

Building Construction - Student Learning Outcomes

BLDC 101	Safety Standards (Cal/OSHA) 30-Hour Card	1. Understand the appropriate use of personal protective equipment depending on job to be performed.(ILO1)
		2. Understand the purpose of lockout and tagout of equipment.(ILO1,ILO2)
		3. Analyze and understand the purpose of keeping an MSDS at the jobsite.(ILO1,ILO2,ILO5)
BLDC 110	Construction Blueprints, Specifications, Measurements, and Codes	1. Identify four blueprint symbols and learn their meaning and usage in blueprints. (ILO2,ILO3)
		2. Compare the identified symbols to symbols used in other countries in order to understand symbol standardization in the world.(ILO5,ILO4)
		3. Measure a linear dimension using an architect scale to be able to interpret the actual measurement according to the scale being used.(ILO1,ILO2,ILO3)
BLDC 115	Energy Fundamentals	1. Demonstrate and explain the three ways in which heat travels across a wall.(ILO1,ILO2)
		2. Analyze and explain the proper installation of insulation in order to make an effective thermal boundary.(ILO1,ILO2,ILO3)
		3. Explain and conduct a blower door test to gauge the pressure boundaries of a home establish its infiltration limit.(ILO1,ILO2,ILO5)
BLDC 130	Carpentry Layout & Framing	1. Accurately will translate the framing detail from the blueprints to the bottom and top plates in order to erect a wall with proper rough openings.(ILO1,ILO2)
		2. Analyze a single story floor plan to quantify the lumber necessary to erect all the exterior walls.(ILO1,ILO2)
		3. Demonstrate two techniques of squaring a wall or a room prior to loading the structure with the roof framing.(ILO2,ILO3,ILO4)
		4. Demonstrate the ability to determine the slope of a roof using a one foot level and a measuring tape.(ILO1,ILO2,ILO3)
BLDC 135	Residential Plumbing Applications	1. Understand and explain the water hammer effect in water distribution systems.(ILO1, ILO2)
		2. Determine head pressure and be able to convert head pressure into P.S.I. (ILO2, ILO3)
		3. Explain and understand the importance of having vents in dwv systems.(ILO1, ILO5)
BLDC 140	Building Construction Methods & Materials	1. Describe techniques that may be used to guard against termite damage, including termite shields, treated lumber, and poisoning the soil around the structure. (ILO1, ILO2)
		2. Describe the proper procedures that can be used to attach a sill to a foundation wall. (ILO1, ILO2, ILO4)
		3. Demonstrate and understand the rule of thumb to determine the size of beams in relation to the rough opening needed for support in a structure. (ILO2, ILO3)
BLDC 145	Concrete Formwork, Layout, & Setting	1. Identify all the ingredients in concrete in order to analyze and understand the ratio in the mixture of concrete. (ILO2, ILO3)
		2. Compare tensile strength versus compressive strength in order to analyze and understand their relation and interaction under pressure.(ILO2, ILO4, ILO5)
		3. Students will create a layout with mason's line analyze it and test it for squareness.(ILO1, ILO2, ILO3)
BLDC 150	Carpentry Methods, Materials, and Tools	1. Construct a 2X4X10 standard wall in accordance with the California Building Code and the California Building Standards Commission under chapter 23 Section 2308. (ILO1, ILO2, ILO3, ILO4)
		2. Different angles on a pivot square will be analyzed and transferred onto a 2X4 with a pencil line in order to cut a piece of lumber safely using OSHA standards. (ILO1, ILO2, ILO3)
		3. Create a wall with three rough openings of different sizes and be able to determine the
		4. Determine the slope and ratio of rise and run of a roof by checking with a level. (ILO2, ILO5)

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BLDC 155	Solar Thermal and Water Efficiency	1. Understand and analyze various factors such as tank and pipe insulation, heat traps, automatic controls in order to define and understand standby and distribution losses. (ILO2, ILO4, ILO5)
		2. Demonstrate knowledge and understanding of passive and active solar water heating
		3. Analyze and explain the importance of using antifreeze agents circulating through the solar collector. (ILO1, ILO2, ILO5)
BLDC 165	Concrete Materials, Methods, and Tools	1. Describe and list the various steps and stages of the concrete pouring and finishing in order to understand the order of operations. (ILO1, ILO2)
		2. Identify the essential tools of a cement mason and analyze and describe their importance. (ILO2, ILO3)
		3. Calculate concrete quantities using the following formula $LXWXD/27=cu.Yds.in$ order to place actual orders. (ILO2)
		4. Identify three mix types along with the P.S.I strength of each. (ILO1, ILO2)
BLDC 170	Essentials of Efficient Green Construction	1. Identify and describe the two types of solar construction: Active and Passive.(ILO1,ILO2)
		2. Identify and describe the difference between internal and external heat factor in a residence.(ILO1,ILO2)
		3. List and describe three different ways in which heat is transferred.(ILO1,ILO3)
BLDC 175	Home Performance Retrofits	1. Identify and describe the difference between infiltration and exfiltration. (ILO2)
		2. Identify the connectivity to the outside of various pressure boundaries of a home using a pressure pan. (ILO1, ILO2)
		3. Calculate the building airflow standard for a 1600 square foot home with three occupants. (ILO2)
BLDC 180	Building Planning and Cost Estimation	1. Identify and Describe the purpose of a fair cost estimate.(ILO1,ILO2)
		2. Identify and describe the advantages and disadvantages of a joint venture.(ILO1,ILO2)
		3. Analyze and describe the advantages of value engineering in a large project..(ILO2,ILO3)
BLDC 185	Concrete Footings, Flatwork, and Detail Work	1. Analyze and compare tensile strength and compressive strength in order to understand thier reaction under pressure.(ILO1,ILO2)
		2. Determine water content of concrete by performing a slump test.(ILO2)
		3. Identify all the ingredients in concrete in order to understand the different ratios for mixing concrete with various strengths.(ILO1,ILO2,ILO3)
		4. Create a detail material estimate for pouring a foundation based on the square feet, while using the formula $LxWxD/27=Cubic Yards$.(ILO1,ILO2)
BLDC 190	Carpentry Trim/Detail Work	1. Recognize and install the proper trim in the proper place according to general
		2. Analyze and describe the different angles used to join baseboard,casing and crown moulding.(ILO1,ILO2,ILO5)
		3. Describe how door frames and casings are installed.(ILO1,ILO2)