

# Job-Task Analysis (JTA) for ACI Decorative Concrete Flatwork Finisher and Associate Certification

## HOW TO USE THIS JTA:

On the written examination, the Candidate must:

- **Understand** the following general concepts, which may not have specified values, procedures, or measurements; *and*
- **Know** the following specific procedures or values; performance of these items may also be assessed on the performance examination.

## RESOURCES:

ACI CCS-5 Concrete Craftsman Series: Placing and Finishing Decorative Concrete Flatwork

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### Chapter 1: Safety

- Know the minimum safety equipment required when working with wet concrete.
- Know the SDS requirements for hazardous materials.
- Understand the ventilation requirements related to solvent-based materials.
- Understand when an approved respirator should be worn.
- Understand the need to barricade the work area and maintain cleanliness.
- Know the safety recommendations for working with electric tools.

### Chapter 2: Layout Considerations - Americans with Disabilities Act Guidelines

- Understand the acronym ADA.
- Know the minimum width for an Accessible Route.
- Know the Cross Slope for Walks and Ramps.
- Understand the purpose of the ADA.
- Understand the ramifications of noncompliance with the ADA.

### Chapter 3: Soils, Subgrade, and Base Requirements

- Understand the purpose and terminology of a soils report.
- Understand requirements that may be affected by the soils report.
- Know how the subgrade is prepared.
- Understand how to handle conflicting requirements from the soils report.

### Chapter 4: Forming, Reinforcement, and Dowels

- Know the purpose of forming.
- Understand the need to identify problems or conflicts before concrete is placed.
- Know the recommended placing strategy for decorative concrete.
- Understand the typical reinforcement for decorative concrete paving.
- Understand the disadvantages of welded wire reinforcement.
- Understand the importance of reinforcement position.
- Know the proper method to place welded wire reinforcement and steel reinforcement.
- Know the purposes for dowels.
- Understand the purpose of microfibers.
- Know the effects of microfibers on concrete aesthetics.
- Understand the various names for isolation joints.
- Understand the various names for contraction joints.
- Know where isolation joints are placed.
- Know where contraction joints are placed.

## **Job-Task Analysis (JTA) for ACI Decorative Concrete Flatwork Finisher and Associate Certification (Continued)**

- Know proper contraction joint spacing.
- Understand the relationship between water-cementitious materials ratio and shrinkage cracking.
- Understand the effect of subgrade on shrinkage cracking.
- Understand how isolation joints function.
- Understand how contraction joints function.
- Understand how contraction joints are constructed.
- Know when joints should be cut with saws.
- Know how to select the proper form size and stakes.
- Know welded-wire reinforcement designations.
- Know the dosage rate of microfibers.
- Understand the purpose of a contraction joint.
- Understand the purpose of saw cutting construction joints.
- Understand how the subgrade affects a concrete slab.
- Understand how isolation joints are decoratively treated.
- Understand slope recommendations for paving.

### **Chapter 5: Basic Decorative Concrete Components**

- Understand the effect of aggregate size on water requirement.
- Understand the effect of high water content on cracking.
- Know the effect of aggregate size on cracking potential.
- Understand the effect of fly ash on color.
- Understand the effect of fly ash and slag cement on setting time.
- Know the mix design criteria for areas that experience cycles of freezing and thawing.
- Know when air entrainment is and is not needed for decorative concrete.
- Understand the problems encountered when finishing concrete with entrained air.
- Know how to minimize the problems encountered when finishing concrete with entrained air.
- Understand why calcium chloride should not be used.
- Know the disadvantages of carbon black.
- Understand release agents.
- Know release agent removal requirements.
- Know the levels of exposure for top-surface retarders.
- Know how to calculate how many stamping mats are needed.
- Understand the use of flexible stamping mats.
- Understand the use for tampers.
- Understand why hand rollers are used after the stamping mats are removed.
- Know the benefits, disadvantages, and dosage rate of integral color.
- Know the composition, benefits, and disadvantages of color hardeners.
- Understand the effects of supplementary cementitious materials on concrete color.
- Know and be able to use basic tools for decorative flatwork.

### **Chapter 6: Concrete Surface Retarders**

- Know when a top surface retarder is applied.
- Understand why top surface retarders are used for decorative concrete.
- Know the different aggregate exposure levels.
- Understand how top surface retarders are applied.
- Know the guidelines for use of surface retarders.

# **Job-Task Analysis (JTA) for ACI Decorative Concrete Flatwork Finisher and Associate Certification (Continued)**

## **Chapter 7: Stamped Concrete**

- Know the appropriate aggregate sizes for stamped concrete.
- Know the alignment requirements with regards to a specific stamping tool.
- Know when curing should be applied to decorative concrete.
- Know which curing methods are appropriate for decorative concrete.
- Understand the need for curing the mock-up panel.
- Understand the cleaning requirements with release agent prior to sealer application.
- Know the application of release agent.
- Know and be able to perform application of color hardener.

## **Chapter 8: Seeding Special Aggregates**

- Know the requirements of ASTM C33 for seeded aggregate.
- Know what sizes of aggregate are used and at what rate.
- Know how and be able to construct exposed aggregate concrete using the seeded aggregate method.
- Know what should be included in a mock up and when to create it.
- Understand the basic concept of alkali-silica reaction.
- Understand the effect of aggregate color on albedo.
- Understand the benefits of dark colors for vehicular paving.

## **Chapter 9: Decorative Treatment of Stairs**

- Understand the dimension requirements for stairs.
- Know the requirements for the radius of curvature at the leading edge of the tread on stairs.
- Know the projection requirements for stair nosings.
- Know the slope requirement for stair treads.
- Know the appropriate slump for stairs.
- Understand the direction of concrete placement for stairs.
- Understand the direction of concrete finishing for stairs.
- Understand when a mock-up should be constructed.
- Understand timing of stair construction.
- Understand application of color hardener to stairs.

## **Chapter 10: Sealing Decorative Concrete**

- Know the difference between curing compounds, sealers, and cure and seal products.
- Know the different types of sealers.
- Understand compliance with VOC regulations.
- Know the major causes of problems when applying sealers to decorative concrete.
- Know the potential surface contaminants
- Know the requirements for surface cleanliness prior to sealer application.
- Know how sealers are applied.