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Consulting Engineers & Landscape Architects



PROJECT:
Royal Holloway University: The Bedford Library

CLIENT:
Royal Holloway University

ARCHITECTS:
van Heyningen & Haward Architects

BM SERVICES:
Structural Engineering

VALUE:
£12million (approx)

DESIGN BRIEF

Design of a new 9120m² extension to the existing Bedford Library, situated on the 120 acre University of London: Royal Holloway Campus at Egham, Surrey. The new extension will reflect both the librarian's vision for the service and the college's requirement of it.

DESIGN INITIATIVES/ACTIONS UNDERTAKEN

The new extension, to be built within the busy campus, next to the existing, operational library - is to be designed holistically with the existing library to create the 'look and feel' of one building. With, the key requirements of environmental performance, adaptability, noise control and the social aspects of learning enhanced wherever feasible.

The proposed structural design solution was chosen because it best complied with the requirements of the brief:

- Frame solution allows ease of future flexibility
- Flat soffit allows clear service runs
- Thermal mass helps environmental control and reduces energy demand
- Material mass aids acoustic separation in this noise sensitive environment.
- Non-requirement for brittle finishes increases durability and lowers maintenance costs
- Low-cost, long-life material whose environmental impact will be reduced by responsible specification of alternative components, i.e. inclusion of PFA instead of RC & recycled aggregate.

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Traditional flat slab construction for the new extension compliments the existing library structure and achieves the feeling of one space. Flat soffits ease service distribution, exposed surface helps regulate environmental control, mass separates acoustically between floors, durable unfinished surfaces aid maintenance and prevent damage (no columns will have sharp corners that can be damaged by heavy book trolleys).



New extension and existing building joined together by a lightweight infill. Lightweight infill allows existing structure and foundations to remain untouched during the works and minimise disruption to the use of the building. Infill used as a buffer zone to protect the existing library against noise, vibration and dust from the main new extension works. When the new extension is complete, the lightweight modular infill can be constructed next to the existing library.

Phasing of the works is vital to the successful completion of the project. Great care has been taken with the choice of the solution, size of components and issues regarding noise, dust and vibration, to ensure that the existing library can remain operational and that the active university campus that surrounds the site can operate safely, unaffected by the works.