



BUILDING INDUSTRY TECHNOLOGY ACADEMY

A program promoted by the
California Homebuilding Foundation

YEAR THREE

Energy Efficiency and Infrastructure of the Future

This course will introduce the California energy code and building efficiency standards for residential and nonresidential buildings. Students will review current construction residential energy code requirements and the impact it has on industry practices as it pertains to alternative construction materials, design, green jobs, and emerging technologies.

Focus on zero-net energy will cover the fundamentals on sources of renewable energy and solar. Students will understand how sunlight converts into electricity, the various components of a solar system and how to install solar on a roof.

Students enhance their construction skills through a variety of finished carpentry work throughout the course and, upon completion, will understand the vast career options within the construction industry.

Throughout the year, students will prepare for internships and build a career portfolio with resumes, letters, certifications, letters of recommendation and project photos.

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YEAR 3: Scope and Sequence

Lessons are designed for a 50-minute class period. Depending on student progress towards mastery of learning objectives, lessons may need to be extended or shortened. This is up to teacher discretion.

UNIT 1: SAFETY AND ORIENTATION

2 class periods

Learning Objectives:

- Understand student expectations for the school year and what they will learn throughout the year.
- Identify general shop safety practices/expectations and demonstrate knowledge of a safe attitude.

UNIT 2: TITLE 24 ENERGY STANDARDS

9 class periods

Learning Objectives:

- Understand the history and intent of the California Energy Code.
- Understand the future goals for California's Energy Code and its impact on the construction industry.
- Describe the difference between Mandatory, Prescriptive, and Performance requirements.
- Define the mandatory wall and attic assembly requirements.
- Identify key strategies for meeting or exceeding the prescriptive HPW requirements.
- Define and illustrate a high-performance wall and attic assembly.

UNIT 3: INTRO TO SOLAR INSTALLATION

5-10 class periods

Learning Objectives:

- Understand contributing factors to layout placement/design
- Identify the tools and equipment used by solar installers today
- Read and interpret solar array layout design documents
- Develop and apply basic skills in roof penetration, flashing, and waterproofing

- Locate center of rafter/top-cord, pilot drilling, roof attachment, and torque verification
- Racking assembly, adjustability, leveling and planning for array uniformity
- Maximize teamwork to assist in module placement and attachment
- Name and identify all racking components and connectors
- Name and identify micro inverter wiring components
- Layout and install modules from permit sets/engineering drawings
- Identify the tools and equipment used by solar installers today
- Lay out trunk cables and install with accessories for proper operation
- Demonstrate safe working procedures in a construction and shop/lab environment
- Complete rooftop work management
- Complete project documentation
- Work cooperatively as a member of a team
- Identify hazards and how to avoid or minimize them in the workplace

PROJECT #1: CAREER EXPLORATION RESEARCH PROJECT

17 class periods

Learning Objectives:

- Create a career roadmap where they choose a career they would like to pursue.
- Research what requirements (educational and personal) they need in order to reach their career goal.
- Present their career they “can’t not do” and their interview with someone that has their career they are seeking.
- Create and present their short term, midterm, and long-term career goals.

PROJECT #2: CAREER PORTFOLIO

15 class periods

Learning Objectives:

- Create and compile resources for obtaining employment such as sample job application, resume, cover letter, LinkedIn profile, elevator pitch, and sample response to interview questions.

BUILDING INDUSTRY TECHNOLOGY ACADEMY: YEAR THREE CURRICULUM
