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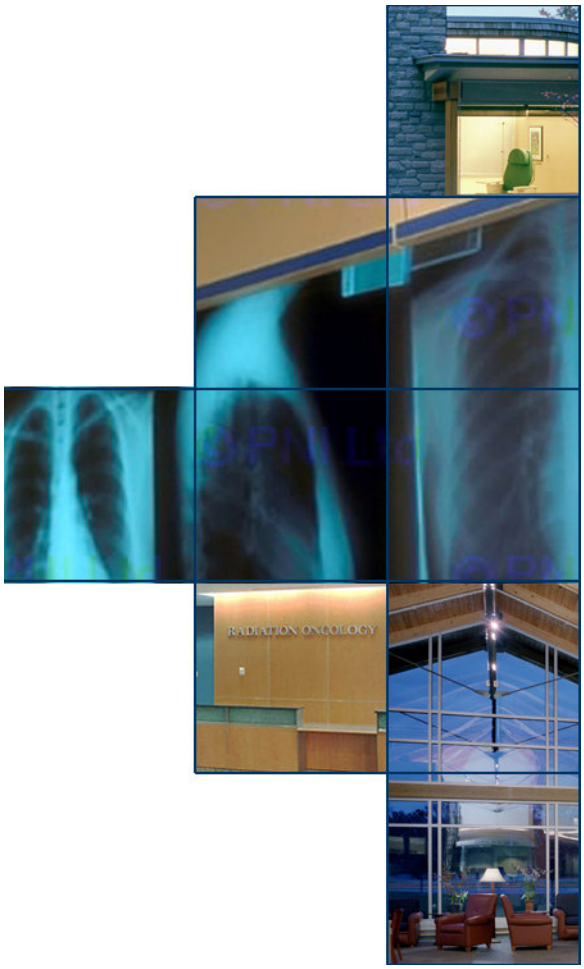

Section 1: Foreword and Acknowledgements

Foreword

The material contained in the Radiation Therapy Design Guide is the culmination of a partnering effort by the Department of Veterans Affairs Veterans Health Administration and the Facilities Quality Office. The goal of the Design Guide is to ensure the quality of VA facilities while controlling construction and operating costs.

This document is intended to be used as a guide and as a supplement to current technical manuals and other VA criteria in the planning of Radiation Therapy Service. Radiation Therapy Service is referred to as Radiation Therapy throughout this document. **The Design Guide is not to be used as a standard design, and the use of this Design Guide does not limit the project Architect's and Engineer's responsibilities to develop a complete and accurate project design that best meets the user's needs and the applicable code requirements.**

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Introduction

The Radiation Therapy Design Guide was developed as a tool to assist Contracting Officers, Medical Center Staff, and Architects and Planners with the design and construction of Radiation Therapy Medicine facilities. It is not intended to be project specific; but rather provide an overview with respect to the design and construction of Radiation Therapy facilities.

Guide plates for various rooms within Radiation Therapy are included in this chapter to illustrate typical VA furniture, equipment, and personnel space needs. They are not project specific as it is not possible to foresee future requirements. The project specific space program is the basis of design for an individual project. It is important to note that the guide plates are intended as a generic graphic representation only.

Equipment manufacturers should be consulted for actual dimensions, utilities, shielding, and other requirements as they relate to specified equipment. Use of this design guide does not supersede the project architects' and engineers' responsibilities to develop a complete and accurate design that meets the user's needs and complies with appropriate code requirements.

Definitions

CT Simulation: A CT procedure in which the specific pathology is localized within the patient, who is placed in a precise and reproducible position, for use in treatment planning for radiation therapies. CT Simulation utilizes conventional a CT Scanner outfitted with specific simulation hardware and software.

External Radiation Therapy: The use of high-energy penetrating wave or particle beams used to damage or destroy cancerous cells. External Radiation Therapy may also be used as a form of treatment for some non-cancerous diseases, and is frequently delivered on a recurring outpatient basis. High-energy beams do not leave the patient 'radioactive' and there are no concerns about exposure of the patient to other persons post-treatment. See Linear Accelerator.

Intensity Modulated Radiation Therapy (IMRT): IMRT is an advanced external beam radiation therapy which utilizes computer images to match radiation to the size and shape of a tumor. Through the use of multiple smaller beams from different angles and of varying intensities, IMRT varies the shape of the radiation delivered to the treatment area, minimizing damage to surrounding healthy tissue. See Stereotactic Radiosurgery.

Internal Radiation Therapy: The use of low-level radioactive implants or 'seeds' to deliver radiation to local tissue structures. Frequently implanted in tumors, the radioactive decay damages or destroys the immediately surrounding tissue. Implants are specifically chosen to match the prescribed radiation dose necessary to damage the tumor while protecting the surrounding healthy tissues. Radioactive implants are placed surgically. Depending upon the implant's intensity, patients may be 'radioactive' for a period of time post-implantation and may need to remain in hospital, segregated from others until the radioactive decay reduces the strength of the implant.

Linear Accelerator (Linac): Device which produces and delivers high-energy beams which, in the hospital setting, is used to damage or destroy targeted tissues or structures, frequently cancerous tumors, within the patient's body. See Stereotactic Radiosurgery.

Picture Archiving and Communication System (PACS): The digital capture, transfer and storage of diagnostic images. A PACS system consists of workstations for interpretation, image/data producing modalities, a web server for distribution, printers for file records, image servers for information transfer and holding, and an archive of off-line information. A computer network is needed to support each of these devices.

Stereotactic Radiosurgery: The process by which lower-intensity radiation beams are projected to the tumor or target area from multiple points of origin. This allows relatively high radiation doses to the target area while exposing the surrounding tissues to significantly lower levels of radiation energy. Stereotactic Radiosurgery equipment is available in both frame-based systems for treatment of head and neck, and frameless systems which can treat any anatomic area.

Treatment Planning: Following precise identification of the position, size and shape of a tumor or target area, typically through MR or CT based simulation, the optimal means of radiation therapy is planned in which the precise radiation doses are delivered to target areas while minimizing the radiation exposure to adjacent and surrounding tissues. This plan is typically mapped out three dimensionally and computer plotted to guide radiation therapy / radiosurgery.

Abbreviations

A	Amps
AC	Air Conditioning
ABA	Architectural Barriers Act
AC/HR	Air Changes per Hour
ADA	Americans with Disability Act
ADAAG	ADA Accessibility Guidelines
A/E	Architectural / Engineering Firm
AHJ	Authority Having Jurisdiction
AIA	American Institute of Architects
ANSI	American National Standards Institute
AR	As Required
ASRAE	American Society of Heating Refrigerating & Air-Conditioning Engineers
BGSF	Building Gross Square Feet
BTU	British Thermal Unit
CARES	Capital Asset Realignment for Enhanced Services
CFM	Cubic Feet per Minute
DOE	Department of Energy
DGSF	Departmental Gross Square Feet
DVA	Department of Veterans Affairs
FAR	Floor Area Ratio
FC	Foot Candle
OCFM	Office of Construction & Facilities Management
GSF	Gross Square Feet
GSM	Gross Square Meters
HIPAA	Healthcare Insurance Portability and Accountability Act
HP	Horsepower
HVAC	Heating, Ventilating and Air Conditioning
IAQ	Indoor Air Quality
IBC	International Building Code
JCAHO	Joint Commission (on Accreditation of Healthcare Organizations)
LB	Pound, Pounds
LUX	Lumen Per Square Meter
NEC	National Electrical Code
NFPA	National Fire Protection Association
NHCU	Nursing Home Care Unit
NSF	Net Square Feet
NSM	Net Square Meters
NTS	Not to Scale
NUSIG	National Uniform Seismic Installation Guidelines

OSHA	Occupational Safety and Health Administration
RCP	Reflected Ceiling Plan
RH	Relative Humidity
SF	Square Feet, Square Foot
SMACNA	Sheet Metal and Air Conditioning Contractor's National Association
SqM	Square Meters
TIL	Technical Information Library
TV	Television
UBC	Uniform Building Code
UFAS	Uniform Federal Accessibility Standards
V	Volts
VA	Department of Veterans Affairs
VACO	Veterans Affairs Central Office
VAFM	Veterans Affairs Facilities Management
VAMC	Veterans Affairs Medical Center
VHA	Veterans Health Administration
VISN	Veterans Integrated Service Network

LOGISTICAL CATEGORIES (LOG CATS)

VV: Department of Veterans Affairs furnished and installed - Medical Care Appropriations

VC: Department of Veterans Affairs furnished and Contractor installed - Medical Care Appropriations for Equipment and Construction Appropriations for Installation

CC: Contractor Furnished and Installed - Construction Appropriations

CF: Construction Appropriations - Department of Veterans Affairs furnished - Installed by the Department of Veterans Affairs or Contractor


DUPLEX RECEPTACLE, NEMA 5–20R – 20AMP– MOUNTED 450MM (18")AFF UNLESS OTHERWISE NOTED.


DUPLEX RECEPTACLE, NEMA 5–20R – 20AMP– MOUNTED ABOVE COUNTER TOP


DUPLEX RECEPTACLE WITH GROUND FAULT INTERRUPTER, NEMA 5–20R – 20 AMP – MOUNTED 450MM (18")AFF UNLESS OTHERWISE NOTED


DUPLEX RECEPTACLE WITH GROUND FAULT INTERRUPTER, NEMA 5–20R – 20 AMP – MOUNTED ABOVE COUNTER TOP


WEATHERPROOF DUPLEX RECEPTACLE WITH GFI, NEMA 5–20R – 20 AMP – MOUNTED ABOVE 450MM (18") AFF UNLESS OTHERWISE NOTED


QUADRAPLEX OUTLET, NEMA 5–20R – 20 AMP – MOUNTED ABOVE 450MM (18") AFF OR QUADRAPLEX OUTLET, NEMA 5–20R – 20 AMP – PEDESTAL–MOUNTED.


QUADRAPLEX OUTLET, NEMA 5–20R – 20 AMP – MOUNTED ABOVE COUNTER TOP


QUADRAPLEX OUTLET WITH GROUND FAULT INTERRUPTER, NEMA 5–20R – 20AMP – MOUNTED 450MM (18") AFF UNLESS OTHERWISE NOTED


QUADRAPLEX OUTLET WITH GROUND FAULT INTERRUPTER, NEMA 5–20R – 20AMP – MOUNTED ABOVE COUNTER TOP


DUPLEX RECEPTACLE, NEMA 5–20R – 20AMP – EMERGENCY POWER–MOUNTED 450MM (18")AFF UNLESS OTHERWISE NOTED


QUADRAPLEX RECEPTACLE, NEMA 5–20R – 20AMP – EMERGENCY POWER


SPECIAL RECEPTACLE

TELEVISION OUTLET


TELEPHONE OUTLET–MOUNTED 450MM (18") AFF UNLESS OTHERWISE NOTED


WALL MOUNTED TELEPHONE OUTLET–MOUNTED 1200MM (48") AFF UNLESS OTHERWISE NOTED


COMPUTER TERMINAL OUTLET – VERIFY EXACT NEEDS–PROVIDE SIGNAL AND POWER OUTLET AS REQUIRED


SPEAKER–CEILING MOUNTED


INTERCOM OUTLET


NURSE CALL DOME LIGHT–CEILING MOUNTED


NURSE CALL DOME LIGHT–WALL MOUNTED


NURSE CALL DUTY STATION


EMERGENCY NURSE CALL


NURSE CALL STAFF STATION


VOLUME CONTROL–WALL MOUNTED


JUNCTION BOX–PURPOSE AND LOCATION AS NOTED

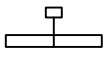

SUPPLY AIR DIFFUSER


EXHAUST OR RETURN AIR REGISTER OR GRILLE


EMERGENCY EXHAUST GRILLE


THERMOSTAT


HUMIDISTAT


COMBINATION FAUCET HOSE BIBB

V ▫ VACUUM

A ▫ MEDICAL AIR

O ▫ OXYGEN

ELECTRICAL STRIP MOLD – NEMA 5–20R RECEPTACLES AT 600MM (2"–0") INTERVALS

SINGLE POLE SWITCH


SINGLE POLE SWITCH – SUFFIX OF a,b OR c INDICATES SEPARATE CONTROL OR FIXTURES WITH SAME DESIGNATION


DIMMER SWITCH


THREE WAY SWITCH


DOOR SWITCH

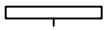

FUSED OR UNFUSED DISCONNECT SWITCH


EMERGENCY POWER OFF (EPO) PUSH BUTTON


2'x2' FLUORESCENT FIXTURE


1'x4' FLUORESCENT FIXTURE


2'x4' FLUORESCENT FIXTURE


WALL–MOUNTED FLUORESCENT FIXTURE


2'x2' FLUORESCENT FIXTURE–EMERGENY POWER


2'x4' FLUORESCENT FIXTURE–EMERGENY POWER


WALL MOUNTED FLUORESCENT FIXTURE–EMERGENY POWER


WALL MOUNTED LIGHT FIXTURE–TYPE AS NOTED

LIGHT FIXTURE–TYPE AS NOTED

LIGHT FIXTURE–TYPE AS NOTED EMERGENCY POWER


CIRCUIT BREAKER


BATTERY POWERED CLOCK