HOSPITALITY FACILITIES MANAGEMENT and DESIGN

David M. Stipanuk
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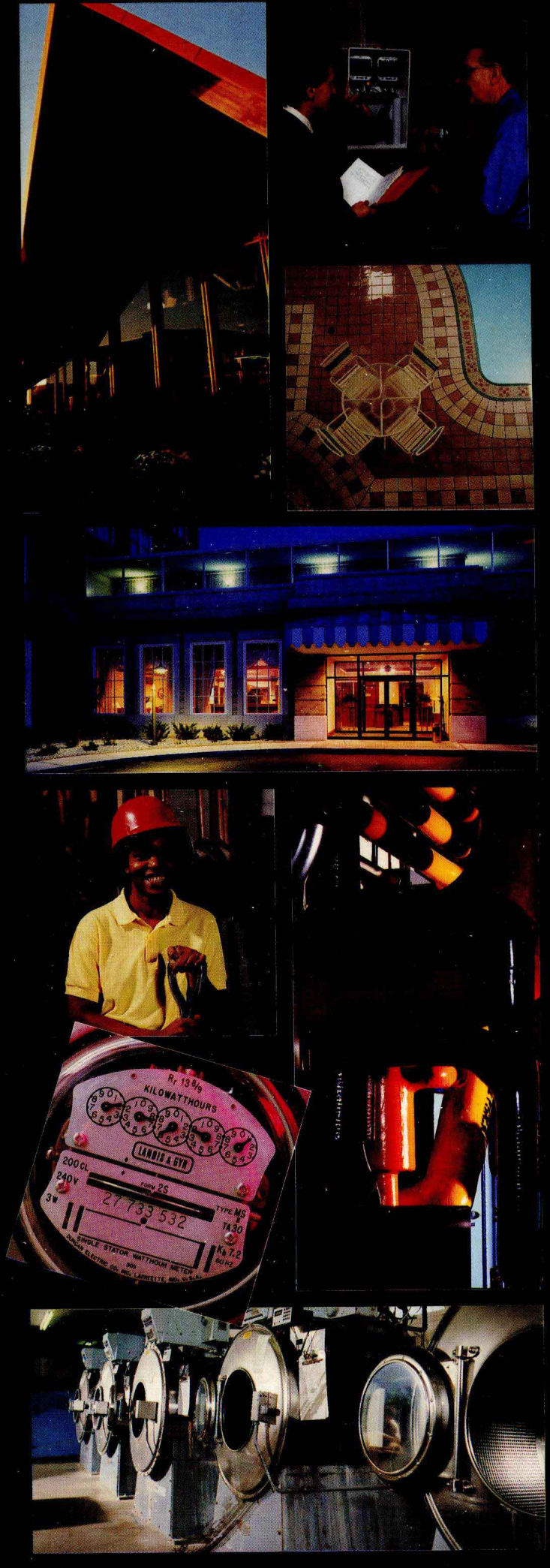

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Preface

Creating and managing hospitality facilities requires special knowledge, skills, and dedication. The facilities are costly, complex, and unique in many ways. In this text, we provide an introduction to the key issues involved in the design and management of hospitality facilities, illustrated with examples drawn from the industry itself. Owners and operators of hospitality facilities should benefit from coverage of key areas of interest and concern to them. Managers and management students should become much better prepared to deal with facilities-related questions and problems as they arise (and they will arise) and with the maintenance and engineering function and staff in general.

The text is divided into four parts and two appendixes. Part I presents a look at the nature of hospitality facilities and an overview of the issues involved in managing maintenance needs. Part II continues with chapters devoted to each of the primary facility systems—water and wastewater, electrical, HVAC, lighting, laundry, telecommunication, safety and security, waste management, food service, and energy management.

Part II's discussions of emerging issues in waste management and environmental legislation highlight the changing responsibilities involved in facilities management. The in-depth discussion of telecommunications can help operators when they upgrade their systems. In this era when cost control and extending equipment and building life through better maintenance are key elements, the sections on these topics provide much needed information. Similarly, controlling energy costs and maintaining a safe and secure operation are important. The need for operational profitability alone can create concern about these areas, but managers are increasingly being motivated by ethical concerns for guests, employees, and the environment as well. Part II deals with the various factors involved in managing these sometimes neglected areas effectively.

Part III examines important aspects of the building itself and of the grounds and parking areas. Roofs, exterior walls, foundations, drainage systems, parking lots and garages, and landscaping are among the topics discussed.

Part IV contains three chapters that present the basics of lodging and food service design and renovation—preparing the reader for the challenges involved in creating new facilities and renovating existing ones. The design chapters introduce key terms, criteria, and methods employed in the

design of food service and lodging facilities. Those readers with a design orientation should find these discussions stimulating and want more. Those interested in operations will see how the design process unfolds and should be able to more effectively influence this process to help create a product that "works."

Facilities regularly call for managerial attention. Modifications are needed due to (among other things) various levels of facility obsolescence, the Americans with Disabilities Act (ADA), and the growth of governmental and corporate requirements for additional safety and security. Remodeling to meet these needs and to stay competitive in today's increasingly competitive markets requires managers who understand the basic elements of facility design and renovation. And, of course, new facilities will continue to spring up as entrepreneurs seek to develop new concepts and chains seek to expand.

The text also contains two appendixes not directly referenced in the chapters. Although this text is designed for current and future hospitality managers rather than engineers, we have included Appendix A on engineering principles for those readers who want a better basic understanding of the more technical elements of the engineering and maintenance world. Also, since managing and designing hospitality facilities often involves using consultants, we have included Appendix B: How to Select and Work with Consultants. Written by John P. S. Salmen, President of Universal Designers and Consultants, Inc., and reprinted here with his permission, it presents a wealth of practical advice for hospitality owners and operators who are considering hiring a consultant.

Labors such as this text require the assemblage of a special collection of expertise. Byrne Blumenstein, who wrote the telecommunication systems chapter, is a national account executive at MCI Telecommunications and has been a specialist in the hospitality industry since 1985. A Master Hotel Supplier, he is currently on the board of directors of the Michigan Travel & Tourism Association. Richard H. Penner, who wrote the chapter on lodging planning and design, is a degreed architect and the author of two texts on hospitality facilities design. He teaches courses in facilities design and development and interior design at Cornell University. Carolyn U. Lambert, who wrote the chapter on food service planning and design, received a Ph.D. in food systems administration from the University of Tennessee. She teaches hospitality layout and design at The Pennsylvania State University and has published articles on environmental design, computer aided design and drafting, energy conservation, and equipment utilization. Jan deRoos, who wrote the renovation chapter, has a degree in hotel management and industry experience with lodging facilities in engineering operations, development, and construction. He currently teaches courses in facilities operations and construction and computer aided design at Cornell University.

Lastly, we must acknowledge the contributions of others to this text. The industry advisory and review committee for this text set us on our course and we hope we have not strayed too far from it. Special thanks go to Craig Flickinger, Regional Director of Engineering, Radisson Plaza Hotel at Towncenter, Southfield, Michigan. Our editors, Tim Eaton and Jim Purvis,

have served the readers well with their quest for clarity and quality. Their development of the glossaries for each chapter, preparation of review questions, and their thoroughness in general are much appreciated.

Mr. Stipanuk greatly appreciates the support of Cornell University and the School of Hotel Administration for efforts such as this book. Without the excellent library and information resources available, the end result would certainly have suffered. Also, portions of this text were developed while Mr. Stipanuk was on leave from Cornell as a Fulbright lecturer at Massey University in Palmerston North, New Zealand, and he wants to thank the staff and administration at Massey for their support during this time.

Finally, our students (past and present) are acknowledged. They have contributed to this text's development in several ways and their comments and input are valued. We hope this book will help them in their academic pursuits and assist them in their careers.

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About the Authors

David M. Stipanuk, a registered Professional Engineer, is an Associate Professor in the Department of Properties Management in the School of Hotel Administration at Cornell University. He has researched and taught classes in several aspects of physical plant design and management, including facilities development, systems selection, energy management, and risk management in hospitality operations. Mr. Stipanuk has written a number of papers in the field of energy research, with particular emphasis on waste heat recovery and utilization. He received his M.S. in Mechanical Engineering from the University of Wisconsin in 1976. He is the co-author of *Managing Hospitality Engineering Systems.*

Harold Roffmann, CEOE, CHA, is owner and president of Harold Roffmann Enterprises, Inc., an engineering consulting firm in Mt. Vernon Illinois. He earned a B.S. degree in Civil Engineering in 1958 from the University of Illinois. He is licensed as a Professional Engineer in nine states, a Land Surveyor in four states, and a Structural Engineer in Illinois.

Mr. Roffmann is a member of many professional associations, including the American Society of Civil Engineers and the National Society of Professional Engineers. He is a past chairperson of the Executive Engineers Committee of the American Hotel & Motel Association. He has served as a visiting lecturer at Southern Illinois University and New Orleans University on subjects ranging from preventive maintenance to engineering ethics.

Mr. Roffmann has been involved in the planning, construction, and operation of many hospitality facilities, and is Senior Vice President of Affordable Inns, Inc., a budget hotel chain.

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Part I Introduction

1 The Role, Cost, and Management of Hospitality Facilities

Chapter Outline

From the exotic and luxurious environment of the fantasy resort to the gleaming stainless steel and specialty equipment of the commercial kitchen, the hospitality industry of today relies on well-designed and well-maintained facilities as a key element of its business. Guests desire a safe and comfortable environment in which to conduct business, entertain, relax, dine, and sleep. The hotel, motel, or restaurant is their home away from home, and they usually want it to be better than home.

Hospitality managers' involvement with facilities (or physical plants) takes several forms. All departments use the facilities, relying on proper equipment and systems to perform their duties. Department heads may be consulted for ideas concerning the design of new facilities. They are also often involved in either planning for or coping with renovations. Meetings of the executive committee at most hotels place department heads in formal contact with the engineering manager. Managers also have day-to-day involvement with the maintenance and engineering department as they use its services. (Throughout this text, we will generally use the terms engineering department and maintenance department interchangeably.)

The Role of Facilities in the Hospitality Industry

Facilities play an important role in meeting guests' needs. They are in essence the "manufacturing plant" in which the services and products that the guest purchases are created, delivered, and generally consumed. While our guests usually focus less on the facility than on what it produces (a safe and comfortable environment, services, amenities), it is the facility that enables us to produce the product. The equipment and elements of the facility are the production tools of the hospitality industry. The maintenance operation is responsible for ensuring that the building and its equipment and systems operate in a manner that enables the staff to perform its tasks and allows the guests to have a satisfying experience.

Facilities also serve to define the industry. Travelers rather quickly develop the ability to identify various hospitality businesses by the characteristic appearance of their facilities. Children who can't yet read have no trouble identifying a McDonald's restaurant at 300 yards from a speeding auto. Facilities are a marketing tool of the industry. Whether by characteristic signage, a distinctive color selection, or a particular feature, facilities create identity for hospitality products.

Facilities are also a key element of the money-making aspects of the business. They serve as the location for the delivery of services from which we hope to generate a profit. They play a role in real estate appreciation. And they contribute to corporate growth. A significant fraction of the growth of many hospitality corporations comes through the addition of facilities.

For example, assume that you operate a chain of 200 restaurants for a publicly traded corporation facing growth expectations in the marketplace and within your corporation of 15 percent per year in total sales. How will you accomplish this? In a time of relatively low inflation, as we have seen in the late 1980s and early 1990s, you probably will not increase prices by more than six percent per year. Allowing an additional two percent for increased

market penetration (or guest count) gives you growth of about eight percent. How can the firm achieve the remaining seven percent of needed growth? The only option left is to build or purchase new facilities. A simplistic calculation suggests you would need to add 14 new facilities (seven percent of 200) in order to achieve your corporate growth goal. Actually, more than 14 would be needed because most, if not all, of these new facilities would not be in operation for the full year. Whether you build new facilities or purchase existing ones, in this situation you will have to expend capital on facilities in order to meet your goal.

The linkage of growth and facilities in hospitality is especially true in the lodging industry. Restaurants more closely resemble manufacturing plants in that they have been able to add "shifts" to increase production, as evidenced by the emergence of breakfasts at a number of fast food outlets and the operation of late night drive-through windows. The lodging industry has trouble adding a "shift"—most guests want their rooms overnight. For the lodging industry, achieving double digit growth almost inevitably involves a fairly ambitious program of facilities expansion.

Costs Associated with Hospitality Facilities

Hospitality facilities are associated with several types of cost. They must be developed and constructed. Once occupied, they must be operated. And eventually, they must be renovated and modernized. Each of these steps involves its own kinds of expenses.

The Cost of Development and Construction

The facilities of the modern hospitality industry vary greatly. Budget and economy lodging operations have relatively simple physical plants, while convention, resort, and luxury properties may resemble small cities in their complexity. Such differences in complexity and in the overall luxury level of finishes and furniture contribute significantly to the differences in the construction costs of various types of facilities.

Exhibit 1.1 contains a historical overview of new hotel development costs subdivided into categories of interest. Even a 100-room economy property represents an investment of several million dollars; a large luxury property could cost several hundred million. The maintenance, operation, and renovation of these multi-million-dollar facilities are ultimately entrusted to the engineering staff.

The information in Exhibit 1.1 provides ranges of cost for hospitality facilities in rather broad budget categories. A more complete listing of the elements that constitute the cost of new facilities is illustrated in Exhibits 1.2, 1.3, and 1.4, where data for three different hotel projects are presented. Of course, every hotel project will be different, especially with regard to land cost, permit and development fees, labor costs, and the costs of specialty building materials.

The development and construction of a hospitality facility represents a commitment of capital by an owner who expects a return on this investment. This expected return may involve two elements: operating profit (from the sale of rooms, food and beverages, and meeting services) and real estate appreciation. To provide both types of return, the facility must be operated and maintained in a manner that maximizes the potential profit and appreciation in value of the building.

Exhibit 1.1 Hotel Development Costs: Dollars per Available Room

	Improvements	Furniture Equipment	Land	Pre-Opening	Operating Capital	Total
1984						
Luxury	58,000–110,000	13,000–21,000	10,500–25,500	2,500–4,200	2,000–2,900	86,000–163,600
Standard	37,000– 55,000	9,000–16,000	5,300–14,000	1,500–3,100	1,300–2,300	54,100– 90,400
Economy	19,000– 35,000	5,000– 8,500	3,200– 9,000	900–1,600	900–1,400	29,000– 55,800
1987						
Luxury	63,000–122,000	13,800–30,900	11,900–28,600	3,300–5,500	2,300–3,200	94,300–109,200
Standard	40,000– 61,000	9,800–17,000	6,000–15,900	2,100–3,900	1,500–2,600	59,400–100,400
Economy	21,000– 39,000	5,200– 9,100	3,600–10,200	1,100–1,800	1,100–1,500	32,000– 61,600
1990						
Luxury	67,000–128,000	15,400–33,000	10,700–25,800	3,500–5,700	2,500–3,500	99,100–196,000
Standard	42,000– 65,000	10,800–18,500	5,400–14,300	2,200–4,000	1,600–2,800	62,000–104,600
Economy	22,500– 41,000	5,600–10,000	3,200– 9,200	1,200–1,800	1,200–1,600	33,700– 63,600

Source: Stephen Rushmore, "Investment Today," *Lodging Hospitality*, February 1991, p. 34.

A facility constructed with appropriate quality and good budget control should have predictable costs for maintenance, renovation, and operation. A facility that was poorly designed or was constructed with cost overruns and cost cutting due to poor budget planning, poor project management, or poor construction practices may well face major problems within the first few years of operation. This often means larger infusions of cash than were expected and a nightmare for maintenance staff, among others.

The Cost of Operation

Following the construction of the facility, there will be ongoing costs associated with its operation. The two primary categories on the operating (or income) statement containing the costs of facilities operation are the *property operation and maintenance* (or *POM*) and the *energy* accounts.

Exhibit 1.5 contains a summary of energy and POM expenditures for U.S. hotels. (Similar data for hotels in other countries and regions of the world may differ, sometimes rather substantially.) Most hotels pay at least 10 percent of revenue for these two items, with POM usually the larger of the two. The POM account includes all labor and fringe benefits in the maintenance department, maintenance supplies and expendables, and all contract maintenance costs. Labor and fringe benefits are usually about one half of the POM expenditure.

The energy account includes electricity, fuel, steam, and water. The major element of the energy expenditure is electricity, accounting for approximately 70 percent of total energy costs. Fuel includes such items as natural gas, oil, and propane. A steam cost is sometimes present for urban hotels (and a few resorts) that derive their heating energy from steam purchased from a local district heating system or from a central heating plant for those in mixed-use complexes. Water costs include potable (drinkable) water purchases and sewage charges.

The high absolute value of POM costs for various types of properties will generally correlate with the initial construction cost. That is, the more