



WHPA Work Product Summary

DATE: December 4, 2015

INITIATING BODY: CQM Standard 180 User Manual Working Group

WORK PRODUCT NAME: CQM Committee ANSI/ASHRAE/ACCA Standard 180 User Manual Working Group Phase 1 Final Report

TYPE OF ACTION REQUESTED: **VOTE** **GUIDANCE** **OTHER:** The Initiating Body requests that the WHPA Commercial Quality Maintenance Committee (CQM) review the referenced Work Product and vote to (1) approve it and (2) escalate it to the WHPA Executive Committee (EC) for review, validation as a WHPA work product (adopt or approve) and distribute it to the ANSI/ASHRAE/ACCA Standard 180 Committee for their consideration. If adopted by the EC, the Initiating Body requests that the finalized report be distributed to the ANSI/ASHRAE/ACCA Standard 180 Committee.

APPROVAL HISTORY

WORKING GROUP: WHPA CQM Standard 180 User Manual Working Group

BY CONSENSUS **BY EMAIL VOTE**

TALLY: Nine of twelve voting members responded. Eight of nine organizations voted YES to approve the report and to escalate it to the Executive Committee for their consideration. One organization abstained. Organizations which voted to approve the report included: ACCA; CLEAResult; FDSI; Goodheart-Wilcox Publisher; Honeywell ECC; Honeywell Smart Grid Solutions (HSGS); Marina Mechanical; SCE. Tre' Laine Associates chose to abstain.

DATE: An email vote was conducted November 13 to December 1.

COMMITTEE: WHPA Commercial Quality Maintenance Committee

BY CONSENSUS **BY VOTE**

TALLY: All twelve voting members responded to the vote.

DATE: An email and phone call vote was conducted between December 2 and 4. Eleven organizations voted YES to approve and escalate the report. One abstained. Organizations which voted to approve the report included: ACCA; Aire Rite AC & Refrigeration; ASHRAE; CLEAResult; FDSI; Honeywell ECC; Honeywell Smart Grid Solutions; Marina Mechanical; PG&E; SCE; Western Allied Corporation. Tre' Laine Associates chose to abstain.

WHPA Work Product Summary

WORK PRODUCT OBJECTIVES: This working group, under very limited time and resource (five meetings), intended to provide an initial, preliminary document which addressed key process, content and organizational issues which need to be determined in order to develop any user manual. It was understood to be a limited, first effort, not a final one. Many parties have observed that it is not clear what is meant by many statements in Sections 1 through 4 as well as Section 5 maintenance task tables. A user manual would help any parties attempting to understand and/or implement the standard gain a better understanding of the developer's intent through further clarification as well as different efforts to provide examples. The working group phase 1 effort was intended to provide a starting point and foundation for development of a comprehensive user manual by the Standard 180 User Manual Subcommittee. To provide broad, consensus based suggestions regarding what could and should be included, how the content might be organized as well as how the clarifications might be presented most effectively.

CA ENERGY EFFICIENCY PLAN STRATEGIC GOAL ALIGNMENT:

GOAL 1 GOAL 2 GOAL 3 GOAL 4

CEESP HVAC GOAL STRATEGIES: Strategic Plan Goal 2: Quality HVAC installation and maintenance becomes the norm. The marketplace understands and values the performance benefits of quality installation and maintenance.

BENEFITS: The primary benefit would be development of a comprehensive, effective user manual which would address the many perspectives and needs of potential users and implementers. Many parties have observed that it is not clear what is meant by many statements in Sections 1 through 4 as well as Section 5 maintenance task tables. A user manual would help any parties attempting to understand and/or implement the standard gain a better understanding of the developer's intent. The working group phase 1 effort was intended to provide a starting point and foundation for development of a comprehensive user manual by the Standard 180 User Manual Subcommittee. To provide broad, consensus based suggestions regarding what could and should be included as well as how the clarifications might be presented most effectively.

OUTSTANDING ISSUES / DEBATES / MINORITY VIEWS: This is a preliminary effort to provide a starting point for the Standard 180 Committee and their User Manual Subcommittee efforts to develop a user manual. The phase 1 report provided general direction regarding format, content, a preliminary table of contents and identification of a number of issues/topics which needed continued effort to develop more detailed suggestions. One member, UC Davis EEC, registered a dissenting view about including Figures on pages 8 and 9 in the report. Otherwise, all members, including UC Davis EEC, approved this phase 1 report.

POTENTIAL AUDIENCE: WHPA CQM Committee; WHPA Executive Committee and Council of Advisors; full WHPA membership; ANSI/ASHRAE/ACCA Standard 180 Committee, Standard 180 User Manual



WHPA Work Product Summary

Subcommittee; HVAC contractors/service providers; building owners/responsible party/facility managers; technicians, code bodies, utilities, CEC and CPUC. Subcommittee;

MOTION: At the WHPA Executive Committee meeting held on December 9, 2015, Don Langston (ACCA) motioned and Don Tanaka (UA) seconded the motion “to accept this document (User Guide Table of Contents) and to authorize its forwarding to ASHRAE for use by the Standard 180 Committee at the January ASHRAE meeting.”

VOTE TALLY: The motion was unanimously approved by a quorum of the WHPA Executive Committee members present at the December 9, 2015 WHPA Executive Committee meeting: ACCA, ASHRAE, CPUC, JCEEP, PG&E, SCE, SDG&E, SoCalGas, UA.

FURTHER ACTIONS REQUIRED: WHPA Staff will ensure the combined Work Product Summary and Standard 180 User Manual Phase 1 Final Report is properly posted and distributed in accordance with established marketing protocol for approved WHPA Work Products.

NEXT STEPS: The approved WHPA Work Product will be forwarded to ASHRAE for use by the Standard 180 Committee at the January ASHRAE meeting.



Western HVAC Performance Alliance

Commercial Quality Maintenance Committee
ANSI/ASHRAE/ACCA Standard 180
User Manual Working Group Report
Phase 1 Final Report

A WHPA Report dated December 9, 2015

Prepared on behalf of the User Manual Working Group
By Dale T. Rossi
Field Diagnostics Services, Inc.

Standard 180 User Manual Prospectus

The *Standard 180 User Manual* will provide a road map for the implementation of Standard 180. Its mission is to facilitate communication between the groups affected by the standard. Standard 180 is currently a voluntary standard, not a model code. It was written in language that it can be adopted by local jurisdictions but it currently has not yet been adopted in any jurisdictions. Therefore, in addition to aiding facilitating communication of Standard 180, the *User Manual* should illustrate the benefits of standard adoption to the audience, in particular the Responsible Party.

Audience:

1. The Manager (facility manager, plant manager, contractor, account/sales manager, etc)
 - Motivated by serving the Responsible Party. Finances.
 - *Manager must plan and inform.*
 - Responsibilities and obligations under Standard 180: Perform requirements of maintenance under financial constraints.
 - The Manager is central to the communication to the Responsible Party. The Manager must ascertain the objectives of the Responsible Party; educate on the economic, societal, and thermal comfort and indoor air quality benefits of maintenance; and recommend maintenance and service options that fit the economic objectives of the Responsible Party.
 - The Manager also communicates to the Technician, directing the Technician on the recommended maintenance plan and ultimately, the service plan.
2. The Responsible Party (owner, CFO, corporate facility executive)
 - Motivated by economics produced by more efficient buildings, reduced repairs/extended equipment life and/or avoidance of equipment failure. May also be motivated to provide occupants with improved air quality and comfort. May be motivated by societal obligations.
 - *Responsible Party must know maintenance and service responsibilities.*
 - Responsibilities and obligations under Standard 180: Provide resources to improve energy efficiency, equipment life, indoor air quality, thermal comfort. In rare cases, utilities may require compliance in a rate contract.
 - Manager should be able to provide Responsible Party with data that illustrates how compliance with the Standard will result in savings and improvements.
3. The Technician (in-house technician, contractor employed technician, service manager, etc)
 - Motivated by work/pride.
 - *Technician provides the service; must do.*
 - Responsibilities and obligations under Standard 180: Meet employer requirements of providing a minimum amount of maintenance.
 - In-depth technical training instructions need not be presented in the *User Manual*. This is not intended to be a technician's technical service bulletin). Communication may be able to be addressed through a maintenance checklist and service report tool.

Standard 180 User Manual Table of Contents

- Standard 180 Overview [estimate 2 pages; may grow to 4 or 5 pages if flow charts are added with explanation]
 - Intent of the Standard
 - The goal is to illuminate, clarify, and interpret Standard 180 in language accessible to the Manager and Responsible Party.
 - **Question: Include flow Charts 1: Basic Information Flow and/or Chart 2: Basic Process Flow? See draft flow charts on the last two pages.**
 - Scope of the Standard:
 - Define and articulate scope: packaged HVAC systems. While the standard indicates where its provisions do not apply, it would be helpful if the *User Manual* could also establish conditions where it does apply.
- Benefits from this *User Manual* [estimate 2 pages]
 - Responsible Party benefits are clearly, compellingly outlined. In addition to minimum compliance, the benefit of more robust plans can be outlined.
 - This section can benefit from financial data showing how investments in regular maintenance can result in substantial savings due to more efficient buildings, reduced repairs/extended equipment life, and/or avoidance of equipment failure.
 - Benefits of improved air quality and comfort to building occupants addressed.
 - Benefits to environment addressed.
- How to use this Manual [estimate 2-4 pages]
 - User scenarios: Tell stories, ideally with some illustrations/stock photos, with scenarios illustrating how the implementation of Standard 180 and this *User Manual* facilitated the benefits previously outlined.
- Implementing Standard 180 [estimate 3 pages]
 - Responsibilities for establishing a maintenance program. Brief recap of items 4.1 (Responsible Party) and 4.2 (Maintenance Programs).
 - Establishing a Maintenance Program
 - Illustrate the steps Manager and Responsible Party take to design and create a Maintenance Program.
 - Establishing performance objectives: Recommendations on who leads this step and how performance objects are set for a facility (see Appendix A too). **Question: Can an example be provided?**
 - Conditions indicating action: Clear illustration of conditions presenting a need for immediate maintenance/repair (see Appendix B).
 - Establishing Inspection and Maintenance Task Frequencies
 - Discussion of how and who establishes frequency and maintenance intervals.
 - Discussion of finding unacceptable condition indicators or performance indicators during two successive inspections.
 - Investigating possible causes
 - Resolving the deficiency

- Inspection and Maintenance Tasks Tools: [estimate 30 pages if we have one Checklist and Report; 60 pages if we have two]
 - Manager and Responsible Party Outline Checklist of Inspection and Maintenance Tasks and frequency (Section 5).
 - Report of Inspection and Maintenance Tasks and Recommendations. (Technician generated. For Manager and Responsible Party review).
- Definitions/Glossary [estimate 1 page]
 - Pick up from Standard 180.
- Appendix [estimate 7-28 pages]
 - Operationalizing the Standard: Technician document that spells out technical detail regarding service as well as if-then flow of information for technician work. This content already exists as an operations manual. Determination to be made as to whether this operations manual document is included/adapted or simply referenced.
 - Pick up from Standard 180.

Estimated page counts run from 47-82 pages (48 – 80-96 pages if printed)

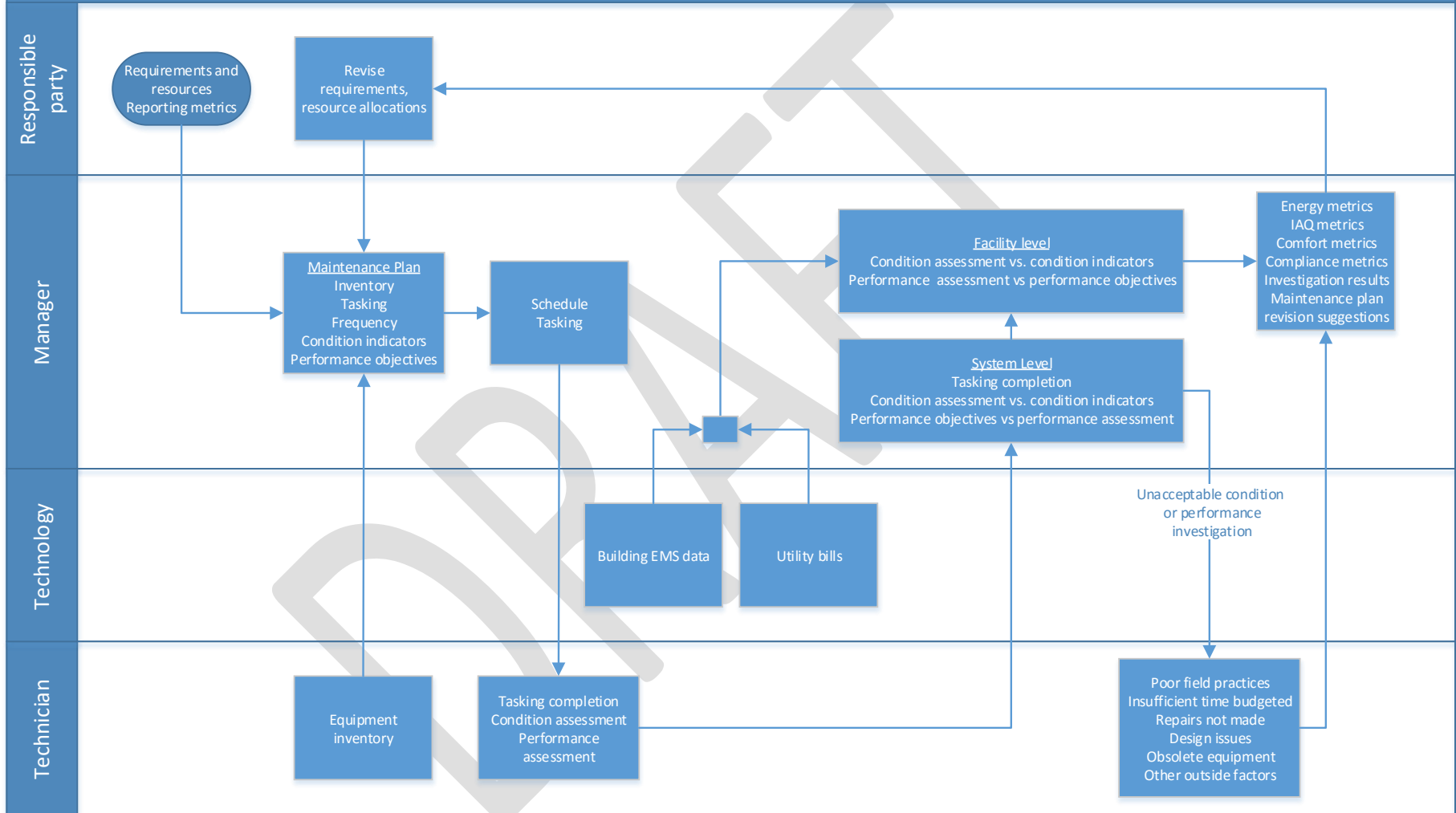
TBD: Determine Form/Media:

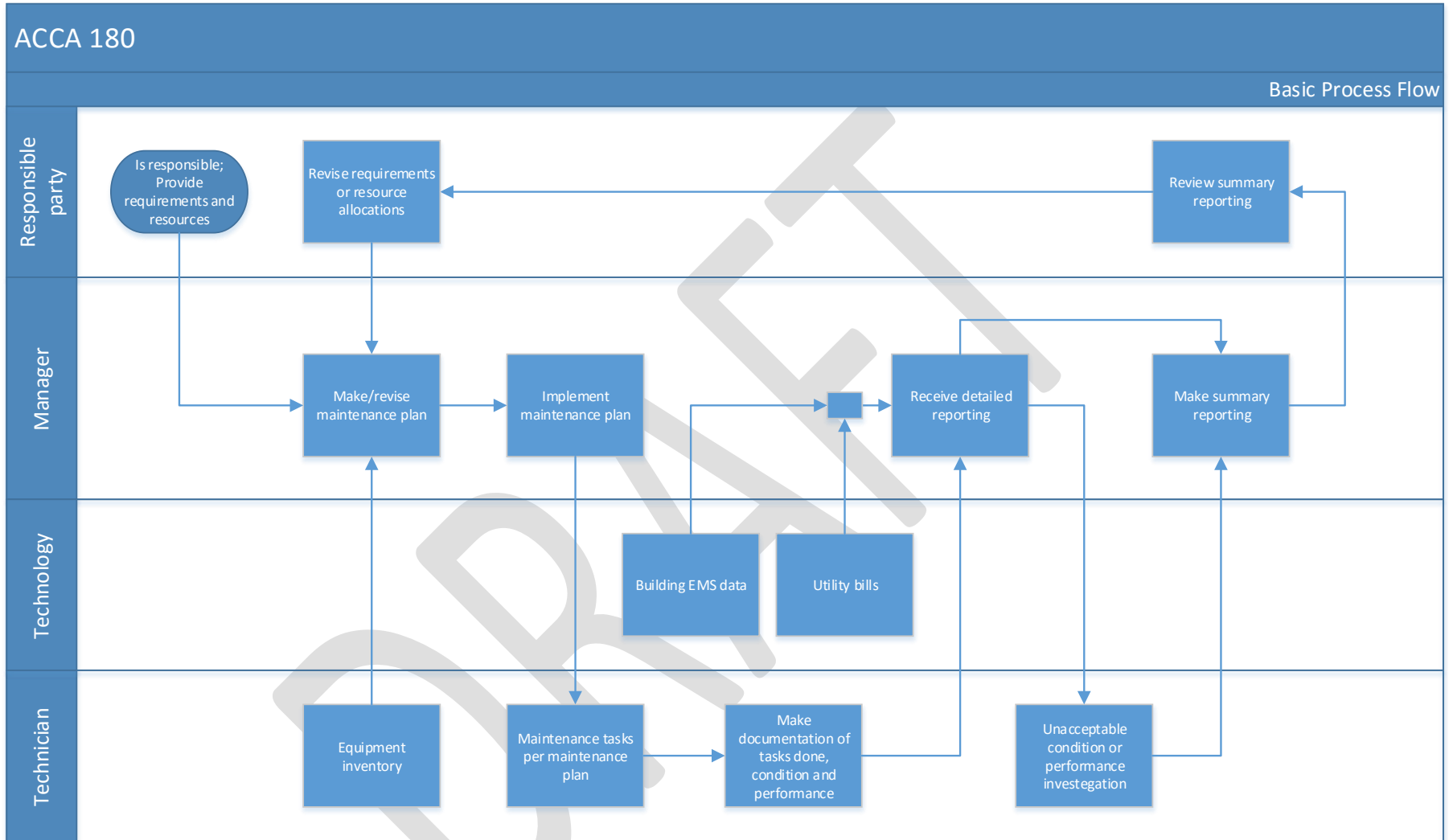
We have a strong sense already that this will be delivered digitally and in print. The document may be sold as a download from the ASHREA website, it may be distributed physically. Majority indicated that this *User Manual* would be most often accessed in a conference room and would rarely accompany a tech on a service call in its entirety. From our previous discussion of function, we should be able to determine the following:

- Trim size
- Estimated page count
- Binding
- Digital format (recommend PDF and format for editing/report creation such as RFT)

ACCA 180

Basic Information Flow





ACKNOWLEDGEMENTS

This report was developed by the CQM ANSI/ASHRAE/ACCA Standard 180 User Manual Working Group of the Western HVAC Performance Alliance's Commercial Quality Maintenance Committee.

The Chair would like to thank all working group participants for the development of this work product, the inaugural effort to formulate the framework for a user manual to help guide those attempting to implement Standard 180. The entire working group would like to recognize and provide special thanks to Sandy Clark for her assistance and guidance in the development of this work product.

CQM Committee Chair

Don Langston (AIRE RITE AC & REFRIGERATION)

Standard 180 User Manual Working Group Chair

Dale Rossi (FIELD DIAGNOSTIC SERVICES, INC.)

Standard 180 User Manual Working Group Participants

Donald Prather (AIR CONDITIONING CONTRACTORS OF AMERICA)

Don Langston (AIRE RITE AC & REFRIGERATION)

Warren Lupson (AIR-CONDITIONING, HEATING AND REFRIGERATION INSTITUTE)

Darryl DeAngelis (BELIMO AIRCONTROLS, INC.)

Pete Jacobs (BUILDINGMETRICS, INC.)

Michael Blazey (CLEARERESULT)

Dale Rossi (FIELD DIAGNOSTIC SERVICES, INC.)

Sandy Clark (GOODHEART-WILCOX PUBLISHER)

Adrienne Thomle (HONEYWELL ECC)

Mike Lawing (HONEYWELL ECC)

Shayne Holderby (HONEYWELL SMART GRID SOLUTIONS)

Denny Mann (MARINA MECHANICAL)

Jeff Sturgeon (NATIONAL COMFORT INSTITUTE)

Steve Clinton (SOUTHERN CALIFORNIA EDISON)

Pepper Hunziker (TRE' LAINE ASSOCIATES)

Kristin Heinemeier (UC DAVIS, ENERGY EFFICIENCY CENTER)

Bob Sundberg (WHPA STAFF FACILITATOR AND MEETING SCRIBE)