

eBOOK

ABB Electrification BIM solutions for digital buildings



Together, for the digital buildings challenge

The rapid evolution of technology has brought about significant changes in the construction and building industry.



Together, for the digital buildings challenge

Building Information Modeling (BIM) has emerged as a crucial tool for enhancing efficiency, reducing costs, and improving collaboration among stakeholders in the construction process.

In recent years, several countries have recognized the transformative potential of BIM and have implemented regulations mandating its use in the construction industry.

Read further to discover how!

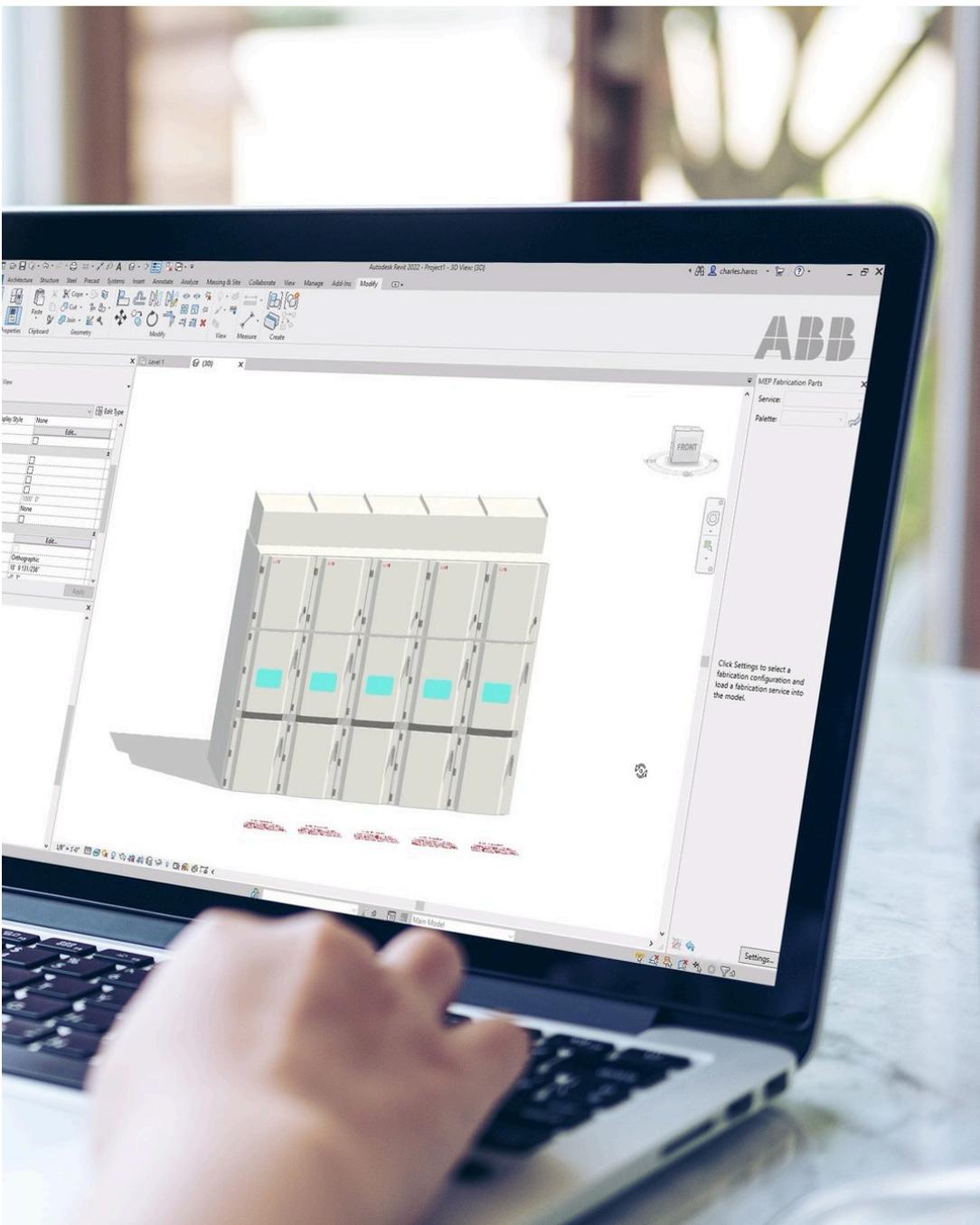
United Kingdom

The UK Building Safety Act, introduced in response to the Grenfell Tower tragedy, aims to enhance building safety and accountability in the construction industry. The Act requires duty holders to demonstrate compliance with building regulations and to manage safety risks throughout a building's lifecycle.

- The regulation applies to buildings that are over **18 meters high** or have **seven or more storeys**, and contain at least two residential units, whether they are new or already occupied.
- These requirements also extend to **care homes** and **hospitals** that meet the same height criteria.

BIM plays a crucial role in fulfilling the Act's requirements, as it enables the **creation of comprehensive digital models** that provide detailed information about a building's design, construction, and maintenance, facilitating effective safety management and oversight.





Italy

From 2025 onward, the requirement for BIM implementation will be fully enforced for a broad range of public projects with a value exceeding one million euros, as stipulated by **the new procurement code (Legislative Decree 36/2023)**. This regulation confirms the approach outlined in the previous code and Ministerial Decree 312/2021.

Consequently, **the compulsory adoption of BIM will be applicable from 2025 for:**

- **Projects with a value exceeding 1 million euros**
- **The design and construction of new buildings**
- **Interventions on existing buildings**

Article 43 confirms the legislative intent to promote the use of BIM beyond the specified cases, introducing the possibility of bonus points, with the overarching goal of safeguarding public expenditure. Furthermore, paragraph 2 explicitly states that the contracting authority, even when not mandated to do so, has the discretion to adopt the BIM methodology and may even incorporate bonus points.



Spain

The BIM Plan for Public Procurement mandates the phased implementation of BIM in public contracts, with specific guidelines for its compulsory use.

It outlines three key factors: the application to contracts above a certain value, a **progressive timeline from 2024 to 2030**, and the requirement to achieve **five distinct levels of BIM implementation**. These levels, ranging from pre/non-BIM to integrated, form a structured approach for the gradual integration of BIM and provide a framework for the actions that contracting authorities must undertake.

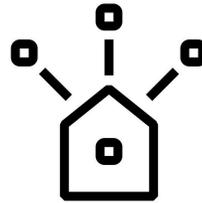
The plan also defines **minimum BIM information requirements for each level**, which contracting authorities must incorporate into the **technical specifications of procurement documents**.

Additionally, authorities have the option to include BIM considerations as technical and professional abilities, award criteria, or contract performance conditions, based on their discretion.

All BIM advantages for the building sector



BIM allows for the creation of **3D models** that provide a **comprehensive view of the building**.



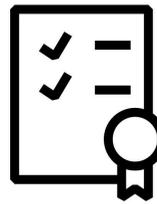
BIM can be used to create **detailed models of commercial buildings**, enabling better coordination of building systems.



BIM allows for the creation of accurate **quantity takeoffs and cost estimates**.



By standardizing the use of BIM, governments can promote greater **efficiency, collaboration, and data interoperability**.



It leads to **higher-quality construction outcomes** and supports the development of a **skilled workforce** in BIM technology.



Contributes to better **project oversight, cost control**, and the integration of **sustainable building practices**.

BIM for sustainability

Enhancing sustainability in small and big construction projects

BIM supports sustainable design, construction, and operation of buildings by enabling better decision-making, reducing waste, and improving energy efficiency and performance throughout a building's lifecycle.



Energy Efficiency: BIM allows for the creation of detailed 3D models that can be used to simulate and optimize building performance, including energy consumption.



Lifecycle analysis: It can be used to assess the environmental impact of a building throughout its entire lifecycle, from construction to operation and demolition.



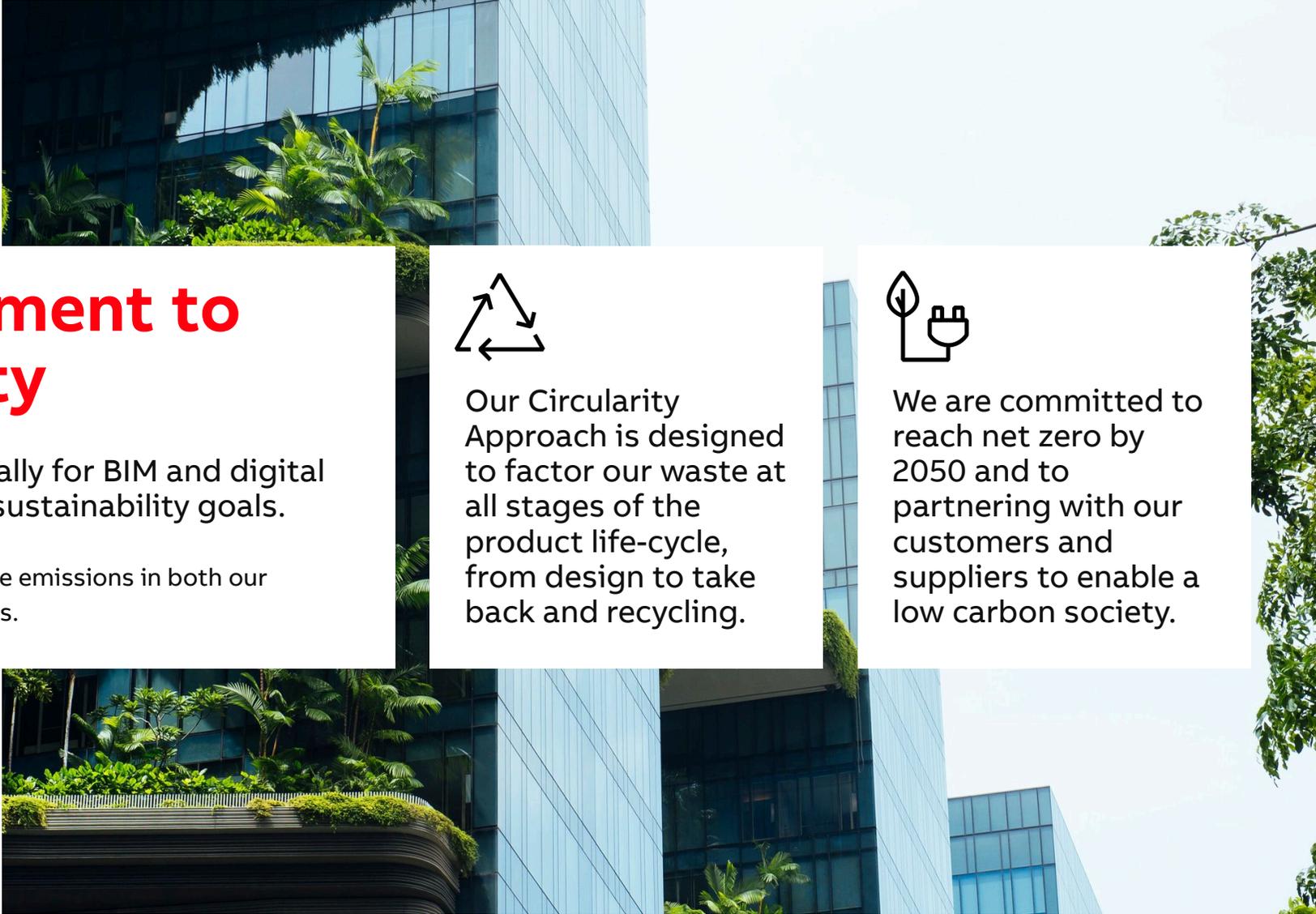
Green Building Certifications: BIM can support the documentation and analysis required for green building certifications such as LEED and BREEAM, helping projects achieve and maintain sustainability goals.



Waste Reduction: By enabling better coordination and planning of construction activities, BIM can help reduce material waste and improve resource utilization.



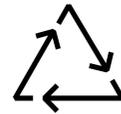
Collaboration & Communication: It supports collaboration and communication among project stakeholders, fostering integrated design and construction processes for sustainable and efficient building outcomes.



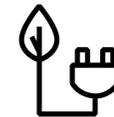
Our commitment to sustainability

ABB emerges as a reliable ally for BIM and digital solutions to achieve their sustainability goals.

ABB technologies avoid and reduce emissions in both our customers and our own operations.



Our Circularity Approach is designed to factor our waste at all stages of the product life-cycle, from design to take back and recycling.



We are committed to reach net zero by 2050 and to partnering with our customers and suppliers to enable a low carbon society.

Our case study: living without costs for electricity or heating

Carbon-neutral residential neighborhood in Maennedorf, Switzerland, thanks to ABB smart technology.

The new residential complex was built by the Umwelt Arena Schweiz in collaboration with Empa and the Klimastiftung Schweiz. It meets the demand for low carbon emissions

raised by young people already today. With photovoltaic modules plus the two wind turbines, renewable electricity is produced locally. The production covers the energy demand for heating and cooling and the production of hot water for all 16 residents. The buildings combine a variety of innovative, future-proof solutions and enable the carbon-neutral operation of the residential neighborhood Maennedorf.

Smart home technology from ABB

The apartments are equipped with ABB's smart home solutions. With [ABB-free@home®](#) system, the entire home can be controlled with either a switch, a touch panel on the wall, a smartphone and via voice control. [ABB-Welcome IP](#) door communication system can be integrated into the ABB-free@home® system. Both can be used together with the ABB-free@homeTouch 7" panel.

[Discover more](#)





**BIM solutions to achieve
sustainability goals**



System pro E[®] energy L & M

ABB's solutions for sub distribution **protect, monitor, measure and eventually make your installation smart and fully connected.**

Compliance with highest energy efficiency standards and complete control over the total facility consumptions to **save up to 20% of energy and reduce CO2 emissions by 15%.**



Main benefits

- Easy, simple and flexible
- Safe for users, reliable and sturdy
- Quick assembly

BIM portfolio

- [System pro E[®] energy L](#)
- [System pro E[®] energy M](#)
- [BIMagic[®] Designer BIM configurator](#)

Other contents

- System pro E[®] energy website: [Discover more](#)
- Brochure: [Download here](#)

AK600 & UK600 Consumer units

AK600 (Wall-mounted) series offers new possibilities in terms of application areas, flexibility and design. Its product portfolio includes 2 kinds of enclosures – if it's the standard version for DIN-Rails or the media version for Wi-Fi routers.

UK600 (Flush-mounted) series includes 3 kinds of enclosures. Thanks to its customization options you can turn it into an attractive design feature in your home.



Main benefits

- Save installation time, space and money
- Smarter space to realize your ideas
- Design and creativity

BIM portfolio

- [AK600](#)
- [UK600](#)
- [BIMagic® Designer BIM configurator](#)

Other contents

- AK600 website: [Discover more](#)
- UK600 website: [Discover more](#)

Welcome IP: door entry and access control systems

ABB-Welcome IP system is our IP-based door entry communication system, offering a comfortable and safe method of entering buildings with an **integrated, intuitive solution**. The system offers HD video communication, which can be used for external, internal and remote monitoring of residential and functional buildings. All that is needed for commissioning is an Internet connection. It consists of three essential components: an outdoor station, a system control unit and an indoor intercom station.



Main benefits

- Suitable for every need
- Remote configuration & connectivity
- Smart home control

BIM portfolio

- [Welcome IP](#)

Other contents

Welcome IP website: [Discover more](#)

ABB-free@home®: building automation system

Explore the innovative features of ABB-free@home® designed to transform any residence into a sophisticated smart home with **seamless control over blinds, lights, heating, air conditioning, door communication, and scenes**. Effortlessly manage these systems from intuitive wall switches, laptops, or smartphones. **Experience unparalleled comfort and energy efficiency while minimizing costs** compared to traditional electrical setups and enjoy the future of home living today.



Main benefits

- Easily control via app and support 24/7
- Automate energy-consuming devices to run only when needed to save energy.

BIM portfolio

- [ABB-free@home®](#)

Other contents

ABB-free@home® website: [Discover more](#)

FusionAir: sensors and thermostats

A range of sensors for the measurement of temperature, relative humidity, CO₂ and VOC values in multiple applications. The portfolio contains solutions for conventionally wired, bus-connected and wireless applications. The FusionAir Smart Sensor range allow users to view and control a diverse range of room functions.

Wired and wireless connectivity allow flexible system architectures. It offers touch-free “virus safe” operation and, in addition to HVAC, the adjustment of lighting or sunblind setpoints for the connected controller.



Main benefits

- Flexible system architectures.
- Adjustment of lighting and sunblind setpoints for the connected controller.

BIM portfolio

- [FusionAir](#)

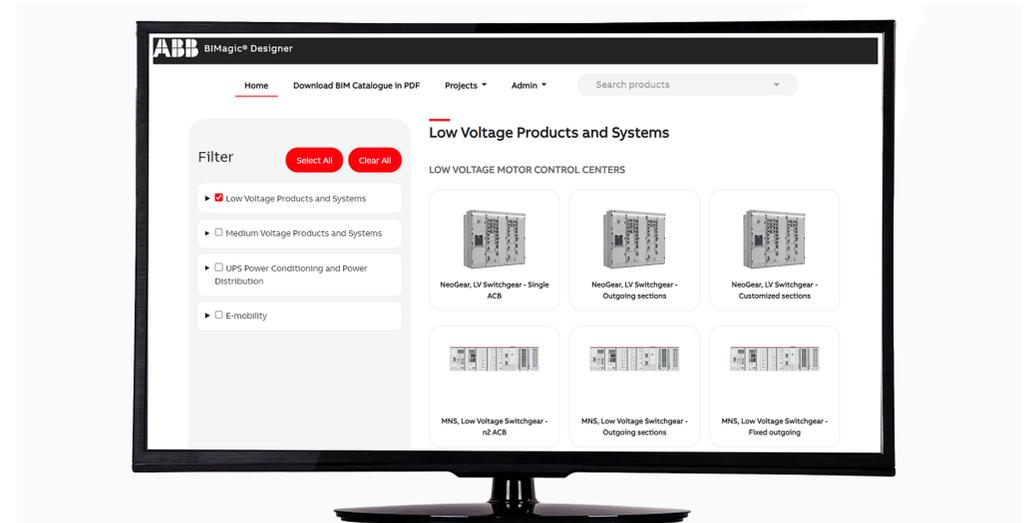
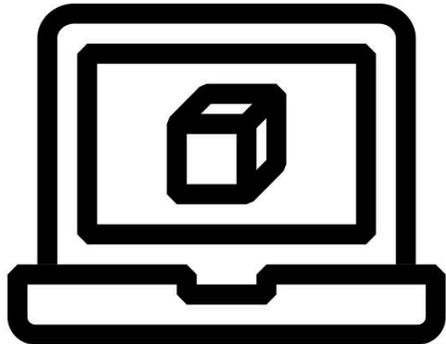
Other contents

FusionAir website: [Discover more](#)

ABB Electrification

BIM Tools

to design, manage and configure ABB switchgears, enclosures and wiring accessories.



BIMagic® Designer

BIMagic® Designer is our **free, easy to use Building Information Modeling (BIM) tool** that allows you seamlessly integrate ABB products into your projects **quickly and error proof** from our comprehensive, ever-expanding BIM product catalogue.

[Discover more](#)

ABB Electrification BIM plugins

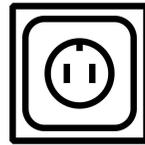
Discover our BIM configuration tools to place ABB solutions into your projects.



ABB Switch Range Configurator

Configuration tool to configure, place and manage Revit electrical families for ABB wiring accessories.

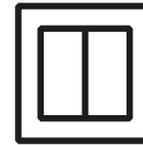
[Plugin download](#)



Busch Jaeger Switch Range Configurator

Configuration tool to configure, place and manage Revit electrical families for BJE wiring accessories.

[Plugin download](#)



Niessen Switch Range Configurator

Configuration tool to configure, place and manage Revit electrical families for ABB Niessen wiring accessories.

[Plugin download](#)



ABB Hafonorm Configurator

Configuration tool to configure, place and edit Revit electrical families for Hafonorm consumer units. For NL market.

[Plugin download](#)

A short, solid red horizontal line is positioned above the main title text.

ABB BIM case study

For a greener future

Electrifying Success: ABB's Journey with 22 Bishopsgate, London

In 2016, ABB embarked on a transformative journey to electrify one of London's most iconic skyscrapers, 22 Bishopsgate.

Partnering closely with MEP Design Consultant WSP, London, ABB's mission was to deliver a cutting-edge electrical infrastructure that would set new standards in the heart of the City of London's financial district.

How 22 Bishopsgate is sustainable

- **Low-carbon construction** that meets the **highest ESG standards**; building team worked to a set of **circular economy principles** and **innovative logistics**. The building meets London Energy Transformation Initiative (LETI) **net zero standard**, is Wire-Scored Platinum-certified, designed to achieve a BREEAM Excellent grade and WELL certification.
- ABB Electrification worked with design consultant, main and MEP contractors and provided **multiple products** to enhance **energy efficiency, safety** and **comfort**.



Collaboration and Innovation

As the project progressed to spatial coordination, ABB provided essential assistance. Although **ABB BIM Config tools** were unavailable at the time, WSP successfully created BIM objects for both **MV** and **LV switchgear** using 2D drawings sourced from the NBS BIM Library.

Design and Execution

The design phase saw risers meticulously sized based on ABB distribution boards, cementing the ABB design into the project's core framework. T Clarke, the MEP Contractor, took charge of the **Design & Build BIM Model** and the final **As-Built model**, incorporating **ABB BIM Objects** and **COBiE Data Exchange** wherever possible.

ABB's Role in Electrification

ABB Electrification UK played a pivotal role in bringing this architectural marvel to life. Working in collaboration with WSP, main contractor Multiplex, and MEP contractor T. Clarke, ABB delivered a comprehensive MV and LV distribution system:

- **MV Distribution:** ABB Unigear 500R 11kV switchgear supplied by E&I Engineering.
- **LV Distribution:** Featuring ABB Emax2 ACB and XT MCCB, also supplied by E&I Engineering.
- **LV Rising Main:** Busbar systems equipped with ABB XT MCCBs in floor tap-off units.

- **LV Subdistribution:** Protecta Plus distribution boards incorporating S200M MCB and DES201M RCBO, assembled and supplied by ABB Electrification UK.
- **Smart Controls:** Window solar blind controls utilizing ABB KNX products, supplied by Channel Smart Buildings.



The successful completion of 22 Bishopsgate stands as a testament to ABB's commitment to innovation, collaboration, and excellence. This project not only showcases ABB's advanced electrical solutions but also highlights the seamless integration of technology and design to create a landmark that defines the future of London's skyline.

[Watch the video](#)

**Curious about ABB
Electrification BIM
offering?**

**Download our new
BIM catalogue and
find the right
solution for your
projects!**

[Download the catalogue](#)

Visit **[ABB EL BIM webpage](#)** to
discover tutorials, ebooks,
whitepapers, success stories
and much more.



ABB EL BIM for Digital Buildings

Start now your digital transformation, promoting efficiency, collaboration and sustainability within all projects.

[Click here to connect with an ABB expert](#)

