

all openings spaced not more than 3 feet apart around the perimeter and within 12 inches of the opening.

(b) *Cross-wire ties.* Cross wires (at least #9 gauge or larger) of masonry joint reinforcement shall be spaced to provide equivalent strength and stiffness across the cavity space to that provided by  $\frac{1}{8}$  inch Z shaped ties for each  $4\frac{1}{2}$  square feet of wall area.

(c) *Installation.* Ties specified above shall be installed in the first mortar joint below floor and roof bearing courses.

(4) **CAVITY DRAIN.** In exterior walls of cavity construction, suitable flashing shall be installed at the bottom of the cavity so as to drain outwardly any water which penetrates the facing. Open vertical joints, or weep holes, shall be provided every 2 to 3 feet horizontally in the facing above the flashing.

(5) **STACK BOND.** Masonry joint reinforcement shall conform to the requirements as specified in this section.

(6) **CAVITY WALLS BELOW GRADE.** Cavity walls shall not be built below grade unless designed to resist the lateral pressure due to backfilling operations and earth pressure.

**History:** 1-2-56; r. and recr. Register, October, 1967, No. 142, eff. 11-1-67.

**Ind 53.12 Bonding and anchoring stone and cast stone veneers.** (1) For bearing walls, stone shall be bonded to the backing every 16 inches of wall height with bond courses at least 4 inches in height, and the width of bed joint used to effect the masonry bond shall be at least 4 inches.

(2) For non-bearing walls, individual stones shall be anchored to the supporting framework and dowelled to each other at all horizontal joints, and anchored to the backing at all horizontal joints and at vertical joints so that one anchor is provided for every 6 square feet of wall surface. All anchors shall be not less than  $\frac{1}{4}$  square inch in cross section and made of wrought iron galvanized after forming, or of commercial bronze.

(3) The backing of all stone or cast stone bearing or non-bearing walls shall be of brick conforming to the requirements of section Ind 53.05 or other solid material weighing at least 130 pounds per cubic foot except where the stone facing is not more than 4 inches in thickness, the backing may be of hollow masonry units conforming to the requirements of section Ind 53.06, or other similar non-corrosive material.

**History:** 1-2-56; r. and recr. Register, September, 1959, No. 45, eff. 10-1-59.

**NOTICE:** Section Ind 53.13 following is repealed effective January 1, 1973:

**Ind 53.13 Parapet walls.** (1) Parapet walls not less than 8 inches in thickness and 2 feet in height shall be provided on all exterior walls of masonry or concrete, where such walls connect with roofs other than roofs that are of incombustible construction throughout; but this section shall not apply:

(a) To buildings where frame construction would be permitted under the provisions of this code.

- (b) To walls which face streets, or alleys.
- (c) To walls where not less than 10 feet of vacant space is maintained between the wall and the boundary line between premises.
- (d) To walls which are not less than 10 feet from other buildings on the same premises.

(2) All parapet walls shall be properly coped with incombustible, weatherproof material.

(3) Parapet walls not less than 8 inches in thickness and 3 feet in height shall be provided on all division and party walls of masonry or concrete where such walls connect with roofs of other than 2-hour fire-resistive construction, or better.

**History:** 1-2-56; am. Register, December, 1962, No. 84, eff. 1-1-63; r. Register, June, 1972, No. 198, eff. 1-1-73.

**Ind 53.14 Concrete requirements.** (1) **ADOPTED STANDARDS.** The following American Concrete Institute standards are adopted as part of the building, heating, ventilating and air conditioning code issued by the Wisconsin department of industry, labor and human relations. See section Ind 51.26 for the ACI designation which refers to this product or method.

- (a) Building code requirements for reinforced concrete.
- (b) Minimum standard requirements for precast concrete floor and roof units.
- (c) Minimum requirements for thin-section precast concrete construction.

(2) **RECOMMENDED STANDARDS:** The following standards which are a part of the standards stated in (1) are recognized by the Wisconsin department of industry, labor and human relations as being good engineering practice but are not included as part of the building, heating, ventilating and air conditioning code issued by the Wisconsin department of industry, labor and human relations.

- (a) Recommended practice for evaluation of compression tests results of field concrete.
- (b) Recommended practice for cold weather concreting.
- (c) Recommended practice for hot weather concreting.
- (d) Recommended practice for selecting proportions for structural lightweight concrete.
- (e) Manual of standard practice for detailing reinforced concrete structures.
- (f) Recommended practices for welding reinforced steel, metal inserts and connections in reinforced concrete construction.
- (g) Arc and gas welding in building construction.
- (h) Mild steel arc-welding electrodes.
- (i) Standard qualification procedure.

**History:** 1-2-56; r. and recr. Register, October, 1967, No. 142, eff. 11-1-67.

**Ind 53.15 History:** 1-2-56; r. Register, October, 1967, No. 142, eff. 11-1-67.

**Ind 53.15 Reinforced gypsum concrete.** (1) **MATERIALS.** (a) The term "gypsum" as used in this chapter shall mean calcined gypsum

Register, June, 1972, No. 198  
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and air conditioning code