

Part B - Health Facility Briefing and Planning

600 RADIOTHERAPY UNIT

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Description

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INTRODUCTION

Description

600 .2.00	The Radiotherapy Unit may contain one or both electron beam therapy and radiation therapy. Although not recommended, a Simulation Room may be omitted in small linear accelerator facilities where other positioning geometry is provided.
	Room sizes and specifications for a Radiotherapy Unit should accommodate the equipment manufacturer's recommendations, as space requirements may vary from one machine to another and one manufacturer to another.

PLANNING

Functional Areas

600 .3.00	The Radiotherapy Unit may include the following Functional Areas: <ul style="list-style-type: none">- Reception, Waiting, Administrative and records areas- Patient Treatment areas including Radiotherapy Bunkers, Treatment Planning, Simulation, Holding area, Patient Toilet- Film processing and storage areas- Support Areas including Consult, Utilities, Cleaner's Room, Store, Disposal rooms- Staff Areas including Staff Station, Offices, Staff Change and Toilets.
600 .4.00	SUPPORT AREAS
	The following optional support areas may be required: <ul style="list-style-type: none">- Quality control area with illuminated X-ray viewing boxes- Computer control area normally located adjacent to the Radiotherapy Room entry- Dosimetry equipment area- Hypothermia Room (may be combined with an Examination Room)- Oncologist's Office (may be combined with Consultation Room)

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- Physicist's Office (may be combined with Treatment Planning)
- Treatment Planning and Record Room.

600 .5.00 Provision shall be made for the following additional support areas for Linear Accelerator:

- Mould Room with exhaust hood and handbasin
- Block Room with storage (may be combined with the Mould Room).

600 .6.00 The Cobalt Room shall be provided with a Hot Laboratory.

600 .6.50 FILM STORAGE

Provision shall be made for a secure film storage area, and storage for unprocessed film.

Functional Relationships

600 .7.00 The Radiotherapy Unit should be located with ready access for ambulant patients and beds/trolleys. The Unit may be co-located with Medical Imaging Units. If intra-operative therapy is proposed, the Radiotherapy Unit should be located close to the Operating Unit or with a direct link.

A ground level location is preferred due to the weight of the equipment and shielding requirements, and for ease of installation and replacement.

DESIGN

Safety and Security

600 .9.00 RADIATION PROTECTION

Cobalt and linear accelerator rooms require radiation protection that may include concrete walls, floors and ceiling to a specified thickness. The radiation protection needs of the unit shall be assessed by a certified physicist or appropriate state agency. This assessment is to specify the type, location, and amount of protection to be installed in accordance with final approved department layout and equipment selection. The radiation protection requirements shall be incorporated into the final plans and specifications.

Building Service Requirements

600 .10.00 CONSTRUCTION STANDARDS

The flooring for a Radiotherapy Unit shall be adequate to meet the load requirements for equipment, patient, and personnel. Provision for cable ducts or conduits should be made in the floors and ceilings as required. Ceiling mounted equipment should have properly designed rigid support structures located above the finished ceiling. The minimum recommended ceiling height is 3 metres. A lay-in type of ceiling should be considered for ease of installation, service, and remodelling.

COMPONENTS OF THE UNIT

Introduction

- 600 .11.00 The Radiotherapy Unit will contain a combination of Standard Components and Non-Standard Components, according to the Level of Service.

Standard Components must comply with details in the Standard Components described in these Guidelines. Refer also to Standard Components Room Data Sheets.

Standard Components

- 600 .12.00 Provide the Standard Components as identified in the Generic Schedules of Accommodation.

Non-Standard Components

- 600 .13.00 Provide the Non-Standard Components as identified in this section and in the Schedule of Accommodation, according to the Operational Policy and Functional Brief.

- 600 .14.00 DARKROOM

DESCRIPTION AND FUNCTION

A Darkroom shall be provided for film processing. Where daylight processing is used, the Darkroom may be minimal for emergency use.

The darkroom shall be a minimum of six m2.

- 600 .15.00 LOCATION AND RELATIONSHIPS

The Darkroom should be located with ready access to the daylight processing area, Treatment Room/s and the quality control area.

- 600 .16.00 CONSIDERATIONS

If automatic film processors are used, a receptacle of adequate size with hot and cold water for cleaning the processor racks shall be provided either in the Darkroom or nearby.

Room requirements will include:

- Sink and bench
- Safe light
- Film processing equipment
- Floor waste
- Light proof door seals and grilles

- 600 .17.00 FILM PROCESSING

DESCRIPTION AND FUNCTION

A film processing area is required to accommodate daylight processing equipment. The size of the film processing area may vary according to the number and type of processors to be installed.

- 600 .18.00 LOCATION AND RELATIONSHIPS

The Film Processing area should be located with ready access to Imaging Rooms, Darkroom and reporting areas.

Non-Standard Components

600 .19.00 CONSIDERATIONS

The Film Processing area will include the following:

- Daylight processing equipment installed to manufacturer's recommendations
- Deep sink for cleaning of processor racks
- X-ray viewing boxes, wall mounted for quality control checking of films

600 .20.00 RADIOTHERAPY BUNKER ROOM/S

DESCRIPTION AND FUNCTION

Radiotherapy Bunker Rooms include Cobalt Rooms, Linear Accelerator and Simulator Rooms, provide an area and equipment for patient radiation treatment.

The Bunker Rooms shall be sized in accordance with equipment and access requirements and shall accommodate a patient trolley.

600 .21.00 LOCATION AND RELATIONSHIPS

The Bunker Rooms should be located with ready access to Patient Waiting, Holding, Treatment Planning and support areas including film processing areas and utility rooms.

600 .22.00 CONSIDERATIONS

Layouts shall be designed to prevent radioactive particles from escaping. Openings into the room, including doors, ductwork, vents and electrical raceways and conduits shall be baffled to prevent direct exposure to other areas of the facility.

Services requirements including electrical, hydraulics, and air-conditioning will be according to the equipment manufacturer's specifications.

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APPENDICES

Radiotherapy Generic Schedule of Accommodation

600.23.00 Schedule of Accommodation for Radiotherapy Unit for levels 5 & 6:

TREATMENT AREAS

ROOM / SPACE	Standard Component				Level 5 Qty x m2	Level 6 Qty x m2	Remarks
BAY - HANDWASHING	yes				1 x 1	1 x 1	
CONTROL ROOM					2 x 8	3 x 8	
MOULDS / MASK ROOM					1 x 20 optional	1 x 20 optional	
RADIO THERAPY BUNKER ROOM					2 x 60	3 x 60	Room area dependent on equipment supplier, model and alignment within room
TREATMENT PLANNING (SIMULATOR)					1 x 42	1 x 42	
CIRCULATION %					30	30	

600.24.00 STAFF AREAS

Note: Offices are dependent on the Operational Policy/ staffing structure:

ROOM / SPACE	Standard Component				Level 5 Qty x m2	Level 6 Qty x m2	Remarks
OFFICE - SINGLE PERSON 9 M2	yes				1 x 9 optional	1 x 9 optional	Manager
OFFICE - SINGLE PERSON 9 M2	yes				1 x 9 optional	1 x 9 optional	Registrar
OFFICE - SINGLE PERSON 12 M2	yes				1 x 12 optional	1 x 12 optional	Radiographer

600.25.00 SHARED AREAS

ROOM / SPACE	Standard Component				Level 5 Qty x m2	Level 6 Qty x m2	Remarks
BAY - BEVERAGE	yes				1 x 3	1 x 3	
CLEANER'S ROOM	yes				1 x 4	1 x 4	
CLEAN UTILITY	yes				1 x 12	1 x 12	
CONSULT ROOM	yes				2 x 12	4 x 12	
DARKROOM					1 x 6	1 x 6	
DIRTY UTILITY	yes				1 x 10	1 x 10	
FILM PROCESSING					1 x 15	1 x 15	
PATIENT BAY	yes				2 x 9	3 x 9	Holding Bays

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PROPERTY BAY - STAFF	yes				1 x 6	1 x 6	
RECEPTION	yes				1 x 10	1 x 10	
STAFF STATION	yes				1 x 14	1 x 14	
STORE - EQUIPMENT	yes				1 x 20	1 x 20	
STORE - FILES	yes				1 x 10	1 x 10	
STORE - GENERAL	yes				1 x 9	1 x 9	
TOILET - PATIENT	yes				1 x 4	3 x 4	With Change facilities
TOILET - STAFF	yes				1 x 2	1 x 2	
WAITING	yes				1 x 10	1 x 20	
X-RAY VIEWING AND REPORTING	yes				1 x 12	1 x 12	

References and Further Reading

- 600 .26.00 - American Institute of Architects, Guidelines for Design & Construction of Hospital & Healthcare Facilities, 1997.

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FUNCTIONAL RELATIONSHIPS DIAGRAM - RADIOTHERAPY UNIT

