



February 28, 2012

Subject: Docket Number 10-BSTD-01: Proposals For Certification of Acceptance Testing Field Technicians For Mechanical Systems and Lighting Controls

Dear CEC Staff and Commissioners:

I am writing on behalf of Taylor Engineering, LLC to provide a written statement for consideration of Docket Number 10-BSTD-01: Proposals For Certification of Acceptance Testing Field Technicians For Mechanical Systems and Lighting Controls.

My partners and I have reviewed the proposals for the Acceptance Tests that were put forth by International Brotherhood of Electrical Workers (IBEW) and the California Local Unions of Sheet Metal Workers (Sheet Metal Workers) with support from State Senator Christine Kehoe and Assemblyman Felipe Fuentes. We are united in opposition to these proposals. We have grave concerns that these proposals if adopted will reduce (not enhance) the effectiveness of the acceptance tests; reduce competition in providing these services (increasing costs to owners at no appreciable benefit); and represent an undue restraint in trade. Our support for these opinions follow. Please note that we have limited our analysis to the mechanical acceptance tests as those are the tests that we collaborated on. However many of these issues apply to both the mechanical and electrical test proposals.

When we first adopted the acceptance tests in 2005 they were written by a coalition of authors that included CEC Staff (Tav Commins), Taylor Engineering (Mark Hydeman, Steve Taylor, and Jeff Stein), PECE (Larry Lusky, Kristin Pinit and Kristin Heinemeier), HMG (Jon McHugh) and a few others. This group represented the design community and the commissioning community. We solicited input and review from contractors, researchers and equipment manufacturers. There were no TAB firms actively involved in the development of these tests. I was the primary author of the mechanical tests.

In 2005 we had long discussions about who should or should not be able to perform the tests. At the beginning of the process there was a strong push to have the tests provided by certified 3rd party commissioning agents. After much discussion, balancing the concerns of the cost to owners, the lack of industry standards for commissioning, and the range parties that could provide these services, the consensus of the authors was that we would not limit who did the tests but simply require a licensed engineer or contractor to review their reports and sign off on all of the acceptance test activities. We also included provisions for manufacturers of package HVAC equipment to factory install and test economizers before shipping their products. This latter provision has been slow to start but has recently gained momentum at AHRI. There was complete consensus amongst the test authors that factory installation and testing of economizers would be the preferred method of ensuring economizer performance. This proposal would prohibit factory testing of economizers as only TAB contractors could perform or certify the tests.



Although TAB contractors were not directly involved in the development of these requirements, I personally reached out to this community. In fact, NEBB for the past few years has had me address their membership on the acceptance tests as part of their annual recertification process.

The mechanical acceptance tests as currently written require a thorough knowledge of mechanical equipment, mechanical systems and mechanical controls. As currently written the bulk of the tests functionally test the controls and control components. The procedures as written for the tests require override of the controls. Examples include:

- NA7.5.4 Air Economizer Controls,
- NA7.5.5 Demand Control Ventilation (DCV) Systems,
- NA7.5.6 Supply Fan Variable Flow Controls,
- NA7.5.7 Valve Leakage Tests,
- NA 7.5.8 Supply Water Temperature Reset Controls,
- NA 7.5.9 Hyrdonic System Variable Flow Controls,
- NA7.5.10 Automatic Demand Shed Control Acceptance,
- NA7.5.11 Fault Detection and Diagnostics (FDD) for Packaged Direct-Expansion Units,
- NA7.5.12 Automatic fault detection and diagnostics (FDD) for air handling units and zone terminal units,
- NA7.5.13 Distributed Energy Storage DX AC Systems Acceptance Tests, and
- NA7.5.14 Thermal Energy Storage (TES) Systems.

TAB contractors are trained and certified in measurement procedures and measurement equipment but are not trained nor certified on their knowledge of mechanical equipment, mechanical systems and mechanical controls. From my field experience working with TAB contractors and my extensive experience teaching the HVAC/R and control classes for the UC Berkeley Extension Service (as part of an HVAC/R certificate program) and HVAC and control educational programs for SMUD, ASHRAE, and PG&E I can attest to the fact that the majority of certified TAB contractors I have taught or worked with do not know much about HVAC control systems. In our UC Berkeley classes the highest grades in our controls class are the control contractors, commissioning agents and mechanical engineers. We have records we could produce that clearly demonstrate this.

The current mechanical acceptance tests are performed by mechanical contractors (not necessarily TAB certified), engineers, commissioning agents, control contractors, building operators, TAB contractors and others. If you accept this proposal you will greatly limit the pool of individuals that can perform these tests. That will clearly increase cost for the owners. Furthermore as I have already established, the TAB contactors are as a group are not trained to operate or even understand the workings of control systems. This is the basis of our assertion that proposal will increase the cost and decrease the effectiveness of these tests.

In summary my firm and I strongly oppose these proposals put forth International Brotherhood of Electrical Workers (IBEW) and the California Local Unions of Sheet Metal Workers (Sheet Metal Workers) and believe that they will both increase the cost of compliance with the standard and diminish the effectiveness of the tests if adopted. Furthermore both State Senator Christine Kehoe's and Assemblyman Felipe Fuentes' letters inaccurately cite the California



Commissioning Collaborative's work as a reason for adopting these changes. We are active members of this collaborative and all of the other members that we have discussed this proposal with have agreed with our concerns.

We have great respect for the CEC staff and commissioners and appreciate all that you have done to increase the efficiency of buildings in California. I thank you for your consideration of our concerns.

Sincerely,
Taylor Engineering LLC

Mark Hydeman, P.E., Fellow ASHRAE
Principal at Taylor Engineering, LLC