

ATLB-1340: MASON TENDING

Cuyahoga Community College

Viewing: ATLB-1340 : Mason Tending

Board of Trustees:

March 2020

Academic Term:

Fall 2020

Subject Code

ATLB - AIT-Construct/Hazard Material

Course Number:

1340

Title:

Mason Tending

Catalog Description:

Study of scaffolds related to masonry work, mortar components, and materials requirements. Includes concrete properties and ingredients, steps in making concrete, properties of cement, erection and stocking of scaffolds, mortar preparation, and tools required. Extensive guided instruction and practice provided.

Credit Hour(s):

3

Lecture Hour(s):

3

Requisites

Prerequisite and Corequisite

Departmental approval: admission to the Construction Tending and Hazardous Material Abatement program.

Outcomes

Course Outcome(s):

A. Demonstrate knowledge of mortar components and processes by mixing several mortar compositions.

Objective(s):

1. Describe the types and characteristics of portland cement mortars and masonry cement mortars commonly used on masonry projects.
2. List and explain the properties of masonry mortar.
3. Given the materials and equipment, properly set up a power mortar mixer and mixing area.
4. Demonstrate the ability to accurately and correctly mix a batch of quality mortar both with a power mixer and by hand according to the guidelines of this section.

Course Outcome(s):

B. Demonstrate knowledge of concrete properties by discussing effects of drying, consistency, and additives.

Objective(s):

1. Demonstrate the ability to mix a batch of colored mortar using both pre-colored masonry cement and pigment mixtures according to the guidelines of this section.
2. List and describe four types of mortar mixing systems.
3. List seven types of mortar admixtures and explain the purpose of each type.
4. Given the materials and equipment, accurately and correctly mix, place, and consolidate a batch of fine grout and a batch of course grout.
5. Demonstrate how to correctly shut down and clean a power mortar mixer.

Course Outcome(s):

C. Calculate materials requirements and stock several typical job sites.

Objective(s):

1. Describe what nominal dimensions mean for estimating amounts of block and/or brick.
 2. Given information on the layout (dimensions) and types of material being used to construct 16 different masonry projects, estimate the amount of block and/or brick needed for each project.
 3. Describe five hand tools that are commonly used when stacking block or brick.
 4. Given the materials, layout, and number of masons needed to construct a masonry wall at ground level, set up the masons, and accurately stock necessary materials to begin construction.
 5. Given a masonry wall under construction with scaffolding assembled, accurately demonstrate how to set up and stock masonry materials on the scaffold.
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Course Outcome(s):

D. Demonstrate knowledge of forming tools by selecting appropriate tool for several processes.

Objective(s):

1. List and identify the proper Personal Protective Equipment (PPE), tools, and equipment necessary for a mason tender.
 2. Identify each type of various wall ties and anchors and explain how each is used in a masonry wall system.
 3. List and describe the four forms of insulation used for masonry walls.
 4. Explain the purpose of flashing. Given pictures or graphics of masonry construction or situations involving the installation of flashing, identify the areas where it is typically used.
 5. Describe the purpose of control joints. Given pictures or graphics of masonry construction or situations involving the installation of control joints, identify the areas where they are typically placed.
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Course Outcome(s):

E. Perform an accurate erection and stocking of a masonry scaffold.

Objective(s):

1. Match photos or drawings of scaffold components with their proper names.
 2. Explain at least two advantages of walk-through scaffold frames.
 3. Describe how coupler pins are used when building scaffold.
 4. Explain the reasons for using mudsills.
 5. Given the proper tools and equipment, build a level frame scaffold in each of the following configurations:
 - Straight run
 - Straight run 2 bucks high
 - Inside corner
 - Outside corner.
 6. Demonstrate "bumping" planks from one level to another.
 7. Given a masonry wall under construction with scaffolding assembled, accurately demonstrate how to set up and stock masonry materials on the scaffold.
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Course Outcome(s):

F. Discuss principles involved in scaffold arrangement.

Objective(s):

1. Restate OSHA's definition of a scaffold.
 2. After reviewing scenarios of scaffolding accidents, describe at least five conditions that can cause a scaffold to fail.
 3. Determine if the scaffold is a light, medium, or heavy duty scaffold and calculate the maximum intended load for each.
 4. Describe two conditions that may overload a scaffold.
 5. List five conditions or situations that may cause shock loading.
 6. List five conditions that could lead to scaffold plank failure.
 7. Describe how screw jack height affects scaffold stability.
 8. Describe the function of mudsills when building a scaffold on unstable ground.
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Methods of Evaluation:

1. Quizzes
2. Exams
3. Classroom participation
4. Demonstration of assigned projects

Course Content Outline:

1. Concrete making ingredients
 - a. Concrete
 - b. Cement
 - c. Aggregate
2. Terms/definitions
 - a. Bind
 - b. Setting time
 - c. Cuboid
3. Steps in making concrete
 - a. Concrete ingredients mixing
 - b. Addition of water
 - c. Chemical reaction
4. Properties of cement
 - a. Drying
 - b. Consistency
 - c. Additives
5. Types of concrete, definitions and uses
 - a. Normal weight
 - b. Light weight
 - c. Heavy weight
 - d. Colored
 - e. White
6. Terms/definitions-forming tools
 - a. Rip
 - b. Crosscut
 - c. Square
 - d. Grade
 - e. Elevation
 - f. Plumb bob
 - g. Leveling rod
 - h. Stake
 - i. Soapstone
7. 3-4-5 Methods
 - a. Concrete related factors in specifications
 - i. type and quality of materials
 - ii. dimensions of concrete components
 - iii. dimensions of materials to be used
 - iv. construction methods required
 - b. Tolerances
 - i. maximum water/cement ratio allowed
 - ii. percentage of air required in concrete
 - iii. slump required
 - iv. concrete finish required
 - v. types and methods of concrete curing required
 - vi. types of tests required
8. Scaffolds
 - a. Types
 - b. Assessment of job site
 - c. Erection process
 - d. Typical arrangement configurations

Resources

Fahl, Thomas. *Concrete Principles*. Homewood: American Technical Publishers, Inc., 2001.

Ohio Laborers' Training and Upgrading Trust Fund. *Mason Tending*. Howard, Ohio: Ohio Laborers' Training and Upgrading Trust Fund, 2001.

Master Builders. *Concrete Performance Data Handbook*. Cleveland: Martin Marietta, 1983.

Resources Other

https://www.nwlaborerstraining.org/Tending_050109.htm

<https://theconstructor.org/building/types-of-scaffolding-in-construction/11845>

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