

Central Atrium at Hilltop, RHS Wisley

PROJECT TEAM

Architect: **WilkinsonEyre**

Structural engineer:

Michael Barclay Partnership LLP

Steelwork contractor: **Hillcrest Structural Ltd**

Main contractor: **Osborne**

Client: **Royal Horticultural Society**



The Hilltop Building provides the Royal Horticultural Society (RHS) with a new education and science centre within the Garden at Wisley that is intended to attract a wide range of audiences and provide a destination for learning and events, science and research, interpretation, and enjoyment of horticulture.

The building is a 'Y' shape in plan form that integrates with the landscape and encourages visitor flow through the building and surrounding gardens. It is divided into two functional 'wings' with the atrium forming an adaptable, multi-use central public space linking both wings.

At ground level, the atrium acts as a flexible public engagement space and provides the public with access to the cafe, events space, classrooms, and library. At first floor level, via cantilevered walkways and a bridge, the atrium space links the more restricted-access areas such as laboratories and offices. The north end of the atrium forms the main entrance to the building and opens out onto long views across the site.

A steel frame was selected to achieve a lightweight, filigree and curved grillage that could be detailed to incorporate drainage, ventilation, movement, and thermal separation. A steel roof facilitated an elegant, exposed aesthetic with a repeated and cohesive set of unobtrusive bolted connections. With all steelwork fabrication offsite, the finished quality could be controlled to a greater degree than with other materials and site waste minimised.

Sustainability measures were incorporated into the building, which included reducing the building's energy demand by incorporating natural lighting, solar shading, and natural ventilation. A sustainable drainage system (SuDS) was also incorporated, and photovoltaics installed to achieve a 10% reduction in operational carbon emissions.

The atrium roof springs off the eaves of the adjacent two-storey wings, creating the large double-height space. The roof is composed of three roof planes with two lines of supporting columns below. At the north and south ends of the atrium the roof extends over the façades to form glazed entrance canopies.

Building Information Modelling (BIM) was used throughout the design process, which helped the team to overlay the architectural, structural and services to coordinate in detail. The roof geometry with bifurcating, curved and tapered beams was imported into Tekla software by the steelwork contractor and formed the basis of their fabrication model. As well as spatial arrangement and connection detailing, the model was used to agree and apply efficient use of different corrosion and fire protection measures across the structure.

Judges' comment

The elegant steel grillage gives a lightweight aesthetic to the glass atrium and external canopy that would not have been possible in other materials. The attention to detailing on all the exposed connections, despite the complex geometry of the roof, was truly commendable.