Oregon OSHA - Changes to Division 3/Q, Construction/Concrete and Masonry Construction
Admin. Order 1-2003, filed January 30, 2003, effective April 30, 2003

This new rule is **ADDED** following 1926.700.

437-003-0017 Additional Definitions to Concrete and Masonry Construction.

Competent person means one who is capable of identifying 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.

Deadman is a large weight of sufficient mass used to anchor the base of a brace to a masonry wall.

Grout lift is an increment of grout height within the total grout pour.

Grout pour is the total height of a masonry wall to be grouted prior to the erection of additional masonry. A grout pour can consist of one or more grout lifts.

High wind area is where construction activity continues when winds are expected to exceed 35 mph on a regular basis.

Protected area is a location at a jobsite that is not exposed to winds, such as basements and interior areas.

Qualified person means one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated the ability to solve or resolve problems relating to the subject matter, the work, or the project.

Running bond (half bond) is a bond pattern in which block are placed half way over units directly below creating a staggered look.

Safe location is an area at a jobsite that employees can take refuge in order to

avoid hazardous conditions.

Stack bond is a bond pattern in which blocks are stacked directly over each other (not lapped longitudinally) creating continuous joints both vertically and horizontally.

Straight coil loop insert is a wall insert that loops around the structural rebar and is suitable for the attachment of braces in a structural masonry wall. Minimum size of a coil loop insert is 3/4 inch.

Structural rebar is rebar that extends full length or height and can be spliced per required lap.

Stat. Auth.: ORS 654.025(2) and 656.726(4).
Stats. Implemented: ORS 654.001 through 654.295.
History: OR-OSHA Admin. Order 1-2003, f.1/30/03, ef. 4/30/03.

1926.706 REQUIREMENTS FOR MASONRY CONSTRUCTION

(a) A limited access zone shall be established whenever a masonry wall is being constructed. The limited access zone shall conform to the following:

(1) The limited access zone shall be established prior to the start of construction of the wall.

~~(2) The limited access zone shall be equal to the height of the wall to be constructed plus four feet, and shall run the entire length of the wall.~~

437-003-0706 Protection of Employees On or Near Masonry Walls.

(1) Nonreinforced Masonry Walls. The limited access zone for a masonry wall that is not reinforced and braced in accordance with 437-003-0706(3) must run the entire length of the wall, and extend away from the wall a distance equal to the height of the wall plus four feet.

(3) The limited access zone shall be established on the side of the wall which will be unscaffolded.

(4) The limited access zone shall be restricted to entry by employees actively engaged in constructing the wall. No other employees shall be permitted to enter the zone.

~~(5) The limited access zone shall remain in place until the wall is adequately supported to prevent overturning and to prevent collapse unless the height of wall is over eight feet, in which case, the limited access zone shall remain in place until the requirements of paragraph (b) of this section have been met.~~

(2) Limited Access Zone for Masonry Walls. The limited access zone shall remain in place until the wall is adequately supported to prevent overturning and to prevent collapse unless the height of wall is over eight feet, in which case, the limited access zone shall remain in place until the requirements of 437-003-0706(3) of this section have been met.

~~(b) All masonry walls over eight feet in height shall be adequately braced to prevent overturning and to prevent collapse unless the wall is adequately supported so that it will not overturn or collapse. The bracing shall remain in place until permanent supporting elements of the structure are in place.~~

(3) Bracing for Masonry Walls. All masonry walls over eight feet in height must be adequately braced to prevent overturning and collapse unless the wall is adequately supported. Bracing must remain in place until permanent supporting elements of the structure are in place. The bracing system must be designed by a registered professional engineer, or follow the requirements of 437-003-0706(4).

(4) Protection of Employees On or Near Braced Masonry Walls.

(a) A limited access zone must be established when constructing a reinforced masonry wall.

(A) A limited access zone must be established before construction of the wall begins.

(B) A limited access zone must run the entire length of the wall, and extend away from the wall a distance equal to the height of the grout pour plus four feet.

(C) A limited access zone must be located on the side of the wall not scaffolded.

(D) All activity within the limited access zone is under the direction and control of a competent person.

(E) Entry into the limited access zone is limited to employees actively engaged in construction of the wall. No other employees are allowed to enter the zone without permission from a competent person.

(F) A competent person is responsible for monitoring wind speeds. When speeds reach 25 mph all braces must be examined and the site made secure.

(G) When wind speeds reach 35 mph, all employees in the limited access zone and in proximity to the wall under construction must move to a safe location.

(H) The limited access zone must remain in place until any wall over 8 feet in height is adequately braced per 437-003-0706(4)(e) or supported to prevent overturning and to prevent collapse.

(b) During construction of a masonry wall, adequate bracing must be in place to prevent the wall from overturning or collapse. If any of these conditions exist, the bracing is not needed:

(A) The wall is 8 feet or less in height.

(B) A qualified person demonstrates that modifications per 437-003-0706(4)(e) are adequate when addressing these or other inherently more stable conditions:

(i) Shafts;

(ii) Infills in existing walls;

(iii) Construction in protected areas;

(iv) Changes in wall thickness;

(v) Masonry pilasters; or

(vi) Corner returns, intersecting walls.

(C) Permanent supporting elements of the structure are in place.

(c) Design bracing systems according to 437-003-0706(4)(d) and (e) and install them under the direction of a competent person.

(d) A registered professional engineer must design bracing when there is one or more of the following:

(A) The wall is more than 24 feet in height;

(B) the minimum requirements of 437-003-0706(4)(e)(A) or (B) are not met;

(C) stack bond; or

(D) high wind areas.

(e) A structural masonry wall bracing system must be designed by a qualified person. The design and installation of the bracing system must comply with the following requirements:

(A) Minimum design requirements, including minimum requirements per chapter 26 of the Uniform Building Code, for use in Options 1 or 2:

Note: This information may be included in the blueprints.

(i) F'm 1500 psi, concrete block laid in running bond pattern.

(ii) Type S mortar.

(iii) 60 ksi rebar, with minimum placement of 2 - #4 horizontally and 1 - #5 vertically at 48 inches on center.

(iv) 2,000 psi grout required at reinforced areas.

(v) Straight coil loop insert with coil bolts (safe working load = 2250 lb.).

(vi) Metal concrete tilt braces.

(vii) Wall height not to exceed 24 feet.

(B) Minimum field requirements for use in Options 1 or 2:

(i) The horizontal spacing distance between two or more braces must not exceed 20 feet;

(ii) The horizontal bracing distance from an end of wall or control joint must not exceed 10 feet;

(iii) A qualified person must determine if walls less than 20

feet in length require two braces;

(iv) The connection of the brace to the masonry wall must consist of a minimum 3/4 inch straight coil loop insert, placed around a structural rebar located at an ungrouted bond beam;

(v) At least one structural rebar must be located between the attached bar and face shell that receives brace (see figure 1);

(vi) The base connection of brace must consist of a minimum 3/4 inch anchor attached to either a 4 inch minimum thick slab or deadman;

(vii) The brace angle must not be greater than 60 degrees from the horizontal;

(viii) The slab or deadman connection must resist a minimum 3,400 lbs. pullout force.

(C) Option 1 - Bracing structural masonry walls when grout pours are limited to 5 feet 4 inches or less in height.

(i) A maximum 8 feet of initial wall height may be laid with minimum reinforcement and then grouted.

(ii) A maximum 5 feet, 4 inches of additional wall may be laid with reinforcement located to receive straight coil loop inserts at the bond beam location.

(iii) The first brace must be connected to the wall insert and attached to slab or deadman at base of wall.

(iv) The reinforced section must be grouted.

(v) Additional wall may be constructed following steps 437-003-0706(4)(e)(C)(ii) through (iv).

(D) Option 2 - Bracing structural masonry walls with grout pours up to 8 feet in height.

(i) A maximum 8 feet of the initial wall height may be laid with minimum reinforcement and then grouted.

(ii) A maximum 5 feet, 4 inches of additional wall may be laid with reinforcement located to receive straight coil loop inserts at a bond beam location.

(iii) Braces must be connected to coil loop inserts in the wall and attached at the base to either a slab or deadman.

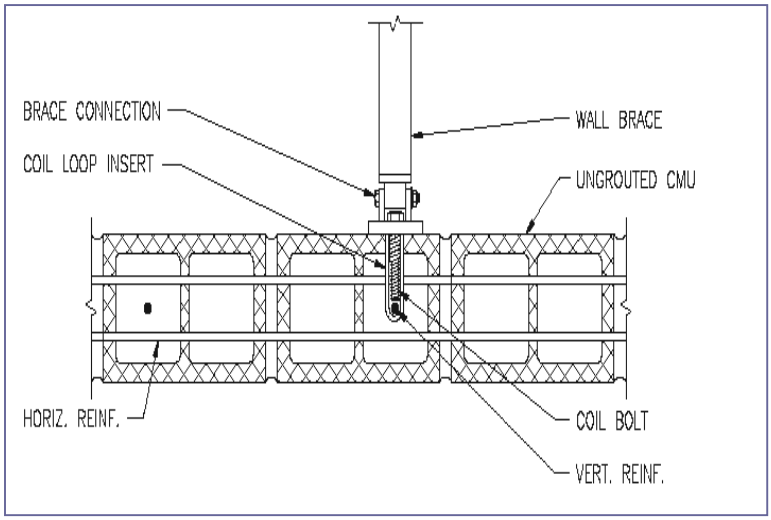
(iv) The wall may be laid and reinforced up to the grout pour.

(v) No more than 4 feet of ungrouted wall above the brace point is permitted.

(vi) Grouting may be done after each section of wall is adequately braced.

(vii) A maximum of 8 feet of additional wall height may be constructed and braced following steps 437-003-0706(4)(e)(D)(ii) through (iv).

Figure 1.



Straight coil loop insert attached to rebar with perpendicular rebar between it and face shell to receive brace.

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