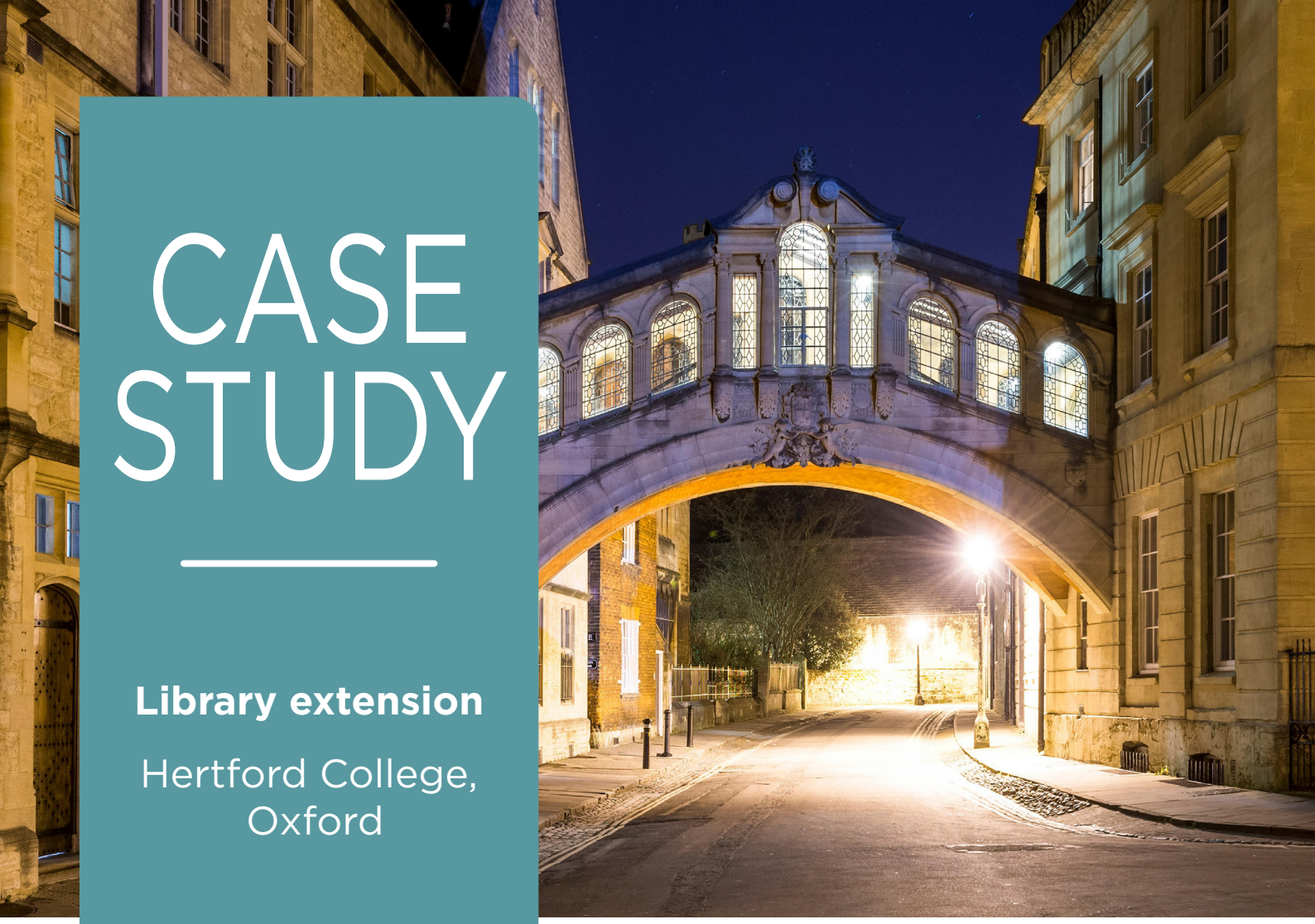

CASE STUDY

Library extension

Hertford College, Oxford

project **summary**

Hertford College, part of the University of Oxford, is renowned for its academic excellence, inclusive ethos, and historic architecture in the heart of Oxford. With a strong tradition of scholarship dating back to the 13th century, the College continues to invest in modern, forward-looking facilities.

EPG was appointed directly by Hertford College to deliver the structural waterproofing design, with the project contract managed by CPC Project Services - one of the UK's leading independent project and cost management consultancies. This design was for a new basement extension beneath its historic library in central Oxford. The site is tightly bounded by Grade I listed buildings, including the Bodleian Library and the Radcliffe Camera.

The development aimed to deliver new archive storage, seminar rooms, plant space, and improved accessibility. The waterproofing strategy had to mitigate risks associated with perched water levels, clay subsoil, and the physical constraints of buildings adjacent to the new structure. Given the site's sensitive usage, particularly the archive spaces, a robust, compliant and practical solution aligned to BS 8102:2022 was essential. EPG worked in close collaboration with the architect, structural engineer, and main contractor to ensure the waterproofing design aligned with the overall construction strategy.

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The goal was to deliver a BS 8102:2022-compliant waterproofing strategy achieving a Grade 3 internal environment, suitable for sensitive archive and academic use. EPG were selected for our technical expertise, close working relationship with the supplier, and ability to assume full design responsibility. A key requirement was the provision of a design warranty backed by £10 million professional indemnity insurance over 12 years. Integration with the structural design and alignment with warranty expectations were also critical.

the **challenges**

The project presented several challenges:

- Groundwater levels were observed 1.45m below the basement slab, the lift pit was classified as "high risk" under BS 8102. The remainder of the basement was classified as "variable risk" due to the possibility of perched water.
- The confined nature of the site, being surrounded by historic structures meant that underpinning and contiguous piling were required which the waterproofing design needed to accommodate.
- The archive store, plant rooms, and seminar spaces required a robust structural waterproofing design to help to ensure zero water ingress, with no post-construction remediation.
- Coordination was essential between architect, structural engineer, groundworkers, concrete supplier, and waterproofing installer to ensure compatibility of systems and clarity on responsibilities.

the **solution**

To mitigate the identified risks and meet performance requirements, EPG specified a combined waterproofing solution incorporating both Type A (barrier protection) and Type B (structurally integral protection), in accordance with BS 8102:2022.

Key design elements included:

- Fully bonded SikaProof A+08 Type A waterproofing applied externally to walls and slabs, with additional detailing at capping beams and the podium deck using Sikalastic 8800 and protection boards.
- All below-ground reinforced concrete walls and slabs were designed with Sika Watertight Concrete (Type B waterproofing), incorporating proprietary admixtures to reduce permeability.
- Hydrophilic SikaSwell profiles were specified at all construction joints, pipe penetrations, and pile head terminations.
- EPG prepared a detailed Construction Quality Assurance Plan to manage installation risks and define responsibilities.
- The podium deck was waterproofed using a spray-applied polyurea system (Sikaproof 8800) to provide robust protection.

In addition to detailed drawings and a design report, EPG provided a design warranty backed by £10 million professional indemnity insurance over a 12-year term. EPG worked closely with Sika throughout the design process to ensure full compatibility of all materials. A specialist Sika-approved installer is carrying out the waterproofing works, providing an installation warranty upon completion to accompany the design and product warranties.

Attribution

Client: Hertford College, Oxford

Project Manager: CPC Project Services

Waterproofing Consultants: Ian Price BEng (Hons) CSSW, Associate. Alwyn Hughes CSSW, Structural Waterproofing Manager.

Architect: MICA Architects

Structural Engineer: WSP

Waterproofing Supplier: Sika Ltd

Installer: Structural Membranes Specialists Ltd

the **results**

Construction of the basement is ongoing, the project team now has a robust, well-coordinated waterproofing design aligned with BS 8102:2022 and backed by detailed risk assessment. The combined protection strategy, incorporating Type A and B systems, third-party warranties, and specialist installation, gives the client the best possible chance of delivering a leak-free basement.

Our team delivered a Gateway 2–compliant structural waterproofing design that demonstrated not only technical excellence but also full compliance with the relevant British Standards, industry best practice, and the Building Safety Act. Every design element was supported by detailed justification, including risk assessments, performance reviews, and reference to governing standards, ensuring that the proposals were both robust and defensible. This rigorous approach gave the design team confidence that the waterproofing strategy was both technically sound and fully aligned with safety, durability, and regulatory requirements.

The proactive design approach has reduced risk, improved coordination, and positioned the project for a successful outcome upon completion.

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