

A new chapter on UV

ASHRAE debuts a new chapter on UV systems for irradiating germ and organic debris in HVAC and upper air applications in "ASHRAE Systems and Equipment Handbook."

BY FORREST FENCL, *President, UV Resources, Huntington Beach, Calif.*

During its winter meeting in New York this year, ASHRAE announced to its UV Technical Committee (TC 2.9) that the highly anticipated "ASHRAE Systems and Equipment Handbook" chapter, "UV Systems and Equipment," unanimously was approved and submitted, now available from ASHRAE.

A strong point of the "UV Systems and Equipment" chapter is that it is not application-specific, but rather an unbiased primer on UV applications in general. And TC 2.9 believes that once it is published, several standards will reference language from the chapter.

This new chapter provides a sweeping and complete overview of state-of-the-art practices for UV energy—without commercialism. With the support of ASHRAE, this chapter also will serve as the appropriate vehicle for the introduction of future chapter updates, additional design information, and any other new developments. The approach is to detail factually based and unbiased information from experts who have grappled for decades with the many nuances of UV technology.

In order to bring this wealth of experience from around the world, the members authoring the new chapter underwent a thorough selection process. All TC 2.9 members participated in the selection, and also were involved in review of all subsequent submissions.

As a result, the chapter provides a collection of well-considered and practically prepared sequences of information, presented in a logical and intuitive manner so that the reader can better differentiate, specify, and apply UV equipment step-by-step. Each section focuses on specific fundamentals to bring only the nec-

essary wisdom to the reader, without the advertising typically found in the marketplace.

Equipment manufacturers also were involved in developing TC 2.9 and the new UV chapter. In fact, there are some firsts here. New technologies usually don't move so quickly through the technical committee formation process. Becoming a Task Group just 10 years after UV was brought into the HVAC markets was a major achievement. But becoming a full TC only two years later was exceptional.

Technology vendors always play a key role in developing ASHRAE standards and guidelines, just as they are an important source of information to the entire HVAC engineering community. The manufacturers brought a wealth of experience from specific disciplines to complete this necessary handbook chapter while making it suitable for most any air-moving device. The 2008 "Systems and Equipment Handbook" will be available in what so far is proving to be the most active year for UV products since its use began in the 1930s.

The following is a preview of what to expect in the new edition of the "ASHRAE Systems and Equipment Handbook" chapter on "UV Systems and Equipment:"


- 1.0 Introduction
- 2.0 UVGI (ultraviolet germ irradiation) fundamentals
- 2.1 Microbial dose response
- 2.2 Susceptibility of microorganisms to UV energy
- 3.0 Lamps and ballasts fundamentals
- 3.1 Types of germicidal lamps
- 3.2 Germicidal lamp ballasts
- 3.3 Germicidal lamp cooling and heating effects

AT A GLANCE

Development of a new chapter on UV systems and equipment for HVAC germ and organic irradiation appears in the latest edition of the "ASHRAE Systems and Equipment Handbook," now available. Even though formation of the ASHRAE UV technical committee (TC 2.9) that produced the chapter was spearheaded by UV equipment manufacturers, they went to great lengths to keep this primer unbiased and not product-specific.

- 3.4 Germicidal lamp aging
- 3.5 UVGI lamp irradiance
- 4.0 Application guidelines
- 4.1 Induct air stream disinfection
- 4.2 Air handler components surface disinfection
- 4.3 Upper-air UVGI systems
- 4.4 UV photo degradation of materials
- 5.0 UVGI system maintenance guidelines
- 5.1 Lamp replacement
- 5.2 Lamp disposal
- 5.3 Visual inspection
- 6.0 Safety
- 6.1 Hazards of ultraviolet radiation to humans
- 6.2 Sources of UV exposure
- 6.3 Exposure limits
- 6.4 UV radiation measurements
- 6.5 Safety design guidance

- 6.6 Maintenance personnel training
- 6.7 Lamp breakage
- 7.0 Units and terminology
- 7.1 Terminology
- 7.2 Acronyms
- 7.3 Unit conversions
- 8.0 References

Be sure to take some time to review this timely chapter when the new "ASHRAE Systems and Equipment Handbook." It's currently available from ASHRAE. 

FencI pioneered the modern application of UV energy in HVAC equipment. He launched Steril-Aire in 1995, and set up the UV division at UVDI in 2003. He is an ASHRAE Distinguished Lecturer and member of TC 2.9.



UVC lamps irradiating fan, plenum, and cooling coil, and all of the surfaces they reflect upon in a building owned by MGM in Century City, Calif.

Photo: UV Resources

It's the **NEW** Technology
that matters most!

Visit us at csemag.com
for the latest engineering news and
information on electrical, fire,
HVAC, and plumbing systems.

NEW on our site:

• BLOGS • INDUSTRY SEARCH • WEBCASTS

The first destination
for consulting engineers

cselive

www.csemag.com