

= The Doughnut =

" The Doughnut " is the nickname given to the headquarters of the Government Communications Headquarters (GCHQ) , a British cryptography and intelligence agency . It is located on a 71 @-@ hectare (176 @-@ acre) site in Benhall , in the suburbs of Cheltenham , Gloucestershire , in South West England . The Doughnut houses 5 @,@ 500 employees ; GCHQ is the largest single employer in Gloucestershire . Built to modernise and consolidate GCHQ 's multiple buildings in Cheltenham , The Doughnut was completed in 2003 , and GCHQ moved into the building in 2004 . It is the largest building constructed for secret intelligence operations outside the United States . The Doughnut was too small for the number of staff at its completion , and a second building in a secret and undisclosed location in the ' Gloucestershire area ' now also accommodates staff from GCHQ . The Doughnut is surrounded by car and bicycle parking in concentric rings , and well protected by security .

The construction of the building was financed by a private finance initiative and construction costs were greatly increased after difficulties in transferring computer infrastructure to the building . The building is modern in design and built primarily from steel , aluminium , and stone .

= = Background = =

The construction of the Doughnut in 2003 consolidated the operations previously spread across two sites into a single location , replacing more than 50 buildings in the process . The last staff from the nearby GCHQ site at Oakley were transferred to the Doughnut in late 2011 .

The design of the Doughnut reflects GCHQ 's intended new mode of work after the end of the Cold War , with its design facilitating talking among staff , and between them and the Director of GCHQ and his subordinates . It was estimated that anyone in the building could reach any other worker within five minutes . The director of GCHQ has no office ; in 2014 director Iain Lobban described his desk as being located " within the shouting distance of lawyers " .

At a cost of £ 330m , the construction of the Doughnut was funded by a private finance initiative (PFI) put forward by a collective that included British facilities management and construction company Carillion , the Danish security company Group 4 / Falck (now G4S) , and the British telecommunications company BT Group . The consortium are scheduled to be paid £ 800m to maintain the Doughnut for 30 years . The creation of the Doughnut was the largest PFI project to date for the British government . The building was designed by the British architect Chris Johnson for the American architectural firm Gensler , and constructed and built by Carillion .

In 2004 the chairman of the Commons Public Accounts Committee , Edward Leigh , criticised the increasing cost of GCHQ 's move to the Doughnut . Leigh said that " It was astonishing GCHQ did not realise the extent of what would be involved much sooner " . Leigh had said in 2003 that GCHQ 's original estimate for the cost of the move was " staggeringly inaccurate " .

For security reasons , GCHQ moved its own computers and technical infrastructure to the Doughnut , which caused the cost of its move to increase from £ 41m to £ 450m over two years . The moves of MI5 and the SIS to new buildings had also cost more than three times their original estimates due to issues with transferring computers . HM Treasury paid £ 216m toward a newly agreed budget of £ 308m , having initially refused to finance the original high figure . The final cost of GCHQ 's move to their new headquarters was more than seven times the original estimate .

The complexity of the computer network at GCHQ was responsible for the increase in costs . Issues with the network were found while preparing computers for the " Millennium bug " . Simply shutting down each computer individually before restarting them in the Doughnut would have left GCHQ unable to complete key intelligence work for two years , while moving their electronics according to the original schedule without " unacceptable damage " to intelligence gathering would cost £ 450m . In a review of GCHQ 's move in 2003 , the National Audit Office said government ministers might never have approved the consolidation of facilities had the final cost been known .

= = Design = =

The Doughnut is divided into three separate four @-@ storey structures , identical in design and connected at the top and bottom . With a total floor area of 140 @,@ 000 square metres (1 @,@ 500 @,@ 000 sq ft) , the building contains two circular blocks , internally divided by a " street " covered in glass . Construction materials were primarily steel , aluminium , and stone , particularly granite and local limestone from the Cotswolds ; designers incorporated recycled materials in the steelwork and the construction of desks . The design of the Doughnut was subsequently nominated for an award to " highlight improvements to the built and landscaped environment " given by Cheltenham 's Civic Society .

A circular walkway named " The Street " runs throughout the building . An open @-@ air garden courtyard lies in the middle of the Doughnut ; this garden is large enough to contain the Royal Albert Hall . The courtyard has a memorial to GCHQ staff who have been killed on active service ; some five staff died in the War in Afghanistan . Below the garden are banks of supercomputers . The Doughnut is 21 metres (70 ft) high and 180 metres (600 ft) in diameter . Individual spaces in the Doughnut include the 24 / 7 / 365 area where people working in " ... small 12 @-@ hour shifts monitor GCHQ systems and news bulletins . " The ' Action On ' programme enables the 24 / 7 / 365 staff to act " quickly and freely " to supply information to British armed forces to help their operations . The Doughnut 's Internet Ops Centre (INOC) , is where " the best technical capabilities [are matched] with the most urgent operational requirements " according to Charles Moore who visited the Doughnut in 2014 for the Daily Telegraph .

The structure of the Doughnut is designed to minimise any potential effect of a fire or a terrorist attack on the building ; it also includes independent power generators which can supply power to the facilities in an emergency . About 3 @,@ 000 kilometres (1 @,@ 850 mi) of fibre optics were installed in the Doughnut by British Telecom , and about 10 @,@ 000 km (6 @,@ 000 mi) of electrical wiring were used in the building .

The Doughnut is surrounded by car and bicycle parking in concentric rings , guarded by a two @-@ metre metal fence and half a dozen vehicle checkpoints . The Doughnut is served by an underground road .

Facilities available to staff at the Doughnut include a 600 @-@ seat restaurant , shops , a gym , and a prayer or quiet room . Exhibits from the history of GCHQ are displayed throughout the building , including the radios used by the Portland Spy Ring .

= = History = =

The Doughnut was officially opened by Queen Elizabeth II and the Duke of Edinburgh in 2004 . The then Prime Minister of the United Kingdom , Gordon Brown , visited the Doughnut in 2008 , and praised the staff working there in a speech . The Doughnut has twice been visited by Charles , Prince of Wales , since its opening . Charles was accompanied by Camilla , Duchess of Cornwall in 2011 , on his second visit to the Doughnut .

The Doughnut was already too small for the number of GCHQ staff at its completion , as a vast expansion in the number of employees had occurred as a consequence of the September 11 attacks in 2001 . The staff numbered almost 6 @,@ 500 by 2008 . The addition of a two @-@ storey office block and a three @-@ story car park to the Doughnut was proposed in 2008 , but eventually suspended in 2011 . The new buildings were intended to facilitate the arrival of 800 staff from GCHQ 's former site at Oakley . Though it was initially felt that the Doughnut would be adequate for the new staff , 600 contractors working on technical projects for GCHQ were eventually relocated in a secret undisclosed building in the ' Gloucestershire area ' . The parking of cars by GCHQ staff on residential roads has caused ' annoyance ' among local residents in Benhall . It was believed that the arrival of new staff may have further affected local parking but GCHQ stated the presence of the new employees would have been offset by redundancies .

Access to the Doughnut is rarely granted to representatives from the media , but it was visited for the March 2010 BBC Radio 4 documentary GCHQ : Cracking the Code , by The Sun newspaper in December 2010 , by Charles Moore for an interview with GCHQ director Iain Lobban for the Daily

Telegraph in October 2014 , and by historian and writer Ben Macintyre who visited the Doughnut for a series of articles for The Times in October 2015 in anticipation of the Draft Investigatory Powers Bill .

= = = Charitable efforts = = =

In October 2014 1 @, @ 308 GCHQ staff formed a giant red poppy in the Doughnut 's central courtyard to mark the start of the Royal British Legion 's Poppy Appeal . The poppy was 38m in size with a 28m long stalk . The staff wore red rain ponchos , with the black centre of the poppy formed by the uniforms of Royal Navy personnel . The Doughnut was illuminated with yellow light to mark GCHQ staff 's support for Guide Dogs and by a spectrum of colours to mark the International Day Against Homophobia , Transphobia and Biphobia . An annual Community Day is held at the Doughnut to highlight the charitable and volunteer work by GCHQ staff in the local Cheltenham community .