

## COMPANY

**Cundall**

## LOCATION

**London, United Kingdom**

## SOFTWARE

**Autodesk® BIM 360™ Glue®****Autodesk® Navisworks®****Autodesk® Revit®**

“In order to maintain competitive advantage around the world, we have implemented a BIM first strategy, to ensure that all projects can be delivered in the most accurate, timely and cost effective manners, for all clients. We are leading the market in this sense and see BIM as a real game-changer for our customers.”

– **Graeme Padgham**  
Global Head of IT and BIM  
Cundall

# The future of Data Centre Design

## Cundall implements a ‘BIM first’ strategy to deliver innovation in datacentre design



Day and night view of the Telehouse datacentre, TN2 © Cundall

### Introduction

Established in the UK almost 40 years ago, Cundall has developed into an international multi-disciplinary engineering consultancy operating from over 20 locations across the globe. With more than 600 employees world-wide, Cundall has built close relationships with its customers to deliver the projects they want, in the most innovative and efficient ways.

Cundall currently operates in the UK, Australia, Asia, MENA, and Europe. Initially started in the UK, the business has taken its knowledge and award-winning engineering expertise from recent decades to each of these markets, and tailored it to suit individual local needs. The success in these new markets is attributed to Cundall's ability to be flexible, highly responsive and adaptable to the different challenges, regulations and local practices which influence the delivery of projects in each region.

### The challenge

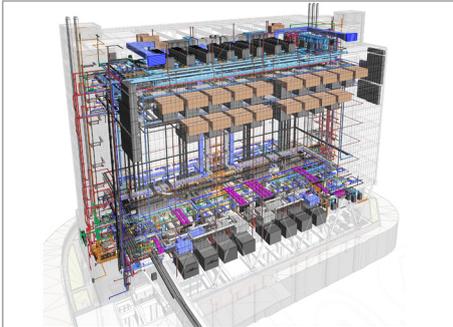
For this particular project, Cundall was working with Telehouse to build a new datacentre in the heart of the Canary Wharf financial district in London. The project was challenging in many respects, not least

due to the highly complex nature of any datacentre design, with the advanced technology at the heart of the building, along with the supporting elements required, especially the cooling systems.

Cundall faced a further challenge in the footprint for the building, which was significantly smaller than that of typical datacentres, meaning that a multi-story datacentre needed to be cleverly designed and built. “The Telehouse datacentre is the first of its kind in the country” says Steve Brigg, lead engineer, Cundall. “The cooling system in particular needed to be hugely innovative to support the multi-story requirements, which is why it was essential that we used industry leading tools to inform our decision making and provide one clear view of the design, for all parties involved.”

Operationally, the project needed to be seamless, requiring a coordinated effort across Cundall, Telehouse and other suppliers involved in the project. The project itself is a mission-critical build, which needed to support the technologies held within it, and have the flexibility to allow for future changes, should specific kit within the datacentre need to be replaced.

For us, Autodesk has market leading BIM tools which allow us to scope, plan and design projects and work closely with partners outside of our organisation.



Services view of the Revit model © Cundall

### Putting technology at the heart of the design process

Graeme Padgham, Global Head of IT and BIM, Cundall says: "In order to maintain competitive advantage around the world, we have implemented a BIM first strategy, to ensure that all projects can be delivered in the most accurate, timely and cost effective manner, for all clients. We are leading the market in this sense and see BIM as a real game-changer for our customers."

At its heart, the Cundall team is focused on producing technically brilliant designs which push the boundaries to innovate for their clients. A significant portion of this innovation is now supported using BIM tools, enabling a greater level of certainty for projects. Through using industry leading tools, Cundall can be confident that they can hand any approved designs over to contractors and know that the models have been agreed by all parties and have the clients' best interest at heart, for the duration of the project.

To design the datacentre, the team had to consider how each of the services homed within the structure related to each other and the structure of the building. For example, the weight and load of the services themselves and the cooling systems - both the air and the secondary water cooling system on the roof. Along with the practical considerations, a further consideration in the design of the building is the location of the project. Situated at the gateway to Canary Wharf and visible to the surrounding area, the building has also been designed with a circuit board motif on the side, to create a feature landmark for the area. Not only this, but the team also had to factor into the design a listed, original dock wall which is

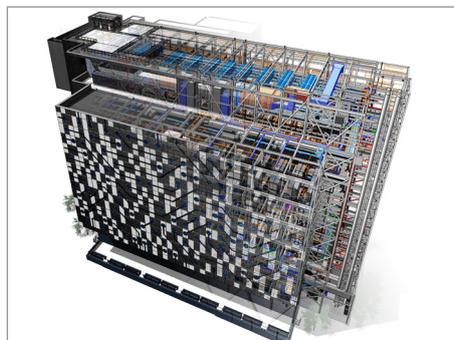
protected by English Heritage. As such, being able to demonstrate how the project would look in situ, for all parties involved, including planning authorities, was an essential part of the project.

### Choosing the tools

The business made the decision to use Autodesk® tools to ensure greater collaboration with partners in projects across industries, including architects and engineers at other firms involved in any other builds. The business also saw the benefit of graduates entering the business who could already use Autodesk tools, as part of the Autodesk education scheme whereby schools and universities are given access to the technology in order to learn on industry software.

Cundall used Autodesk® BIM360™ Glue®, Autodesk® Navisworks®, and Autodesk® Revit® to deliver the project, along with a number of data plug ins to support the project, determining acoustics and lighting, along with daylight simulation and sustainability calculations. All of these simulations could be run from the Autodesk hub to drive decision making and greater efficiencies across the project.

Padgham says, "A key consideration for us was to use a tool which is common across the industry to enable greater collaboration throughout the project. For us, Autodesk has market leading BIM tools which allow us to scope, plan and design projects and work closely with partners outside of our organisation. We have also trained 200 people over three years to ensure our team has a solid understanding of BIM tools and can better support our clients through their projects."



Full view of the Revit model © Cundall

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– **Steve Brigg**  
Lead Engineer  
Cundall

### Building the Future

The Telehouse datacentre is due for completion in 2016 and is set to be an outstanding achievement for all involved. Looking to the future, Cundall will continue to plan and deliver projects using BIM tools, in order to drive greater certainty for all involved, across costs and timeframes. In terms of approval processes with clients and other stakeholders, using BIM tools will also enable shorter phases for redrafting concepts, as designs change.

Creating one view of a design which is accessible for all involved is central to the Cundall vision of the design and creation of innovative structures in the future. "All forms of engineers and all parties involved in projects having one view of the truth should be the industry norm. We would recommend that all businesses in the construction field act quickly to look at how BIM tools can be implemented into their processes, starting with one project to understand the opportunity and then building from there. It's a win-win for our teams, partners and customers alike" says Brigg. "By pulling together with one vision, we can provide better quality buildings through greater collaboration."