

Architectural Design 3

Exam Information	Description
Exam number 633 Items 22 National Career Cluster Architecture & Construction Certification available Yes	The Architectural Design 3 industry certification exam assesses proficiency in 3D Computer-Aided Design (CAD) software for modeling a small commercial building. The exam focuses on commercial methods and materials of construction, building codes, and Building Information Modeling (BIM). It is designed for learners preparing for careers in the Architecture, Engineering, and Construction (AEC) industry

Exam Blueprint and Performance Skills

Standard	Percentage of exam score
1. Structural Materials In Commercial Construction	15%
2. International Building Code (IBC)	22%
3. ADA Requirements	15%
4. Light Commercial Design Using BIM	37%
5. Professional Presentation Of Model	12%

*Includes performance skill evaluation

Standard 1 - Structural Materials In Commercial Construction

Objective 1 Understand the use of Masonry

1. CMU wall
2. Tilt-up concrete
3. Platform
4. ICF Block

Objective 2 Understand the use of Steel

1. Columns
2. Beams
3. Metal Studs

Objective 3 Understand the use of Wood

1. SIP panels
2. Wood stud framing
3. Beams
 - a. Glulam
 - b. LVL
 - c. Micro lam

Objective 4 Understand the use of Glass

1. Curtain walls
2. Store fronts

Optional: Standard performance evaluations on the final page of this document

Standard 2 - International Building Code (IBC)

Candidates will identify the basic considerations in using the International Building Code (IBC).

Objective 1 Identify basic building occupancies based on their use and how that affects construction types, materials, and building size.

Objective 2 Zoning

Objective 3 Identify code requirements to provide adequate fire safety.

1. Fire and smoke protection
2. Passive fire protection (construction techniques)
3. Active fire protection (sprinklers)

Objective 4 Identify code requirements to provide adequate fire safety.

1. Egress requirements to get people out
2. Accessibility to get people in
3. Building safety to protect people from falling.

Objective 5 Parking lot layout

1. Required green space
2. Useable space

Standard 3 - ADA Requirements

Objective 1 Restrooms

1. Handicap stall size
2. Grab bars
3. Sink clearance
4. Insulate hot water lines

Objective 2 Traffic flow

1. Entrances and exits
2. Door swing access
 - a. Full swing

Objective 3 Public Service

1. Countertop heights
2. Accessibility

Standard 4 - Light Commercial Design Using BIM

Light Commercial Design using BIM Software

Objective 1 Develop a full set of commercial architectural construction documents that include the following:

1. Fully annotated sheets with dimensions, notes, tags, and schedules.
2. Sheet set of typical architectural documentation needed for a commercial construction project.
3. Floor Plans & Section Views
4. Exterior & Interior Elevations
5. Ceiling Plans
6. Roof Plan
7. Place site components such as trees, plants, people and other items to detail out the project model.
8. Detailed, ADA compliant restrooms

Objective 2 Demonstrate proficiency completing the following concepts:

1. Creating a title block
2. Importing CAD information
3. Modifying CAD information
4. Creating a Site plan
5. Place plumbing fixtures
6. Customize curtain walls (if needed)
7. Provide stairs and circulation
8. Add detail to the site using site elements

Standard 5 - Professional Presentation Of Model**Objective 1** Renderings

1. Virtual a
 - a. Static drawings
 - b. Walkthrough

2. Hand drawn
3. Slide deck

Objective 2 Physical Scale Concept Model

1. 3D printing
2. Foam core/chipboard/butter board
3. CNC
 - a. Laser
 - b. Router

Performance Skills Evaluation

Exam name: Architectural Design 3

Candidate Name: _____

Performance assessments may be completed and evaluated any time before the certification is issued. The following performance skills can be used in connection with the associated standards and exam. The evaluator will function as the subject matter expert to determine if the candidate meets the skills requirements with a Yes/No for passing.

Standard 1 – Structural materials in commercial construction • Candidate can identify different materials used in a building structure.	Pass:
Standard 2 – International Building Code (IBC) • Candidate can create a design that considers and follows the IBC.	Pass:
Standard 3 – ADA Requirements • Candidate can create a design that is ADA accessible.	Pass:
Standard 4 – Light commercial design using BIM • Candidate can create a complete set of drawings for a light commercial occupancy (such as business, educational, or mercantile) that fits within a 2 ft. cube at 1/4" or 1/8" scale using BIM software.	Pass:
Standard 5 – Professional presentation of model • Candidate can create and give a presentation on their light commercial building	Pass:

Evaluator Name: _____

Date: _____