BIM: The Future of Smart, Sustainable Buildings

ASSA ABLOY
Opening Solutions

Experience a safer
and more open world

Revolutionising the Building Landscape

BIM - More than a technological development

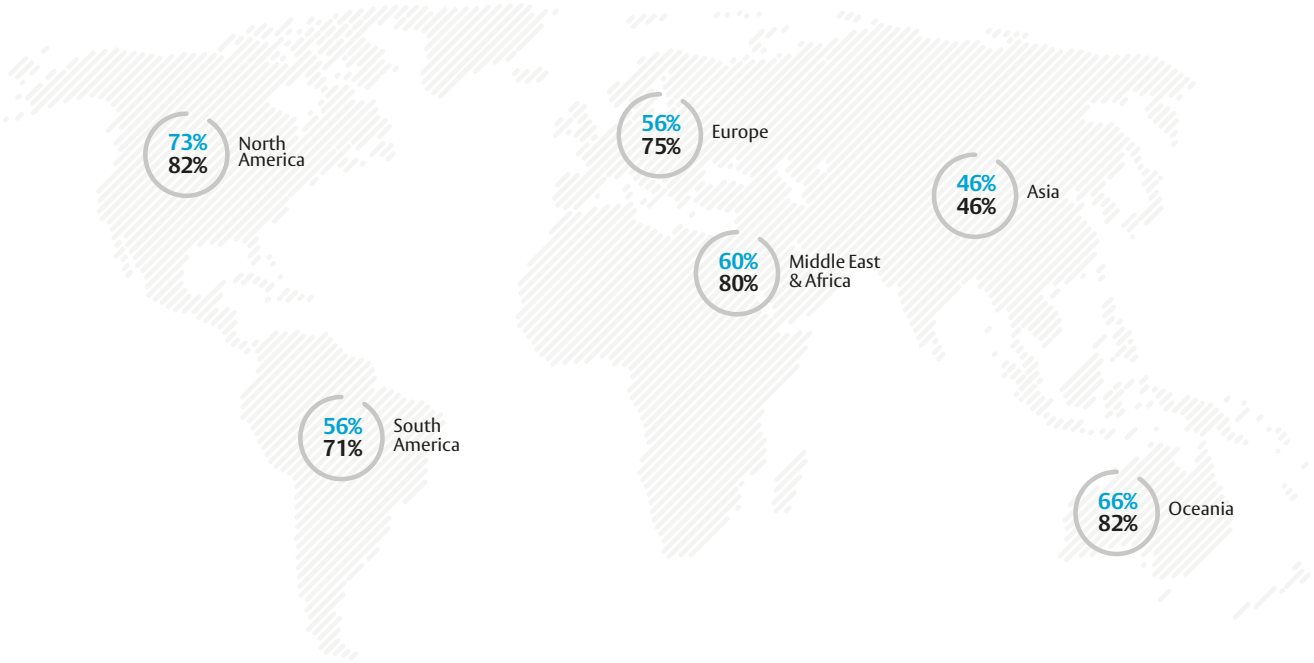
Building Information Modelling (BIM) - it's about effectively managing information throughout the project lifecycle. A BIM-enabled approach to design, construction and facilities management helps create better performing and more environmentally friendly buildings while reducing costs and boosting productivity.

BIM adoption is approximately 54% in the UK, but this is expected to rise to 97% in the next five years, according to the most recent National BIM Report.

The global BIM landscape

BIM Adoption
BIM Proficiency

Ratio of users at advanced or expert level



(Source: Wooyoung Jung and Ghang Lee, The Status of BIM Adoption on Six Continents, International Journal of Civil, Environmental, Structural, Construction and Architectural Engineering.)

BIM delivers advantages throughout the project life-cycle

BIM is an accurate and collaborative methodology that uses digital tools to promote efficiency, sustainability and innovation throughout the project lifecycle. Stakeholders gain substantial value from BIM-enabled cooperation and information sharing, which delivers major benefits across design, construction and facilities management processes. The net result is a more cost-effective build.

75% of those who have adopted BIM reported a positive return on investment, shorter project lifecycles and greater cost savings, according to McKinsey research. The key is for all stakeholders across the supply chain to be BIM enabled.

When manufacturers like ASSA ABLOY provide complete product information as BIM content, you benefit from the earliest design stages. Architects, specifiers, contractors, subcontractors, suppliers and facilities managers can then use BIM software tools to access the information and collaborate effectively.

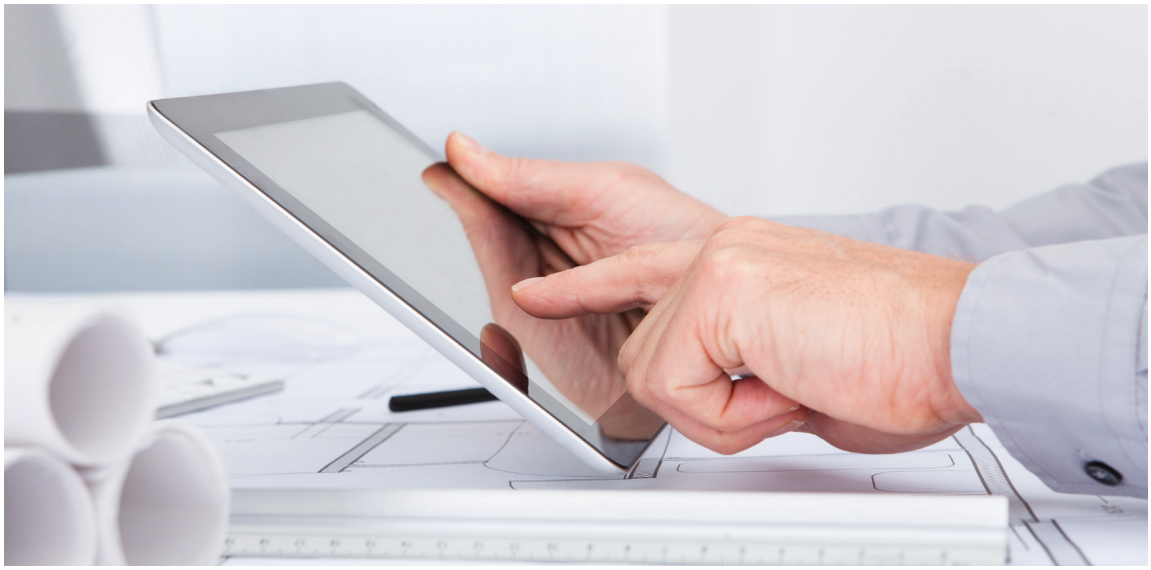
This is an ongoing cultural shift within the industry, and the more progress we make, the better able we are to deliver high-performing, secure and environmentally friendly buildings.

Design & specification

Design and pre-construction have the greatest impact on sustainability and performance, and BIM enables a more effective approach.

It's easy to think of BIM as advanced 3D, but it offers so much more. Alongside the visualisation benefits, BIM uses intelligent objects that provide enriched data on every element of the design, leading to more informed specification decisions.

- BIM provides immediate access to extensive data so you can make real-time decisions based on accurate information. You can easily compare different design, material and product options from an early stage, enabling you to optimise the building's environmental footprint, performance and cost.
- With BIM-enabled visualisation, it's simple to identify design issues early so you can address them before construction begins. This helps you reduce carbon emissions and material waste.
- You mitigate the risk of less sustainable substitutions as the project progresses because it's easy to share information. All stakeholders can monitor the building's total performance on an ongoing basis, so there's complete transparency as to what effect changes will have.



BIM facilitates sustainable design in many ways

Building orientation
Selecting a good orientation to reduce energy costs.

Building massing
To analyse building form and optimise the building envelope.

Daylighting analysis
To make best use of space, improve comfort and reduce lighting and cooling loads.

Water harvesting
To reduce the building's water needs.

Energy modelling
To analyse renewable energy options, optimise circulation and reduce energy needs generally.

Sustainable material selection
To reduce material requirements, make the best use of recycled material and accurately account for whole-life costs .

Door opening and access control solutions have a major impact on a building's safety, security and sustainability. As a result, they're increasingly important BIM components for optimising performance, comfort and reliability.

For example, BIM objects have embedded GREEN data and links to Environmental Product Declarations, so you have real-time access to key information. In one click, you can compare U-values for doors and operational energy consumption for electrical access control components, so you can make smarter specification decisions that fit within your aesthetic vision.

All of these benefits come from having access to a wide range of BIM objects you can embed in your authoring software tool.

(Source: R.M. Dowsett and C.F. Harty, Evaluating the Benefits of Sustainable Design – A Review, School of Construction Management & Engineering, University of Reading) .

Construction

Once a project reaches the construction phase, BIM helps boost productivity and reduce waste.

When you have standardised information structures and use compatible BIM software, contractors and subcontractors can easily use the design package to ensure the building stays on track with KPIs.

- Construction lags behind other industries in terms of productivity, in part because it's still heavily reliant on paper. With BIM, you have an accessible source of accurate digital information, which stakeholders can share. During the construction process, this helps mitigate against a range of risks – from incorrect ordering to time-consuming installation – because you can find answers quickly in the BIM content.
- BIM streamlines site and logistics management, helping projects run smoothly. This has productivity benefits and helps projects stay on track and within budget. And by using everything from materials to plant efficiently, you reduce the site's overall environmental impact.
- BIM also helps reduce waste during construction. Since you can access detailed data about materials, you can create more accurate site waste management plans that increase recycling rates and reduce the volume of waste you send to landfill.
- If you do need to make specification changes during construction, your BIM-enabled forecasting and modelling abilities allow you to visualise those changes and estimate how they will affect the building's performance (as well as the project cost and delivery schedule).

BIM content makes it easy for trades to coordinate, helping everyone on site work more productively. Installers can view complete door solutions on mobile and tablet, so now they know the exact positioning of all hardware and access control components. The electrical subcontractor can use wiring diagrams to see all required connection points. And everyone can track the progress of installation across the site.

When providers, contractors and subcontractors are all BIM-enabled, everyone can collaborate efficiently to deliver a high performing building while minimising waste.

BIM & the Project Lifecycle

Post-Construction

BIM streamlines accreditation from green building assessment schemes like BREEAM®.

When you use BREEAM-educated manufacturers that guarantee compatible BIM content, it's easy to prepare accurate submissions for green building schemes – because data is already consolidated. And since BIM allows you to track environmental performance against KPIs throughout design and construction, all parties can have complete confidence the required ratings will be achieved.

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The key input to the BREEAM assessment process is building and building-related data. BIM rationalises the location and format of this data, and in doing so increases the potential for informed decision-making compared to traditional approaches to design, construction and management.

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Building Research Establishment

Facilities management

BIM simplifies handover to building owners and facilities managers.

Traditional work methodologies require submission of numerous deliverables in different formats, increasing the risk of mistakes and information gaps. BIM mitigates this risk with as-built data consolidation. You simply give the BIM data to the client or building operator, and every detail is present in a central source.

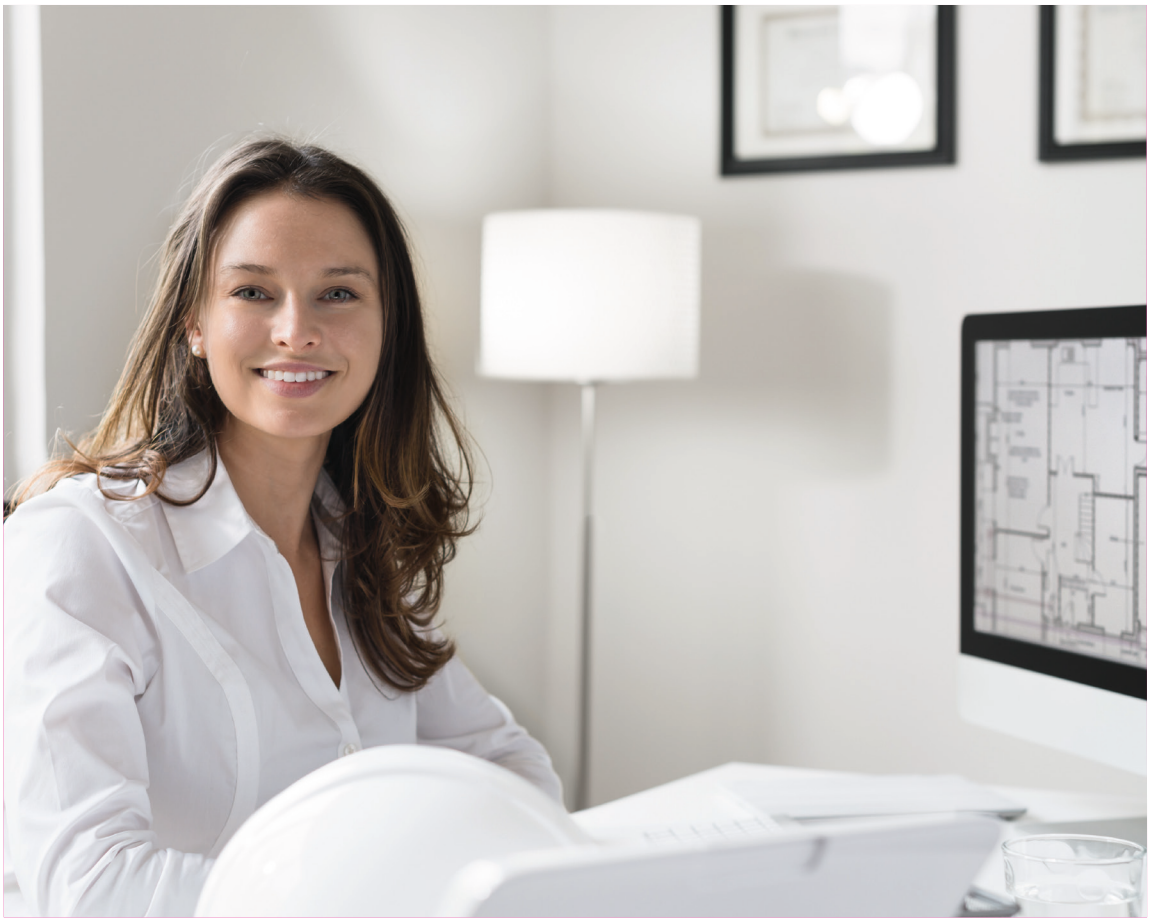
- BIM gives operators ongoing access to accurate information on environmental ratings, maintenance requirements, asset condition and more.
- It's easy to plan maintenance schedules proactively, minimising the environmental impact of downtime and repairs.
- With the trend towards smart buildings, BIM helps manage the building's growing data output while facilitating collaboration between all relevant parties.
- In-use performance data feeds into the BIM environment, helping building owners and operators make informed decisions about future design changes and product and material replacements.
- It's simple for facilities managers to place orders because all relevant information is in the BIM object.

BIM & the Project Lifecycle

In recent years, we've seen growing use of BIM-oriented building and facilities management systems worldwide, and this is driving demand for more detailed handover information. Operators want to be able to monitor the lifecycle of door closers, door handles and access control equipment.

They want to be able to schedule maintenance proactively so components last longer, and they expect information (like the contact links and article numbers in the BIM object) to be readily available so they can easily order replacements.

All these BIM-enabled benefits help facilities managers, operators and owners maintain the building's performance, optimise budgets and enhance comfort for end users.



Skanska, Norway

Skanska Norway is reaping the benefits of BIM throughout the project lifecycle. Working with Autodesk® BIM 360™ Field and partnering with Trioving ASSA ABLOY as well as BIM-enabled subcontractors, Skanska is reinforcing its position as an industry leader.

Architects and specifiers use BIM to deliver more feasible, innovative and buildable 3D designs that set standards for performance, comfort, reliability and sustainability. The door and hardware BIM content and expertise from Trioving ASSA ABLOY feeds directly into Skanska's project management platform, supporting coordination, installation and as-built data consolidation.

Information from BIM objects is then available throughout the production phase, so Skanska achieves a paperless construction site.

Subcontractors use iPads to scan QR codes on site, loading all information about a particular door and its associated hardware and access controls. This includes sketches and 3D models of the complete door solution, as well as hardware sets and collateral data like wiring diagrams. Everyone from the installer to the electrician knows exactly what's required, so jobs are done right first time. And managers can follow the status of installations made on door and door equipment very efficiently.

The real-time information sharing and collaboration among all stakeholders boosts productivity, reduces waste, prevents mistakes. The result: a reputation for excellence and innovation among clients and subcontractors.

BIM: A Digital, Collaborative Future for Sustainable Design & Construction

Effective information sharing is one of the biggest challenges facing the global construction industry. As governments and building owners require the sector to adopt a more sustainable approach and deliver better-performing, cost-efficient buildings, BIM will play an increasingly vital role.

Not only this, but 71% in the UK want manufacturers to provide BIM objects, striving for a collaborative approach.

And with global BIM adoption and proficiency on the rise, it's clear that stakeholders are moving in the same direction – collaborating to deliver innovation and drive growth.

About ASSA ABLOY

Since its formation in 1994, ASSA ABLOY has grown from a regional company into an international group with about 46,000 employees, operations in more than 70 countries and annual sales of SEK 68 billion. ASSA ABLOY was the first manufacturer to join the BREEAM® Associate certification scheme, and is an industry leader with more than 250 Environmental Product Declarations.

By increasing choice and knowledge sharing, ASSA ABLOY's BIM expertise opens up new possibilities for more informed, sustainable and complete door openings solutions, adding value throughout the project lifecycle – from design and specification through to delivery and beyond.

ASSA ABLOY offers powerful 3D, BIM-enabled tools for doors and hardware specification:

- ASSA ABLOY OPENINGS STUDIO™ is an innovative and smart BIM-enabled product specification tool that helps users create complete, tailored door opening solutions.
- ASSA ABLOY BIM DOOR SOLUTIONS offer a high quality selection of BIM-ready openings packages for a wide range of projects.

Delivering complete openings solutions at the push of a button, these tools streamline the decision-making process, improve choice and collaboration and add value at every project stage. Both tools are delivered and fully supported by ASSA ABLOY, bringing a proven pedigree and track record of excellence.

Visit www.assaabloy.nn/bim to learn more

The ASSA ABLOY Group is the global leader in access solutions. Every day we help people feel safe, secure and experience a more open world.

ASSA ABLOY
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