WHPA Goal 2: CQM Standard 180 User Guide Working Group
Thursday June 2, 2015 Meeting Notes

Call to Order

The first planning meeting was called to order at 10:04 am PDT by Dale Rossi, Chair of this working group and a representative of Field Diagnostic Services Inc (FDSI).

Roll Call

The Chair considered one member of each organization to be a voting member for this new working group, He intends to work toward consensus on all decisions. 10 of 18 voting members in attendance would constitute a quorum. 9 voting members attended this meeting. In addition, 0 non-voting members, 1 guests and 1 staff were present for a total of 11 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.

CQM Maintenance Task Working Group Voting Members				
ACCA (Air Conditioning Contractors of America)	Donald	Prather	Contractor Association	P
AHRI	Warren	Lupson	HVAC Manufacturer Association	
Aire Rite AC & Refrigeration	Don	Langston	Contractor (Nonresidential)	
BELIMO	Darryl	DeAngelis	Controls (Manufacturer or Distributor)	P
BMI (BuildingMetrics, Inc.)	Pete	Jacobs	Energy Efficiency Program Consultant	
CLEAResult (formerly PECI)	Michael	Blazey	Energy Efficiency Program Consultant	P
FDSI (Field Diagnostic Services Inc.)	Dale	Rossi	Third Party Quality Assurance Providers	P
GWP (Goodheart-Willcox Publisher)	Sandy	Clark	Educator, Trainer	P
Honeywell ECC, Commercial Buildings, Trade	Michael	Lawing	Controls (Manufacturer or Distributor)	P
HSGS (Honeywell Smart Grid Solutions)	Shayne	Holderby	Energy Efficiency Program Consultant	
Marina Mechanical	Denny	Mann	Contractor (Nonresidential)	
National Comfort Institute	Jeff	Sturgeon	Educator, Trainer	
Richard Danks Consulting - FacilityPro	Richard	Danks	Other Stakeholder	P
SCE (Southern California Edison)	Steve	Clinton	California IOU	
Charles Segerstrom, Energy Efficiency Consulting	Charles	Segerstrom	Energy Efficiency Program Consultant	
Tre' Laine Associates	Pepper	Hunziker	Energy Efficiency Program Consultant	P
UC Davis EEC (Energy Efficiency Center	Kristin	Heinemeier	Research Organization	
Western Allied Corporation	Mike	Gallagher	Contractor (Nonresidential)	P
CQM Maintenance Task Working Group Non-Voting Members				
CLEAResult	Mike	Withers	Energy Efficiency Program Consultant	
Honeywell ECC, Commercial Buildings	Adrienne	Thomle	Controls (Manufacturer or Distributor)	
HSGS (Honeywell Smart Grid Solutions)	Steve	Varnum	Energy Efficiency Program Consultant	
CQM Maintenance Task Working Group Guests				
California Public Utilities Commission (CPUC) - Energy Division			California PUC	
SCE (Southern California Edison)	Todd	Van Osdol	California IOU	P
SCE (Southern California Edison)	Scott	Higa	California IOU	
WHPA Staff (Non-Voting)				
BBI (Better Buildings Inc.)	Mark	Lowry	WHPA Executive Advisor/BBI COO	
BNB Consulting/WHPA Staff	Bob	Sundberg	Energy Efficiency Program Consultant	P (scribe)
Enpowered 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

Todd Van Osdol, SCE, attended at Scott Higa's request to provide commercial maintenance program coverage.

New Business

None.

Approve Previous Meeting Draft Notes

The May 26 meeting draft notes were distributed June 1. No revisions were received from attendees. The finalized meeting notes would be posted to the WHPA website by Bob Sundberg.

ACTION Items

April 28 ACTION: Steve Clinton, SCE program training, agreed to seek out working group participants from the program side of their staff. No present. Ongoing.

May 26 ACTION: Todd Van Osdol, SCE, agreed to provide get together with Scott Higa to locate examples of the reporting tools which the program provided customers and examples of reports delivered to customers.

STATUS: Todd had located several customer reports. He still needed Scott Higa's approval in order to share them with this working group. Dale Rossi suggested the SCE program customer reports be shared when the 5th topic was being addressed, customer facing reporting.

May 26 ACTION: Todd Van Osdol, SCE, would work with Scott Higa to gather information obtained through EMI conducted customer interviews which revealed reasons why customers would consider continuing HVAC Optimization maintenance practices after IOU program incentives expired.
STATUS: Todd Van Osdol and Scott Higa would deliver those findings at the 4th topic meeting, communicating the value proposition.

May 26 ACTION: Pepper Hunziker would try to come up with HVAC system performance objective examples which had measurements and metrics which didn't need to be quantified or expressed with a number.

AGENDA

Topic	Discussion Leader	Desired Outcome
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.
Review User Guide first draft	Dale Rossi	Reach agreement on decisions recorded in User Guide draft. Resolve any suggested further revisions.
Maintenance Program (HVAC equipment inventory and maintenance plan)		Outline what the WG intends to accomplish when they focus on this portion of Section 4.
Set next meeting date/time, assign actions and proposed agenda and adjourn.	Chair, WHPA Staff	Clear understanding of member responsibilities for the next meeting. Next meeting date/time established.

User Guide Objectives, Scope and Target Audience – Dale Rossi

Dale Rossi, Field Diagnostic Services Inc. (FDSI), began the meeting with a review of an outline for the user guide which he had drafted. It was a tool to help organize what the user guide would address but was not the user guide itself. It contained discussion points on several resulting propositions from the previous meeting related to the first of five topics the WG intended to address – Understanding Performance Objectives and Condition Indicators.

The following list provided topics that the working group intend to explore in the current effort

1. Understanding performance objectives and condition indicators
2. Making a maintenance plan
3. Investigating unacceptable conditions and performance
4. Communicating the value proposition
5. Customer facing reporting

Review of Propositions from the May 26 meeting

Proposition 1

The only acceptable performance objectives allowed by the standard are enumerated in the purpose statement. They are:

1. Acceptable thermal comfort
2. Acceptable energy efficiency
3. Acceptable indoor air quality

Discussion:

Dale Rossi framed the question into two parts. Should the overall goals from the standard purpose statement be required to all have performance objectives? Did any additional performance objectives need to fit under one of these three? Could additional performance objectives which didn't fit under these three be included in a Standard 180 based maintenance plan?

Shayne Holderby, HSGS, thought all three should be required. They could add more to the list but those three needed to be covered in goals discussions with the responsible party.

The group discussed indoor air quality (IAQ) as an example for which both direct (CO2 concentration) and indirect (number of occupant complaints) measurements could be taken. It was also clarified that the responsible party established their own performance objectives. It was not the role of the standard to dictate what those specific performance objectives needed to be. Richard Danks described a situation where there could be conflicting goals of energy efficiency and sufficient outdoor air for IAQ considerations related to selected outdoor air minimum positioning.

Working group's consensus

No, the three goals stated in the Purpose section of the standard were not the only goals which a maintenance plan could include. There had to be a performance objective to support each of the three overall goals but additional performance objectives underneath those goals could be added. Examples might include things like service cost or equipment life that were related to occupant comfort or energy efficiency.

Proposition 2

In section 3 of the standard (definitions) a performance objective is metrics for evaluating performance. The word metrics indicates that it must be measurable, meaning a performance objective must be a number that is a target that is used to compare actual performance to desired performance.

Working group's consensus: was conditional agreement was that performance objective metrics must be expressed as a number. Pepper Hunziker was going to continue to see if she could identify subjective performance objectives which were not expressed as a number for HVAC applications.

Proposition 3
When defining a performance objective, the source of the data needed to produce the metric must be defined.

Working group's consensus:
Yes. It may be measurements by a technology or a collation of complaints or opinions that are collected from an identified person.

No further discussion.

Proposition 4
The performance objective is an objective for the performance of the building. A similar concept applied to a unit being a condition indicator.

Discussion:
Bob Sundberg, WHPA staff, asked whether there could be performance objectives for the HVAC equipment itself. Objectives like reduced equipment repair costs or downtime or frequency of failures?

Dale Rossi confirmed that those sorts of performance objectives were specifically allowed in the decisions made in proposition 1. But, they would fall under a performance objective for the entire building.

Shayne Holderby challenged the whole building idea with his example of a commercial building which contained both office space as well as warehouse space under one roof. Those spaces would have completely different needs. Dale Rossi wondered whether in that case would the agreement require two different maintenance plans to be in compliance with the standard?

Richard Danks suggested that that a performance objective might be for an entire building if it was all used for the same purpose (office space, warehouse, school classrooms) or for zones within a building if more than one type of use existed. A school could have classrooms, an auditorium, gym, atrium, offices. A restaurant might have the serving area and the cooking area. A commercial building might have offices and also warehouse space. There could be a single overall maintenance plan. But, considering the inventory of HVAC equipment assets, considering Section 5 of the standard, there would be different maintenance requirements for those assets. There might be different maintenance task requirements depending on what type of space the equipment was serving. But, the performance objective would be, for example, to reduce the total HVAC kWh electrical consumption by some % per year or other similar goal statement.

Working group's consensus:
A performance objective, for example thermal comfort, could be applied differently to different building zones. In a hospital, you would establish different thermal comfort performance objectives for a surgical suite than for an office space or storage area.

Proposition 5
The definition of performance objective definition in section 3 was flawed because it mixed condition indicator terms and issues with performance objective statements.

Discussion:
Dale Rossi stated that statements about inspecting elements of the HVAC system would refer to condition indicators. Performance objectives were goals expressed as metrics trended over time, not direct observations. Jeff Sturgeon brought up measurements within a system might be considered performance objectives. Dale Rossi contended that those measurements were HVAC observations tied to condition indicators. Performance objectives were not physical

characteristics of the HVAC equipment even though they might be measured. Two measurements which produced a delta T would be a condition indicator, how you would judge the operation of a system.

Richard Danks stated that a performance objective was not simply the metric or measurement. The basic concept for performance objectives was to set some goals and then measure progress toward or against those goals. That could include taking unit or building measurements and some analysis of the measurements or trending of the values.

Richard Danks added that the current definition was confusing and agreed that it used terminology for a condition indicator and said nothing about establishing a goal.

Working group's consensus:
The WG would make a suggestion to the Standard 180 Committee that a new definition was needed for the term "performance objective" in Section 3.

Proposition 6
Section 3 had no definition for condition or condition indicator.

Discussion:
Shayne Holderby suggested that the wording for such a definition was already provided in Section 4.2.2.b "**4.2.2.b Condition Indicators.** Indicators of unacceptable system and equipment conditions shall be established. These indicators are measurements or observations of conditions that could lead to failure or *performance* degradation."

Richard Danks was in complete agreement with Dale Rossi's proposals.

Working group's consensus:
Definitions for condition or condition indicator need to be developed for Section 3 and suggested definitions should be presented to the Standard 180 Committee.

Proposition 7
The condition indicators are the standards by which for any given task, the acceptability or unacceptability of the condition is to be determined. (Example: The condition of a belt or filter or if the coils are clean or not)

Discussion:
Richard Danks responded that sometimes establishing those condition indicators got a little tricky and in some cases somewhat subjective. For measurement of differential pressure in a hospital setting there would probably be a gauge from which you could get a hard number and a goal against which you'd make a decision about when to change filter media. The media for the hospital setting was usually quite expensive and they would only replace it when necessary. That probably wouldn't be the case for a 7-11 convenience store rooftop unit which had relatively inexpensive filter media. When the standard was first developed, the authors wanted to allow enough flexibility so that a technician could operate comfortably in both the convenience store rooftop world and the hospital equipment room world.

Dale Rossi said he'd worked in the rooftop world for years where condition indicators might be somewhat subjective like you could remove and see light through filter media or filters must be changed on a specific timeframe like every three months. But, condition indicators were still definable. In both cases, you could offer some guidance to the technician.

Working group's consensus
Yes. The equipment to be maintained needed to be inventoried as a part of the maintenance program. A task list needed to be defined for each equipment type. For each task, at least one condition indicator must be provided that the

service provider will use to judge the acceptability or unacceptability of the condition of the system, sub-system or part that is the subject of the task.

Proposition 8

One desired outcome of this working group's effort is to make a template or other step-by-step process for establishing performance objectives and condition indicators

Dale Rossi clarified that the template would be a form listing the tasks. The tasks already exist in Section 5 for each type of HVAC equipment or part of the system. He suggested that a template/form for Table 5-22 Rooftop Units would provide a place after each task for putting in a condition indicator. The user guide template would help them understand that they needed to provide one, possibly providing some examples. The user guide would not list condition indicators which they had to use.

Working group's consensus

Agreed.

Closing Comments/Adjournment

Dale commented that he wanted to caution everyone and himself with the examples they would provide. He'd included taking stack temperature in a heating application during earlier program reviews and later found that their suggestion had become a requirement for the program. He wanted everyone to consider try to avoid making suggestions which would meet the standard but would be impossible to live with later.

Dale Rossi suggested they schedule the next week for Thursday June 9 at 10 am PDT. Their agenda would focus on what constituted a maintenance plan.

The Chair adjourned the meeting at 11:00 am PDT.

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ACTION Items listed on following page.

Action Items and Key Decisions (not referenced above)