Focusing on the BOK: Energy, Utilities, and Environmental Stewardship

By Darryl K. Boyce

One of the most comprehensive and ambitious initiatives undertaken by APPA has been developed through the online Body of Knowledge (BOK). This digital resource is the most authoritative and up-to-date guide to the art and science of educational facilities management, and is available 24 hours a day, seven days a week. As an APPA member you can access this resource, which also provides online access to every staff member at your institution! The current BOK builds on the foundation provided by the four-volume printed desk reference *Facilities Management: A Manual for Plant Administration*, which was last published in 1997. To learn more, visit *www.appa.org/bok*.

THE BOK: PART THREE

This article will focus on the BOK's section on Energy, Utilities, and Environmental Stewardship. This section is significant, as it covers areas of responsibility that are not normally associated with traditional facilities management, but that are a normal part of educational facilities management in a campus environment involving complex utility distribution systems similar to those in a small city. The chapters within the Energy, Utilities, and Environmental Stewardship section are structured to support the operation of multiple facilities within the campus environment and are arranged

in three sub-sections: Energy Utilization and Environmental Stewardship, District Energy Systems, and Other Utilities. Many of the chapters that were contained in the third edition have been completely rewritten, others have been significantly updated, and new ones have been added. A small number of chapters are still being worked on, and the new versions of those chapters will be online soon.

BOK
Body of Knowledge

WHAT WE FACE TODAY

As part of the development of this current BOK, we asked the authors to provide information on the application of current technologies, regulations, and issues currently faced by facilities management professionals.

An example is the development of the new chapter by Jiri Skopek and Walter Simpson, **Roadmap for Campus Environmental Sustainability**. This chapter provides a structure for the assessment of sustainable practices and energy use for a complete campus operation, and also provides concepts that effectively support initiatives to improve the envi-

ronmental impact of the campus. This chapter covers the topic through use of an action-plan format, from establishing senior management support, creating a baseline, setting goals, and implementing initiatives, to monitoring results. This chapter includes examples of tools that assist in the documentation of the current state, opportunities for improvement, and ongoing monitoring of environmental sustainability.

The principles outlined in this chapter were used in the creation of the APPA Energy and Sustainability Assessment Tool (ESAT). In developing this tool in cooperation with the Jones Lang Lasalle organization, APPA has provided a powerful way for members to facilitate the assessment, documentation, and tracking of the energy and sustainability features of each building and the campus operations. Once implemented, the ESAT will allow each institution to prioritize energy and sustainability enhancement programs and to measure results. This chapter also includes many Web links to other resources and is sponsored by the Southeastern region (SRAPPA).

In the **Data and Voice Network Infrastructure** chapter, Denis Levesque has outlined strategies for facilities management and information technology (IT) professionals to jointly provide effective IT services to the campus

community. This cooperation between facilities management and IT professionals is even more important as we move into the era of massive amounts of data (big data). We will be expanding this chapter in the near future to show how the integration of systems will enhance data availability and improve campus operations.

A new chapter on **Computerized Control and Monitoring Systems** by Scott MacDonald provides information on newer technologies in the expanding area of computerized control systems for buildings. This chapter expands on the monitoring and data analysis role of the control system, and also covers building control fundamentals, selection and instrumentation, and operational strategies.

In the **Campus Utility Systems Master Planning** chapter, John Tysseling and I provide a high-level overview of the issues and approaches that should be considered when developing or expanding a campus utility system. You will learn why master planning is important, how utility master planning connects with overall institutional master planning, what variables to consider during the planning process, and what the funding implications are for these approaches.

In the **Cooling Systems and Thermal Storage** chapter, Kent Peterson walks us through the advantages and disadvantages of central cooling systems, including the fundamentals of central plant design, covering refrigerants, chillers, prime movers, pumps, piping cooling towers, and auxiliary equipment. The chapter also reviews the topics of system design consideration, system performance operations and maintenance, and thermal energy storage.

In a new chapter, **Energy Generation Alternatives**, Donald Schmidt and I cover the area of nontraditional

sources of energy to heat or cool campus buildings, including combined heat and power (cogeneration) and alternative electrical generation options. This chapter covers basic principles of these systems, regulatory issues, and business case evaluation. 🖉

Darryl Boyce is assistant vice president of facilities management and planning at Carleton University, Ottawa, ON. He is the BOK's content coordinator for Energy, Unitlities, and Environmental Stewardship, and can be reached at *darryl.boyce@carleton.ca*.