

## Training and Education Gaps and Recommendations – HVAC Codes & Standards

### Summary

This study identifies gaps between the codes and standards related training needs of the HVAC workforce and the industry's current education and training practices. The driving questions focused on "what or where the gaps are between where we are today and where we need to be by 2020" and on how the gaps can be filled.

**Finalized:** December 11<sup>th</sup>, 2013

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### Use of this document

*This document is about Training and Education Gaps and Recommendations for HVAC Codes & Standards.*

*It is based on an official [WHPA Work Product](#) of December 11<sup>th</sup>, 2013 titled "Codes & Standards Working Group Gaps Report." This Work Product was developed by the WHPA Codes & Standards Working Group.*

*This document, and also the WHPA Work Product, may be used in part or whole at no charge. Attribution to the Western HVAC Performance Alliance is requested.*

*We would also ask that you inform the WHPA through [info@performancealliance.org](mailto:info@performancealliance.org) if you have made use of either document, so that we can inform and encourage the hundreds of volunteers who donate their time to providing expert HVAC advice in order to support energy efficiency objectives.*

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### Background

... ..The Codes and Standards Working Group was launched in August 2011...to identify gaps between the codes and standards-related training needs of the HVAC workforce and the industry's current education and training practices, and to identify actionable recommendations to address those gaps...

... This report summarizes the Codes and Standards Working Group findings and is organized into five sections, each addressing an identified gap in codes and standards-related training:

- **Gap 1:** Lack of trained mechanical inspectors and contractors
- **Gap 2:** Building inspectors have limited training in mechanical inspections
- **Gap 3:** Lack of enforcement implementation and compliance with Title 24 standards
- **Gap 4:** City councils and elected officials are not well informed on enforcement of energy codes
- **Gap 5:** Lack of enforcement of Title 24 standards results in training not being embraced by those who most need it.

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## Training and Education Gaps and Recommendations – HVAC Codes & Standards

### **Driving Question:**

What or where are the gaps between where we are today and where we need to be by 2020 and how can we fill those gaps?

### **Gap 1: Lack of trained mechanical inspectors and contractors.**

- There has been insufficient participation in training related to HVAC energy codes and standards delivered to mechanical inspectors and contractors.
- The total number of certified mechanical inspectors in California is expected to grow, making the need for customized training curriculum on HVAC codes and standards increasingly important.

### **Recommendations**

- The California Energy Commission (CEC) should support curriculum development related to HVAC energy codes and standards for mechanical inspectors and contractors.
- Mechanical inspectors should be required to take a certain amount of CEUs of HVAC training each code cycle.
- The CEC should support diverse educational opportunities for energy code education courses for plan checkers and inspectors. These courses should address the correct installations of HVAC systems as well as HVAC system performance, with the goal of teaching plan checkers and inspectors (1) to catch HVAC installations that are noncompliant with code changes and (2) to recognize the importance of HVAC performance and how it should be reflected in the plan details.
- The CEC should offer a variety of educational materials for mechanical inspectors and contractors on the requirements of individual compliance forms to ensure they are equipped with the up-to-date knowledge needed to fill out HVAC installation forms.

### **Gap 2: Building inspectors have limited training in mechanical inspections**

- In some jurisdictions, building inspectors are charged with conducting plumbing and/or mechanical inspections. Because inspectors' responsibilities span multiple disciplines, it can be difficult for inspectors to be experts in all the disciplines required of them. Some inspectors may focus primarily on life and safety issues, rather than energy codes.

### **Recommendations**

- Provide more information on and access to CEC's energy hotline for mechanical inspectors out in the field. This individual should be able to assist inspectors in the field, when needed.
- Add the CEC energy hotline number on mechanical inspection forms

### **Gap 3: Lack of enforcement implementation and compliance with Title 24 standards**

- In the 1990s, the CEC would visit local jurisdictions' building departments to detect workflow inefficiencies and give recommendations on how to better enforce energy codes. While these visits were effective in increasing code enforcement, they are no longer conducted for reasons that are not known but probably relate to lack of funds. The data collected from the visits was valuable, as it was used to make city councils aware of energy usage and provide them with ways to increase code enforcement; not having these visits is a gap in ensuring the building departments are in compliance with Title 24.
- The Contractors State Licensing Board (CSLB) does not look for energy code violations and

their special inspectors are not certified in the energy code.

- Plans Examiners and permit technicians are not properly trained in Title 24.

#### Recommendations

- The WHPA WE&T Committee will assist the WHPA Compliance Committee to identify a process for achieving procedural audits of building departments and simplifying the energy code so that it has fewer options and exceptions, with forms that are easier to submit.
- The Contractors State Licensing Board (CSLB) staff should be trained in Title 24 standards.
- Special inspectors should be encouraged to obtain certification in their specialty areas, and obtain additional training about inspection procedures and energy code requirements. These inspectors should be granted energy code enforcement capabilities.
- The CSLB should retest contractors and mechanical inspectors every 3 years to ensure that their knowledge remains up to date with code and best practices.
- HVAC contractors should be required to 1) obtain specialty certification related to performance contracting and 2) provide proof of continuing education in HVAC performance areas to qualify for license renewal.
- Plans Examiners and permit technicians should be encouraged to obtain certification in energy efficiency modeling and inspection techniques applicable to energy code inspection.

#### **Gap 4: Local government officials are not well informed on enforcement of energy codes**

- Some local government officials are not well informed on the need and importance of the enforcement of energy codes.
- Some local jurisdictions' building officials do not believe that energy is an important issue. When the CEC visited these to assess jurisdictions, building officials did not share findings regarding energy inefficiencies and code enforcement with city councils or city managers. Auditing building departments is not effective if the data found is not shared correctly.

#### Recommendations

- Local government officials should be notified that the CEC has the authority to audit local building departments to ensure compliance with the energy code.
- Develop local and regional workshops to support training of local government officials to cover the following:
  - Code education training.
  - Enforcement requirement: Enforcement is a vital part of HVAC installations.

#### **GAP 5: Lack of enforcement of Title 24 standards results in training not being embraced by those who most need it.**

#### Recommendations

- A level playing field through compliance and enforcement must be established. The WHPA Compliance Committee is asked to carefully evaluate the requirement of registration (e.g. tracking) of HVAC units purchased for installation or sales in the State of California or brought into the State of California (online orders, etc.).
- The CEC should establish criteria for proper qualifications to determine who can author and submit energy calculations.