

# STATE OF MICHIGAN

## TILE AND MARBLE

*Business and Law examination specifications and suggested study materials are contained in the Candidate Information Bulletin.*

# of Questions	Passing % Score	Passing Raw Score
50	72	36

	TOPIC INFORMATION	# OF ITEMS
<b>1.</b>	<b>GENERAL KNOWLEDGE</b> a. Understand Uses and Properties of Specific Tile Types. <i>Examples: Ceramic Tile, Quarry Tile, Paver Tile, Glass Tile and Mosaics, Vinyl Composite Tile, Veneer Tile, Cement-bodied Tile, Terrazzo Tile, Plastic Tile, Special-purpose Tile, Metal Tile, and Cut Natural Stone Tile (marble, granite, slate, etc.).</i> b. Select and Utilize Appropriate Tools for Installations c. Select and Prepare Appropriate Adhesive Agents Including Thinsets, Mortars d. Select and Prepare Grouts	
<b>2.</b>	<b>PLAN READING</b> a. Identify Areas to be Tiled Based on Plans b. Estimate Material Needs c. Estimate Material Costs	<b>4</b>
<b>3.</b>	<b>EXTERIOR TILE INSTALLATION</b> a. Evaluate Site to be Tiled to Determine Required Substrate and Surface Preparation b. Select Tile to be Used c. Perform Necessary Surface Preparation d. Ensure Surface is Sufficiently Flat and Even e. Evaluate Expansion Joint Requirements as Needed f. Determine Installation Method to be Used g. Install Tile	<b>4</b>
<b>4.</b>	<b>TILE CUTTING AND DRILLING</b> a. Determine Appropriate Cutting Tool for Material Worked on b. Cut Tile as Needed c. Grind, Hone, Polish Cut Edges as Needed	<b>2</b>
<b>5.</b>	<b>INDOOR TILE INSTALLATION</b> a. Coordinate Installations with Other Trades and their Specific Construction Requirements b. Evaluate Site to be Tiled to Determine Required Substrate and Surface Preparation c. Select Tile to be Used d. Evaluate Subflooring e. Ensure Surface is Sufficiently Flat and Even, and that Adequate Spacing Exists Between Subflooring Sheets	<b>15</b>

	f. Correct Problems with Subflooring g. Determine Installation Method to be Used h. Perform Cement Board Installation i. Perform Sand and Mortar Installation j. Perform Installation of Uncoupling System Installation (such as Ditra) k. Perform Tile Layout l. Lay Tile m. Ensure Adequate Bonding Coverage n. Determine Appropriate Transitions at Doorways, Openings, or Edges o. Ensure Grout Joints are Clean and Clear Prior to Grouting p. Seal Porous Materials as Needed q. Apply Grout r. Apply Caulks as Needed s. Perform Cleanup t. Perform Incidental Carpentry on Floors and Walls u. Perform Water-Sealing as Needed	
<b>6.</b>	<b>SHOWER PANS (INCLUDING SEATS, SHELVES, ACCESSORIES, AND TROUBLESHOOTING)</b> a. Determine the Type of Installation to be Performed b. Perform Framing Work for Installation of Recessed Fixtures, Shelves, etc. c. Build Curb as Required d. Ensure Drains and Traps are in Place e. Install or Repair Subflooring as Needed f. Install Shower Pan g. Install, Secure, and Seal Drain h. Mix Mortar for Shower Floor i. Apply Mud to Shower Floor j. Lay Tile k. Apply Grout l. Apply Caulks	<b>10</b>
<b>7.</b>	<b>SHOWER OR TUB INSTALLATION</b> a. Examine Wall Framing to Ensure Adequate Supports are Present and are Plumb and Level b. Apply Suitable Backer Board for Tile c. Tape and Mud Joints, Corners, and Other Spaces Between Boards d. Lay Tile e. Apply Grout	<b>3</b>



8.	<b>TILE AND MARBLE RESTORATION</b> a. Replace Grout b. Clean Tile c. Recolor Grout d. Marble Restoration	<b>2</b>
9.	<b>SAFETY AND EMPLOYEE PROTECTION</b> a. Understand Responsibility for Providing Personal Protective Equipment (Contractor's Responsibilities) b. Prepare Emergency Action Plans c. Ensure Safety Training is Conducted when Needed d. Ensure Adequate Ventilation is Available for Employees e. Ensure First Aid Kit is Available per MIOSHA Requirements f. Follow MIOSHA Guidelines to Protect Employees and the General Public from Falling-Object Hazards g. Ensure Personal Protective Equipment is Used Correctly h. Install Signs, Signals, and Barricades as Required by MIOSHA i. Use All Tools and Equipment in Accordance with MIOSHA Requirements j. Utilize Ladders in Accordance with MIOSHA Requirements k. Assemble and Utilize Scaffolds in Accordance with MIOSHA Requirements l. Follow MIOSHA Requirements for Work Around Toxic Materials m. Maintain Material Safety Data Sheets (MSDS) n. Provide Fall Protection	<b>6</b>

## Suggested Study Materials

The study materials listed here should be helpful to candidates preparing for the **M&A Contractor** examination.

Except for the Michigan Laws, Rules, Codes and Standards, neither the Department nor PSI endorses any of the materials listed. However, we try to ensure that the references are currently available and consist of recognized industry standards.

If the answer to a specific examination question could differ because of conflicting information contained in the suggested study materials, the legal requirement, such as a law, regulation, board or commission rule, or building code, takes precedence over (overrides) any other reference. If two legal requirements appear to conflict, the Michigan specific law, regulation, board or commission rule, or building code, takes precedence over the national one. Information from the suggested study materials listed here takes precedence over information from all other sources or persons.

This is only a sample of the available reference materials that contain information about the professions. These materials contain neither all of the general trade knowledge required to be competent in any specific area nor all of the information on which you will be tested. Also, please be aware that reference materials may go out of print or be otherwise unavailable.

Please contact a library, community college, currently practicing builder or contractor, Code enforcement agency, or other specialists in the profession for additional information or reference material.

These examinations are **CLOSED BOOK**, so the following reference materials suggested as study resources are not allowed in the examination center.

- *Michigan Occupational Safety and Health Act 154 of 1974 as amended, and Administrative Rules for All Industries*, Michigan Department of Licensing and Regulatory Affairs, MIOSHA Standards Division, P.O. Box 30643, Lansing, MI 48909, (517) 322-1845. Price: Free. All MIOSHA standards may be printed from the MIOSHA web site: [www.michigan.gov/mioshastandards](http://www.michigan.gov/mioshastandards)
- *Builders Guide to Floors*, 1997, Peter Fleming, ISBN: 0-07-021672-X(HC), McGraw-Hill, PO Box 543, Blacklick, OH 43004, (800) 334-7344, [www.books.mcgraw-hill.com](http://www.books.mcgraw-hill.com)
- *Setting Tile*, 1995, John Byrne, ISBN: 1-56158-080-5, The Taunton Press, 63 South Main St., PO Box 5506, Newtown, CT 06470, (203) 426-8171, [www.taunton.com/store/](http://www.taunton.com/store/)
- *Handbook for Ceramic, Glass, and Stone Tile Installation*, 2017, Tile Council of North America, 100 Clemson Research Blvd., Anderson, SC 29625, <https://www.tcnatile.com>
- *ANSI A108/A118/A136.1:2017, American National Standard Specifications for the Installation of Ceramic Tile*, 2017, American National Standards Institute, 1899 L Street NW, Washington, DC 20036, 212-642-4980, <https://webstore.ansi.org>