



Associated Builders  
and Contractors, Inc.

Illinois Chapter

# 2011-2012 Apprenticeship Training Catalog



You made the commitment...  
We'll help you pay for it!



## Candos Agency Insurance & Financial Services

Since 1983 the Candos Agency has provided individuals and businesses with insurance planning and financial solutions. They are one of the largest and most respected agencies in the Farmers Insurance Group of Companies. As one of the leading insurance organizations in the United States today, Farmers generates over ten billion in premium annually.

Farmers has selected the Candos Agency as a Commercial Gold Card Agency. The Candos Agency consistently places in the top one percent of all agencies nationwide. This special recognition and authority – combined with the Candos Agency staff's premier customer service – allows the Candos Agency to maintain a superior renewal rate among its clients.

In addition to its demonstrated expertise in Workers' Compensation, Liability, Property, and Commercial Auto, the Candos Agency also provides Employee Benefit Programs, Group and Individual Life, Disability, and Retirement Programs.

Contact the Candos Agency when considering your personal or business' insurance and financial services. They can help.

### ABCIL Sponsored Workers' Compensation Program

- ◆ Workers' Compensation Safety Group Discount
- ◆ Sponsored Apprenticeship Scholarship Program
- ◆ Professional Loss Control Assistance
- ◆ Specialized Claims Handling

### ABCIL Endorsed Employee Benefit Programs

- ◆ Group Health, Dental, and Disability Plans
- ◆ Flexible Benefit Programs (Cafeteria Plans)
- ◆ Health Reimbursement Accounts (HRA)
- ◆ Health Savings Accounts (HSA)

### Individualized Programs and Personal Lines Insurance

- ◆ 401k/Profit Sharing Plans
- ◆ SEP IRA/SIMPLE Pension Plans
- ◆ Estate Planning & Business Continuation
- ◆ Long Term Care & Annuities
- ◆ Personal Auto, Home, and Umbrella Coverages



**ABC Endorsed  
Insurance Provider**

### Candos Agency

One Park Place  
8104 W. 119th St.  
Palos Park ◆ Illinois ◆ 60464  
Fax: (708) 361-2770  
Email: [acandos@candosagency.com](mailto:acandos@candosagency.com)  
Business: (708) 361-2700

*This page is intentionally blank*



## APPRENTICESHIP TRAINING PROGRAM (ATP)

**STUDENT REGISTRATION:** To register for the ATP, students must complete the Apprenticeship Training Registration and Registration and Release Forms. Registrations can be mailed, faxed, emailed, or personally delivered to ABCIL.

**BENEFITS OF ACCREDITED CLASSROOM TRAINING:** ABCIL is an Accredited Training Sponsor of the National Center for Construction Education and Research (NCCER) and utilizes NCCER's nationally recognized Contren Learning Series curriculum. This curriculum was developed by NCCER in partnership with the construction industry and Prentice Hall, the world's largest educational publisher. A typical ATP course encompasses 144 hours of classroom and laboratory training annually. Most crafts have four levels (years) of courses. The benefits of this accredited classroom training include:

- Nationally recognized credentials with a clearly defined career path including advancement opportunities;
- A personal sense of achievement, professionalism, and pride for participants;
- Trained and skilled personnel capable of succeeding in a highly competitive marketplace;
- Superior productivity, employer profitability, and employee earnings;
- Increased loyalty and motivation with reduced absenteeism and turnover;
- Strengthened commitment to quality, employee fulfillment, and client satisfaction.

All trainees receive NCCER documentation of their accomplishments including Certificates, Wallet Cards, Transcripts, and inclusion in the National Registry database upon completion of each level of training.

**BENEFITS OF REGISTERED APPRENTICESHIP:** All of ABCIL's ATP courses are registered with the U.S. Department of Labor, Office of Apprenticeship (DOL-OA) with the exception of HVAC and CCL. This affiliation gives students the option of becoming Registered Apprentices with DOL-OA. In order to qualify, a student is obligated to complete a separate application and monitoring process and must have a sponsor employer.

A Registered Apprentice receives approximately 2,000 hours of On-The-Training (OJT) annually through their employer supplemented by the ATP classroom training. The OJT component includes progressively increasing apprentice wages correlated with the relevant craft journeyman hourly rate. Contractors who use Registered Apprentices on prevailing wage projects are only required to pay the apprentice wage rather than the normal prevailing wage. On most state-funded construction projects, contractors are required to employ Registered Apprentices in order to qualify to bid the project.

Upon completion of their apprenticeship (generally four years), a Registered Apprentice receives an Apprenticeship Completion Certificate issued by DOL-OA and is recognized nationally as a qualified journeyman in their respective craft.

**ASSESSMENT TESTING:** Evaluates the knowledge and skills of experienced craftspeople. Assessment Tests may be used for ATP placement as well as employment purposes and provide employers with an effective means to assess the skills and productivity of their personnel. Assessment Tests are available for most construction crafts and cost \$125.00 per test. Contact ABCIL for more information or to schedule an Assessment Test(s).

**EQUAL EDUCATION OPPORTUNITY POLICY:** ABCIL is committed to providing equal education opportunities regardless of sex, race, color, religion, age, national origin, or disability and complies with all federal and state laws.

**REGISTERED VETERANS:** Students who are veterans are encouraged to apply for education benefits through the Veterans' Administration. ABCIL can assist with this opportunity.

**COURSE ATTENDANCE POLICY:** Students are not allowed to miss any class. If an emergency arises, the class must be made up at the discretion of the respective class instructor and ABCIL's Vice President of Education & Safety. Work is not a valid excuse for missing a class. Attendance Reports are submitted weekly to ABCIL by each instructor. Notification of all absences will be forwarded to the student's employer within one week of occurrence. Three tardies will constitute one absence.

**COURSE CANCELLATION:** ABCIL reserves the right to cancel a course if an insufficient number of registrations are received three days prior to the first class meeting. Students will be notified via telephone that the course has been cancelled and their refunds immediately processed. Occasionally, classes are subject to change due to availability.

**TEXTBOOKS:** Course textbooks will be distributed to students the first night of class and are included in the price of tuition.

# ENROLL TODAY

## CLASSES BEGIN THE WEEK OF AUGUST 23RD

### CLASS SCHEDULE

PLEASE CALL FOR CLASS SCHEDULE  
CLASSES MEET FROM 6:00 PM TO 10:00 PM

### CLASS LOCATIONS

ELK GROVE VILLAGE

ROCKFORD

SPRINGFIELD

WAUKEGAN

ADDITIONAL CLASSES, LOCATIONS,  
AND TIMES MAY BE AVAILABLE.  
PLEASE CALL ABCIL (847.709.2960)  
IF YOU HAVE A SPECIAL NEED.

## APPRENTICESHIP CORE CURRICULUM DESCRIPTION

### CORE CURRICULUM – REQUIRED FOR ALL LEVEL ONE COURSES REGARDLESS OF CRAFT

**BASIC SAFETY**– Explains the safety obligations of workers, supervisors, and managers to ensure a safe workplace. Discusses the causes and results of accidents and the dangers of rationalizing risk. Reviews the role of company policies and OSHA regulations in maintaining a safe workplace. Introduces common job-site hazards and protections such as lockout/tagout, personal protective equipment (PPE), and HazCom.

**INTRODUCTION TO CONSTRUCTION MATH**– Reviews basic mathematical functions such as adding, subtracting, dividing, and multiplying whole numbers, fractions, and decimals, and explains their applications to the construction trades. Explains decimal-fraction conversions and the metric system using practical examples. Also reviews basic geometry as applied to common shapes and forms.

**INTRODUCTION TO HAND TOOLS**– Introduces trainees to hand tools that are widely used in the construction industry, such as hammers, saws, levels, pullers, vises, and clamps. Explains the specific applications of each tool and shows how to use them properly. Also discusses important safety and maintenance issues related to hand tools.

**INTRODUCTION TO POWER TOOLS**– Provides detailed descriptions of commonly used power tools such as drills, saws, grinders, and sanders. Reviews applications, proper use, safety, and maintenance. Many illustrations show power tools used in on-the-job settings.

**INTRODUCTION TO CONSTRUCTION DRAWINGS**– Familiarizes trainees with basic blueprint terms, components, and symbols. Explains the different types of blueprint drawing (civil, architectural, structural, mechanical, plumbing/piping, and electrical) and instructs trainees on how to interpret and use drawing dimensions.

**BASIC RIGGING**– Explains how ropes, chains, hoists, loaders, and cranes are used to move material and equipment from one location to another on a job site. Describes inspection techniques and load-handling safety practices. Also reviews American National Standards Institute (ANSI) hand signals.

**BASIC COMMUNICATION SKILLS**– Provides trainees with techniques for communicating effectively with co-workers and supervisors. Includes practical examples that emphasize the importance of verbal and written information and instructions on the job. Also discusses effective telephone and e-mail communication skills.

**BASIC EMPLOYABILITY SKILLS**– Identifies the roles of individuals and companies in the construction industry. Introduces trainees to critical thinking and problem solving skills and computer systems and their industry applications. Also reviews effective relationship skills, effective self-presentation, and key workplace issues such as sexual harassment, stress, and substance abuse.

**INTRODUCTION TO MATERIALS HANDLINGS**– Recognizing hazards associated with materials handling and explains proper materials handling techniques and procedures. Also introduces materials handling equipment, and identifies appropriate equipment for common job site tasks.

# CARPENTRY APPRENTICESHIP COURSE DESCRIPTIONS

## **CARPENTRY LEVEL ONE** – INCLUDES THE CORE CURRICULUM PLUS THE FOLLOWING:

**ORIENTATION TO THE TRADE** – Reviews the history of the trade, describes the apprentice program, identifies career opportunities for carpentry and construction workers, and lists the responsibilities and characteristics a worker should possess.

**WOOD BUILDING MATERIALS, FASTENERS, AND ADHESIVES** – Describes the sources and uses of various softwoods and hardwoods, explains the grading systems for lumber and plywood, and discusses the composition and uses of various engineered sheet materials and laminated lumber products. Also describes the many kinds of fasteners and adhesives used with wood and masonry.

**HAND AND POWER TOOLS** – Provides detailed descriptions and explanations of the use of the many hand-operated and power tools used by carpenters, including powder-actuated fasteners. Emphasis is on safe and proper operation of tools as well as care and maintenance.

**FLOOR SYSTEMS** – Covers framing basics as well as the procedures for laying out and constructing a wood floor using common lumber as well as engineered building materials.

**WALL AND CEILING FRAMING** – Describes the procedures for laying out and framing walls and ceilings, including roughing-in door and window openings, constructing corners and partition Ts, bracing walls and ceilings, and applying sheathing.

**ROOF FRAMING** – Describes the various kinds of roofs and contains instructions for laying out rafters for gable roofs, hip roofs, and valley intersections. Coverage includes both stick-built and truss-built roofs.

**WINDOWS AND EXTERIOR DOORS** – Describes the various types of windows, skylights, and exterior doors, and provides instructions for installing them. Also includes instructions for installing weather-stripping and locksets.

## **CARPENTRY LEVEL TWO**

**READING PLANS AND ELEVATIONS**

**SITE LAYOUT ONE – DISTANCE  
MEASUREMENT AND LEVELING**

**INTRODUCTION TO CONCRETE AND  
REINFORCING MATERIALS**

**FOUNDATIONS AND FLATWORK**

**CONCRETE FORMS**

**REINFORCING CONCRETE**

**HANDLING AND PLACING CONCRETE**

**MANUFACTURED FORMS**

## **CARPENTRY LEVEL THREE**

**EXTERIOR FINISHING**

**ROOFING APPLICATIONS**

**THERMAL AND MOISTURE  
PROTECTION**

**STAIRS**

**FRAMING WITH METAL STUDS**

**DRYWALL ONE: INSTALLATION**

**DRYWALL TWO: FINISHING**

**INTERIOR FINISH ONE: DOORS**

**INTERIOR FINISH TWO: SUSPENDED  
CEILINGS**

**INTERIOR FINISH THREE: WINDOW,  
DOOR, FLOOR, AND CEILING TRIM**

**INTERIOR FINISH FOUR: CABINET  
INSTALLATION**

## **CARPENTRY LEVEL FOUR**

**SITE LAYOUT TWO: ANGULAR  
MEASUREMENT**

**ADVANCED ROOF SYSTEMS**

**ADVANCED FLOOR SYSTEMS**

**ADVANCED WALL SYSTEMS**

**ADVANCED STAIR SYSTEMS**

**INTRODUCTION TO LIGHT EQUIPMENT**

**WELDING**

**METAL BUILDINGS**

**INTRODUCTORY SKILLS FOR THE  
CREW LEADER**



# CONSTRUCTION CRAFT LABORER (CRAFT TRAINING ONLY) COURSE DESCRIPTIONS

## **CONSTRUCTION CRAFT LABORER LEVEL ONE** – INCLUDES THE CORE CURRICULUM PLUS THE FOLLOWING:

**ORIENTATION TO CARPENTRY** – Reviews the history of the trade, describes the apprentice program, identifies career opportunities for carpentry and construction workers, and lists the responsibilities and characteristics a worker should possess.

**WOOD BUILDING MATERIALS, FASTENERS, AND ADHESIVES** – Describes the sources and uses of various softwoods and hardwoods, explains the grading systems for lumber and plywood, and discusses the composition and uses of various engineered sheet materials and laminated lumber products. Also describes the many kinds of fasteners and adhesives used with wood and masonry.

**SITE LAYOUT ONE: DISTANCE MEASUREMENT AND LEVELING** – Covers the principles, equipment, and methods used to perform the site layout task of distance measurement and differential leveling. Also covered is information about the layout responsibilities of surveyors, field engineers, and carpenters; understanding and using site/plot plan drawings; and methods used for on-site communication.

**INTRODUCTION TO CONCRETE AND REINFORCING MATERIALS** – Describes the properties, characteristics, and uses of various types of cement, aggregates, and other materials that, when mixed together, form different types of concrete. Procedures for concrete volume estimates and testing of freshly mixed concrete are covered, along with methods and materials for curing concrete, such as reinforcement bars, bar supports, and welded-wire fabric are described and defined.

**FOUNDATIONS AND FLATWORK** – Covers the construction of forms for continuous, stepped continuous, pier, and grade beam concrete footings. Also covered are edge forms used for on-grade concrete slabs and similar structures. Forming terms, parts of forms, and the procedures for constructing basic footing and edge forms are included.

**REINFORCING CONCRETE** – Explains the selection and uses of different types of reinforcing materials. Describes general requirements for cutting, bending, splicing, and tying reinforcing steel, as well as placement of the steel in various types of footings, columns, walls, and slabs.

**HANDLING AND PLACING CONCRETE** – Covers the tools, equipment, and procedures required for handling, placing, and finishing concrete at the job site. Also covered is general information about joints made in concrete structures, the use of joint sealants, and form removal procedures. Safety procedures for handling, placing, and finishing concrete are emphasized.

## **CONSTRUCTION CRAFT LABORER LEVEL TWO**

**CONCRETE FORMS**

**MANUFACTURED FORMS**

**ELEVATED WORK**

**ORIENTATION TO MOBILE CRANE OPERATIONS**

**INTRODUCTION TO IRONWORKING**

**ELECTRICAL SAFETY**

**FORKLIFTS**

**OXYFUEL CUTTING**

**MASONRY IN HIGH-RISE CONSTRUCTION**



# ELECTRICAL APPRENTICESHIP COURSE DESCRIPTIONS

## **ELECTRICAL LEVEL ONE** – *INCLUDES THE CORE CURRICULUM PLUS THE FOLLOWING:*

**ELECTRICAL SAFETY** – Covers safety rules and regulations for electricians. Trainees learn the necessary precautions to take for various electrical hazards found on the job. Also teaches the OSHA mandated lockout/tagout procedure.

**HAND BENDING** – Provides an introduction to conduit bending and installation. Covers the techniques for using hand-operated and step conduit benders, cutting, reaming, and threading conduit.

**FASTENERS AND ANCHORS** – Covers the hardware and systems used by an electrician to mount and support boxes, receptacles, and other electrical components. Trainees learn the various types of anchors and supports, their applications, and safe installation.

**ELECTRICAL THEORY ONE** – Offers a general introduction to the electrical concepts used in Ohm's Law applied to DC series circuits. Includes atomic theory, electromotive force, resistance, and electric power equations.

**ELECTRICAL THEORY TWO** – Introduces series, parallel, and series-parallel circuits. Covers resistive circuits, Kirchoff's Voltage and Current Law, and circuit analysis.

**ELECTRICAL TEST EQUIPMENT** – Focuses on proper selection, inspection, use, and maintenance of common electrical test equipment. Trainees get to practice using many of the instruments while learning the appropriate test procedures and safety rules.

**INTRODUCTION TO THE NATIONAL ELECTRICAL CODE** ® – Provides a navigational road map for using the NEC ®. Trainees are introduced to the layout of the NEC ® and the types of information found within the code book. Trainees are able to practice finding information using an easy-to-follow procedure.

**RACEWAYS, BOXES, AND FITTINGS** – Introduces the types and applications of raceways, wireways, and ducts. The appropriate NEC ® requirements are stressed.

**CONDUCTORS** – Focuses on the types and applications of conductors and covers proper wiring techniques. The appropriate NEC ® requirements are stressed.

**INTRODUCTION TO ELECTRICAL BLUEPRINTS** – Focuses on electrical prints, drawings, and symbols. Trainees learn the types of information they can find on schematics, one-lines, and wiring diagrams.

**WIRING: COMMERCIAL AND INDUSTRIAL** – Covers the electrical devices and wiring techniques common to commercial and industrial construction and maintenance. The appropriate NEC ® requirements are stressed.

**WIRING: RESIDENTIAL** – Covers the electrical devices and wiring techniques common to residential construction and maintenance. Trainees also practice making service calculations. Stresses appropriate NEC ® requirements.

## **ELECTRICAL LEVEL TWO**

**ALTERNATING CURRENT**

**MOTORS: THEORY AND APPLICATION**

**GROUNDING**

**CONDUIT BENDING**

**BOXES AND FITTINGS**

**CONDUCTION INSTALLATIONS**

**CABLE TRAY**

**CONDUCTOR TERMINATIONS & SPLICES**

**INSTALLATION OF ELECTRIC SERVICES**

**CIRCUIT BREAKERS AND FUSES**

**CONTRACTORS AND RELAYS**

**ELECTRIC LIGHTING**

## **ELECTRICAL LEVEL THREE**

**LOAD CALCULATIONS: BRANCH CIRCUITS**

**CONDUCTOR SELECTION AND CALCULATIONS**

**OVERCURRENT PROTECTION**

**RACEWAY, BOX AND FITTING FILL REQUIREMENTS**

**WIRING DEVICES**

**DISTRIBUTION EQUIPMENT**

**DISTRIBUTION SYSTEMS TRANSFORMERS**

**LAMPS, BALLASTS & COMPONENTS**

**MOTOR CALCULATIONS**

**MOTOR MAINTENANCE, PART ONE**

**MOTOR CONTROLS**

**HAZARDOUS LOCATIONS**

## **ELECTRICAL LEVEL FOUR**

**LOAD CALCULATIONS: FEEDER & SERVICES**

**PRACTICAL APPLICATIONS OF LIGHTING**

**STANDBY & EMERGENCY SYSTEMS**

**BASIC ELECTRONIC THEORY**

**FIRE ALARM SYSTEMS**

**SPECIALTY TRANSFORMERS**

**ADVANCED MOTOR CONTROLS**

**HVAC CONTROLS**

**HEAT TRACING & FREEZE PROTECTION**

**MOTOR MAINTENANCE, PART TWO**

**HIGH VOLTAGE TERMINATIONS/SPLICES**



# HEAVY EQUIPMENT OPERATOR APPRENTICESHIP COURSE DESCRIPTIONS

## **HEAVY EQUIPMENT OPERATOR LEVEL ONE – INCLUDES THE CORE CURRICULUM PLUS THE FOLLOWING:**

**ORIENTATION TO HEAVY EQUIPMENT OPERATIONS** – Provides a comprehensive overview of heavy equipment uses, operator responsibilities, career opportunities, and safety principles associated with the operation of heavy equipment.

**HEAVY EQUIPMENT SAFETY** – Contains the safety guidelines for the operation, maintenance, and transportation of heavy equipment. Covers the use of signs and barricades and the safety of those working in the vicinity of heavy equipment, as well as trenching safety issues.

**IDENTIFICATION OF HEAVY EQUIPMENT** – Provides an overview of each type of heavy equipment covered in the program, along with their different models, applications, and common attachments.

**BASIC OPERATIONAL TECHNIQUES** – Provides basic instruction for the safe operation and preventive maintenance on each type of equipment, including proper mounting, startup procedures, and basic movements of the machine and its attachments. Provides the first hands-on experience with each type of machine.

**TRACTORS** – Covers operation of utility tractors and heavy-duty articulated tractors as used in the construction industry. Contains detailed operation and operator maintenance instructions, including duties and responsibilities of the operator, safety rules for operation, attachment of implements, and preventive maintenance procedures performed by the operator.

**GRADES, PART ONE** – Introduces the concepts of elevations and grading, the use and interpretation of grade stakes, and the basic process of grading construction sites, distance measuring, and finish grades.

## **HEAVY EQUIPMENT OPERATOR LEVEL TWO**

**INTRODUCTION TO EARTH MOVING**

**DUMP TRUCKS**

**ROLLERS**

**SCRAPERS**

**LOADERS**

**FORKLIFTS**

**EXCAVATION MATH**

**GRADES, PART TWO**

**CIVIL BLUEPRINT READING**

## **HEAVY EQUIPMENT OPERATOR LEVEL THREE**

**FINISH OPERATOR**

**ADVANCED SAFETY**

**TELESCOPING EXCAVATORS**

**MOTOR GRADERS**

**EXCAVATORS**

**FINISHING AND GRADING**

**SOILS, PART THREE**



# HVAC (CRAFT TRAINING ONLY) COURSE DESCRIPTIONS

## **HVAC LEVEL ONE** – *INCLUDES THE CORE CURRICULUM PLUS THE FOLLOWING:*

**INTRODUCTION TO HVAC** – Covers the basic principles of heating, ventilating, and air conditioning; and career opportunities in HVAC, training, and apprenticeship programs.

**TRADE MATHEMATICS** – Explains how to solve problems involving the measurement of lines, area, volume, weights, angles, pressure, vacuum, and temperature.

**TOOLS OF THE TRADE** – Describes the purpose and use of tools such as wrenches, saws, hammers, drills, and measuring instruments, along with instructions on their safe use and maintenance.

**COPPER & PLASTIC PIPING PRACTICES** – Covers the selection, preparation, joining, and support of copper, plastic piping, and fittings.

**SOLDERING AND BRAZING** – Covers tools, materials, and safety precautions and depicts step-by-step procedures for soldering and brazing copper piping.

**FERROUS METAL PIPING PRACTICES** – Covers various types of iron and steel pipe and fittings, and provides step-by-step instructions for cutting, threading, and joining ferrous piping.

**BASIC ELECTRICITY** – Teaches power generation and distribution, electrical components, DC circuits, and electrical safety.

**INTRODUCTION TO COOLING** – Covers the basic principles of heat transfer, refrigeration, and pressure-temperature relationships, and describes the components and accessories used in air conditioning systems.

**INTRODUCTION TO HEATING** – Covers heating fundamentals, types and designs of furnaces and their components, and basic procedures for installing and servicing furnaces.

## **HVAC LEVEL TWO**

**AIR DISTRIBUTION SYSTEMS**

**CHIMNEYS, VENTS AND FLUES**

**MAINTENANCE SKILLS FOR THE SERVICE TECHNICIAN**

**ALTERNATING CURRENT**

**BASIC ELECTRONICS**

**ELECTRIC HEATING**

**INTRODUCTION TO CONTROL CIRCUIT TROUBLESHOOTING**

**ACCESSORIES AND OPTIONAL EQUIPMENT**

**METERING DEVICES**

**COMPRESSORS**

**HEAT PUMPS**

**LEAK DETECTION, EVACUATION, RECOVERY, AND CHARGING**

## **HVAC LEVEL THREE**

**PLANNED MAINTENANCE**

**TROUBLESHOOTING GAS HEATING**

**TROUBLESHOOTING ELECTRIC HEATING**

**TROUBLESHOOTING OIL HEATING**

**TROUBLESHOOTING COOLING**

**TROUBLESHOOTING HEAT PUMPS**

**TROUBLESHOOTING ACCESSORIES**

**TROUBLESHOOTING ELECTRONIC CONTROLS**

**HYDRONIC HEATING AND COOLING SYSTEMS**

**AIRSIDE SYSTEMS**

**AIR PROPERTIES AND AIR SYSTEM BALANCING**

## **HVAC LEVEL FOUR**

**CONSTRUCTION DRAWINGS AND SPECIFICATIONS**

**INDOOR AIR QUALITY**

**ENERGY CONSERVATION EQUIPMENT**

**BUILDING MANAGEMENT SYSTEMS**

**WATER TREATMENT**

**SYSTEM STARTUP AND SHUTDOWN**

**HEATING AND COOLING SYSTEM DESIGN**

**COMMERCIAL AND INDUSTRIAL REFRIGERATION**



# PAINTING APPRENTICESHIP COURSE DESCRIPTIONS

## **PAINTING LEVEL ONE** – *INCLUDES THE CORE CURRICULUM PLUS THE FOLLOWING:*

**CAREERS IN THE PAINTING TRADE** – Presents a brief history of the painting trade. Career opportunities, from apprenticeship/helper to managerial/business-related work, are covered. Describes the characteristics of the successful tradesperson, including productivity, appearance, personal hygiene, and dependability.

**SAFETY** – Provides a comprehensive overview of the safety and precautions for working on construction sites with a focus on the painting trade. Covers methods of rigging and care of ladders, scaffolds, swing devices, and other equipment.

**LADDERS, SCAFFOLDS, LIFTS, AND FALL PROTECTION** – Covers methods of erecting, using and maintaining ladders, scaffolds, and lifts. Fall protection equipment and safety practices used when working on ladders, scaffolds, and lifts are also discussed.

**IDENTIFYING SURFACE/SUBSTRATE MATERIALS AND CONDITIONS** – Covers how to identify types of surfaces used in construction including wood, metal, masonry/concrete, plaster/drywall and synthetic substrates. Also discusses how to identify new, aged, or previously coated surface conditions of substrates and coatings.

**PROTECTING ADJACENT SURFACES** – Covers the tools, materials, and methods used for protecting adjacent surfaces and areas prior to surface preparation, paint spraying, etc.

**BASIC SURFACE PREPARATION** – Covers the tools, materials, and methods used for cleaning, repairing, and penetrating surfaces/substrates in preparation for coating. Basic methods used for surface preparation of wood, metal, plaster/drywall, cementitious, and synthetic surfaces/substrates are described.

**SEALANTS AND REPAIR FILLERS** – Describes the characteristics of commonly used types of sealants and fillers. Covers guidelines for selecting sealants/fillers and the tools and methods used for applying them on commonly used construction substrates.

**INTRODUCTION TO PAINTS AND COATINGS** – Describes the basic ingredients and film-forming processes common to all paints and coatings. Covers paint systems and functional categories of paints and coatings. Emphasizes water-based alkyd paints and coatings.

**BRUSHING AND ROLLING PAINTS AND COATINGS** – Covers the types and selection of brushes, rollers, pads, mitts, and related accessories used for applying paints and coatings. Covers techniques used for brushing and rolling paints and coatings on interior and exterior surfaces. Also describes maintenance and storage methods for brushes and rollers.

## **PAINTING LEVEL TWO**

**PAINTING FAILURES AND REMEDIES**

**JOB PLANNING AND COMPLETION**

**CHEMICAL CLEANING AND STRIPPING**

**LOW-PRESSURE WATER CLEANING**

**ABRASIVE BLASTING**

**DRYWALL FINISHING AND PATCHING**

**STAINS**

**CLEAR FINISHES**

**WOOD FINISHING**

**COATINGS TWO**

**SPRAY PAINTING**

## **PAINTING LEVEL THREE**

**PAINTING FAILURES AND REMEDIES TWO**

**JOB SUPERVISION, PLANNING, AND CONTROL**

**COATINGS THREE**

**COLOR AND TINTING**

**DECORATIVE (FAUX) FINISHES**

**WALLCOVERING**

**GRAPHICS**

**TEXTURING**

**SPRAYING WITH SPECIAL DEVICES**

## **PAINTING LEVEL FOUR**

**SAFETY**

**LADDERS, SCAFFOLDS, LIFTS, AND FALL PROTECTION**

**CONTAINMENT/VENTILATION**

**SURFACE PREPARATION ONE**

**SURFACE PREPARATION TWO**

**SURFACE PREPARATION THREE**

**INDUSTRIAL COATINGS**

**COATINGS APPLICATIONS AND EQUIPMENT**

**QUALITY INSPECTIONS**

**COATINGS FAILURES AND ANALYSIS**

**SPECIALTY MATERIALS**



# PLUMBING APPRENTICESHIP COURSE DESCRIPTIONS

## **PLUMBING LEVEL ONE – INCLUDES THE CORE CURRICULUM PLUS THE FOLLOWING:**

**INTRODUCTION TO THE PLUMBING PROFESSION** – Introduces trainees to the many career options available in today's plumbing profession. Provides a history of plumbing and also discusses the current technology, industries, and associations that make up the modern plumbing profession. Also reviews human relations and safety skills.

**PLUMBING SAFETY** – Discusses the causes of accidents and their consequences and repercussions in terms of delays, increased expenses, injury, and loss of life. Reviews the types and proper use of personal protective equipment (PPE). Instructs trainees in the use of critical safety information conveyed in hazard communication (HazCom), safety signs, signals, lockout/tagout, and emergency response. Covers confined space safety, and reviews safety issues related to hand and power tools.

**PLUMBING TOOLS** – Instructs trainees in the care and use of the different types of hand and power tools they will use on the job. Gives trainees the information they need to select the appropriate tools for different tasks, and reviews tool maintenance and safety issues.

**INTRODUCTION TO PLUMBING MATH** – Reviews basic math concepts, such as whole numbers, fractions, decimals, and squares and demonstrates how they apply to on-the-job situations. Teaches trainees how to measure pipe using fitting tables and framing squares and how to calculate 45-degree offsets.

**INTRODUCTION TO PLUMBING DRAWINGS** – Introduces trainees to the different types of plumbing drawings they will encounter on the job, and discusses how to interpret and apply them when laying out and installing plumbing systems. Discusses the symbols used in plumbing and mechanical drawings, and reviews isometric, oblique, orthographic, as well as schematic drawings. Requires trainees to render plumbing drawings and to recognize how code requirements apply to plumbing drawings.

**PLASTIC PIPE AND FITTINGS** – Introduces trainees to the different types of plastic pipe and fittings used in plumbing applications, including ABS, PVC, CPVC, PE, PEX and PB. Describes how to measure, cut, join, and support plastic pipe according to manufacturer's instructions and applicable codes. Also discusses pressure testing of plastic pipe once installed.

**COPPER PIPE AND FITTINGS** – Discusses sizing, labeling, and applications of copper pipe and fittings and reviews the types of valves that can be used on copper pipe systems. Explains proper methods for cutting, joining, and installing copper pipe. Also addresses insulation, pressure testing, seismic codes, and handling and storage requirements.

**CAST-IRON PIPE AND FITTINGS** – Introduces trainees to hub-and-spigot and no-hub-cast-iron pipe and fittings and their applications in DWV systems. Reviews material properties, storage and handling requirements, and fittings and valves. Covers joining methods, installation, and testing.

**CARBON STEEL PIPE AND FITTINGS** – Discusses threading, labeling, and sizing of carbon steel pipe and reviews the differences between domestic and imported pipe. Also covers the proper techniques for measuring, cutting, threading, joining, and hanging carbon steel pipe.

**CORRUGATED STAINLESS STEEL TUBING** – Reviews flexible plastic-coated steel tubing. Discusses piping system components and the various connection and installation options. Also reviews applicable safety and code requirements.

**FIXTURES AND FAUCETS** – Discusses the proper applications of code-approved fixtures and faucets in plumbing installations. Reviews the different types of fixtures and faucets and the materials used in them. Also covers storage, handling, and code requirements.

**INTRODUCTION TO DRAIN, WASTE, AND VENT (DWV) SYSTEMS** – Explains how DWV systems remove waste safely and effectively. Discusses how system components, such as pipe, drains, traps, and vents work. Reviews drain and vent sizing, grade, and waste treatment. Also discusses how building sewers and sewer drains connect the DWV system to the public sewer system.

**INTRODUCTION TO WATER DISTRIBUTION SYSTEMS** – Identifies the major components of water distribution systems and describes their functions. Reviews water sources and treatment methods and covers supply and distribution for the different types of systems that trainees will install on the job.

**PLUMBING LEVELS TWO, THREE, AND FOUR CONTINUED ON THE NEXT PAGE.**



**PLUMBING LEVEL TWO**

*PLUMBING MATH TWO*

*READING COMMERCIAL DRAWINGS*

*HANGERS, SUPPORTS,  
STRUCTURAL PENETRATIONS, AND  
FIRE STOPPING*

*INSTALLING AND TESTING DWV  
PIPING*

*INSTALLING ROOF, FLOOR, AND  
AREA DRAINS*

*TYPES OF VALVES*

*INSTALLING AND TESTING WATER  
SUPPLY PIPING*

*INSTALLING FIXTURES, VALVES,  
AND FAUCETS*

*INTRODUCTION TO ELECTRICITY*

*INSTALLING WATER HEATERS*

*FUEL GAS SYSTEMS*

*SERVICING OF FIXTURES, VALVES,  
AND FAUCETS*

**PLUMBING LEVEL THREE**

*APPLIED MATH*

*SIZING WATER SUPPLY PIPING*

*POTABLE WATER SUPPLY  
TREATMENT*

*BACKFLOW PREVENTERS*

*TYPES OF VENTING*

*SIZING DWV AND STORM  
SYSTEMS*

*SEWAGE PUMPS AND SUMP  
PUMPS*

*CORROSIVE-RESISTANT WASTE  
PIPING*

*COMPRESSED AIR*

**PLUMBING LEVEL FOUR**

*BUSINESS MATH FOR PLUMBERS*

*SIZING DWV & STORM SYSTEMS*

*PRIVATE WATER SUPPLY SYSTEMS*

*PRIVATE WASTE DISPOSAL  
SYSTEMS*

*LOCATING BURIED WATER AND  
SEWER LINES*

*HYDRONIC AND SOLAR HEATING  
SYSTEMS*

*WATER SUPPLY TREATMENT*

*SWIMMING POOLS AND HOT TUBS*

*COMPRESSED AIR*

*CORROSIVE-RESISTANT WASTE  
PIPING*

*PLUMBING FOR MOBILE HOMES  
AND MOBILE HOME PARKS*

**ABCIL MISSION STATEMENT**

**TO PROMOTE AND PRESERVE FREE ENTERPRISE WITH INTEGRITY;  
THROUGH SUPERIOR EDUCATION, SAFETY, POLITICAL ACTION,  
BUSINESS DEVELOPMENT AND CAREER OPPORTUNITIES IN THE  
CONSTRUCTION INDUSTRY.**





## **Illinois Chapter**

1541 Elmhurst Road  
Elk Grove Village, IL 60007