

ATCM-2701: ADVANCED CONCRETE FINISHING

Cuyahoga Community College

Viewing: ATCM-2701 : Advanced Concrete Finishing

Board of Trustees:

October 2020

Academic Term:

Fall 2021

Subject Code

ATCM - Appd Indus Tech-Cement Masonry

Course Number:

2701

Title:

Advanced Concrete Finishing

Catalog Description:

Advanced study of placing and finishing a slab; placing and finishing concrete floors with various types of finishes.

Credit Hour(s):

2

Lecture Hour(s):

2

Lab Hour(s):

0

Requisites

Prerequisite and Corequisite

Departmental approval: admission to Cement Mason's apprenticeship program.

Outcomes

Course Outcome(s):

Perform advanced level formwork, elevations, and layout for residential and commercial concrete.

Objective(s):

1. Match terms and definitions associated with floors.
 2. Arrange in order steps for placing and trowel finishing a concrete floor.
 3. Select from a list types of finishes for a floor.
 4. State variables that may determine when to start finishing procedures.
 5. State factors to look for before starting finishing procedures.
 6. State reasons for floating concrete.
 7. State reasons for troweling concrete.
 8. Discuss briefly what is meant by premature troweling.
 9. State defects that may be caused by premature or excess troweling.
 10. Discuss special concrete toppings and their uses.
 11. Finish a slab with a fine broom finish.
 12. Finish a slab with a trowel machine.
 13. Finish a slab with a swirl (sweat-trowel finish).
 14. Place and prepare sub-base for topping.
 15. Finish a slab using special topping: Monolithic two course method.
 16. State reasons for consolidating concrete.
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Methods of Evaluation:

1. All students will be evaluated during the first two weeks and mid-term. Progress reports will be issued per procedure. Additional course evaluations and final examination are detailed below:
 - a. Written quizzes weekly covering pertinent lab work and classwork
 - b. Tests
 - c. Class participation
 - d. Written and oral reviews of lab assignments
 - e. Homework

Course Content Outline:

1. Reasons for consolidating concrete
 - a. Provide a uniform dense mass
 - b. Prevents segregation
 - c. Prevents air pockets
 - d. Prevents stone pockets
2. Steps for placing and trowel finishing a concrete floor
 - a. Place concrete.
 - b. Straight-edge concrete
 - c. Consolidate
 - d. Bullfloat or derby
 - e. Edge
 - f. Float
 - g. Re-edge
 - h. Trowel
 - i. Finish trowel
3. Types of finishes for concrete slabs
 - a. Textured
 - i. hand-float finish
 - ii. rough-broom finish
 - iii. fine-broom finish
 - iv. swirl or sweat trowel finish
 - v. exposed aggregate
 - vi. stamping pad design
 - b. Trowel finishes
 - i. hand
 - ii. hard trowel
 - iii. burnish
 - iv. machine
4. Variables that may determine when to start finishing procedures
 - a. Concrete temp
 - b. Air
 - c. Relative humidity
 - d. Wind
5. Factors to look for before starting finishing procedures
 - a. Concrete is properly hardened
 - b. Bleed water is gone
 - c. Water sheen has disappeared
 - d. Glossy appearance is not noticeable
6. Reasons for floating concrete
 - a. Concrete is properly hardened
 - b. Bleed water is gone
 - c. Water sheen has disappeared
 - d. Glossy appearance is not noticeable
7. Reasons for troweling concrete
 - a. Brings surface to a smooth dense finish
 - b. Provides desired texture and appearance
 - c. Provides the desired hardness
8. Premature troweling concrete

- a. Start to finish
 - i. sheen factor
 - ii. hardening factor
- 9. Defects caused by premature troweling or excessive troweling
 - a. Reduced strength
 - b. Reduced durability
 - c. Reduced resistance to wear
 - d. Dusting
 - e. Cracking
 - f. Scaling
 - g. Surface imperfections, such as low spots
- 10. Special concrete topping and their uses
 - a. Abrasion resistant
 - b. Impact resistant
 - c. Spark resistant (static dissipating)
 - d. Vermin proof
 - e. Colored

Resources Other

1. International Operative Plasters' and Cement Masonry's Association. <https://www.opcmia.org/training/> . 2017.
2. Concrete and Cement Masonry, Developed by the Curriculum and Instructional Materials Center for the Trade and Industrial Education Division Oklahoma Department of Career and Technology Education, 2002

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