

Room Name	Linear Accelerator Treatment Room	Room Number LINAC
<b>Revision</b>	1	
<b>Issue Date</b>	28.06.2021	
<b>BRIEFING</b>		
<b>Briefed Area</b>	165.00 m <sup>2</sup>	
<b>Hours of Operation</b>	8am to 6pm, Monday – Friday (extended hours, weekends and/or emergency access may be required)	
<b>Occupancy</b>	1 patient, 1-4 staff	
<b>Acoustics</b>	Acoustic privacy is required	
<b>Remarks</b>		
<b>Description / Special Requirements</b>	<p>The Linear Accelerator Treatment Room provides space and facilities for the treatment of patients requiring external beam radiation therapy (EBRT). A collocated Control Room is required for the remote operation of equipment. Cable pathways for services between the Control Room, Modulator Room and Treatment Room must be established and coordinated prior to construction and developed based on vendor and physics requirements. Equipment is to be installed to manufacturer's specifications with sufficient clearances for maintenance access.</p> <p>The Treatment Room must be adequately shielded to ensure that radiation doses to surrounding areas do not exceed radiation dose limits and satisfy design/dose constraints, including the provision of a maze entry or shielded door. Radiation shielding is to be as advised by a qualified Radiation Consultant to suit the practice, workload and equipment procured, and all shielding on the Standard Component is indicative only.</p> <p>The modulator may need to be accommodated within the Treatment Room. If so, this will be concealed by a wall, with a door for access. Depending on the quality of the power supply at a site, a power conditioner may be required and is typically located with the modulator. Additional noise from this equipment should also be accounted for with acoustic treatment.</p> <p>Visibility of the Treatment Room from exit and via observation cameras is required to ensure all persons are clear of the room before treatment commences. A last person out button is to be provided, as well as a sensor gate and/or physical gate at the entry of the maze. A 'Beam-On/Off' light system is required at the entry to be illuminated when treatment begins/ends.</p> <p>Additional Considerations:</p> <ul style="list-style-type: none"> <li>• Additional medical gases may be provided (including additional oxygen, additional suction, nitrous oxide and scavenge) depending on clinical requirements such as the provision of anaesthetic services.</li> <li>• Acoustic requirements will vary depending on the equipment procured and its proximity to the patient treatment area. For patient and staff comfort, acoustics should be considered to reduce the impact of noise from the equipment.</li> <li>• Dimmable lights are to be provided and are to be placed to avoid glare to patients.</li> <li>• Back lit ceiling artwork may be installed for patient comfort and speakers and connections should be provided to allow music to be played and controlled individually for each bunker.</li> <li>• Air conditioning is to be provided to control the room temperature and humidity to meet the equipment suppliers' requirements; high equipment loads shall be accounted for. Air conditioning equipment shall be located outside of this room with ductwork to be installed to follow the entry maze with any penetrations considered to ensure radiation protection. Where possible, it is preferred that ductwork in the ceiling is designed to the perimeter of room for future flexibility to provide ceiling mounted equipment.</li> <li>• Cooling shall be provided to the linear accelerator equipment in the form of chilled water to meet the supplier's requirements, independent chiller equipment is preferred.</li> <li>• The need for and extent of emergency power and UPS must be reviewed to suit site specific requirements. Small UPS units are normally required as a minimum to support control and operating equipment. In some cases, these are supplied with the medical equipment. Other emergency power and UPS requirements to be confirmed based on risk assessment considering the impact of a power outage on patient care/safety.</li> <li>• A mix of respiratory gating, surface guidance, motion management and/or patient position technologies may be provided depending on clinical/service requirements. The provision of these technologies is to be confirmed by the project and may have additional requirements including additional power/data, water cooling, heat load, possible increased set down, increased number of trenches/conduits, space requirements for computer cabinets in control room and additional penetrations through the suspended ceiling. Requirements to be confirmed with vendors.</li> <li>• Allow sufficient distance between the isocentre of the machine and primary shielding wall for the flexibility to provide specialised treatments, e.g. Total Body Irradiation (TBI), depending on service requirements.</li> </ul>	

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SERVICES	
<b>Electrical</b>	BODY PROTECTED <input checked="" type="checkbox"/> CARDIAC PROTECTED <input type="checkbox"/>
<b>HVAC</b>	AIRCONDITIONING <input checked="" type="checkbox"/> AIRCONDITIONING: hepa filtered <input type="checkbox"/>
	AIRCONDITIONING: positive pressure <input type="checkbox"/> AIRCONDITIONING: negative pressure <input type="checkbox"/>
	EXHAUST: room exhaust <input type="checkbox"/> VENTILATION <input type="checkbox"/>
<b>Lighting</b>	LIGHTING: colour corrected <input type="checkbox"/> LIGHTING: dimmable <input checked="" type="checkbox"/>
	LIGHTING: downlights <input type="checkbox"/> LIGHTING: downlights, dimmable <input type="checkbox"/>
	LIGHTING: fluorescent/LED, downlights <input type="checkbox"/> LIGHTING: fluorescent/LED, flush with ceiling, tamper proof <input type="checkbox"/>
	LIGHTING: fluorescent/LED, general <input checked="" type="checkbox"/> LIGHTING: indirect <input type="checkbox"/>
<b>Security / Nurse Call</b>	NURSE CALL SYSTEM <input checked="" type="checkbox"/>

**Room Fabrics**

AusHFG code	Description	Comment
CLTI-002	CEILING: acoustic, drop-in tiles, 600 x 1200	inset area above machine as required
CLFS-005	CEILING: plasterboard, flush set, suspended, paint, scrub resistant	
CLCN-008	CORNICE: square set flush between wall and ceiling, paint	
FLVY-001	FLOOR FINISH: vinyl, seamless, coved, anti-static	floor finish must be minimum slip rating R10; Pendulum P3 or agreed equivalent to extend under basin or inset section of non-slip vinyl required
FLSK-010	SKIRTING: vinyl, floor vinyl coved, 150H, prefinished	
WLWA-004	WALL FINISH: paint, acrylic, washable	
WLWA-007	WALL FINISH: splashback	to basin
WLWA-022	WALL FINISH: vinyl, to 900 AFFL	
WLPR-006	WALL PROTECTION: corner guards	

**Fittings, Furniture and Equipment (FF&E) Items**

AusHFG code	Description	Group	Qty	Comment
MMRA-006	ACCESS PANEL: medical physics port	1	1	
MMGE-002	ADAPTER: suction	3	1	
HYBA-010	BASIN: handwash, Type B	1	1	
FIJO-058	BENCH TOP: 600D, joinery under	1	3	
FQCW-016	BIN: waste, general, 20L	3	1	to basin
FQCW-044	BIN: waste, sharps, wall mounted	3	1	
FIHR-004	BRACKET: for display screen, ceiling mounted	1	2	
FIHR-006	BRACKET: for display screen, wall mounted	2	1	
FIHR-067	BRACKET: for monitor, wall mounted, articulated, adj height	2	1	
FIHR-077	BRACKET: for observation camera, ceiling mounted	2	6	1 x optional, to additional patient observation camera if provided

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FIHR-016	BRACKET: for sharps bin	2	1	
FIHR-019	BRACKET: for suction bottle	2	1	
FIHR-093	BRACKET: keyboard shelf, wall mounted	2	1	
FIHR-089	BRACKET: surface guided radiation therapy system, ceiling mounted	1	3	
FIJO-212	BULKHEAD: joinery	1	2	plasterboard bulkhead is also acceptable
ITCL-012	CAMERA: observation	2	6	1 x optional, for total body irradiation or visualisation of additional monitoring equipment, pan, tilt and zoom (PTZ) capability is required, quantity to be based on equipment and service requirements
ITNE-066	COMPUTER: all-in-one, wall mounted	3	1	
ITNE-007	COMPUTER: desktop, with display screen	3	1	workstation on wheels is also acceptable
FIJO-231	CUPBOARD: radiotherapy, laser enclosure	1	3	
FIJO-165	CUPBOARD: tall, applicator storage, radiotherapy	1	1	custom joinery is required for vendor specific electron cones, including sliding rails, shelving to be reinforced for electron shields
FIJO-166	CUPBOARD: tall, shelving, horizontal patient device storage, radiotherapy	1	3	wide span shelving to be reinforced
FIJO-167	CUPBOARD: tall, shelving, vertical patient device storage, radiotherapy	1	2	
FIJO-135	CUPBOARD: underbench, double door, adj shelves	1	3	
FIJO-140	CUPBOARD: underbench, single door, adj shelves	1	1	
MMRA-011	DEVICE: radiotherapy, daily QA	3	1	
MMRA-008	DEVICE: surface guided radiation therapy system	3	3	as required for respiratory gating / motion management / surface guidance systems, to suit service requirements
FIDI-001	DISPENSER: alcohol based hand rub	2	1	
FIDI-006	DISPENSER: cleaning wipes	2	1	
FIDI-014	DISPENSER: disposable glove	2	1	to basin
FIDI-025	DISPENSER: paper/hand towel	2	1	to basin
FIDI-030	DISPENSER: soap	2	1	to basin
FIDI-031	DISPENSER: soap antiseptic	2	1	to basin
ITNE-073	DISPLAY SCREEN: patient treatment information	1	1	
MMRA-013	DISPLAY SCREEN: radiotherapy, ceiling mounted	3	2	
MGFP-004	FLOWMETER: oxygen	3	1	
MMRA-012	GATE: light gate, radiotherapy bunker	2	1	
DWGE-013	GATE: single leaf, steel, prefinished	1	1	
ITNE-067	KEYBOARD: keyboard and mouse only	3	1	to wall mounted computer, may be wireless
MMRA-015	LASER: radiotherapy, ceiling mounted	3	1	

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MMRA-016	LASER: radiotherapy, lateral laser	3	2	
MMRA-017	LASER: radiotherapy, sagittal laser	3	1	
MMRA-004	LINEAR ACCELERATOR	1	1	
MMGE-048	LINEN CARRIER: dirty, single	3	1	
ITAV-010	MICROPHONE: ceiling mounted	2	2	
ITAV-057	SPEAKER: ceiling recessed	2	2	for patient's own music, individual to each bunker from control room, hearing loop required to speakers
MMGE-100	SUCTION BOTTLE	3	1	
HYTP-037	TAPWARE: mixer, elbow levers	1	1	
MMGE-110	TROLLEY: clean linen, small	3	1	

**Engineering Services**

AusHFG code	Description	Group	Qty	Comment
ELBO-001	BUTTON: emergency stop	1	4	
ELBO-019	BUTTON: last person out	1	1	
ITCL-004	BUTTON: nurse call, emergency	1	1	
ITCL-008	BUTTON: nurse call, staff assist	1	1	
ELGP-223	GPO: emergency power, double, wall mounted	1	4	
ELGP-220.1	GPO: emergency power, double (V)	1	5	to wall mounted lasers
ELGP-125	GPO: emergency power, single, ceiling mounted	1	12	1 x to ceiling mounted laser, 1 x optional, to additional patient observation camera if provided
ELGP-122	GPO: emergency power, single, on services panel	1	3	
ELGP-123	GPO: emergency power, single, wall mounted	1	2	
LIFX-038	LIGHT: backlit feature panels	1	2	
LIFX-004	LIGHT: illuminated sign, "Beam On-Beam Off"	1	1	
ITIN-025	OUTLET: data, double RJ45, on services panel	1	1	
ITIN-026	OUTLET: data, double RJ45, wall mounted	1	1	
ITIN-011	OUTLET: data, single RJ45, ceiling mounted	1	11	1 x optional, to additional patient observation camera if provided
ITIN-016	OUTLET: data, single RJ45, wall mounted	1	3	
MGAS-042	OUTLET: oxygen (O2), on services panel	1	1	
MGAS-062	OUTLET: suction, on services panel	1	1	
ELPR-006	RCD: residual current device	1	5	
MMSP-026	SERVICES PANEL: wall mounted	1	1	
ELBO-010	SWITCH: light, 2-way	1	2	
ELBO-012	SWITCH: light, dimmer	1	1	