

Chicago Masonry Contractors Licensure Examination Information

This candidate guide should help you prepare for the Chicago Masonry Contractors licensure examinations. Part I contains general information about testing procedures. Part II describes the content of these examinations and recommends study materials. Part III includes sample questions to help you prepare for these tests.

Part I General Information

PURPOSE OF THE EXAMINATIONS

This examination is required for professional licensure of masonry contractors in the City of Chicago. You must pass the B Card examination to be licensed as a Brick Masonry Contractor. You must pass the C Card examination to be licensed as a Concrete Masonry Contractor. Any candidate who passes both examinations may qualify for the Masonry Contractor A Card.

TEST VALIDITY & TEST LENGTH

Each test is timed to be three hours in length. All test questions have been subjected to strict psychometric controls and reflect standards and practices as described by masonry contractors who are licensed in Chicago.

STUDY MATERIALS

Study materials for this examination are described in Part II of this candidate guide. Each may be purchased directly from the publishers identified in Part II; some also may be available from Prairie Avenue Bookshop, 418 S. Wabash Avenue, Chicago 60605 (312-922-8311).

MISSING AN EXAMINATION

There are no "make-up" examinations. You may re-register for the next examination date. **THERE ARE NO REFUNDS.**

WHAT YOU MAY BRING TO THE EXAMINATION

Each candidate should bring two (2) sharpened Number 2 black lead pencils and a non-programmable, non-printing, solar- or battery-powered portable or pocket calculator. No power source will be available for calculators at the test site. Candidates will not be permitted to use any books, notes or other reference materials during these examinations.

**SUCCESS/
LICENSURE**

Candidates who score 70 or higher will receive a PASS notice and an application for licensure.

FAILURE

Candidates who score below 70 will receive a FAILURE notice and an application for re-examination. Candidates are encouraged to retake the examination; many candidates who initially fail such an exam pass on subsequent attempts.

Part II Test Content and Recommended Study Materials

Masonry contractors must demonstrate that they are familiar with safe practices and procedures in their profession. Content areas and their relative importance in this test are outlined below.

B Card Brick Masonry Contractors

I.	Masonry Materials	17% of Examination
II.	Masonry Installations	25% of Examination
III.	Masonry Tools, Equipment & Fasteners	14% of Examination
IV.	Quantity Surveying & Estimating	11% of Examination
V.	Business Math	11% of Examination
VI.	Safety Regulations	23% of Examination

C Card Concrete Masonry Contractors

I.	Concrete Materials	14% of Examination
II.	Concrete Methods & Installations	18% of Examination
III.	Reinforcing & Installing Steel	20% of Examination
IV.	Concrete Tools, Equipment & Fasteners	14% of Examination
V.	Quantity Surveying & Estimating	12% of Examination
VI.	Formwork	11% of Examination
VI.	Safety, Inspection & Quality Control	12% of Examination

Recommended Study Materials

References for both B and C Card Examinations

1. Kreh, Richard T. *Masonry Skills*, 7th Edition (2015)
Publisher: Cengage Website: www.cengage.com/masonrystills
2. Panarese, W. C., Kosmatka, S.H. & Randall, F.A. Jr. *Concrete Masonry Handbook for Architects, Engineers and Builders*, 6th Edition, 2008.
Publisher: Portland Cement Association Website: www.cement.org
3. *Code of Federal Regulations, Title 29, Part 1926 (OSHA)*.
Publisher: U.S. Government Printing Office Phone: (312) 353-5133
OSHA/U.S. Department of Labor Website: www.osha-slc.gov

Additional References for C Card Examination

1. *ASTM C94/C94M, Standard Specification for Ready-Mixed Concrete*.
Publisher: American Society for Testing Materials (ASTM)
100 Barr Harbor Drive, West Conshohocken, PA 19428-2959
Phone: (610) 832-9585 Website: www.astm.org
2. Johnston, D.W. *Formwork for Concrete*, 8th Edition, 2014.
Publisher: American Concrete Institute Website: www.aci-int.org
3. Wilson, M and Tennis, P. *Design and Control of Concrete Mixtures*, 17th edition. 2021.
Publisher: Portland Cement Association Website: www.cement.org
4. Collins, T.C., Panarese, W.C., and Bradley, B.J. *Concrete Finishers's Guide*, 2006.
Publisher: Portland Cement Association Website: www.cement.org
5. *Placing Reinforcing Bars*, 10th Edition, 2018.
Publisher: Concrete Reinforcing Steel Institute Phone: (800) 465-2774
933 North Plum Grove Road, Schaumburg, IL 60173
Website: www.crsi.org

Part III Sample Tests

All questions on these examinations are multiple choice with one correct answer and three incorrect choices. **For these sample tests only, answers and references are provided at the end of each sample test to help you prepare for these examinations.**

B Card Sample Test

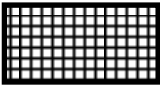
1. In masonry construction, the absorption rate of bricks is important to know because it
 - A. influences the size of bricks in manufacture.
 - B. affects the time bricks take to set in mortar.
 - C. makes bricks less resistant to weather and erosion.
 - D. changes the texture of bricks and their mortar joints.

2. When preparing an acid cleanser, workers must always be sure to
 - A. pour the acid into the water.
 - B. pour water slowly into the acid.
 - C. mix nine parts acid to one part water.
 - D. use a metallic, rust-free container.

3. Which of the following would have the **LEAST** affect in reducing the cracking caused by shrinkage in concrete masonry structures?
 - A. Expansion joints
 - B. Joint reinforcement
 - C. Non-moisture-controlled units
 - D. High-pressure steam curing (autoclaving)

4. Caulking is
 - A. a reinforcing cement used on brick.
 - B. a filler used in cement block cavities.
 - C. an sealant used in masonry control joints.
 - D. an admixture used to improve workability of mortar.

5. The tile hammer should be used to
- A. drive nails or fasteners.
 - B. chisel off excess mortar.
 - C. create squared-off joints.
 - D. make a thin cut on bricks.
6. What should an operator do if a masonry saw motor overheats and shuts off, then does not reset after a five-minute wait?
- A. Ask an electrician to check the saw.
 - B. Check the wiring and change the saw blade.
 - C. Wait another five minutes, then reset the saw.
 - D. Reset the motor immediately, then restart the saw.
7. If an 8"x8"x16" concrete block with 3/8" joints is used to build a concrete wall 8' high, how many courses should the mason lay down?
- A. One
 - B. Six
 - C. Twelve
 - D. Sixteen
8. Which of the following best represents common brick in an architectural drawing?
- A. 

C. 
- B. 

D. 
9. If 2610 bricks are laid by six masons in one 7.5-hour, what is the average number of bricks each mason laid per hour?
- A. 55
 - B. 58
 - C. 62
 - D. 66

10. If the nominal dimensions of a concrete block are 8"x8"x16", how many blocks are required to lay one course that is 80' long?
 - A. 50
 - B. 60
 - C. 80
 - D. 100

11. All of the following scaffolding attachments are required by OSHA **EXCEPT**
 - A. brackets.
 - B. toe boards.
 - C. guardrails.
 - D. climbing ladders.

12. When using acid cleaners, workers should wear all of the following **EXCEPT**
 - A. safety goggles.
 - B. rubber galoshes.
 - C. a rubber apron or pants.
 - D. standard length rubber gloves.

B CARD SAMPLE TEST ANSWER KEY

Question	Correct Answer	Reference(s)
1	B	<i>Masonry Skills</i> , 7 th ed., p. 153; <i>Concrete Masonry Handbook</i> , pp. 4, 28
2	A	<i>Masonry Skills</i> , 7 th ed., p. 344; <i>Concrete Masonry Handbook</i> , p. 215
3	C	<i>Concrete Masonry Handbook</i> , p. 99
4	C	<i>Concrete Masonry Handbook</i> , pp. 101-3
5	D	<i>Masonry Skills</i> , 7 th ed., p. 22
6	A	<i>Masonry Skills</i> , 7 th ed., p. 236
7	C	<i>Masonry Skills</i> , 7 th ed., p. 214
8	D	<i>Masonry Skills</i> , 7 th ed., p. 501
9	B	<i>Masonry Skills</i> , 7 th ed., pp. 221-224
10	B	<i>Masonry Skills</i> , 7 th ed., p. 227
11	A	OSHA §1926.451(a); <i>Masonry Skills</i> , 7 th ed., p. 320
12	D	<i>Masonry Skills</i> , 7 th ed., p. 353

C Card Sample Test

1. The water-cementitious material ratio in concrete is
 - A. the mass of the water divided by the mass of the cementitious material.
 - B. the volume of the water divided by the weight of the cementitious material.
 - C. the volume of the water divided by the durability coefficient of the cementitious material.
 - D. the weight of the water divided by the compression strength of the cementitious material.

2. All of the following statements about measuring the temperature of concrete are true **EXCEPT**
 - A. that the thermometer should measure accurately within $\pm 1^{\circ}\text{F}$.
 - B. that the thermometer should remain in the sample for at least two minutes.
 - C. that at least 3" of concrete should surround the sensing portion of the thermometer.
 - D. that the measurement is valid if completed within 45 minutes after obtaining the sample.

3. According to OSHA regulations, which of the following is most important in determining when forms for cast-in-place concrete should be removed?
 - A. When it matches the appearance and color of hardened concrete
 - B. After testing to determine compressive strength of the concrete
 - C. A minimum of seven days after pouring the concrete
 - D. A minimum of three days after pouring the concrete

4. Which of the following de-icers is most likely to prevent damage to concrete?
 - A. Sodium chloride
 - B. Ammonium sulfate
 - C. Ammonium nitrate
 - D. Concentrated calcium chloride

5. Which of the following best describes the use of steel reinforcement in concrete?
 - A. Steel reinforcement is used to harden concrete.
 - B. Steel reinforcement gives shape and definition to concrete.
 - C. Steel reinforcement resists tension and supports the concrete.
 - D. Steel reinforcement gauges the compression strength of concrete.

6. Which of the following procedures can minimize the need for threading when placing bars in beams and girders?
 - A. Start at the top of the highest beam and work down.
 - B. Start at the bottom of the lowest beam and work up.
 - C. Start at the top of the lowest beam and work up.
 - D. Start at the bottom of the highest beam and work down.

7. If a water supply is not available onsite, tools used in placing concrete should be cleaned
 - A. with forced air.
 - B. with muriatic acid.
 - C. with water from the concrete truck.
 - D. by soaking tools in a solvent.

8. To safely hoist a bundle of bars that are thirty feet or longer, the crane operator should
 - A. use a spreader bar at least half the length of the bars.
 - B. use a spreader bar at least equal to the length of the bars.
 - C. use additional safety hooks while the bars are being lifted.
 - D. use the wire strapping around the bars to pick up the load.

9. When steel reinforcement is used for footing, it should
 - A. be placed near the top of the form.
 - B. be used after all the concrete is poured.
 - C. be in place before any concrete is poured.
 - D. be laid after about four inches of concrete is placed.

10. How much concrete is needed for a footing that consists of 470 total lineal feet and is 8" deep and 16" wide if you allow 5% for waste?
 - A. 20.9 cubic yards
 - B. 16.3 cubic yards
 - C. 235 cubic feet
 - D. 470 cubic feet

11. When driving a motor vehicle that has an obstructed rear view and no reverse signal alarm, the driver should back up only
 - A. if the driver can see clearly in both side mirrors.
 - B. after walking around the vehicle to check the area.
 - C. when an observer behind the vehicle signals that it is safe to do so.
 - D. when an observer on the passenger side signals that it is safe to do so.

12. Which of the following represents an unsafe practice in building scaffolds?
 - A. Wood poles used as a foundation for a scaffold are spliced
 - B. Scaffold planks extend about one foot over their end supports
 - C. A scaffold is constructed to withstand four times the intended load
 - D. A scaffold is supported on one end by four stacked concrete blocks

C CARD SAMPLE TEST ANSWER KEY

Question	Correct Answer	Reference(s)
1	A	<i>Design and Control of Concrete Mixtures</i> , 17 th ed., pp 3, 123
2	D	<i>Design and Control of Concrete Mixtures</i> , 17 th ed., p 431
3	B	OSHA §1926.703(e)(3)
4	A	<i>Design and Control of Concrete Mixtures</i> , 17 th ed., pp. 216-18 <i>Cement Mason's Guide</i> , p.4
5	C	<i>Placing Reinforcing Bars</i> , 10 th ed., pp. 6-1, 2
6	B	<i>Placing Reinforcing Bars</i> , 10 th ed., p. 13-1
7	C	<i>Masonry Skills</i> , 7 th ed., p. 454
8	A	<i>Placing Reinforcing Bars</i> , 10 th ed., p. 8-7
9	D	<i>Masonry Skills</i> , 7 th ed., p. 468
10	B	<i>Masonry Skills</i> , 7 th ed., pp. 220-21
11	C	OSHA §1926.925(a)(3)
12	D	OSHA §1926.451(a, b)