

ASHRAE

There Is Only One

Your ASHRAE Handbook

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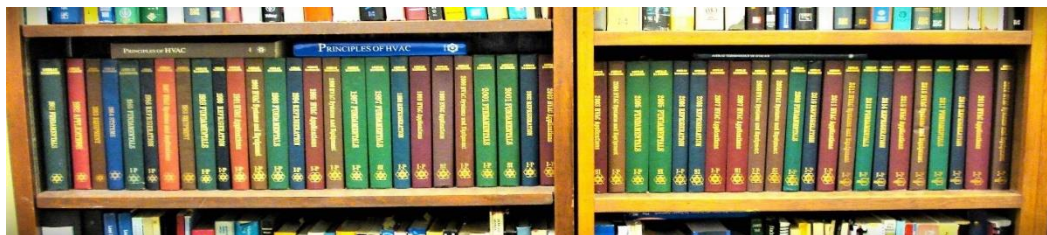
ASHRAE, through both voluntary and paid efforts, produces hundreds of publications for many audiences and purposes. For Society members, the four most widely known or used are this *ASHRAE Journal*, *ASHRAE Standards*, *ASHRAE Transactions*, and the *ASHRAE Handbook*. The *ASHRAE Journal* delivers timely information to almost the entire membership via news stories, columns, peer-reviewed articles, and advertising. The various *ASHRAE Standards* and *Guidelines* provide specific performance and prescriptive information to designers, contractors, and code officials. *ASHRAE Transactions* archives many of the research and practice papers presented at the ASHRAE Annual and Winter Meetings. So, what is the purpose of the *ASHRAE Handbook*? It is to document our methods of practice, as well as our experiences, for the benefit of design engineers, architects, students, manufacturers, code officials, and others; sharing such information is a basic expectation of any profession. However, to many, our handbook chapters' preparation is a mystery.

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ASHRAE

One widely-heard misnomer, including used by this author at times as was pointed out to him by a prior Handbook Editor, needs correction upfront. There is only one *ASHRAE Handbook*. It is currently composed of four volumes: Fundamentals, HVAC Applications, HVAC Systems and Equipment, and Refrigeration. So, there is no “Refrigeration Handbook,” for example. One volume, in rotation, is revised and published each year, so the current *ASHRAE Handbook* is composed of the four most recently published volumes. The four-year earlier version of the current volume drops out after completion of its “revision cycle.” The 2023 *ASHRAE Handbook* is therefore composed of the 2023 HVAC Applications volume, the 2022 Refrigeration volume, the 2021 Fundamentals volume, and the 2020 HVAC Systems and Equipment volume. There is no “2021 Handbook of Fundamentals” (“HoF”), but instead, most rigorously for formal writings and speech, there is the 2021 Fundamentals volume of the *ASHRAE Handbook*, or 2021 *ASHRAE Handbook – Fundamentals volume*. In informal speech, “Fundamentals,” “Applications”, “Systems and Equipment,” and “Refrigeration” volumes work well, or the “ASHRAE Handbook” when talking in general.

Receiving, each year, the most recent electronic volume of the handbook, or a standard or eLearning course if selected instead, is a basic ASHRAE membership benefit for those of Associate Member or higher level. Student and other members can purchase the current handbook volumes at a significant discount. Printed versions of the handbook, as well as the *ASHRAE Handbook Online*, are available at extra cost to all; the printed volumes, the author’s favorite version, look especially good on your office’s bookshelf.



Forty+ years of the *ASHRAE Handbook*. A running joke was that the author would retire when the printed volumes filled a shelf. Instead, it was these two shelves.

Most of the chapters in the handbook (HB) are prepared by Technical Committees (TCs) and other volunteer groups in ASHRAE. One chapter is maintained by ASHRAE Headquarters’ staff, the Codes and Standards chapter, due to the frequent changes and the chapter’s appearance in every volume. Staff also revises the front matter as well as the Index for each volume. For the other chapters, one or more ASHRAE groups are assigned responsibility, and are listed on the first

page of each chapter. The authors who made substantial contributions to one or more chapters in a volume are listed in the front matter. However, everyone is responsible for improving our handbook via at least submitting needed comments and ideas; a form for submitting such is available on the ASHRAE website. In addition, all voting and corresponding members of each responsible TC or other group are expected to at least review, in detail, their groups' chapters once in each four-year cycle. If you are not involved yet, and have expertise in their subject matter, each group's Handbook Subcommittee should encourage you to get involved with reviewing and revising their chapters once you make yourself, and your expertise and desire, known to them. The groups, by their nature and many purposes, are very busy, so getting involved consistently, either in-person or remotely, often is needed to assure that your handbook improvement ideas are addressed.

While the content of the chapters is the purview of the TCs and other groups, the organization and publication of the chapters is in the realm of the Handbook Editor who is a paid professional at ASHRAE Headquarters (HQ). Think of the Handbook Editor, as well as the *ASHRAE Journal's* Editor, as being more like newspaper editors who have significant control of and responsibility for their publications rather than being subordinate "copy" editors. HQ's Handbook staff includes the Editor as well as the associates who prepare the drafts for publication. The Handbook Committee (HBC), a standing committee of the Society that is composed of a committee Chair, a Vice-Chair, and volume subcommittee chairs and liaisons, works with both the technical groups and the Handbook staff to set policy and assure timely completion of each volume.

TABLE 1 The ASHRAE Handbook Editors, by volume, since 1981.

Thomas C. Elliott	1981-1982
Samuel H. Rosenberg	1983-1984
Judith G. Mackintosh	1985-1987
Robert A. Parsons	1988-2000
Jeanne Baird*	2001
Mark S. Owen	2002-2018
Heather E. Kennedy	2019-current

* = Associate Editor

New Chapters

Anyone can propose a new chapter for the *ASHRAE Handbook*, but the

most-effective process is via a one- to two-page proposal created, reviewed, and approved through a TC or similar ASHRAE group. The proposal is then submitted, via the group's existing HBC liaison, to the Chair of the HBC as well as the Handbook Editor; if there is not an already-assigned liaison the proposal is submitted by the ASHRAE group directly, typically via an email attachment, to the Chair and Editor. Often comments or other feedback is then given, and a revision submitted. Once the proposal is finalized, it is expected that the proponent of a new chapter will then make a brief verbal presentation, in-person, to the HBC at the next Annual or Winter Meeting of the Society; contact the HBC Chair well-in advance to be placed on the agenda. If the proposal is approved by the HBC, the group is then assigned a liaison and given a due-date, and development of the chapter begins. With each new chapter or revision, the group must ultimately have a vote of approval of the draft that is recorded in their minutes. The HBC, under advice from the Editor and suggestions from anyone, decides in which volume each chapter resides, and the Editor decides in which order they appear within the volume. Chapter numbers do, on occasion, change, so it is best to refer to each chapter by its name, e.g., "the Space Air Diffusion chapter," rather than "Chapter 20."

A chapter may be dropped from the handbook by the HBC, often due to it not being revised for many cycles and a lack of expertise to do so perceived within the Society. However, the chapter still exists in prior volumes and thus can be accessed, in print or electronically, and cited. If interest is renewed, a deleted chapter can be revised and submitted to the HBC for consideration, or its still-relevant content merged into an existing chapter. Or it might be revised and distributed separately as an ASHRAE "special publication" if approved by the Publishing and Education Council.

Handbook chapters being moved between its volumes may appear twice in one four-year cycle. Often, for example, the Fundamentals volume gets too rotund; TCs are then asked to move or split large chapters or to move certain content to electronic-only form. The *Duct Fitting Database*, the full Climactic Conditions table, and the various *Load Calculations Manuals* are examples of some spin-offs from or expansion to the handbook's content. Much for the handbook and other publications' content comes from, directly or indirectly, ASHRAE's and other organizations' research projects.

The Revision Process

By far the most common work on the handbook is revision of the existing chapters, with each completed once every four years. In rare cases, such as with a sudden dramatic change in knowledge, a chapter can be updated within-cycle, but

this imparts a difficult task on the handbook staff; any such out-of-cycle updates are published electronically, only, until the next regular print version. So, instead, consider submitting small but critical changes for inclusion in an Errata, and proceed with the full chapter revision in-cycle. An article for the *ASHRAE Journal* or *Transactions*, in the meantime, can help disseminate timely information until publication of the chapter's revision.

In the first year of the revision cycle, the group, via its Committee Chair, needs to appoint a Handbook Subcommittee Chair (HBSC) if none, and that HBSC then appoints the lead reviser for each chapter. The lead reviser and HBSC, who can be the same person if necessary, then recruit other members for that chapter's revision effort. Most revisors come from within that group, but finding experts outside broadens perspectives and is also a great way to recruit new members. All involved need to read the HBC's Authors and Revisers Guide that is available on ASHRAE website in "Handbook Central." Comments toward the chapter's revision are solicited and collected by the lead reviser, and an overall plan is made including for adding examples and figures, and for updating the citations. Voids found in knowledge are forwarded to the appropriate group's research subcommittee, but projects may take many years to be completed.

In the following two years the available new handbook content is developed, obsolete information is removed, and other comments are addressed, ultimately yielding a complete draft to the satisfaction of the lead reviser's team. At this point a review of the draft by the HBSC and the group's Chair is advisable; with their comments addressed, the draft must then be reviewed by the full group's voting membership typically with at least a month given to do so before the next official meeting; corresponding members should have the chance to review the draft then too. At the next meeting, after a motion and discussion, a recorded approval vote must be taken; sometimes another round of substantive revisions is necessary. Overall, the group must meet the deadline for submitting the approved Chapter revision and its completed Chapter Approval Checklist to the HBC liaison. Submission is via email attachments, copied to the Handbook Editor, or via ASHRAE's online Authoring Portal with informational emails also sent to the liaison and Editor. In the final year or months of each cycle, the handbook staff then prepare the volume's chapters for publication, thus the deadlines are staggered. Because the handbook is published in both I-P and SI versions, typically with I-P as the base, providing accurate conversions within the approved draft helps with a chapter's final editing. So will be making sure the draft's reference list is current and correct, as well as creating a list of any new words for the Index.

With publication of a volume, typically released before mid-year, the cycle begins anew, and the assigned HBC liaison will most likely change; groups that have chapters in more than one volume will have multiple HBC liaisons. After an extensive chapter revision, it is understandable that ASHRAE groups typically take a year or so break, but it is important to at least have the HBSC and lead revisors

in place to maintain communication with their liaison, the HBC, and the Editor. The group's and the HBC's official ASHRAE rosters and webpages need to be updated regularly to help people stay in contact with each other.

Challenges Create Opportunity

One common frustration of some readers is the partial or total lack of “rules of thumb” in the handbook. They are used for initial “back of the envelope” predictions, for example. However, what works in a particular situation and location may not be reasonable on the other side of a country or the planet; the *ASHRAE Handbook* has a worldwide audience. Instead, examples are encouraged to be developed, including solved problems, that refer to the various available descriptions, equations, and data tables. Figures are also encouraged, and videos and other content can be included in the electronic versions when not feasible for the printed volume. However, all content must avoid commercialism. Content used from elsewhere must have written copyright releases completed and submitted in advance; in many cases it is easier to create something new rather than to obtain difficult or costly copyright permission. The handbook is a lasting archival reference for HVAC&R engineering, so its entries must be written in formal technical style; the Chicago Manual of Style (CMOS) provides much advice (UChicago 2023), as do many other technical writing guides, to help you prepare professional, up-to-date content not only for the handbook but potentially many other ASHRAE publications. The *ASHRAE Handbook*, and other current publications, are available in the Bookstore online anytime. Many are also available in-person at the ASHRAE Annual and Winter Meetings.

Summary

So, the next time you seek some new-to-you knowledge about HVAC&R, whether it be a small tidbit or an in-depth introduction, go to the *ASHRAE Handbook*, our primary reference, first, to gain at least a primer. Then, seek more information from relevant *ASHRAE Standards*, papers in *ASHRAE Transactions*, and content in this *ASHRAE Journal*. If what you are seeking is not fully documented in them, hard to find, needs updating, etc., don't get frustrated. Instead, get involved, with your starting point being the handbook's and relevant groups' portions of the ASHRAE website. Then volunteer to, in collaboration with your peers, write, revise, and get published excellent handbook content that supports and grows our field. For the author, over his 30+ year career, doing these things expanded his professional network and built many friendships; now it is your turn.

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