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—Joe Chen  
Vice President, Corporate Real Estate Facilities, Travel, Safety, and Security  
Autodesk

- 100 percent powered by renewable energy
- Lighting load 21 percent below ASHRAE levels
- Water consumption 27 percent below LEED requirements
- Diverted 96 percent of construction waste from landfill
- 16 percent of existing materials (by cost) reused
- 36 percent reused furniture content (by cost)
- 20 percent recycled materials content (by cost)
- 99 percent of regularly occupied area daylighted

# Green office, great productivity.

British design firm creates aesthetically pleasing, productivity-boosting green office space for Autodesk.



The office is on track for LEED Gold Commercial Interiors and SKA Silver certification. Image courtesy of Autodesk.

## Project Summary

Autodesk is a global leader in the 3D design, engineering, and entertainment software used by professionals to create some of the world's boldest and most imaginative and inspiring projects. Autodesk also strives to serve as a model for sustainable best practices by using its own products to push energy and greenhouse gas emission reductions throughout its global office portfolio. "We are committed to sustainable operations," says Joe Chen, vice president of the company's Corporate Real Estate Facilities, Travel, Safety, and Security (CREFTS) division. CREFTS is also tasked with improving staff collaboration and productivity and better supporting all Autodesk employees—wherever they work. One important way that CREFTS pursues these goals is through building office environments that help attract and retain top talent.

That's why Autodesk recently turned to the UK's leading office design, refurbishment, fit out, and relocation specialist—Morgan Lovell—for help moving into a new, 21,000-square-foot office space in Farnborough, England. "From start to finish, sustainability is at the core of our interiors practice," says Adrian Norman, head of design at Morgan Lovell.

## The Challenge

Before completing the office relocation, Autodesk housed its Farnborough staff in approximately 27,000 square feet of office space in an older, less energy efficient building two kilometers away from the new office. The Farnborough office supports the activities of numerous mobile workers who work from a variety of locations throughout the week. "The old office did not have the variety of spaces we need to support remote workers, and those that did exist were used inefficiently," says Donna Bourne, regional facilities manager for Autodesk in Northern Europe. "It was common to see one person making a private call in a room designed for 20 people."

In addition, because Autodesk occupied space on three separate stories in the building, collaboration was quite difficult. "There was no sense of teamwork," says Bourne. "It was almost like people on other floors worked for different companies. It was definitely not meeting our needs. Morale was quite low."

# Autodesk conducted workplace surveys that gathered employee input about mobility, collaboration, and sustainability.

To overcome these challenges, Autodesk chose to move its Farnborough offices to the nearby Discovery Building, where its staff could occupy the entire second floor of the building. The new building was ideally situated for access to public transportation. It did, however, present several challenges. "We selected the new office for its location and floor plate size—not for its sustainability attributes," says Bourne. The building itself was 10 years old and, in some cases, required many upgrades to meet even minimal sustainability requirements. "There were simply no available LEED®- or BREEAM-certified buildings in our target area."

As a result, Morgan Lovell would need to overcome several specific sustainable design challenges, including reducing the lighting load, integrating the existing 20,000-square-foot metal pan ceiling, and satisfying the requirements of both LEED and SKA green certification programs.

## The Solution

Morgan Lovell was well suited to help overcome the challenges associated with the new office and achieve the project goals. The company offers an array of sustainable design services designed to minimize any harmful environmental impact caused by the construction and operation of its projects by following environmental best practices, such as onsite recycling, environmental training, and employing LEED- and BREEAM-accredited staff. Morgan Lovell also practices what it preaches: it was recently rated the 23rd greenest company in the United Kingdom.

The process of creating the new office began long before the move with a series of leadership interviews, focus groups, and workplace performance surveys conducted by CREFTS. "Our goal was to gather feedback that would help Morgan Lovell design a new office space that addressed the need for mobility, collaboration, and individual work," says Jenny Lum, senior program manager, global projects, CREFTS. The survey also permitted employees to provide written feedback. "Many specifically requested that any new space utilize more natural lighting, higher-quality HVAC, and more efficient lighting."

Once Autodesk issued the project requirements, Morgan Lovell relied upon Autodesk® 3ds Max® Design visualization software to create photorealistic renderings of its proposed designs and win the project. For help with basic project design and collaboration, Morgan Lovell used AutoCAD® Architecture software and Autodesk® Buzzsaw® collaboration software as a service

"One of our main design goals was to get the employees to use the office and to create a sense of workplace buzz," says Norman. "We wanted to provide a wide variety of spaces that would support the employees and get them back into the office when they needed it." These spaces would include open workspaces, shared desks for mobile workers, large meeting rooms, phone booths, and quiet rooms.

We created an animated walk-through of the new office with Autodesk 3ds Max Design software. It was so impressive that when one of the Autodesk stakeholders visited from Canada, the new office barely surprised him. He already knew exactly what he was getting before ever visiting the site.

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Morgan Lovell plc

Morgan Lovell designed the new office around the hub of a large, central glazed atrium. "We wanted the employees to be able to sense movement around them," says Norman. "As a result, even if they are in a quiet area, they still feel very in touch with the rest of the building and staff."

To communicate design intent during the design process, Morgan Lovell again used 3ds Max Design. "We created an animated walk-through of the new office with 3ds Max Design," says Norman. "It was so impressive that when one of the Autodesk stakeholders visited from Canada, the new office barely surprised him. He already knew exactly what he was getting before ever visiting the site."

Such a high level of detail proved useful in keeping external consultants up to date on the team's progress. "When they watched the fly-through, they often were not sure if they were watching an actual film of the office or a digital mock-up," says Bourne. "It is that good."

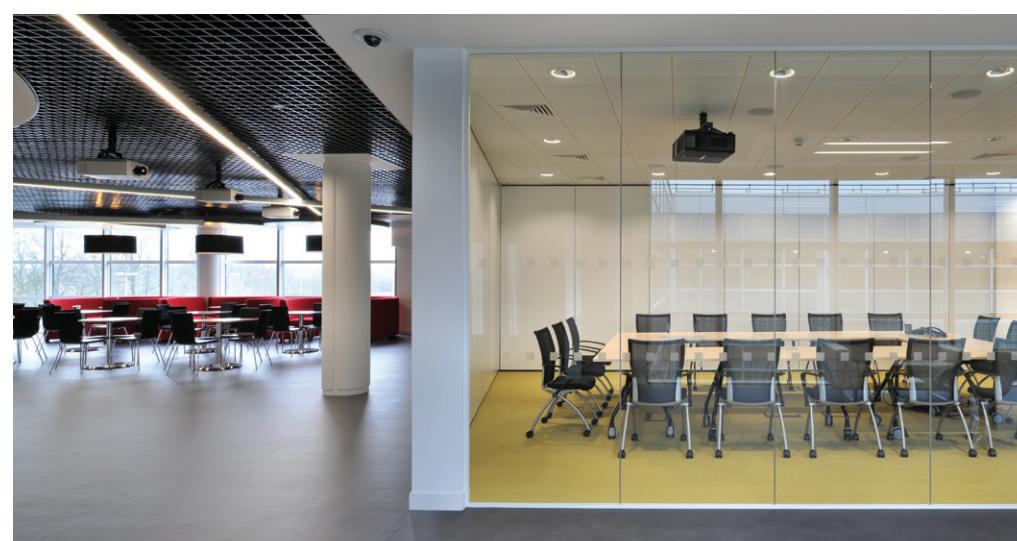


Image courtesy of Autodesk.

## Designed with Sustainability in Mind

To maximize sustainable operations and energy efficiency, the project team decided to pursue both LEED Gold and SKA Silver green design certifications—an approach that would ultimately provide many benefits, but posed short-term challenges.

"Autodesk wants to standardize its facilities portfolio and have an easy way to rate and compare its buildings," says Sophie Hutchinson, sustainability manager at Morgan Lovell. "That was the main driver for pursuing LEED certification. But there was also enough common ground between LEED and SKA that it made sense to go after both certifications."

"The main challenge we had in the new space was lighting," says Hutchinson. "It did not comply with the LG7 office lighting standards at all. We had a battle on our hands right from the start." Adding to the challenge was the existing building's metal pan ceiling. "From a cost perspective, we could not just throw the whole thing away or recycle it. There is just too much embedded energy contained in 20,000 square feet of metal pan ceiling." Morgan Lovell took down approximately 18 percent of the ceiling tiles to insert a racing track ceiling grid instead of infilling the existing holes. "That approach allowed us to use indirect lighting in the office space, while making sure that we made the most of the existing building fabric."



The new office includes spaces designed for impromptu collaboration. Image courtesy of Autodesk.

To meet LEED requirements, Morgan Lovell had to reduce the lighting load and supplement that system with local occupant control—something that would add significantly to the project cost. To solve this problem, Morgan Lovell designed an innovative hub-and-spoke system that takes advantage of the natural sunlight from the building atrium and perimeter windows while, as necessary, including some occupancy sensors.

Morgan Lovell completed a variety of other tasks to meet the sustainability requirements. These tasks included installing high-efficiency appliances, using low-VOC building materials, and recycling furniture from the former office. When purchasing new furniture, Morgan Lovell sought—as much as possible—to maximize recycled content and obtain products that were GREENGUARD Indoor Air Quality Certified® and sourced in the United Kingdom. The GREENGUARD Certification Program helps manufacturers create—and buyers identify interior products and materials that have low chemical emissions.

## The Result

"Everyone is delighted with the project outcomes," says Bourne. "The new office is vibrant and has a great layout that is tailored to the needs of our employees." The new office includes 18 small rooms and phone booths, five smaller meeting rooms, and a couple of large meeting rooms. "When they are in the office, they don't feel robbed by not having their own desk because they always have someplace

to go. One day I walked around and saw that every single one of the small rooms and phone booths was being used. The new office has definitely improved workplace productivity."

The new office also achieved significant green design goals, despite the challenge of pursuing dual accreditation. The office is on track for both LEED Gold Commercial Interiors and SKA Silver certification. "We ended up reaching more LEED and SKA goals than required because we always had to choose the more stringent of the two systems requirements," says Bourne.



Image courtesy of Autodesk.

# The new office achieved a 27-percent reduction in water usage when compared to the baseline.

The completed office achieved a 21-percent reduction in lighting power against the baseline and a 27-percent reduction in water usage. "Even though the base building was old and required many upgrades, we were still able to turn it into something great—and sustainable," says Bourne.

By locating all employees on one floor, Autodesk received additional benefits beyond improved collaboration. "By reducing the office's footprint through adoption of modern working practices, we saved about 8,000 square feet and achieved a corresponding decrease in energy usage," says Norman. "That's directly related to the use of mobile working, desk sharing, and telecommuting." The reduction in office footprint also helped Autodesk maximize the use of its real estate portfolio.

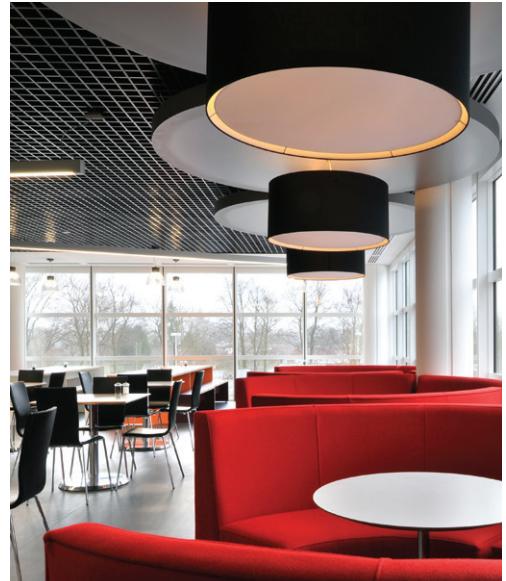
"By factoring in the new lease and depreciation costs, we were able to reduce the overall cost of our Farnborough office by half a million dollars a year," says Chen. "We also significantly reduced the office's carbon footprint per employee and are much better able to meet the needs of our employees." Occupancy figures for the new space back up Chen's assertions. "More people are coming into the office because the space is tailored to their needs."

## A Mutual Learning Experience

"This project was quite exciting," says Norman. "We added to our knowledge about mobile working and the methodology behind that. We appreciated how much effort Autodesk made to capture employee feedback through interviews with key personnel, as well as the workplace performance survey that it distributed to every employee." The surveys were instrumental in conveying employee demand for a greener workplace. Based in part on what it learned on this project, Morgan Lovell has expanded its workplace consultancy offerings. "We conducted a marketing seminar at the Farnborough site talking about offices of the future. We are using the office as marketing collateral." Morgan Lovell also enhanced its knowledge about implementing LEED requirements in the UK.

"It was great to be so involved in the design of an office," says Bourne. "Morgan Lovell did a great job on this project. I learned a lot from them and from this whole process. It will definitely help me on future projects in the other offices that I manage."

For more information, visit [www.autodesk.com/sustainable-design](http://www.autodesk.com/sustainable-design).



The office includes rooms and phone booths, meeting rooms, and conference rooms. Image courtesy of Autodesk.

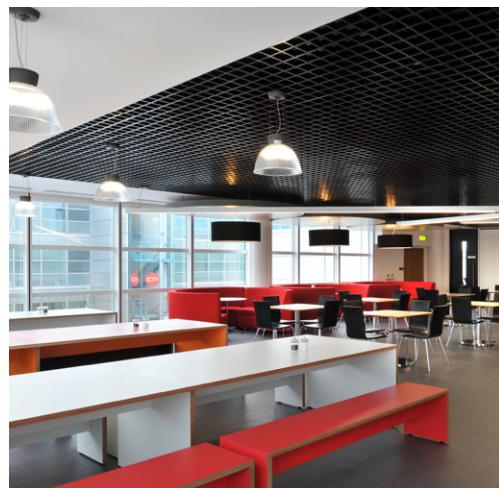


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