



**Idaho Division of
Professional-Technical
Education**

PTE #

Masonry Curriculum Guide

Idaho Division of Professional Technical Education
650 West State Street
Boise, ID 83720

2008

Level	Course Title: Masonry I	Hours: 270	% of Time:
	<p><u>Module 1 – Introduction to Masonry</u></p> <ol style="list-style-type: none"> 1. Discuss the history of masonry. 2. Describe modern masonry materials and methods. 3. Explain career ladders and advancement possibilities in masonry work. 4. Describe the skills, attitudes, and abilities needed to work as a mason 5. State the safety precautions that must be practiced at a work site, including the following: <ul style="list-style-type: none"> • Safety practices • Fall-protection procedures • Forklift-safety operations 6. Perform the following basic bricklaying procedures: <ul style="list-style-type: none"> • Mixing of mortar • Laying a mortar bed • Laying bricks 7. Put on eye protection, respiratory protection, and a safety harness. 8. Use the correct procedures for fueling and starting a gasoline powered tool. 		
1	<p><u>Fundamental Theories In Brick Masonry</u></p> <ol style="list-style-type: none"> 1. Possess an appropriate knowledge of the fundamental theories in brick masonry. Demonstrate knowledge of trade terminology. 2. Identify terms used in brick masonry. 3. Incorporate trade terminology into oral communication relating to masonry tasks. 4. Demonstrate knowledge of basic math. 5. Add, subtract, multiply and divide with whole numbers, decimals and fractions. 6. Figure proportions to mix masonry materials according to specifications. 7. Compute percentages to estimate and determine material requirements, work performed, schedules and costs. 8. Express answers relative to the trade. 9. Read blueprints. 10. Read basic drawings and sketches and understand the information contained in them. 11. Know the meanings of basic architectural symbols and abbreviations. 12. Use a builder’s level relative to a benchmark. 		

1	<p><u>Module 2 – Masonry Tools and Equipment</u></p> <ol style="list-style-type: none"> 1. Identify and name the tools used in performing masonry work. 2. Identify and name the equipment used in performing masonry work. 3. Describe how each tool is used. 4. Describe how the equipment is used. 5. Associate trade terms with the appropriate tools and equipment. 6. Demonstrate the correct procedures for assembling and disassembling scaffolding according to federal safety regulations, under the supervision of a competent person. 		
	<p><u>Utilize Hand Tools and Equipment According to Industry Standards</u></p> <ol style="list-style-type: none"> 1. Cut masonry safely around others. 2. Place mortar cautiously in the mortar pan or on the mortar board. 3. Keep tools out of the paths of other people who are working on the job. 4. Handle tools properly. 		
	<p><u>Use Equipment According to Industry Standards</u></p> <ol style="list-style-type: none"> 1. Identify equipment generally used in brick masonry. 2. Correctly use each piece of equipment. 3. Store, maintain and repair all equipment. 4. Inspect, assemble and disassemble rigging and scaffolding properly. 		
	<p><u>Math Skills</u></p> <ol style="list-style-type: none"> 1. Use fractions to solve practical problems. 2. Use proportions and ratios to solve practical problems. 3. Simplify numerical expressions. 4. Solve practical problems involving percents. 5. Measure angles. 6. Find surface area and perimeter of two-dimensional objects. 7. Find volume and surface area of three-dimensional objects. 8. Make predictions using knowledge of probability. 9. Make comparisons, predictions, and inferences using graphs and charts. 10. Solve problems using proportions, formulas and functions. 11. Find slope of a line. 12. Find arc length and the area of a sector. 		
	<p><u>Math Standards</u></p> <ol style="list-style-type: none"> 1. Numbers and Operations 2. Algebra 3. Geometry 4. Measurement 5. Problem Solving 6. Communication 7. Connections 8. Representation 		

	<p><u>Language Arts Skills</u></p> <ol style="list-style-type: none"> 1. Provide information in conversations and in group discussions. 		
	<p><u>Language Arts Standards</u></p> <ol style="list-style-type: none"> 1. Apply a wide range of strategies to comprehend, interpret, evaluate and appreciate texts. They must be able to draw on their prior experience, their interactions with other readers and writers, their knowledge of word meaning and of other tests, their word identification strategies, and their understanding of textual features (e.g., sound-letter correspondence, sentence structure, context, graphics). 2. Adjust their use of spoken, written and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes. 3. Use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge. 4. Use spoken, written, and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion, and the exchange of information). 		
1	<p><u>Science Standards</u></p> <ol style="list-style-type: none"> 1. Understand the structure and properties of matter. 2. Understand the sources and properties of energy. 3. Understand forces and motion. 4. Understand the nature of scientific inquiry. 		
	<p><u>Module 3 – Measurements, Drawings and Specifications</u></p> <ol style="list-style-type: none"> 1. Work with denominate numbers. 2. Read a mason’s measure 3. Convert measurements in the U.S. Customary (English) system into their metric equivalents. 4. Recognize, identify, and calculate areas, circumferences, and volumes of basic geometric shapes. 5. Identify the basic parts of a set of drawings. 6. Discuss the different types of specifications used in the building industry and the sections that pertain to masonry. 7. Utilize measuring tools according to industry standards. 8. Use and maintain a modular ruler and a spacing ruler. 9. Use a 24” and 48” level for plumbing and leveling. 10. Care for and maintenance of a level. 11. Set and use a story pole. 12. Identify and use brick masonry power tools according to industry standards. 13. Demonstrate the specific uses of each power tool. 14. Practice the safety rules for each power tool. 15. Maintain power tools. 16. Set up power tools correctly. 		

1	<p><u>Module 4 Mortar</u></p> <ol style="list-style-type: none"> 1. Name and describe the primary ingredients in mortar and their properties. 2. Arrange masonry materials for efficient use. 3. Place mortar pans properly. 4. Prepare mortar according to industry standards. 5. Follow correct safety practices when mixing mortar. 6. Proportion mortar ingredients for specific mixes. 7. Mix mortar manually with hoe and mortar box. 8. Mix mortar with a mechanical mixer. 9. Temper or shake up mortar with proper shovels. 10. Utilize hod-carrying by arranging materials for efficient use and proper placement of mortar pans. 11. Use trowels properly. 12. Manipulate a trowel properly. 13. Cut and roll, and cut and cup mortar to load trowel properly. 14. Spread and furrow mortar properly. 15. Identify the various types of mortar used in masonry work 16. Describe the common admixtures and their uses. 17. Identify the common problems found in mortar application and their solutions. 18. Properly set up the mortar mixing area. 19. Properly mix mortar by hand. 20. Properly mix mortar with a mechanical mixer. 		
	<p><u>Module 5 – Masonry Units and Installation Techniques</u></p> <ol style="list-style-type: none"> 1. Describe the most common types of masonry units. 2. Demonstrate bonding methods according to industry standards. 3. Possess knowledge of different types of bonding used in masonry construction. 4. Determine coursing. 5. Describe and demonstrate how to set up a wall. 6. Lay a dry bond. 7. Spread and furrow a bed joint, and butter masonry units. 8. Describe the different types of masonry bonds. 9. Cut brick and block accurately. 10. Lay masonry units in a true course. 11. Describe different methods to clean finished masonry product. 12. Explain the necessity of keeping work area and installed masonry product clean. 		

	<p><u>Construction Techniques And Moisture Control</u></p> <ol style="list-style-type: none"> 1. Explain and demonstrate techniques for constructing masonry around windows, doors, and other openings. 2. Utilize tool and point joints according to industry standards. 3. Use tool concave joints. 4. Use a tool rake, weather, V-jointer, grapevine and struck joints. 5. Perform cut/rough joints. 6. Tuck-point a wall properly. 7. Brush and touch up a wall. 8. Explain the requirements for wall bracing and demonstrate the techniques used to construct pilasters and other types of bracing. 9. Identify the various types of insulation used in conjunction with masonry construction and explain installation techniques. 10. Identify the need for moisture control in various types of masonry construction and demonstrate the techniques used to eliminate moisture problems. i.e.: vapor barriers and flashing. 		
1	<p><u>Cleaning Brick And Structural Tile</u></p> <ol style="list-style-type: none"> 1. Clean brick and structural tile according to industry standards. 2. Follow correct procedures for keeping masonry work clean. 3. Follow correct procedures in cleaning brick and structural tile. 4. Follow correct procedures for rubbing and tuck pointing concrete block and slag block. 5. Clean and tuck-point stonework. 		
	<p><u>Laying Brick And Blocks</u></p> <ol style="list-style-type: none"> 1. Lay brick and blocks according to industry standards. 2. Lay straight brick wall. 3. Lay brick at the rate of 75-100 bricks per hour. 4. Attach a line block and line pins to a wall. 5. Set a trig. 6. Lay brick to a line while holding bond. 7. Throw a full head joint 8. Lay a straight block wall. <ul style="list-style-type: none"> • Spread bed joints and throw on full head joints for block units. • Lay block units to the line. 9. Build a brick corner. <ul style="list-style-type: none"> • Lay out a wall in preparation for building a brick corner. • Construct a rack-back lead. • Construct an outside and inside corner lead (+ or - 11/16") 10. Lay the block corner. <ul style="list-style-type: none"> ▪ Lay out a wall in preparation for building a block corner. ▪ Install wire reinforcements in bed joints. ▪ Build a block corner to a specified height. 11. Lay brick veneer wall. <ul style="list-style-type: none"> ▪ Determine type of brick to be used. ▪ Bond the wall. ▪ Scale each course. ▪ Lay brick in mortar to scale. ▪ Secure wall with ties at desired intervals. ▪ Point and joint the wall 		

1	<p><u>Lay out and Establish Foundations According to Industry Standards</u></p> <ol style="list-style-type: none"> 1. Establish corners and lay out concrete block according to a specific bonding plan. 2. Lay foundation wall to joist and brick shelf height. 3. Waterproof foundation wall. 4. Install flashing, anchor bolts, termite shield and weep holes. 		
	<p><u>Safe Brick And Masonry Techniques</u></p> <ol style="list-style-type: none"> 1. Practice safe brick and masonry techniques according to industry standards. 2. Choose proper tools and materials. 3. Perform work in a reasonable amount of time as determined by the instructor and/or industry standards. 4. Lay up masonry products in an accurate and professional manner. 5. Load and unload materials as directed. 6. Clean up work areas properly and thoroughly. 		
	<p><u>OSHA Regulations</u></p> <ol style="list-style-type: none"> 1. Model safety standards according to and following OSHA regulations. 2. Demonstrate appropriate safety precautions when performing all tasks. 3. Demonstrate awareness of potential hazards when performing all tasks. 4. Accept responsibility for the safety of other workers. 5. Keep work areas neat and organized. 6. Wear proper safety equipment and clothing. 7. Follow prescribed OSHA standards 		

Level	Course Title: Masonry II	Hour s:	% of Time:
2	<p><u>Module 1 – Residential Plans and Drawing Interpretation</u></p> <ol style="list-style-type: none"> 1. Understand the organization of residential plans and drawings. 2. Interpret dimensions and scales on drawing. 3. Interpret information on residential plans. 4. Estimate materials quantities from plans and drawings. 5. Describe the general duties and responsibilities of masonry foremen and supervisors. 6. Describe the basic activities required to organize project resources. 7. Operate and effectively use basic surveying equipment to lay out foundations, walls, and other structural components. 8. Understand and apply inspection procedures normally used on a project. 		
	<p><u>Hand Tools Used In Brick Masonry</u></p> <ol style="list-style-type: none"> 1. Utilize basic hand tolls used in brick masonry according to industry standards. 2. Demonstrate an understanding of the specific uses of each hand tool. 3. Practice the safety rules for each hand tool. 4. Identify quality tools. 5. Store and care for hand tools. 		

2	<p><u>Module 2 – Residential Masonry</u></p> <ol style="list-style-type: none"> 1. Understand the requirements for construction of various types of residential foundations. 2. Identify and explain the characteristics, uses, and installation techniques for brick pavers. 3. Lay out and construct steps, patios, and decks made from masonry units. 4. Lay out and construct chimneys and fireplaces. 		
	<p><u>Safe Brick And Masonry Techniques</u></p> <ol style="list-style-type: none"> 1. Practice safe brick and masonry techniques according to industry standards. 2. Choose proper tools and materials. 3. Perform work in a reasonable amount of time as determined by the instructor and/or industry standards. 4. Lay up masonry products an accurate and professional manner. 5. Load and unload materials as directed. 6. Clean up work areas properly and thoroughly. 		
	<p><u>Cleaning Brick And Structural Tile</u></p> <ol style="list-style-type: none"> 1. Clean brick and structural tile according to industry standards. 2. Follow correct procedures for keeping masonry work clean. 3. Follow correct procedures in cleaning brick and structural tile. 4. Follow correct procedures for rubbing and tuck pointing concrete block and slag block. 5. Clean and tuck-point stonework 		
	<p><u>Bonding Methods</u></p> <ol style="list-style-type: none"> 1. Demonstrate bonding methods according to industry standards. 2. Possess knowledge of different types of bonding used in masonry construction. 3. Lay out bond. 4. Determine coursing. 		
	<p><u>Use Of Equipment</u></p> <ol style="list-style-type: none"> 1. Use equipment according to industry standards. 2. Identify equipment generally used in brick masonry. 3. Correctly use each piece of equipment. 4. Store, maintain and repair all equipment. 5. Inspect, assemble and disassemble rigging and scaffolding properly. 6. Utilize tool and point joints according to industry standards. 7. Use tool concave joints. 8. Use a tool rake, weather, V-jointer, grapevine and struck joints. 9. Perform cut/rough joints. 10. Tuck-point a wall properly. 11. Brush and touch up a wall. 		

	<p><u>Use Of Masonry Levels</u></p> <ol style="list-style-type: none"> 1. Use masonry levels according to industry standards. 2. Use a 24" and 48" level for plumbing and leveling. 3. Care for and maintenance of a level. 		
	<p><u>Module 3 – Grout and Other Reinforcements</u></p> <ol style="list-style-type: none"> 1. Name and describe the primary ingredients in grout and their properties. 2. Identify the different types of grout used in masonry work. 3. Describe the common admixtures and their uses. 4. Describe the use of steel bar reinforcement in masonry construction. 5. Use the proper techniques to apply grout in low and high lifts. 		
2	<p><u>Module 4 – Metal Work in Masonry</u></p> <ol style="list-style-type: none"> 1. Describe the uses and installation of vertical reinforcement. 2. Describe the uses and installation of different types of horizontal joint reinforcements and ties. 3. Describe the uses and installation of different anchors, fasteners, and embedded items. 4. Describe the installation of hollow metal frames. 5. Describe the functions and installations of sills and lintels. 		
2	<p><u>Module 5– Advanced Laying Techniques</u></p> <ol style="list-style-type: none"> 1. Recognize the structural principles and fundamental uses of basic type of walls. 2. Recognize the requirement for, and function of, control joints and expansion joints. 3. Construct various types of walls using proper reinforcement, jointing, and bonding techniques. 4. Construct specialty structures such as manholes, segmented block walls, and screens. 5. Identify and explain the different types of masonry arches used today. 6. Construct a semicircular and jack arch. Construct a semicircular and jack arch. 7. Perform cleaning techniques with cleaning products used on various masonry products. 		
2	<p><u>Laying A Brick Masonry Cavity Wall</u></p> <ol style="list-style-type: none"> 1. Determine width of cavity and type of brick to be used. 2. Construct components of the wall in the proper sequence. 3. Spread mortar to achieve the required bond without getting mortar into the cavity. 4. Install wall ties that join the exterior and interior Wythes together into a single cavity wall. 5. Install flashings and construct weep holes in a manner that permits effective drainage of moisture from cavity. 6. Construct and maintain the cavity during construction so that the air space provides insulation. 		

2	<p><u>Lay Floors, Pavers, and Stairs According to Industry Standards</u></p> <ol style="list-style-type: none"> 1. Lay floors according to given plans. 2. Lay pavers according to given plans. 3. Lay stairs according to given plans. 4. Do concrete work. 		
	<p><u>Prepare Stem Walls According to Industry Standards</u></p> <ol style="list-style-type: none"> 1. Lay out stem walls properly. 2. Place rebar properly. 		
	<p><u>Lay Out and Establish Foundations According to Industry Standards</u></p> <ol style="list-style-type: none"> 1. Establish corners and lay out concrete block according to a specific bonding plan. 2. Lay foundation wall to joist and brick shelf height. 3. Waterproof foundation wall. 4. Install flashing, anchor bolts, termite shield and weep holes. 		
	<p><u>Module 6 – Construction Techniques and Moisture Control</u></p> <ol style="list-style-type: none"> 1. Explain and demonstrate techniques for construction masonry around windows, doors, and other openings. 2. Explain the requirements for wall bracing and demonstrate the techniques used to construct pilasters and other types of bracing. 3. Identify the various types of insulation used in conjunction with masonry construction and explain installation techniques. 4. Identify the need for moisture control in various types of masonry construction and demonstrate the techniques used to eliminate moisture problems. i.e.: vapor barriers and flashing. 		
2	<p><u>Module 7 – Elevated Work</u></p> <ol style="list-style-type: none"> 1. Describe the appropriate steps necessary for setting up and maintaining elevated workstations. 2. Properly operate material handling and hoisting equipment. 3. Describe the safety requirements and guidelines employed in elevated and high-rise construction. 4. Describe basic activities that can be used on the job to prevent elevated workstation accidents. 5. Understand scaffolding positioning and how it affects laying technique. 		
	<p><u>Module 8 – Construction Inspection and Quality Control</u></p> <ol style="list-style-type: none"> 1. Discuss industry standards for quality control. 2. Build masonry sample panels and prisms. 3. Perform field tests on mortar. 4. Discuss and perform field inspections 		

2	<p><u>Math Skills</u></p> <ol style="list-style-type: none"> 1. Use fractions to solve practical problems. 2. Use proportions and ratios to solve practical problems. 3. Simplify numerical expressions. 4. Solve practical problems involving percents. 5. Measure angles. 6. Find surface area and perimeter of two-dimensional objects. 7. Find volume and surface area of three-dimensional objects. 8. Make predictions using knowledge of probability. 9. Make comparisons, predictions, and inferences using graphs and charts. 10. Solve problems using proportions, formulas and functions. 11. Find slope of a line. 12. Find arc length and the area of a sector. 		
	<p><u>Math Standards</u></p> <ol style="list-style-type: none"> 1. Numbers and Operations 2. Algebra 3. Geometry 4. Measurement 5. Problem Solving 6. Communication 7. Connections 8. Representation 		
	<p><u>Language Arts Skills</u></p> <ol style="list-style-type: none"> 1. Provide information in conversations and in group discussions. 		
	<p><u>Language Arts Standards</u></p> <ol style="list-style-type: none"> 1. Apply a wide range of strategies to comprehend, interpret, evaluate and appreciate texts. They must be able to draw on their prior experience, their interactions with other readers and writers, their knowledge of word meaning and of other texts, their word identification strategies, and their understanding of textual features (e.g., sound-letter correspondence, sentence structure, context, graphics). 2. Adjust their use of spoken, written and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes. 3. Use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge. 4. Use spoken, written, and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion, and the exchange of information). 		

	<p><u>Science Standards</u></p> <ol style="list-style-type: none"> 1. Understand the structure and properties of matter. 2. Understand the sources and properties of energy. 3. Understand forces and motion. 4. Understand the nature of scientific inquiry. 		
	<p><u>Safety Precautions That Must Be Practiced At Work</u></p> <ol style="list-style-type: none"> 1. Describe appropriate safety practices 2. Understand fall-protection procedures 3. Understand forklift safety operations, including hand signals and rigging 		
2	<p><u>OSHA Regulations</u></p> <ol style="list-style-type: none"> 1. Model safety standards according to and following OSHA regulations. 2. Demonstrate appropriate safety precautions when performing all tasks. 3. Demonstrate awareness of potential hazards when performing all tasks. 4. Accept responsibility for the safety of other workers. 5. Keep work areas neat and organized. 6. Wear proper safety equipment and clothing. 7. Follow prescribed OSHA standards. 		

Level	Course Title: Masonry III	Hours:	% of Time:
	<p><u>Module 1 – Masonry in High-Rise Construction</u></p> <ol style="list-style-type: none"> 1. Recognize and explain the use of high-rise construction equipment. 2. Understand and apply block and brick construction techniques typically employed in high-rise construction. 3. Understand and apply safety guidelines employed in high-rise construction. 4. Safely work with materials handling equipment in high-rise construction. 		
3	<p><u>Safe Brick And Masonry Techniques</u></p> <ol style="list-style-type: none"> 1. Practice safe brick and masonry techniques according to industry standards. 2. Choose proper tools and materials. 3. Perform work in a reasonable amount of time as determined by the instructor and/or industry standards. 4. Lay up masonry products in an accurate and professional manner. 5. Load and unload materials as directed. 6. Clean up work areas properly and thoroughly. 		
	<p><u>Cleaning Brick And Structural Tile</u></p> <ol style="list-style-type: none"> 1. Clean brick and structural tile according to industry standards. 2. Follow correct procedures for keeping masonry work clean. 3. Follow correct procedures in cleaning brick and structural tile. 4. Follow correct procedures for rubbing and tuck pointing concrete block and slag block. 5. Clean and tuck-point stonework. 		

3	<p><u>Laying A Brick Masonry Cavity Wall</u></p> <ol style="list-style-type: none"> 1. Determine width of cavity and type of brick to be used. 2. Construct components of the wall in the proper sequence. 3. Spread mortar to achieve the required bond without getting mortar into the cavity. 4. Install wall ties that join the exterior and interior Wythes together into a single cavity wall. 5. Install flashings and construct weep holes in a manner that permits effective drainage of moisture from cavity. 6. Construct and maintain the cavity during construction so that the air space provides insulation. 7. Lay single Wythe brick (load-bearing wall using units that are a minimum of 5” wide). 8. Determine type of brick to be used. 9. Bond the wall. 10. Scale each course. 11. Lay a brick and block composite wall. 12. Determine type of brick and block to be used. 13. Bond the wall. 14. Scale each course. 15. Lay brick and block in mortar to scale. 16. Secure wall with ties at desired intervals. 17. Point and joint the wall. 		
	<p><u>Prepare Stem Walls According To Industry Standards</u></p> <ol style="list-style-type: none"> 1. Lay out stem walls properly. 2. Place rebar properly. 		
	<p><u>Lay out and establish foundations according to industry standards</u></p> <ol style="list-style-type: none"> 1. Establish corners and lay out concrete block according to a specific bonding plan. 2. Lay foundation wall to joist and brick shelf height. 3. Waterproof foundation wall. 4. Install flashing, anchor bolts, termite shield and weep holes. 5. Construct fireplaces and chimneys according to industry standards. 6. Identify various components of a fireplace. 7. Build a fireplace according to plans. 8. Identify various components of a chimney. 9. Build a one-flue chimney from given plans. 		
	<p><u>Construct Arches, Columns and Piers According to Industry Standards</u></p> <ol style="list-style-type: none"> 1. Demonstrate knowledge of architectural features including aesthetic trims, course designs, period and antique applications. 2. Construct an arch using given plans. 3. Construct a column using given plans. 4. Construct a pier using given plans. 		

3	<p><u>Lay Floors, Pavers, and Stairs According to Industry Standards</u> Lay floors according to given plans.</p> <ol style="list-style-type: none"> 1. Lay pavers according to given plans. 2. Lay stairs according to given plans. 3. Concrete work. 		
	<p><u>Hand Tools Used In Brick Masonry</u> Utilize basic hand tools used in brick masonry according to industry standards.</p> <ol style="list-style-type: none"> 1. Demonstrate an understanding of the specific uses of each hand tool. 2. Practice the safety rules for each hand tool. 3. Identify quality tools. 4. Store and care for hand tools. 		
	<p><u>Use Of Equipment.</u></p> <ol style="list-style-type: none"> 1. Use equipment according to industry standards. 2. Identify equipment generally used in brick masonry. 3. Correctly use each piece of equipment. 4. Store, maintain and repair all equipment. 5. Inspect, assemble and disassemble rigging and scaffolding properly. 6. Utilize tool and point joints according to industry standards. 7. Use tool concave joints. 8. Use a tool rake, weather, V-jointer, grapevine and struck joints. 9. Perform cut/rough joints. 10. Tuck-point a wall properly. 11. Brush and touch up a wall. 		
	<p><u>Use Of Masonry Levels</u></p> <ol style="list-style-type: none"> 1. Use masonry levels according to industry standards. 2. Use a 24" and 48" level for plumbing and leveling. 3. Care for and maintenance of a level. 		
	<p><u>Module 2 – Specialized Materials and Techniques</u></p> <ol style="list-style-type: none"> 1. Explain the various techniques used to provide adequate protection during hot-or-cold-weather masonry construction. 2. Apply a working knowledge of all-weather construction techniques. 3. Understand and apply techniques for construction of stone walls and other stone building surfaces. 4. Understand and apply basic knowledge of various materials such as glass block, acid brick, and refractory brick. 5. Understand and apply techniques for construction of stone walls and other stone building surfaces. 		

	<p><u>Bonding Method</u></p> <ol style="list-style-type: none"> 1. Demonstrate bonding methods according to industry standards. 2. Possess knowledge of different types of bonding used in masonry construction. 3. Lay out bond 4. Determine coursing 		
	<p><u>Module 3 – Repair and Restoration</u></p> <ol style="list-style-type: none"> 1. Recognize signs of deterioration in masonry structures. 2. Describe the causes of efflorescence, cracking, and faulty mortar joints. 3. Describe the procedures for preventing and correcting efflorescence, cracking, and faulty mortar joints. 4. Describe the procedures for preventing and correcting water damage in basements. 5. Describe the procedures for rebuilding fireplaces. 6. Describe the types of sealer available for use on masonry. 7. Describe and perform restoration and all cleaning techniques. 		
3	<p><u>Module 4 – Commercial Drawings</u></p> <ol style="list-style-type: none"> 1. Recognize the difference between commercial and residential construction drawings. 2. Understand and apply basic estimating procedures for concrete block construction and brick construction. 3. Understand and apply basic estimating procedures for reinforcements, ties, and other materials. 4. Identify the basic keys, abbreviations, and other references contained in a set of commercial drawings. 5. Accurately read a set of commercial drawings. 6. Explain basic construction details and concepts employed in commercial construction. 		
	<p><u>Module 5– Estimating</u></p> <ol style="list-style-type: none"> 1. Understand and apply basic materials estimating procedures for concrete block construction and brick construction. 2. Understand and apply basic estimating procedures for reinforcements, ties, and other materials. 3. Understand and apply procedures for quantities for mortar and mortar materials. 		
	<p><u>Module 6 – Project Planning and Supervision</u></p> <ol style="list-style-type: none"> 1. Describe the general duties and responsibilities of masonry foremen and supervisions. 2. Describe the basic activities required to organize project 3. Operate and effectively use basic surveying equipment to lay out foundations, walls, and other structural components. 4. Understand and apply inspection procedures normally used on a project. 		

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	<p><u>Language Arts Standards</u></p> <ol style="list-style-type: none"> 1. Apply a wide range of strategies to comprehend, interpret, evaluate and appreciate texts. They must be able to draw on their prior experience, their interactions with other readers and writers, their knowledge of word meaning and of other texts, their word identification strategies, and their understanding of textual features (e.g., sound-letter correspondence, sentence structure, context, graphics). 2. Adjust their use of spoken, written and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes. 3. Use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge. 4. Use spoken, written, and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion, and the exchange of information). 		

3	<p><u>Science Standards</u></p> <ol style="list-style-type: none"> 1. Understand the structure and properties of matter. 2. Understand the sources and properties of energy. 3. Understand forces and motion. 4. Understand the nature of scientific inquiry. 		
	<p><u>Safety Precautions That Must Be Practiced At Work</u></p> <ol style="list-style-type: none"> 1. Describe appropriate safety practices 2. Understand fall-protection procedures 3. Understand forklift safety operations, including hand signals and rigging. 		
	<p><u>OSHA Regulations</u></p> <ol style="list-style-type: none"> 1. Model safety standards according to and following OSHA regulations. 2. Demonstrate appropriate safety precautions when performing all tasks. 3. Demonstrate awareness of potential hazards when performing all tasks. 4. Accept responsibility for the safety of other workers. 5. Keep work areas neat and organized. 6. Wear proper safety equipment and clothing. 7. Follow prescribed OSHA standards. 		