AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS, INC.
1791 Tullie Circle, N.E./Atlanta, GA 30329
404-636-8400

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.: TC 4.1 DATE: June 23, 2008

TC/TG/TRG TITLE: LOAD CALCULATION DATA AND PROCEDURES

DATE OF MEETING: June 23, 2008 LOCATION: Salt Lake City, UT

| MEMBERS PRESENT | YEAR APPTD | MEMBERS ABSENT | YEAR APPTD | EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE |
|---|---|---|---|---|
| **Voting** | | **Voting** | | Larry Lisenbee |
| Gary Wingfield | 2007 | Lynn Bellenger | 2006 | Steven Faulkner |
| Glenn Friedman | 2007 | Branislav Todorovic | 2005 | Ramez Afify |
| Joe Ferdelman | 2005 | (Intl) | 2004 | Emil Friberg |
| Curtis Pederson | 2007 | Rober E Hopper | | Susan LeViseur |
| Jeffrey Spitler | 2007 | | | John Wright |
| Robert C. Doeffinger, Jr. | 2007 | **Non-Voting** | | Stephen Roth |
| | | | | Steven Faulkner |
| **Non-Voting** | | | | Ramez Afifi |
| Stephen Rothe | | | | Emil Friberg |
| Christopher Wilkins | | | | |
| Rolando Legarreta | | | | |
| Steven Bruning | | | | |
| Charles Barnaby | | | | |
| Brian A Rock | | | | |
| John Wright | | | | |
| David Eldridge | | | | |
| Larry Schaefer | | | | |
| Bob Howe | | | | |
| Jim Reese | | | | |
| Rich Swierczyna | | | | |
| Robert Elmore | | | | |
| Larry Lisenbee | | | | |
| Steven Faulk | | | | |

DISTRIBUTION:

All Members of TC/TG/TRG

ADDITIONAL DISTRIBUTION:

| | |
|---|---|
| TAC Chairman: | Craig P Wray |
| TAC Section Head: | Suzanne LeViseur |
| Chapter Tech Transfer: | Stephen Abernathy |
| Program Liason | Carol Lomonaco |
| RAC Research: | Hakim Elmahdy |
| ALI/PDC | Kenneth Fulk |
| Special Publications | Mark W Fly |
| Handbook Liason 2009 | Douglas Hittle |
| Standard Liason | Jerry W. White |
| Staff Liason | Claire B. Ramspeck |
| Staff (MORTS): | Michael R. Vaughn |

"These draft minutes have not been approved and are not the official, approved record until approved by this committee."

# June 23, 2008
# Committee Meeting Minutes
# TC4.1 Load Calculations Data and Procedures
# Salt Lake City, UT

1. Meeting called to order at 2:00 p.m. by Gary Wingfield.
2. Roll call: 6 present out of 9 voting members.
3. Self Introductions.
4. Approval of Agenda

Motion by Friedman; Second by Doeffinger Motin Carries 6-0-0.

5. Previous Meeting Minutes approval – NYC Meeting – Distributed

Additions or corrections; Bob Doeffinger – Supplemental report it is covered
Motion to accept the minutes by Pederson; Second by Ferdelman; Motion carries 6-0-0.

6. Comments from Liason and Hakim Almati from RAC
    a. 2020 Proposals shall address issues in the Startegic Plan.
    b. Joint TC's for RTARS have more success.
    c. No research RTARS were proposed at this meeting by this committee.
    d. Liason Hakim offered his help to write RTARS.
7. Comments from Doug Hittle HB Liason
    a. CD+ better than handbook.
    b. 20% People buy it 80% prefer Book instead of CD+
    c. A relationship to another program called Design Builder that has two tutorials on their website which is good.
    d. Volunteered Steve Brunning to be in charge of the following:
        i. Get someone to prepare something similar to Design Builder tutorials to promote CD+ Load Calculation, Tables, etc. Pop-up kind of tutorial that would be in the ASHRAE Website; Steve has agreed to figure out who can do it.
    e. Survey after survey in HB, comes the question for examples;TC 4.1 has the only chapter with an actual example. The plan is to have a step by step to design a vav systems, etc. as it is applied in real life. A Seamless transition from component to component examples that has to be in the CD+; someone has to be the motivator, and Bruning is the perfect leader. Bruning mentioned that the example in our chapter came because the TAC chair at the time(Mark Hilberg) wanted a master example in which is TC created their own example; we tc41 used the ASHRAE building.
8. Glenn Friedman proposed a sort of motion to send back to TACvoted in our committee that is something that reminds people to take action on it otherwise it will die in our committee; unless someone wants to take it to each committee.
9. Wingfield interject that there was a forum and one thing that came out is that people are grasping for that kind of thing; why don't you have your chapter prepare a how to select a vav, well it is not us. In the forum everybody kept asking for things that Wingfield kept answering that is not our realm of responsibility. But the need is there based on the forum, how we go about wording and proposing it, it is sounded like Friedman is ready to make a motion, but we don't know what to say in that motion

yet. Pederson mentioned that the idea is good because if you can get somebody at BRAC to embrace it it would happen.

10. Motion by Friedman to TAC to work our handbook example to a complete design process with other TC's following that example in 4.1.
    Discussion
    Friedman Is TAC the right group?
    Bruning: Should be a joint effort between TAC and Handbook.
    Friedman: Shall we name both of them in the motion?
    Bruning: Yes; In theory HB is responsible for content of HB; Still have a joint executive commmitte meeting every Saturday between TAC and HB with this purpose to promote to get TAC to push on TC's as well as liason to push on TC to improve content of HB. So Bruning thinks it should go to both.
    Hittle: HB will be happy to take the responsibility to say we need this information and so on; Get the people to pressure. Change to include programs.
    After no further discussion;
    Friedman Motion that HB and TAC take our HB example and work it though a full design process in the other HB chapters for a complete design.
    Ferdelman Proposed Motion to read as follows: Motion for TAC and HB Committee that the example of using the ASHRAE HQ building that is currently used in Chapter 30 – Non Residential Cooling and Heating Load Calculations be extended to a full design process and systems in other HB chapters.
    Second by: Friedman; Motion Carries 6-0-0.

11. Section Head Suzzanne LeViseur was informed of the previous motion, and requested that the motion be emailed to her to present at her meeting the following day.
    The motion was read by Ferdelman, and LeViseur Ok'd the motion. LeViseur's email is hs4@ashrae.net. Wingfield will e-mail motion to SH.
12. Section Head – Suzzane Leviseur Report and Comments were:
    a. Strategic Plan is available for Download; lots of discussion nobody is following the strategic plan. It is very important to be aware of such plan to take a direction for the TC.
    b. How to get rosters; assuming you have your bio; any committee you are on will provide you with the rosters on the web.
    c. List of PPL's to send thank you notes to bosses.
    d. Survey on line from RAC for everybody to participate; they are trying to figure out the plan for their next research plan. They are looking for a lot of participation; If anyone has any ideas or negative thoughts, RAC wants to hear it.
    e. Other issue is design guides lack of reviewers; The more they come out will send to Wingfield to re-send to others; apparently stuff has been published and is wrong, of course they want people to look at it and prevent such things.
    f. They are on line. AEDG – AE design guidelines.
    g. Nominations for High Tower Award; it is up to committee to propose someone that has done a lot for the committee.
    h. ASHRAE certification programs – first one for hospital, high performance design buildings, Maintenance and Operations Certifications ; are there any

other ideas: Wilkins suggested Energy modeling as an idea; SH LeViseur will mention in the next SH Meeting.
Friedman asked What's ASHRAE idea of certification? SH LeViseur answer was because it has been requested by members. Tests are such that an interior designer will not be certified; you should really be in tune with the topic.
Friedman: Opposed to certification, because some people that are not capable enough to do the job, will get certified and market themselves as experts, the same thing that has happened in commissioning test and balance contractors trying to get certified and not being qualified. Will not enhance what we do.
SH LeViseur : Such issues were argued 15 years ago.

i. LeViseur needs a Liason with the Precast Institute, since they are currently designing their building; Planning design guide. TC4.1 should be involved; Pederson: scary circumstance because they wanted to get credit for the mass (brick and concrete). ASHRAE is not endorsing.
j. Wingfiled: Glancing at strategic plan everyone needs to become familiar we will be given priorities in what we want to do as a committee because guidelines used to decide if money is allocated to our research, etc. This guideline has to be used with our strategy; it is a lot more than you can absorb in 10 minutes. It is available in the WEB. Wingfield will provide the links via e-mail.

13. Liason Reports: Joe Ferdelman: Fred Lorch is the Rep, but end of this meeting there will no longer be a longer a program committee it will be combined with meetings. Biggest change is it will be run by staff. CEC new name conferences and expositions committee. CEC will be called upon to prepare other regional meetings. No longer a liason for CEC; CEC committee Chicago is the first. TC's will be communicating with CEC. Meetings to become much larger than what they are; Bring additional resources outside of ASHRAE. Strategic plans are key.80-90 % of programs comes from TC generated; it will cut down to 50% TC generated, and the rest from outside. It will be harder to present TC information. Goes into effect for January meeting; essentially January and Louisville there will be some changes, after Louisville there will be some major changes.
14. Research Sub-committee report was presented by Robert Doeffinger Research Sub-Committee Chair (See attached).
15. Program Sub-committee report was presented by Glen Friedman (See Attached).
Motion to Co-Sponsor a seminar on dual façade made by Doeffinger; Second by Pederson.
Items Discussed:
Freedman no need to plan a seminar we just need to co-sponsor
End of discussion
Motion carries 6-0-0.
Friedman: Items we want to put a seminar and find speakers for those topics; Advantage for Chicago broader attendance
Steve Bruning: 4.1, 4.2, and 4.5 joint seminar in Louisville on what's new, hopefully people will have their handbook in their hands. Green Rooms and load calculations; green roofs? Tech seminar forum or what green plants, designing and load calcs for

the previous; in Chicago seems like the perfect location. Green Facades, Green Rooms, Load calculation simplification? Friedman open to all people in the room to suggest ideas.
Fred: Anything on plenum/UFAD loads? Fred will need to provide an abstract to Glenn to submit. Pederson can speak on under-floor calculations for UFAD systems. 3 speakers are needed.

16. Motion by Freedman for program to be approved for Chicago as follows:
    a. Plenums and room loads.
    b. Glass and dual façade.
    c. Thermal Bridges
    d. UFAD

    Motioned Seconded by Doeffinger.
    With No Further discussion
    Motion carries 6-0-0.

17. Handbook report by Steve Bruning (See attached).
    HB report Steve Larry chaired the meeting
    Questions about schedule and submittal of the chapter.
    Bruning will ask to make sure we comply with the schedule
    We have to depend on other TC's as well as all the information of the different research projects.
    No further comments on the topics discussed yesterday

Motion to accept HB report by Doeffinger Second by Spitler. Motion carries 6-0-0.

18. Motion by Friedman: That research projects that are mentioned are approved for submission in the timeframe so noted. Transaction session resulting from research projects.
    Second by Doeffinger
    Discussion:
    RP 1311: Wilkins: John Wright (1311 Researcher) wasn't aware we were planning to have his work put in a transaction paper if it is wanted to be used in a program.
    RP 1326 Applications manual : Spitler: At least one paper on it.
    Friedman: Papers submitted by September; for Louisville; for the time being only one paper coming out of this RP.
    RP 1343 Method of test data collection: Doeffinger doesn't see any paper coming out of it.
    RP 1362 – Heat Gain from commercial cooking appliance: TC 5.10 to take lead and us will co-sponsor; either Rolando or Glenn will be chair on this one. Two papers from the RP; 5.10 needs to take the lead even though one of us will chair the program.
    RP 1363: Nothing prepared on it but is early to mention anything for it.
    Bruning: if anything comes out of it a seminar will be a good idea. Paper for Louisville maybe. 1363 is a 4.2 project.
    Chip Barnaby: may be a poster session
    Other projects are in early stages to place on transactions or to have technical papers ready for any near meetings.

Motion carries 6-0-0.

19. Old or New Business needing attention? None mentioned.
20. Committee Members to re-convene for an Executive Session.
21. General Meeting adjourned at 4:15 P.M.

**EXECUTIVE MEETING**

22. Motion to publish as noted Manual from 1326 and subject to minor editorial review, was made by Wilkins, Send by Doeffinger.
    Discussion: Friedman: Planning a follow up on editorial changes? Wilkins: No.
    Motion Carries 5-0-1 (Spliter abstained).

Attachments:

Research Sub-Committee Report
Programs Sub-Committee Report
HB Sub-Committee Report
Attendance Sign-in Sheet
TC 4.1 Current Roster

**ASHRAE** American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc.

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**TC4.1 Load Calculation Data & Procedures**
**Salt Lake City, UT**
**June 21-25, 2008**

# Handbook Subcommittee Report

**Sunday, June 22, 2:00 PM to 3:30 PM**
**Marriott Downtown Salt Lake City, Deer Valley (1)**

1. **Handbook Committee Liaison Comments: Doug Hittle, Liaison to TC4.1.**
   a. Doug confirmed below schedule, however Brian Rock indicated that Chapter approval by TC should have happened at this meeting. This should be confirmed with Mark Owen at Headquarters.
   b. Doug indicated that Handbook Committee would like TC-4.1 to look at Design Builder Plus as an example for tutorial formats that might be applied on the Handbook CD+. The goal would be to consider developing similar tutorials on design fundamentals like load calculation for the CD+.
2. **Schedule for 2009 HoF Chapters:**
   2008 January – Preliminary Draft distributed
   2008 June – Complete Drafts available for TC Review, Preliminary Approval
   2009 January – Final TC Vote to approve Chapters (Possible mail ballot prior to meeting)
   2009 February – Chapters submitted to Hittle/ASHRAE (Confirm with Mark Owen)
   2009 June – HoF Published
3. **Chapter 30 Nonresidential Loads:**
   - See attached updated status list of potential updates and volunteer assignments. Good progress has been made and remaining items identified.
   - Preliminary Draft of revised chapter was distributed dated June 19, 2008. A pdf copy will be distributed to all TC members by email following the Salt Lake City meeting for review and comment.
   - Much of revision remains dependent on results of research projects. Completion of those is critical for 2009 HoF. All are on track to have substantial data complete following June 2008 meeting. Results from 1482RP for office equipment heat gain update should be able to be included in 2009 HoF.
4. **Chapter 29 Residential Loads:**
   - Completely rewritten in 2005. Some member comments received that need to be incorporated. Also possible revisions based on changes in other chapters.

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|---|---|---|---|
| | | **TC4.1 Handbook Subcommittee 2005 HOF Chapter 30** | |
| | | **Nonresidential Cooling and Heating Load Calculations** | |
| | | **Planned Improvement List for 2009** | |
| | | **Sort by reviser** | **Status** |
| | | **January 20, 2008** | |
| | | | |
| Barnaby | HB-1 | Review/update Heat Balance section to be consistent with Toolkit and other research findings. (Curt Pedersen/Chip Barnaby) | |
| Barnaby | HB-2 | Update Heat Balance section to address inside shading of fenestration results from RP-1311. (Curt Pedersen/Chip Barnaby) | Pending 1311 |
| Barnaby | HT-2 | Add data/equations/illustrations for basement and slab/foundation edge losses. (Chip Barnaby) **Add reference to Chapter 29 where this information is currently located.** | |
| Bellenger | G-1 | Improve quality of existing Figures. (Lynn Bellenger) | **See Item I-3** |
| Doeffinger | I-3 | Table 2 Light Fixtures – originally provided by Lynn Bellenger. Need to update/confirm with manufacturers for current practice. (Lynn Bellenger) **It was agreed that Table 2 should be removed from the Chapter since manufacturers data would be more current. An example using the results from 1282 RP with a brief table of fixtures tested should be included, Jeff Spitler will inquire with Dan for this. Bob Doeffinger will also provide a brief discussion on LED fixtures. (Spitler, Fisher, Doeffinger)** | See Spielvogel email - confirms update need |
| Wilkins | I-4 | Tables 3A/B Electric Motor Data – Need to update/confirm with manufacturers for current practice. Request TC 1.11 Electric Motors to review and confirm/update. (Lynn Bellenger) **Table 3B should be removed since it is not pertinent to load calculation. Chris Wilkins will review some manufacturers data to see if any other updates are required for Table 3A. (Wilkins)** | |
| Bruning | E-1 | Table 24 – coordinate with Weather chapter and update as needed. Incorporate RP-1363 wet bulb profile methodology. (Steve Bruning) | Pending 1363 |
| Bruning | E-2 | Update all examples to use revised data and equations from rest of chapter. (Steve Bruning) | |
| Bruning | G-3 | Provide an equation summary table in conjunction with flow chart, listing of data required and references for where to find it. Similar to what had in past chapters for older methods. (Steve Bruning) | |
| Bruning | G-5 | Provide better data on appropriate absorptivity and emissivity values for common construction materials, along with illustration of sensitivity of result to those inputs. Check with TC4.4 on data they plan to publish. Reference accordingly. (Steve Bruning) | |
| Bruning | HT-5 | Subsection on "Cooling Needs During Non-cooling Months" needs to be relocated – does not belong in Heating Section. (Steve Bruning) | Done. Relocated to "Cooling Load Calcs in Practice" section |
| Bruning | P-1 | Evaluate section based on availability of tools and general practice in 2008. (Steve Bruning) | |
| Bruning | R-1 | Update/clean-out references where appropriate. (Steve Bruning) | |
| Bruning | RT-1 | Incorporate results from RP-1326. Could include update of typical wall/roof CTSF and zone RTS (Tables 16, 17, 18, 19, 20, 21, 22 and Figures 8, 9, 10). (Steve Bruning) **Jeff Spitler will provide Word versions of tables from 1326 RP for inclusion in the Chapter. (Spitler)** | Pending 1326 |
| Bruning | RT-2 | Clarify assumptions used in developing existing RTS and CTS Tables as identified in RP-1326 review. (Steve Bruning) | |
| Bruning | S-1 | Need to add systems examples and illustrations. Not covered in ASHRAE Building Example. Are more systems/discussion needed? Add psychrometric illustrations/equations? (Steve Bruning/Doug Hittle) | Doug provided example questions from class. Steve to add to ASHRAE Building example |
| Bruning | S-2 | Duct Surface Heat Transfer – confirm reference to Chapter 3 – is more guidance needed here? (Steve Bruning) | |
| Doeffinger | G-2 | Add more Figures – "picture is worth 1000 words" (Bob Doeffinger) | |

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|---|---|---|---|
| Doeffinger | I-6 | Table 6 Medical Equipment – may be updated by RP-1343 (TC 9.6). **Bob Doeffinger is participating on PMS. Since this RP is only developing a method of test, no new data is expected to be available for 2009 update. Need to consider any alternatives for obtaining updates (manufacturer's, VA, reports, etc). Doug Hittle will investigate MRI heat gain.** (Bob Doeffinger) **1343 RP research has produced some measured data for typical larger imaging systems, however it was agreed that this information should not be included at this time due to the variations in applying this data and regular changes from manufacturers.** | |
| Fisher | S-3 | Ceiling RA plenum – add results from RP 1282 on lights % to return. Provide more guidance on use of heat balance equations provided. Add equations for external wall or roof? (Dan Fisher) | Adding table from RP 1282 to lighting internal load section. Still need review of systems section discussion on RA plenums. |
| Friedman | G-7 | Dual façade building skins – need to address somehow in conjunction with other TCs. Propose ASHRAE research? Coordinate with TC4.4? (**Branislav Todorovic**/ Glenn Friedman) **Branislav Todorovic explained that most research on this topic will not be p resented until the January 09 meeting and it was agreed that information to date is not ready for inclusion in the Chapter.** | Bronko/Glenn provided draft for review/discussion at meeting |
| Friedman | I-2 | Table 1 Heat Gain from People - request TC 2.1 Physiology and Human Environment to review and confirm/update. (Glenn Friedman) | |
| Friedman | I-8 | Tables 8, 9 and 10 Computers, Printers and Office Equipment – need update, especially for computers and printers. **Research project 1482 approved – need to push schedule so completed in time for Handbook.** (Glenn Friedman) **Per PMSC meeting yesterday, information should be available for inclusion in the chapter.** | Proposal received. PES will recommend approvel at this meeting. |
| Friedman | I-9 | Tables 11/12 Load Densities for Office – is updated data available? Research project needed to update measurements? (Glenn Friedman) | |
| Hittle | S-1 | Need to add systems examples and illustrations. Not covered in ASHRAE Building Example. Are more systems/discussion needed? Add psychrometric illustrations/equations? (Steve Bruning/Doug Hittle) | Doug provided example questions from class. Steve to add to ASHRAE Building example |
| Wingfield | S-4 | Underfloor Air – add more available information to address impact of UFAD on load calculations. (Gary Wingfied/Curt Pedersen/Jim Reese) **Gary Wingfield is involved in the chapter for load calculation in the new Underfloor Air Design Guide. Curt Pedersen has been working on models in Energy Plus. Research is also being done through CEC at LBL. It was agreed that this issue needs to be addressed in the Chapter similar to the treatment of return air plenum. Since none of the work to date is conclusive a few paragraphs discussing the important points to consider when doing load calculation in a UFAD system should be included. Gary Wingfield will review what is currently in the draft chapter. (Wingfield)** | |
| Legarreta | I-5 | Tables 4A/B and 5 Kitchen Equipment should be completely replaced with data from RP-1362 (TC5.10). Need to confirm award date and research schedule has data available by June 2008. (Rolando Legarreta) | Pending 1362 |
| Norman | G-4 | Technical writer edit to improve readability of chapters. (Jim Norman) | |
| Pedersen | E-3 | Heat Balance example: Run HB on single room and for ASHRAE Building block loads. Provide results for comparison with RTS spreadsheet results. (Curt Pedersen) | |
| Pedersen | G-6 | Address impact inside convection coefficient assumptions has on load calculations. Use previous research results and coordinate with TC4.7 on proposed RTAR for additional research. (Curt Pedersen) | |
| Pedersen | HB-1 | Review/update Heat Balance section to be consistent with Toolkit and other research findings. (Curt Pedersen/Chip Barnaby) | |
| Pedersen | HB-2 | Update Heat Balance section to address inside shading of fenestration results from RP-1311. (Curt Pedersen/Chip Barnaby) | |
| Pedersen | HB-3 | Table 15 Glazing Data by Window 4.1. Update data to latest Window version. (Jim Pegues/Curt Pedersen) | Done. |
| Pegues | F-1 | Table 14 Solar Equations – update references from Fenestration chapter to Weather chapter (assuming solar position and intensity information is relocated as proposed by TC4.2). Revise based on RP-1363 (TC4.2) results for solar model and clearness number. (Jim Pegues) **Jim Pegues will discuss this with Steve Bruning during this meeting.** | Pending 1363. |

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|---|---|---|---|
| Pegues | F-2 | Solar Equations 13 and 14 – update Inside Shading treatment with results from RP-1311. Coordinate with Fenestration chapter. (Jim Pegues) **It was agreed with TC-4.5 during the PMSC meeting this morning that an expanded version of Table 19 in Chapter 31 including IAC for various glazing types would be included in the next Handbook. Jim Pegues will discuss any modifications required to the equations based on the 1311 RP results with Chip Barnaby** | Pending 1311 |
| Pegues | HB-3 | Table 15 Glazing Data by Window 4.1. Update data to latest Window version. (Jim Pegues/Curt Pedersen) | Done. |
| Pegues | IM-1 | Standard Air Calculations section - confirm coordinated with Chapter 6 Psychrometrics. Add Example. (Jim Pegues) | Coordinated with Chapter 6. Add example in section or part of master example? |
| Pegues | IM-2 | Latent Heat Gain by Moisture Diffusion – review versus Chapters 23, 24 and 25. Why is outside enthalpy not driving force in Equation 12? (Jim Pegues) | Done. |
| Rock | HT-3 | Add narrative and equations/references related to infiltration. (Brian Rock) | Done |
| Rock | IM-3 | Infiltration text – coordinate with TC 4.3 Ventilation Requirements and incorporate comments, update table reference. (Brian Rock) | Done. |
| Roth | HT-1 | Add heating loss calculation equations. (Stephen Roth) | |
| Spitler | HT-4 | Add discussion/references regarding thermal bridging in walls/roofs/windows and greater impact they have on heating loads versus cooling loads. (Jeff Spitler) | Done. |
| Wilkins | I-7 | Table 7 Laboratory Equipment – TC 9.10 had research project on plan to obtain heat gain data. Need to determine if work statement written and offer to participate in PMS to obtain data for load calculations. (Chris Wilkins) | |
| Wingfield | I-1 | Solicit internal heat gain information from other TCs. Review past, present and planned research projects for potential data. Decide where it is appropriate to include data versus just reference other chapters. (Gary Wingfield) | |

**June 22, 2008**
**TC4.1 Research Sub Committee**
**Salt Lake City, Utah**

1. Research Project 1311-RP, *Improving Load Calculations for Fenestrations with Shading Devices.* Research complete, the final report is due for PMS review this fall for action in Chicago.

2. Research Project 1362-RP, *Revised Heat Gain and Capture and Containment Exhaust Rates from Typical Commercial Cooking Appliances,* Co Sponsor with 5.10. Rolando Legarreta reported the research complete and final rough draft due July 7, 2008 with final report by end of July 2008.

3. Research Project 1326-RP, *Application Manual for Non-Residential Load Calculations.* Project complete, final report to be available in July.

4. Research Project 1343-RP. *Method of Testing and Data Collection for Energy Characteristics of Healthcare Medical Equipment,* Co Sponsor with TC9.6 Bob Doeffinger reported. The project equipment list for testing has been reduced to Imaging Systems only, 10 to 15 devices. This project is first phase of a two phase project and deals with the methodology of testing. It will also include a suggested method for manufacturers to report data in a common form. The report is to be available by the end of August 2008.

5. Research Project 1416 –RP, *Development of Internal Surface Convection Correlations for Energy and Load.* Steve Bruning reported University of Texas at Austin was selected as contractor and the 3 member PMS would have kick off meeting in near future.

6. Research Project 1453-RP, *Weather Data.* Chip Barnaby reported data has been generated for the 2009 Handbook. Hourly BIN Data for 5,500 locations included new clearance factors has been generated and is under final review.

7. Research Project 1363-RP, Chip Barnaby reported there are unresolved issues in generating weather profile.

8. Report 1482-RP, *Update to Measurements of Office Equipment Heat Gain Data.* At the kick off meeting Dr. Hosni presented his plan to the 4.1 PMS. Testing will take place this fall with preliminary data for presentation in Chicago.

9. Future RTAR's:

    - Chris Wilkins and Curt Pedersen will investigate research projects 4.1 should sponsor regarding UFAD.

- TC 1.5 and TC 4.7 have RTAR's out on BIM. It was discussed that TC 4.1 should have a member on the PES and PMS. Chip Barnaby is to contact TC 1.5. Chris Wilkins agreed to be on the PES/PMS.

**End Research Sub Committee Report**
**(Doeffinger)**

# TC4.1 Load Calculation Data & Procedures Programs
# Salt Lake City, June 23, 2008

**Salt Lake City, Utah**
**June 23, 2008**

**For Distribution at the TC4.1 Load Calculation Committee Meeting**
**Monday, June 23, 2:15 PM to 4:15 PM**

Glenn Friedman, Program and Standards Chair

1. Salt Lake City Programs
    a. **Seminar 11** – "New Research Developments in Load Calculations"

       Chair Glenn Friedman.

       Sunday 9:45 AM to 11:15 AM

       Speakers:

        i. Dan Fisher (Lighting Heat Gain)
        ii. Jeff Spitler (RTS Method Enhancements)
        iii. Rich Swierckyna from TC 5.10 (Kitchen Equipment)

    b. **Seminar 15** - co-sponsorship of TC 4.5 "Predicting Cooling Loads Due to Solar Heat Gain if Fenestration"

       Chair by William DuPont, TC4.5.

        i. Steven Bruning presented by Chris Wilkins due to conflict for Steve Bruning "Reality vs. Theory - Fenestration Loads for the HVAC Engineer"
        ii. Y. Joe Huang "Predicting Fenestration Loads Using TMY Data"
        iii. Charles Barnaby "Calculation of Cooling Loads for Windows with Interior Shading Using the Heat Balance Method"
        iv. William McCluney "Current Methodologies to Rate the Energy Performance of Windows"

    c. **Forum 11** – "Are Load Methods Keeping Up With Zero Energy Strategies?

       Moderator Gary Wingfield

       The Forum topic will be on our RTAR topic; Do engineers need load calculation methods for non-well mixed spaces?

2. Seminar and forum program for recommendation for Chicago:
    a. Future meetings are
        i. Chicago, January 24 to 28, 2009, Theme: Sustainable Urban Design
        ii. Louisville, June 20 to 24, 2009, Theme: Optimal Air Quality Management. This theme may include many relevant topics, e.g., indoor air quality, humidity, energy efficiency and outside air management
        iii. Orlando, January 23 to 27, 2010, Theme: Humidity and Sustainable Indoor Environments

iv. Albuquerque, June 25 to 30, 2010, Theme:

v. Las Vegas, January 20 to 24 (?), 2011, Theme:

vi. Montreal, June 25 to 29, 2011, Theme:

b. **Priority #1 passed 6-0-0**- Seminar on the Basics of Load Calculations

Chair and submit by Glenn Friedman

Brain Storm Possible Topics

i. What is a Room Load Versus a System Load Steven Roth

ii. Plenum Load Calculations Steven Roth

iii. Glass Loads Including Shading Chip Barnaby

iv. Glass Loads for Integrated Design: Balancing Solar Head Gain, Architecture, Glare, SHGC vs. U-Value, Visible Transmittance for Daylighting Control…

v. Plug and Equipment Loads

vi. Latent Loads (possibly kitchens and dining rooms, natatoriums, humid climates)

vii. Duct Loads

viii. Underfloor loads Curt Pederson

ix. Load simplifications such as well mixed space.

x. Thermal bridges Jeff Spitler

xi. Green façade or green roof.

c. **Priority #to co-sponsor passed 6-0-0** - Seminar on Dual Facades for Chicago with other European speakers. ASHRAE Seminar 476514 - Double Skin Facade Load Calculations

Co-sponsor but let another TC submit

Chair and submit by Branislav Todorovic

Submitted for Salt Lake City by Not Accepted

d. Next year do changes for handbook. Coordinate with 4.2 and 4.5. Do a joint seminar in Louisville. Glenn to contact them. Weather, Clear sky, IAC fenestration. Steve Cornick is 4.2.

3. Transaction Session (previously known as Symposium) Passed 6-0-0

a. Research Project 1311-RP, Improving Load Calculations for Fenestrations with Shading Devices

For Chicago: 1311 has already submitted four papers from John Wright

Chair and submit by Glenn Friedman for Chicago. Co-sponsored by TC4.5 and TC4.7 Joe can help, too.

b. Research Project 1326-RP, Application Manual for Non-Residential Load Calculations

   For Louisville: 1326 is being done by Jeff Spitler. Jeff will have a couple of papers. Jeff will plan for papers ready for submission by April. Jeff will do an overview paper. Jeff can do one paper by September for Louisville.

   Chair and submit by Glenn Friedman for Chicago.

   Paper submission deadline is September 26, 2008

c. Research Project 1362-RP Revised Heat Gain and Capture and Containment Exhaust Rates from Typical Commercial Cooking Appliances, Co Sponsor with 5.10, Ready for Louisville.

   Lead shall be TC5.10 with co-sponsor by TC4.1. Project will finish in August. Papers should be available in September. This late date will not work well for the Handbook. Rolando Legarreta is on the PMS.

   Chair and submit by Rolando Legarreta (or Glenn Friedman) Louisville

   Paper submission deadline is September 26, 2008

d. 1363 Also a 4.2 project. Weather project. 4.2 project and we will co sponsor.

e. Project 1416-RP Development of Internal Surface Convection Correlations for Energy and Load Calculation Methods, co-sponsor with TC 4.7

   Steve Bruning to advise. Was awarded to UT at Austin.

f. 1453 Design Data

   Compiling weather data for Handbook. Run by TC 4.2(?). Includes a new clear sky model. Currently under review to be finalized.

g. 1482-RP Update to Measurements of Office Equipment Heat Gain Data

   Chris Wilkins to advise. Possible Seminar at Louisville. Co-funded by CIBSE.