



## WHPA Goal 2: CQM Standard 180 User Guide Working Group Thursday April 20, 2017 Meeting Notes

**Call to Order**

The meeting was called to order at 10:05 am PDT by Don Langston, CQM Committee Chair.

**Roll Call**

The Chair considered one member of each organization to be a voting member for this working group. 9 of 16 voting members in attendance would constitute a quorum. 12 voting members, 2 non-voting members, 1 guests and 1 staff were present for a total of 16 attendees.

P = Present at meeting A = Absent from meeting; if proxy has been assigned it will be noted below. Although Voting Members have been designated by Staff, this group acts primarily by consensus.				
<b>CQM User Guide Working Group Voting Members</b>				
ACCA (Air Conditioning Contractors of America)	Donald	Prather	Contractor Association	P
Air Management Industries	April	Yungen	Contractor (Nonresidential)	A
Aire Rite AC & Refrigeration	Don	Langston	Contractor (Nonresidential)	P
AMS (American Mechanical Services)	Marc	Pickett	Contractor (Nonresidential)	P
Charles Segerstrom, Energy Efficiency Consulting	Charles	Segerstrom	Energy Efficiency Program Consultant	P
CLEARresult (formerly PECEI)	Todd	Van Osdol	California IOU	P
FDSI (Field Diagnostic Services Inc.)	Dale	Rossi	Third Party Quality Assurance Providers	A
GWP (Goodheart-Willcox Publisher)	Sandy	Clark	Educator, Trainer	P
Honeywell E&ES, Commercial Buildings, Trade	Michael	Lawing	Controls (Manufacturer or Distributor)	P
HSGS (Honeywell Smart Grid Solutions)	Shayne	Holderby	Energy Efficiency Program Consultant	P
Marina Mechanical	Denny	Mann	Contractor (Nonresidential)	A
National Comfort Institute	Jeff	Sturgeon	Educator, Trainer	P
Richard Danks Consulting - FacilityPro	Rick	Danks	Other Stakeholder	P
SCE (Southern California Edison)	Scott	Higa	California IOU	P
Tre' Laine Associates	Pepper	Hunziker	Energy Efficiency Program Consultant	P
Western Allied Corporation	Mike	Gallagher	Contractor (Nonresidential)	A
Warren Lupson and Associates	Warren	Lupson	Other Stakeholder	
<b>CQM User Guide Working Group Non-Voting Members</b>				
BELIMO	Darryl	DeAngelis	Controls (Manufacturer or Distributor)	A
BMI (BuildingMetrics, Inc.)	Pete	Jacobs	Energy Efficiency Program Consultant	P
Brownson Technical School	Bill	Brown	Educator, Trainer	A
CLEARresult (formerly PECEI)	Michael	Blazey	Energy Efficiency Program Consultant	A
HSGS (Honeywell Smart Grid Solutions)	Steve	Varnum	Energy Efficiency Program Consultant	A
PG&E	Christian	Weber	California IOU	A
SCE (Southern California Edison)	Steve	Clinton	California IOU	P
SMUD (Sacramento Municipal Utility District)	Bruce	Baccei	Publicly Owned Utility	A
Adrienne Thomle, Consulting**	Adrienne	Thomle+		A
AirTest Technologies	Mike	Schell	HVAC Manufacturer	A
Little Caesar's **	Wendy	Gallo+		P
<b>WHPA Staff (Non-Voting)</b>				
BBI (Better Buildings Inc.)	Mark	Lowry	WHPA Executive Advisor/BBI COO	
BNB Consulting/WHPA Staff	Bob	Sundberg	Energy Efficiency Program Consultant	P (scribe)
Empowered Solutions/WHPA Staff (WHPA Co-Director)	Shea	Dibble	Energy Efficiency Organization	

\*\* Organization is Not a Member of the WHPA; + Individual is NOT Registered with the WHPA; (P) after last name = Member/Registrant is Pending Approval from the WHPA Executive Committee



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*To avoid repetition, the name of the member organization will not be repeated in the body of the minutes past the first identification with the name of the representative participant.*

**Welcoming and Member Introductions**

No new members or guests.

**Approve Previous Meeting Draft Notes**

The March 30 meeting draft notes were distributed April 7. Members were asked to provide any additional suggested revisions or corrections after which finalized meeting notes would be posted to the WHPA website by Bob Sundberg.

**ACTION Items**

None.

**New Business – Don Langston**

Don Langston, Aire Rite AC & Refrigeration and Chair, raised the topic regarding new Title 24 compliance regulations raised by Bill Brown of Brownson Technical Schools at the full CQM Committee meeting April 18. New regulations were being phased in regarding required new equipment installation performance/acceptance testing and certification of equipment installers. Bill was the committee key resource on the issue/topic as his school was conducting training for that installer certification.

**Comments:**

Jeff Sturgeon, NCI – building departments were just catching up to the new requirements. The first installer certifications had been limited to union installers but would expand rapidly from there.

Don Langston, Chair – the new regulations were an additional challenge for contractors who complied. It seemed to ignore the current low permit requirement low compliance rate, again assuming compliance by just passing the law.

**AGENDA**

<b>Topic</b>	<b>Discussion Leader</b>	<b>Desired Outcome</b>
Welcome, Roll Call, Member Introduction, Approve Past Meeting Notes, Review Action Items, New Business, Meeting Agenda	Chair, WHPA Staff	Record attendees, welcome any new members, approve previous meeting minutes, review status of any open Action items, planned agenda and bring up any new business items for the WG to consider addressing.
WG goals, scope, direction and leadership	Don Langston	Members share a clear understanding for the goals of this WG and determine WG Chair
Standard 180 Overview presentation	Rick Danks	Provide members with a common understanding of Standard 180 origin, audience, issues addressed, structure and Rick's understanding of the intent
ASHRAE Standard 62.1 User Manual preview	Rick Danks	As time permitted, look together at an example of another standard user manual to better understand ASHRAE approach and common structure
PG&E HVAC Optimization program participant user manual	Shayne Holderby	As time permitted, examine the participant user manual PG&E staff and implementers had developed for 2017
Confirm next meeting date/time, assign actions and proposed agenda and adjourn.	Don Langston, WHPA Staff	Clear understanding of member responsibilities for the next meeting. Next meeting date/time established.

### Standard 180 Background and Overview – Rick Danks

Rick Danks, Richard Danks Consulting, provided a summary of the Standard 180 overview presentation provided at the previous working group (WG) meeting March 30.

- This standard was written in code/adoption language stating requirements but not how those implementing the standard would meet requirements to comply. That was intended to be worked out by parties implementing the standard.
- The standard was developed from the perspective of someone/owners who had never implemented a formal maintenance program. It had to remain fairly generic in an attempt to cover all of the possible stakeholders and industry participants who might attempt to adopt it.
- This was developed as a minimum standard. He thought that most of the more progressive contractors regularly exceeded its requirements.
- In development of the standard, there had been a major debate about defining who would be designated the “responsible party.” The final decision was made that the “responsible party” was the owner or someone responsible for that facility, or their designated. The final decision was somewhat based on responsibility for safety and occupant environmental concerns.
- Slide 3 - Standard 180 Section 4 Implementation Requirements included key elements:
  - Designated the responsible party
  - Defined the maintenance program
  - Required authorization, process and implementation – execution was the requirement, not just a plan
  - Required a review and revision process to encourage “continuous improvement” and not a static or program even though, in reality, many maintenance agreements were based on a “fixed price/fixed scope” approach

Rick Danks – he thought efforts by WHPA/CQM Committee working groups to examine that “review” requirement and try to quantify the value added by this approach to maintenance.

Don Langston – it was difficult to inform customers about conditions and suggested program changes or repairs without pictures or video that showed them what was being proposed. Good maintenance seemed to be one of the things to get cut first partly because to most facility managers and owners it was an intangible. Part of the goal for implementing this standard and developing a user guide was to make some of these intangible elements more tangible, to quantify their status and provide evidence for proposed changes. Often, HVAC operation and issues was a small part of what facility managers had to deal with and seemed to become just background noise unless there was a major health/safety or equipment failure issue.

Rick Danks – it really boiled down to developing the expectation for a higher level of communication. When issues came up, there was already a practice of discussing the program goals, system operation and what could be done to address issues and problems.

- Slide 4 – Maintenance program elements – nine listed elements were listed which included:
  - Condition indicators – Rick provided the analogy of blood pressure being a condition and the BP reading being the condition indicator within some established “safe range” or standard for comparison.
  - Documentation – how do we know what the condition of the system was and whether the program was working or not. Work order records of service/maintenance delivered was the most common example. The standard did not designate “how” one might comply. It could be done on paper, electronically, crayon records on the insides of a rooftop unit panel, however it was agreed to by the parties involved. The purpose being, to compare the plan to actual and determine whether they needed to revise the maintenance plan.
  - Authorization to execute – someone had to sign off and authorize the work.

Don Langston – a major challenge was how to develop that feedback loop and how they would define “success” for a maintenance program. He’d found that many customers struggle through these discussions and finally just want to



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know your best price. Don provided several examples to choose from in his agreements. Things like reducing unscheduled service calls and reducing HVAC related energy consumption. One big goal for this user guide is to help customers decide on and define what goals are important to them. A study years before conducted for SCE found that just reducing energy wasn't even in the top ten for many facility managers and owners. Most just want those systems to work and to not hear occupant complaints. The challenge there was finding ways to quantify those goals.

Marc Pickett, AMS – the big thing for him as some customers were preparing to exit utility programs and their incentives was how to communicate the value the program had delivered.

Michael Lawing, Honeywell E&ES – brought up possible metrics beyond utility and energy savings.

- Have customers linger longer in a retail store
- Comfort level was improved which would result in reduced employee absenteeism - they'd want to come to work
- Improved employee productivity, fewer mistakes made and lost time
- Fewer unplanned service calls and downtime for facility spaces

Pepper Hunziker, Tre' Laine Associates – referred to a previous EMI study which tried to determine which factors would influence owner program participants to continue with their QM approach after the three-year program incentives expired. She didn't recall the degree of detail which came out of the study but thought it would be good to go back and mine those findings for use in the user manual.

Don Langston – he agreed with the importance of determining those factors and delivering convincing evidence of value. He'd described a recent situation at the full CQM Committee meeting on Tuesday where he was not successfully able to deliver sufficient evidence for the value of the QM program participation and the customer reverted to a "filter only" approach to maintenance after their three years expired. The facility managers did not have convincing evidence to deliver to their superiors to sustain a QM approach. The pressure to cut cost where there was no adequate evidence of value won out. Don said they'd been unable to even access and evaluate the energy spend which, alone, might have justified continuing more comprehensive maintenance. For single or even multi-year contracts, useful life of most of their HVAC equipment was outside the field of view of most contract managers. It was a challenge to get facility managers to even consider or try to quantify extension of useful life which should be one of their most important benefits.

Shayne Holderby, HSGS – clarified that in their PG&E program, portfolio manager could soon be integrated with the program portal and access facility energy records. Each customer still needed to approve storing and sharing that data which would then allow analysis and reporting. He added that he'd found that the greatest savings that their customers enjoyed did not result from improved HVAC system energy efficiency. The greatest savings resulted from reduced repair costs, extending the life of the equipment and avoiding major capital expenditures. That information was already available and could be shared and discussed with customers but had been tedious or difficult to locate and collect. He hoped that use of the program portal could help streamline that collection and analysis process in the future.

Todd Van Osdol, CLEAResult – he noticed that in Rick's presentation, the term "performance" had been replaced with "program outcome objectives." He asked for more of an explanation from Rick. Also, why equipment reliability wasn't one of the goals or primary purposes behind development of Standard 180 in addition to energy efficiency, indoor air quality and thermal comfort.

Rick Danks – he realized the use of the term "performance" had actually contributed to a confusion about whether it referred to how well the maintenance program was working and how well the HVAC system was working. This was very apparent at the recent ASHRAE Standard 180 Committee meeting discussions. He'd gone round and round with another member who didn't seem to be able to make that distinction when the term "performance" was being used. To that party, program performance meant how well the HVAC system operated. Rick proposed the terminology change



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to make a clearer distinction between “program” performance (program outcome objectives results) and what an airhandler put out, the HVAC system performance (supply/return CFM, Btu output measurement, temperature/pressure readings and other system performance assessments). Regarding Todd’s second question, all the hardcore equipment folks wanted to go right to uptime and reliability as key purposes for developing Standard 180. ASHRAE leadership disagreed, didn’t think that equipment reliability was part of their “sandbox.” They wanted purposes for development of the standard to stick to HVAC aspects. The standard developers knew that work done to meet the three identified purposes would contribute to equipment reliability and longevity. But, when they considered requirements for a “minimum standard” they chose to leave those aspects up to the end user/responsible party to define as goals for their program. Those additional terms were addressed in the FOREWARD and it was recognized and acknowledged that there would be additional reasons to perform maintenance at or above those defined by this minimum standard. But, the developers thought that those additional goals, which included equipment reliability, were beyond the scope of a minimum standard.

Bob Sundberg, WHPA staff – suggested that the distinction Rick had just pointed out was just the sort of more thorough explanation that would justify development of a user guide. What was required by a minimum standard and the suggestion, even a recommendation that goals and practices beyond that minimum level also be considered and to point out examples for consideration. His understanding was that the standard was never intended to limit what could be done, as explained in the FOREWARD, but acted as a starting point for development of a maintenance program. It was a foundation which was expected to be refined and improved over time.

Don Langston – he thought the topic Todd had just raised was critical for development of their user guide. Reliability as a goal needed to be addressed in the user guide. Standard 180 was developed to provide a floor, a foundation from which to expand upon. Unit ratings, based on some objective basis, would be very valuable for an improved maintenance program.

Todd Van Osdol – thought this helped his understanding about the sort of user guide they intended to develop. The guide would paraphrase the standard and provide additional explanations and examples that would address meeting the standard and going beyond the scope of the minimum requirements. The discussion they’d just held helped him understand why certain topics were included in the standard any why others were not.

Don Langston – the standard did spell out general minimum requirements. But, not in context. Not how one could apply the standard in particular circumstances like the facility for a blood bank. What was critical for that facility manager was very different from someone who managed a building where they were making pizzas and other restaurants. There were general, common goals and then there should be more specific goals and outcomes customized to that particular facility and its needs.

### Closing Comments/Adjournment

Don Langston, Chair – the last two meetings had provided everyone with a high-level understanding of how and why the standard was developed. They would next look at examples of user manuals to see how several were structured and how their user guide might be laid out. Their next meeting would include an examination and discussion of the Standard 62.1 User Manual and the HVAC Optimization program participant user manual the PG&E team had developed.

The next meeting was scheduled for Thursday April 27 at 10:00 am PDT.

The meeting was adjourned at 11:04 am PDT.

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### Action Items and Key Decisions



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