



Calling planet Earth

The International Broadcasting Centre will link Stratford to the world during the London 2012 Olympic and Paralympic Games. But will it find a new owner after that, asks Mark Smulian

Four into one will go at the International Broadcasting Centre (IBC), built for the London 2012 Olympic and Paralympic Games.

This 275m long, 104m wide and 22m high behemoth will be used as the world's television and radio services during the

Games, and had to be designed around the broadcasters' needs. But what comes after that? Nobody knew what legacy user would come forward, if any, or what their plans for the building's future might involve.

The IBC therefore had to be designed to lend itself to multi-

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ple uses after the games, while fulfilling its role during them. This was the conundrum that faced architect RPS: to design for one known short-term user, and an unknown number of long-term ones with unknown business needs. The solution is a single building that can be easily subdivided into four if necessary, using what will be internal roads, during the pre-Games fit-out period, as boundaries between separate subsequent users should these be required.

Tony Pettifer, an associate at RPS, explains how it was done: "There was contamination and so the ground was made up to 7.5-14m depth and the engineers had to design it as a piled frame building."

Ground condition meant superstructure foundations had to be piled, with columns supported on pile caps. Beams provide lateral support and tie beams were used to share horizontal

loads from the superstructure bracing systems.

Pettifer says: "It is a steel frame with piling under the frame columns and the ground floor slab is ground bearing, so it is totally separate from the frame and that allows the frame to move in comparison to floor slab, though you would hardly see any differential movement."

Since no-one knew the legacy use at the point the building was designed, the structural frame is braced so if central sections forming 'roads' are taken out the IBC can be split into four totally separate buildings. "Internal roads are at ground floor level and can take two lorries side by side so they can stop and unload for the fit-out phase," Pettifer explains. "It is designed as one structure, but the intermediate spaces can be taken out and the four buildings clad around the road sides, just as you would have in any city street."

The front section of the IBC is comprised of offices on five floors. Broadcasters then occupy two huge spaces on two floors within the same overall building height. During the Games the IBC will include a 12,000 square metre catering village, serving 50,000 meals a day.

Studios will stand on both the ground slab and another slab at first floor level made from steel and in-situ concrete. These give 8m height clear space on the ground floor and 6m on the first floor.

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“There will be broadcasters there from all over the world who can put in any sort of studio space they need,” Pettifer says. “We handed over the building as a shell, and then a fit out company installs what each broadcaster needs. For example, the BBC will take large space, but broadcasters from smaller counties will want something appropriate to their size.”

Broadcasting studios need to be completely isolated against

the sounds of the outside world, so the IBC has steel cladding on both its external and internal faces with insulation between. “It’s very thick to stop noise entering the building, and that thickness specified for acoustic reasons also provides for thermal insulation,” he says.

Unlike most buildings nowadays, the IBC makes no use of natural light. The reason is that, just as broadcasters do not

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but not heated. Since the Games will take place in summer and the IBC will have thousands of people in it using heat-emitting electrical equipment, it was reasoned that it did not need any means of heating during that period.

Legacy users can of course install whatever heating they see fit into the building's shell, with the necessary connections having already been built into the structure. Cooling was essential because of the heat generated and the expected weather. This is provided from a detachable gantry that will hold all the building services for the IBC. While the gantry appears to be part of the building, it is in fact a separate steel frame structure attached for the duration of the Games, with a planning requirement that it be removed when they finish.

The standby generators are situated in its groundfloor so that in the event of power failure the IBC can function independently of the normal electricity supply. Air-handling units are on the next two levels, from which chilled air is distributed through ducting across the building, and at the top are the chillers themselves.

Pettifer explains: “The gantry is designed to cantilever over existing telecoms and fibre optic underground services, which are under the edge of the site. We could not put columns through them so the back columns hold up the front part, and so the engineers' main job was to ensure no possibility of it overturning.”

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want external sound ‘leaking’ in, nor do they want light interfering with their work. “It’s a black box with no natural light at all except into the offices,” Pettifer says. “Normally you design to allow daylight in where you can, but that was not the issue here. The IBC does not have to stay a black box in legacy use because the cladding can be taken off and replaced with windows. It is very flexible.” For a similar reason, the IBC is cooled



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Client: Olympic
Delivery Authority
Architect: RPS
Main contractor:
 Carillion
**Building services
 engineer:** Skanska

After the Games the legacy users will put in whatever services they need within the footprint of the main building. Whoever uses the IBC after the Games will find they are in an unusually sustainable building. Pettifer says the Olympic Delivery Authority specified a higher standard of sustainability than he had met on any other project.

“Sustainability requirements are far more stringent than any other building we’ve worked on in Britain or around Europe, even the paint had to be low in volatile organic compounds,” he says. “Just the fact that it is steel-framed helps, because steel is a sustainable material, it can be recycled easily and if the building is subsequently split up the cladding can be recycled if unused.”

One notable feature of the IBC is the speed at which it was built. Architectural and engineering design began in late 2008 and construction started in April 2009.

Construction of the steel frame started in July 2009 and was completed within about 10 weeks and the building was handed over for fit out in April 2011.

Pettifer says main contractor Carillion used an innovative building method by starting the steel frame from the north end, putting the roof cladding on a liner sheet, rather than the complete roof, and cladding down to within 1.5m of ground level. This quickly produced an area sheltered from weather, in which casting of the floor slabs could start.

Construction then continued on a sequential basis with the slab, frame and roof following each other southwards in stages

in about 10 weeks “a very fast process for such a large building,” Pettifer says. By the time the southern end was reached, services and the internal roof were already being installed at the northern end.

“We’ve learnt a lot on fast track construction and designing for it and on sustainability from the IBC,” Pettifer says. The IBC is part of a complex to the north-west of the Olympic site, and is adjacent to a building that will be used by print media during the Games, designed by architect Allies & Morrison, and a multi-storey car park. That is designed to be part temporary and part permanent, since the car parking capacity needed during the Games exceeds that anticipated in legacy uses.

What of the future? In theory, the IBC could be dismantled – though the press centre cannot – but this seems highly unlikely. The Olympic Park Legacy Company has named a shortlist of three potential users of both the IBC and the press centre. These are: UK Fashion Hub, which proposes a centre for fashion industry wholesalers, buyers and the creative industries; Oxylane Group, which wants to run a leisure, research and education centre in partnership with Loughborough University; and iCITY, a cloud computing centre, with research laboratories, post production, graphic designers and digital education facilities for business innovators.

But before that, although the public will have no access to the IBC, billions of people around the world will see its output during the Games.