The new Herbarium, Library, Art and Archives wing provides excellent conditions for the priceless collection of dried plant specimens and rare botanical books and illustrations at the Royal Botanic Gardens in Kew.

The new wing secures the status of the Royal Botanic Gardens at Kew as the world leader for the study of plant diversity and conservation. Climate-controlled vaults safeguard existing and future collections of herbarium specimens, rare botanical books, illustrations and archives.

It has also created opportunities for more people to make the most of its unique resources. A condition for funding for the new Herbarium – as part of a World Heritage Site – was to open the collections up to a wider audience.

There are now large rooms for research and collaboration and a reading room open to the public by appointment. A new entrance with a generous reception area, facilities for school groups, and a dedicated space for visiting researchers all attract and encourage visitors.

The new Herbarium is a beautiful, modern building and its curving forms sit sympathetically with a listed building and the magnificent trees on the bank of the River Thames.
Context
The Royal Botanic Gardens at Kew is a World Heritage Site and great care was taken to respond sensitively to existing buildings and protected trees along the River Thames.

The palette of materials chosen not only complements the old buildings but also meets the functional requirements of the highly controlled environment needed for storing the collections.

Taking inspiration from both Kew Palace and the rubbed red bricks of the old Herbarium wing’s lintels and quoins, a fiery red brick clads the vaults holding the collections. The new building is linked to the old by a timber and glass drum, which houses a circular reading room, and the ground floor reception area is entered through a newly created south-facing courtyard.

New office space on the top floor of the building includes a roof terrace and enjoys beautiful views over the River Thames.

Collaboration
A site of this sensitivity and importance called for detailed negotiation and consultation – including with the World Heritage Steering Committee and English Heritage.

The design was developed closely with those involved with the Royal Botanic Gardens at Kew: the botanists themselves, as well as librarians and the publishing, IT and estates departments.

A detailed brief was taken to design specialist spaces for different users – and this included planning furniture and equipment layouts as well as selecting and designing special furniture.

Creativity
The concept for the new Herbarium emerged from a contrast: a massive climate-controlled enclosure, and light and airy spaces for scientists working close to the collections.

The solution is a three storey brick-clad vault with undulating glass and timber-clad research areas around it. Specimens are stored in the cool, dark vault – kept at a constant 15°C – and brought out into day-lit rooms to be studied. The vaults required a massive concrete structure both for its strength and thermal qualities.

Brick, cedar and a pale bronze aluminium curtain wall are used for the exterior elevations. Continuing the archive’s brick cladding into the interior points to the importance of the vaults. The red brick adds colour to the interior palette – a contrast to the cool concrete and white plastered walls. The concrete is fair-face to a high architectural standard – even the floor is bare polished concrete.

Superior quality extends to interior details such as a helical concrete staircase and bespoke joinery of dark stained oak with bronze ironmongery and fittings.

The Western Red Cedar – sustainably sourced from Sussex – used to clad the curving forms around the offices, reception, seminar and reading rooms will silver over time, enhancing its relationship to the red brick of the archives.
Climate
The Herbarium has achieved a BREEAM 'excellent' rating.

Passive methods such as solar shading, maximised glazing for daylight, and exposed thermal mass reduce energy consumption. The cellular design of the building allows different temperatures to be maintained for different types of material stored – from plant species to rare books and illustrations – and each archive has a separate control system.

The primary source for heating and cooling is a bore hole based ground source heat pump. This supplements the energy needed to cool the vaults by a mechanical air handling system.

The use of concrete – with its capacity to absorb heat gains – allowed the reduction of the size of plant, the operating hours of the plant and duplication of systems. Considerably fewer resources both in construction and operation of the building have been used as a result.
Above: Ground floor plan of the new Herbarium wing to the left of the existing Herbarium buildings.

Above: First Floor Plan showing the circular Reading Room and study areas wrapped around the climate controlled archive vault.

Above: Third floor plan showing the open plan office and surrounding roof terraces.