



Press information

Architecture and Design at Kew

The Royal Botanic Gardens, Kew's extensive 132 hectares of landscaped, intricately designed gardens houses over 40 listed buildings, two scheduled ancient monuments and a myriad of unique glasshouses, historic follies and contemporary modern structures. While the Gardens are best known for their botanical splendour, over its 250 year history Kew has also been a site of architectural innovation – from the Palm House to the recently opened Davies Alpine House and Rhizotron and Xstrata Treetop Walkway.

Kew Palace (Scheduled Ancient Monument)

The smallest and most intimate royal palace, the four-storey brick house was built c.1631 by Samuel Fortrey, a merchant of Dutch origin. It is constructed of red bricks laid in a style known as Flemish bond, with bricks arranged with sides and ends alternating. The gabled main front gives the house a Dutch appearance.

First used by the Royal Family in 1728, the Palace was bought by George III in 1781 for his expanding family, and became a more permanent home for the Royal Family – Queen Charlotte died here in 1818. The Palace is managed separately by Historic Royal Palaces. It re-opened to the public in May 2006 following a major restoration.

Queen Charlotte's Cottage (Scheduled Ancient Monument)

The first building in the location of Queen Charlotte's Cottage was built in a corn field between 1754 and 1771, as part of the development of the New Menagerie. Queen Charlotte was given this building in 1761 when she married George III. After having been extended upwards by a floor and also in length, the picturesque house in its 'cottage ornée' style was used by the family as a shelter, and for snacks and occasional meals.

The cottage remained private until 1898, when Queen Victoria ceded it and its 15 hectares (37 acres) to Kew to commemorate her Diamond Jubilee. The grounds had rarely been visited; and one condition the Queen made was that they should be kept in their naturalistic state. That is how today's Conservation Area first came into being and how one of London's finest bluebell woods is kept intact.

The Pagoda (Grade I)

Sir William Chambers, designer of Kew's iconic Pagoda was a keen advocate of the mid-18th century fashion for Chinoiserie architecture in English garden design. Completed in 1762, the Pagoda is a ten-storey (nearly 50m high), octagonal structure that was once the tallest reconstruction of a Chinese building in Europe. It tapers, with each successive floor 30 centimetres smaller in diameter and height than the preceding one.

The building was colourfully decorated with tile covered roofs and 80 gold gilded wooden dragons which have since been altered during several restorations. In summer 2006 the Pagoda opened to the public to celebrate Kew's Heritage year. Although the building remains closed, the view from the top is available as a 360° [online panorama](#).

The Palm House (Grade I)

In 1841 the Gardens came under the control of the Government and increased in size. To celebrate this new status Sir William Hooker, the new Director, ordered a prestigious glasshouse

high enough to house its tallest palms. Built between 1844 and 1848, the Palm House was a creative collaboration between architect Decimus Burton and Irish ironfounder and shipbuilder, Richard Turner. It was Turner who proposed the use of a wrought iron 'deck beam', commonly used in shipbuilding, which was strong enough to span greater widths without support – to give more space for palms to grow. The house resembles the upturned hull of a ship.

To recreate tropical humidity, boilers were located in the basement, heating water pipes under iron gratings on which the plants stood. Originally the smoke from the boilers was then led away through pipes in a tunnel under the Palm House Pond to the elegant Italianate Campanile smoke stack (Grade II) 150 m away. Around a quarter of the palms planted in the lush green conditions are threatened in the wild; as are more than half of the cycads, the 'living fossils' of the tropics.

The Temperate House (Grade I)

The world's largest surviving Victorian glass structure covers 4880m², twice the size of the Palm House, and was once the largest plant house in the world. The Government allocated £10,000 in 1859 to build the Temperate House and directed Decimus Burton to prepare designs for a conservatory to house Kew's growing collection of plants from the world's temperate and subtropical regions.

The centre block and octagons at each end were built between 1859 and 1862 and the end blocks were added between 1860 and 1899. It is planted in geographical zones, as intended in Burton's original design.

The Marianne North Gallery (Grade II)

The Marianne North Gallery is a unique building which permanently exhibits the fascinating collection of one woman's botanical art. Built in 1879 and opened in 1882, the T-shaped building with a large veranda was designed by James Fergusson. With two double-height gallery spaces in which the paintings are displayed, Marianne North took charge of the hanging herself, arranging them in geographical order over a dado of 246 vertical strips of different global timbers. Today the walls are virtually solid with paintings – there are 832 of her oil paintings, showing over 900 species of plants – a unique memorial to an equally unique woman.

Lacking proper environmental controls has caused heat and damp to affect the paintings and promote mould in this historic building. Kew is presently embarking on a comprehensive scheme to conserve the Gallery and its paintings. The newly restored gallery, half funded by a Heritage Lottery Fund grant, is set to open in October 2009.

Follies

Scattered around the Gardens are many hidden gems and follies. This array of structures, designed to excite and entertain the royal family and their guests as they strolled through their estate, stem from the Gardens' history as a royal pleasure garden. Unlike other gardens of the time, Kew didn't confine its approach to the classical styles of Greece and Italy, rather it became a virtual world tour of exotic architecture giving the gardens a global cultural flavour.

The Princess of Wales Conservatory

This complex conservatory, named in honour of Augusta, Princess of Wales, who founded the Gardens, is split into 10 different climatic zones over 4490m². This includes two major climate zones, the wet and dry tropics, and eight micro-climates which hold species needing more specialised conditions, such as the carnivorous plants.

With only its multi-ridged roof rising above the surrounding landscape, much of the conservatory's space is below ground level to conserve heat. Its volume is low in relation to its floor area, allowing the temperatures to be altered rapidly. Each zone's conditions are monitored by computer, automatically adjusting the heating, misting, ventilation and light

every 4 minutes. Its stippled glass surface reflects glare and water from the roof is saved and used to water for the plants, after being purified through reverse osmosis.

The Davies Alpine House

The renowned Kew collections of alpine plants are displayed a few hundred at a time in the contemporary Davies Alpine House, which opened in March 2006 and was designed by Wilkinson Eyre. This glasshouse, which sits majestically at the northern end of the rock garden, is the first new public glasshouse to be constructed at the World Heritage Site for over 20 years.

Its unusual shape and geometry are designed to create the complex environmental conditions necessary for alpine growth through providing a sustainable, energy-efficient growing environment for the plants. Two back-to-back 'twin arches' create the height required to draw warm air out of the building, despite its footprint of just 144m². An innovative shading solution developed using yacht technology and based on a fan-like form similar to a peacock's tail keeps summer temperatures at the required levels. Below ground, air is cooled in a labyrinth within a double concrete slab, inspired by the natural cooling strategy utilised in termite nests. This cooled air is re-circulated around the perimeter of the house and blown on to plants at low level.

The Sackler Crossing

The Sackler Crossing, built in 2006 is Kew's first passage across water. Designed by the distinguished architect John Pawson who is often associated with minimalism, it fosters clear visual links between the man-made structure of the bridge, and the contours of its setting. Spanning across the lake in the south of the Gardens this crossing is situated among the historic 'hidden geometry' laid out by Nesfield. This includes the radiating vistas, still visible in the Gardens as well as the arc route from the Marianne North Gallery to the bamboo garden.

Set low, it is designed to give an illusion of walking on water. The spacing of the balustrade makes it appear solid from some angles and transparent from others. Since opening the crossing has won several prestigious awards including the RIBA award.

Jodrell Laboratory Wolfson Wing

The Wolfson Wing of the Jodrell Laboratory opened in June 2006. Designed by Wilkinson Eyre, it is an important addition to a part of Kew leading in cutting-edge research. The new extension provides new, improved laboratory space and a custom-designed herbarium for the unparalleled mycology collection. Its simple and elegant design uses the economy of form to deliver its function with beautiful results.

The Shirley Sherwood Gallery of Botanical Art

The Shirley Sherwood Gallery opened in April 2008 and it is the first gallery in the world dedicated to botanical art and open to the public all year round. Built to exhibit precious works of art from the collections of the Royal Botanic Gardens, Kew and Dr Shirley Sherwood – many of which have never been on public display before – it has a specially designed climate controlled environment. It has been designed by Walters and Cohen so that the main gallery space is a 'box within a box' where the environment can be controlled at 50 lux and 55% relative humidity.

The central space is flanked on two sides by four small gallery spaces with the same climate and light controls, each of which can be closed off without disrupting visitor flow. Materials have been sensitively selected to complement and contrast with the Victorian structure of the adjacent Marianne North Gallery, which is linked to The Shirley Sherwood Gallery. The Link Gallery between the two buildings will always have a selection of contemporary works from the Shirley Sherwood Collection.

Rhizotron & Xstrata Treetop Walkway

Kew's most recent attraction opened in spring 2008 – the stunning Rhizotron and Xstrata Treetop Walkway. The pioneering structure of the Xstrata Treetop Walkway is based on the Fibonacci numerical sequence, which is often seen in nature's growth patterns. It is designed by Marks Barfield Architects, the architects of the London Eye, to have a low environmental impact.

Supported by the Hanson Environment Fund, Kew's Rhizotron (taken from the Greek *rhiza* meaning root) gives a unique opportunity to delve into the underground world of trees. The Rhizotron shows the lively world beneath trees, explaining the vital relationships between the trees roots and the micro-organisms in the soil. Rising 18 metres into the air to the Xstrata Treetop Walkway you then wander through the canopy of sweet and horse chestnuts, limes and deciduous oaks to discover birds, insects, lichens and fungi that rely on these huge organisms. This 200 metre long walkway offers a unique birds-eye view of Kew's 300 acres and the London skyline, including Wembley Stadium and the Swiss Re skyscraper – commonly known as the Gherkin. It offers a remarkable view of the vast number of trees that spread over the Greater London landscape.

Herbarium and Library Extension

Founded in 1853, the Herbarium, Library, Art and Archives plays a central role for research into plant diversity. The Herbarium collections include over 7 million specimens, plus the world-class collection of botanical art and archives. Based in an 18th century Grade II listed building on Kew Green, every 50 years it is expanded to accommodate new plant specimens that are still being actively collected.

The Herbarium and Library Extension will open in December 2009 and is designed by Edward Cullinan Architects. This 5,500 m² four-storey building will offer improved collections access for staff and visiting scientists; better facilities for building digital databases to share Kew's work online; and enhanced capacity to support species and habitat conservation work around the world. Fitted with specific environmental control features, it has been designed to obtain the maximum value from the available space, while achieving an elegant exterior.

Facts and figures

Structure	Architect	Completion
Kew Palace	Samuel Fortrey	1631
Queen Charlotte's Cottage		Pre 1771
Pagoda	Sir William Chambers	1762
Palm House	Decimus Burton and Richard Turner	1848
Temperate House	Decimus Burton	1898
Princess of Wales Conservatory	Gordon Wilson	1987
Marianne North Gallery	James Fergusson	1879
Davies Alpine House	Wilkinson Eyre	2006
Jodrell Laboratory Wolfson wing	Wilkinson Eyre	2006
Sackler Crossing	John Pawson	2006
Shirley Sherwood Gallery	Walters and Cohen	2008
Rhizotron and Xstrata Treetop Walkway	Marks Barfield	2008
New Wing of the Herbarium	Edward Cullinan Architects	2009

Ends

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