


YOUR CTE SAFETY PROGRAM:

SAFE STUDENTS, SAFE WORKERS

An Action-Oriented Guide for Administrators & Instructors in Career Technical Education (CTE) and Other Workforce Development Programs

LOHP | LABOR OCCUPATIONAL HEALTH PROGRAM
UNIVERSITY OF CALIFORNIA, BERKELEY

CDPH California Department of PublicHealth

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Current Contributors

Kelsie Scruggs Adesoye, MPH, UC Berkeley Labor Occupational Health Program

Diane Bush, MPH, UC Berkeley Labor Occupational Health Program

Additional Original Contributors

Charlotte Chang, MPH, DrPH, UC Berkeley Labor Occupational Health Program

Kimberly Rauscher, ScD, MA, Department of Occupational and Environmental Health Sciences, West Virginia University School of Public Health

Doug Myers, ScD, MA, Department of Occupational and Environmental Health Sciences, West Virginia University School of Public Health

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Beth Arman, Senior Dean of Career and Community Partnership, Diablo Valley College

Bethallyn Black, Instructor, Horticulture and Plant Science, Diablo Valley College

Jackie Chan, Industrial Hygienist, Occupational Health Branch, California Department of Public Health

Michael Costa, Teacher, Agriculture Mechanics, Patterson High School

Larry Garcia, Teacher, Logistics and Supply Chain Career Pathway, Patterson High School

Jeff Rowe Director, Career Technical Education, Patterson Unified School District

Laura Stock, Director, U.C. Berkeley Labor Occupational Health Program

From the original publication:

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Letitia Davis, Director, Occupational Health Surveillance Program, Mass. Department of Public Health

Stephen DeWitt, Deputy Executive Director, Association for Career and Technical Education (ACTE)

Mark Fullen, Associate Professor, West Virginia University, Safety and Health Extension

Kimberly Green and Kate Creamer, Advance CTE

Jenny Houlroyd, Industrial Hygienist, Safety, Health and Environmental Services at Enterprise Innovation Institute, Georgia Tech

Tim Lawrence, Executive Director, SkillsUSA

Laura Lynch, Associate Professor, Construction Technology, Kentucky Community & Technical College

Darlene Miller, Executive Director, National Council for Workforce Education (NCWE)

Tom Vessella, Dean of Academic Affairs-CTE, Pierce College

Andrew Wermes, Consultant, Skilled & Technical Sciences, Iowa Department of Education

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Executive Summary

CTE and workforce development instructors and administrators are critical to establishing *Safety and Health Management Systems* that will protect and prepare new and young workers.

1. School & Program

2. Instructor Qualifications and Support

3. Effective Teaching and Learning

4. Offsite Learning: Safety and Health Program Practices

CAREER TECHNICAL EDUCATION (CTE) PROGRAMS TRAIN OVER 1.2 million students annually in California, in both secondary and 2-year college programs. These programs prepare new and young workers to enter the workforce in a variety of industries and trades — everything from health care, horticulture and culinary arts, to advanced manufacturing and the building trades. This comes with the opportunity and obligation to support student health and safety. Young workers and workers new to the job are at even greater risk for injury than older adult workers. In fact, according to the Bureau of Labor Statistics, around 100,000 workers between the ages of 16-24 are seriously hurt on the job each year in the United States.

All workers, no matter the industry, need to be prepared to work safely, armed with the knowledge and skills to protect themselves and their co-workers. Safety and health skills are critical employability skills, and well-trained workers help prevent the high human and financial costs of injuries. One of the few places new workers gain these critical employment skills are in CTE and other school work-based learning programs. Providing effective safety and health education to students in these programs is essential to ensuring future workers return safe and healthy to their families at the end of the day.

Safety Happens in Systems. Injuries on the job do not just happen because someone is careless one day. Whether it is out in the field or in the classroom, safety depends on systems that are established by leadership at schools and by employers and supervisors out on the jobsite. In California, a safety and health management system is required for all employers, under Cal/OSHA's Injury and Illness Prevention Program (IIPP) standard. IIPP requirements are reflected throughout the Guide.

Purpose of this Guide. This Guide focuses on key program elements that support effective safety and health education within these systems for safety. It describes each element, followed by action steps CTE administrators and instructors can take to strengthen their programs.

ACTION STEPS

Administrators

- **Make sure your CTE program is part of your school's written Injury and Illness Prevention Program (IIPP) and that it effectively reflects IIPP requirements.** Establish a regular internal inspection schedule in the programs you oversee and ensure follow-up on any identified hazards. Regularly communicate your program's management commitment to safety and health, to staff and students. Participate in periodic health and safety inspections in the classroom.

- **Prioritize engineering controls or "upstream" solutions.** Whenever possible, find solutions that eliminate worker/student exposure to the hazard, such as using safer chemicals, local ventilation, or machine guarding.

- **Develop systems to support instructors as safety and health educators.** Require safety and health goals in instructor professional development plans and evaluations. Establish a mentoring program for new instructors. Provide time, resources, and concrete expectations for instructors regarding Industry Advisory Committee (IAC) recruitment and engagement.

Instructors

- **Work with your administration to establish a workable internal safety inspection process and schedule.** Include students on your inspection teams. Follow-up on any classroom hazards that are identified.

- **In the classroom:** Focus on safety and health critical thinking skills, such as Job Hazard Analysis and the importance of setting up the jobsite or workplace safely, not just relying on personal protective equipment. Have students practice self-advocacy and communication skills. Have students participate in classroom IIPP activities. If you require students to take OSHA 10 training, integrate it throughout coursework.

- **Establish systems for recruiting and engaging Industry Advisory Committee (IAC) members.** Clarify expectations, invite them to participate in specific ways that support your safety and health training, and hold them accountable.

Introduction

EACH SCHOOL YEAR, OVER 1.2 MILLION HIGH SCHOOL and community college students enroll in a CTE course. These programs prepare young workers to enter the workforce in a variety of industries and trades — everything from health care, horticulture, and culinary arts, to advanced manufacturing and the building trades. This comes with the opportunity and obligation to support student health and safety. Young workers and workers new to the job are at greater risk of getting injured at work. In fact, according to the Bureau of Labor Statistics, around 100,000 workers between the ages of 16-24 are seriously hurt on the job each year in the United States. Providing effective safety and health preparation for students in CTE programs is critical to protecting future workers and ensuring they return safe and healthy to their families at the end of the day. This training provides students with essential employability skills, and keeps them safe while still at school.

This Guide outlines key components of systems for safety and health in CTE programs and provides action steps that CTE administrators and instructors can take to make improvements.

Every 11 minutes

a young worker is injured on the job.

Effective systems for safety & health education in CTE programs can help prevent this.

Safety Happens in Systems

Injuries do not just happen because someone is careless one day. Whether at a private company or a school setting, safety depends on systems that are established by leadership at schools and by employers out on the jobsite. Safety must be a comprehensive, systemic component of the organization's operations, and everyone has a role to play.

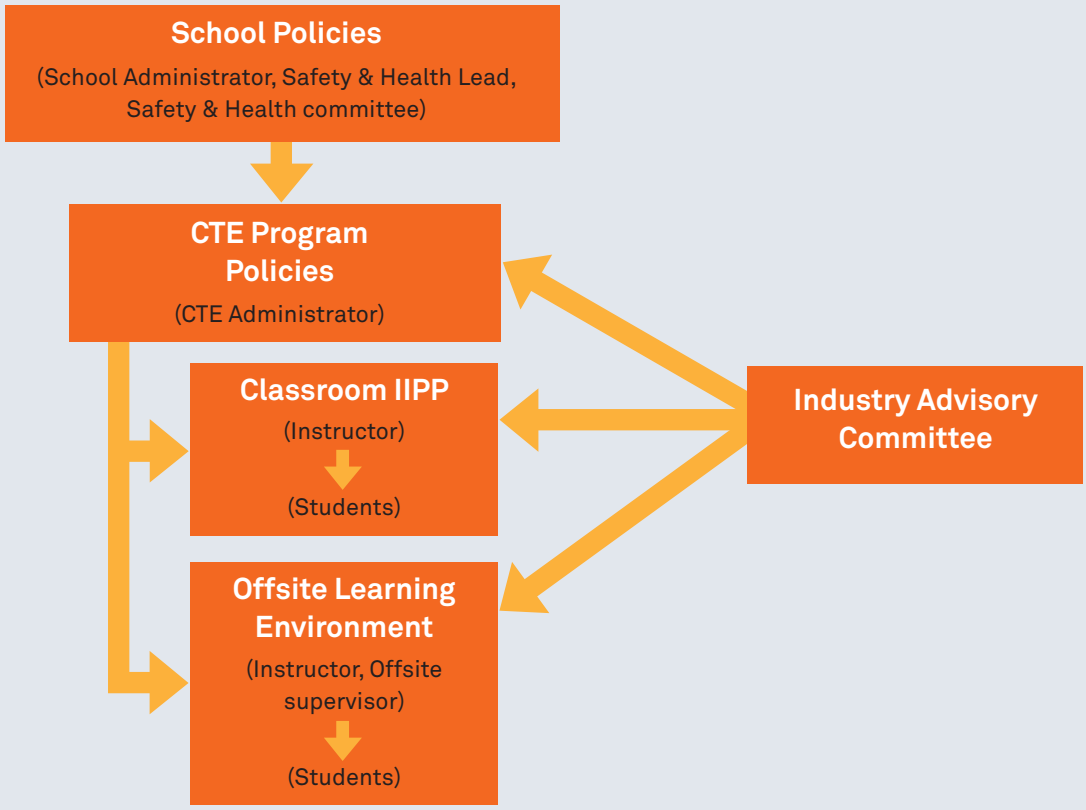
In California, every employer, including schools and other public agencies, is required to develop and implement an effective safety program, called an Injury and Illness Prevention Program or IIPP (see Title 8 of the California Code of Regulations (T8CCR) section 3203). Students should experience an effective IIPP through the practices of their CTE programs. To be effective your IIPP must:

- Fully involve all employees, supervisors, and management
- Identify the specific workplace hazards employees are exposed to
- Correct identified hazards in an appropriate and timely manner
- Provide effective training

Safety and Health Roles

CTE administrators have a key role to play in the implementation of the school's safety systems, including IIPP elements, within the programs they oversee. This implementation includes creating a strong safety culture and encouraging active participation within the programs. It also includes ensuring that well-qualified instructors are properly trained, evaluated, and supported in updating and developing their safety and health knowledge and teaching skills. The IIPP practices within a CTE program form the backdrop for students' foundational

Who Plays What Role in the Safety System



understanding and practice of safety at school and on the job, and set the stage for everyone to work, teach, and study safely.

Instructors' primary role is to effectively bring the program's safety system and IIPP practices into the classroom and learning environment by ensuring that equipment, facilities, and worksite experiences are free from recognized hazards and comply with the highest standards; by promoting a strong safety culture in the classroom; and by facilitating teaching and learning that results in student attainment of safety and health competencies. Key student competencies include specific safe work practices, a broad understanding of how hazards in the workplace can and should be controlled, and the communication and problem-solving skills to address issues that arise on the jobsite. In addition, instructors play an active role in overseeing IIPP practices in any offsite learning environments, as well as in actively participating in the school's IIPP as employees.

Industry Advisory Committees (IACs) ensure that each program's course of study is relevant to industry needs. IACs provide advice on course content, real-world examples of on-the-job safety and health issues and employer expectations, opportunities for instructors to keep current through job shadows and externships, and regular evaluation of the program. IAC employers also provide valuable work-based learning opportunities for students.

Students are expected to learn and practice the skills they will need in the workplace. Students develop safety and health skills best when they learn in an environment that reflects high industry safety and health standards.

When high standards are in place, students learn and practice safe work processes. They receive required training on equipment or chemicals they will use, and work processes they will perform. The environment encourages their involvement—to ask questions or speak up when they have any safety or health questions or concerns. Students experience the "why" behind safety rules, and develop a foundational understanding of safety systems, that can be applied in any job they end up pursuing.

About this Guide

This Guide is for administrators and instructors in all CTE programs to identify gaps and learn about recommended practices to strengthen student preparation in safety and health. It is not intended to be comprehensive – there are other resources that are more exhaustive. (See page 12.) Instead, we have focused on critical safety and health components that should be present in any CTE program. This Guide has been adapted from an earlier research-based publication, Your Construction Safety Program: Safe Students, Safe Workers—A Guide for Administrators & Instructors in Post-Secondary Career Technical Education (CTE) Construction Programs, described on page 77.

How to Use This Guide

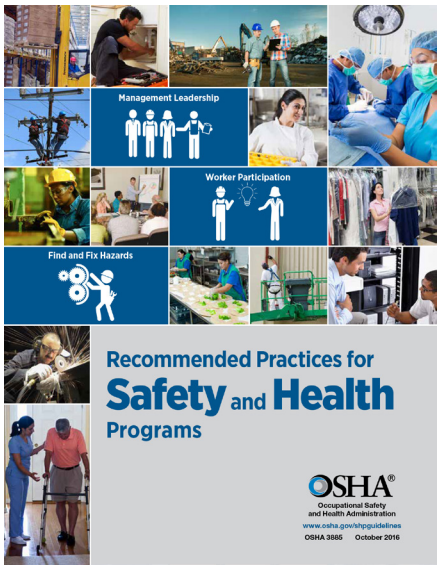
This Guide is organized in four sections:

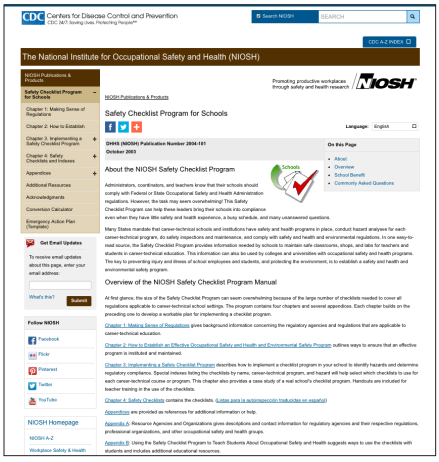
1. School & Program
2. Instructor Qualifications and Support
3. Effective Teaching and Learning
4. Offsite Learning: Safety and Health Program Practices

In each section there are several key program elements identified through our research. For each program element there is:

- A description of the element based on our research and recommended practices
- Action steps and recommendations for improvement
- Links to resources that will help CTE administrators and instructors implement these steps

Start by reviewing all of the key program elements in each section to identify where your program is stronger and where it needs more attention.





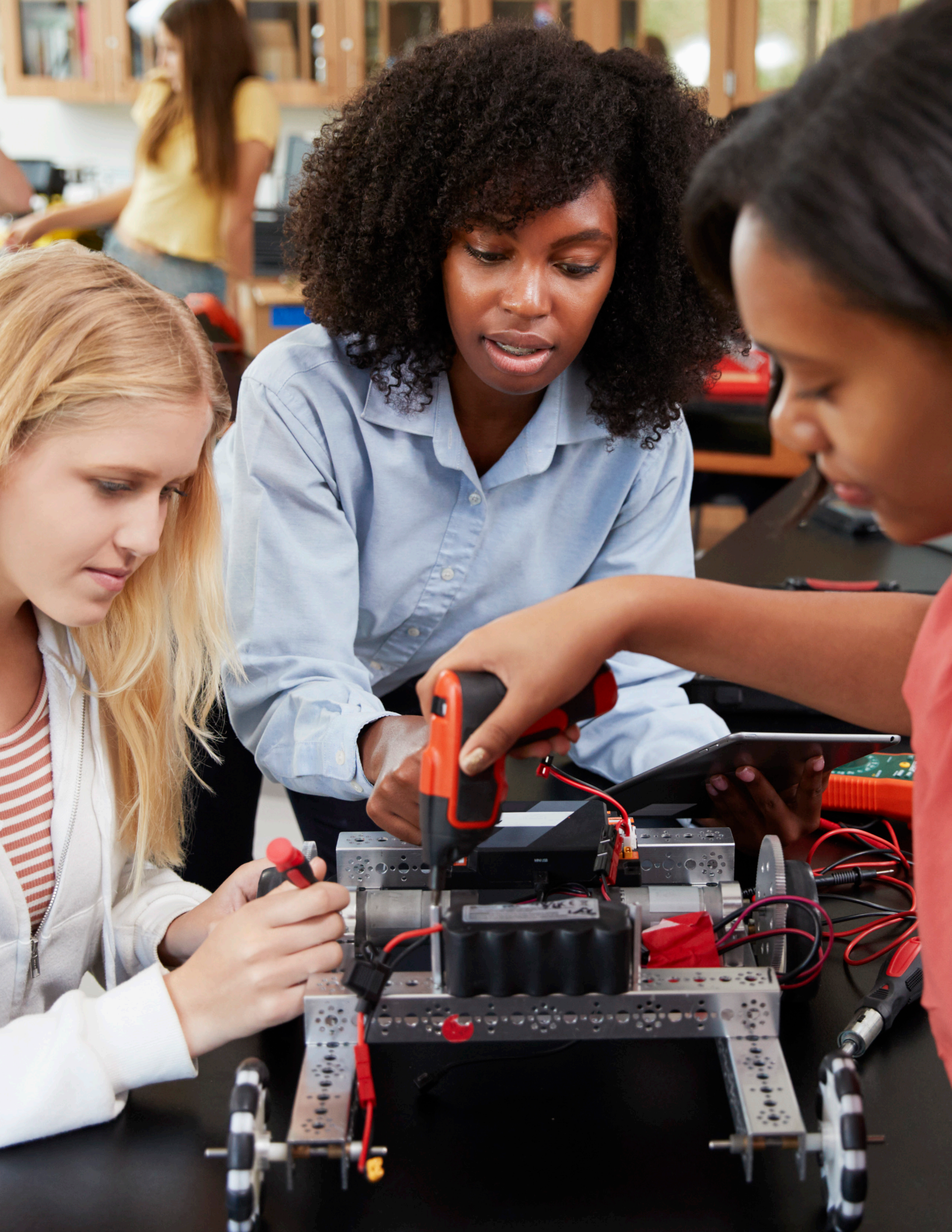
We also recommend using this Guide in conjunction with these resources:

Taking Action For Safety And Health Guide To Developing Your Workplace Injury And Illness Prevention Program. This Guide from the Labor Occuptional Health Program and California Department of Industrial Relations' Commission on Health and Safety and Workers' Compensation (CHSWC) was developed to help workplaces in California comply with Cal/OSHA's IIPP standard and, consequently, protect the health and safety of employees. It was specifically prepared for the individuals who write the IIPP and for those who participate in its implementation. The Guide was developed to be used with an online IIPP fill-in-the-blank template and a training program on how to implement an effective IIPP.

OSHA's Recommended Practices for Safety & Health Programs. These comprehensively describe core elements essential to an effective Safety & Health Program, the foundation of California's IIPP standard. CTE programs that reflect these core program elements will keep their students safe at school and expose them to the highest industry standard in safety and health protections.

NIOSH Safety Checklist Program for Schools. The NIOSH Safety Checklist Program contains four chapters and several appendices: 1) how to read and interpret safety regulations; 2) developing, implementing, and maintaining a safety program, 3) customizing and using checklists with students to teach hazard recognition and abatement; and 4) safety checklist, and other resources.

These resources will help administrators improve the school's own Injury and Illness Prevention Program, and help instructors bring this safety and health management system effectively into the classroom.



1 School & Program

THE SAFETY AND HEALTH OF YOUR STUDENTS, INSTRUCTORS, and staff start with your school and program's Injury and Illness Prevention Program (IIPP), California's required safety and health management system. Integrating recommended safety and health practices into your CTE programs exposes students to the highest industry standards in their learning environment. Your IIPP serves as the foundation for students' understanding that safe work environments and practices originate in comprehensive systems while also protecting students, instructors, and staff at your school.

Injury and Illness Prevention Programs

Every California employer is required to establish, implement, and maintain a written IIPP. This written plan describes a workplace's health and safety program and how the following eight required elements will be implemented (Title 8 of the California Code of Regulations (T8CCR) section 3203):

- Assignment of the responsibility for safety
- Assessment of workplace hazards
- Investigation of workplace accidents, injuries and illnesses
- Correction of hazards
- Communication with employees and methods for involving them in safety-related activities
- Workplace safety and health training
- Systems for ensuring employee compliance with safety procedures
- Recordkeeping and documentation of your program and program activities

For a comprehensive description of these elements, visit Taking Action For Safety And Health Guide To Developing Your Workplace Injury And Illness Prevention Program.

This section focuses on several key elements of Injury and Illness Prevention Programs at the administrative (school and program) level. See Sections 3 and 4 on classroom learning and field work regarding how IIPP core elements should be reflected in the classroom and offsite learning.

- Management leadership
- Regular inspections to identify hazards
- An active reporting system to identify hazards
- Investigation of all injuries, incidents, and near misses to identify underlying causes
- Effective control of hazards to prevent injuries and illness

A Management Leadership

THE TONE AND EXAMPLE OF LEADERSHIP AT THE TOP sets the stage for safe practices throughout the program and among its instructors and students. The first step in developing an IIPP is identifying who will be in charge of the safety program, and establishing their roles and assignments.

What This Looks Like

- School administrators and program deans demonstrate consistent commitment to eliminating hazards and to continuously improving workplace safety and health systems.
  - Administrators ensure there is a clear, strong written safety and health policy in place (the IIPP).
  - Each administrator has a personal professional development plan that includes development of safety and health knowledge.
- School administrators and program deans regularly communicate their commitment to safety and health to staff and students and set program expectations and responsibilities.
  - They make sure that all school employees know where to find the written policy, who is in charge, and where to report hazards.
  - Instructors and staff are involved in implementing the plan's components.
- CTE administrators engage Industry Advisory Committee (IAC) members to support safety and health as a core CTE program value. IACs help establish safety and health goals and objectives, provide adequate resources and support for the program, and set a good example in providing safe work-based learning opportunities, education, and training for students. (See Section 2D for more information on IACs.)

"It helps to have a periodic walkthrough by upper management (administrators) to show students that the instructors are not the only members of the organization concerned with safety."

–Instructor

Financial and staff resources are often necessary to address safety and health hazards that have been identified. While some hazards will be relatively easy fixes, others may require more significant outlays, such as new equipment, systems, or staff training.

ACTION STEPS

Administrators

- **Make sure your CTE program is part of your school's written Injury and Illness Prevention Program and that it effectively reflects IIPP requirements.** Establish a regular internal inspection schedule in the programs you oversee and ensure follow-up on any identified hazards. Regularly communicate your program's management commitment to safety and health, to staff and students. Participate in periodic health and safety inspections in the classroom.
  - Use Taking Action For Safety And Health Guide To Developing Your Workplace Injury And Illness Prevention Program to help you get started, or to review the plan you have. This resource includes an IIPP template you can work from.
  - Make sure instructors from your department or program are involved in the committee to review or write the policy.
- **Communicate the policy to all school employees.**
  - Ensure that the policy is reviewed during new employee orientation.
- **Identify and allocate resources to control hazards.**
  - Review program budgets and staff workloads with safety and health needs in mind, including what will be needed to control hazards and improve safety and health capacities among instructors.
  - Review the school's strategic plan. It should include a statement on safety and health and ensure funds necessary to address issues.
- **Ensure that administrators have the necessary safety and health training.**
  - Include safety and health training in administrator professional development plans.

Administrators, cont.

- Training should include:
  - Administrator responsibilities in the school or program's safety and health policy.
  - Fundamental concepts for recognizing and controlling hazards.
  - Incident investigation techniques, including root cause analysis.
  - How to evaluate the effectiveness of safety programs and organize the roles of instructors and support staff in safety processes and systems.

- **Work with your risk management staff or loss control specialists from your school's workers' compensation provider or other insurance companies as you implement your plan.**
  - Risk management staff and insurers can conduct inspections (see Section 1B) and provide recommendations for safety and health improvements.
  - Some insurers may be able to provide discounts or other financial incentives for taking steps to improve your safety and health program.

- **Engage industry.** Work with your program's Industry Advisory Committees (IACs) and draw on their expertise to ensure that your safety and health program for your school reflects the highest industry standards and practices in which to train your students.

- **Engage in continuous evaluation & improvement.**
  - Identify safety and health measures to track and review, and ensure implementation of the written plan.
  - Evaluate these measures annually and make necessary program improvements.
  - Develop a list of safety-related responsibilities for administration, instructors, and staff. Ensure that these responsibilities become part of the job description and evaluation of all school employees.

ACTION STEPS

Instructors

- **Make sure you learn about your school's Injury and Illness Prevention Program.** This includes:
  - Who is in charge of safety issues
  - How to report hazards, injuries, or near misses
  - What the investigation process is.

"There's nothing that concerns me more than the thought of having a student get injured in one of our programs. The time and effort involved with developing a solid injury prevention program is well worth the peace of mind that comes with knowing that your students are being taught in the safest environment possible."

–Instructor

B Regular Inspections to Identify Hazards

REGULARLY SCHEDULED, SYSTEMATIC INSPECTIONS allow programs to look proactively for existing and potential hazards that may put your students, instructors, and staff at risk, and to prevent injuries or illnesses before they happen. "Workplace hazards" encompass anything that can injure or make an employee sick, including safety hazards, chemical hazards, biological hazards, and ergonomic or other health hazards. A tool or piece of equipment, such as working on a ladder, or with medical devices, or with cutting tools, can create a hazard for employees that must be planned for. Regular inspections are an essential part of an effective safety and health program, particularly in high-hazard environments.

What This Looks Like

- Individual programs conduct their own internal inspections to identify new and recurring hazards. Ideally, these inspections involve key administrators, instructors, and students. Inspection duties are rotated among different instructors, including instructors from other CTE programs, providing the benefit of a fresh set of eyes. Students can be involved at the classroom level.
- There is a system for sharing and tracking inspection results, to ensure and verify that any hazardous conditions identified are addressed.
- The school has a proactive liability and workers' compensation insurer that supports an effective IIPP through consultation, train-the-trainer programs, and conducting more technical inspections.

Involving students in your inspections

"I want my students to learn to function in the same system they'll experience in industry. To do inspections, I divide the students into teams. I use the NIOSH checklists, and break them down for each team to use a portion for an inspection. I make the connection for students: 'This is the first step in the system—hazard identification and risk assessment. Then what's needed if we find a problem?' If a student finds something wrong during an inspection, they are expected to lockout the piece of equipment, if conditions warrant it. The safety info center in my shop has the startup and shutdown procedures for every piece of equipment in the shop."

–Instructor

ACTION STEPS

Administrators

- **Establish a regular internal inspection schedule**. Involve all of the following:
  - Instructors, taking the lead role
  - Administrators
  - Students, as a teaching and learning process
  - Industry Advisory Committee members
- **Ensure periodic monitoring of health hazards**, such as noise or respiratory hazards, if necessary. These hazards may cause long-term health effects that are not immediately apparent. (See pages 79-80 for potential resources.)
- **Consider using the NIOSH Safety Checklist Program for Schools.** Be sure to check under both the alphabetical listing and the Career Technical Programs index for safety checklists that will apply to the programs at your school.
- **Work with school administrators to establish a regular external inspection schedule** with your school's liability or workers' compensation insurer, Cal/OSHA Consultation, or other entity.
- **Establish a system to document inspections and any problems identified** in writing, so that you can later verify that hazardous conditions have been corrected.

ACTION STEPS

Instructors

- **Work with your administration to establish a workable internal inspection process and schedule.** Involve all of the following:
  - Instructors, taking the lead role
  - Administrators
  - Students, as a teaching and learning process. Use the NIOSH Safety Checklist Program for Schools.
  - Industry Advisory Committee members
- **Consider using the NIOSH Safety Checklist Program for Schools.** Be sure to check under both the alphabetical listing and the Career Technical Programs index for safety checklists that will apply to the work that your students are doing. Be sure to include monitoring for relevant health hazards, such as noise or respiratory hazards. (See page 79-80 for more information on specific hazards.)
- **Document your inspections and any problems identified** so that you can later verify that hazardous conditions have been corrected. See checklist tools above.

C An Active Reporting System to Identify Hazards

"Rather than OSHA, what about regular safety inspections on our own part…and a way to report the hazards you find…because a lot of times over the years, people bring stuff up but it falls on deaf ears and never gets addressed."

–CTE Administrator

Another essential part of an effective IIPP is a hazard reporting system that all school employees know about and are encouraged to use. Instructors, staff, and students are often best positioned to identify safety and health concerns and to report close calls and actual incidents. A reporting system promotes workforce engagement in the regular practice of identifying and addressing hazards, which is:

- a critical skill for students to develop
- a part of demonstrating management commitment to employee involvement in the IIPP.

What This Looks Like

- There is a clear system for both school employees and students to report concerns and incidents. This may be two separate systems, but the system for students mirrors the system for staff.
- Everyone knows to whom or how they should report problems.
- When someone reports a problem, they are informed about the outcome. This encourages future reporting and demonstrates the program's commitment to ensuring a safe learning and working environment.
- There is a clear policy prohibiting retaliation against anyone for reporting a health and safety concern.

ACTION STEPS

Administrators

- Establish a web-based form that can be completed by anyone to report safety and health issues, including hazards as well as close calls/near misses. Sample Form
  - Link the form to the designated safety administrator for the school (such as in the HR or Facilities Management Office), with notification to the program administrator.
  - Make all staff aware of the form at the beginning of the school year and in new employee orientation.
- **Ensure that the resolution of reported safety and health issues is reported on a section of this web-based form.**
  - Include a safety report in the school's internal newsletter, or other mechanism to inform staff and students of actions taken.
  - Establish clear policy promoting reporting and prohibiting retaliation.

Instructors

- **Make sure you know what your school and program hazard reporting process is;** be sure to report on close calls/near misses.
- **Communicate this process to your students.** Have them practice filing a report.
- **When students report hazards, make sure they are informed when the hazard is addressed.**

D Investigation of All Injuries, Incidents and Near Misses to Identify Underlying Causes

INJURIES, ILLNESSES, CLOSE CALLS, NEAR MISSES, AND reports of other concerns must be thoroughly investigated to identify hazards that are likely to cause future harm. The purpose of an investigation is to identify the root causes of the incident or concern, identifying systems failures rather than just focusing on worker behavior, and to find ways to address the hazard in order to prevent future injury and illness among students and staff.

What This Looks Like

- There is a clear written policy for conducting incident investigations.
- This will include a plan for who will be involved (relevant school staff, administrators, instructors, risk management or loss control specialists from your workers' compensation or other insurance company, and students where appropriate).
- Investigations use a standardized reporting form that ensures a thorough investigation of the root causes of an injury, illness, or near miss.

ACTION STEPS

Administrators

- **Establish procedures to investigate injuries, illnesses, close calls/near misses, and other hazards reported.** You may need separate systems for students and for school employees.
  - OSHA's Incident Investigation Guide
  - How to Conduct an Incident Investigation, National Safety Council
- **Train a team to investigate incidents.**
  - The team should include instructors, administrators, and students as appropriate.
  - Involve outside expertise if necessary.
  - Use an incident investigation form that helps identify root causes.
- Communicate the results to administrators, instructors, students, Industry Advisory Committee members, or other school employees.
  - Discuss root causes of incidents in school or community college internal newsletter and with students, making sure that the privacy of those involved is protected.

Instructors

- **Ensure that your school and program investigation procedures are followed in your classroom.**
- **Add "near misses/close calls" to incidents requiring investigation**, even if they are not included in your school or program's procedures.
- **Engage students in the investigation process whenever appropriate.** Use an incident investigation form that helps identify root causes.
  - OSHA's Incident Investigation Guide
  - How to Conduct an Incident Investigation, National Safety Council
  - Incident Investigation Tool, UC Berkeley LOHP

Effective Control of Hazards to Prevent Injuries and Illness

"We've actually gone through and made it so the lights in the booth won't turn on until you've turned on the ventilation system, so that actually gets you in the habit of turning on the ventilation system because you can't see until you get your ventilation turned on."

–Instructor

PROMPTLY AND SYSTEMATICALLY ADDRESSING HAZARDS completes the cycle that began with identifying hazards through inspection, reporting, and investigation systems and processes.

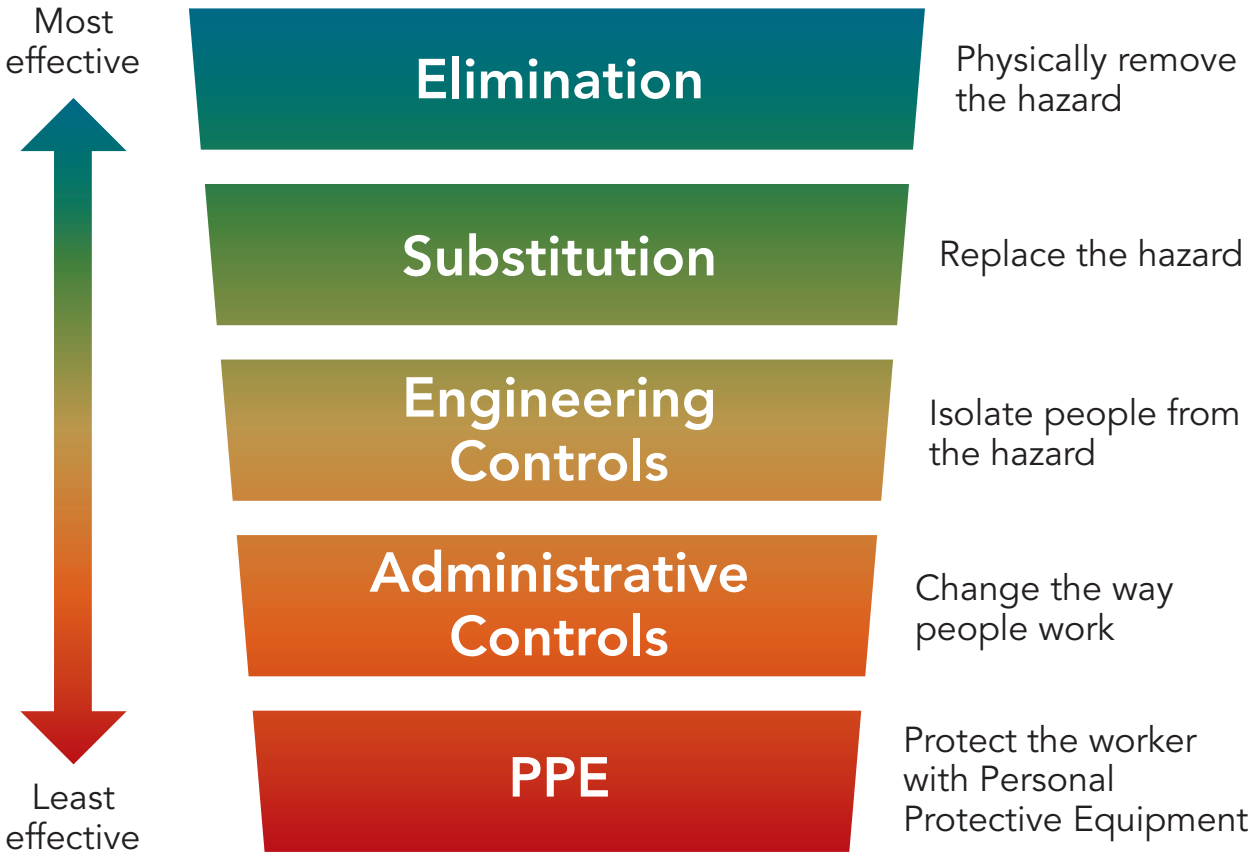
What This Looks Like

Schools and programs take immediate action to control imminent hazards and put interim controls and a plan in place for addressing long-term issues. This includes issues such as noise, chemical exposures, respiratory hazards, and ergonomic hazards.

The best controls are practical, effective, and permanent. This means that whenever possible, solutions should be selected that eliminate or engineer out the hazard, and do not rely on workers following rules or wearing protective gear. Use the "The Hierarchy of Controls". (See graphic on page 29.)

Not all controls for addressing hazards are equally effective. The "hierarchy of controls" is a tool that helps people think about the best ways of addressing safety and health hazards.

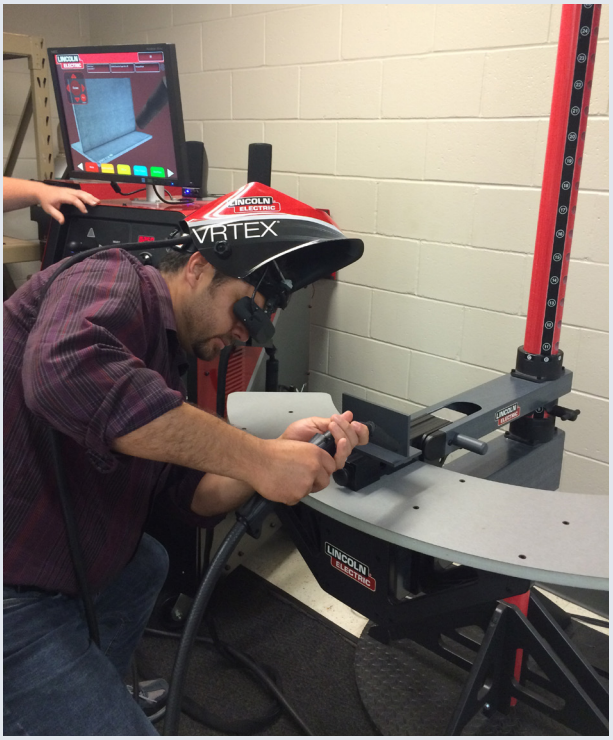
Prioritizing Controls: The Hierarchy of Controls



Source: NIOSH (https://www.cdc.gov/niosh/topics/hierarchy/default.html)

The most effective solutions at the top are those that actually eliminate the hazard. ***Examples include replacing a toxic chemical with one that is less toxic, local ventilation systems that remove hazardous vapors, or machine guarding that prevents contact with moving parts.*** Administrative controls (work procedures) and relying on personal protective equipment only reduce or limit the worker's exposure. Often a combination of methods is needed to get the best protection.

What One School Does: Engineering Safer Systems in a Welding Lab



The welding lab at one community college used a virtual reality arc welder trainer as part of students' training. The machine allows students to practice welds virtually on a system that includes a virtual view of the welding metal. The large television screen enables an entire class to view welds in progress, while measuring metrics such as travel speed, work/travel angle, and arc length. The system also simulates sparks, slag, grinding (on pipe), and weld cooling. By making the cuts virtual, the system reduces energy consumption, waste, scrap, and time. Even more importantly, it makes active learning safer. Using this virtual trainer, students can do their initial learning of welding techniques without many of the hazards in a traditional welding shop.

ACTION STEPS

Administrators

- **Fix anything that can be taken care of immediately.**
- **For more complicated issues, identify control options.** Find out what other schools are doing. Work with your Industry Advisory Committees. Work with instructors, your school's risk managers or insurance loss control specialists, or Cal/OSHA consultation.
- **Develop a plan to fund and implement any long-term controls that are needed.**
  - Research vendors/cost
  - Decide on equipment
  - Plan for installation
  - Assess effectiveness
- **Ensure that the resolution of reported safety and health issues is reported back to staff and students.**
  - Include a safety report in the school's internal newsletter, or other mechanism to inform staff and students of actions taken.

Instructors

- **Follow up with the appropriate school or program administrator on any classroom hazards that have been identified** to ensure they are being addressed.
- **Report back to students on any hazards that have been addressed in the classroom,** especially if students have identified these hazards.

Instructor Qualifications and Support

2

INSTRUCTORS—BOTH FULL-TIME AND PART-TIME/adjunct—are the linchpin in your CTE program's overall system for safety, and in the safety and health education of your students.

Instructors in CTE programs need both strong industry experience as well as effective teaching skills to do their job well. Those who know from experience the hazards encountered on the job, potential solutions, how to get solutions implemented, and potential barriers can better design courses that anticipate and prepare students to effectively respond to those conditions.

CTE program administrators need to actively support instructors in skill-building, professional development, and activities that enable them to stay up-to-date in their technical trade or industry skills, including safety and health, and in their teaching skills. Programs also need to encourage instructors to draw on the expertise of Industry Advisory Committee members to help keep current on advancements in safety and health and other industry standards.

This section focuses on:

- Instructor field experience
- Training and support to be effective instructors
- Training and staying up-to-date in safety and health
- Support for engaging Industry Advisory Committees (IACs)

"I'm part of our statewide professional organization for ag instructors that sets up mentoring opportunities. I was able to visit and observe classes being taught by experienced instructors at a couple different schools around the state. It was a great opportunity!"

A Instructor Field Experience

While CTE programs typically prioritize industry experience, many programs do not require training or experience in teaching before being hired. The key to having a strong program is to have well-qualified instructors with both industry-specific field experience as well as teaching expertise. Field experience is covered in this section.

What This Looks Like

- **Field experience in their trade or industry—**Instructors have at least 3 years of field experience in their trade (5 years for post-secondary schools) and possess corresponding, recognized industry certifications. Ideally, they also have had some safety and health and/or supervisory experience in which they have managed work and safety and health on the job.

ACTION STEPS

Administrators

- **Review your program and school's accreditation requirements for instructor experience.** Update your program requirements to ensure that they include the following:
  - For K-12 CTE: Designated Subjects Career Technical Education (CTE) Teaching Credentials may be issued to individuals who meet the requirements for either the preliminary or clear credential.
    - Requirements for the Three-Year Preliminary Credential include three years of work experience directly related to each industry sector to be named on the credential as well as a high school diploma.
    - Requirements for the Five-Year Clear Credential include possessing a valid California Preliminary CTE Teaching Credential (three-year or five-year), 2 years of successful teaching on the basis of the Preliminary CTE Teaching Credential in the industry sector(s), and the completion of a provisions and principles of the U.S. Constitution course or examination
  - For Post-secondary CTE: 5 years of relevant trade experience. Check with apprenticeship programs in your area (U.S. Dept. of Labor Apprenticeship Toolkit) for the range of skills needed for that specific trade (carpentry apprentice example).
  - Relevant industry certifications
  - Teaching experience or equivalent teacher training (see Section 2B below)

B Training and Support to be Effective Instructors

"Instructors must attend three conferences each year specific to their field. Every new teacher for the first three years goes to classes provided by the school. They learn about teaching technology and instructional preparedness, lesson plans, curriculum development, etc. I also observe their teaching, and I do reviews at an accelerated level in their first few years of being a faculty member."

–CTE Administrator

Being an effective educator means not only instructing students on technical skills (e.g., how to weld, or how to take blood samples), but being able to teach students with varying aptitudes and helping them become truly competent in a skill (e.g., completing required welds safely and efficiently, or taking blood samples with minimal patient discomfort).

Some CTE instructors enter the classroom with previous teaching experience while others do not. However, even instructors with good natural instincts for teaching, or with previous experience, can become better teachers with ongoing professional development.

Best Practice Tip:

Administrators can create an environment where instructors can learn from and support one another by arranging for instructors to observe, and then later discuss, safety and health practices in one another's classrooms. Some programs use an organized, non-evaluative framework called Teaching Squares. For more information about this process refer to these resources:

- http://www.clark.edu/tlc/faculty-development/teaching-squares.php
- https://www.lanecc.edu/fpd/teaching-squares

What This Looks Like

- The school or program requires and pays for instructors to participate in regular professional development to hone their skills as educators, through in-service workshops at the school or education conferences. This is a top priority for new instructors without previous teaching experience.
- Instructors are proficient in:
  - Developing clear learning outcomes
  - Using a range of effective materials and activities that meet diverse learning styles and facilitate communication, leadership, and other 21st Century Framework Skills
  - Engaging in effective assessment of student learning
- New instructors, including adjunct faculty, participate in a formal mentorship program with an experienced CTE instructor.

ACTION STEPS

Administrators

- **Identify resources and opportunities both within and outside your institution to ensure the development of strong teaching skills**, such as in-services or conferences. Resources:
  - CTE Teacher Coaching and Support through CAROCP: The Association of Career and College Readiness Organizations
  - California Community College Association of Occupational Educators
  - National Council for Workforce Education New Workforce Professionals Academy
  - Association for Skilled and Technical Sciences (ASTS): High Quality CCTE certification program
  - Association for Career and Technical Education (ACTE): CareerTech VISION
  - SkillsUSA.org
- **Provide instructors with professional development** on writing safety and health learning outcomes, assessments, and assessment rubrics. Resource: CTE Online
- **Establish a mentoring program for new instructors.**

ACTION STEPS

Instructors

- **Identify resources and opportunities to strengthen and update your teaching skills.** Resources:
  - CTE Teacher Coaching and Support through CAROCP: The Association of Career and College Readiness Organizations
  - California Industrial and Technology Education Association
  - California Community College Association of Occupational Educators
  - Association for Skilled and Technical Sciences (ASTS): High Quality CCTE certification program
  - Association for Career and Technical Education (ACTE): CareerTech VISION
  - SkillsUSA.org
- Make sure that safety and health teaching skills are included in your professional development plan.
  - ASTS High CCTE certification program Professional Development Plan
- Flag safety and health for your administrator as a specific area you would like feedback on in your evaluations.

C Training and Staying Up-to-Date in Safety and Health

"Education is key. That includes training for the educator. [I will] be attending OSHA Training this Fall."

–Instructor

INSTRUCTORS HAVE THE MOST CRUCIAL ROLE IN ensuring that students develop essential safety and health skills. In order to do this, instructors need to have specific training in relevant safety and health issues. A well-known, if imperfect, standard in some industries is the OSHA-authorized 10-hour and 30-hour training program, available for construction and for general industry. (See page 42 for an explanation of OSHA training courses. See page 63 on *Why the OSHA 10?*) Other industry or trade organizations may also provide safety and health training.

Instructors also need to stay up-to-date on the latest practices and information about safety and health that will best protect students when they are in the field.

What This Looks Like

- Programs require instructors to include safety education and training in their Professional Development Plans (PDP).
- Programs provide financial support for continuous and ongoing professional development on occupational safety and health (OSH) for instructors.
- Safety and health management and teaching are included as a component of instructor evaluations. This includes instructors' ability to develop clear OSH

learning objectives and instructional activities, as well as providing a safe learning environment.

- Where recommended by industry stakeholders, and especially if students are required to have OSHA 10 training, instructors in those CTE programs have taken the OSHA 30-hour safety training. This will strengthen their safety and health understanding, and they will be better able to integrate the OSHA 10 content into coursework.

- Where students are required to have OSHA 10 training, instructors who have the required safety experience have taken the OSHA-500 and 510 construction safety courses or the OSHA-501 and 511 general industry courses and are authorized to teach the OSHA 10 and OSHA 30.

OSHA 10? OSHA 30? What do all the numbers mean?

OSHA Outreach and Training Courses in Construction and in General Industry

The OSHA Outreach and Training Program offers voluntary safety and health training for workers and employers. These programs teach recognition, avoidance, abatement, and prevention of safety and health hazards in workplaces. The programs also provide information regarding workers' rights, employer responsibilities, and how to file a complaint. Several states, localities, and many contractors require workers to have an official OSHA 10 card to work on construction projects. OSHA 10 cards in general industry may be valued by some employers, depending on the specific industry. Click here for a more detailed description of the courses listed below. In California, there are Cal/OSHA versions of all of these courses except the trainer courses.

OSHA 10-hour: Intended for workers to provide awareness of common job-related safety and health hazards

OSHA 30-hour (OTC 114 in CA): Intended for supervisors or workers with specific safety responsibility

OSHA Course #500: Trainer Course in OSHA Standards for Construction—prepares trainers to teach the 10- and 30-hour construction safety and health content to others, and issue OSHA 10 or 30 cards to their trainees. (minimum contact hours: 26)

OSHA Course #501: Trainer Course in OSHA Standards for General Industry – covers OSHA policies, procedures, and standards, as well as general industry safety and health principles. (minimum contact hours: 26)

OSHA Course #502 (#5029 for CA): Update for Construction Industry Outreach Trainers who have completed Course #500. (minimum contact hours: 18)

OSHA Course #503 (#5039 for CA): Update for General Industry Outreach Trainers who have completed Course #501. (minimum contact hours: 18)

OSHA Course #510 (#5109 for CA): Occupational Safety and Health Standards for the Construction Industry – covers OSHA policies, procedures, and standards, as well as construction safety and health principles. (minimum contact hours: 26)

OSHA Course #511 (#5119 for CA): Occupational Safety and Health Standards for General Industry – covers OSHA policies, procedures, and standards, as well as general industry safety and health principles. (minimum contact hours: 26)

How to become an authorized OSHA 10 & 30 instructor

Authorized OSHA trainers can teach OSHA 10 and OSHA 30. In order to become an authorized OSHA 10 trainer, an instructor needs to meet these prerequisites:

- Have five years of industry safety experience. Obtain guidance on whether you meet this requirement from the OSHA Training Institute (OTI) Education Center where you want to take the training.

- Complete OSHA Course #510 (construction) or #511 (general industry), Occupational Safety and Health Standards.

After completing these, the instructor must take OSHA Trainer Course #500 (construction) or #501 (general industry). They must attend an OSHA Course #502 (construction) or #503 (general industry) update course once every four years to maintain their trainer status.

In California, instructors who wish to be authorized by OSHA to teach the Cal/OSHA versions of the 10- and 30-hour courses must meet these requirements:

- Be a current OSHA authorized OSHA trainer (see above).

- Have at least one year of safety and health experience with a business governed by Cal/OSHA standards.

- Complete either OSHA Course #5109 (construction) or #5119 (general industry) on Cal/OSHA standards.

ACTION STEPS

Administrators

- **Require all instructors to include safety and health goals in their professional development plans.**
  - Check with industry stakeholders about the best sources of training.
  - For more information about IIPPs in schools refer to the School Action for Safety and Health (SASH) Program, a free training program to help build the capacity of district-level health and safety coordinators to be resources to other employees and develop an injury and illness prevention program to identify, prevent and eliminate hazards.
- **In instructor evaluations, include safety and health management and instruction as a component.**
  - Observe safety and health management in the classroom:
    - Does it reflect key IIPP elements such as safety inspections, addressing hazards, and ensuring student compliance with safety practices?
    - Do students play an active role in inspections and other key IIPP elements?
  - Is safety and health instruction integrated into the curriculum with appropriate learning outcomes and assessments?
- **Budget each year for instructors' safety and health professional development** (using Perkins funds—federal funds used by most CTE programs—or other professional development funds).
- **Where recommended by industry stakeholders,** or where students are required to have OSHA 10 training**, ensure that instructors have taken the OSHA 30-hour safety training**. (See Box page 42 for more information on Cal/OSHA-specific training.)
  - About the OSHA 10 and OSHA 30 Outreach Training Program
  - Details about program content - General Industry and Construction
  - To find a training center
- **If students are receiving OSHA 10 training in your program, encourage instructors who have the relevant experience to take the OSHA Course series #500/510/5109 (construction) or #501/511/5119 (general industry) to become authorized OSHA trainers.**

ACTION STEPS

Instructors

- **Include safety and health goals in your Professional Development Plan.**

- **If you teach in a construction program, request funding to take the OSHA 30 for construction**, even if it is not required by your regional accrediting body.

  - About the OSHA 10 and OSHA 30 Outreach Training Program
  - Details about program content
  - To find a training center
  - If you have the required construction safety experience (see Box on page 43), request funding to take the OSHA Course #500/510/5109 series to become an authorized OSHA trainer.

- **If you teach in a general industry sector, and if the OSHA 10 is required for your students, request funding to take the OSHA 10 or 30.**

  - About the OSHA 10 and OSHA 30 Outreach Training Program
  - Details about program content
  - To find a training center
  - If you have the required experience (see Box on page 43), request funding to take the OSHA Course #501/511/5119 series to become an authorized OSHA trainer.

D Support for Engaging Industry Advisory Committees (IACs)

"Our programs put safety first, and everything else second. It's driven by the IAC; they don't want new hires that get hurt. As an academic institution, we hold Industry Advisory meetings for every program we offer. We use that opportunity to speak directly with industry professionals in those fields."

–CTE Administrator

Industry Advisory Committees (IACs) are critical partners in CTE, bringing invaluable community and industry expertise, experience, and resources. All CTE programs receiving Perkins funding are required to have a technical education advisory committee that involves business, labor, and industry. The role of this committee is to advise educators on the design, development, implementation, evaluation, maintenance, and revision of technical/occupational programs within a career pathway.

CTE administrators and instructors who effectively engage their IACs in developing their safety and health systems and education are best positioned to prepare students for the safety systems and practices they will encounter in the workforce.

What This Looks Like

- IACs have clear expectations for engagement, how often they will meet, what their roles will be, and are led by industry partners. Members should include participants who are actively engaged in training in their own organizations, from both labor and industry.

- Instructors receive paid time to recruit, and engage regularly with IAC members, including visiting their worksites.

- IACs are involved in a range of program safety and health activities, including:
  - Guiding curriculum content and development, providing real-life OSH case examples, and serving as guest speakers
  - Helping to set high goals and standards for instructor safety and health training, professional development, and evaluation
  - Participating in program and school health and safety committees and program safety audits and investigations
  - Providing safe, quality job or internship opportunities for students
  - Providing externship opportunities to instructors that allow them to deepen their understanding and keep current in the field
- Members of IACs have adopted high OSH standards in their own workplaces to protect workers, and serve on the IAC to provide support for quality education and training that leads to the development of safety and health employability skills.

Instructors Get Support to Develop IAC

"When I first got here, I recognized that we needed a strong advisory council. So I charged all my instructors to build their IAC to approximately 12-15 members. We allow instructors Industry Visit Days. They go out and they specifically find new folks to add to the mix. They obviously work with their existing relationships, too. We are really fortunate in the programs we offer, we have a really strong job demand. We are constantly in contact with employers, because they are begging for our graduates."

– CTE Administrator

ACTION STEPS

Administrators

- Establish concrete expectations for instructors regarding IAC recruitment and engagement for all programs.
  - IACs meet 2-4 times per year, and additionally as subcommittees when necessary.
  - Instructors engage on the jobsite with IAC members at least twice year.
  - IAC is industry-led. Members reflect current industry needs in your community, and include both labor and industry representation.
- Provide paid time to instructors to recruit and engage with IAC members.

Instructors

- **Clarify expectations for IAC members, invite them to participate in specific tasks and roles related to safety and health** (see ideas above in "What This Looks Like"), and hold them accountable. Resources:
  - Minnesota State Colleges & Universities' Program Advisory Committee Handbook
  - Building Advisory Boards that Matter
- **Engage IACs in providing instructor externship opportunities** to experience on-the-job OSHA consultation or inspections.

Effective Teaching and Learning

3

CTE PROGRAMS THAT ACTIVELY INTEGRATE recommended safety and health management system practices into the classroom expose their students to the highest industry standards in their learning environment while also protecting them in the classroom. In California, the Injury and Illness Prevention Program (IIPP) regulation sets out required safety management system elements for all employers. (See Box on page 15).

This section highlights key steps instructors can take to ensure the best learning and the safest learning environment for their students.

- Curriculum content is up-to-date and reflects core safety and health competencies
- Safety and health skills are taught effectively and the classroom reflects Injury and Illness Prevention Program best practices and requirements
- If recommended by industry stakeholders, OSHA 10 training is included and is well-integrated and taught effectively
- Students learn self-advocacy and problem-solving skills for the workplace

"Having a specific advisory committee for the curriculum keeps the learning objectives relevant to what the contractors or local industries need or what some of the trends are."

–Instructor

A Curriculum Content is Up-to-Date and Reflects Core Safety and Health Competencies

Core Occupational Safety and Health Competencies

- Recognize the impact of workplace illness and injury, and value prevention efforts
- Identify underlying factors that contribute to workplace injury and illness
- Identify and describe safety AND health hazards
- Demonstrate understanding of the most effective ways to control hazards
- Explain workers' rights/ employer responsibilities under Cal/OSHA
- Demonstrate effective communication and self-advocacy skills
- Describe potential emergencies and emergency response procedures

Review of industry and safety and health education standards and consultation with experts in the field identified the following general Core Occupational Safety and Health (OSH) Competencies. A full, more detailed list can be found in the appendix.

A CTE curriculum needs to include activities and content that prepare students in all of these areas, and there needs to be a system for ensuring that this content stays up-to-date, through engagement with industry.

What This Looks Like

- Curriculum is reviewed annually with the Industry Advisory Committee (IAC).
- Curriculum is adjusted to reflect industry changes and new developments in safety and health, as well as any gaps or needed improvements identified by the instructor through student assessments or IAC feedback.
- The curriculum includes specific educational activities designed to teach the core OSH competencies as skills that students practice. This includes activities that teach students how to identify less obvious safety and health issues, such as exposure to noise, respiratory hazards and body mechanics, as well as communication and self-advocacy skills, described in Section 3D.

What One School Does—IAC helps evaluate program through student interviews

"Our IAC typically meets twice a year. The second meeting of the year is an exit interview. The members meet with students, talk to each of the students before they graduate. We use it to gather information about how to improve our program. It's a good time for students to bring up safety hazards we weren't addressing. They meet privately with the students without the instructors, so they can talk about anything."

–Instructor

ACTION STEPS

Administrators

- **Establish a policy with lead instructors regarding annual curriculum review** that includes:
  - Review by IAC
  - Report backs on curriculum updates or changes (ask specifically about OSH-related changes)
  - Reference to the Core OSH Competencies to ensure that skills and topics are adequately addressed across the curriculum
- **Invite faculty to form a committee to review OSH content of the whole curriculum** using Core OSH Competencies. Hold instructors accountable to this process during annual reviews.

Instructors

- **Review curriculum to ensure that the safety and health competencies listed on page 52 are covered,** and that these skills are infused throughout the program, and not just in a stand-alone safety course (see Section 3B).
  - Cover health hazards relevant to the industry, including ergonomic hazards, biological hazards, chemical exposures, other respiratory hazards, and noise.
  - Where industry work processes are taught for which Cal/OSHA requires specific training, ensure that those training requirements are met, before those processes are carried out.
- **Have the IAC review and evaluate the curriculum every year** to ensure that OSH competencies being taught reflect any changes in industry standards, Cal/OSHA regulations, or hazard control improvements in the trade.
- **Participate in a faculty committee to review OSH content of the whole curriculum using the competencies.**

B Safety and Health Skills are Taught Effectively and Classroom Reflects Safety & Health Management System

CTE SAFETY AND HEALTH INSTRUCTION SHOULD INCLUDE THE most effective approaches and teaching methods, with clear systems for assessing what students are learning. Research shows that OSH training that is participatory and practice-based is more effective than passive methods, such as the use of lectures and slides. At the same time, classrooms should comply with IIPP requirements, both to help develop students' understanding and expectations about what working within an effective Injury and Illness Prevention Program feels like, and to help ensure safety in the classroom.

What This Looks Like

- Safety and health is NOT considered a stand-alone topic; it is integrated into every course, and is part of every trade skill that students learn and are assessed on.

- All safety and health content is taught in a way that students are prepared to use the information. The core competencies (highlighted at the beginning of this section) are skills—so students need to use them and practice them.

    - In particular, Job Hazard Analysis (JHA) is taught and practiced by students. Using JHAs develops students' skills in identifying hazards, thinking about controls that need to be in place, and problem-solving to make sure they have everything they need to conduct a task safely. This can be used in any industry.

"We talk about it the first day of class. You have to report all injuries immediately. Then we talk about why we do that: a cut in here that seems like nothing, two days later it's infected. So we go ahead and do an injury report. We go over that the first day, antibiotic and Band-Aid or whatever and turn the report in. My whole spiel is I'm not going to yell at you, you're not going to get in trouble for not using the machine properly, it's more for your safety."

–Instructor

- Instructional methods that are participatory and skill building are prioritized, such as hands-on practice.

The classroom reflects the same IIPP practices that are required on the jobsite, especially those highlighted in Section 1:

- The instructor and CTE program administration demonstrate a clear commitment to creating a safe working environment for students, and enforce safe work practices and encourage active communication about safety and health.
- Regular safety and health inspections that involve students are conducted.
- An active reporting system for students is implemented to help identify potential hazards, near misses, and injuries if they occur.
- Hazards that get reported are addressed, and students receive information about what was done.

What One Instructor Does: Using the NIOSH Safety Checklist Program for Schools

"I use [the checklist] to teach students about regulations, inspections, etc. I use it as a regular part of teaching hazard recognition – by breaking the safety checklists into inspection areas, dividing students into teams, and having them involved in inspections, around once a week. I alter conditions and equipment, so that they can find the hazards I know are there."

–Instructor

Involving Students in Classroom IIPP Practices

Some of the ways instructors involve students:

- Conducting inspections
- Participating in incident investigations
- Conducting Job Hazard Analyses
- Planning and conducting safety talks/tailgate training

"Students are engaged in inspections, reporting hazards. The students see a lot of stuff that you as an instructor miss. ... I put them in groups of five with a clipboard. I give them each a shop to go to and find hazards and boy do they come back with some sizeable stuff."

–Instructor

Conducting a Job Hazard Analysis (JHA)

Job Hazard Analysis		
Job:		
Date:	Analysis by:	Approved by:
Job Steps or Sequence	**Potential Hazards**	**Recommended Safe Procedures**
1.	1.	1.
2.	2.	2.
3.	3.	3.
4.	4.	4.
5.	5.	5.
6.	6.	6.

Students need to understand how to do job hazard analysis (JHA), also called job safety analysis (JSA), to develop the skill and habit of analyzing the job tasks they are going to do ahead of time, to ensure that the job is set up in the safest way possible. Steps in the process:

1. What are all the steps involved in the job?
2. What are the potential hazards with each step?
3. How can those hazards be mitigated? Think about the hierarchy of controls – engineering controls, administrative controls, PPE.

Two Instructors Talk About How They Use JHAs:

"I start with an example I've written out—cutting wood on a table saw. I discuss the JHA process, and provide students with a JHA template – so they can work through the initial example. From there, students regularly perform JHA's throughout the course."

–Instructor

"Students are required just for that intro level course to develop a personal JHA just for what it is that they are going to do. They kind of go through the steps mentally and on paper and list some of the different safety concerns. Just be able to plan out your job scope and see some of the different hazards that exist…"

– Instructor

What One Instructor Does: Involving Students in Developing Safety Protocols

"In my classes, I have the students come up with the safety protocol for each tool we work with. We look at the tool, they tell me what the potential hazards are. Then they tell what the safety procedures should be, and the students write that down. Of course I add anything they miss. It means the rules may be slightly different in each class, but it really makes it their rules—they own them."

–Instructor

ACTION STEPS

Administrators

- **Evaluate faculty on how well they integrate OSH instruction.** (See Section 2B.)

- **Create opportunities for instructors to share lesson plans, teaching materials, and other strategies for creating a safe learning environment.** For example, make this a focus of an instructor meeting each year in which instructors bring and share teaching tools they use to infuse safety and health in all their teaching activities.

- **Provide paid time for instructors to seek out new teaching materials.**

ACTION STEPS

Instructors

- **Review course syllabi and lesson plans and assess the mix of OSH topics covered** (critical thinking skills, most effective ways to set up a job to control hazards, JHAs), the amount of time devoted to topics, and the teaching methods used.

- **Use Job Hazard Analysis in classroom teaching.**
  - Job Hazard Analysis brochure (OSHA)
  - Tools and Techniques for Job Hazard Analysis (Oregon OSHA)
  - Hierarchy of Controls (NIOSH)

- **Seek out new, innovative ideas and materials to more effectively teach critical thinking skills.** See Resource List for a place to start.
  - Online Hazard Identification Training Tool (OSHA)

- **Collect real-world examples of good and bad practices from the IAC** to share as "stories from the field" in the classroom.

- **Make sure the classroom reflects IIPP practices:**
  - Regular inspections that involve students are conducted.
  - An active reporting system is implemented for students to help identify potential hazards, near misses, and injuries if they occur.
  - Students are involved in incident investigations.
  - Hazards that get reported are addressed, and students hear about the results.

C If Recommended by Industry Stakeholders, OSHA 10 Training is Included and is Well-Integrated and Taught Effectively

"We do hands on with OSHA 10. Fire up the grinders and the saws. Put on the harnesses. Climb up the ladders, lean them up against the building. It's not just sit there and death by PowerPoint."

–Instructor

MANY CTE PROGRAMS ARE INTEGRATING OR REQUIRING the OSHA 10-hour Training Program (OSHA 10) for their students. Unless it is recommended by your industry stakeholders, however, key OSH competencies may be taught equally or more effectively with other approaches.

OSHA 10 training may be taken online, in a stand-alone course, or integrated into a trade skills class, but it must be taught by an authorized OSHA Outreach Trainer or authorized online program in order for students to receive a card. In order to be most meaningful, however, the OSHA 10 content should be taught in a way that is integrated with the skills that students are learning, with adequate class time to use effective, participatory teaching methods (see Box on page 64). At a minimum, even with online training, there should be opportunities for students to ask questions of a qualified individual while they are taking the online course.

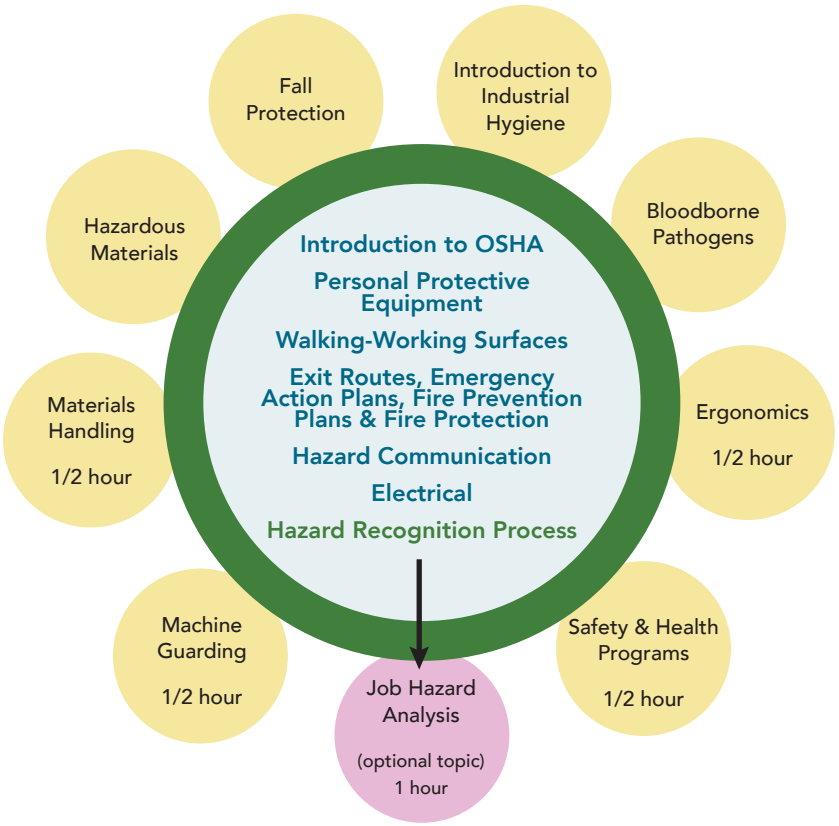
What This Looks Like

- Where possible, instructors are authorized trainers who can integrate the OSHA 10 content into their courses. Students end up with an OSHA 10 card.
- OSHA 10 content is taught as it is relevant in the course, with foundational skills up front, and then connected directly to trade or industry-specific skills students will need.
- OSHA 10 content is taught over a period of at least 12 hours, ideally more, so that there is adequate time to cover required information.
- OSHA 10 content is taught using effective teaching methods that are participatory and skill-building.

Why the OSHA 10?

The OSHA 10-Hour Outreach Training Program for is intended for entry-level workers to develop a safety mindset and learn valuable skills for their future. Trainers are authorized to teach classes to workers in construction and general industry. In California, training should be conducted by trainers authorized to teach the Cal/OSHA version. All OSHA-Authorized Outreach training courses, including the OSHA 10, cover key hazards. Incorporating the OSHA 10 into your CTE program can also increase your students' employability, giving them a competitive advantage in the job market. At least seven states now have laws that require construction workers to complete the OSHA 10 before they can work on certain construction projects, and many employers now require an OSHA 10 wallet card regardless. In a recent survey of CTE construction programs in post-secondary schools, described on page 77 in About This Guide, 49% reported that they currently include OSHA 10 training for their students. In non-construction industries, OSHA 10 training may or may not be considered critical—get advice from your industry partners.

Operationalizing the OSHA 10-Hour General Industry Safety Outreach Training 12+ Hours to Prepare Students for Industry



Mandatory Topics

Introduction to OSHA – 2 hours
Protective Equipment – 1 hour
Walking-Working Surfaces – 1 hour
Exit Routes, Emergency Action Plans, Fire Prevention Plans & Fire Protection – 1 hour
Hazard Communication – 1 hour
Electrical – 1 hour

Hazard Recognition Process

2 hours (+1 hour optional)

Elective Topics

2 hours; minimum 2 topics
1/2 hour per topic minimum
4 topics recommended

Optional Topics

1 hour; minimum 1 topic

Credit: Andrew Wermes, Consultant for Skilled & Technical Sciences, Iowa Department of Education

What One School Does: Integrating OSHA 10 into Intro Classes

"In our trade technical college, we embed OSHA 10 in the beginning carpentry class. The instructor is an authorized OSHA Outreach Trainer. The 10-hour class is taught in the context of the class. Students participate in demonstrations of how these principles are practiced in the field. All students who progress through the program receive an OSHA 10 card."

–Instructor

ACTION STEPS

Administrators

- **If recommended by industry partners, integrate OSHA 10 training into the program requirements**:
  - BEST CASE: Ensure that all or some instructors who have the required safety experience, and teach students that are required to have OSHA 10 training, have taken the relevant OSHA Course series #500/510/5109 (construction) or #501/511/5119 (general industry) to become authorized OSHA trainers. Have them teach the content integrated into introductory skills classes, covering foundational information up front, and work process-related OSH skills as those skills are taught. (See Section 2B.)
    - Federal OSHA: https://www.osha.gov/dte/outreach/authorized.html
    - California: https://osha.asapconnected.com/?#CourseGroupID=5802
  - INTERMEDIATE SOLUTION: If students attend a stand-alone OSHA 10 class, make sure industry skills instructors know and understand the OSHA 10 content and review relevant OSHA 10 content in the classroom.
- **Ensure that OSHA 10 content is taught using effective teaching methods** (see next section, 3C), and that at least 12 hours of instructional time is available, ideally spread over multiple days.

Instructors

- **If students attend a stand-alone OSHA 10 class**, make sure you know and understand the OSHA 10 content and review relevant OSHA 10 content during industry skills classes. Be sure to teach all OSHA safety requirements relevant to specific work processes.
- **If you are an authorized OSHA trainer**, build in adequate time (12 hours or more) to teach the OSHA 10 content using effective teaching methods (see Section 3C), ideally spread over multiple days.

D Students Learn Self-Advocacy and Problem-Solving Skills for the Workplace

"My assessments – a lot are done in groups. We'll have teams and we'll take the class and lock them into teams and that's how they'll do their work. Whether it's hands on, practical exams, studies, oral reports - it's all done as a team. Each one has to rotate through as a team leader. So they get those soft skills of being able to talk to people and being able to present to the class. Each one has to present to the class, so they're getting those skills as well as the leadership roles."

–Instructor

The reality is that the safe practices that students learn in their coursework may not be followed out in the field, especially when working for small, less well-resourced employers. There may also be instances where students fear retaliation for speaking up. Yet students are not typically trained or prepared to negotiate safer conditions in these situations.

Students need to understand what their rights and protections are, how to use those protections, and how to strategize and

What One Instructor Does: Students Identify Hazards in the Shop

"A method that I have found effective in my ag mechanics class is to put my students through real life scenarios. In a controlled environment, I set up a hazardous or unsafe condition that they could potentially encounter in my welding shop. This could include frayed/exposed wiring, potential fire hazards (welding to close to combustibles), tripping hazards with extension cords, or material falling hazards (large projects on table or stands that are not secured, or metal on the edge of racks, etc.) Groups of students work together to identify the hazard(s), they discuss how to keep that hazard from reoccurring, and how to correct or fix it. I then have them come back and present their findings in discussion with the class."

–Instructor

communicate effectively to advocate for safety. These critical thinking, problem-solving, and communication skills in OSH are important employability skills. Employers need workers who are able to identify hazards, understand how to address them, and advocate effectively to prevent their own or others' injury on the jobsite. These skills need to be taught in CTE programs.

What This Looks Like

- A classroom that reflects a commitment to the "employee involvement" aspect of IIPP requirements. There is an overall environment as well as specific structures in place (such as student involvement in regular inspections or students leading toolbox or safety talks) that facilitate student communication about safety and health issues. Students know they are expected to speak up about issues and can do so without fear of retaliation.

- Classroom activities include opportunities specifically designed for students to practice problem-solving and bringing up issues with supervisors or co-workers.

Meeting Your School's Communication ILO

Many schools have institutional or school-wide learning outcomes (ILO) that include communication. One school's ILO: "The student will demonstrate proficiency in communication skills, including active listening, textual interpretation and comprehension, and oral and written expression." Developing communication skills in your program can help meet these learning outcomes.

ACTION STEPS

Administrators

- Create explicit expectations that students should speak up if they have safety concerns.
- Create and enforce strong policy against retaliation.

Instructors

- **Make sure communication and self-advocacy learning objectives are included in industry skills classes.** Spend enough time teaching these skills, including opportunities to practice them, for students to develop the skills they need.
  - NIOSH'S Youth@Work Talking Safety Curriculum Lesson 6 has an example role-play that can be adapted for specific industries.
  - Problem-Solving for Safety: Building Critical Thinking and Communication Skills for Safety has activities that will help instructors teach the skills new workers will need to participate in their employer's IIPP.
- **Work with other instructors to share and develop specific activities designed for students to practice problem-solving** and bringing up safety and health issues with supervisors or co-workers.

Offsite Learning: Safety and Health Program Practices 4

STUDENTS NEED TO PRACTICE THE SKILLS THEY will need on the job. Doing this in a well-supervised, real work environment is a very effective way to provide this opportunity. While some schools require internships or others kinds of field experience, others create this opportunity for "real world" learning by providing volunteer or paid positions on a worksite. In all of these types of field experience, all the elements of an effective Injury and Illness Prevention Program (IIPP) must be in place. This section focuses on systems for off-site learning where others outside of the CTE program are supervising the students.

"In our program, students do a summer internship. At end of summer, I call the employer. One question I always ask is, are my students safety conscious—are they aware of their surroundings, do they know what the hazards are and what they should do to avoid them. I always get good info. On my last round, several employers told me the student was probably better at it than they were—which they appreciated!"

–Instructor

A Offsite Learning Experiences Reflect an Effective Safety and Health Management System

We're trying to educate students that protecting workers is the responsibility of the contractor, the employer. Because when they're going through their internships, they're often seeing contradictions—a lack of compliance still...For example, in our program it's the first time they've heard that when you work over 6 feet off the ground, you need some kind of fall protection—it's not what they see at work. All we can do is tell them the future looks different than the past."

–Instructor

WHEN STUDENTS ARE PRACTICING THEIR SKILLS IN the real world through an internship or other field experience through your program, that experience needs to reflect the same high industry IIPP practices as your program.

WHAT THIS LOOKS LIKE

- If possible, the program has a supervised real-world experience requirement.
- The supervised real-world experience reflects IIPP requirements and practices. This includes ensuring the use of safe work practices on site, provision of all necessary hazard controls, effective supervision of students, and an environment where students are encouraged to communicate, ask questions, and speak up.

- The program has a written policy and active process for ensuring that off-campus worksites involved in paid and unpaid training experiences provide evidence that they have an effective IIPP in place. The program's process should include:
  - Required site visits by instructors
  - Written agreements regarding safety training and protections
  - Tools to structure assessment of OSH program components
  - Procedures if the site is determined to have inadequate safety procedures

ACTION STEPS

Administrators

- **If programs do not currently require internships, explore development of an internship requirement, especially for longer programs.**

- **If programs require internships, review or develop the written policies to ensure a safe work environment.** Make sure policies include the following:

  - Safety agreement, to include:
    - Verification that there is someone on the site with the responsibility and credentials to ensure a safe workplace
    - Verification of a written safety program (IIPP) on site
  - At least one site visit by an instructor in charge before placing the student, and one during the placement, to ensure a safe learning environment.
  - Procedures to follow if the off-campus site is found to have inadequate safety procedures.

ACTION STEPS

Instructors

- **If supervising paid or unpaid internships or other field experience affiliated with the program**, make sure policies include the following:
  - Safety agreement, to include:
    - Verification that there is someone on the site with the responsibility and credentials to ensure a safe workplace
    - Verification of a written safety programs (IIPP) on site
  - At least one site visit by an instructor in charge before placing the student, and one during the placement, to ensure a safe learning environment.
  - Procedures to follow if the off-campus site is found to have inadequate safety procedures.
- **Have students complete routine job logs that include a question about safety challenges** they have faced, and how they met those challenges.

About this Guide

This guide has been adapted from a previous publication, Your Construction Safety Program: Safe Students, Safe Workers—A Guide for Administrators & Instructors in Post-Secondary Career Technical Education (CTE) Construction Programs, described in more detail below. The goal of this adaptation is to create a similar guide, specifically for CTE programs in California, relevant across all industries—not just construction—and located in high schools as well as post-secondary schools. This adaptation was funded through a contract with the Occupational Health Branch of the California Department of Public Health.

The original construction-focused guide resulted from research activities conducted in 2015-2016 by the University of California's Labor Occupational Health Program and West Virginia University's Injury Control Research Center, with help from project partners including the National Council on Workforce Education (NCWE) and the Association for Career and Technical Education (ACTE). The original research and resulting guide were funded by CPWR—the Center for Construction Research and Training, made possible by a cooperative agreement with the National Institute for Occupational Safety and Health. Research activities included focus groups with instructors and administrators from CTE construction programs; surveys conducted with 270 instructors and administrators from 79 schools across the country, and structured site visits conducted at three community colleges. The guide also drew from and expanded upon previous research conducted by the Labor Occupational Health Program that involved interviews with 27 key informants, including instructors, administrators, and leadership in CTE construction programs and organizations, as well as safety and health professionals with experience working with CTE programs in construction.

Resources

Resources from the Guidance Document

1. School & Program

A. Management Leadership

- **Taking Action For Safety And Health Guide To Developing Your Workplace Injury And Illness Prevention Program**
  http://lohp.org/iipp-general-industry/
  This Guide to was created to help California workplaces develop their Injury and Illness Prevention Program (IIPP).

B. Regular Inspections to Identify Hazards

- **Safety Checklist Program for Schools (NIOSH)**
  https://www.cdc.gov/niosh/docs/2004-101/default.html
  This Safety Checklist Program can help schools and programs get into compliance even when they have little safety and health experience, a busy schedule, and many unanswered questions.
- **Safety Checklist Program for Schools -Chapter 4: Safety Checklists and Indexes (NIOSH)**
  https://www.cdc.gov/niosh/docs/2004-101/chap4.html
  Chapter 4 of the Safety Checklist Program provides information via checklists and indexes that can help schools and programs get into compliance.
- Selected Health and Safety Hazard Resources
  - **Ergonomics Hazard Zone Checklist**
    http://lni.wa.gov/safety/SprainsStrains/evaltools/HazardZoneChecklist.PDF
    This checklist from the state of Washington's Department of Labor and Industries can quickly assess levels of risk of injury (minimal, moderate, or high) for the back, shoulder, hand/wrist, and knee in a given job.
  - **Heat Stress**
    https://www.dir.ca.gov/DOSH/HeatIllnessInfo.html
    This Cal/OSHA website houses heat illness prevention education and training resources.
  - **Heavy Lifting: NIOSH Lifting Equation App**
    https://www.cdc.gov/niosh/topics/ergonomics/nlecalc.html
    This tool calculates the overall risk index for single and multiple manual lifting tasks. This application provides risk estimates to help evaluate lifting tasks and reduce the incidence of low back injuries in workers.

- **Needlestick Injuries: How to Protect Yourself From Needlestick Injuries**
  https://www.cdc.gov/niosh/docs/2000-135/pdfs/2000-135.pdf?id=10.26616/NIOSHPUB2000135
  This pamphlet from NIOSH focuses on needlestick injury prevention.
- **Noise Exposure Resources**
  - **Buy Quiet Program (NIOSH)**
    https://www.cdc.gov/niosh/topics/buyquiet/posters.html
    Buy Quiet addresses the vision of eliminating noise hazards early in the life cycle of power tools and equipment, thus reducing the risk of occupational hearing loss among operators and nearby workers.
  - **Sound Level Meter App (NIOSH)**
    https://www.cdc.gov/niosh/topics/noise/app.html
    The NIOSH Sound Level Meter (SLM) app combines the best features of professional sound levels meters and noise dosimeters into a simple, easy-to-use package.
- **Pesticides: Working Safely With Pesticides in Non-Agricultural Settings**
  https://www.cdpr.ca.gov/docs/whs/pdf/hs1742.pdf
  This factsheet from the California Environmental Protection Agency (EPA) focuses on Working Safely With Pesticides in Non-Agricultural Settings.
- **Restaurant Work Hazards**
  http://lohp.org/wp-content/uploads/2013/10/safetytips_english.pdf
  These tip sheets from the UC Berkeley Labor Occupational Health Program describe a variety of hazards present in restaurant work.
- **Warehouse Safety Inspection Checklist**
  https://www.vcccd.edu/sites/default/files/imported/departments/human_resources/workers_compensation/docs/wc_intra_warehouse_insp.pdf
  This checklist tool from the Community Colleges of Ventura County can be used to assess warehouse hazards.
- **Welding Fumes Resources**
  - **Hazard Alert: Welding Fumes and Gases (CPWR)**
    http://www.cpwr.com/sites/default/files/publications/Fumes_and_Gases_web-post_0.pdf
  - **Welding, Cutting, and Brazing General Requirements Self-Inspection Checklist (NIOSH)**
    https://www.cdc.gov/niosh/docs/2004-101/chklists/r1n64w~1.htm

C. An Active Reporting System to Identify Hazards

- **Identified Hazards and Correction Record Sample Form (Cal/OSHA Consultation)**
  https://www.dir.ca.gov/dosh/etools/09-031/IndHazCorRec.pdf
  A web-based form that can be completed by anyone to report safety and health issues, including hazards as well as close calls/near misses.

D. Investigation of All Injuries, Incidents and Near Misses to Identify Underlying Hazards

- **Incident [Accident] Investigations: A Guide for Employers (OSHA)**
  https://www.osha.gov/dte/IncInvGuide4Empl_Dec2015.pdf
  The purpose of this Incident Investigation Guide is to provide employers a systems approach to help them identify and control the underlying or root causes of all incidents in order to prevent their recurrence.

- **How to Conduct an Incident Investigation (National Safety Council)**
  https://www.nsc.org/Portals/0/Documents/JSEWorkplaceDocuments/How-To-Conduct-An-Incident-Investigation.PDF
  The document describes steps in an incident investigation process, including what to document.

- **Investigation of Accidents, Injuries and Illnesses Tool (Labor Occupational Health Program)**
  http://lohp.org/wp-content/uploads/2013/12/Tools_1_Investigation_of_Accidents-1030.pdf
  An incident investigation form that helps identify root causes of accidents, injuries, and illnesses, and to prevent similar events from happening in the future.

E. Effective Control of Hazards to Prevent Injuries

- **Insurance Loss Control Specialists (EMC Insurance)**
  https://www.emcins.com/lossControl/topicsIndustries/schools.aspx
  A resource list of loss control resources for schools including online trainings, safety talks, posters, manuals, and more.

- **Cal/OSHA Consultation Services Branch**
  https://www.dir.ca.gov/dosh/consultation.html
  Cal/OSHA's Consultation offers free and confidential safety and occupational health advice to California businesses, with priority given to high-hazard worksites. Services from Cal/OSHA Consultation include: onsite visits, offsite consultation, high hazard employer program, providing educational materials and research, partnership programs, and outreach assistance. On-site consultation services are separate from enforcement and do not result in penalties or citations

2. Instructor Qualifications and Support

A. Instructor Field Experience

- **Designated Subjects Career Technical Education (CTE) Teaching Credentials**
  https://www.ctc.ca.gov/docs/default-source/leaflets/cl888.pdf?sfvrsn=88065bf8_18
  This leaflet from the State of California Commission on Teacher Credentialing focuses on designated subjects Career Technical Education (CTE) teaching credentials.

- **ApprenticeshipUSA Toolkit: Build (U.S. Department of Labor)** https://www.dol.gov/apprenticeship/toolkit/models-build.htm The tools in this toolkit include an overview of partnership models and resources to build these partnerships.

- **Appendix A: Work Process Schedule, Carpenter (U.S. Department of Labor)**
  https://www.doleta.gov/OA/pdf/APPENDIX_A_CARPENTER.pdf
  This U.S. Department of Labor carpentry apprenticeship schedule shows the range of skills needed for the carpentry trade. It is one type of resource programs can use to update program requirements for instructor experience.

B. Training and Support to be Effective Instructors

- **Teaching Squares Resources**
  http://www.clark.edu/tlc/faculty-development/teaching-squares.php
  Teaching Squares program is designed to improve teaching skills and build community through a structured, non-threatening process of classroom observation and shared reflection.
- **Framework for 21st Century Learning (Partnership for 21st Century Learning)**
  http://www.p21.org/our-work/p21-framework
  P21's Framework for 21st Century Learning was developed with input from teachers, education experts, and business leaders to define and illustrate the skills and knowledge students need to succeed in work, life, and citizenship, as well as the support systems necessary for 21st century learning outcomes.
- **CTE Teacher Coaching and Support (CAROCP: The Association of Career and College Readiness Organizations)**
  http://www.rocpinspire.org/cte_teachers.asp
  The CAROCP webpage highlights California career and college readiness organizations supports CTE teachers.
- **California Community College Association of Occupational Educators (CCCAOE)**
  https://www.cccaoe.org
  CCAOE advocates for and provides professional development opportunities for both administrators and instructors in workforce education at the community college level.
- **National Council for Workforce Education New Workforce Professionals Academy** https://www.ncwe.org/page/new_prof_academy
  The New Workforce Professionals Academy was created to advance knowledge and skill development for community college workforce education professionals who are relatively new to the field of workforce education.
- **California Industrial and Technology Education Association (CITEA)**
  http://www. citea. org/
  CITEA promotes and supports Industrial Technology Education, Vocational Education, and Regional Occupational Programs, ITE teachers, students, administrators, and programs throughout the State of California, through teacher training, professional communication, and advocacy.

- **High Quality CCTE Certification Program (Association for Skilled and Technical Sciences)** http://www.astsonline.org/AstsCcteCertifications.asp
  The Association for Skilled and Technical Sciences (ASTS) has developed a High Quality CCTE certification program to meet the need for recognizing life-long achievements of educators in schools, colleges, and institutions, including Industry trainers. This certificate is unlike most academic certificates in that it recognizes and rewards individuals for industry related experiences during their career path. These workshops, industry certificates, industry awards, teaching awards, and Trades Association recognitions and awards are not generally recognized by educational institutions.

- **Association for Career and Technical Education (ACTE)**
  http://www. acteonline. org/
  ACTE is the largest national education association dedicated to the advancement of education that prepares youth and adults for successful careers, with annual national and regional conferences.

- **SkillsUSA**
  http://www. skillsusa. org/
  SkillsUSA is a partnership of students, teachers, and industry working together to ensure America has a skilled workforce. SkillsUSA's mission is to help its members become world-class workers, leaders, and responsible American citizens. Serves more than 4000 schools and colleges across a wide range of occupations, including construction (131 occupational specialties/pathways). A Skills University is held every summer for students, with a separate track for instructors.

- **CTE Online (Center for the Advancement of Digital Resources in Education)**
  https://www.cteonline.org/
  CTE Online is a place for California Educators to explore and access teacher-created curriculum. It also has tools for users to create their own curriculum and collaborate in groups.

- **Continuing Professional Development Plan/Record (ASTS)**
  http://www.astsonline.org/documents/ApplicationForms/ASTSProfessionalDevelopmentPlan.doc
  This document is a sample professional development plan/record that includes safety and health teaching skills.

C. Training and Staying Up-to-Date in Safety and Health

- **School Action for Safety and Health (SASH) Program**
  https://www.dir.ca.gov/chswc/SASH/index.htm
  The California School Action for Safety and Health (SASH) aims to help schools statewide improve their injury and illness prevention practices. The program includes training and resources to enable schools or school districts to develop or improve IIPPs and to make other health and safety improvements that will help protect school or school district employees from workplace injuries and illnesses.

- **Outreach Training Program: OSHA 10 and OSHA 30 (OSHA)**
  https://www.osha.gov/dte/outreach/index.html
  The Outreach Training Program provides basic safety and health information and education — it does not fulfill an employer's requirement to provide training under specific OSHA standards. The OSHA Outreach Training Program provides training for workers and employers on the recognition, avoidance, abatement, and prevention of safety and health hazards in workplaces in the construction industry.

- **Outreach Training Program: General Industry Procedures (OSHA)**
  https://www.osha.gov/dte/outreach/generalindustry/GeneralIndustryProcedures-2019.pdf
  A document that contains information on OSHA'S Outreach Training Program's General Industry Procedures for OSHA 10-Hour and OSHA 30-Hour.

- **Outreach Training Program: Construction Industry Procedures (OSHA)**
  https://www.osha.gov/dte/outreach/construction/ConstructionProcedures-2019.pdf
  A document that contains information on OSHA'S Outreach Training Program's Construction Industry Procedures for OSHA 10-Hour and OSHA 30-Hour.

- **Training Institute Education Center Locations (OSHA)**
  https://www.osha.gov/dte/edcenters/map. html
  A webpage with a map of OSHA's OTI Education Center Locations.

- **How to Become an Authorized Trainer (OSHA)**
  https://www.osha.gov/dte/outreach/authorized.html
  An OSHA webpage with information on how to become an OSHA authorized trainer in construction and general industry.

- **How to Become an Authorized Trainer on Cal/OSHA Standards**
  https://osha.asapconnected.com/#CourseGroupID=5802
  Information on Cal/OSHA Standards-specific courses, including how to become authorized to teach these Cal/OSHA-specific courses.

D. Support for Engaging Industry Advisory Committees (IACs)

- **Program Advisory Committee Handbook (Minnesota State Colleges & Universities)**
  http://www. mnwest.edu/images/faculty-resources/prog_advisory_handbook.pdfA
  The Minnesota State Colleges & Universities' Program Advisory Committee Handbook provides useful guidance for setting up effective IACs.

- **Building Advisory Boards that Matter (ACTE)**
  https://nc3t.com/building-advisory-boards-that-matter
  An ACTE publication that will help you develop an effective board for your CTE program. In this book, you will also learn how to effectively engage key stakeholders, whether they are members of business and industry organizations, community groups, certification or postsecondary programs, parents, students, or general citizens.

3. Effective Teaching and Learning

A. Curriculum Content is Up-to-Date and Reflects Core Safety and Health Competencies

- **Training Requirements in Cal/OSHA Standards**
  https://www.dir.ca.gov/dosh/dosh_publications/trainingreq.htm
  The publication provides information on what industry work processes require Cal/OSHA-specific training to ensure that those Cal/OSHA training requirements are met, before those processes are carried out.

B. Safety and Health Skills are Taught Effectively and Classroom Reflects Safety & Health Management System

- Safety Checklist Program for Schools (NIOSH)
  https://www.cdc.gov/niosh/docs/2004-101/default.html
  This Safety Checklist Program can help schools and programs get into compliance even when they have little safety and health experience, a busy schedule, and many unanswered questions.
- **Job Hazard Analysis Brochure (OSHA)**
  https://www.osha.gov/Publications/osha3071.pdf
  The OSHA brochure explains what a job hazard analysis is and offers guidelines to help you conduct your own step-by-step analysis.
- Tools and Techniques for Job Hazard Analysis (Oregon OSHA)
  https://osha.oregon.gov/edu/Documents/workshop-materials/1-121w.pdf
  The Oregon OSHA document introduces a new approach to conducting JHAs in a way that will help design job procedures that are as safe as possible. It also highlights ways to write effective safe job procedures that may be used as lesson plans for on-the-job training.
- **Hierarchy of Controls (NIOSH)**
  https://www.cdc.gov/niosh/topics/hierarchy/
  The NIOSH webpage provides a description of the hierarchy of controls.
- **Online Hazard Identification Training Tool (OSHA)**
  https://www.osha.gov/hazfinder/index.html
  An interactive, online, game-based training tool for small business owners, workers, and others interested in learning the core concepts of hazard identification.

C. If Recommended by Industry Stakeholders, OSHA 10 Training is Included and is Well-integrated and Taught Effectively

- **How to Become an Authorized Trainer (OSHA)**
  https://www.osha.gov/dte/outreach/authorized.html
  An OSHA webpage with information on how to become an OSHA authorized trainer in construction (OSHA Course #500/510 series) and general industry.

- **How to Become an Authorized Trainer on Cal/OSHA Standards**
  https://osha.asapconnected.com/#CourseGroupID=5802
  Information on Cal/OSHA Standards-specific courses, including how to become authorized to teach these Cal/OSHA-specific courses.

D. Students Learn Self-Advocacy and Problem-Solving Skills for the Workplace

- **Youth @ Work: Talking Safety**
  https://www.cdc.gov/niosh/talkingsafety/states/ca/2015-173/default.html
  Youth@Work: Talking Safety is a foundational curriculum in occupational safety and health developed by a consortium of partners over many years. Activities are designed to be participatory, and include lessons designed to develop safety and health communication skills. The entire booklet includes instructions for teachers and a step-by-step guide for presenting the material.

- **Problem-Solving for Safety: Building Critical Thinking and Communication Skills for Safety** http://youngworkers.org/our-materials/teachers/
  These activities have been designed to help instructors introduce their students to California's Injury and Illness Prevention Program (IIPP) Standard, and teach the critical thinking and problem-solving communication skills new workers will need to participate in their employer's IIPP.

General Resources

- **Best Practices for Development, Delivery, and Evaluation of Susan Harwood Training Grants (OSHA)**
  https://www.osha.gov/dte/sharwood/best-practices-booklet.pdf
  This document can assist educators in developing, delivering, and evaluating training for workers and employers on health and safety.

- **Foundations for Safety Leadership (FSL) Training Module (CPWR)**
  http://www.cpwr.com/foundations-safety-leadership-fsl
  This webpage provides information on and downloads to the Foundations for Safety Leadership (FSL) training module, which is now an official elective in the OSHA 30-Hour training course. While developed for construction settings, it can be adapted to other industries.

- **Hazard Assessment Checklist (Cal/OSHA)**
  http://www.dir.ca.gov/dosh/etools/09-031/hazassesscheck.pdf
  This checklist can be used to identify and evaluate hazards in your workplace. This checklist covers a wide variety of workplace safety and health hazards.

- **Resource for Development and Delivery of Training to Workers (OSHA)**
  https://www.osha.gov/Publications/osha3824.pdf
  This OSHA guide outlines information on developing and delivering effective training to workers.

Other Teaching Resources Identified by Instructors

- **AFL-CIO Multi-Craft Core Curriculum**
  https://nabtu.org/wp-content/uploads/2017/08/MC3-in-Our-Schools-A-Guide-for-Students-and-Parents.pdf.
  The Building Trades National Standing Committee on Apprenticeship and Training has identified courses in all building trades' apprenticeship programs that are offered in common without regard to a particular craft, a common core curriculum. The courses are: general orientation to apprenticeship; cardiopulmonary resuscitation (CPR) and first aid; the OSHA 10 hour certification course; blueprint reading; applied mathematics for construction applications; history of the construction industry and the heritage of the American worker. The general orientation course includes construction industry structure and the construction process; orientation to apprenticeship itself; tools of the various trades; and industry standards of work responsibility. The total core includes 120 hours of classroom training.

- **Basics of Occupational Safety** *1st Edition* by David L. Goetsch, University of West Florida and Okaloosa-Walton, 2009.
  Provides an up-to-date, practical teaching resource that focuses on the basic safety-related needs of people in the workplace. It is intended for use in universities, colleges, community colleges, and corporate training settings that offer programs, courses, workshops, and seminars in occupational safety and health.

- **BLR**
  https://www.blr.com/Markets/EHS
  BLR is a private company offering online training products and other informational resources to assist employers and educators in providing training that meets federal and state environmental and occupational safety and health requirements.

- **CareerSafe**
  http://www.careersafeonline.com/index.php/component/content/article/9-courses/36-osha-10-hour-construction-industry
  This OSHA-approved online training program for the construction industry provides training for entry level workers and employers on the recognition, avoidance, abatement, and prevention of safety and health hazards in workplaces in the construction industry. The program also provides information regarding workers' rights, employer responsibilities, and how to file a complaint.
  Students who successfully complete the CareerSafe OSHA 10-Hour Construction Industry course receive an OSHA 10-Hour Construction Industry wallet card from the OSHA Training Institute (OTI). The cost for the CareerSafe OSHA 10-Hour Construction Industry Training is $25 per student. This includes the $18 training course and the $7 mandatory OSHA processing fees.

- **J.J.Keller & Associates**
  https://www.jjkeller.com/learn/workplace-safety-ehs
  J.J. Keller is a private company offering training resources, products, and services across industries, to assist educators and employers meet OSHA and environmental regulations.

- **National Center for Construction Education and Research (NCCER) Core Curriculum**
  http://nccer.pearsonconstructionbooks.com/store/browse.aspx?st=69098
  The NCCER Core Curriculum is a prerequisite to all other Level 1 craft curricula. Its modules cover topics such as Basic Safety, Communication Skills, and Introduction to Construction Drawings. Completing this curriculum gives the trainee the basic skills needed to continue education in any craft area he or she chooses. The curriculum complies with OSHA 10-Hour Construction Industry Outreach Training Regulations when taught by an OSHA Authorized Construction Outreach Safety Instructor.

- **OSHA's 11**
  https://osha.washington.edu/pages/yw-curriculum-oshas-11-0
  This curriculum was developed by the Labor Occupational Health Program at U. C. Berkeley, the Education Development Center Inc. , and the OSHA Education Center at the University of Washington to teach OSHA 10-hour general industry course content in a more participatory and youth-oriented way. Contains interactive lessons and activities on foundational skills including hazard identification and control and problem-solving on the job, as well as topic-specific lessons on electrical safety, chemical hazards, bloodborne pathogens, ergonomics, and workplace violence.

- **S/P2: Online Training for the Skilled Trades**
  https://sp2.org/
  S/P2 training provides online courses used for students and employees to learn about workplace safety and compliance with OSHA and EPA. S/P2 also offers training in Ethics, Human Resources, Mentoring, Sustainability, and Soft Skills.

- **WISC Online**
  http://www. wisc-online. com/Category. aspx?ID=40
  (Learning Objects in Technical – Safety) Wisc-Online is a digital library of Web-based learning resources called "learning objects. " The digital library of objects has been developed primarily by faculty from the Wisconsin Technical College System (WTCS) and produced by multimedia technicians who create the learning objects.

- **Young Worker Safety and Health Training for the Construction Industry**
  http://www. youngworker. gatech. edu/online-training-and-training-materials
  These materials—a 1-hour lesson plan, PowerPoint presentation, and short training videos—are designed to provide construction-specific content after students have participated in foundational OSH training activities, based in large part on the *Youth@ Work--Talking Safety* curriculum activities.

- **Youth @ Work: Talking Safety**
  http://www. cdc. gov/niosh/talkingsafety/
  Youth@Work: Talking Safety is a foundation curriculum in occupational safety and health developed with OSHA and NIOSH funding by the Labor Occupational Health Program at U. C. Berkeley, Education Development Center, Inc. , and includes activities developed by the Occupational Health Surveillance Program of the Massachusetts Department of Public Health. This curriculum is meant to be used in a classroom or other group training setting, and has been customized for each state, Puerto Rico, Washington D. C., and the U. S. Virgin Islands to address their specific child labor rules and regulations. The entire booklet includes instructions for teachers and a step-by-step guide for presenting the material.

Appendix: Core Occupational Safety and Health (OSH) Competencies

Review of industry and safety and health education standards and consultation with experts in the field identified the following general Core Occupational Safety and Health Competencies.

Curriculum is designed so that by the end of training, students achieve the following OSH competencies. Students will be able to:

- **Recognize the impact of workplace illness and injury, and value prevention efforts.***
  Recognize that all workers can be injured, become sick, or even be killed on the job and be able to explain that, while work has benefits, the impact of work-related injuries and illnesses on workers, their families, co-workers, and employers can be significant. Recognize that effective OSH programs are essential to preventing these workplace injuries and illnesses.

- **Identify underlying factors that contribute to workplace injury and illness.**
  Identify the underlying factors that contribute to workplace injuries and illnesses, including hazards on the job, how the work environment and job tasks are organized, the training that is provided, and human behavior.

- **Identify and describe safety AND health hazards in any workplace.***
  Identify the health and safety hazards that can cause injuries and illnesses in any type of workplace as well as in the particular industry or type of job for which the worker is being trained. Recognize the responsibilities employers have for identifying hazards as well as the role workers can play in identifying and speaking up about the hazards they face on the job.

- **Demonstrate understanding of the most effective ways to control hazards.*** Describe the different ways hazards can be controlled, recognizing that some solutions to workplace hazards are more protective than others. Explain that the best way to address a hazard is to eliminate it, if at all possible. Recognize the responsibilities employers have for addressing workplace hazards as well as the role workers can play in creating safer workplaces by identifying solutions to the hazards they face on the job.

- **Explain workers' rights/employer responsibilities under Cal/OSHA.*** Explain the rights of workers and the responsibilities of employers to provide a safe and healthful workplace under Cal/OSHA regulations. Identify relevant Cal/OSHA standards that relate to the work for which the worker is being trained and demonstrate the ability to find relevant standards and other helpful occupational safety and health information and resources.

- **Demonstrate effective communication and self-advocacy skills when a problem arises.** Demonstrate the ability to recognize when there is a problem at work that should be addressed and effectively communicate with supervisors, co-workers, and other individuals to resolve the problem. Express confidence in advocating for oneself regarding health and safety issues and workers' rights on the job. Identify and demonstrate specific strategies for solving on-the-job problems, using effective communication skills and available resources, including government agencies and labor organizations.

- **Describe potential emergencies and emergency response procedures.*** Identify emergencies that could happen in the workplace and appropriate emergency preparedness and response procedures as well as employer responsibilities regarding emergency preparedness and employee training.

**Competencies that align with OSHA 10/30 objectives are noted with an asterisk.*