



**WHPA Goal 2: CQM Standard 180 User Guide (T) Working Group
Tuesday August 22, 2017 Meeting Notes**

Call to Order

The meeting was called to order at 10:06 am PDT by Marc Pickett, Chair.

Roll Call

The Chair considered one member of each organization to be a voting member for this working group. 9 of 17 voting members in attendance would constitute a quorum. 8 voting members, 4 non-voting members, 0 guests and 1 staff were present for a total of 13 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 User Guide Working Group Voting Members | | | | |
| ACCA (Air Conditioning Contractors of America) | Donald | Prather | Contractor Association | P |
| Air Management Industries | April | Yungen | Contractor (Nonresidential) | |
| Aire Rite AC & Refrigeration | Don | Langston | Contractor (Nonresidential) | P |
| AMS (American Mechanical Services) CHAIR | Marc | Pickett | Contractor (Nonresidential) | P |
| Charles Segerstrom, Energy Efficiency Consulting | Charles | Segerstrom | Energy Efficiency Program Consultant | P |
| CLEAResult (formerly PECl) | Todd | Van Osdol | California IOU | |
| FDSI (Field Diagnostic Services Inc.) | Dale | Rossi | Third Party Quality Assurance Providers | |
| GWP (Goodheart-Willcox Publisher) | Sandy | Clark | Educator, Trainer | |
| Honeywell E&ES, Commercial Buildings, Trade | Michael | Lawing | Controls (Manufacturer or Distributor) | P |
| HSE (Honeywell Smart Energy Solutions) | Shayne | Holderby | Energy Efficiency Program Consultant | |
| Marina Mechanical | Denny | Mann | Contractor (Nonresidential) | |
| National Comfort Institute | Jeff | Sturgeon | Educator, Trainer | P |
| Richard Danks Consulting – FacilityPro VICE-CHAIR | Rick | Danks | Other Stakeholder | |
| SCE (Southern California Edison) | Scott | Higa | California IOU | |
| Tre’ Laine Associates | Pepper | Hunziker | Energy Efficiency Program Consultant | P |
| Western Allied Corporation | Mike | Gallagher | Contractor (Nonresidential) | P |
| Warren Lupson and Associates | Warren | Lupson | Other Stakeholder | |
| CQM User Guide Working Group Non-Voting Members | | | | |
| BELIMO | Darryl | DeAngelis | Controls (Manufacturer or Distributor) | |
| BMI (BuildingMetrics, Inc.) | Pete | Jacobs | Energy Efficiency Program Consultant | |
| Brownson Technical School | Bill | Brown | Educator, Trainer | P |
| CLEAResult (formerly PECl) | Michael | Blazey | Energy Efficiency Program Consultant | P |
| HSGS (Honeywell Smart Grid Solutions) | Steve | Varnum | Energy Efficiency Program Consultant | |
| PG&E | Christian | Weber | California IOU | |
| SCE (Southern California Edison) | Steve | Clinton | California IOU | P |
| XCSpec | Janet | Peterson | Controls (Manufacturer or Distributor) | P |
| | | | | |
| Adrienne Thomle, Consulting** | Adrienne | Thomle+ | | |
| AirTest Technologies | Mike | Schell | HVAC Manufacturer | |
| HVACRedu.net | Chris | Compton | Educator, Trainer | |
| Little Caesar’s ** | Wendy | Gallo+ | | |
| | | | | |
| 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) |



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| 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*

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 June 20 meeting draft notes were distributed June 30. 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

June 20, 2017 ACTION: Bob Sundberg, WHPA staff, would distribute the two CQM Committee and User Guide WG 2016 work products to members. All members were asked to compare the work accomplished by each against the proposed work for 2017 located in the Conclusion section of the Standard 180 User Guide WG final report. COMPLETED.

New Business – Marc Pickett, Chair

None.

AGENDA

| Topic | Discussion Leader | Desired Outcome |
|--|---|--|
| Welcome, Roll Call, Member Introduction, Approve Past Meeting Notes, Review Action Items, New Business, Meeting Agenda | Bob Sundberg, WHPA Staff Marc Pickett, Chair | 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, direction and scope for 2017 work product | Marc Pickett, Chair | Members share a clear understanding for the goals of this WG |
| Major STD 180 Topics to be included in 2017 work product | Marc Pickett, Chair | Update this WG on what portion of the User Guide the CC WG has chosen to focus on – if that is covered by other WG, what should this WG focus on? |
| Measurement, Data Collection and Report Making | Marc Pickett, Chair | Agreement on how to pursue this user guide topic |
| Confirm next meeting date/time, assign actions and proposed agenda and adjourn. | Bob Sundberg, WHPA Staff, for Don Langston, Chair | Clear understanding of member responsibilities for the next meeting. Next meeting date/time established. |

Conclusion from 2016 CQM STD 180 User Guide Working Group final report:

This document was made to think through some key parts of Standard 180 and to document the experience of various stakeholders when selling and implementing Standard 180-based maintenance. The next step is to start producing the User Guide. The story arc of the proposed User Guide might be:

1. Introduction to and overview of Standard 180
2. Selling Standard 180-based maintenance



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- a. The value proposition
- b. Qualifying the customer
- c. The sales process
3. Making a maintenance program
4. Implementing a maintenance program
5. Measurement, data collection, and report making
6. Validating Standard 180-based maintenance
7. Conclusion

WG Goals, Direction and Scope for 2017 Work Product – Marc Pickett, Chair

Not directly addressed.

Measurement, Data Collection and Report Making – Marc Pickett, Chair

Marc Pickett, Chair – he suggested the WG start with this user guide topic, keeping in mind Standard 180 Sections 4.2.2a through 4.2.2e and come to some agreement on the need for some sort of measurement and verification method for program goals. That a Standard 180 based program had some mechanism to show that the program was performing. They'd held discussions about metrics and their place in programs but not really developed work product to reflect its importance. He hoped that this work product could come up with some specific suggested metrics and examples of their use.

Marc suggested the group work on listing as many "maintenance performance indicators" as they could. This was a term he'd seen in many of the articles he'd recently read on maintenance key performance indicators. With "maintenance" in the title, it would be clearer that they were referring to the maintenance program and not the HVAC system performance. The metrics being followed would be addressing whether goals for things like the following were being met: reduced occupant complaints; system reliability; task list adequacy and task frequency; was documentation complete and clear; were they following the right, valuable condition indicator? For owners to keep on with Standard 180 based practices after utility program incentives ended, they'd need evidence of value. Those metrics seemed to be the best way to build gathering that evidence into a maintenance program. Owners needed to see that they were saving money, resources and/or solving problems.

Jeff Sturgeon, NCI – he reminded the group about the standard's other term "condition indicators" which referred somewhat to operation and degraded performance of HVAC system components. Just using the term "performance indicators" would lead many to think the discussion was focused on system performance, not overall maintenance program performance.

Bob Sundberg, WHPA staff, suggested they might consider revising that title descriptor slightly to avoid confusing maintenance system performance indicators (MPI) (condition indicators) with maintenance program performance indicators. They might consider titling the list "maintenance program performance indicators" (MPPI) or MPP KPIs. Rick Danks had commented to the group earlier about the Standard 180 Committee's efforts to avoid the confusion of their original term "performance objectives" which, in the standard's own text, seemed to focus on HVAC system performance and system performance goals rather than maintenance program goals. The committee was considering replacing the term "performance objectives" with "performance outcomes" to point more clearly in the direction of maintenance program performance "outcomes."

Michel Lawing, Honeywell E&ES – he liked the more descriptive term.

Marc Pickett – now that they'd agreed on the new term for a list of metrics, MPPI – maintenance program performance indicators, he wanted the group to work on developing an extensive list from all the documents and articles within the industry as well as from Mike Gallagher who had lead and earlier Section 4 Working Group and documents provided by Rick Danks. Marc thought they would be coming up with different metrics for different facilities and for how



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facilities were managed and maintained. Which metrics were important would vary based on whether they were manufacturing, retail, office or other types of facilities and how they were used. They'd probably need to have different metrics lists depending on the discussions that would take place for those different market segments and building types, the kinds of distinctions that Jan Peterson's working group was dealing with in their narratives.

Mike Gallagher, Western Allied Corp. – when he led the Section 4 Working Group, they'd considered that whatever metrics came out of those initial meetings, those metrics needed to be based on their priorities. He took Marc's comments that there would probably need to be different metrics for different facilities to mean there would probably be different goal priorities for those different kinds of facilities. You need to find out which were the important goals for them and those would become your few metrics to be tracked. His WG had discussed:

- Number of services calls per quarter, maybe even considering seasonal demand variation
- Repair expenses
- Frequency of unscheduled repairs (distinguish things just needing adjustment from actual breakdowns)

Mike Gallagher – you'd need to distinguish whether they were more interested in reducing headaches or optimizing their HVAC system. Coming to that understanding with clients would dictate how extensive their maintenance would be and whether they would build in means to report status and make course corrections with what they were delivering. He then shuts up and waits for the client to tell him which of those priorities they were most interested in. Maybe 1/3rd of his clients were interested to do more than address headaches. That's when Mike needed a commitment that they were willing to devote the time to discuss reporting and evaluations, how the program was doing. If they are interested, he moves ahead with their discussing what they were going to “monitor.” He never uses the term “measure.”

Don Langston, Aire Rite AC & Refrigeration – his client discussions often went along the same route. Frequently starting with how much they were willing to spend. But, what they spent really determined the level of maintenance that they were willing to support. Many, even most, were initially most interested in their “lowest cost” option, meaning lowest cost maintenance agreement, but not lowest overall maintenance costs. But, he'd found that even his firm's lowest cost offering was far above what many other contractors claimed to be delivering and were not. He emphasized the need to discuss up front just how they wanted breakdowns and needed repairs to be addressed and what sort of capital replacement budget they had established. Without those budgets for repairs and replacement, he felt his techs would just be wasting their time band-aiding failing systems.

Bob Sundberg, WHPA staff – he suggested they capture some of the goal/performance objectives or market segment/facility type categories under which these metrics might be associated. Some of these goals and metrics might be more important for the situation where there was an owner or responsible party working with a contractor for maintenance services. Some goals and metrics would only apply where there was a responsible party or facility manager who also supervised their own in-house maintenance staff. You might have the group consider how the user guide could be organized into chapters or sections or have parallel sections developed for each of these two very common situations.

Mike Gallagher – he'd been considered what a user guide might look like. To what extent it might be written in a prescriptive or cookbook, do it this way, fashion vs. whether it was written around where they wanted to end up and pick their own pathway to get there, maybe with some examples of what they might utilize. He understood that if a utility intended to make use of the guide, it would likely need to be more prescriptive. He, personally, was more comfortable with the second approach, like the soft side of Standard 180 in Section 4 where you were in there discussing things with a customer and trying to come up with a game plan. The hard side of the standard was in Section 5 where there were tables of specific maintenance tasks which needed to be incorporated into the maintenance plan to comply, depending on the type of system they had. The part that he thought that was far more important and often overlooked in client discussions was how you were going to monitor and report on the program. He didn't know how to do that prescriptively in a user guide because there would be so many different customer and facility circumstances.



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Marc Pickett – maybe what they would work toward wouldn't be metrics for multiple facility type categories so much as providing lists of suggested metrics with examples provided for many of them.

Mike Gallagher – he kept coming back to the purpose for the metrics, being selected for whatever objectives or goals they had for the maintenance program. Monitoring what was being done, what the client was getting for the costs and whether they were getting the results they wanted. They might be looking to replace their current contractor where they've had 12 service calls in the last two months. The goal might be how they could get those costs and inconvenience under better control with another contractor. Setting up a number for the coming quarter or year as a target goal, maybe set up for seasonality with more calls expected during summer months than during the winter.

Don Langston – he thought what made a customer move or reach out was usually related to pain, some higher level of discomfort, environmental or financial or both.

Marc Pickett – he was hearing agreement about pursuing metrics and compiling a list which they could tackle at the next meeting.

General agreement.

Mike Gallagher – if a client was interested in their HVAC energy costs and reducing them, they might consider monitoring services for logging energy use and normalizing it for weather variance. In that case, those energy use records could be compared over time and reviewed for trends and improvement. From his experience, most people weren't feeling the pain from energy costs enough to go heavily into monitoring usage. If temperature complaints are a big issue they might be able to monitor and log temperature variations in that space. Establishing a temperature window/range for a space might be a valid metric. Mike suggested everyone email Bob Sundberg potential metrics for him to compile and share online for discussion at the next meeting.

Bob Sundberg, WHPA staff – liked Mike's suggestion but added that it might be useful to provide a goal statement for each one of the metrics listed. Some metrics might even support multiple goals. The group might start out with the three purposes stated in the standard as the key and basic goals. They might add several versions of each in more detail or suggest other HVAC related goals not directly called out in the standard like equipment reliability or energy costs. The 2016 User Guide WG had worked this issue and suggested that the three purposes stated in the standard were essential but that additional goals could be suggested, some additional goals were mentioned in the foreword to the standard itself.

Pepper Hunziker, Tre' Laine Associates – she suggested they mine and extract metrics from several studies conducted by EMI several years as well as a study published around 2011 early in the formation of the utility QM programs where facility managers, owners and contractors held discussions which included what sorts of goals and issues they had related to HVAC system maintenance and their facilities.

HVAC Contractor and Behavior Study (EMI – 2015 and 2012)

<http://www.performancealliance.org/Newsletters/ASHRAEProgress/tabid/2504/Default.aspx>

Jeff Sturgeon, NCI – he volunteered to read through the maintenance focus groups study and pull out facility HVAC related goals and metrics discussed in the forums.

ACTION: Jeff Sturgeon volunteered to read through the HVAC Maintenance Focus Groups study conducted by EMI in 2011 to extract goals and goal related metrics mentioned in those discussions. Bob Sundberg, WHPA staff would provide Jeff and the entire WG with pdf copies of the two documents.



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Don Langston – he remembered being on the other side of the glass from where the forums were held and facilitated by Ellen Steiner of EMI. He recalled that several key “categories” of goals kept coming up. Those categories included energy efficiency, equipment reliability and various costs. Participants were asked to prioritize those goals and what was most important for them. Energy efficiency and reduced energy consumption seemed to always be the lowest priorities. The highest priorities, for this group, all seemed to be related to some sort of pain. They didn’t want to get complaint calls late at night. They wanted systems to be addressed as proactively as possible to avoid surprises. Those studies would be a great place to start, to hit a refresh button about working with responsible parties and owners.

Pepper Hunziker – she speculated on whether the studies had drilled down enough to really establish whether the general goal of “energy efficiency” revealed what might be a “pain” to these facility managers.

1. She wondered how new participants to a QM program would prioritize goals. Maybe, if you put that term in context in a more detailed way, they might respond differently than those in the study had responded to a generic term. If the categories represented by the term “energy efficiency” were not broken out, this might account for a disconnect and the lower rating EE received.
2. She also wondered how the actual pain points for end users might differ from before entering the program to those they decided were most important after being in the program for a period of time or after completing the three-year program. Would the priorities have changed? Maybe energy efficiency related goals were really low coming into the program but were in the top five when they graduated. That would help answer the question about success of market transformation, the goal of the program. They came to see and understand the whole value proposition over time.

Michael Lawing, Honeywell E&ES – so, instead of just rating “energy efficiency” you might tie comfort or absenteeism to energy efficiency, there might have been a very different response and rating. He thought many customers had difficulty seeing what might result from degraded or improved “energy efficiency.”

Pepper Hunziker – tried to put herself in the end user’s place, how they might respond to these “catch phrases.” How to translate and understand what value they might have in their business or to their organization. You’d have to almost translate those terms into that end user’s own language, their world view, in order to get valid responses.

Michael Lawing – he agreed with Pepper that the language used in the study needed to be in the end user’s own language, not in the technical terms and “catch phrases” of those in the HVAC industry.

Bob Sundberg, WHPA staff – he thanked Pepper for bringing up a really important point about the IOU QM programs. They had started out with a long checklist of maintenance task requirements and little to no attention being paid to the service provider and end user establishing maintenance program goals and reviewing results. Goals which would require monitoring, as Mike Gallagher kept mentioning, trending, evaluation and reporting which would establish any evidence of value for the QM approach. The IOU programs were now, years later, just beginning to address program goal setting, not just a long technical task checklist. While the IOU programs were almost exclusively evaluated against their claims for energy savings, the standard addressed a much broader range of goals and end user concerns. Those IOU programs were just now beginning to consider including/requiring elements of the program development requirements spelled out in Section 4 that would lead to gathering the program value evidence which might convince them to continue QM practices after utility incentives expired. The user guide could directly address that need to establish goals and goal metrics to begin that Standard 180 process.

Closing Comments/Adjournment

Marc Pickett – he thought that for they should try to capture all relevant goal categories while they compiled the list of possible goal metrics.

Pepper Hunziker – the discussion reminded her of a WE&T Committee Sales Force and Service Working Group which worked on capturing gaps back in 2013. She thought there might be some good insights in that document, as well. WHPA Sales Force and Service Working Group Gaps Report (2013)



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<http://www.performancealliance.org/Portals/4/Documents/Work%20Product/Salesforce%20and%20Service%20Gaps%20Report%2010-07-2013.pdf>

Marc Pickett offered to read through it to try and pull out any references to goals and goal metrics. Pepper also offered to read through the document again and provide any items of value.

The next meeting was scheduled for Tuesday September 12 at 10 am PT.

The meeting was adjourned at 11:08 am PDT.

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Action Items and Key Decisions

August 22 ACTION: Jeff Sturgeon volunteered to read through the HVAC Maintenance Focus Groups study conducted by EMI in 2011 to extract goals and goal related metrics mentioned in those discussions. Bob Sundberg, WHPA staff would provide Jeff and the entire WG with pdf copies of the two documents.

August 22 ACTION: Marc Pickett and Pepper Hunziker offered to review the Salesforce and Service Gaps working group work product.