

PROGRAM DIRECTIVE

Program Directive A-162
Issued August 15, 1991
Revised June 26, 2001

SUBJECT: Lift-Slab Construction Operations

**AFFECTED CODES/
DIRECTIVES:** OAR 437-003-1926.705 (29 CFR 1926.705)

PURPOSE: This instruction establishes policies and provides clarification to ensure uniform enforcement of the Lift-Slab Construction Operations Standard.

BACKGROUND: The standard for Lift-Slab Construction Operations, 29 CFR 1926.705, was adopted by OR-OSHA on March 18, 1991. All portions of the standard are effective on April 15, 1991.

1. A tragic occurrence on April 23, 1987, at Bridgeport, Connecticut, resulted in the death of 28 workers and injuries to many others. The workers were in the act of erecting a building using the lift-slab method of construction. The collapse resulted in the highest death toll from a construction-related activity in the United States since the 51 deaths in 1978 attributed to the cooling tower collapse at Willow Island, West Virginia.
2. The knowledge derived from the investigations of the Connecticut collapse mandated that ongoing revisions to the lift-slab standard be accomplished.
3. The revised standard reflects the contributions of the National Institute of Standards and Technology (NIST) formerly the National Bureau of Standards (NBS), the Advisory Committee on Construction Safety and Health (ACCSH), and the various industry experts who participated in the rulemaking activity.

ACTION: Inspection Guidelines. The standard provides requirements for the safe conduct of lift-slab construction operations.

1. The compliance officer shall verify that the lift-slab operations in progress were designed and planned by a Registered Professional Engineer (R.P.E.) experienced in lift-slab construction and that the R.P.E. has provided detailed instructions and sketches prescribing

the method of construction. The name of the R.P.E. shall be obtained from the employer's plans (on site) along with the R.P.E.'s registration number which shall be verified from the Field Office. (Verification can be obtained from the State Professional Engineers Register and shall be retained at the Central Files for future reference.)

2. The compliance officer shall determine that plans, designs and methods provided by the R.P.E. for the erection of the structure and the provisions made to ensure the lateral stability of the building/ structure are being implemented. Any observed deviations from the plans and designs shall be noted in the inspection case file.
3. In the event that the requirements described in either B.1 or B.2 are not met, a citation of OAR 437-003-1926.705(a) shall be issued.
4. The jacks and the jacking operations shall comply, at a minimum, with the requirements of OAR 437-003-1926 .705(b) through (j). Citations shall be issued for deficient equipment or procedures.
5. No employee, except those essential to the jacking operations, is permitted in the building/structure during jacking operations, unless the building has been sufficiently reinforced to ensure integrity during erection.
 - a. Essential employees include, but are not limited to: welders, helpers, troubleshooters and supervisor(s) performing essential functions related to the jacking/lifting and slab securing operations.
 - b. Non-essential employees are prohibited from being anywhere within the building or structure when any floor slab is being jacked/lifted. Any slab suspended by one or more jacks is considered to be in the process of being lifted.
 - c. Specific buildings/structures sufficiently reinforced to ensure integrity must be verified by a R.P.E. other than the one who designed and planned the lifting operations. That R.P.E. must have determined (from the implementation of the plans) that, if there is a failure of any one jacking unit, the structure as a whole will remain stable.
 - d. In the event that non-essential employees are observed within the building or structure during lifting operations and the employer has not obtained the R.P.E.'s verification of the structural integrity discussed at B.5.c., citations for

OAR 437-003-1926.705(k)(1) and (k)(2) shall be issued.

- e. In the event that the construction employer claims to have complied with the Appendix to OAR 437-003-1926.705, the compliance officer shall obtain verification of such compliance from the employer including the identity and registration number of the reviewing R.P.E. and shall record in the case file the drawing number(s), including the title(s), date(s), and current change letter or number, which presents the precautions taken to ensure the general structural integrity of the slabs during the construction phase.
 - f. ANSI A58.1-1982, Section 1.3, states: "Buildings and structural systems shall possess general structural integrity, which is the quality of being able to sustain local damage with the structure as a whole remaining stable and not being damaged to an extent disproportionate to the original local damage."
6. The compliance officer shall verify that the requirements of OAR 437-003-1926.705(l) through (p) are accomplished and/or complied with.

Definition. The discussion in the Appendix of the standard requires a further clarification of terms used in the standard.

- 1. Bottom steel/integrity steel means the installation of additional reinforcement such as a grid of rebar steel in the poured slabs near the lower portion of the slab specifically to maintain structural integrity should a failure of a jacking unit occur.
- 2. Catenary action means that the slab, acting as a beam between columns, will be capable of reacting/ transferring the load, created by the loss of a single supporting lift jack or lifting unit to subsequent lifting units, without catastrophic failure.

**EFFECTIVE
DATE:**

This directive is effective immediately and will remain in effect until cancelled or superseded.