



# Codes & Standards Working Group Gaps Report

## Goal 2.3-2.4 Workforce Education & Training Committee

**A WHPA Report dated December 11, 2013**

**Background:**

The Western HVAC Performance Alliance (WHPA) is a collaboration of professionals representing the heating, ventilation and air conditioning (HVAC), energy efficiency, facility management, utility industries and government formed in the state of California to support the goals of the California Long-Term Energy Efficiency Strategic Plan (CLTEESP).

The CLTEESP sets four goals for the HVAC sector. They are:

- **Goal 1:** Consistent and effective compliance, enforcement, and verification of applicable building and appliance standards.
- **Goal 2:** Quality HVAC installation and maintenance becomes the norm. The marketplace understands and values the performance benefits of quality installation and maintenance.
- **Goal 3:** Building industry design and construction practices that fully integrate building performance to reduce cooling and heating loads.
- **Goal 4:** Develop new hot/dry climate HVAC technologies (equipment and controls, including system diagnostics) and greatly accelerate their marketplace penetration.

**Codes and Standards Working Group:**

Much of the significant and detailed work of the Performance Alliance is accomplished through its subject matter-focused Committees as well as functional Working Groups aligned with the CLTEESP. The Workforce Education & Training Committee (WE&T)<sup>1</sup> is responsible for addressing two supporting goals:

- **Strategy 2.3:** Develop and provide expanded Quality Installation/Quality Maintenance Training for contractors, technicians, and sales agents. Conduct comprehensive training needs assessments to identify industry skill gaps between expanded training programs.
- **Strategy 2.4:** Develop and implement comprehensive contractor accreditation programs. (Requested to be assigned to another group on 5/17/11, no further action taken)

To help address these two goals, the Codes and Standards Working Group was launched in August 2011. The group met weekly for one month to identify gaps between the codes and standards-related training needs of the HVAC workforce and the industry's current education and training practices. The working group also worked to identify actionable recommendations to address those gaps. The Working Group reconvened twice in September 2013 to refine the report following additional feedback from the parent WE&T Committee. 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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<sup>1</sup> All subcommittees were renamed committees in the April 2013 updated WHPA Charter.

### **Workforce Education and Training Committee Chair**

- Erik Emblem, JCEEP/SMWIA

### **Codes & Standards Working Group Chair**

- Hugo Aguilar, IAPMO

### **Working Group Members:**

- Warren Lupson, AHRI
- Tiger Adolf, BPI
- Tav Commins, CEC
- Sam Szymanski, City of Palm Desert
- Bob Graves, Green Technology
- Susie Evans, IHACI
- Sherard Jones & Kathleen Mihelich, IAPMO
- Jeff Gannaway, J.A.G. Consulting
- Gary Andis, NEMI
- Jill Marver, PG&E
- Gary Fagilde, PG&E Energy Training Center
- Gary Shushnar, SCE
- Tom Morton, PIPE Trust Fund
- Ron Mitchell, SMACNA Bay Area
- David Dias, SMWIA Local 104
- Randy Young, SMWIA Local 104/JATC
- Pepper Hunziker, Tre'Laine Associates

### **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.



## WHPA Work Product Summary

**DATE:** October 21, 2013

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**INITIATING BODY:** Goal 2.3 & 2.4 WHPA Workforce Education and Training Committee – Codes & Standards Working Group

**WORK PRODUCT NAME:** Proposed WHPA Goal 2.3&2.4 Codes & Standards Working Group Gaps Report dated September 27, 2013

**TYPE OF ACTION REQUESTED:**  **VOTE**       **GUIDANCE**       **OTHER:**

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### APPROVAL HISTORY

**WORKING GROUP:** Goal 2.3&2.4 Codes & Standards

**BY CONSENSUS**       **BY VOTE**

**TALLY:** Unanimous "Aye", no "Nay" or "Abstain" to escalate to the WHPA WE&T Committee.

**DATE:** September 24, 2013

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**COMMITTEE:** Goal 2.3&2.4 Workforce Education and Training

**BY CONSENSUS**       **BY VOTE**

**TALLY:** Unanimous "Aye", no "Nay" or "Abstain" to escalate to the WHPA Executive Committee

**DATE:** September 27, 2013

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**WORK PRODUCT OBJECTIVES:** The Goal 2.3 & 2.4 Codes & Standards Working Group’s assigned objective was to "identify 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. The Working Group identified key gaps and made recommendations to close them in the Western HVAC Performance Alliance Goal 2.3 - 2.4 Working Group Gaps Report that this Action Request summarizes. Briefly, the gaps identified are:

- 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.

**CA ENERGY EFFICIENCY PLAN STRATEGIC GOAL ALIGNMENT:**

GOAL 1       GOAL 2       GOAL 3       GOAL 4

**CEESP HVAC GOAL STRATEGIES:** CEESP Goal 2: Quality HVAC installation and maintenance becomes the norm. The marketplace understands and values the performance benefits of quality installation and maintenance.

- Strategy 2.3: Develop and provide expanded Quality Installation/Quality Maintenance Training for contractors, technicians, and sales agents. Conduct comprehensive training needs assessments to identify industry skill gaps between expanded training programs.
- Strategy 2.4: Develop and implement comprehensive contractor accreditation programs. (Requested to be assigned to another group on 5/17/11, no further action taken)

**BENEFITS:** This is the first work product developed by WHPA addressing WE&T “codes and standards.” It will help inform the HVAC Sector Strategy project. The recommendations would foster improved information, training, and enforcement which would ultimately lead to increased compliance and subsequent energy savings.

**OUTSTANDING ISSUES / DEBATES / MINORITY VIEWS:** There was discussion at both the Working Group and Committee levels about whether or not the Gap 5 recommendations should include a requirement for purchasing and equipment tracking. After much consideration, the agreement at both levels was that as there is currently no process do this and it is out of the scope for the WE&T focus, it would be more appropriate to ask the WHPA Goal 1: Compliance Committee 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.)."

**POTENTIAL AUDIENCE:** WHPA Goal 2.3&2.3 Workforce Education & Training (WE&T) Committee, WHPA Executive Committee, Statewide IOU WE&T Team, HVAC Sector Strategy Steering Working Group (not yet formed), WHPA member distributors and manufacturers.

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**VOTING DECISION:** WHPA Executive Committee

**Motion** presented by Erik Emblem (JCEEP) to “accept” the Codes & Standards Working Group Report.

**VOTE TALLY:** During the WHPA Executive Committee Vote on December 11, 2013, ACCA, ASHRAE, IHACI, JCEEP, PG&E, RSES, SDG&E, SCE, SoCalGas, UA voted aye. There were no opposed. CPUC abstained. The motion carried.

**FURTHER ACTIONS REQUIRED:** WHPA Staff to post the accepted Codes & Standards Gap Report on the WHPA home page under “WHPA Work Products” and on the WE&T Committee Page under “Working Group Reports”.

**NEXT STEPS:** All five WE&T Working Group Gap Reports were forwarded to the statewide WE&T team prior to the January 15, 2014 WHPA Executive Committee meeting. WHPA Staff to monitor all of the WE&T reports that are “accepted”.