

# DHI Architectural Hardware Consultant

## Exam Content Outline

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### Domains:

#### I. Architectural Drawings (Construction Documents)

- a. Review and understand architectural drawings, overall building design, layout and function.
- b. Understand scope of work using project manuals and drawings (e.g., BAA, LEED, Division 01, FSC, et.al).
- c. Identify opening locations, types, and hardware based on the project requirements.
- d. Identify and apply scaling to determine proper opening requirements.
- e. Understand how project documents coordinate between trades and consultants (e.g., low voltage, electrical, acoustical, code, et.al).
- f. Identify the difference between bid and contract documents.

#### II. Specifications

- a. Utilize the CSI Section Format when writing specifications for a project.
- b. Demonstrate proper terminology and language required to write a specification for a customer.
- c. Understand the different methods of specification writing (i.e., reference, proprietary, descriptive, performance).
- d. Utilize multiple related specification sections to coordinate between trades.
- e. Address product substitutions.
- f. Write complete hardware specifications including hardware sets.
- g. Write complete door and frame specifications including specialty openings with hardware sets as required.
- h. Reference AIA/CSI/EJCDC for procedural requirements.

#### III. Codes and Standards

- a. Ensure that openings comply with building codes and standards.
- b. Address conflicts between specifications and drawings.
- c. Consult as required on openings.
- d. Understand how to navigate publications (e.g., NFPA, ADA, IBC, BHMA, SDI, NAAMM, WDMA, et.al)
- e. Demonstrate ability to propose alternative solutions for conflict resolution.
- f. Identify necessary code requirements and applicable editions for any given project.
- g. Assisting with communication and clarification with AHJs.

- h. Understand how to apply occupancy requirements for buildings (e.g., mixed-use, separated, occupancy changes, et.al).

#### **IV. Detailing (Scheduling)**

- a. Create detailed submittals for openings.
- b. Know how to identify special conditions on the drawings that may affect openings (e.g., project requirements, budget constraints, aesthetic considerations, environmental, et.al).
- c. Address opening requirements shown in drawings.

#### **V. Estimating**

- a. Estimate costs associated with openings, considering both material costs, phasing, fabrication, freight, and storage.
- b. Estimate costs for attending meetings (virtual, on-site).
- c. Estimate cost for installation of openings as required.
- d. Estimate cost for electrified openings to include terminations, commissioning, programming, and training.
- e. Determine cost for inspections as required (e.g., CFDAI, STC, FEMA, et.al.).
- f. Apply additional costs as determined by Division 00 and 01.

#### **VI. Hardware**

- a. Cross referencing BHMA and other manufactures specifications.
- b. Identification of products.
- c. Proper application of products.
- d. Eliminate conflict of products.
- e. Determine how much product is too much product.
- f. Ability to interpret manufacturer catalogs, price books, website, instructions and templates.

#### **VII. Doors and Frames**

- a. Determine anchoring per wall details.
- b. Recommend door and frame materials per environmental conditions.
- c. Knowledge of specialty doors and frames (e.g., STC, lead-line, bullet resistance, blast resistance, RF shielding, freezer, cooler, tornado, FEMA, hurricane, detention, et.al).
- d. Knowledge of doors (e.g., elevation, glass, material, profile, louver, balanced doors, et.al).
- e. Knowledge of frames (e.g., elevation, profile, material, mullion, transom, slide light, borrowed lite, anchors, glazing bead, fastener, panels, labels, finishings, double-acting, double-egress, dutch door, et.al).
- f. Ability to interpret manufacturer literature.
- g. Understand labelled service shops and capabilities.

#### **VIII. Project Management (Coordination)**

- a. Collaborate with owners, architects, interior designers, and other associated trades to integrate openings seamlessly into the overall building design.
- b. Provide guidance and clarification on openings.
- c. Maintain accurate and organized records of openings specifications, changes, and approvals.
- d. Develop good communication skills to deal with Architects, GCs, Electrical Contractors and System Integrators.
- e. Maintain and increase profitability while adhering to project timelines.
- f. Track billing, payments, insurance, procurement of materials.
- g. Manage and coordinate deliveries, project phasing, installation, and others.
- h. Conduct required meetings.
- i. Coordinate work with associated trades.
- j. Execute contract documents.

#### **IX. Keying**

- a. Keying system and nomenclature
- b. Limiting cross-keying
- c. Key and cylinder identification requirements
- d. Ability to interpret manufacturer literature.
- e. Understand capability of mixing multiple manufacturers keying systems.
- f. Understand complexity of keyway types.
- g. Registering key systems
- h. Key control systems
- i. Patented systems

#### **X. Electrified Hardware**

- a. Coordinate with associated trades for any electronic access control systems.
- b. Coordinate and calculate voltage and amperage requirements.
- c. Write operational descriptions.
- d. Identify system components.
- e. Create wiring diagrams with notes and cross references to other drawings and documents.
- f. Ability to correctly read installation instructions and extract electrical information and termination information (manufacturer catalogs, price books, website, instructions and templates)
- g. Coordinate electrified hardware devices that your company supplies, with all other low voltage electrified systems to be installed as part of the openings on a project.
- h. Installation – quick connect, wire, terminations, harness, wire types.
- i. Understand how to work a multimeter.