

AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS, INC.  
1791 Tullie Circle, N.E./Atlanta, GA 30329  
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TC/TG/TRG MINUTES COVER SHEET

(Minutes of all TC/TG/TRG Meetings are to be distributed to all persons listed below within 60 days following the meeting.)

TC/TG/TRG NO.: 1.8

DATE: January 30, 1998

TC/TG/TRG TITLE: Owning and Operating Costs

DATE OF MEETING: January 19, 1998

LOCATION: San Francisco, CA

MEMBERS PRESENT	YEAR APPTD	MEMBERS ABSENT	YEAR APPTD	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
Kirk Bond	94			Paul Halyard
Carl Hiller	98			Gale Corson
Wayne Webster	98			Karl Stum
Dave Guckelberger	96			J.B. Singh
Terry Cornell	98			Dan Ellars
Christi Kjellman	96			Mary Ann Piette
Sheila Hayter	96			Philip Winters
				Nance Lovvorn
				Steve Willard
				Joe Watson
				Alex Sleiman

DISTRIBUTION:

ALL MEMBERS OF TC/TG/TRG

TAC Chair: Erv Bales

TAC SECTION HEAD: Ed Gut

RAC Research Liaison: Dick Pearson

ALL COMMITTEE LIAISONS AS SHOWN ON TC/TG/TRG ROSTERS:

Program Committee: Sally McInerny

Journal: Rodney Lewis

Handbook: Ron Shelton

Standards: Amanda Meitz

Staff (Research): Bill Seaton

Staff (Standards): Jim Heldenbrand

Staff (Tech. Services): Clarie Ramspeck

ADDITIONAL DISTRIBUTION: TC 1.8 corresponding members not attending meeting

# ASHRAE TC/TG/TRG ACTIVITIES SHEET

DATE: January 30, 1998

TC/TG/TRG NO.: 1.8 TC/TG/TRG TITLE: Owning and Operating Costs

CHAIRMAN: Wayne Webster

VICE CHAIRMAN: Joe Watson

SECRETARY: Sheila Hayter

TC/TG/TRG MEETING SCHEDULE			
Location-Past 12 Months	Date	Location-Planned Next 12 Months	Date
Philadelphia, PA	1/29/97	Toronto, ON	6/22/98
Boston, MA	6/30/97	Chicago, IL	1/25/99

TC/TG/TRG SUBCOMMITTEES	
Function	Chairman
Handbook	David Guckelberger
Program	Kirk Bond
Research	Joe Watson

RESEARCH PROJECTS-CURRENT			
Project Title	Contractor	Monitoring Comm. Chpt.	Report Made At Meeting
Impact of Staff Training on Operating and Maintenance Costs	Engineering Interface, Ltd.	Wayne Webster	Technical paper going through ASHRAE review/publication process
RP 929, HVAC Maintenance Costs	ADM Associates	Joe Watson	Will provide statistical data at June 1998 ASHRAE meeting

LONG RANGE RESEARCH PLAN				
Rank	Title	W/S Written	Apprv.	To R&T
1.	HVAC Operating Costs	Draft	No	Will be sent to R&T before their fall 1998 meeting
2.	HVAC Systems Installed Costs	Draft	No	
3.	Service Life	Draft	No	No
4.	The Impact of Commissioning HVAC Systems on Life-Cycle Costs	No	No	No

(OVER PLEASE)

HANDBOOK RESPONSIBILITIES					
Year & Volume	Chapter	Title	No.	Deadline	Handbook Subcom Liaison
1999 Applications	33	Owning and Operating Costs		TC approved final revision of chapter with minor changes	Ron Shelton
STANDARDS ACTIVITIES-List and Describe Subjects					
none					
TECHNICAL PAPERS from Sponsored Research-Title, when presented (past 3 yrs. present & planned)					
Impact of Staff Training on Operating and Maintenance Costs - submitted for review, summer 1996 HVAC Maintenance Costs - submit for review, fall 1998					
TC/TG Sponsored Symposia-Title, when presented (past 3 yrs. present & planned)					
TC/TG Sponsored Seminars-Title when present (past 3 yrs. present & planned)					
Optimizing HVAC Life-Cycle Costs Using Predictive Performance Algorithms - January 1995, Chicago, IL The Impacts of Building Commissioning on Owning and operating Costs - June 1995, San Diego, CA Community Energy Systems - Infrastructure that Pays - June 1995, San Diego, CA Electric Utility Deregulation and Its Impact on Users - February 1996, Atlanta, GA Rebuild America, Opportunities in a New Federal Energy Program - June 1996, San Antonio, TX Avoiding Other's Mistakes in Performance Contracting - January 1997, Philadelphia, PA Service Life Issues - June 1998, Toronto, ON Existing Building Commissioning - January 1998, Chicago, IL					
TC/TG Sponsored Forums-Title, when presented (past 3 yrs. present & planned)					
Why Isn't Life-Cycle Cost Analysis Widely Used? - February 1996, Atlanta, GA					
JOURNAL PUBLICATIONS, when published (past 3 yrs. present & planned)					
Article on service life versus age at death of HVAC equipment will be submitted					

Submitted By: Sheila J. Hayter, secretary for TC 1.8

**TC 1.8, Owning and Operating Costs  
Meeting Minutes  
January 19, 1998  
San Francisco, CA**

Action Items

<b>Person Responsible</b>	<b>Action Item</b>
Kirk Bond	At the June 1998 (Toronto) TC meeting, present ideas for a program on "Re Regulation."
All Members	Give Karl Stum speaker suggestions for presentations on existing building commissioning. Provide recommendations by June 1, 1998.
Kirk Bond	Act as interim program subcommittee chair.
All members	Anyone interested in becoming program subcommittee chair should speak to Wayne Webster before the June 1998 (Toronto) meeting.
Kirk Bond	Recommend new subcommittee meeting times for TC 1.8 and/or 1.7. Present recommendation at June 1998 (Toronto) meeting.
Dave Guckelberger	Incorporate comments from the handbook subcommittee meeting into the final revision of Chapter 33 before submitting the revision to ASHRAE.
Terry Cornell	Assume duties as the handbook subcommittee chair.
Steve Willard	Send information about service life to Wayne Webster.
Wayne Webster	Prepare a seminar for the June 1998 (Toronto) meeting on service life issues.
Steve Willard, Paul Halyard, Carl Hiller	Act as panelists for the seminar Wayne is preparing on service life issues for the June 1998 (Toronto) meeting.
All Members	Review ASHRAE Standard 90.1 (available from the ASHRAE Web site) and submit comments before March 20, 1998.
All Members	Submit <i>Journal</i> articles to ASHRAE.

Meeting Minutes

Wayne Webster (TC 1.8 chair) called the meeting to order at 2:15 PM. Attendee introductions were made. Members approved the June 1997 (Boston) meeting minutes.

Chair's Report

- The Manager of Technical Services position at ASHRAE Headquarters is open. Position descriptions are available from ASHRAE.
- Outstanding action items from June 1997 (Boston) meeting status
  1. Kirk Bond – No report on coordinating a seminar about determining life cycle costs during and after utility deregulation. TC 1.9 interested in co sponsoring a program on re-regulation. Kirk will present more on this in Toronto.
  2. All Members – Give ideas for case study presentations on existing building commissioning to Karl Stum. TC 9.9 requested presenter suggestions for

program planned for Chicago. TC 1.8 members should submit speaker suggestions by June 1.

- Kirk Bond will act as the interim program subcommittee chair. Because of meeting time conflicts with TC 1.7, he would prefer if another TC 1.8 member took this responsibility. TC 1.8 members interested in this position should contact Wayne Webster (chair).
- Kirk Bond is concerned that the TC 1.8 main meeting time conflicts with TC 1.7 subcommittee meetings because this schedule prevents people from participating on both committees. He will evaluate alternative meeting times for the two committees and present these alternatives at the June (Toronto) meeting.
- TC 1.8 members discussed the idea that ASHRE provide a mechanism for TCs to post graduate student thesis project ideas. For example, post these ideas on the ASHRAE Web page.

#### Handbook Subcommittee Report

David Guckelberger (handbook subcommittee chair) summarized the activities of the handbook subcommittee meeting. The subcommittee compiled a list of items that should be addressed during the next chapter revision process (Appendix A). The TC members voted (6-0-0-1) to accept the handbook chapter with the changes discussed during the subcommittee meeting. Dave will incorporate the comments he received during the subcommittee meeting into the draft.

The new handbook subcommittee chair is Terry Cornell.

#### Research Subcommittee Report

Joe Watson (research subcommittee chair) reported that the subcontractor for **RP-929, "HVAC Maintenance Costs"** presented their work to date at the research subcommittee meeting. The subcontractor recommended that they received 200 more responses (for a total of 600) to their survey so that they have sufficient data for a good statistical analysis to include in the next revision of the handbook chapter. They expect to have received these responses before the June 1998 (Toronto) meeting. They anticipate providing their final report to TC 1.8 in June 1998.

**Service Life of HVAC Equipment.** Nance Lovvorn provided Joe Watson with the name of a statistical analysis expert in the San Francisco area who may be able to provide insight to how to estimate HVAC equipment service life. Joe spoke to this person and feels that he could be very helpful in analyzing data after it has been collected but that he did not have the expertise in the proper area to determine what data should be taken. Terry Cornell identified the Institute for Research in Construction (IRC), as an organization that appears to collect the same type of information needed to complete the service life research project. Terry recommended that TC 1.8 look into working with IRC to complete the proposed research project objectives. A visitor to the TC meeting also recommended that city permits for boilers (public information) could indicate boiler life. Steve Willard volunteered to send information about service life to Wayne Webster.

Terry Cornell drafted a work statement for **HVAC Operating Costs** and sent it to the Section 1 RAC liaison for comment. The liaison's response was that the work statement scope is too large. Joe recommended that TC 1.8 members wait until more information is received from the active research project (RP-929 discussed above) before determining how best to reduce the scope of the operating costs project scope. Terry expects to submit a revised work statement to ASHRAE after the June 1998 (Toronto) meeting.

Christie Kjellman reported that the research project TC 1.8 recommended should be co sponsored by TC 9.9, **"Impacts of Commissioning of HVAC Systems on Life-Cycle Costing,"** was given a low priority by TC 9.9.

Joe has written a one-page summary for the **"HVAC System Installed Costs"** research project. The research subcommittee will reevaluate the position of this project during the June 1998 (Toronto) meeting.

#### Program Subcommittee Report

Wayne Webster will prepare a seminar for the June 1998 (Toronto) meeting on service life issues. The format of the seminar will be a panel discussion where after each panelist gives a short presentation there will be discussion between the panelists and the session attendees. Steve Willard, Paul Halyard, and Carl Hiller (TC 1.8 meeting attendees) agreed to be panelists for the seminar.

#### Liaison Reports

TC 1.5, "Computer Applications" – Wayne Webster stated that there are a lot of exciting things happening with computer technology right now and that TC 1.5 is very busy.

TC 1.7, "Operating and Maintenance Management" – Kirk Bond had no report

TC 1.10, "Energy Resources" – Sheila Hayter reported that the TC is focusing on their handbook chapter revisions and developing programs. Their program on sustainability held at this meeting was well attended. The TC has no current research projects.

TC 6.1, "Hydronic and Steam Heating Equipment and Systems" – Alex Sleiman reported that there are several active research projects sponsored by the committee to generate information for the Systems and Equipment Handbook chapter 33. The TC plans to sponsor programs relating to this research as well. The TC is also developing a guideline for testing commercial boilers.

TC 6.2, "District Heating and Cooling" – Alex Sleiman reported that the TC is reevaluating their objectives. They also plan to change the meeting format to include an invited speaker to give a presentation during the TC meeting on a topic related to TC members' interests. The TC has programs planned for both the June 1998 (Toronto) and January 1999 (Chicago) meetings.

TC 9.9, "Building Commissioning" – Christie Kjellman summarized a project where TC 9.9 plans to participate in commissioning jails in Texas. If TC 1.8 members are interested in working with this project as well, contact Christie.

TC 9.1, "Large Building Air-Conditioning Systems" – Sheila Hayter reported that the TC is rewriting 5 handbook chapters. The rewrite is an extensive undertaking but the committee is making progress.

TC 9.6, "Systems Energy Utilization" – Wayne Webster reported that the TC is developing energy audit forms.

TC 1.8 members decided to discontinue liaison reports for TC 4.6, "Building Operations Dynamics," TC 6.9, "Thermal Storage," and the Student Activities Committee.

#### New Business

Wayne Webster reminded all TC members to submit comments about the standard 90.1 draft before the deadline in mid-March. The standard can be downloaded from the ASHRAE Web site.

Wayne Webster also reminded TC members to submit *Journal* articles. ASHRAE gives a \$100 gift certificate to the ASHRAE Bookstore to all authors published in the *Journal*.

The meeting was adjourned at 4:10 PM.

## Appendix A

TC 1.8 Handbook subcommittee

1/28/98

Revision items for the 2002 handbook

There were a few items that came up during the 1998 handbook review cycle that the handbook committee was not able to address. It is the recommendation of the committee that these items be addressed in the next review cycle.

1) Checklist. Table 1 was revised for 1998 to only include items that were discussed in the chapter. The prior version of Table 1 included many more items than the new Table 1 and it was felt that the old Table was partly used as a checklist. The problem was that as a checklist it was incomplete. The recommendation is to include a complete checklist separate from Table 1.

2) Owning to Capital. At the last minute the group decided that the word Owning was improperly used in Table 1 and that it should really be Capital. For example, Owning Costs should be Capital Costs. This change was not made because we felt that it was too risky to go through the chapter at the last minute and make the corresponding changes to the text.

3) Maintenance cost data update. It was agreed that the existing maintenance cost data is out of date and should not be included in the chapter; however, newer data is not available. A research project is in progress that will update this information but the new data was not available at the time of printing.

4) Estimates of Service life. The data is old but is probably accurate for this older equipment. The group has received several requests to update and expand Table 3. Most likely this new data will have to come from research work.

5) Service Life vs. Useful Life. Service Life is classically defined as the amount of time a piece of equipment can be expected to operate before it will need to be replaced because it has failed. Our handbook defines Service Life as what I would call Useful Life (for lack of a better term) which is the time to replacement for any of a number of reasons including, general obsolescence, technical obsolescence (higher efficiency or enhanced feature content of newer units), excessive maintenance costs or reduced reliability. In short, any of the many reasons equipment gets replaced.

We may be misleading our readers if they use our Table 3 data as what is classically called Service Life when in reality it is not. Perhaps we should also use the chapter to explain how the difference in the two types of equipment life will effect a life cycle cost analysis, i.e., if a unit is replaced because a higher efficiency unit is available, both the capital costs and operating costs will be effected.