

Duct Installation – Step 1 - Materials Handling

Primary Task Involved:

- Receiving bundled and wrapped materials at the job site

Hazard Controls

1. General safety:
 - a. PPE must be worn at all times (eye and ear protection, gloves [never wear loose gloves], hardhat, protective sleeves and work boots).
 - b. Ensure work area is clean to prevent tripping hazards.
 - c. Keep hands away from sharp edges and corners.
2. Loading/unloading area safety:
 - a. Keep the loading/unloading area well lit.
 - b. Keep workers not involved in the loading and unloading operations away.
 - c. Keep the floor clean and free of moisture.
 - d. Make sure that loading/unloading equipment is maintained.
 - e. Ensure that open edges are protected with a guardrail system when working at heights.
 - f. Ensure that appropriate fall protection is worn (body harness, lanyard and lifeline) when working near open edges at heights.
 - g. Install weather enclosures in loading/unloading areas when necessary.
 - h. Use dock plates and dock levelers when necessary.
3. Material handling:
 - a. Employ the use of moving equipment (forklifts, hand trucks, material carts [and cart paddles to secure loads], etc.) to transport loads.
 - b. Ensure that loading areas are neat, clean and well lit.
 - c. Ensure that dock plates are installed where they are needed.
 - d. Ensure that guardrails are installed on and around loading docks where necessary.
 - e. Position material carts safely near the edge of the dock so that the forklift operator can safely and easily access the load.
 - f. Designated storage areas should be used to keep the work area clean, organized and safe.
 - g. Use dunnage to level and stabilize loads on the flatbed and tie down straps to secure it.
4. Slips/Trip/Falls:
 - a. Ensure that the loading/unloading area is cleared of any debris, work materials, and tools and equipment that are not required during the unloading process.
 - b. Be aware of any trip hazards that cannot be eliminated or removed and of your surroundings at all times.
 - c. Maintain tools and equipment that are required for the unloading process in a neat and orderly fashion on the walking/working surface.
 - d. Loading docks should employ dock-plates and physical barriers around any gaps that present fall hazards.
 - e. Use dock levelers to provide safe access to trailers.
 - f. Utilize appropriate fall protection equipment and guardrail systems when necessary.
5. Struck by and caught between:
 - a. All personnel involved with a loading or unloading operation should assess the potential hazards before the operation begins.
 - b. A clear understanding of the procedures and communication between workers must be established.
 - c. Employees not involved in the unloading must stay clear of the loading zone during all mechanized loading or unloading operations.
 - d. During transfer of any load, all personnel must stay clear of the path of travel.

- e. When moving multiple items or loads that may shift, properly secure them with straps, bands or other means.
 - f. When raising and moving loads with a boom or crane, ensure that the path of travel is clear of hazards.
 - g. Personnel should never be downhill of any load or cart being moved.
 - h. Be aware of pinch points. Keeps hands clear of equipment during operation.
 - i. Wear hardhats, gloves [never wear loose gloves], eye and ear protection, protective sleeves and work boots.
 - j. All personnel working around moving vehicles and mechanized equipment during loading and unloading operations should wear a high visibility vest.
 - k. Supervisors must ensure that the material handling and associated rigging equipment is inspected as required.
 - l. Spot the delivery trailer into position using a competent person.
 - m. Make eye contact with equipment operators.
 - n. Mark off the working area with warning tape and signage if necessary.
 - o. Ensure that the wheels of the trailer are chocked and all outriggers are applied when necessary.
 - p. Drivers should visually inspect and secure any truck or trailer and the area around it before moving it to assure all workers are clear.
6. Cuts and abrasions:
- a. Wear cut-resistant gloves and protective sleeves [never wear loose gloves].
 - b. Identify, protect and modify sharp edges if necessary.
7. Musculoskeletal disorders (sprains and strains):
- a. Utilize proper materials handling equipment such as hand trucks, dollies, come-a-longs, forklifts, and cranes in order to minimize manual lifting.
 - b. Seek assistance when manually handling large, heavy materials.
 - c. Use proper lifting and materials handling techniques, which should be reviewed prior to starting work as part of pre-task planning.
 - d. Identify and verify pathways so that materials are capable of passing through with the least amount of manhandling and resistance.
8. Operating forklifts:
- a. Ensure training (operators must be trained on safe operation of the equipment, load limits, loading procedures, equipment inspections, and communication with other personnel).
 - b. Inspect equipment prior to each shift.
 - c. Be sure of the weight of the material being lifted (coil).
 - d. Be sure to inspect work area before operating the forklift. If the load is too large to see around, be sure a spotter is present to direct you, and notify surrounding people of hazard.
 - e. PPE must be worn at all times (eye and ear protection, gloves [never wear loose gloves], protective sleeves and work boots).
 - f. Secure loads prior to moving them.
 - g. Do not allow personnel between forklifts and solid objects.
 - h. Always have eye contact between operator and crew member.
 - i. Pedestrians always have the right away.
 - j. All vehicles should be parked with a fully operational parking brake engaged during loading and unloading.
 - k. Wheel chocks should be used in addition to the brake, particularly if any slope is present.
9. Retrieving materials off the truck using the overhead crane:
- a. Employees must be properly trained on using the overhead crane.
 - b. Ensure the work area and path of travel are clear of obstructions to prevent additional hazards (tripping and caught between).
 - c. Ensure the weight of the coil is known. Know the limitations of the lifting device. Do not overload the machine. Rigging equipment must not be loaded in excess of its capacity.

- d. Determine the proper rigging equipment needed for the application prior to use.
- e. All rigging equipment must be inspected before each shift and at intervals during its use to minimize the possibility of a rigging failure. Remove damaged equipment from use.
- f. Hooks must be provided with safety latches.
- g. A properly trained signalman must communicate with the crane operator.
- h. Keep personnel clear of lift area.
- i. Determine the center of gravity of the load.
- j. Keep hands away from sharp edges and corners.
- k. Be aware of pinch points. Keep hands clear of pinch points during the lift.
- l. Before loads or empty lifting gear are raised, lowered, or swung, advance warning must be given to workers operating in the vicinity.
- m. Avoid lifts near stacked material that may be knocked over by a swinging load.
- n. Use a designated spotter to assure that proper clearances are maintained.
- o. Rigging equipment must not be loaded in excess of its safe working load.
- p. Keep fingers, hands and feet away from pinch points.
- q. Never work under suspended loads or lift loads over people.
- r. Never lift people with a hoist and never ride a load or a hook.
- s. Lift load a few inches and check rigging.
- t. Start and stop the lift slowly.
- u. While operating the crane, the load may shift. Stay clear and be attentive of the load.
- v. Maintain load control. If required, attach tag lines prior to lift.
- w. When leaving the hoist unattended, land attached loads.
- x. When the job is complete, place the hoist and hook in a location that will not interfere with the movement of people or materials.

Duct Installation – Step 2 - Preparing to Work at Heights

Primary Task Involved:

- Planning the task to be completed and inspecting the tools and equipment that will be used

Hazard Controls

1. General safety:
 - a. PPE must be worn at all times (eye/face protection, ear protection, gloves [never wear loose gloves], hardhat, protective sleeves and work boots).
 - b. Ensure work area is clean to prevent tripping hazards.
 - c. Communicate operations with all company workers and other trades working in the area.
2. Power and manual hand tool use:
 - a. Keep all tools in good condition with regular maintenance.
 - b. Use the right tool for the job.
 - c. Examine each tool for damage before use and do not use damaged tools.
 - d. Operate tools according to the manufacturers' instructions.
3. Power tool use:
 - a. Inspect tools prior to use according to manufacturer requirements and maintain records of these inspections when necessary.
 - b. Never carry a tool by the cord or hose.
 - c. Never yank the cord or the hose to disconnect it from the receptacle.
 - d. Keep cords and hoses away from heat, oil, and sharp edges.
 - e. All extension cords must be checked regularly for defects and ground assuring.
 - f. Use GFCI adapters.
 - g. Disconnect tools when not using them, before servicing and cleaning them, and when changing accessories such as blades, bits, and cutters.
 - h. Keep all people not involved with the work at a safe distance from the work area.
 - i. Secure work with clamps or a vise, freeing both hands to operate the tool.
 - j. Avoid accidental starting. Do not hold fingers on the switch button while carrying a plugged-in tool.
 - k. Maintain tools with care; keep them sharp and clean for best performance.
 - l. Follow instructions in the user's manual for lubricating and changing accessories.
 - m. Be sure to keep good footing and maintain good balance when operating power tools.
 - n. Wear proper apparel for the task. Loose clothing, ties, or jewelry can become caught in moving parts.
 - o. Remove all damaged portable electric tools from use and tag them: "Do Not Use."
4. Scissor lift safety:
 - a. Inspect (test) the lift according to manufacturer requirements (stop button and other controls, failsafes, brakes, guardrails, etc.) and/or OSHA regulations and keep a record of these inspections.
 - b. Establish a work control area using caution or danger tape when necessary.
 - c. Report any problems with the lift to a foreman or supervisor.
 - d. Maintain the lift according to manufacturer requirements.
 - e. Receive proper training on using the lift and follow manufacturer requirements for operating it.
 - f. Maintain a safe distance (at least 10 feet) from electrical power sources (power lines, transformers, etc.) and other potential hazards (other utilities, overhangs, etc.).
 - g. Set the lift on a firm level surface.
 - h. Verify that brakes, once set, will hold the scissor lift in position.
 - i. Never work in high winds.
 - j. Clear the surrounding area before moving the lift (assign traffic control when necessary).
 - k. Always lower the lift before moving it.
 - l. Always lower the lift before boarding the platform.

- m. Maintain a safe distance from electrical sources.
 - n. Know the lifts rated weight capacity and do not exceed it.
 - o. Never use another piece of equipment to raise the work platform.
 - p. Perform all work from inside the lift platform. Never stand on or overextend past the guardrails to perform work tasks.
5. Overhead work safety:
- a. Be aware of overhead obstructions and inspect the overhead area before starting work.
 - b. Maintain proper delineation for overhead work.
 - c. Wear a hardhat.
6. Electrical hazards safety:
- a. Ensure that all electrical systems in the work area have been de-energized by a qualified person.
 - b. Ensure that all workers in the work area are informed of potential electrical hazards if an electrical system cannot be de-energized.
 - c. Ensure that no work is conducted adjacent to live exposed electrical systems without prior inspection and approval from a qualified person.
 - d. Ensure that all live electric panels and electric wiring and/or conductors in the work area are identified and that proper precautions (such as demarcating the area) are taken.
 - e. Check the area for standing water and correct if necessary.
7. Silica exposure:
- a. Use vacuum drill or wear approved respirator.

Duct Installation – Step 3 - Hanger Installation

Primary Task Involved:

- Using the scissor lift and the correct tool to safely install the hangers

Hazard Controls

1. General safety:
 - a. PPE must be worn at all times (eye/face protection, ear protection, gloves [never wear loose gloves], hardhat, protective sleeves and work boots).
 - b. Ensure work area is clean to prevent tripping hazards.
 - c. Communicate operations with all company workers and other trades working in the area.
2. Scissor lift safety:
 - a. Inspect (test) the lift according to manufacturer requirements (stop button and other controls, failsafes, brakes, guardrails, etc.) and/or OSHA regulations and keep a record of these inspections.
 - b. Establish a work control area using caution or danger tape when necessary.
 - c. Report any problems with the lift to a foreman or supervisor.
 - d. Maintain the lift according to manufacturer requirements.
 - e. Receive proper training on using the lift and follow manufacturer requirements for operating it.
 - f. Maintain a safe distance (at least 10 feet) from electrical power sources (power lines, transformers, etc.) and other potential hazards (other utilities, overhangs, etc.).
 - g. Set the lift on a firm level surface.
 - h. Verify that brakes, once set, will hold the scissor lift in position.
 - i. Never work in high winds.
 - j. Clear the surrounding area before moving the lift (assign traffic control when necessary).
 - k. Always lower the lift before moving it.
 - l. Always lower the lift before boarding the platform.
 - m. Maintain a safe distance from electrical sources.
 - n. Know the lifts rated weight capacity and do not exceed it.
 - o. Never use another piece of equipment to raise the work platform.
 - p. Perform all work from inside the lift platform. Never stand on or overextend past the guardrails to perform work tasks.
3. Drilling anchor points and installing all-thread or gripple:
 - a. Slips/Trips/Falls:
 - i. Utilize appropriate guardrail systems when necessary.
 - ii. Wear appropriate fall protection when working at heights over 6 feet.
 - iii. Be aware of drop offs in floors.
 - iv. Be aware of hazardous floor conditions.
 - v. Be aware of any tripping hazards that cannot be eliminated or removed and of your surroundings at all times.
 - vi. Keep floors clean (good housekeeping).
 - b. Struck by and caught between:
 - i. Wear hardhats, gloves [never wear loose gloves], protective sleeves, eye/face protection and work boots.
 - ii. Mark off the working area with warning tape and signage.
 - c. Cuts and abrasions:
 - i. Wear cut-resistant gloves [never wear loose gloves] and protective sleeves.
 - ii. Identify, protect and modify sharp edges if necessary.
 - d. Particles in eye:
 - i. Wear appropriate eye/face protection.
 - e. Overhead work hazards:
 - i. Be aware of overhead obstructions and inspect the overhead area before starting work.
 - ii. Maintain proper delineation for overhead work.

- iii. Wear a hardhat.
 - f. Electrical hazards:
 - i. Ensure that all electrical systems in the work area have been de-energized by a qualified person.
 - ii. Ensure that all workers in the work area are informed of potential electrical hazards if an electrical system cannot be de-energized.
 - iii. Ensure that no work is conducted adjacent to live exposed electrical systems without prior inspection and approval from a qualified person.
 - iv. Ensure that all live electric panels and electric wiring and/or conductors in the work area are identified and that proper precautions (such as demarcating the area) are taken.
 - v. Check the area for standing water and correct if necessary.
 - g. Silica exposure:
 - i. Use vacuum drill or wear approved respirator.
4. Power and manual hand tool use:
- a. Keep all tools in good condition with regular maintenance.
 - b. Use the right tool for the job.
 - c. Examine each tool for damage before use and do not use damaged tools.
 - d. Operate tools according to the manufacturers' instructions.
 - e. PPE must be worn at all times (safety glasses, gloves [never wear loose gloves], protective sleeves and work boots).
5. Power tool use:
- a. Never carry a tool by the cord or hose.
 - b. Never yank the cord or the hose to disconnect it from the receptacle.
 - c. Keep cords and hoses away from heat, oil, and sharp edges.
 - d. All extension cords must be checked regularly for defects and ground assuring.
 - e. Use GFCI adapters.
 - f. Disconnect tools when not using them, before servicing and cleaning them, and when changing accessories such as blades, bits, and cutters.
 - g. Keep all people not involved with the work at a safe distance from the work area.
 - h. Secure work with clamps or a vise, freeing both hands to operate the tool.
 - i. Avoid accidental starting. Do not hold fingers on the switch button while carrying a plugged-in tool.
 - j. Maintain tools with care; keep them sharp and clean for best performance.
 - k. Follow instructions in the user's manual for lubricating and changing accessories.
 - l. Be sure to keep good footing and maintain good balance when operating power tools.
 - m. Wear proper apparel for the task. Loose clothing, ties, or jewelry can become caught in moving parts.
 - n. Remove all damaged portable electric tools from use and tag them: "Do Not Use."

Duct Installation – Step 4 - Loading the Duct Lift

Primary Task Involved:

- Loading a section (or piece) of duct or HVAC component onto the duct lift

Hazard Controls

1. General safety:
 - a. PPE must be worn at all times (eye and ear protection, gloves [never wear loose gloves], hardhat, protective sleeves and work boots).
 - b. Ensure work area is clean to prevent tripping hazards.
 - c. Identify, protect and modify sharp edges if necessary.
 - d. Communicate operations with all company workers and other trades working in the area.
2. Duct lift safety:
 - a. Ensure training on the safe use of the lift.
 - b. Inspect and test the lift according to the manufacturer requirements.
 - c. Keep the work area clean while performing lift operations.
 - d. Work in teams to move the duct lift when necessary.
 - e. Know the safe load limit of the lift and do not exceed it.
 - f. Ensure that the lift is placed on level ground and the wheels are locked off.
 - g. Make eye contact and communicate with the lift operator.
 - h. Secure loads prior to moving them if necessary.
 - i. Remove all loose materials, parts, blocking and packing from the load before starting the lift.
 - j. Make sure everyone is away from the load before starting to hoist.
 - k. Stand completely clear of the load.
 - l. Hoist the load smoothly and avoid abrupt, jerky movements.
 - m. Never walk under a raised load.
3. Materials hoist safety:
 - a. Ensure training on the safe use of equipment.
 - b. Know the safe load limit of the hoist and do not exceed it.
 - c. Inspect hooks, ropes, brakes and limit switches for wear and damage daily.
 - d. Make eye contact and communicate with the equipment operator.
 - e. Hoist from directly over the load. If not centered, the load may swing when lifted.
 - f. Seat the load properly in the hook.
 - g. Remove slack from the sling and hoisting ropes before lifting the load.
 - h. Remove all loose materials, parts, blocking and packing from the load before starting the lift.
 - i. Make sure everyone is away from the load before starting to hoist.
 - j. Stand completely clear of the load.
 - k. Hoist the load smoothly and avoid abrupt, jerky movements.
4. Materials Handling:
 - a. Get help and work in teams to move equipment and materials.
 - b. Use proper lifting techniques.
 - c. Keep back straight, bend at your knees and lift with your legs.
 - d. Do not attempt to lift more than 50 pounds.
 - e. Use material carts to help move equipment and materials around the job site.
 - f. Place materials as close to where they will be needed as possible and without introducing a new safety hazard.
5. Slips/Trips/Falls:
 - a. Be aware of drop offs in floors.
 - b. Be aware of hazardous floor conditions.
 - c. Be aware of any tripping hazards that cannot be eliminated or removed and of your surroundings at all times.

- d. Keep floors clean (good housekeeping).
6. Struck by and caught between:
- a. Wear hardhats, gloves [never wear loose gloves], protective sleeves, eye and ear protection and work boots.
 - b. Mark off the working area with warning tape and signage.
7. Overhead work hazards:
- a. Be aware of overhead obstructions and inspect the overhead area before starting work.
 - b. Maintain proper delineation for overhead work.
 - c. Wear a hardhat.
8. Electrical hazards:
- a. Ensure that all electrical systems in the work area have been de-energized by a qualified person.
 - b. Ensure that all workers in the work area are informed of potential electrical hazards if an electrical system cannot be de-energized.
 - c. Ensure that no work is conducted adjacent to live exposed electrical systems without prior inspection and approval from a qualified person.
 - d. Ensure that all live electric panels and electric wiring and/or conductors in the work area are identified and that proper precautions (such as demarcating the area) are taken.
 - e. Check the area for standing water and correct if necessary.

Duct Installation – Step 5 - Installing a VAV Box

Primary Task Involved:

- Using a scissor lift and duct lift to safely install a VAV box with supply plenum (or any duct piece or section)

Hazard Controls

1. General safety:
 - a. PPE must be worn at all times (eye and ear protection, gloves [never wear loose gloves], hardhat, protective sleeves and work boots).
 - b. Ensure work area is clean to prevent tripping hazards.
 - c. Identify, protect and modify sharp edges if necessary.
 - d. Communicate operations with all company workers and other trades working in the area.
2. Scissor lift safety:
 - a. Inspect (test) the lift according to manufacturer requirements (stop button and other controls, failsafes, brakes, guardrails, etc.) and/or OSHA regulations and keep a record of these inspections.
 - b. Establish a work control area using caution or danger tape when necessary.
 - c. Report any problems with the lift to a foreman or supervisor.
 - d. Maintain the lift according to manufacturer requirements.
 - e. Receive proper training on using the lift and follow manufacturer requirements for operating it.
 - f. Maintain a safe distance (at least 10 feet) from electrical power sources (power lines, transformers, etc.) and other potential hazards (other utilities, overhangs, etc.).
 - g. Set the lift on a firm level surface.
 - h. Verify that brakes, once set, will hold the scissor lift in position.
 - i. Never work in high winds.
 - j. Clear the surrounding area before moving the lift (assign traffic control when necessary).
 - k. Always lower the lift before moving it.
 - l. Always lower the lift before boarding the platform.
 - m. Maintain a safe distance from electrical sources.
 - n. Know the lifts rated weight capacity and do not exceed it.
 - o. Never use another piece of equipment to raise the work platform.
 - p. Perform all work from inside the lift platform. Never stand on or overextend past the guardrails to perform work tasks.
3. Duct lift safety:
 - a. Ensure training on the safe use of the lift.
 - b. Inspect and test the lift according to the manufacturer requirements.
 - c. Keep the work area clean while performing lift operations.
 - d. Work in teams to move the duct lift when necessary.
 - e. Know the safe load limit of the lift and do not exceed it.
 - f. Ensure that the lift is placed on level ground and the wheels are locked off.
 - g. Make eye contact and communicate with the lift operator.
 - h. Secure loads prior to moving them if necessary.
 - i. Remove all loose materials, parts, blocking and packing from the load before starting the lift.
 - j. Make sure everyone is away from the load before starting to hoist.
 - k. Stand completely clear of the load.
 - l. Hoist the load smoothly and avoid abrupt, jerky movements.
 - m. Never walk under a raised load.
4. Materials hoist safety:
 - a. Ensure training on the safe use of equipment.
 - b. Know the safe load limit of the hoist and do not exceed it.
 - c. Inspect hooks, ropes, brakes and limit switches for wear and damage daily.

- d. Make eye contact and communicate with the equipment operator.
 - e. Hoist from directly over the load. If not centered, the load may swing when lifted.
 - f. Seat the load properly in the hook.
 - g. Remove slack from the sling and hoisting ropes before lifting the load.
 - h. Remove all loose materials, parts, blocking and packing from the load before starting the lift.
 - i. Make sure everyone is away from the load before starting to hoist.
 - j. Stand completely clear of the load.
 - k. Hoist the load smoothly and avoid abrupt, jerky movements.
5. Power and manual hand tool use:
- a. Keep all tools in good condition with regular maintenance.
 - b. Use the right tool for the job.
 - c. Examine each tool for damage before use and do not use damaged tools.
 - d. Operate tools according to the manufacturers' instructions.
 - e. PPE must be worn at all times (safety glasses, gloves [never wear loose gloves], protective sleeves and work boots).
6. Power tool use:
- a. Never carry a tool by the cord or hose.
 - b. Never yank the cord or the hose to disconnect it from the receptacle.
 - c. Keep cords and hoses away from heat, oil, and sharp edges.
 - d. All extension cords must be checked regularly for defects and ground assuring.
 - e. Use GFCI adapters.
 - f. Disconnect tools when not using them, before servicing and cleaning them, and when changing accessories such as blades, bits, and cutters.
 - g. Keep all people not involved with the work at a safe distance from the work area.
 - h. Secure work with clamps or a vise, freeing both hands to operate the tool.
 - i. Avoid accidental starting. Do not hold fingers on the switch button while carrying a plugged-in tool.
 - j. Maintain tools with care; keep them sharp and clean for best performance.
 - k. Follow instructions in the user's manual for lubricating and changing accessories.
 - l. Be sure to keep good footing and maintain good balance when operating power tools.
 - m. Wear proper apparel for the task. Loose clothing, ties, or jewelry can become caught in moving parts.
 - n. Remove all damaged portable electric tools from use and tag them: "Do Not Use."
7. Materials Handling:
- a. Get help and work in teams to move equipment and materials.
 - b. Use proper lifting techniques.
 - c. Keep back straight, bend at your knees and lift with your legs.
 - d. Do not attempt to lift more than 50 pounds.
 - e. Use material carts to help move equipment and materials around the job site.
 - f. Place materials as close to where they will be needed as possible and without introducing a new safety hazard.
8. Slips/Trips/Falls:
- a. Be aware of drop offs in floors.
 - b. Be aware of hazardous floor conditions.
 - c. Be aware of any tripping hazards that cannot be eliminated or removed and of your surroundings at all times.
 - d. Keep floors clean (good housekeeping).
9. Struck by and caught between:
- a. Wear hardhats, gloves [never wear loose gloves], protective sleeves, eye and ear protection and work boots.
 - b. Mark off the working area with warning tape and signage.

10. Overhead work hazards:

- a. Be aware of overhead obstructions and inspect the overhead area before starting work.
- b. Maintain proper delineation for overhead work.
- c. Wear a hardhat.

11. Electrical hazards:

- a. Ensure that all electrical systems in the work area have been de-energized by a qualified person.
- b. Ensure that all workers in the work area are informed of potential electrical hazards if an electrical system cannot be de-energized.
- c. Ensure that no work is conducted adjacent to live exposed electrical systems without prior inspection and approval from a qualified person.
- d. Ensure that all live electric panels and electric wiring and/or conductors in the work area are identified and that proper precautions (such as demarcating the area) are taken.
- e. Check the area for standing water and correct if necessary.

Duct Installation – Step 6 - Insulating the Duct

Primary Task Involved:

- Using a step ladder to safely install a piece of duct insulation

Hazard Controls

1. General safety:
 - a. PPE must be worn at all times (eye and ear protection, gloves [never wear loose gloves], hardhat, protective sleeves and work boots).
 - b. Ensure work area is clean to prevent tripping hazards.
 - c. Identify, protect and modify sharp edges if necessary.
 - d. Communicate operations with all company workers and other trades working in the area.
2. Ladder safety:
 - a. Read and follow all labels and markings on the ladder.
 - b. Avoid electrical hazards! Look for overhead power lines before handling a ladder. Avoid using a metal ladder near power lines or exposed energized electrical equipment.
 - c. Always inspect the ladder prior to using it according to OSHA and manufacturer requirements. If the ladder is damaged, it must be removed from service and tagged until repaired or discarded.
 - d. Ladders must be free of any slippery material on the rungs, steps or feet.
 - e. Be sure both spreader bars on a step ladder are in the locked position.
 - f. Always maintain a three point (two hands and a foot, or two feet and a hand) contact on the ladder when climbing.
 - g. Keep your body near the middle of the step and always face the ladder while climbing.
 - h. Only use ladders and appropriate accessories (ladder levelers, jacks or hooks) for their designed purposes.
 - i. Do not use a self-supporting ladder (e.g., step ladder) as a single ladder or in a partially closed position.
 - j. Use a ladder only on a stable and level surface, unless it has been secured (top or bottom) to prevent displacement.
 - k. Do not place a ladder on boxes, barrels or other unstable bases to obtain additional height.
 - l. Do not move or shift a ladder while a person or equipment is on the ladder.
 - m. An extension or straight ladder used to access an elevated surface must extend at least 3 feet above the point of support.
 - n. Do not stand on the three top rungs of a straight, single or extension ladder or the top two steps of a step ladder.
 - o. The proper angle for setting up a straight ladder is to place its base a quarter of the working length of the ladder from the wall or other vertical surface.
 - p. A ladder placed in any location where it can be displaced by other work activities must be secured to prevent displacement or a barricade must be erected to keep traffic away from the ladder.
 - q. Be sure that all locks on an extension ladder are properly engaged.
 - r. Do not exceed the maximum load rating of a ladder. Know the ladder's load rating and the weight it is supporting, including the weight of any tools or equipment.
3. Power and manual hand tool use:
 - a. Keep all tools in good condition with regular maintenance.
 - b. Use the right tool for the job.
 - c. Examine each tool for damage before use and do not use damaged tools.
 - d. Operate tools according to the manufacturers' instructions.
 - e. PPE must be worn at all times (safety glasses, gloves [never wear loose gloves], protective sleeves and work boots).

4. Slips/Trips/Falls:
 - a. Be aware of drop offs in floors.
 - b. Be aware of hazardous floor conditions.
 - c. Be aware of any tripping hazards that cannot be eliminated or removed and of your surroundings at all times.
 - d. Keep floors clean (good housekeeping).
5. Struck by and caught between:
 - a. Wear hardhats, gloves [never wear loose gloves], protective sleeves, eye and ear protection and work boots.
 - b. Mark off the working area with warning tape and signage.
6. Overhead work hazards:
 - a. Be aware of overhead obstructions and inspect the overhead area before starting work.
 - b. Maintain proper delineation for overhead work.
 - c. Wear a hardhat.
7. Electrical hazards:
 - a. Ensure that all electrical systems in the work area have been de-energized by a qualified person.
 - b. Ensure that all workers in the work area are informed of potential electrical hazards if an electrical system cannot be de-energized.
 - c. Ensure that no work is conducted adjacent to live exposed electrical systems without prior inspection and approval from a qualified person.
 - d. Ensure that all live electric panels and electric wiring and/or conductors in the work area are identified and that proper precautions (such as demarcating the area) are taken.
 - e. Check the area for standing water and correct if necessary.