

## CASE STUDY



PROJECT NAME:	<b>Proton Beam Therapy (PBT) Centre, Manchester</b>
DATES (FROM-TO):	June 2015 - August 2018
CLIENT:	The Christie NHS FT
CONTRACT VALUE £:	£75m
FORM OF CONTRACT:	P21+ (NEC 3)
PROJECT TEAM:	Main Contractor: Interserve Architect: HKS Structural: ARUP M&E: ARUP Cost Consultants: Gleeds
CLIENT CONTACT	Jason Dawson Director of Capital, Estates & Facilities 0161 446 3000 Jason.Dawson@christie.nhs.uk

### PROJECT SUMMARY:

- Delivering the UK's first NHS high energy PBT Centre
- First PBT to be built within a live acute oncology site, adjacent to residential areas
- The right team secured for the client 2 years before the project came into the market
- Interserve team travelled 20,239 miles across Europe & USA to capture best practice
- Scale: 20,000 m<sup>3</sup> concrete, 1700 tonne of reinforcement & walls 6m thick
- Installation of one of the world's most complex piece of equipment, the size of car & weighing 90 tonne
- 100 local companies employing 3400 people appointed over the life of the project
- BIM clash detection identified £1.95m savings
- Delivered on time & within budget 2 years ahead of UCHL
- Constructing Excellence 'Project of the Year'

### Project Description:

Interserve working in partnership with The Christie delivered the UK's first NHS high energy Proton Beam Therapy (PBT) Centre on time & under budget.

The DoH selected The Christie as one of two service providers together with University College Hospital London (UCLH). Procured at the same time, The Christie adopted P21+ a speedier procurement route, meaning patients will benefit from this advanced treatment in 2018, & 2020 at UCLH.

When fully operational the new facility will treat up to 750 people a year, positively impacting patients & families by saving lives & preventing the need for expensive & stressful travel abroad for treatment.

This prestigious five storey, 15,000m<sup>2</sup> building provides: 4 treatment rooms; a patient reception; consultation rooms & public space meeting the specific needs of patients' staff & visitors. The building is future proofed with space for the Trust to expand.

The project required the installation of a 90T cyclotron feeds three treatment gantries that rotate around the patients to best target the tumour. The design sets a precedent for future developments by incorporating a fourth gantry, a unique facility for research & development, ensuring The Christie provides enhanced treatment & maintains its international reputation as leading experts in cancer care, research & education.



*“It’s the confidence that we have in Interserve to deliver which means we can roll out multiple major projects concurrently. Not just the confidence to deliver on time but being able to work in their live hospital environment without compromising operational delivery allowing us to maintain our reputation for excellence.”*

**Roger Spencer, CEO The Christie**



BIM played a crucial role in the design of the centre. The team produced an integrated BIM model which was federated to give a 4D representation of the project. This was used to articulate the programme to non-technical people, coordinate 3 parallel equipment designs which aided vendor selection & clash detection creating savings measured at around £1.95m. This is the first time that BIM has been used in the UK to validate radiation protection & save lives.

Interserve travelled extensively to bring the benefit of international expertise & learning to the UK, overcoming numerous challenges to deliver this world class facility, given no blue-print existed.

The building boasts some impressive statistics:

- Concrete walls up to six metres thick to contain radiation.
- 20,000m<sup>3</sup> of in-situ concrete & 1,700 tonnes of reinforcement.
- Reinforcement bars up to 100mm diameter.
- 10km of service pipework carefully threaded through rebar.
- 48,000 tonnes of concrete, equivalent of a space shuttle.

The world class building is the first PBT Centre to target BREEAM excellent. Reclaiming heat from the Proton Beam equipment will make a significant contribution to the BREEAM scoring.

Project delivered successfully in suburban Manchester on the UK’s busiest cancer hospital site with no impact on resident’s & fully maintaining infection prevention regimes, privacy & dignity of immunosuppressed patients.

The achievement of consecutive Considerate Constructor gold awards confirmed our commitment to sustainability, carbon reduction, safety & the community.

The Care Quality Commission gave the Trust a ranking of ‘Outstanding’ whilst delivering the project & confirmed them as the county’s leading specialist Trust, confirming their goals to improve patient outcomes, journeys and experience.

This is an exemplar project demonstrating the importance of staff, patients & other stakeholders working in collaboration throughout all stages of the project. The P21+ healthcare framework supported & promoted a collaborative approach which extended to sharing lessons learnt with UCLH, benefiting the national PBT programme.

