DHI EDUCATION RESOURCE GUIDE

dhindustry Education

YOUR CAREER, OUR COMMITMENT

Flexible | Convenient | Affordable

2014 EDITION

DHI'S EDUCATION RESOURCE GUIDE

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DHI EDUCATION

Novice:

0-5 years in the industry

Whether your goal is to become a DHI-certified consultant or perhaps to become more proficient at project management, you can select the path that best meets your needs. As your professional goals change, you will have the ability to continue your education without repeating subjects already mastered.

To get started, refer to the Diploma-Based Education on page 5 and the Student Worksheet on page 8.

Professional:

5-10 years in the industry

Individuals who have been in the industry 5-10 years can take advantage of new courses designed to keep you current with trends and issues in today's construction industry. Those with DHI certifications in the Continuing Education Program (CEP) earn points in order to maintain their registration in the program.

To track your progress, please refer to the Student Worksheet on page 8.

Experts:

10+ years in the industry

Seasoned veterans need to stay current with trends and developments throughout the industry. In addition to the education and credentialing program, DHI offers a number of opportunities for those who want to further their education.

At this stage of your career, you should consider giving back to the industry. You can contribute articles for *Doors & Hardware* magazine, teach an education session, or become an instructor at chapter and national classes.

To track your progress, please refer to the Student Worksheet on page 8.

OPTIONS TO PURSUE YOUR EDUCATION

Three Training Opportunities in Traditional Face-to-Face Settings:

Technical School

Learn from experienced instructors with first-hand industry knowledge in a traditional format, i.e., face-to-face classes. Bring your questions to the experts. Network with your peers. Go back to your office with the essentials, and tailor them to your workplace.

Chapter Education

The DHI Chapter Education system allows chapters to purchase the instructor and student materials for many of DHI's training courses. The instructor manuals have dedicated notes that will guide qualified instructors through the presentation. Included with the training materials is the official end-of-class exam that students must pass in order to receive credit toward a diploma or to qualify for one of the professional certification exams. The exams are to be returned to DHI for scoring and processing. Students passing a chapter-delivered class will receive full credit for the class just like students who attend DHI's technical class sessions. This program makes DHI's education easily accessible to local members by reducing travel and time away from the office.

Guidelines for planning and hosting DHI classes through the Chapter Education system are available under the Chapters section of the DHI website at www.dhi.org.

In-House Education

Education for you and your colleagues in the convenience of your office.

The In-House Training program allows DHI corporate members to purchase the instructor and student materials for DHI courses and, using qualified instructors from within their companies, offer DHI's education to their employees in a traditional format, i.e., face-to-face classes. Included with these training materials is the official end-of-class exam that students must pass in order to receive credit toward a diploma or to qualify for one of the professional certification exams. These exams are to be returned to DHI for scoring and processing.

Students passing an in-house-delivered class will receive full credit for the class just like students who attend DHI's technical class sessions. This program is designed to facilitate employees' education without leaving work!

Guidelines for planning and hosting DHI classes through the In-House Training program are available under the Education/In-House Training section of the DHI website at www.dhi.org.

Contact DHI's Education Department staff at 703/222-2010 or by email at education@dhi.org with your questions and/or education goals.

OPTIONS TO PURSUE YOUR EDUCATION

Two Online Training Opportunities

Online Education

Take advantage of DHI's growing number of online education courses—both self-paced and instructor-led. All online sessions are recorded as podcasts and are available for students to download at their convenience. Please go to edu.dhi.org to enter DHI's online education community.

Challenge Exams

Get credit by relying on your own subject matter and real-life job experience. These exams are a convenient way to continue your education right from the comfort of your home or office.

Challenge Exams are available for many of DHI's courses. Some Challenge Exams require the students to answer a battery of between 25 and 100 questions. Certain Challenge Exams require the students to complete an additional exercise, such as writing detailed hardware sets or writing a complete three-part specification.

While the Challenge Exams are designed to be taken open-book, DHI does not provide course or reference material.

Contact DHI's Education Department staff at 703/222-2010 or by email at education@dhi.org with your questions and/or education goals.

DIPLOMA-BASED EDUCATION

DHI offers four types of diplomas:

- Fundamentals of Construction Documents
- Fundamentals of Estimating
- Fundamentals of Detailing
- Fundamentals of Project Management

Each diploma has a list of required courses. The students seeking a diploma must complete each of the required courses for each diploma.

DHI recommends that students who are new to the industry and those with minimal field experience follow the education path when registering for courses.

		DIPLOMAS			
CHART OF REQUIRED COURSES FOR DIPLOMAS		Fundamentals of Construction Documents	Fundamentals of Estimating	Fundamentals of Detailing	Fundamentals of Project Management
REQUIRED COURSES	**COURSE NO.**				
Understanding and Using Construction Documents	COR103	X	X	X	X
Architectural Hardware and Applications	COR113		X	X	X
Door and Frame Applications	COR120		X	X	X
Takeoff and Estimating	COR125		X	X	X
Electrified Architectural Hardware	COR133		X	X	X
Using Codes and Standards	COR140		X	X	X
Using Door and Frame Standards	CDC300		X	X	X
Detailing Doors and Frames	CDC305			X	X
Detailing Hardware	AHC205			X	X
Advanced Detailing Hardware	AHC207			X	X
Masterkeying	AHC200				X
Installation Coordination and Project Management	COR153				X
Material Purchasing Concepts	COR160				X

To track your progress, please refer to the Student Worksheet on page 8.

DHI CERTIFICATION PROGRAM

All DHI-certified consultants must thoroughly understand the following:

- Local building codes, related industry standards and their requirements for door openings (e.g., fire-rated, means of egress, and accessible openings)
- Construction documentation process
  - Roles and responsibilities of contractors, architects, owners, and suppliers
- Organization and purpose of the project manual
  - CSI MasterFormat (1995 and 2004 editions)

- Architectural drawings and details
- Specifications, addenda, bid forms, and other construction documents
- Estimating, material purchasing, and project management
- Guiding installation in the field
- Principles of specification writing
- Best business practices and ethics
- Their role as a consultant to the architect, engineer, owner, or end user

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DHI offers four professional credentials:

Architectural Hardware Consultant (AHC)

Architectural Hardware Consultants (AHCs) must demonstrate expertise in:

- Hardware products and their applications
- Building uses and door-opening functions
- Keying systems and nomenclature
  - Organize and hold keying conferences
- Writing specifications for architectural hardware products
  - Coordinate hardware specifications with related sections
- Detailing architectural hardware products
- Creating finish hardware schedules and submittals
- Reviewing hardware submittals for approval

Certified Door Consultant (CDC)

Certified Door Consultants (CDCs) must demonstrate expertise in:

- Door and frame products and their applications
- Building uses and door-opening functions
- Creating door and frame shop drawings
- Writing door and frame specifications
- Reviewing door and frame submittals for approval

Electrified Hardware Consultant (EHC)

Electrified Hardware Consultants (EHCs) must demonstrate expertise in:

- Mechanical and electrified hardware products and their applications
- Building uses and door-opening functions
- Principles of electricity and terminology
- Access control devices and their application on door openings
- Integration of door openings with access control systems
- Drawing and reviewing elevation, riser, and point-to-point wiring diagrams
- Creating detailed hardware sets with operational descriptions for openings with electrified hardware

Architectural Openings Consultant (AOC)

Architectural Openings Consultants are individuals who have attained AHC, CDC, and EHC professional certifications. AOCs have mastered all facets of the commercial door and hardware industry and exemplify the highest standards of expertise and professionalism.

Each certification has a list of required courses. The applicant for certification must complete each of the required courses before taking the respective certification exam(s).

Students are also required to complete two electives in addition to the core and discipline-specific classes. Students pursuing AHC certification may choose any of the CDC- or EHC-specific classes as their electives. Students pursuing their CDC certification can choose any of the AHC- or EHC-specific classes as their electives. Likewise, students pursuing the EHC certification can choose any of the AHC- or CDC-specific classes as their electives.

Once the qualification criteria are completed, the candidate may apply and sit for the certification examination.

CHART OF REQUIRED COURSES FOR CERTIFICATION AND CERTIFICATION EXAM		CERTIFICATIONS		
REQUIRED COURSES	**COURSE NO.**	Architectural Hardware Consultant (AHC)	Certified Door Consultant (CDC)	Electrified Hardware Consultant (EHC)
Understanding and Using Construction Documents	COR103	X	X	X
Architectural Hardware and Applications	COR113	X	X	X
Door and Frame Applications	COR120	X	X	X
Takeoff and Estimating	COR125	X	X	X
Electrified Architectural Hardware	COR133	X	X	X
Using Codes and Standards	COR140	X	X	X
Introduction to Specification Writing	COR147	X	X	X
Installation Coordination and Project Management	COR153	X	X	X
Material Purchasing Concepts	COR160	X	X	X
Masterkeying	AHC200	X		X
Detailing Hardware	AHC205	X		X
Advanced Detailing Hardware	AHC207	X		X
Writing Hardware Specifications	AHC215	X		X
Using Door and Frame Standards	CDC300		X	
Detailing Doors and Frames	CDC305		X	
Writing Door and Frame Specifications	CDC310		X	
Electrified Hardware Applications and Documentation	EHC400			X
Access Control and Electrified Hardware Systems	EHC405			X
Installing and Troubleshooting Electrified Hardware Systems and Access Control Devices	EHC410			X

ELECTIVE COURSES
Students are required to complete two elective courses, which can be either certification courses and/or optional courses as listed below.

OPTIONAL COURSES
Exam Prep courses are available to assess students' skills and abilities in preparation for taking the certification exams. Exam Prep courses are considered elective courses, as is COR101. **Before taking our Exam Prep class, students must pass all courses required to sit for the certification exam.**

AHC Exam Prep	AHC220			
CDC Exam Prep	CDC315			
EHC Exam Prep	EHC420			
Fundamentals of Architectural Doors and Hardware	COR101			

CERTIFICATION EXAM
Students who have completed all of the required courses will need to take the applicable certification exam(s).

AHC Certification Exam	AHC220			
CDC Certification Exam	CDC315			
EHC Certification Exam	EHC420			

To track your progress, please refer to the Student Worksheet on page 8.

STUDENT WORKSHEET

CHART OF REQUIRED COURSES FOR CERTIFICATION AND CERTIFICATION EXAM

REQUIRED COURSES	COURSE NO.	Architectural Hardware Consultant (AHC)	Certified Door Consultant (CDC)	Electrified Hardware Consultant (EHC)	NEED TO TAKE	TAKEN	NOTES
Understanding and Using Construction Documents	COR103	X	X	X			
Architectural Hardware and Applications	COR113	X	X	X			
Door and Frame Applications	COR120	X	X	X			
Takeoff and Estimating	COR125	X	X	X			
Electrified Architectural Hardware	COR133	X	X	X			
Using Codes and Standards	COR140	X	X	X			
Introduction to Specification Writing	COR147	X	X	X			
Installation Coordination and Project Management	COR153	X	X	X			
Material Purchasing Concepts	COR160	X	X	X			
Masterkeying	AHC200	X		X			
Detailing Hardware	AHC205	X		X			
Advanced Detailing Hardware	AHC207	X		X			
Writing Hardware Specifications	AHC215	X		X			
Using Door and Frame Standards	CDC300		X				
Detailing Doors and Frames	CDC305		X				
Writing Door and Frame Specifications	CDC310		X				
Electrified Hardware Applications and Documentation	EHC400			X			
Access Control and Electrified Hardware Systems	EHC405			X			
Installing and Troubleshooting Electrified Hardware Systems and Access Control Devices	EHC410			X			

ELECTIVE COURSES — *Students are required to complete two elective courses, which can be either certification courses and/or optional courses as listed below.*

OPTIONAL COURSES
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AHC Exam Prep	AHC220						
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CERTIFICATION EXAM
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AHC Certification Exam	AHC220						
CDC Certification Exam	CDC315						
EHC Certification Exam	EHC420						

DHI EDUCATION COURSE DESCRIPTIONS

COR101

Fundamentals of Architectural Doors and Hardware

(30 CEP Points)

Purpose: This course is designed to be an introduction to the world of architectural doors and hardware to those who have fewer than two years of experience in the industry or who have limited exposure to the broad range of products used in this industry.

This course is also an excellent refresher for industry veterans who want to refamiliarize themselves with the areas in which they do not focus on on a daily basis.

Lesson 1: Hollow Metal Doors and Frames

This lesson introduces you to the terminology, components, and materials used to manufacture hollow metal doors and frames.

Lesson 2: Architectural Wood Doors

Students learn the terminology, components, and materials used to manufacture flush and stile and rail architectural wood doors.

Lesson 3: Materials and Finishes

This lesson describes the common metals, materials, and finishes used in the builders hardware industry.

Lesson 4: Hand the Door

This lesson teaches students how to properly hand doors, door frames, and hardware products using industry-standard terms and abbreviations.

Lesson 5: Hang the Door

This lesson introduces students to the builders hardware items that are used to carry the weight of the door leaves and the hardware items attached to them.

Lesson 6: Secure the Door – Door Bolts

This lesson describes the different types of door bolts used to secure the inactive leaves of pairs of doors.

Lesson 7: Secure the Door – Locks and Latches

This lesson focuses on the different types of builders hardware locks and latches used to secure door openings.

Lesson 8: Secure the Door – Panic Hardware and Fire Exit Hardware

This lesson explains the differences between panic hardware and fire exit hardware devices and teaches students when and how exit devices are used to meet the life safety requirements of building, fire, and life safety codes.

Lesson 9: Secure the Door – Cylinders and Keying

This lesson explains the different types of cylinders used in builders hardware and provides students with a working understanding of pin tumbler cylinders as well as how masterkeying is designed to provide convenience to the building's occupants.

Lesson 10: Control the Door

This lesson describes surface mounted and concealed door closers that are used to control the opening and closing speeds of door leaves.

Lesson 11: Protect the Door

This lesson teaches students the various products (e.g., protection plates, door pulls, edge guards) that are used to protect door openings from being dented and scratched.

Lesson 12: Electrified Architectural Hardware

This lesson provides students with a base-level understanding of the principles of basic electricity and how it is used to modify the functions of builders hardware items to enhance accessibility and maintain security in today's buildings.

Lesson 13: Codes and Standards

This lesson introduces students to the many codes and standards that affect architectural door openings, with a focus on NFPA 80, NFPA 101, and ICC A117.1.

Lesson 14: Blueprint Reading, Specifications and Scheduling

This lesson teaches students how to read blueprints and specifications and introduces students to hardware schedules.

Lesson 15: Jobsite Service

This lesson explains how preparing hardware submittals, marking and packaging doors, frames, and hardware items sets the stage for good jobsite service during the course of the project.

COURSE DESCRIPTIONS │ CORE CURRICULUM

COR103
Understanding and Using Construction Documents
(8 Hours)   *(24 CEP Points)*

Understanding how construction projects are organized and designed requires a thorough knowledge of the construction documents that administrate, illustrate, detail, and describe them. Estimators, detailers, and project managers need to understand the purpose and use of specifications and drawings as they perform their duties. Knowing where to find specific information in the specifications and on the drawings, and understanding how that information applies to our trade can make the difference between a profitable and an unprofitable job. This program provides estimators, detailers, and project managers with the essential knowledge to sort through these documents to find the information they need.

You will learn how to:

- Read architectural drawings
- Use an architectural scale
- Determine the scope of work
- Use addenda
- Request change orders
- Find specific information in specifications and drawings
- Determine what materials are required on a project
- Identify conflicts between specifications and drawings
- Coordinate your work with related trades

COR113
Architectural Hardware and Applications
(24 Hours)   *(72 CEP Points)*

To be successful in our industry, you need to have a well-rounded, general knowledge of the multitude of items used every day. Many hardware items can be employed in more than one application, and knowing which application is correct for a particular opening will make you indispensable to your customers and clients. Assortments of samples are utilized in this course to help you identify and describe many of the hardware items in use today. This course will also give you an understanding of proper applications and use of architectural hardware items that will be an important step in your development as a professional in the architectural openings industry.

You will learn how to:

- Size special-purpose hinges (e.g., wide-throw)
- Use raised-barrel hinges
- Use swing-clear hinges
- Select proper strike plates
- Size push/pull bars
- Resolve closer/overhead stop/holder conflicts
- Size thresholds and saddles

NOTE: Students are required to bring a calculator to this class.

COR120
Door and Frame Applications

(16 Hours) *(48 CEP Points)*

Today's construction projects use some of the most advanced materials and products ever made. Fire-rated and means of egress door openings have specific requirements they must meet to be able to function correctly. This course teaches you about the doors and frames (e.g., hollow metal, wood, and aluminum) in use today.

You will learn how to:

- Read door and frame details
- Determine wall/partition construction
- Select frame types and anchors
- Explain different types of door and frame construction
- Use door accessories (e.g., lite kits, louvers)

NOTE: Students are required to bring a calculator to this class.

COR125
Takeoff and Estimating

(16 Hours) *(48 CEP Points)*

PREREQUISITES:
COR103 – Understanding and Using Construction Documents
COR113 – Architectural Hardware and Applications
COR120 – Door and Frame Applications

Profitability of a company often hinges on the accuracy and efficiency of the bids that estimators turn out. Overprice, and your bid will not be considered; underprice, and you will have more work than you need, and you will consistently lose money with each project. This course introduces you to material takeoff techniques and estimating skills that will help you become a more accurate and efficient estimator.

You will learn how to:

- Perform material takeoffs
- Prepare Requests for Information (RFI)
- Prepare Requests for Substitutions
- Calculate overhead costs
- Apply mark-ups
- Prepare estimates

NOTE: Students are required to bring a calculator to this class.

COR133
Electrified Architectural Hardware

(40 Hours) *(120 CEP Points)*

PREREQUISITES:
COR113 – Architectural Hardware and Applications
COR120 – Door and Frame Applications

Electrified hardware items are used on virtually all new building projects. You need to understand how these products are properly used and what their capabilities are if you are going to advance in this industry. This course provides you with the principles of low-voltage electricity through hands-on class exercises. In addition, this course is focused on teaching you how separate electrified architectural hardware components are used to create single-opening systems. Learn how to design low-voltage circuits and to hook up these components through the hands-on labs.

You will learn how to:

- Coordinate voltage and amperage requirements
- Draw elevation, logic, and point-to-point wiring diagrams
- Write operational descriptions
- Troubleshoot circuits

NOTE: Students are required to bring a calculator to this class. Also, students will receive a digital multimeter, as well as a copy of *Wiring Diagrams,* by John Schum, as part of their class materials.

COR140
Using Codes and Standards
(24 Hours)   *(72 CEP Points)*

PREREQUISITES:
COR113 – Architectural Hardware and Applications
COR120 – Door and Frame Applications

Knowledge of the many industry-related codes and standards differentiates our industry from numerous other distributor chain-driven industries. Staying current and up-to-date on the ever-changing codes and standards requires both professional and personal commitment. This course covers NFPA 80, *Standard for Fire Doors and Other Opening Protectives* (2007 edition), NFPA 101, *Life Safety Code* (2006), ICC/ANSI A117.1, *Usable and Accessible Buildings and Facilities* (2003 edition), and *International Building Code* (2006 edition).

You will learn how to:

- Tell the difference between codes and standards
- Look up information
- Interpret codes and standards
- Determine requirements for fire-rated openings
- Determine requirements for means of egress openings

REQUIRED CLASS MATERIALS: Please see page 20.

COR147
Introduction to Specification Writing
(24 Hours)   *(72 CEP Points)*

Whether you are pursuing the designation of Architectural Hardware Consultant (AHC), Certified Door Consultant (CDC), or Electrified Hardware Consultant (EHC), you need to master the basic principles of writing architectural specifications. Specification writing skills are an essential element of becoming a professional consultant in today's construction industry. Architects and engineers will expect you to have mastered these skills when you work with them.

"Practice makes perfect," as the saying goes, and this course teaches students how to practice writing door, frame, and hardware specifications. Nearly two days of practical exercises are included in this course.

You will learn how to:

- Follow CSI SectionFormat™
- Use proper specification terminology and language
- Properly reference DIVISION 1 GENERAL sections
- Write clear, concise, correct, and complete specifications
- Identify methods of specification writing (e.g., descriptive, performance, proprietary, reference)

REQUIRED CLASS MATERIALS: Please see page 20.

COURSE DESCRIPTIONS | CORE CURRICULUM

COR153
Installation Coordination and Project Management
(16 Hours)   *(48 CEP Points)*

PREREQUISITES:
COR103 – Understanding and Using Construction Documents
COR113 – Architectural Hardware and Applications
COR120 – Door and Frame Applications

Project management requires effectively working with contractors, installers, owners, and architects. Coordination of the installation of doors, frames, and architectural hardware is an essential element of a project manager's responsibilities. Pre-installation meetings with the installers increase their productivity, reduce installation errors, and ensure that the door assemblies will operate reliably for many years. Project managers must also be able to read and interpret contract documents, oversee projects with fast-track schedules, and maintain profitability—all of which requires disciplined attention to detail. This course teaches you how to coordinate installations and provides you with techniques to help you succeed as a project manager.

You will learn how to:

- Reduce callbacks and backcharges
- Present proper installation techniques
- Describe common installation problems
- Improve customer relationships and satisfaction
- Increase profitability on your projects
- Avoid common project management problems
- Improve customer relationships and satisfaction

NOTE: Students are required to bring a calculator to this class. Students also receive a copy of the DHI handbook *Installation Guide for Doors and Hardware* as part of their class materials.

COR160
Material Purchasing Concepts
(8 Hours)   *(24 CEP Points)*

Once the shop drawings are approved and you move into the order processing stage of a project, you need to accurately and efficiently communicate the project's requirements with each of the manufacturers. Purchase orders need to be reviewed for accuracy, acknowledgements verified, and materials inspected upon receipt. In addition, everything must arrive on time and for the right price! This course teaches you how to communicate and coordinate your materials purchases with the project and manufacturing schedules.

You will learn how to:

- Format purchase orders
- Confirm factory discounts
- Review acknowledgements
- Minimize freight charges
- Coordinate project and manufacturing schedules

NOTE: Students are required to bring a calculator to this class.

AHC200
Masterkeying
(8 Hours)   (24 CEP Points)

A solid knowledge base of master key systems is essential to all estimators, detailers, project managers, and consultants. This program covers all of the bases: recognizing the different types and styles of cylinders and keys used in today's locks, understanding and using industry-standard key-set symbols and terminology, organizing keying meetings, and integrating mechanical cylinders and keying into access control and security systems.

You will learn how to:

- Explain capabilities and limitations of key systems
- Determine the correct keying level based on owner requirements
- Use high-security cylinders and keyways
- Organize and conduct a keying meeting
- Identify existing key systems and their expansion potential
- Communicate the owner's keying requirements to the factory

NOTE: Students will receive a copy of the DHI Handbook *Keying Systems and Nomenclature* as part of their class materials.

AHC205
Detailing Hardware
(24 Hours)   (72 CEP Points)

PREREQUISITES:
COR113 – Architectural Hardware and Applications
COR140 – Using Codes and Standards

Perhaps the most necessary skill you can develop in our industry is learning how to properly create detailed hardware schedules. Coordinating the myriad hardware products with the project's requirements can be a daunting task. This course introduces you to the sequence and format of the hardware schedule through a series of in-class exercises.

You will learn how to:

- Create proper headings for hardware sets
- List hardware items in the correct sequence and format
- Write detailed hardware sets
- Prepare hardware schedule submittals
- Coordinate hardware with doors and frames

REQUIRED CLASS MATERIALS: Please see page 20.

AHC207
Advanced Detailing Hardware
(24 Hours)   (72 CEP Points)

PREREQUISITES:
COR133 – Electrified Architectural Hardware
AHC205 – Detailing Hardware

Building on the principles learned in AHC205 – Detailing Hardware, students are led through a series of challenging class exercises designed to develop their decision-making skills by selecting and detailing hardware products that meet the intended functions of door openings. Students will learn the step-by-step sequence employed by Architectural Hardware Consultants (AHCs) as they evaluate door openings and select hardware products to create door assemblies in accordance with applicable codes and standards.

You will learn how to:

- Identify intended functions of door openings
- Select hardware products
- Create detailed hardware sets
- Include elevation diagrams for openings with electrified hardware
- Create a cover page, template list, abbreviations and symbols list, etc.

NOTE: Students taking this course must have expert-level hardware application and code and standard knowledge.

REQUIRED CLASS MATERIALS: Please see page 20.

AHC215
Writing Hardware Specifications
(32 Hours)   *(96 CEP Points)*

PREREQUISITE:
AHC207 – Advanced Detailing Hardware
COR147 – Introduction to Specification Writing

Architectural Hardware Consultants (AHCs) are required to master the skills and techniques of writing professional construction specifications. Architects rely on professional consultants for technical expertise and expect them to be proficient in writing specifications. This course teaches you how to write clear, concise, correct, and complete hardware specifications using the Construction Specifications Institute's (CSI) MasterFormat™ as a guide.

You will learn how to:

- Organize your specifications
- Use correct specification language
- Create hardware specification sets
- Write complete hardware specifications
- Coordinate work in other sections
- Address product substitutions
- Coordinate specifications for electrified hardware and access control systems

NOTE: Students taking this course must have expert-level hardware application and code and standard knowledge.

REQUIRED CLASS MATERIALS: Please see page 20.

AHC220
AHC Exam Prep
(24 Hours)   *(72 CEP Points)*

PREREQUISITE:
All courses required to sit for the exam

Students pursuing the Architectural Hardware Consultant (AHC) designation will complete in-class exercises designed to replicate exam conditions and better prepare them for the AHC exam. You will leave this class with a firm understanding of how to prepare for the formal AHC certification exam.

You will be required to:

- Complete timed scheduling and specification exercises
- Complete timed written exam questions

REQUIRED CLASS MATERIALS: Please see page 20.

COURSE DESCRIPTIONS | CDC CURRICULUM

CDC300
Using Door and Frame Standards
(8 Hours)   *(24 CEP Points)*

Knowledge of the many door and frame standards is essential to properly detail these products in shop drawings. These standards contain a wealth of information and can be used to establish levels of quality for all types of buildings.

This class covers the following industry standards:

- Steel Door Institute's (SDI) A250 Series of Product Standards
- Hollow Metal Manufacturers Association (HMMA) 800 Series of Product Standards
- Window and Door Manufacturers Association (WDMA) I.S. 1-A & I.S. 6-A
- Architectural Woodwork Institute (AWI) Quality Standards, 8th Edition, Ver. 2.0, 2005
- Builders Hardware Manufacturers Association (BHMA) A115 & A115W Series of Product Standards

REQUIRED CLASS MATERIALS: Please see page 20.

CDC305
Detailing Doors and Frames
(16 Hours)   *(48 CEP Points)*

PREREQUISITES:
COR120 – Door and Frame Applications
COR140 – Using Codes and Standards

Proficiency in creating shop drawings only comes through practice and attention to detail. This course introduces students to the techniques and skills necessary to become an expert detailer.

You will learn how to:

- Create door and frame shop drawings
- Prepare door and frame submittals
- Illustrate door opening details
- Coordinate hardware templating requirements

CDC310
Writing Door and Frame Specifications
(24 Hours)   *(72 CEP Points)*

PREREQUISITES:
COR147 – Introduction to Specification Writing
CDC300 – Using Door and Frame Standards

Door and frame specifications require as much attention to detail as other specification sections. Fire-rated openings (both neutral and positive pressure tested) require particular attention to construction, labeling requirements, reinforcements, hardware preparations, glazing, and frame anchors. These specifications must be carefully coordinated with other specifications to ensure that the proper materials are provided. This course teaches you how to write clear, concise, correct, and complete door and frame specifications using the Construction Specifications Institute's MasterFormat™ as a guide.

You will learn how to:

- Organize your specifications
- Use correct specification language
- Coordinate work in other sections
- Address product substitutions

REQUIRED CLASS MATERIALS: Please see page 20.

CDC315
CDC Exam Prep
(16 Hours)   *(48 CEP Points)*

PREREQUISITE:
All courses required to sit for the exam

This course walks you through the exercises required to complete the Certified Door Consultant (CDC) certification exam under exam-like conditions. You will leave this class with a firm understanding of how to prepare for the formal CDC certification exam.

You will be required to:

- Complete shop drawing and specification exercises
- Complete written exam questions

REQUIRED CLASS MATERIALS: Please see page 20.

COURSE DESCRIPTIONS │ EHC CURRICULUM

EHC400
Electrified Hardware Applications and Documentation
(24 Hours)   *(72 CEP Points)*

PREREQUISITE:
AHC207 – Advanced Detailing Hardware

One of the most important steps in detailing today's projects is creating the wiring drawings and diagrams and related documentation for door openings with electrified hardware. This course will teach you how to use correct industry symbols and drawing techniques to help you communicate the project's requirements more effectively with the installer.

You will learn how to:

- Create point-to-point wiring diagrams
- Create logic diagrams
- Use relays to control circuits

EHC405
Access Control and Electrified Hardware Systems
(24 Hours)   *(72 CEP Points)*

PREREQUISITE:
EHC400 – Electrified Hardware Applications and Documentation

Building security is one of the most important concerns for today's projects. This class teaches you how to incorporate and integrate electrically controlled hardware items into an access controlled security system.

You will learn how to:

- Use controllers
- Interface with auxiliary systems (including CCTV)
- Communicate with electrical and alarm systems professionals
- Layout access control and electrified hardware systems

EHC410
Installing and Troubleshooting Electrified Hardware Systems and Access Control Devices
(24 Hours)   *(72 CEP Points)*

PREREQUISITE:
EHC405 – Access Control and Electrified Hardware Systems

Proper installation of electrified hardware and access control devices is critical for the security of building occupants. Fire and life safety requirements are frequently compromised when these products are incorrectly installed. This course teaches you how to direct the installation of electrified hardware and access control devices, as well as troubleshooting circuits and systems in the field.

You will learn how to:

- Use a multimeter to troubleshoot circuits
- Review wiring diagrams
- Read electrical blueprints
- Verify electrical connections
- Field test systems
- Coordinate with other trades

NOTE: Students are required to bring a digital multimeter (equal to WaveTek model DM15XL) to this class.

EHC420
EHC Exam Prep
(16 Hours)   *(48 CEP Points)*

PREREQUISITE:
All courses required to sit for the exam

This course is designed to take you through the exercises required to complete the Electrified Hardware Consultant (EHC) certification exam under exam-like conditions. You will leave this class with a firm understanding of how to prepare for the EHC exam.

You will be required to:

- Complete shop drawing exercises
- Complete written exam questions that cover topics such as access control systems, CCTV terminology, principles of low-voltage electricity, and specification writing

DAI 600
Fire and Egress Door Assembly Inspection
(32 Hours)   *(96 CEP Points)*

For students that are new to the industry it is strongly recommended that you take the following course first: COR101 – Fundamentals of Architectural Doors and Hardware

Fire and egress doors are an essential part of the safe means of egress for occupants of buildings. Ensuring that these door assemblies are properly maintained and able to perform their vital function requires persons with knowledge of and experience in these types of doors.

NFPA 80, *Standard for Fire Doors and Other Opening Protectives* (2013 edition), requires documented inspections of fire-rated door assemblies on an annual basis. NFPA 80 requires these inspections to be performed by qualified persons who are knowledgeable of the types of door assemblies being inspected. Swinging doors with builders hardware are the most common type of fire door assembly. They are also among the most complex due to the myriad materials and products that are used to create them. Their complexity is increased because of security and life safety functions, the accessibility, and the fire safety protection they provide. Inspectors must thoroughly understand the dynamics of these assemblies in order to correctly evaluate them in the field.

In addition, the 2012 edition of NFPA 101, *Life Safety Code*™, includes inspection criteria that expand on NFPA 80's requirements for swinging fire doors and contains new requirements for inspecting egress door assemblies.

Understanding the role and responsibilities of the inspectors is just as important as understanding what is being inspected. Interacting with the building owner and the Authority Having Jurisdiction (AHJ) is paramount to ensuring that the respective parties clearly understand the

inspection documentation and how to follow through with the necessary corrections in order to improve safety in their buildings and facilities.

This class will teach you how to perform and record these inspections, as well as provide tips for interacting with the owners and AHJs. In addition, upon passing this class, you will be invited to enroll in the Intertek Certified Fire and Egress Door Inspector program.

Learning Outcome Statements:

Upon successful completion of this class, students will:

- Be able to list inspection requirements of the 2013 edition of NFPA 80
- Be able to explain the inspector's role and responsibilities
- Be able to conduct safety inspections of swinging fire door assemblies with builders hardware
- Be able to create inspection records and summary inspection reports

- Be eligible to enroll in the Intertek Certified Fire and Egress Door Inspector program

COURSE DESCRIPTIONS | FDAI CURRICULUM

Student Materials (PROVIDED BY DHI):

Each student will receive an Inspection Guidelines Kit that includes:

- NFPA 80, *Standard for Fire Doors and Other Opening Protectives* (2013 edition)
- NFPA 101, *Life Safety Code* (2012 edition)
- *Owner's Guide: Swinging Fire Doors with Builders Hardware*
- *AHJ's Guide: Swinging Fire Doors with Builders Hardware*
- *Inspector's Guide: Swinging Fire Doors with Builders Hardware*
- *Quick Reference Guide for Inspecting Swinging Fire Doors with Builders Hardware*
- Sample inspection forms
- Sample contract template for inspection agreement
- An application for Errors and Omissions insurance for inspectors

Prerequisites:

Individuals who are certified as Architectural Hardware Consultants (AHCs), Certified Door Consultants (CDCs), Electrified Hardware Consultants (EHCs), and Architectural Openings Consultants (AOCs) are eligible to enroll in DAI 600.

All other individuals must have successfully completed each of the following DHI courses prior to enrolling in the class:

- **COR113 – Architectural Hardware and Applications**
- **COR120 – Door & Frame Applications**
- **COR140 – Using Codes and Standards**

DAI 600 Exam Retake Policies

Minimum passing score on the exam is 80% (300 out of a possible 375 points).

Students who do not achieve a passing score on the class exam and who are certified consultants (AHCs, CDCs, EHCs, or AOCs) are required to pass the prerequisite courses before being eligible to apply for their retake of the DAI 600 class exam. *Consultants who have already completed the courses as part of the eligibility requirements for their AHC, CDC, or EHC certification exams are not required to retake these courses and are permitted to retake the DAI 600 class exam.*

All students are required to pass the retake of the DAI 600 class exam within one year of the date of the original exam. Students who do not pass the exam within the one-year period are required to retake the class in its entirety.

Students retaking the DAI 600 class exam are required to pay an exam fee and register. Students retaking the exam are permitted to audit the class immediately preceding their exam retake.

Please contact DHI's Education Department at 703/222-2010 if you have questions.

REQUIRED CLASS MATERIALS

For COR140 – Using Codes and Standards:

1. NFPA 80, *Standard for Fire Doors and Other Opening Protectives* (2007 edition)

2. NFPA101, *Life Safety Code* (2006 edition)

3. ICC/ANSI A117.1, *Accessible and Usable Buildings and Facilities* (2009 edition)

For COR147 – Introduction to Specification Writing:

1. Technical information for hinges, mortise locks, door closers

2. Fire exit hardware and panic hardware, protection plates

3. Electrified hardware

4. Hollow metal doors and frames, flush wood doors

Please bring product catalogs for all four of the following courses:

AHC205 – Detailing Hardware, AHC207 – Advanced Detailing Hardware, AHC215 – Writing Hardware Specifications, and AHC220 – AHC Exam Prep:

1. Hinges, pivots, continuous hinges, and concealed-in-the-floor door closers

2. Door bolts, coordinators, overhead stops and holders, and removable mullions

3. Bored and mortise locks and latches

4. Auxiliary locks

5. Panic hardware and fire exit hardware devices

6. Surface-mounted and overhead concealed door closers

7. Low-energy door operators

8. Door pulls, push bars, and protection plates

9. Gasketing and thresholds

10. Door stops and miscellaneous hardware

11. Electrified hardware products (e.g., power supplies, card readers, key pads, motion detectors, power transfer devices, etc.)

12. NFPA 80, *Standard for Fire Doors and Other Opening Protectives* (2007 edition)

13. NFPA 101, *Life Safety Code* (2006 edition)

14. ICC/ANSI A117.1, *Accessible and Usable Buildings and Facilities* (2003 edition)

For CDC300 – Using Door and Frame Standards:

1. Steel Door Institute's *SDI Fact File*

2. Hollow Metal Manufacturers Association's (HMMA) *Hollow Metal Manual*

3. Window and Door Manufacturers Association's (WDMA) IS-1A *Architectural Flush Wood Doors* and IS 6A *Architectural Stile and Rail Wood Doors*

4. Architectural Woodwork Institute's (AWI) *Quality Standards* (8th edition)

5. Builders Hardware Manufacturers Association's (BHMA) A115 standards for preparations in steel doors and frames and wood doors

For CDC310 – Writing Door and Frame Specifications and CDC315 – CDC Exam Prep:

1. Standard and custom hollow metal doors and frames

2. Architectural flush and stile and rail wood doors

3. Aluminum doors and frames

4. NFPA 80, *Standard for Fire Doors and Other Opening Protectives* (2007 edition)

5. NFPA 101, *Life Safety Code* (2006 edition)

6. ICC/ANSI A117.1, *Accessible and Usable Buildings and Facilities* (2009 edition)

DHI CERTIFICATION EXAMS

AHC Exam

The Architectural Hardware Consultant (AHC) exam is currently given over two consecutive 8-hour days. Day 1 requires applicants to create a detailed hardware schedule for 15 different openings. Each hardware item must be thoroughly listed, using the manufacturer's part number(s) and nomenclature. Some of these openings require electrified hardware items to be scheduled correctly (including elevation wiring diagrams and operational descriptions). Day 2 is divided into two 4-hour periods. The first 4-hour period requires applicants to write a full three-part specification for the hardware products they detailed on Day 1 of the exam. The second 4-hour period requires applicants to successfully complete a series of written questions regarding codes and standards, hardware application, masterkeying, specification writing, and electrified architectural hardware.

EHC Exam

The Electrified Hardware Consultant (EHC) exam is currently given in one 8-hour day. The first 2-hour period requires applicants to answer a series of written questions regarding codes and standards, electrified hardware product applications, basic electrical circuit knowledge and terminology, and access control devices. The following 1-hour period requires applicants to review a point-to-point wiring diagram and modify it to suit the new operational description. The final 5-hour period requires the applicants to successfully complete three major exercises: draw a logic diagram, review and correct a point-to-point wiring diagram, and completely schedule hardware (mechanical and electrified) for a door opening and draw the elevation, riser, and point-to-point wiring diagrams.

CDC Exam

The Certified Door Consultant (CDC) exam is currently given in one 8-hour day. The first 3-hour period requires applicants to create a door and frame schedule, draw door and frame elevations, and draw door and frame details illustrating wall to frame conditions, head and sill details, light and louver details, and special door and frame construction (e.g., lead-lined, Dutch, and double-acting doors). The second 3-hour period requires applicants to write a three-part specification for one of the following categories: Standard Steel Doors and Frames, Custom Steel Doors and Frames, Architectural Flush Wood Doors, Stile and Rail Wood Doors, and Aluminum Doors and Frames. The final 2-hour period is reserved for a series of written questions regarding codes and standards, door and frame applications, and specification writing.

Individuals who display the letters AHC, CDC, EHC, and AOC after their names have passed rigorous and thorough written examinations that are designed to fully test their industry knowledge, skills, and expertise. These individuals have earned the privilege to proudly use DHI's professional credentials.

CONTINUING EDUCATION PROGRAM

Continuing Education Program (CEP)

A registered consultant is obligated to earn a total of 100 CEP points in a three-year period. At least 80 CEP points must come from technically oriented activities during each cycle. (One way to obtain these points is by attending a class—you can earn up to three points for each hour of class training time.) Consultants registered in the CEP are permitted to use the trademarked (™) CEP seal, which is personalized with the consultant's name, DHI ID number, and expiration date.

To find answers to frequently asked questions regarding DHI's Continuing Education Program, please go to www.dhi.org.

Certification Program Fee

Individuals who have earned DHI's AHC, CDC, EHC, and AOC certifications are required to pay the annual certification program fee in order to participate in the certification program.

The certification program is DHI's most valuable membership benefit for consultants who are active individual members of DHI and is included in their annual membership dues (at no additional cost). Consultants who are not active individual members of DHI are required to pay the annual certification program fee in order to retain the usage of DHI's professional credentials.

DHI's professional certifications will be revoked from non-member consultants who have not paid the annual certification program fee. Once their certifications have been revoked, these individuals will have a 12-month period (from the date of revocation) to pass the current version of the respective certification exam(s) in order to reinstate their professional certification(s). Under this policy, each section of the exam(s) must be passed during the initial attempt at retaking the certification exam(s). No partial exam retakes will be permitted. Individuals failing to pass the initial exam(s) (in full) under this policy, or who have allowed the 12-month period to expire, must meet all educational requirements in order to re-qualify to take the applicable certification exam(s).

EDUCATION POLICIES

Payment

Course payments must be received with your registration form.

Hotel packages are available for Technical Schools. Details will be included with registration information. Hotel packages are available for the Spring School; you will need to book directly through the hotel.

Tuition Policies

For the latest and most accurate information, please see the "Tuition Policies" section of the registration form for any upcoming classes or Technical Schools.

Waitlist

Registrations are entered in the order they are received. Should a course sell out, registrants are placed on a waitlist upon receipt of a completed application and full tuition payment. If waitlisted registrants are not able to receive placement in their first class choice, they may opt to transfer to another course, another class session, or seek a refund.

Required References and Technical Catalogs for DHI Classes

When traveling to a school, we advise students to ship their reference materials directly to the hotel, to be held in their name, *in sufficient time for arrival before the start of class*. Students are responsible for making arrangements for return shipments following the end of class. DHI is not responsible for errant or late shipments or for returning lost and/or misplaced student materials.

Grading Policies

All grading/scoring will be done at DHI headquarters by DHI staff.

Online Education Transcript

Students can now track their progress through DHI's courses by viewing and/or printing their transcripts through the DHI website. To view your transcript, click on the **Education** button, then click on the **View Your Transcript** option, and follow the on-screen prompts to log in. Please contact DHI's Education Department at 703/222-2010 if you have questions regarding your educational transcript.

FREQUENTLY ASKED QUESTIONS

Are all class materials supplied by DHI?

No. In order to complete the required exercises, several of our classes require students to bring a significant number of manufacturers' technical manuals and/or product catalogs, as well as fire and life safety codes and standards and other important industry-specific reference documents. **Refer to page 20 for required class materials.**

A certain number of catalogs and reference documents are available in digitized form. These electronic documents may be used in our classes, where permitted, provided that the students use their own computers or tablets and power cords with appropriate length for the classroom environment.

Students are responsible for shipping their books to and from the class sites.

Note: Should a student choose to buy an electronic version of a required document, the student is doing so at his/her own risk, as this format may not always be easily accessible or handy in a face-to-face class setting.

Does the class tuition fee include hotel room and meal charges?

No. Class registration fees do not include hotel accomodations. If classes are held at the National Conference Center in Lansdowne, Virginia, then all meals are included in the fee.

Can I leave a class early or start late?

No. Students attending our face-to-face classes are required to be in the classroom during designated class hours. Students who arrive late, leave early, or are absent for a substantial portion of the class are not permitted to take the end-of-class exam.

Can I use a computer for my face-to-face class exercises?

No, unless there are extenuating circumstances such as physical or medical reasons for which such equipment is necessary for the student's participation in class.

Can I access my email when I am attending a DHI face-to-face class?

No. Internet access (email, browser, instant-messaging, etc.) is strictly prohibited during in-class hours. Please keep this in mind if you have purchased electronic formats of any course materials and plan to use them in class, as permitted.

Do I have to pass the DHI classes?

Yes. DHI's training courses have an end-of-class exam that students are required to take as part of the class. In order for students to receive credit for attending a class, they must formally pass these end-of-class exams. Class exams are designed to be open-book.

Why are there prerequisites?

Our number-one goal for students is to help advance their careers in the industry by achieving their professional educational goals. Prerequisites for some of our classes ensure that students do not miss critical information they need to master before progressing to subsequent classes. Course prerequisites are listed with the course descriptions.

Prerequisites for our certification exams help to better prepare students for the AHC, CDC, and EHC exams. In order to become eligible to take these exams, students must satisfy the educational prerequisites.

How do I take the Challenge Exams?

Challenge Exams are available online. Each Challenge Exam is designed to test the student's industry knowledge and expertise gained through on-the-job experience.

Students may register for the Challenge Exams by going to the DHI website, www.dhi.org. Students will need to draw on their industry experience and training in order to successfully complete the Challenge Exams. The Challenge Exams are not proctored and are designed as open-book exams. Individuals will receive DHI class credit for each successfully completed Challenge Exam.

FREQUENTLY ASKED QUESTIONS

What happens if I fail a Challenge Exam?

Individuals failing a Challenge Exam have the option of paying for and attending the class or re-applying and taking the Challenge Exam again.

What is the passing score for DHI exams?

Students must achieve a minimum score of 75% in order to successfully complete DHI's classes, Challenge Exams, and certification exams (e.g., AHC, CDC, and EHC). Students attending the Fire Door Assembly Inspection class (DAI 600) must achieve a passing score of 80%.

I have been in the industry for several years. Can I just take a certification exam?

No. A critically important aspect of DHI's credentialing program is the credibility we have in the external construction industry. We need to be able to quantify the expertise and capabilities our certified consultants have achieved to architects, contractors, owners, and fire marshals/building inspectors. Our certification prerequisites permit us to fully document this experience when we promote our consultants to the construction industry.

Many individuals in our industry have acquired a great deal of experience and knowledge, but they have not formally demonstrated their proficiency by passing an exam. Before they are permitted to take the certification exam, they must demonstrate that they have the requisite knowledge and expertise.

When are the AHC, CDC, and EHC exams offered?

DHI's certification exams are offered on an on-demand basis. Eligible individuals may apply for an exam at any time.

Where are the AHC, CDC, and EHC exams given?

Certification exams are timed exams and are administered under formal, proctored supervision. Proctors are selected in the candidate's vicinity, when available. Candidates may opt to take their exam at DHI's headquarters in Chantilly, Virginia.

What happens if I fail a part of a certification exam?

DHI's policies permit candidates who fail any segment of a certification exam to retake the failed segment(s) of the exam a maximum of two times within 12 months from the date of their original exam. Applicants who exhaust their retake attempts, or allow the 12-month exam period to expire, may immediately reapply for the certification exam provided, at the time of DHI's receipt of the new application, all exam eligibility requirements have been met.

ONLINE EDUCATION — FREQUENTLY ASKED QUESTIONS

What are the computer and Internet requirements?

You need a high-speed Internet connection and a web browser. Here is the listing of web browsers that you can use: Firefox (preferred), Google Chrome, Internet Explorer, Safari (for Macs), Adobe Acrobat Reader (version 10 or later). You will also need a headset with microphone, and a webcam is optional.

For the best student experience, we recommend wired Internet connections. Students in other online courses have reported sporadic connections issues when using Wi-Fi connections.

Can I see the instructors?

It is up to the instructors' discretion if they choose to use a webcam.

What days do the instructor-led courses run?

Tuesday, Wednesday, or Thursday, depending on the course.

What time do the courses begin and end?

4.30 pm EST. End time may vary at the instructors' discretion.

What happens if I cannot attend a session?

The online sessions are recorded as podcasts that you will be able to download at your convenience.

How do I access the course?

Detailed instructions will be emailed to you before the start of the class.

Will I be able to ask questions during the class?

Yes, through a chat box or speaker phone.

What happens if I have a technical problem?

If you have questions or experience any difficulties, we offer technical support. Please contact us at 703/222-2010 for assistance.