



## CEESP Goal 2.1: CQM Standard 180 User Manual Working Group Thursday September 10, 2015 Meeting Notes

### Call to Order

The scheduled 60 minute meeting was called to order at 10:05 a.m. PDT by Dale Rossi, Chair of this working group and a representative of Field Diagnostic Services Inc (FDSI).

### Roll Call

The Chair had not yet designated voting members for this new working group, He planned on working toward consensus on decisions and expected to name one active participant from each organization as a voting member. Ten out of thirteen initial members attended this meeting plus two WHPA staff.

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 Maintenance Task Working Group Initial Members</b>				
Aire Rite AC & Refrigeration	Don	Langston	Contractor (Nonresidential)	A
BMI (BuildingMetrics, Inc.)	Pete	Jacobs	Energy Efficiency Program Consultant	P
CLEAResult (formerly PECEI)	Michael	Blazey	Energy Efficiency Program Consultant	P
FDSI (Field Diagnostic Services Inc.)	Dale	Rossi	Third Party Quality Assurance Providers	P
Goodheart-Willcox Publisher	Sandy	Clark	Educator, Trainer	P
Honeywell ECC, Commercial Buildings, Trade	Michael	Lawing	Controls (Manufacturer or Distributor)	A
Honeywell ECC, Commercial Buildings	Adrienne	Thomle	Controls (Manufacturer or Distributor)	P
HSGS (Honeywell Smart Grid Solutions)	Shayne	Holderby	Energy Efficiency Program Consultant	P
Marina Mechanical	Denny	Mann	Contractor (Nonresidential)	P
Richard Danks Consulting	Richard	Danks	Other Stakeholder	A
SCE (Southern California Edison)	Steve	Clinton	California IOU	P
Tre' Laine Associates	Pepper	Hunziker	Energy Efficiency Program Consultant	P
UC Davis EEC (Energy Efficiency Center)	Kristin	Heinemeier	Research Organization	P
<b>CQM Maintenance Task Working Group Non-Voting Members</b>				
<b>CQM Maintenance Task Working Group Guests</b>				
<b>WHPA Staff (Non-Voting)</b>				
Better Buildings Inc. (BBI)/WHPA Executive Advisor	Dale	Gustavson	Energy Efficiency Program Consultant	P
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; <sup>(P)</sup> 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

Dale Rossi, Chair, asked each attendee to introduce themselves.

Pete Jacobs - BMI

- Currently a consultant to the CPUC on evaluation issues working with DNV GL on IOU HVAC program evaluations.



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- Started his firm, BuildingMetrics, Inc., about ten years before.
- Had worked for a number of years for Architectural Energy Corporation (AEC). While there he'd worked with National Buildings Institute (NBI) to conduct of the first studies focused on commercial building packaged HVAC systems related to installation and system issues and faults prevalence.

### Michael Blazey - CLEAResult

- Has been an HVAC technician for the past 41 years
- He'd recently worked for PECI and now CLEAResult as a field supervisor supporting contractor technicians on QM program technical and program training and support.

### Dale Rossi - FDSI

- Started as a commercial HVAC technician which evolved to becoming a contractors for about twenty years focused on multi-state national account customers.
- Co-founder of FDSI which developed fault detection and diagnostic technologies.
- Recently had chaired the CQM Maintenance Task Working Group which worked on suggested improvements to Standard 180 packaged equipment related tables 5-22 and 5-12.

### Sandy Clark - Goodheart-Willcox Publisher (GWP)

- Editorial director at GWP which publishes a number of learning materials including those for HVAC.

### Adrienne Thomle - Honeywell ECC

- Global product manager for Honeywell International, ECC Division.
- Has been in the building controls industry for 23 years with a long term focus on economizer systems.
- Serves on numerous ASHRAE committees.

### Shayne Holderby - HSGS Honeywell Smart Grid Solutions

- Serves as the program delivery supervisor for the PG&E Standard 180 commercial quality maintenance program.
- He was an electrical contractor for ten years and in the trades for over twenty years.
- He currently works on contractor engagement including sales and technical support.

### Denny Mann - Marina Mechanical

- Has worked for Marina Mechanical for thirty-three years.
- Has been involved with energy related HVAC service and installation since reading "The Business of Energy Management" years before written by Dale Gustavson.
- The subject of quality maintenance had been very important to him in his work.

### Steve Clinton - SCE Southern California Edison

- Had been in the HVAC trades for about twenty-five years as a service technician.
- The last five years he'd worked at Edison at the Energy Education Center teaching HVAC courses, now pretty much providing oversight for all HVAC related training.

### Pepper Hunziker - Tre' Laine Associates

- Her background was in post-secondary adult education both on the policy side as well as on training and development.
- She currently worked as a consultant to SCE in the areas of workforce education and development as well as their efforts involved in sector strategies with the state-wide teams.



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### Kristin Heinemeier - UC Davis Energy Efficiency Center

- She'd worked as an engineer for UC Davis for about eight years.
- She'd originally worked at the Western Cooling Efficiency Center but had recently moved over to the Energy Efficiency Center which served as a sort of umbrella over several technology groups.
- She had been involved with the WHPA since it was being formed, was a former chair of the Compliance Committee and as of August was now the former chair of the FDD Committee.
- She was still involve in several other WHPA committees and working groups as well as a number of ASHRAE committees. This included being on the ASHRAE Standard 180 Committee where she would be leading efforts on a subcommittee to revise Section 4 which she hoped would coordinate efforts with this new working group.

### Warren Lupson - AHRI

- Served as the Director of Education at AHRI.
- Prior to that he'd run his own HVAC contracting company in Washington D.C. for almost forty years.
- He'd been involved with ACCA manuals for almost fifty years.
- Dale Gustavson invited him to the first meeting and he'd decided to join as a member.

### Dale Gustavson - President of Better Buildings Inc.

- He was pleased to lead the group providing support services for the WHPA.
- He'd been involved in HVAC energy efficiency for over thirty-five years and was pleased that someone remembered the book he'd authored in 1990.
- He was attending as a guest since he thought this would be a great and productive group to participate in its launch meeting.

### Bob Sundberg - BNB Consulting/WHPA Staff

- He'd worked for Honeywell ECC for close to thirty years in commercial sales as well as product management and marketing. That included working with Dale Gustavson in development and delivery of energy efficiency related training.
- He was a past Honeywell colleague of Adrienne Thomle and Michael Lawing who would also be joining this working group but were not able to attend this meeting.
- He'd had the opportunity to work on economizer systems as well as variable frequency drive products and advanced refrigeration FDD technologies with Dale Rossi and the staff at FDSI.
- About five years before he'd been invited to join Dale Gustavson's group which provides support for the WHPA committees and working groups.

### New Business

None.

### Approve Previous Meeting Draft Notes

As this is the first meeting being held there were no past minutes to review or finalize.

### ACTION Items

None.



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<b>AGENDA</b>		
<b>Topic</b>	<b>Discussion Leader</b>	<b>Desired Outcome</b>
Welcome, Roll Call, Member Introduction, Past Meeting Notes, 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.
List Working Group Objectives	Chair	
Rank Working Group Objectives	Chair	
Begin Work on First Objective	Chair	Committee members would provide useful input to the SPC207 Economizer Laboratory Method of Test for Field Implemented FDD Tools
Establish Meeting Day, Time, Next Meeting Logistics and Agenda Items	Chair, WHPA Staff	Set next meeting day/date and time.

**Establish WG Objectives for up to Six 2015 Meetings**

Excerpt from Aug. 27 CQM Maintenance Task Working Group meeting notes:

Dale Rossi, FDSI and Chair, announced to the group that Don Langston had asked this working group (WG) to complete its Standard 180 Table 12 work relatively quickly and take on a new task for the committee. All members of the MTWG would be invited to join and be a core membership for the new CQM Standard 180 User Guide Working Group. Dale wanted the new WG to start meeting Thursday September 10. They had staff resource support for up to six meetings before the end of 2015 but would need to reserve some of their time to finalize a preliminary work product to be submitted to the full CQM Committee before year-end.

The new WG would develop suggestions for a format and some of the contents of the user manual. That would include an outline and a list of questions that would need to be clarified by the User Manual Subcommittee. Their output would be used directly by the ASHRAE/ACCA Standard 180 User Manual Subcommittee which was chaired by Don Langston and reported to that subcommittee at its January 2016 meeting. He suspected that most of this WG's effort would be centered on Section 4 of the standard. He hoped most members of the current WG would be willing to continue working together on the new project.

- List objectives
- Rank objectives

Dale Rossi, FDSI and Chair, first wanted to inform members about some basic information and to agree on some ground rules for their meetings.

- They had support for up to five one hour meetings in 2015.
- The product they would produce was intended to be presented to the ASHRAE Standard 180 Committee in Orlando at their meetings January 2016 where they would be considering next steps for the standard as well as the user manual.
- They would be focused on recommendations for the existing standard, not to upgrading or revising that standard.
- Their focus would include sections 3 (definitions), 4 (implementation) and 5 (individual maintenance task tables).



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### Setting Working Group Objectives

Dale Rossi, FDSI, thought that they should start by discussing what form the output of their work might take and any objectives they wanted to propose.

Adrienne Thomle, Honeywell, asked whether everyone present already had a copy of the standard. She also thought that ASHRAE had a standard sort of format for user manuals. One example might be the Standard 62.1 User Manual.

The group discussed the need to see and review good examples of user manuals. Adrienne Thomle confirmed that ASHRAE documents, like the user manual she'd referred to, were copyrighted and could be purchased by individuals but were not authorized for distribution. Kristin Heinemeier, UC Davis EEC, suggested that they might possibly gain access to a word version of ASHRAE documents, like Standard 180, since they were intending to dove-tail their output with work of the ASHRAE Standard 180 Committee. Dale Gustavson offered that several years before he'd produced a summary document of Standard 180 which included the cover page, Section 4 and several Section 5 maintenance task tables ( tables 9, 12 and 22) from the original 2008 and revised 2012 version. He wondered if it would violate ASHRAE rules or was legal to distribute.

Dale Rossi asked whether a problem even existed. He asked everyone present whether they did not have a copy of the latest 2012 version of Standard 180. No one indicated not having a copy of the standard.

Kristin Heinemeier, UC Davis EEC, reminded attendees that she had emailed out two documents to all members listed on the meeting notice. She believed the "shall" language document and analysis document contained the requirements from the 2012 revised standard.

Dale Gustavson, BBI, asked whether this working group was going to examine the same tables in section 5 which the CQM Maintenance Task Working Group had focused on.

Dale Rossi responded that the entire standard was open. This working group had yet to decide whether it would focus only on certain parts or the entire standard. The user manual they would address could apply to the entire standard.

Kristin Heinemeier asked Dale Rossi how this group would interact with the ASHRAE Standard 180 User Manual Subcommittee and what the objectives were for that subcommittee.

Dale Rossi clarified that Don Langston was the Chair for the ASHRAE User Manual Subcommittee and also a member of this WHPA working group. He was the one who'd asked that this working group assist the ASHRAE subcommittee in preparatory efforts prior to the January ASHRAE subcommittee meeting. He then asked Adrienne Thomle whether the ASHRAE Standard 62.1 User Manual could be shared and distributed.

Adrienne Thomle responded that it could not. Individuals needed to purchase it and it couldn't be distributed. The purpose of that user manual was to translate "standard" language into terms that could be more readily understood by those intended to use the standard and who had little understanding of the strict "standard" language.

Bob Sundberg, WHPA staff, suggested that if Adrienne owned a copy of the Standard 62.1 User Manual, she could bring it electronically to meetings and share it from her desktop without violating copyright distribution restrictions. The group then could view the approach, format and structure of that user manual.

Adrienne Thomle said that she could secure a copy of that user manual and believed that she could bring it to the next meeting planned for September 24 and share it with the group. She suggested that she thought one of their first tasks would be to write out an outline.



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Shayne Holderby, HSGS, made the group aware that a free copy of the IAQ Guide for Standard 62.1 could be obtained by following the following link:

<https://www2.buildinggreen.com/article/ashrae-indoor-air-quality-guide-now-available-free>

The link provided would get one to the ASHRAE online store at which they could register individually to download a approximately 74MB file. The downloaded guide was intended for the personal use only of the registered party and was not authorized for distribution or to be put onto a network for sharing.

ASHRAE had also posted and made available for download an Addendum "a" to the original 2008 version which contained the cover, Forward section, list of Section 5 tables and 2008 tables with current proposed revisions for the purpose of obtaining public comments. This pdf document was not restricted from being downloaded and distributed. Note, it was the 2008 version and NOT the most recent 2012 revised version but might prove to be useful for those not owning the current standard to become familiar with the earlier version.

<https://www.ashrae.org/home/search?k=Standard%20180%20review%20document>

### OBJECTIVES DISCUSSION

Dale Rossi then brought the group back to considering their objectives for the five supported meetings in 2015. What product should they work to produce for the ASHRAE January Standard 180 Committee and User Manual Subcommittee. Dale's understanding was that a contract writer would be selected to do the actual writing of this user manual.

Dale understood that there were three tasks for the ASHRAE User Manual Subcommittee

1. Develop and write a request for proposal (RFP) for a contract firm to actually produce the user manual
2. Give direction to the contract writer
3. Manage the contract writing over time

This working group would not be involved with the RFP or managing the subcommittee contract writer. Don Langston had asked this working group to provide some direction, a vision to the subcommittee for what the manual could and should be for the Subcommittee to use with the contract writer. Dale asked the group what they thought the output of their work should be. Suggested requirements for the user manual. The requirements for that RFP would in part come from the suggestions from this working group. There was no more specific direction given to the WG.

Sandy Clark, GWP, suggested they consider the idea that form should follow function when developing learning materials. She asked the group to consider how this material would be used by the audience they were targeting. Would they access it digitally or prefer printed copies? How could the form be best suited to the use of the audience?

Dale Rossi thought that the primary form would likely be a written manual on how to use the standard, not on how to fix air conditioning or other HVAC maintenance issues.

Kristin Heinemeier and Denny Mann commented that they should be considering other digital forms. Kristin thought it might be a toolkit of templates to access tables for different equipment. Denny pictured a technician on a rooftop who needed to access the document on his smart phone or otherwise.

Dale Rossi agreed and said that part of their suggestions and recommendations back to the User Manual Subcommittee would be that the manual be available electronically.

Pepper Hunziker, Tre' Laine Associates, commented that she'd taken a close look at the ACCA Standard 5 User Manual and complimented their approach. It's approach was to go through the standard step by step and followed exactly how the standard was laid out. It showed how to operationalize each section. She had obtained a physical written copy which she'd shared with RQI implementers and trainers. She'd received it from Donald Prather, ACCA,



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and believed that Dale Gustavson also had a copy. She thought it could be ordered from the ACCA store but didn't know whether it could be shared or distributed. There was also an instructor's manual to be used alongside the technician user guide. She could reach out to Donald Prather to see if he had any suggestions for this group.

Dale Rossi asked Pepper if she'd also invite Donald Prather to join this group when she contacted him to which she agreed.

**ACTION:** Pepper Hunziker would contact Donald Prather of ACCA to ask whether he had any suggestions on how this group might review a copy of the Technician's Guide to QI and also to invite him to join this working group.

Dale Gustavson, WHPA Executive Advisor, added that he'd contacted ACCA as well and found out that the technician guide would be made available for sale shortly.

Kristin Heinemeier, UC Davis EEC, suggested the group take a homework assignment to search out other highly regarded user manuals and user guides to discuss the pros and cons of each approach and types of formats. The group agreed. There might even be a collection of different users which could mean the need for different user guides. Having the guide as specific as possible for someone's work, you wouldn't be interested in a user guide for chillers if you were a rooftop technician.

**ACTION:** All working group members were to search for other highly regarded user manuals and user guides and bring those examples to the next WG meeting September 24 to compare approaches and formats.

Dale Rossi, FDSI, summarized that one objective decision they'd agreed on was to assemble a variety of highly regarded user manuals and guides to compare and contrast. He also thought they needed to decide whether they were going to work on suggestions for a user manual for the entire standard or only portions of the standard.

**Decision:** One working group objective agreed to was to assemble a variety of highly regarded user guides and manuals and to conduct a comparison between their approaches and formats to formulate suggestions for the Standard 180 User Manual Subcommittee.

Pete Jacobs, BuildingMetrics Inc. (BMI), suggested they limit their work to smaller commercial building rooftop units which represented a sizable portion of commercial HVAC systems and was probably more achievable given the limited time the WG had. He meant any Section 5 table that was applicable to packaged units 20 tons and smaller.

Kristin Heinemeier suggested they just make sure they have a complete solution for at least some users.

Dale Rossi suggested the three user groups he was aware of: 1) the owner or responsible party; 2) the service provider or whoever was taking responsibility for the owner; 3) whoever was actually working on the HVAC equipment and providing the services.

Dale also suggested that since many portions of the existing standard were open to different interpretations, another of their objectives would be to identify parts of the standard that needed further definition or clarification and to ask the Standard 180 Committee to weigh in to provide a clearer statement of understanding on those points in the standard.

Shayne Holderby, HSGS, proposed that they would need to develop at least two approaches to accommodate different users. One would be to provide clear explanation of the objectives of the standard and another would be to explain a methodology to implement the standard as intended.

Dale Rossi thought that that distinction was largely already made with the purpose behind developing Section 4 and Section 5 but that Section 4 might better address different user groups. He referred to comments previously made by Richard Danks who had pointed out to him that Standard 180 was not all about or only about contractors. It was



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intended to be used by a variety of entities including in-house maintenance staffs. This group could limit its scope to writing a user manual only to address where maintenance services were contracted. He asked for input and commented that he thought an initial effort would be more practical if the initial scope was limited like that.

The group discussed various approaches to developing a user manual to address different user groups. How a topic might be adapted for several specific user groups.

Dale Rossi asked Sandy Clark whether during the WG meetings she would be willing to take the position of a contract writer who might be selected. To help the WG make their suggestions the most useful for whatever contract writer was selected?

Sandy Clark, GWP, agreed to do that. She also would try to come up with questions about format which could help structure their thoughts. She also agreed to provide some comments on the subject to present at the beginning of the next meeting.

**ACTION:** Sandy Clark agreed to provide comments for the beginning of the next meeting regarding key questions that needed to be addressed when considering how to structure and format a user guide.

**ACTION:** Kristin Heinemeier volunteered to try and identify what the different guides would be for different users if they were going to split it up.

### Closing Comments/Adjournment

Dale Rossi asked everyone to write down what they thought the user manual should be, what they'd propose for it to be shared at the next meeting. To write down their thoughts of what their vision for this manual would be.

The next meeting was scheduled for Thursday September 24 for one hour at 10:00 am PDT.

The Chair adjourned the meeting at 11:14 am PDT.

\* \* \* \* \*

### Action Items and Key Decisions (not referenced above)

Sept. 10 **ACTION:** Pepper Hunziker would contact Donald Prather of ACCA to ask whether he had any suggestions on how this group might review a copy of the Technician's Guide to QI and also to invite him to join this working group.

Sept. 10 **ACTION:** All working group members were to search for other highly regarded user manuals and user guides and bring those examples to the next WG meeting September 24 to compare approaches and formats. They were asked to annotate what they really like about each specific user manual/guide.

**Decision:** Agreed to assemble a variety of highly regarded user guides and manuals and to conduct a comparison between their approaches and formats to formulate suggestions for the Standard 180 User Manual Subcommittee.

**Decision:** Identify parts of the standard that needed further definition or clarification and to ask the Standard 180 Committee to weigh in to provide a clearer statement of understanding on those points in the standard.

Sept. 10 **ACTION:** Sandy Clark agreed to provide comments for the beginning of the next meeting regarding key questions that needed to be addressed when considering how to structure and format a user guide.

Sept. 10 **ACTION:** Dale Rossi asked all members to write down what they thought the user manual should be, what they'd propose for it to be which they would share at the next meeting.





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Sept. 10 ACTION: Kristin Heinemeier volunteered to try and identify what the different guides would be for different users if they were going to split it up.