

ABC Apprenticeship Carpentry

Core Curriculum

00101-00 Basic Safety Covers need-to-know information for trainees to work safely. Includes what personal protective equipment to wear, how to perform basic construction tasks safely, and what to do if an accident occurs.

00102-00 Introduction to Construction Math From basic addition to multiplying fractions and more, this module prepares trainees to do the calculations they'll be performing on the job site.

00103-00 Introduction to Hand Tools Covers a basic toolbox worth of equipment with color pictures of the tools and illustrations of how to use them. Also covers maintenance instructions and safety tips.

00104-00 Introduction to Power Tools Provides pictures and hot-to-use instructions for tools powered by electricity, batteries, and pressurized air, such as drills, saws, grinders and sanders, and other common construction equipment. Also covers maintenance instructions and safety tips.

00105-00 Introduction to Blueprints Introduces trainees to the different types of plans and how they represent a finished building. Shows the parts of the blueprints in detail, including symbols, the title block, and gridlines.

00106-00 Basic Rigging Covers the slings, hardware, hoists, and hitches used in rigging operations. Also highlights critical safety issues and accepted rigging techniques and practices.

Level I

Orientation to the Carpentry 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 member of the trade 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 power-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 construction 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 rough-in door and window openings, construction corners and partition T's, bracing walls and ceilings, and applying sheathing.

Roof Framing

Describes the various kinds of roofs and contains instructions for laying out rafters for gable roof, 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.

Level 2

Reading Plans and Elevations

Builds upon the basic information presented in the *Introduction to Blueprints* module studied in the Core Curriculum. Trainees will learn the techniques for reading and using blueprints and specifications with an emphasis placed on those drawings and types of information that are relevant to the carpentry trade. Introduces the subject of quantity takeoffs.

Site Layout I – Distance Measurements 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.

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Introduction to Concrete and Reinforcing Materials

Describes the properties, characteristics, and used 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. Reinforcement materials used in 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.

Concrete Forms

Covers the applications and construction methods for various types of job-built forms, including wall, column, slab-and-beam, and stair forms.

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 placement, and finishing of 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.

Patented Forms

Covers the types of manufactured forms and form hardware systems used in the construction of walls, columns, deck and roof slabs, beams and girders, culverts, and highways. Includes coverage of flying forms, slipforms, shoring and architectural finishes.

Tilt-Up Wall Systems

Reviews the history and applications of tilt-up wall systems and describes the procedures for forming, finishing, and erecting tilt-up wall panels.

Level 3

Exterior Finish

Covers the various types of exterior siding used in residential construction and their installation procedures, including several types of wood siding, as well as metal and vinyl siding. Also covers the installation of metal and vinyl gutters and downspouts.

Roofing Applications

Covers the common materials used in residential and light commercial roofing, along with the safety practices and application methods for these materials, includes shingles, roll roofing, shakes, tiles, metal and membrane roofs, as well as the selection and installation of roof vents.

Thermal and Moisture Protection

In this module, the trainee will learn how to select and install various types of insulating materials in walls, floors, and attics. The uses and installation practices for vapor barriers and waterproofing materials are also covered

Stairs

Covers the various types of wooden stairs used in residential and commercial construction, along with procedures for laying out stairs, cutting out stringers, and installing and finishing stairs.

Framing with Metal Studs

Includes instructions for selecting and installing metal framing for interior walls, exterior non-loadbearing walls and partitions.

Drywall One: Installation

Describes the various types of gypsum drywall, their uses, and the fastening devices and methods used to install them. Contains detailed instructions for installing drywall on walls and ceilings using nails, drywall screws, and adhesives. Also covers fire-and sound-rated walls.

Drywall Two: Finishing

Covers the materials, tools and methods used to finish and patch gypsum drywall. Includes coverage of both automatic and manual taping tools.

Interior Finish One: Doors

Covers the installation of metal doors and related hardware in steel-framed, wood-framed, and masonry walls, along with their related hardware such as locksets and door closers. Also covers the installation of wooden doors, folding doors, and pocket doors.

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Carpentry Level Three (cont.)

Interior Finish Two: Suspended Ceilings

Includes the materials, layout and installation procedures for many types of suspended ceilings used in commercial construction, as well as ceiling tiles, drywall suspension systems, and pan-type ceilings.

Interior Finish Three: Window, Door, Floor, and Ceiling

In this module, the trainee will learn about the different types of trim used in finish work. Procedures focus on the proper methods for selecting, cutting, and fastening trim to provide a professional finished appearance.

Interior Finish Four: Cabinet Installation Provides detailed instructions for the selection and installation of base and wall cabinets and countertops.

Level 4

Site Layout II: Angular Measurement

Covers the principles, equipment, and methods used to perform the site layout tasks that require making angular measurements. These tasks include laying out building foundation lines and determining elevations by trigonometric leveling. The use of laser instruments, transits, theodolites, electronic distance measurement, and total stations are covered. Also covered is a review of the trade mathematics, including geometry and right-angle trigonometry, needed to perform the calculations related to angular measurements.

Advanced Roof Systems

Covers structural and lightweight concrete floors, in-floor radiant heating, and a variety of finish flooring, including hardwood floors, vinyl tile, carpeting, and terra cotta tile.

Advanced Floor Systems

Covers structural and lightweight concrete floors, in-floor radiant heating, and a variety of finish flooring, including hardwood floors, vinyl tile, carpeting and terra cotta tile.

Advanced Wall Systems

Covers installation of a variety of finishing, materials, including paneling, wainscoting, and movable partitions. Also covers installation of curtain walls and fire-rated commercial construction.

Advanced Stair Systems

Provides extensive coverage of the materials and techniques used in finishing wooden staircases. Also covers a variety of stair systems used in commercial construction.

Light Equipment

This module introduces the trainees to various pieces of light construction equipment commonly used at a construction site, including the aerial lift, skid steer loader, trencher, electric power generator, compressor, compactor, and forklift. An overview of general safety, operation and maintenance is given for each type of equipment covered.

Welding

The trainee is introduced to the equipment, procedures, and safety practices used in cutting steel with oxyfuel equipment and in shielded metal arc welding techniques.

Metal Building

The trainee is introduced to the basic structural components, fastening methods, and assembly techniques for metal buildings. An overview of the materials and practices used in the application of roofs, wall panels, windows, doors, trim and flashing is also provided.

Introduction to Project Management and Supervision

Along with the principles of project planning, scheduling, estimating and management, the trainee learns the basic skills required to supervise personnel. Several case studies are included.