

Worksite: \_\_\_\_\_ Instructor: \_\_\_\_\_ Date/Time: \_\_\_\_\_

### Topic C426: Lift-Slab Operations

**Introduction:** A Lift-slab operation is a construction process that raises floor or roof structures that are fabricated on site, to their final positions using jacks/lifting units. The method of performing a lift must be designed and planned by a registered professional engineer who has experience in lift-slab construction. These plans and designs are used by the contractor to perform the lift operation, and include detailed instructions and sketches indicating the prescribed method of erection. Following are OSHA requirements for lift-slab construction:

- Ensure that all personnel involved in lift-slab construction operations are properly trained in safe techniques and procedures.
- Jacks/lifting units must be marked to indicate their rated capacity (at least 2 ½ times the load being lifted) as established by the manufacturer, and must not be loaded beyond their rated capacity. They must be designed so that they will not lift, or continue to lift, if they are loaded beyond their rated capacity.
- Jacking equipment should be in good repair, including any load bearing component used to carry out the lifting operation. Such equipment includes: threaded rods, lifting attachments, lifting nuts, hook-up collars, T-caps, shear heads, columns, and footings.
- Jacks/lifting units must have a safety device installed that will allow them to support the load in any position in case of a malfunction.
- Jacking operations must be synchronized to ensure even and uniform lifting of the slab. During lifting, all points where the slab is supported must be kept within ½ inch of level. If leveling is automatically controlled, the lift must stop the operation when the ½ inch tolerance is exceeded, or there is a jacking (lifting) system malfunction.
- If leveling is done by manual controls, the controls must be in a centrally located and attended by a competent person during the lift. The competent person must be experienced in lifting operations and with the lifting equipment.
- The maximum number of manually controlled jacks/lifting units on one slab must be limited to a number that will allow the operator to maintain the slab level within the ½ inch tolerance. In no case may the number of jacks exceed 14 units.
- No employees, except those essential to the jacking operation, are allowed in the building/structure while the operation is in progress unless the building/structure has been reinforced to ensure its integrity during erection. The engineer must ensure that the structure will remain stable in the event of a loss of support at any jacking location. One way to meet this requirement is for the employer to ensure that continuous bottom steel is provided in every slab and in both directions through every wall or column head area.
- Under no circumstances is any employee, not essential to the lift, permitted beneath a slab while it is being lifted.
- A jacking operation begins when a slab, or group of slabs, is lifted and ends when such slabs are secured (with either temporary connections or permanent connections).
- When making temporary connections to support slabs, wedges must be secured by tack welding, or an equivalent method of securing the wedges to prevent them from falling out of position. Lifting rods may not be released until the wedges at that column have been secured.
- All welding on temporary and permanent connections must be performed by a certified welder who is familiar with the welding requirements specified in the plans.
- The transfer of a load from the jacks/lifting units to building columns may not be done until the welds on the column shear plates (weld blocks) are cooled to air temperature.
- Jacks/lifting units must be securely attached to building columns so that they do not become dislodged or dislocated.
- Equipment must be designed and installed to prevent the lifting rods from slipping out of position, or the employer must use other measures such as the use of locking or blocking devices, to provide positive connections between the lifting rods and attachments, and will prevent components from disengaging during lifting operations.

**NOTE:** In addition to the above requirements, no construction loads may be placed on a lift-slab unit or part of the structure unless it is determined based on information from a qualified structural design person, that it is capable of supporting the loads.

**Conclusion:** Due to the number and severity of hazards that exist in lift-slab work, it is essential that you utilize these guidelines to remain safe during lifting operations.

**Employee Attendance:** (Names or signatures of personnel who are attending this meeting)

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*These guidelines do not supersede local, state, or federal regulations and must not be construed as a substitute for, or legal interpretation of, any OSHA regulations.*