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DRAFT UNAPPROVED
TC/TG/MTG/TRG MINUTES COVER SHEET

TC/TG/MTG/TRG No. _____ TC 4.1 _____ DATE _____ 7/11/2026 _____

TC/TG/MTG/TRG TITLE _____ Load Calculation Data & Procedures _____

DATE OF MEETING _____ Monday 6/29/2026 _____ LOCATION JW Marriott, Room 407, Level 4 _____

MEMBERS PRESENT	YEAR APPTD	MEMBERS ABSENT	YEAR APPTD	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
Chip Barnaby	2022			Jonathan Aardsma
Liam Buckley	2024			Lee Benzel (Summer Consultants)
Glenn Friedman	2024			Steve Bruning (Newcomb & Boyd)
Suzanne Levisieur	2022			Steve Clark (ICF)
Ardeshir Moftakhari	2022			Johanna Diess
Jim Pegues	2024			Carlos Duarte (UC Berkeley)
Rachel Spitler	2022			Ed Janowiak (ACCA)
Stephen Roth	2024			Zixin Jiang (MIT)
				James Lowry (ZMM)
				Elyse Malherek (Big Ladder)
				Davis Mutlow (HVAKR)
				Brian Rock (U Kansas)
				Jeff Spitler (OK State)
				Yu Sun (Texas A&M)
				Russell Taylor (Carrier)
				Jinglin Yang (Texas A&M)
				Yizhi Yang (TRC Companies)
				Brian Wachholz (E3)
				Chris Wilkins (RFS)

DISTRIBUTION: All Members of TC/TG/MTG/TRG plus the following:

TAC Section Head: Kyle Gluesenkamp	SH4@ashrae.net
All Committee Liaisons As Shown On TCRoster	Staff: shammerling@ashrae.org
Mike Vaughn, Manager Of Research & Technical Services	MORTS@ashrae.net

Note: These draft minutes have not been approved and are not the official, approved record until approved by the TC.

TC 4.1 Web Site: <https://tc0401.ashraetcs.org/>



ASHRAE Technical Committee 4.1

ASHRAE TC 4.1
Load Calculation Data & Procedures
Full Committee Meeting Agenda
2026 ASHRAE Summer Conference
Hybrid Meeting
In-Person: JW Marriott Austin, Room 407, Level 4

Summary of Votes Taken

	Motion	Result	Vote
1	Approve 2026 Las Vegas meeting minutes.	Passed	7-0-0-0-CNV
2	Approve the three program submissions discussed at this meeting: Forum on Diversity Factors (Winter), resubmission of seminar on "Demystifying HVAC Loads and Equipment Selection for YEA (Winter), and Load Calculations with BIM and Interoperability (Summer)	Passed	7-0-0-0-CNV

Summary of Action Items

	Assigned To	Action
1	All	Submit feedback to ASHRAE Board of Directors regarding ad hoc committee Future of ASHRAE Conferences report during July.
2	James Lowery	Work with presenters to complete program submission forms for Winter conference: Diversity Factor forum, and Demystifying HVAC Loads.. seminar
3	Stephen Roth	Coordinate organization of Load Calculations using BIM seminar with stakeholders.
4	Jim Pegues	Share current Chapter 17 and 18 chapter drafts with committee members
5	Jim Pegues	Send email to Moli Kennedy, Handbook Editor, to confirm June 29 conversation about chapter revision and resulting conclusions.

1. **Call to order [2:15 PM CDT]** Rachel Spitler

2. **ASHRAE Code of Ethics Commitment** Rachel Spitler

"In ASHRAE meetings, we will act with honesty, fairness, courtesy, competence, inclusiveness and respect for others, which exemplify our core values of excellence, commitment, integrity, collaboration, volunteerism and diversity, and shall avoid all real or perceived conflicts of interest."
(See full ASHRAE Code of Ethics: <https://www.ashrae.org/about/governance/code-of-ethics>)

3. **Roll call – Determination of a Quorum** Jim Pegues

6 of 8 voting members present. Quorum exists as of 2:15.

Remaining voting members joined shortly after bringing attendance to 8/8.

4. **Introductions** All

a. In Person Sign-In sheet circulated

TC 4.1 Web Site: <https://tc0401.ashraetcs.org/>



ASHRAE Technical Committee 4.1

5. Scope, Mission Statement

Rachel Spitler

Scope: TC 4.1 is concerned with the identification and compilation of engineering data and the development of procedures for calculating heating, cooling, refrigeration, and ventilating loads of structures.

Mission Statement: To serve practitioners by advancing the data and procedures of load calculations.

6. Agenda additions

None

7. Liaison reports

Liaisons

a. Section Head

Kyle Gluesenkamp

Hightower Award – An award for TC volunteer service. Seeking submissions.

A study was done to map ISO / ASTM standards to ASHRAE Technical committees. Kyle asked TC 4.1 to review this study and advise if the data is accurate. The purpose is to make sure ASHRAE TCs and other ASHRAE functional groups are aware of other standards when developing ASHRAE standards.

b. Chapter Technology Transfer

Christopher Adams

Did not attend.

c. Research

Davide Ziviani

Did not attend.

d. Handbook

Akshay Bhargava

Did not attend.

e. Staff, Research/Tech Services

Steven J Hammerling

Did not attend.

f. Standards

Mr Philip J Naughton

Did not attend.

g. TAC Chairman

James S Bennett

Did not attend.

8. Chair's Report

Rachel Spitler

- a. Future of ASHRAE Conferences – An ASHRAE ad hoc committee is looking at different approaches for semi-annual conferences. Their proposal to the board of directors (BOD) on June 28 was for the summer conference to change to a 4-day virtual meeting for presentations, TCs, SSPCs, MTGs starting in 2029 or 2030. Society level committees would still meet in person. The BOD put a 30-day hold on the proposal to allow time for ASHRAE members to submit feedback. Rachel addressed the BOD on June 28 to ask them to engage with TC's on this issue.



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The challenge is meetings are becoming more expensive, both for ASHRAE to host and for members to attend. Further some future ASHRAE winter conferences, tied to the AHR Expo, occur in March leaving very little time between winter and summer conferences. As a result, there are questions about the viability of the summer conference.

TC members are encouraged to submit feedback to the ASHRAE BOD about the proposal. To do so, click this link: https://ashraeorg-my.sharepoint.com/:x/g/personal/cjolly_ashrae_org/IQDOHW8tC5j2TJ4tlwJrOC0TAbi0E1PN8c1xaHXKua6-Os0 The cutoff date for submitting feedback is not clear. Better to submit earlier than later.

- b. CEC is accepting mini-track (6-8 sessions) proposals for Chicago. CEC is also doing a pilot program of individual submissions (not TC-sponsored) for “Application Notes for Professional Practice”; these are presentations for practicing engineers based on 3-6 page papers that will be presented at McCormick Place as part of the AHR Expo. CEC also requested feedback to improve programming – use the QR code in the agenda document attached to these minutes to submit feedback.
- c. There is a Connect Shadowing program that anyone can sign up to shadow Section Heads or other TAC members.
- d. ASHRAE is forming an ad hoc committee for Safety for Next Generation Refrigerants (SNGR).
- e. ASHRAE is continuing to look for volunteers for SMEs for GOEs (Subject Matter Experts for Government Outreach Events) and specifically volunteers from Section 4 for GTIC (Global Technical Interactions Committee).
- f. The Hightower Award is specific for TC volunteers and they haven’t had many submissions in the past few years.

9. Approval of minutes from 2026 Winter Meeting

Rachel Spitler

Motion: Approve 2026 Las Vegas Winter Meeting Minutes

Motion By: Suzanne LeViseur

Second By: Chip Barnaby

Vote: 7-0-0-0-CNV (for-against-abstain-absent-Chair-Not-Voting)

10. Subcommittee reports

a. Programs:

James Lowry

- Seminar 13 – “Demystifying HVAC Loads and Equipment Selection for YEA” was held Sunday afternoon. Approximately 50 attendees. Presentation was well received.
- Submission deadline for Winter conference presentations is August 3.
- Liam Buckley’s conference paper about thermal bridging was accepted for the Winter conference.
- Proposal for 2027 Winter Conference: Hold forum on “Diversity factors ... are we getting the loads right?” Glenn Friedman, Chris Wilkins, Lee Benzel volunteered to organize and present. The purpose is gather input from attendees on how they use diversity factors in load calculations. James will draft the program submission form and circulate to Glenn, Chris, and Lee for review.
- Proposal for 2027 Winter Conference: Resubmit the “Demystifying HVAC Loads and Equipment Selection for YEA” for Winter conference. Push to have it scheduled for Monday 8am when students and YEA members will be available to attend. Note: If we submit multiple proposals for Winter, they will have to be ranked in priority for CEC.



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- Proposal for 2027 Summer Conference: Seminar on load calculations involving BIM and interoperability. Stephen Roth will start organizing the seminar and will reach out to stakeholders.

Motion: Make the three program submissions discussed at this meeting.

Motion By: Glenn Friedman

Second By: Suzanne Leviser

Vote: 7-0-0-CNV (for-against-abstain-absent-Chair-Not-Voting)

b. Research:

Ardi Moftakhari

- 1923-RP – Prepare Climatic Data for 2025 ASHRAE Handbook – Fundamentals and ASHRAE Standard 169 – (TC 4.1 is a co-sponsor to TC 4.2). Project completed
- 1816-RP – Reporting the Energy Use and Heat Gain from Imaging Equipment – (TC 4.1 and 4.7 are co-sponsors to TC 9.6) Finished taking measurements. Still working on resolving issues with final report.
- 1857-RP – Improved Simplified Methodology for Describing and Calculating Heat Conduction between Buildings and the Ground – (TC 4.1 and 4.4 co-sponsor to TC 4.7). Project is stalled. Budget spent. Only about 1/3 of work completed. Asking for no-cost extension.
- 1959-RP – People Load Data for Cooling Load Calculations – TC 4.1 is sponsor. Project was awarded to the University of Hong Kong. Kick off meeting due soon.
- 1999-RP – Prepare Climatic Data for 2029 ASHRAE Handbook – Fundamentals and ASHRAE Standard 169 – (TC 4.1 is a co-sponsor to TC 4.2). Project went to bid in March. Three bidders. Project Evaluation Subcommittee (PES) met earlier in June and recommended a winning bidder. TC 4.2 due to vote on Tuesday to accept PES recommendation.
- 2107-WS – Evaluation of ASHRAE's Design Day Procedure Against Recorded Weather Data – (TC 4.1 co-sponsor to TC 4.2). Project was formerly 1850-WS. Project was resubmitted to RAC as an RTAR. RTAR accepted with comments. Work Statement is being written with goal of submitting by August 15 deadline. TC 4.1 will need to review and vote approval for co-sponsorship ahead of that deadline.
- 1980-WS – Simplified Methods for Calculation of Heating Warm Up Loads – (TC 4.1 sponsor). RTAR submitted to RAC. RAC accepted with comments. Work Statement is under development.
- PTAR 0010 – Update Load Calculation Applications Manual – Publications committee is reviewing the PTAR. RAC will review it on Wednesday.
- Research chairs meeting – Research Handbook was uploaded to BaseCamp. RAC increased level of funding for projects to \$400K per project. RAC encouraging submission of RTARs.
- TC 9.13 – Seeking TC 4.1 co-sponsorship of research project dealing with load calculations for extraterrestrial habitats. Rachel forwarded for the Work Statement for TC consideration. TC 4.1 will conduct a letter ballot on co-sponsorship before the August 15 RAC submission deadline.



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c. Handbook

Jim Pegues

- See Handbook Subcommittee Report in Attachment 3 for Handbook revision schedule, TC 4.1 objectives for revising Handbook chapters, and the motivation for discussing alternate organizational schemes related to residential and non-residential load calculation documentation.
- TC members felt the discussion at the subcommittee meeting Sunday did not resolve the issue of using what were designated Path A, B, or C as the consensus organizational strategy. After further discussion, the consensus was to move forward with Path C and re-evaluate the decision once full drafts of the residential chapter and non-residential chapter were finished.
- Jim met with Handbook editor Moli Kennedy on Monday morning to discuss the reorganization of chapters. She enthusiastically supports this work based on the value it will provide to members. She said a revision of this type does not require formal society-level Handbook Committee approval. She also said typesetting a full chapter revision is easier than typesetting significant edits to an existing chapter. As a result, our chapter submission deadlines in July 2028 will not change.
- ACTION: Suzanne LeViseur recommended Jim send a follow up email to Moli Kennedy to confirm the conversation and the conclusions.
- ACTION: It was recommended Jim share the original Path A drafts with committee voting members beyond the review working group of Chris Wilkins, Chip Barnaby, Rachel Spitler, and Rolando Legarreta so members can see the direction the material is taking.

d. Standards

Glenn Friedman

- Standard 183-2024 – *Peak Cooling and Heating Load Calculations in Buildings Except Low-Rise Residential Buildings*. No action needed.
- Standard 203-2018 (RA 2021) – *Method of Test for Determining Heat Gain of Office Equipment Used in Buildings*. No action needed.

e. Web Site

Jim Pegues

- Web site is up to date.

11. Old Business

Rachel Spitler

None



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12. New Business

Rachel Spitler

- a. Title, Purpose, and Scope (TPS) for minimum energy efficiency for residential buildings has been proposed. Standard 90.2 has become a stretch standard for high performance buildings. The residential market needs an efficiency standard for standard residential applications. This TPS is related to a request from the Department of Energy and the building industry. Anyone interested in this work can apply to join the Special Project Committee (SPC)
- b. The 2027 ASHRAE Summer Conference will be held June 11-16, 2027 in New Orleans. Note that this is 1 to 2 weeks earlier than normal.

13. Adjourn

Rachel Spitler

Motion: Adjourn:

Motion By: Suzanne Leveseur

Attachments:

Attachment 1 – Meeting Agenda

Attachment 2 – Research Subcommittee Agenda

Attachment 3 – Handbook Subcommittee Report

Attachment 1:
Full Committee Meeting Agenda



ASHRAE Technical Committee 4.1

ASHRAE TC 4.1 Load Calculation Data & Procedures

Full Committee Meeting Agenda

2026 ASHRAE Annual Conference

Hybrid Meeting [<https://teams.microsoft.com/meet/29222953363566?p=VSaj4jIS0l6HPOZ4YC>]

In-Person: JW Marriott Austin, JW - 407 - L4

1. Call to order Rachel Spitler

2. ASHRAE Code of Ethics Commitment Rachel Spitler

"In this and all other ASHRAE meetings, we will act with honesty, fairness, courtesy, competence, integrity and respect for others, and we shall avoid all real or perceived conflicts of interests." (See full ASHRAE Code of Ethics: <https://www.ashrae.org/about-ashrae/ashrae-code-of-ethics>)

3. Roll call – Determination of a Quorum Jim Pegues

Chip Barnaby	6/30/2026	Ardeshir Moftakhari	6/30/2026
Liam Buckley	6/30/2028	Jim Pegues	6/30/2028
Glen Friedman	6/30/2028	Rachel Spitler	6/30/2026
Suzanne LeViseur	6/30/2026	Stephen Roth	6/30/2028

4. Introductions All

- a. In Person Sign-In sheet
- b. Updates to the agendas

5. Scope, Mission Statement Rachel Spitler

Scope: TC 4.1 is concerned with the identification and compilation of engineering data and the development of procedures for calculating heating, cooling, refrigeration, and ventilating loads of structures.

Mission Statement: To serve practitioners by advancing the data and procedures of load calculations.

6. Agenda additions



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7. Liaison reports (as they arrive)

- a. Section Head
- b. Chapter Technology Transfer
- c. Research
- d. Handbook
- e. Staff, Research/Tech Services
- f. Standards
- g. TAC Chairman

Liaisons

Kyle Gluesenkamp
Christopher Adams
Davide Ziviani
Eric Granzow
Steven J Hammerling
Philip J Naughton
James S Bennett

8. Chair's Report

Rachel Spitler

- a. Future of ASHRAE Conferences (FOAC) is proposing replacing the Annual Conference with a 4-day virtual conference with technical committee meetings and technical sessions and then a 4-day in-person leadership summit for the Board of Directors and Councils. This proposal was presented to the Board of Directors Sunday, but no word yet on the next steps.
- b. CEC is accepting mini-track (6-8 sessions) proposals for Chicago. CEC is also doing a pilot program of individual submissions (not TC-sponsored) for "Application Notes for Professional Practice"; these are presentations for practicing engineers based on 3-6 page papers that will be presented at McCormick Place as part of the AHRI conference presentations. CEC also requested feedback to improve programming – see QR code below.

Provide your feedback to CEC
on the ASHRAE Annual and
Winter conferences to help
continue to improve
programming.
(2-3 minutes, 10 questions)



- c. There is a Connect Shadowing program that anyone can sign up to shadow Section Heads or other TAC members.
- d. New ASHRAE Acronym: SNGR - Safety for Next Generation Refrigerants.
- e. Reminders to TC members:
 - i. ASHRAE is continuing to look for volunteers for SMEs for GOEs (Subject Matter Experts for Government Outreach Events) and specifically volunteers from Section 4 for GTIC (Global Technical Interactions Committee).



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- ii. The Hightower Award is specific for TC volunteers and they haven't had many submissions in the past few years.

9. Approval of minutes from 2026 Winter Meeting

Rachel Spitler

10. Subcommittee reports

- a. Programs: James Lowry
- b. Research: Ardi Moftakhari
- c. Handbook Jim Pegues
- d. Standards Glenn Friedman
- e. Web Site Jim Pegues

11. Old Business

Rachel Spitler

12. New Business

Rachel Spitler

13. Adjourn

Rachel Spitler

Attachment 2:

TC 4.1 Research Subcommittee Agenda



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Research Subcommittee - Agenda

TC 4.1 Load Calculation Data and Procedures Sunday, June 28, 2026

Research Subcommittee Chair: Ardeshir Moftakhari ardeshir@okstate.edu

Research Liaison for Section 4: Davide Ziviani rl4@ashrae.net & dziviani@purdue.edu

Agenda:

1. TC 4.1 sponsored ongoing projects:

1.1 RP 1816: Reporting the Energy Use and Heat Gain from Imaging Equipment.

Sponsoring Committees TC 9.06 (Healthcare Facilities), TC 4.1, and 4.7 (Energy Calculations)

TC 4.1 liaison on the PMS: Glenn Friedman

PI: Walt Vernon, Contractor: Mazzetti

Last update [Glenn]: No update. More analysis is required on data and loads for medical equipment.

1.2 1923-RP – Prepare Climatic Design Conditions for the 2025 ASHRAE Handbook – Fundamentals and ASHRAE Standard 169

Sponsoring Committees TC 4.2, co-sponsored by TC 4.1

PI: Michael Roth, Klimaat Consulting

TC 4.1 liaison on the PMS: Jim Pegues

- This project aims to provide the most recent data (2004-2023) for publication in the handbook.
- Last update [Jim]:
 - a. Project completed. Final report and publication completed and approved.

1.3 RP 1857: Improved simplified methodology for describing and calculating heat conduction between buildings and the ground.

This project aims to develop simplified methods for ground heat conduction. The project's results will affect the following Handbook Chapters, Special Publications, etc.: Handbook of Fundamentals, Chapters 17, 18, and 19. Standard 90.1

Sponsoring Committees: TC 4.7, TC 4.1, and TC 4.4

TC 4.1 liaison on the PES: Glenn Friedman

Last Update [Glenn]:

- No update

1.4 1959-RP: Update People Load Data for Cooling Load calculations

This project will focus on updating the people load data for the handbook.

PMS: Chris, Rolando, Glenn, James

Last Update [Chris]:

- The project's awarded to University of Hong Kong.



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2. Work statements and RTARs:

2.1 2107-RTAR (formerly 1850-WS) – Evaluation of ASHRAE’s Design Day Procedure Against Recorded Weather Data

Last Update [Jim]:

- a. TC 4.1 is a co-sponsor
- b. This was the WS that was 7-10 years old and had been on pause. This work was restarted by submitting it as an RTAR this spring.
- c. RAC accepted the RTAR with comments.
- d. Therefore work is underway to write a Work Statement and submit by the next RAC deadline in early August.
- e. A meeting is scheduled for July 16 to try to finalize the Work Statement
- f. TC 4.1 will need to review and a letter ballot will be required in late July to approve the Work Statement before it is submitted to RAC

2.2 1999-WS – Prepare Climatic Design Conditions for the 2029 ASHRAE Handbook – Fundamentals and ASHRAE Standard 169

Last Update [Jim]:

- a. TC 4.1 is co-sponsor
- b. Project was released for bidding on March 15 and bidding closed on May 15.
Three bids received. Jim is the TC 4.1 representative on the PES.
- c. The PES met to review the bids on June 12.
The PES recommendation will be considered by TC 4.2 on June 30.

2.3 0010-PTAR: Updating the load calculation manual

Led by Jeff Spitler, Steve Bruning

Last Update [Davide, Rachel]:

- PTAR submitted it to Publication Committee for review and voting.

2.4 1980-RTAR Simplified Methods for Calculation of Heating Warm-Up Loads

Lead: Chris Wilkins

- The RTAR aims to develop a new simplified method to account for warmup heating load with heat pumps.
- Last update [Chris]:
 - Chris resubmitted the RTAR. RAC reviewed and voted “accept with comments” on May 7.Next task is to develop a work statement.

3 Projects for bidding

4 Potential research topics or tasks

Attachment 3:

TC 4.1 Handbook Subcommittee Report



ASHRAE Technical Committee 4.1

TC 4.1 Handbook Subcommittee Report

June 28, 2026

Handbook Subcommittee Chair:

james.f.pegues@carrier.com

rev2

Agenda:

1. Review 2029 Handbook revision schedule
2. Review 2029 chapter reorganization concept
3. Progress since February Las Vegas meeting
4. Integration of residential load calculation material into reorganized chapters
5. Go / No – Go decision for chapter reorganization.
6. Next steps

Discussion:

1. Review 2029 Handbook Revision Schedule

Work Phase	Date or Timeframe	Description
1. Review	Jun 2025 – Jan 2026	Review chapter to identify revisions and additions.
2. Construction	Jan 2026 – Dec 2027	Make revisions and additions
3. Approval	Jan 2028 - Jun 2028	TC 4.1 votes to approve revisions
4. Submission	Jul 2028	Submission of revised chapters to ASHRAE staff.
5. Publication	Jun 2029	Handbook published and sent to members.

2. Review Proposed 2029 Load Calculation Chapter Reorganization Concepts

- a. Objective
 - To better serve primary audience (consulting engineers and early career engineers), significantly reorganize material in Chapters 17 and 18.
- b. Original Reorganization Concept
 - Develop two chapters: (1) Workflow, (2) Theory. Addresses key needs and resolves usage issues with existing material.
 - Chapter 17 – Load Calculation Workflow –A kind of “cookbook” or “manual of procedures” for how to calculate loads: ‘What do I do first?’ ‘What do I do next?’ Fills important need for new engineers. Includes tables of reference data for heat gains and RTS factors. Light



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on math, equations, and technical detail. Refers to sections in Theory chapter for that discussion. Includes examples.

- Chapter 18 – Load Calculation Theory – Explains the underlying theory and mathematics for Radiant Time Series Method, Heat Balance Method, and design heating calculation. Serves as reference material.

3. Progress Since February Las Vegas Meeting

- a. Chapter outlines finalized at Las Vegas meeting.
- b. Demonstration drafts for new Chapters 17 and 18 developed. See attached outlines of draft chapters in attachment 1 at end of this report.
- c. Volunteer review committee (Rachel Spitler, Chip Barnaby, Chris Wilkins, Rolando Legarreta) conducted an initial review of the demonstration draft chapters.
- d. First review meeting held on June 23. Feedback was favorable. Feedback indicated the overall organization was effective at meeting objectives of the reorganization. There are many lower level details to discuss, but the direction is good. However, issue of how to integrate residential load calculation material has not yet been resolved. See next item in report.

4. Integration of Residential Load Calculation Material

- a. Original concept was “loads are loads” and non-residential and residential material should be discussed together. This is reflected in the demonstration draft outlines in attachment 1 to this report. This is “Path A” in attachment 2 and end of this report.
- b. In Las Vegas there were multiple concerns raised about intermixing non-residential and residential material.
- c. In response to those concerns, proposals were developed for revising the organization to keep non-residential and residential material separate but still using the workflow and principles organization of material. These are shown as Path B and Path C in attachment 2.
- d. Discussion of this issue at the June 23 review meeting and at the June 28 subcommittee meeting indicated split preference for Paths B and C, but with a majority favoring Path C for the following reasons:
 - Value in keeping Residential and Non-Residential discussion separate – clarity and focus.
 - May be easier to maintain and modify material in the future if they are separate.
 - When using the Handbook as a teaching tool, more effective to keep residential separate.
 - Easier to direct users of the material to a single chapter rather than particular sections of a larger chapter. Users include engineers, contractors, home owners.
 - Better structure for encouraging users to go beyond using the work flow material and to review and understand the principles material if both are in the same chapter.



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5. Go / No-Go Decision

- a. Objectives of constructing the demonstration drafts were (1) to prove whether the outline concept works in practice, and (2) determine how much work is required to bring the new chapters to completion. That would allow a Go / No-Go decision at the Austin meeting.
- b. Feedback from the review committee indicated the outline concept does work. The higher level organization is effective. The remaining work at this point involves what was referred to as “Tier 2 issues” meaning lower level details. Given that we have 18 to 22 months remaining to complete the chapters, it seems feasible to complete the discussion and resolution of Tier 2 issues in that time.
- c. Therefore the recommendation is to proceed with the revision, pending TC 4.1 approval and also feedback from ASHRAE HQ Handbook staff.
- d. Met with Moli Kennedy, the Handbook Editor, on Monday. Moli enthusiastically supports our revision plan. Formal approval from the Handbook Committee is not needed. Our submission dates will not change. We discussed logistics for submitting the new material. Typsetting a rewritten chapter is actually easier than making multiple updates in an existing chapter.

5. Next Steps

- a. Obtain approval from TC 4.1 to proceed with the chapter development using the demonstration drafts as a basis.
- b. Reorganize the drafts according to the “Path C” plan.
- c. Provide the revised drafts to the volunteer review group for review. Start the discussion of Tier 2 issues and revisions.

Attachment 1:

Outlines for Demonstration Drafts of Chapters

Progress Since Las Vegas Meeting

Draft Chapter 17 – Load Calculation Workflow

1. Introduction

2. Data Collection Workflow

- 2.1 Workflow Overview
- 2.2 Outdoor Design Conditions and Climatic Data
- 2.3 Indoor Design Conditions
- 2.4 Building Geometry
- 2.5 Opaque Envelope Assemblies and Material Properties
- 2.6 Fenestration Data and Performance
- 2.7 Internal Heat Gains and Schedules
 - 2.7.1 Occupants
 - 2.7.2 Lighting
 - 2.7.3 Office Equipment
 - 2.7.4 Cooking and Kitchen Appliances Equipment
 - 2.7.5 Hospital and Laboratory Equipment
 - 2.7.6 Electric Motors
- 2.8 Infiltration
- 2.9 Latent Heat Gain from Moisture Diffusion
- 2.10 Other Latent Heat Gains

3. Heating Load Calculation Workflow using Instantaneous Heat Loss Method

- 3.1 Workflow Overview
- 3.2 Calculate Loads due to Above Grade Exposed Surfaces
- 3.3 Calculate Load due to Interior Wall Heat Loss
- 3.4 Calculate Load due to Infiltration Heat Loss
- 3.5 Calculate Loads due to Basement Wall and Basement Floor Heat Loss
- 3.6 Calculate Load due to Slab on Grade Heat Loss
- 3.7 Calculate Room Sensible Heating Load
- 3.8 Calculate and Apply Safety Factor, If Necessary

4. Heating Load Calculation Workflow using 24-Hour Steady-Periodic Method

- 4.1 Workflow Overview (Placeholder)

5. Cooling Load Calculation Workflow using Heat Balance Method

- 5.1 Workflow Overview

6. Cooling Load Calculation Workflow using Radiant Time Series Method

- 6.1 Workflow Overview
- 6.2 Calculating 24-Hour Heat Gain Profiles
 - 6.2.1 Calculating Exterior Wall and Roof Conduction Heat Gain Profiles
 - 6.2.2 Calculating Fenestration Heat Gain Profiles
 - 6.2.3 Calculating Interior Partition Heat Gain Profiles
 - 6.2.4 Calculating Floor Heat Gain Profiles
 - 6.2.5 Calculating Internal Heat Gain Profiles
 - 6.2.6 Calculating Infiltration Heat Gain Profiles
 - 6.2.7 Calculating Heat Gain Profiles for Other Latent Heat Gains
- 6.3 Deriving 24-Hour Component Cooling Load Profiles
- 6.4 Calculating Total and Peak Space Cooling Loads

7. Cooling Load Calculation Workflow using Residential Heat Balance Method

- 7.1 Workflow Overview (Placeholder)

8. Cooling Load Calculation Workflow using Residential Load Factor Method

- 8.1 Workflow Overview (Placeholder)

9. System Load Calculation & System Sizing

- 9.1 Key Concepts

10. Examples

- 10.1 Heating Load Calculation using Instantaneous Heat Loss Method
- 10.2 Cooling Load Calculation using Radiant Time Series Method
- 10.3 Cooling Load Calculation using Residential Load Factor Method

11. References & Bibliography

Progress Since Las Vegas Meeting

Draft Chapter 18 – Load Calculation Principles

1. Introduction

2. Fundamental Principles of Load Calculations

- 2.1 Space Heating and Cooling Loads
- 2.2 Peak Space Heating Load
- 2.3 Peak Space Cooling Load
- 2.4. Special Space Cooling Load Considerations for Radiant Based Cooling Systems
- 2.5 Equipment Cooling and Heating Loads
- 2.6 Cooling Load Calculations in Practice

3. Data Collection Principles

- 3.1 Choosing Outdoor Design Conditions
- 3.2 Lighting Heat Gain
- 3.3 Office Equipment Heat Gain
- 3.4 Cooking and Kitchen Appliance Heat Gain
- 3.5 Infiltration Heat Gains

4. Dynamic Cooling Load Calculations: Heat Balance Method

- 4.1 Introduction
- 4.2 Assumptions
- 4.3 Heat Balance Elements
- 4.4 General Zone for Load Calculation
- 4.5 Required Input Data

5. Dynamic Heating Load Calculations: Heat Balance Method

- 5.1 Placeholder

6. Dynamic Cooling Load Calculations: Radiant Time Series Method

- 6.1 Introduction
- 6.2 Assumptions and Principles
- 6.3 RTS Procedure Overview
- 6.4 RTS Procedure
- 6.5 Calculating Heat Gain Through Exterior Surfaces
- 6.6 Calculating Heat Gain Through Interior Surfaces
- 6.7 Calculating Heat Gain Through Floors
- 6.8 Calculating Cooling Load

7. Dynamic Cooling Load Calculations: Residential Heat Balance Method

- 7.1 Placeholder

8. Dynamic Cooling Load Calculations: Residential Load Factor Method

- 8.1 Placeholder

9. HVAC System Loads

- 9.1 Introduction
- 9.2 Zoning
- 9.3 Ventilation
- 9.4 Air Heat Transport Systems
- 9.5 Central Plant

10. Previous Load Calculation Methods

11. References and Bibliography

Attachment 2:

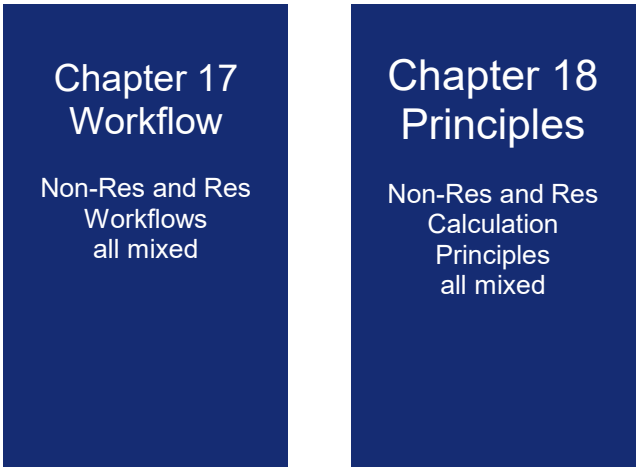
**Paths for Resolving Residential Load Calculation
Integration Issue**

Residential Load Calculation Integration

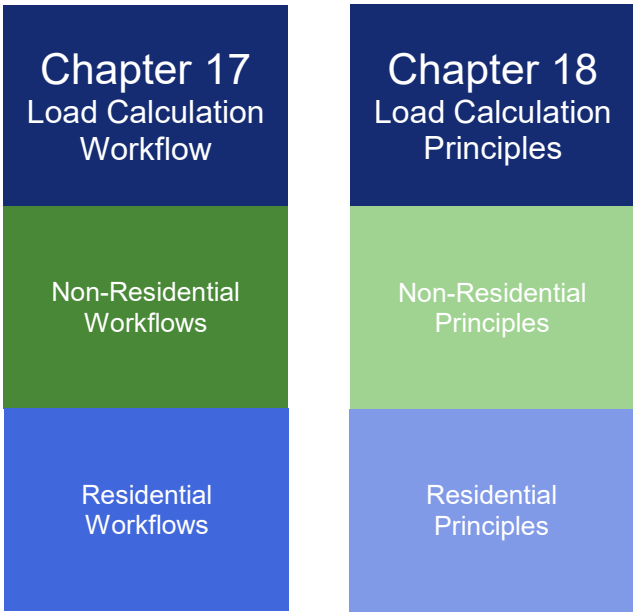
Issue:

- a. Original concept from TC: Merge Residential and Non-Residential material (Path A below)
- b. Concern expressed in Las Vegas – Residential readers value keeping residential separate
- c. Tactics to resolve concerns – Two paths - Paths B and C.

- Path A -



- Path B -



- Path C -

