

## §130.46. Construction Management I (Two Credits), Adopted 2015.

### **DOMAIN 1 – PROFESSIONAL PRACTICE**

(1B) demonstrate an understanding of group participation and leadership related to career preparation  
(1C) identify employers' expectations, including appropriate work habits  
(30A) describe how teams function  
(30B) describe the use of teamwork to solve problems  
(30C) distinguish between the roles of team leaders and team members  
(30D) identify characteristics of good leaders  
(30E) identify employers' expectations and appropriate work habits

### **DOMAIN 2 – OFFICE PRACTICE**

(1D) apply the competencies related to resource technology in appropriate settings  
(1E) demonstrate knowledge of the concepts and skills related to health and safety in the workplace, as specified by appropriate governmental regulations  
(2A) demonstrate effective verbal and written communication skills with individuals from varied cultures, including fellow workers, managers, and customers  
(2B) complete work orders and related paperwork  
(10B) follow safety manuals, instructions, and dimensions  
(10D) dispose of hazardous materials and wastes appropriately  
(11A) maintain tools and materials correctly  
(11B) perform manufacturers' maintenance procedures on selected tools, equipment, and machines  
(30F) define discrimination, harassment, and inequality  
(30G) describe the use of time-management techniques to develop and maintain work schedules and meet deadlines

### **DOMAIN 3 – CAREER RESEARCH**

(1A) identify employment opportunities, including entrepreneurship and career preparation requirements, in the field of construction management  
(29A) describe an area of interest in construction and investigate its entry-level requirements and advancement opportunity requirements and its growth potential  
(29B) identify the careers available in construction technology

### **DOMAIN 4 – PROJECT ORGANIZATION**

(2E) apply descriptive geometry related to auxiliary views, revolutions, intersections, and piping drawings  
(5B) apply construction technology to individual or community problems  
(6A) describe the design processes and techniques used in construction  
(6B) develop or improve a building or structure that meets specified needs  
(6C) identify areas where quality, reliability, and safety can be designed into a building or structure  
(8B) apply continuous quality improvement techniques to the construction of a building or structure  
(9C) construct buildings or structures using a variety of tools, equipment, and machines  
(12A) develop a plan for completing a construction project  
(12B) participate in the organization and operation of a real or simulated construction project using project management processes, including initiating, planning, executing, monitoring and controlling, and closing a project  
(13C) comply with appropriate codes, laws, standards, or regulations  
(14A) apply an assessment strategy to determine the risks and benefits of technological developments in construction  
(16A) develop or improve a building or structure by following a problem-solving strategy  
(16B) apply critical-thinking strategies to analyze and evaluate proposed technological solutions  
(19A) use hand tools, power tools, and equipment commonly employed in carpentry in a safe manner  
(19B) handle and dispose of environmentally hazardous materials used in carpentry in the proper manner;  
(19C) use the different types of scaffolding employed in building carpentry in a safe manner  
(20A) square, measure, and cut materials to specified dimensions  
(20B) handle different types of loads  
(20C) use framing techniques for walls, floors, ceilings, rafters, structural timbers, stairs, trusses, and fireproof metal-studs  
(20D) demonstrate the proper principles of drywall application  
(20E) install doors, windows, interior and exterior wall covering, and trim  
(21B) use hand tools safely  
(21E) use portable power tools safely  
(23K) demonstrate the ability to lay out and construct a floor assembly, including installing bridging; installing joists for a cantilever-floor; installing a subfloor using butt-joint plywood or oriented strand board panels; and installing a single floor system using tongue-and-groove plywood or oriented strand board panels  
(25G) frame or describe how to frame a gable roof with vent openings  
(25H) erect, or describe how to erect, a gable roof using trusses  
(25I) frame, or describe how to frame, a roof opening  
(26H) install, or explain the procedure to install, a pre-hung exterior door  
(26J) install a lockset  
(28) The student describes basic product marketing processes and techniques used in construction. The student is expected to prepare a marketing plan for an idea, product, or service.

### **DOMAIN 5 – INDUSTRY MATERIALS & METHODS**

(2C) estimate jobs, schedules, and industry standards related to legal restrictions  
(2D) read and interpret appropriate architectural symbols, schematics, blueprints, work drawings, manuals, and bulletins  
(3A) identify various types of construction materials and methods  
(3B) describe the uses of various types of hardwoods and softwoods  
(3C) identify the grades and markings of wood building materials  
(3D) describe the proper method of storing and handling building materials  
(3E) describe the uses of various types of engineered lumber  
(3G) describe the fasteners, anchors, and adhesives used in construction work  
(4A) apply the universal systems model to construction activities  
(4B) identify the inputs, processes, outputs, and feedback associated with construction systems  
(4C) describe the subsystems used in construction  
(4D) describe how technological systems interact to achieve common goals  
(5A) distinguish between architectural and civil construction systems  
(5C) describe the factors that affect the purchase and use of constructed items  
(5D) identify and describe the roles of construction  
(7A) report on emerging and innovative construction technologies  
(7B) conduct research and experimentation in construction technology  
(8A) describe different quality control applications in construction  
(9A) describe the chemical, mechanical, and physical properties of construction materials  
(9B) describe the processes used in construction  
(10A) master relevant safety tests  
(10C) identify and classify hazardous materials and wastes  
(11C) describe the results of negligent or improper maintenance  
(13A) explain the importance of codes, laws, standards, or regulations related to construction technology  
(13B) identify areas where codes, laws, standards, or regulations related to construction technology may be required  
(14B) describe how technology has affected individuals, societies, cultures, economies, and environments  
(14C) discuss the international effects of construction technology  
(14D) describe the issues related to regional and community planning  
(15A) describe how changes in construction technology affect business and industry  
(15B) describe how the evolution of construction technology has been influenced by past events  
(18A) identify the uses of carpentry hardware and fasteners  
(18B) demonstrate knowledge of fire ratings of construction materials  
(19D) demonstrate knowledge of new and emerging technologies that may affect construction carpentry  
(21A) identify the hand tools commonly used by carpenters and describe their uses  
(21C) state the general safety rules for operating all power tools, regardless of type

(21D) identify the portable power tools commonly used by carpenters and describe their uses  
(22A) describe the types of drawings usually included in a set of plans  
(22B) identify the different types of lines used on construction drawings  
(22C) identify selected architectural symbols commonly used to represent materials on plans  
(22D) identify selected electrical, mechanical, and plumbing symbols commonly used on plans  
(22E) identify selected abbreviations commonly used on plans  
(22F) read and interpret plans, elevations, schedules, sections, and details contained in basic construction drawings  
(22G) state the purpose of written specifications  
(23A) identify the different types of framing systems  
(23B) interpret drawings with specifications to determine floor system requirements  
(23C) identify framing and support members as it refers to flooring  
(23D) name the methods used to fasten sills to the foundation  
(23F) list and recognize different types of bridging  
(23G) list and recognize different types of flooring materials  
(23H) explain the purposes of subflooring and underlayment  
(23I) select the appropriate fasteners to be used in various floor-framing systems  
(24A) identify the components of a wall and ceiling layout  
(24B) describe the procedure for laying out a wood frame wall, including plates, corner posts, door and window openings, partition Ts, bracing, and fire stops  
(24C) describe the correct procedure for assembling and erecting an exterior wall  
(24D) identify the common materials and methods for installing sheathing on walls  
(24E) describe or demonstrate how to lay out, assemble, erect, and brace exterior walls for a frame building  
(24F) describe wall-framing techniques used in masonry construction  
(24G) explain the use of metal studs in wall framing  
(24H) explain how to cut and install ceiling joists on a wood frame building  
(25A) demonstrate an understanding of the terms associated with roof framing  
(25B) identify the roof-framing members used in gable and hip roofs  
(25C) identify the methods used to calculate the length of a rafter  
(25D) identify the various types of trusses used in roof framing  
(25F) identify various types of sheathing used in roof construction  
(26A) identify various types of fixed, sliding, and swinging windows  
(26B) identify the parts of a window installation  
(26C) state the requirements for proper window installation  
(26D) explain how to install a pre-hung window  
(26E) identify the common types of exterior doors and explain how they are constructed  
(26F) identify the parts of a door installation  
(26G) identify types of thresholds used with exterior doors

(26I) identify the various types of locksets used on exterior doors and explain how the locksets are installed  
(26K) identify and explain the use and installation of various other door and window hardware, including security hinges, keepers, deadbolts, and peep holes  
(27A) identify the various types of stairs  
(27B) identify the various parts of stairs  
(27C) identify the materials used in the construction of stairs  
(27D) interpret construction drawings of stairs

### **DOMAIN 6 – MATHEMATICS & PHYSICS PRINCIPLES**

(3F) calculate quantities of lumber and wood products using industry-standard methods  
(17A) develop a budget for a construction project  
(17B) determine the most effective strategies to minimize costs  
(22H) demonstrate or describe how to perform a quantity takeoff for materials  
(23E) given specific floor load and span data, select the proper girder and beam size from a list of available girders and beams  
(23J) estimate the amount of material needed to frame a floor assembly  
(24I) estimate the materials required for frame walls and ceilings  
(25E) use a framing square, speed square, and calculator in laying out a roof  
(25J) estimate the materials used for framing and sheathing a roof  
(27E) calculate the total rise, number and size of risers, and the number and size of treads required for a given stairway