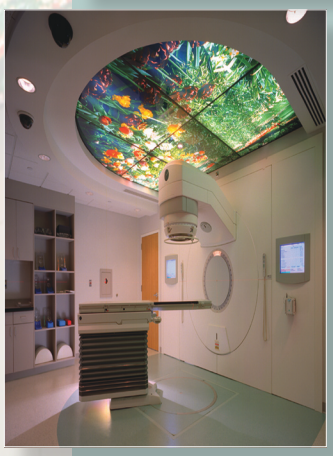
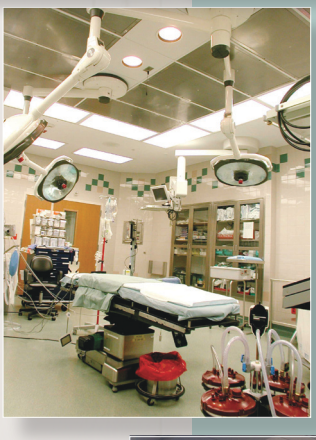
ANSI/IESNA RP-29-06

An IESNA
Recommended Practice

Lighting *for* Hospitals *and* Health Care Facilities





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ANSI/IESNA RP-29-06

Lighting for Hospitals and Health Care Facilities

Publication of this Recommended Practice has been approved by the IESNA. Suggestions for revisions should be directed to the IESNA.

Prepared by:
The IESNA Committee for Health Care Facilities

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Lighting For Hospitals and Health Care Facilities

PREFACE

This Recommended Practice revises and replaces IESNA RP-29-95, *Lighting for Hospitals and Health Care Facilities*, published in 1995. Additional material on this topic can be found in Chapter 16 of the *IESNA Lighting Handbook*, Ninth Edition.[1]

It is hoped that this latest Practice will provide guidelines for good lighting, stimulate the producers of lighting equipment, and inspire the designers of lighting systems so that the sick and infirm will have a more comfortable and enjoyable recovery environment.

The IESNA Committee for Health Care Facilities seeks to continually improve this Practice and welcomes suggestions. Previous publications issued by this Committee had the benefit of input from the late Dr. William C. Beck. This unique medical practitioner also appreciated the art and science of lighting. He applied his effort and imagination to improve hospital lighting. Much of Dr. Beck's research remains in this edition of the Practice, with new information provided by the Committee members listed in the roster and by other IESNA Committees. We cannot rest. We must continually seek ways to introduce new technology development and trends in a timely manner.

1.0 INTRODUCTION

This Practice primarily covers areas that are unique to lighting health care facilities. The wide variety of activities within these facilities make it necessary to describe the patient care they encompass, since lighting needs will vary. Some activities within health care facilities are identical (or similar) to those in other institutions. In these cases, references will be made to other IESNA publications.[2-7, 31, 32] These include: the gift shop, library, kitchen, cafeteria, business spaces, classrooms, workshops, parking facilities, grounds, and other specific functional units. There will be some locations where recommendations overlap. For example, the patient room may have similar lighting requirements to a hotel room when it is used for minimal-care patients. Yet the lighting must be considered differently when the aged, infirm, or acutely sick are in this same patient room. Refer to **Section 5.0** for criteria and lighting design procedures including a table of recommended illuminance categories for many common hospital areas and activities.

Since this Practice may be read and used by non-design professionals, and by others unfamiliar with the terminology or the physics of lighting, a detailed glossary is appended and some basic principles of light production and control are covered in the Annexes. For the lighting designer, there is also included an abbreviated glossary of hospital and medical terms.

2.0 TYPES OF FACILITIES

2.1 General

Health care facilities usually include acute (and chronic) care general hospitals, specialized chronic care institutions for the physically and mentally ill, and the extension of services into other facilities which offer more professional care than is typically available at the patient's residence. The latter can serve as halfway stations between the hospital and the home. Outpatient care delivery is a continuing trend because halfway stations can now provide many services once available only in extended stay facilities.

In exercising good lighting practice, the designer should take into account the immediate objectives, the services that might eventually be required, and the future trends of the health care arena. For example, a facility designed to provide extended care i n conjunction with an acute care hospital may find its beds recertified for acute care. The reverse is also true. Furthermore, once outside the institution, a full nursing care unit may act as an intermediate care unit or even a custodial unit in a residential environment.

Aging eyes must be considered in all common areas of medical facilities because older people are often employees, visitors, and volunteers. People over age 65 constitute better than 50 percent of the volunteer force helping in medical facilities.[8] Older people's needs in specific patient care areas must be considered, since the elderly are the heaviest users of health service. On average, people over 65 visit a physician seven times a year, compared to less than four visits by the general population. They spend more than four times longer in the hospital than the younger population and the average stay is 40 percent longer.[9] The lighting designer should know the age group served by each medical specialty and address any appropriate age-related lighting requirements as described in **Section 3.2** and **Section 4.30**.

2.2 The Acute Care Hospital

Acute care hospital planning needs to consider all the diverse lighting design requirements listed in this Practice. The trend towards specialization, for example, means obstetric and pediatric services are being allocated to certain hospitals and abandoned in others based on geographical population shifts. This in turn will result in greater demand upon the support facilities, particularly engineering, to provide the optimum environment within each specialized unit. It will also reduce the need for service flexibility. For instance, it is probable that a small hospital that maintains a delivery room and newborn nursery will abandon this unit and send patients to a larger facility nearby. Or the small hospital might have a combination delivery room and operating room. Many deliveries are now taking place in birthing rooms, more popularly called Labor/Delivery/ Recovery rooms (LDRs) or Labor/Delivery/Recovery/ Postpartum rooms (LDRPs), that also require special considerations.[10]

However, with the evolving health care market, a designer must take into account that areas originally lighted for one specific task may eventually serve other needs. Building in adaptability can save money in the long run.

Outpatient services are expanding. Thus outpatient procedures often require the same quality and quantity of illumination found in an acute care setting. Also, many patient operations are now carried out in special ambulatory operating rooms with associated recovery rooms.

There is a trend toward relocating facilities, such as laboratories, to freestanding office buildings designed for physicians and dentists. These labs have the same special illuminance needs as labs located in hospital buildings.

There is also constant change and improvement in medical, surgical, and dental instrumentation. The computer and its application to patient diagnosis can hardly be overemphasized. Consider the impact of magnetic resonance imaging (MRI), ultrasound, computer assisted tomography (CAT), and the changing nature of medical equipment within today's operating rooms. In addition, all X-rays and medical imaging may be distributed via computer for evaluation/review purposes and shared with other caregivers. There will always be a continuum of new concepts in medical products and processes. Expense may limit these new practices to certain hospitals while other facilities will rely on strategic alliances and share resources until usage brings costs down.

The need for dark fluoroscopic examination rooms has almost disappeared since video equipment has replaced the fluorescent screen. Most examinations are now accomplished with normal room illuminance.

However, this makes careful luminaire selection extremely important to control veiling reflections. An individual control to optimize comfortable ambient lighting for multiple purposes, such as viewing LCDs and/or CRTs in a common room, is also desired. A fixed lighting system will not suit everyone. Some radiologists will prefer a dimmer room and other staff a brighter one.

Diagnostic radiography is by no means the only department where radical changes are taking place. Almost every unit from the allergy laboratory to the xerography space is being reoriented visually. Once large multi-bed open wards were quite common. Now private or semi-private rooms are the norm. Intensive care areas once had multi-bed spaces compartmentalized by curtains. Today, semi-enclosures with glass observation windows or cubicles act as open bed bays from a central hall or workspace. By federal/provincial guidelines, intensive care areas must afford the patient access to daylight for orientation. Guidelines also require that the head of each patient bed be visible from the nursing station necessitating the elimination of glare in observation windows.

2.3 The Chronic Care Hospital

There are an increasing number of facilities that provide long-term care for persons being managed and/or weaned from ventilators. Lighting in these types of facilities should be similar to that listed for acute care hospitals. Facilities designed to treat patients that require institutionalizing (such as tuberculosis, HIV/AIDS, SARS, and Alzheimer's) should follow requirements similar to nursing homes. Hospice facilities should offer softer, more home-like illumination options.

2.4 The Extended Care Facility

Extended care facilities are generally designed to serve a specific age group ranging from children to the elderly and present the group being served with a home-like environment. Typically, young adults are combined with older adults in the same extended care facility. For facilities that serve children, refer to **Section 4.6** (pediatrics) and for those that serve older adults refer to **Section 4.30** (geriatric facilities), and see *Recommended Practice on Lighting and the Visual Environment for Senior Living*, ANSI/IESNA RP-28-98.[11]