined space work permit.	_____	_____	_____
Tools, materials, and PPE are secured to prevent them from falling down the shaft.	_____	_____	_____
Is each working level with an exposed shaft opening protected by guardrails with installed toe boards, mid-rails and handrails? All Openings on all levels are closed and secured? Is vertical mesh installed at lobby edge to prevent falling materials?	_____	_____	_____
Lower levels are delineated as necessary with a spotter and radio communication?	_____	_____	_____
Are other crews or trades working next to the exposed shaft opening on above floors? If yes, please coordinate work with the other crew before beginning. Radio communication must be established between crews. Comments: _____	_____	_____	_____
Is there adequate lighting to complete required task?	_____	_____	_____
Is Hot Work being performed? If yes, please complete a Hot Work Permit.	_____	_____	_____
Is there proper access and egress to work locations?	_____	_____	_____

Comments: _____

_____

_____

_____

Authorized Participants: (Attach additional Authorized Participants on separate sheet if necessary)

Print Name	Signature	Company
Print Name	Signature	Company
Print Name	Signature	Company
Print Name	Signature	Company
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Print Name	Signature	Company
Print Name	Signature	Company

This Shaft Entry Permit and associate JHA and Pre-Task Plans have been reviewed and authorized by:

BNBuilders Superintendent: _____

BNBuilders Project Manager: _____

Silica Exposure Control Plan	**Project:**	**Start Date:**	Code #: Oper-31B Rev. 1 Date: Nov-2016

Prepared by (Work Supervisor):	Reviewed by (BNB Competent Person):

Describe Task	Duration (Hours)	Controls (See reverse side for examples)		Respiratory Protection (Per Table 1)	Inside/Outside Building
		Engineering	Administrative		
Examples: Drilling 5/8" dowel holes with roto-hammer	8 hours	Shroud, hollow drill bits, dustless attachment	Body positioning	Respirator APF 10 required	Outside

Housekeeping Practices:
(See reverse side for examples)

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Engineering controls	Administrative controls
Exhaust fan	Barricades / Signs
LEV (Local Exhaust Ventilation – HEPA)	Work Scheduling
Wetting	Worker Rotation
Partial enclosure	Body Positioning
Full enclosure	Good Hygiene Practices
Shroud	Employee Training
Barriers	Other:
Sweeping Compound	
Other:	
Respiratory Protection Guide	**Housekeeping and Hygiene**
APF 10 = Any half mask particulate respirator equipped with an N95, R95, or P95 filter, including filtering facepieces. N99, R99, P99, N100, R100, P100 filters may also be used.	Protective Work Clothing
APF 25 = Any powered, air-purifying respirator with a high-efficiency particulate filter, or Any supplied-air respirator operated in a continuous-flow mode	Handwashing before drinking, eating or smoking
APF 50 = Any air-purifying, full-facepiece respirator with an N100, R100, or P100 filter, or Any powered, air-purifying respirator with a tight-fitting facepiece and a high-efficiency particulate filter	Proper dust bag handling and disposal
APF 1000 = Any supplied-air respirator operated in pressure-demand or positive-pressure mode	Other:

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CONTROLLING SILICA EXPOSURE

BNBuilders

Source: Laborers' Health & Safety Fund of North America. https://www.lhsfna.org/index.cfm/controlling-silica-exposure/#fiber

EQUIPMENT OR TASK	ENGINEERING AND WORK PRACTICE CONTROL METHODS		RESPIRATOR REQUIREMENTS AND MINIMUM ASSIGNED PROTECTION FACTOR (APF) FOR **0-4 HOURS**	RESPIRATOR REQUIREMENTS AND MINIMUM ASSIGNED PROTECTION FACTOR (APF) FOR **4+ HOURS**
Stationary masonry saws 	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.		No additional protection required	No additional protection required
Handheld power saws **Any blade diameter* 	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	**Indoors / in an enclosed area:**	APF 10 required 	APF 10 required 
		Outdoors:	No additional protection required	APF 10 required 
Handheld power saws for cutting fiber-cement board **blade diameter of eight (8) inches or less* 	For tasks performed outdoors only: • Use saw equipped with commercially available dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the airflow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency.		No additional protection required	No additional protection required
Walk-behind saws 	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	**Indoors / in an enclosed area:**	APF 10 required 	APF 10 required 
		Outdoors:	No additional protection required	No additional protection required
Rig-mounted core saws or drills 	• Use tool equipped with integrated water delivery system that supplies water to cutting surface. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.		No additional protection required	No additional protection required

CONTROLLING SILICA EXPOSURE

BNBuilders

Source: Laborers' Health & Safety Fund of North America. https://www.lhsfna.org/index.cfm/controlling-silica-exposure/#fiber

EQUIPMENT OR TASK	ENGINEERING AND WORK PRACTICE CONTROL METHODS		RESPIRATOR REQUIREMENTS AND MINIMUM ASSIGNED PROTECTION FACTOR (APF) FOR **0-4 HOURS**	RESPIRATOR REQUIREMENTS AND MINIMUM ASSIGNED PROTECTION FACTOR (APF) FOR **4+ HOURS**
Handheld and stand-mounted drills **including impact, rotary hammer drills* 	• Use drill equipped with commercially available shroud or cowling with dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the airflow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. • Use a HEPA-filtered vacuum when cleaning holes.		No additional protection required	No additional protection required
Jackhammers and handheld powered chipping tools 	• Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact. - OR - • Use tool equipped with commercially available shroud and dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the airflow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.	**indoors / in an enclosed area:**	APF 10 required 	APF 10 required 
		Outdoors:	No additional protection required	APF 10 required 
Handheld grinders for mortar removal **for tuckpointing, etc.* 	• Use grinder equipped with commercially available shroud and dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.		APF 10 required 	AFP 25 required 
Walk-behind milling machines and floor grinders 	• Use machine equipped with integrated water delivery system that continuously feeds water to the cutting surface. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. - OR - • Use machine equipped with dust collection system recommended by manufacturer. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide airflow recommended by manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. • When used indoors or in an enclosed area, use a HEPA-filtered vacuum to remove loose dust in between passes.		No additional protection required	No additional protection required

CONTROLLING SILICA EXPOSURE

BNBuilders

Source: Laborers' Health & Safety Fund of North America, https://www.lhsfna.org/index.cfm/controlling-silica-exposure/#fiber

EQUIPMENT OR TASK	ENGINEERING AND WORK PRACTICE CONTROL METHODS		RESPIRATOR REQUIREMENTS AND MINIMUM ASSIGNED PROTECTION FACTOR (APF) FOR **0-4 HOURS**	RESPIRATOR REQUIREMENTS AND MINIMUM ASSIGNED PROTECTION FACTOR (APF) FOR **4+ HOURS**
Handheld grinders for uses other than mortar removal 	•For tasks performed outdoors only: •Use grinder equipped with integrated water delivery system that continuously feeds water to the grinding surface. •Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.		No additional protection required	No additional protection required
	•Use grinder equipped with commercially available shroud and dust collection system. •Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. •Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre -separator or filter-cleaning mechanism.	**indoors / in an enclosed area:**	No additional protection required	APF 10 required 
		Outdoors:	No additional protection required	No additional protection required
Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials *(e.g.: hoe-ramming, rock ripping)* **or used during demolition activities involving silica-containing materials** 	•Operate equipment from within an enclosed cab •When employees outside of the cab are engaged in the task, apply water and/or dust suppressants as necessary to minimize dust emissions.		No additional protection required	No additional protection required
Heavy equipment and utility vehicles for tasks such as grading and excavating **Does not include: demolishing, abrading, or fracturing silica-containing materials* 	•Apply water and/or dust suppressants as necessary to minimize dust emissions. - OR - •When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab.		No additional protection required	No additional protection required

CONTROLLING SILICA EXPOSURE

BNBuilders

Source: Laborers' Health & Safety Fund of North America, https://www.lhsfna.org/index.cfm/controlling-silica-exposure/#fiber

EQUIPMENT OR TASK	ENGINEERING AND WORK PRACTICE CONTROL METHODS	RESPIRATOR REQUIREMENTS AND MINIMUM ASSIGNED PROTECTION FACTOR (APF) FOR **0-4 HOURS**	RESPIRATOR REQUIREMENTS AND MINIMUM ASSIGNED PROTECTION FACTOR (APF) FOR **4+ HOURS**
Dowel drilling rigs for concrete 	For tasks performed outdoors only: •Use shroud around drill bit with a dust collection system. Dust collector must have a filter with 99% or greater efficiency and a filter-cleaning mechanism. •Use a HEPA-filtered vacuum when cleaning holes.	APF 10 required 	APF 10 required 
Vehicle-mounted drilling rigs for rock and concrete 	•Use dust collection system with close capture hood or shroud around drill bit with a low-flow water spray to wet the dust at the discharge point from the dust collector. - OR - •Operate from within an enclosed cab and use water for dust suppression on drill bit.	No additional protection required	No additional protection required
Small drivable milling machines **less than half-lane* 	•Use a machine equipped with supplemental water sprays designed to suppress dust. Water must be combined with a surfactant. •Operate and maintain machine to minimize dust emissions.	No additional protection required	No additional protection required
Large drivable milling machines **half-lane and larger* 	•For cuts of any depth on asphalt only: •Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. •Operate and maintain machine to minimize dust emissions. •For cuts of four inches in depth or less on any substrate: •Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. •Operate and maintain machine to minimize dust emissions. - OR - •Use a machine equipped with supplemental water spray designed to suppress dust. Water must be combined with a surfactant. •Operate and maintain machine to minimize dust emissions.	No additional protection required	No additional protection required

CONTROLLING SILICA EXPOSURE

BNBuilders

Source: Laborers' Health & Safety Fund of North America, https://www.lhsfna.org/index.cfm/controlling-silica-exposure/#fiber

EQUIPMENT OR TASK	ENGINEERING AND WORK PRACTICE CONTROL METHODS	RESPIRATOR REQUIREMENTS AND MINIMUM ASSIGNED PROTECTION FACTOR (APF) FOR **0-4 HOURS**	RESPIRATOR REQUIREMENTS AND MINIMUM ASSIGNED PROTECTION FACTOR (APF) FOR **4+ HOURS**
Crushing machines 	•Use equipment designed to deliver water spray or mist for dust suppression at crusher and other points where dust is generated (e.g., hoppers, conveyors, sieves/ sizing or vibrating components, and discharge points). •Operate and maintain machine in accordance with manufacturer's instructions to minimize dust emissions. •Use a ventilated booth that provides fresh, climate-controlled air to the operator, or a remote control station.	No additional protection required	No additional protection required
Drivable saws 	For tasks performed outdoors only: •Use saw equipped with integrated water delivery system that continuously feeds water to the blade. •Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	No additional protection required	No additional protection required

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Duties of Assigned Personnel

Project Name		Date	
Tower Crane Model		Mobile Crane Model	
Tower Crane Serial #		Mobile Crane Serial #	

Tower Crane A/D Director

I have been designated to this position and have read and understood the erection/dismantle procedures specific to this tower crane.

Name		Company	
Title		Contact #	
Signature		Date	

Tower Crane Lift Director

I have been designated to this position and have read and understood the erection/dismantle procedures specific to this tower crane.

Name		Company	
Title		Contact #	
Signature		Date	

Qualified Person providing technical assistance to the Tower Crane A/D Director

I have been designated to this position and have read and understood the erection/dismantle procedures specific to this tower crane.

Name		Company	
Title		Contact #	
Signature		Date	

Tower Crane Operator

I have been designated to this position and have read and understood the operating procedures specific to this tower crane.

Name		Company	
Title		Contact #	
Signature		Date	

Mobile Crane A/D Director

I have been designated to this position and have read and understood the erection/dismantle procedures specific to this mobile crane.

Name		Company	
Title		Contact #	
Signature		Date	

Mobile Crane Operator

I have been designated to this position and have read and understood the operating procedures specific to this mobile crane.

Name		Company	
Title		Contact #	
Signature		Date	

BNB Site Supervisor

Name		Company	
Title		Contact #	
Signature		Date	

BNB Alternate Site Supervisor

Name		Company	
Title		Contact #	
Signature		Date	

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Duties of Assigned Personnel

BNB 3rd Party Consultant			
Name		Company	
Title		Contact #	
Signature		Date	

Duties of Assigned Personnel – Tower Crane Daily Operation

Project Name		Start Date	
Tower Crane Model		Updated	
Tower Crane Serial #			

Tower Crane Lift Director			
I have been designated to this position and have read and understood the operational procedures specific to this tower crane.			
Name		Company	
Title		Contact #	
Signature			
Backup LD's			
Name		Company	
Title		Contact #	
Signature			
Name		Company	
Title		Contact #	
Signature			

Tower Crane Operator			
I have been designated to this position and have read and understood the operating procedures specific to this tower crane.			
Name		Company	
Title		Contact #	
Signature			

BNB Site Supervisor			
Name		Company	
Title		Contact #	
Signature			

BNB Alternate Site Supervisors			
Name		Company	
Title		Contact #	
Signature			
Name		Company	
Title		Contact #	
Signature			

Duties of Assigned Personnel – Multiple Crane Daily Operation
Tower Crane & Mobile Crane

Project Name		Start Date	
Tower Crane Model		Updated	
Tower Crane Serial #			

Tower Crane Lift Director			
I have been designated to this position and have read and understood the operational procedures specific to this tower crane.			
Name		Company	
Title		Contact #	
Signature			
Backup LD's			
Name		Company	
Title		Contact #	
Signature			
Name		Company	
Title		Contact #	
Signature			

Tower Crane Operator			
I have been designated to this position and have read and understood the operating procedures specific to this tower crane.			
Name		Company	
Title		Contact #	
Signature			
Mobile Crane Operator			
I have been designated to this position and have read and understood the operating procedures specific to this mobile crane.			
Name		Company	
Title		Contact #	
Signature			

BNB Site Supervisor			
Name		Company	BNBuilders
Title		Contact #	858-775-3291
Signature			
BNB Alternate Site Supervisors			
Name		Company	
Title		Contact #	
Signature			
Name		Company	
Title		Contact #	
Signature			
BNB Site Safety			
Name		Company	
Title		Contact #	
Signature			

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Tower Crane Pre-Dismantle Checklist					
Project Name		Date		Mobile Crane Operator	
Erection Date		BNB Superintendent		Mobile Crane Model	
Tower Crane Model		BNB Safety		Mobile Crane Serial #	
Tower Crane Serial #		Lift Director		Tower Crane Operator	
Jib Length		A/D Director		Tower Crane Technician	

BNB		
Check	Task	Notes
	Apply for FAA Obstruction Evaluation / Airport Airspace Analysis (OE/AAA) (***Note***: submit the evaluation request at least 45 days prior to any Tower Crane Erection or "Jump" in elevation) https://oeaaa.faa.gov/oeaaa/external/gisTools/gisAction.jsp	
	Notify L&I Crane Management System via email (Towercranenotify@Lni.wa.gov). Notification must be sent at least two weeks before erecting.	
	Complete the Duties of Assigned Personnel form. **All parties must sign the form at the start of each day before commencing work** (***Note***: *Two-day erection operations require a separate form to be signed each day*).	
	Schedule Pre-Erection Safety Inspection to be conducted by a 3rd-party accredited crane certifier per **WAC 296-155-53206.**	
	Verify underground utilities and structures based on mobile crane outrigger layout.	
	Provide Site Specific Safety Orientation for Crane Supplier, Crane Erectors, and Mobile Crane Crewmembers.	
	Schedule a pre-erection meeting with all involved parties, including but not limited to Crane Supplier, Crane Erectors, and Mobile Crane Crewmembers.	
	Notify surrounding neighbors and businesses of crane erection operations.	
	Identify overhead power lines, confirm Nominal Voltage with Utility provider, and establish Minimum Clearance Distance per **WAC 296-155-53408 - Table 4.**	
	If applicable, Post "Danger - Overhead Powerlines" signs and implement protective measures per **WAC 296-155-53408.**	
	Provide Live Utility Map to all subcontractors.	
	Verify location of Tower Crane footing is located per the construction plan.	
	Verify the Tower Crane footing concrete break strength prior to erection	
	Verify a 10lb ABC Fire Extinguisher is available at the Tower Crane **cab**, **base**, and **outside of the base enclosure**.	
	Notify the local Fire Department of the need for a High Rescue Team in case of an emergency.	
	Ensure that completed Tower Crane Binder is located on the jobsite and readily available to A/D Director and Lift Director for the Erection process.	
	Provide a temporary electrical distribution box at the base of the Tower Crane.	
	Verify the BNB Tower Crane sign is designed and engineered to fit the specific model of Tower Crane per **WAC 296-155-53900(62).**	
	Determine need for overnight site security, e.g., two-day erection process.	
	Determine if other crane operations, on-site or adjacent, will affect the crane dismantle. If so, a multi-crane communication plan is required. (***Note***: *If applicable, the affected crane*	

	operators must attend the dismantle coordination meeting the morning of the dismantle, then report to duty in their assigned crane)	
	Schedule annual inspection of all turntable and tower bolts for proper condition and torque per **WAC 296-155-53905**	
	Identify and assign a full-time Lift Director to the project for daily Tower Crane activities.	
	Ensure the Tower Crane is marked/illuminated in accordance with **FAA AC 70/7460-1M - Obstruction Marking and Lighting**	
	Obtain Tower Crane Operator contact information, including emergency contact information.	
	Provide Tower Crane Operator with BNB project team contact information.	
	Ensure daily Tower Crane inspection records are kept in the Tower Crane cab and provided to the BNB project team for the project's duration.	
	Set base template	

Tower Crane Provider		
Check	Task	Notes
	Submit Issued for Construction (IFC) Drawings.	
	Identify Qualified Person providing technical assistance to the Tower Crane A/D Director.	
	Provide Tower Crane Manual to be stored in the crane cab.	
	Schedule third-party electrical panel inspection prior to final L&I Crane Inspection.	
	Technician to set proximity alarms on the Tower Crane for power lines, multiple cranes, etc.	
	Submit trucking sequence (number of trucks, the arrival time of first truck, spacing timeframes, and staging area).	
	Schedule ETI Conformity - Company will add sticker to the cab of the crane.	
	Confirm correct phasing/rotation of motors after crane is energized	
Tower Crane Erection & Mobile Crane Provider		
	Schedule mobile crane(s) for erection	
	Submit Pick Plan(s) two-weeks before erection	
	Submit Rigging Diagrams for Crane Pick Plan(s) specific to the Tower Crane model.	
	Submit approved Traffic Control Plan	
	Schedule traffic control flaggers and uniformed Police Officers	
	Supply spotters for overhead power lines or other obstructions	
	Paint out crane center pin and outrigger locations	
	Supply road plates and crane pads as specified in Crane Pick Plan	
	Assign A/D Director for Tower Crane Erection	
	Assign Lift Director for Tower Crane Erection	

	Electrical Subcontractor	
	Provide electrician on site for erection	
	Secure power distribution cord running to tower crane cab	
	Confirm power and grounding requirements with the Tower Crane Provider.	
	Complete electrical equipment inspections and ensure electrical inspection tags are visible.	
	Survey	
	Survey Tower Crane Base after set and provide As-Built drawings	
	Survey Tower Crane Base after foundation is placed and provide As-Built drawings	
	BNB - In house survey: Layout crane foundation, Anchor Base Install and Tower Crane Base Inspection	
	Survey Tower Crane tower to verify within tolerances prior to setting slewing assembly/turntable	
	Survey to communicate to Lift Director crane tower tolerance prior to setting slewing assembly/turntable	
	3rd Party Crane Inspector	
	Complete Tower Crane pre-erection inspection and provide a report to BNBuilders.	
	Notify BNBuilders and Tower Crane Provider of any deficiencies identified during the inspection.	
	Provide BNBuilders with final inspection and crane certification for the Tower Crane.	

BNBuilders

Tower Crane Pre-Erection Checklist					
Project Name		Date		Mobile Crane Operator	
Erection Date		BNB Superintendent		Mobile Crane Model	
Tower Crane Model		BNB Safety		Mobile Crane Serial #	
Tower Crane Serial #		Lift Director		Tower Crane Operator	
Jib Length		A/D Director		Tower Crane Technician	

BNB		
Check	Task	Notes
	Apply for FAA Obstruction Evaluation / Airport Airspace Analysis (OE/AAA) (***Note***: submit the evaluation request at least 45 days prior to any Tower Crane Erection or "Jump" in elevation) https://oeaaa.faa.gov/oeaaa/external/gisTools/gisAction.jsp	
	Apply for Cal/OSHA mobile crane permit at the nearest Cal/Osha District Office. **Cal/OSHA Title 8 344.71 (b)** Cal/OSHA Crane Unit 2 MacArthur Place, Suite 700 Santa Ana, CA 92707 Phone:(714) 567-7142 Email:pyow@dir.ca.gov (**Note:** Permit application may be completed by the tower crane provider.) Application Instructions: https://www.dir.ca.gov/title8/344_71.html	
	Schedule Pre-Erection Safety Inspection to be conducted by a 3rd-party accredited crane certifier per **Cal/OSHA Title 8 344.71 (f)** (**Note:** Tower crane must be inspected twice a year, the initial permit inspection is considered one of two yearly inspections)	
	Notify the Cal/OSHA district office from which the permit was obtained in writing or by telephone followed by written notification. Notification must be sent at least 24 before erecting and must include date and time of activity per **Cal/OSHA Title 8 344.71 (g)(2)**	
	Complete the Duties of Assigned Personnel form. **All parties must sign the form at the start of each day before commencing work** (***Note:*** *Two-day erection operations require a separate form to be signed each day*).	
	Verify underground utilities and structures based on mobile crane outrigger layout.	
	Provide Site Specific Safety Orientation for Crane Supplier, Crane Erectors, and Mobile Crane Crewmembers.	
	Schedule a pre-erection meeting with all involved parties, including but not limited to Crane Supplier, Crane Erectors, and Mobile Crane Crewmembers.	
	Notify surrounding neighbors and businesses of crane erection operations.	
	Identify overhead power lines, confirm Nominal Voltage with Utility provider, and establish Minimum Clearance Distance per **Cal/OSHA Title 8 1612.1**	
	If applicable, Post "Danger - Overhead Powerlines" signs and implement protective measures per **Cal/OSHA Title 8 1612.1 (b)**	
	Provide Live Utility Map to all subcontractors.	
	Verify location of Tower Crane footing is located per the construction plan.	

	Verify the Tower Crane footing concrete break strength prior to erection	
	Verify a 10lb ABC Fire Extinguisher is available at the Tower Crane **cab**, **base**, and **outside of the base enclosure**.	
	Notify the local Fire Department of the need for a High Rescue Team in case of an emergency.	
	Ensure that completed Tower Crane Binder is located on the jobsite and readily available to A/D Director and Lift Director for the Erection process.	
	Provide a temporary electrical distribution box at the base of the Tower Crane.	
	Verify the BNB Tower Crane sign is designed and engineered to fit the specific model of Tower Crane per **Cal/OSHA Title 8 1619.1 (c)**	
	Determine need for overnight site security, e.g., two-day erection process.	
	Determine if other crane operations, on-site or adjacent, will affect the crane dismantle. If so, a multi-crane communication plan is required. (***Note:*** *If applicable, the affected crane operators must attend the dismantle coordination meeting the morning of the dismantle, then report to duty in their assigned crane*)	
	Schedule annual inspection of all turntable and tower bolts for proper condition and torque per **Cal/OSHA Title 8 1619.1 (f) (5)**	
	Identify and assign a full-time Lift Director to the project for daily Tower Crane activities.	
	Ensure the Tower Crane is marked/illuminated in accordance with **FAA AC 70/7460-1M – Obstruction Marking and Lighting**	
	Obtain Tower Crane Operator contact information, including emergency contact information.	
	Provide Tower Crane Operator with BNB project team contact information.	
	Ensure daily Tower Crane inspection records are kept in the Tower Crane cab and provided to the BNB project team for the project's duration.	
	Set base template	

Tower Crane Provider		
Check	Task	Notes
X	Submit Issued for Construction (IFC) Drawings.	
X	Identify Qualified Person providing technical assistance to the Tower Crane A/D Director.	
X	Provide Tower Crane Manual to be stored in the crane cab.	
X	Schedule third-party electrical panel inspection prior to final Cal OSHA Inspection.	
X	Technician to set proximity alarms on the Tower Crane for power lines, multiple cranes, etc.	
X	Submit trucking sequence (number of trucks, the arrival time of first truck, spacing timeframes, and staging area).	
X	Schedule ETI Conformity – Company will add sticker to the cab of the crane.	
X	Confirm correct phasing/rotation of motors after crane is energized	
Tower Crane Erection & Mobile Crane Provider		
	Schedule mobile crane(s) for erection	
	Submit Pick Plan(s) two-weeks before erection	
	Submit Rigging Diagrams for Crane Pick Plan(s) specific to the Tower Crane model.	
	Submit approved Traffic Control Plan	
	Schedule traffic control flaggers and uniformed Police Officers	
	Supply spotters for overhead power lines or other obstructions	
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	Assign Lift Director for Tower Crane Erection	

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	Provide electrician on site for erection	
	Secure power distribution cord running to tower crane cab	
	Confirm power and grounding requirements with the Tower Crane Provider.	
	Complete electrical equipment inspections and ensure electrical inspection tags are visible	
	Survey	
	Survey Tower Crane Base after set and provide As-Built drawings	
	Survey Tower Crane Base after foundation is placed and provide As-Built drawings	
	BNB - In house survey: Layout crane foundation, Anchor Base Install and Tower Crane Base Inspection	
	Survey Tower Crane tower to verify within tolerances prior to setting slewing assembly/turntable	
	Survey to communicate to Lift Director crane tower tolerance prior to setting slewing assembly/turntable	
	3rd Party Crane Inspector	
	Complete Tower Crane pre-erection inspection and provide a report to BNBuilders.	
	Notify BNBuilders and Tower Crane Provider of any deficiencies identified during the inspection.	
	Provide BNBuilders with final inspection and crane certification for the Tower Crane.	
	Cal OAHA Permit & Safety Inspection	
	Cal OSHA - Notify BNBuilders and Tower Crane Provider of any deficiencies identified during the inspection.	
	Cal OSHA - Provide BNBuilders with final inspection and crane certification for the Tower Crane.	

VOLUNTARY USE OF RESPIRATORS

"Information for Employees Using Respirators When Not Required Under the OSHA Standard." A copy of this exhibit is to be provided to any employee who chooses to wear a filtering facepiece or tight-fitting negative pressure respirator on a voluntary basis:

"Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection of workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards."

If BNBuilders provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You should:

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirators limitations. Training is required for all respirator use.

2. Choose the respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services certifies respirators. A label of certification should appear on the respirator or packaging. It will tell you what the respirator is designed for and how much it will protect you.

3. Refer to the Chemical Safety Data Sheet (SDS) for additional information or ask your supervisor.

4. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.

5. Keep track of your respirator so that you do not mistakenly use someone else's respirator.

6. You should have a medical clearance and fit test prior to wearing your own respirator.

7. Review L&I respirator guidelines at www.lni.wa.gov WAC Chapter 296-842.

Name_____ Date _____

Signature_____ Company/Project _____

BNBuilders/Supervisor/Trainer _____