

The Great Glasshouse, National Botanic Garden of Wales – Carmarthenshire, U.K.

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The Great Glasshouse, located amongst the rolling hills of the Tywi Valley in Carmarthenshire, U.K., was designed to be a sustainable and minimalist greenhouse and other aspects such as the amount of natural light transmitted, rainwater collection, and ventilation or interior climate control. Norman Foster's goal in this project, as stated by him on his website (Foster + Partners), was not only to be structurally economical but also to do "‘the most with the least,’ and create a form that fits seamlessly into the natural landscape."

When the project was first conceived with Foster + Partners and the client, there was a need for a centerpiece for the four hundred acres of land visitable at the National Botanic Garden of Wales. The site of Carmarthenshire was originally going to be known as Middletown Hall since there used to be a house before the project, but it was later demolished. On the matter of form, the structure is elliptical and widest at its center, which mimics the geometry of the hills surrounding it. Since the roof is composed of glazing materials, it appears as a shiny hill upon other hills from a distance, making the structure very welcoming.

The roof is composed of aluminum glazing systems supported by a tubular-steel structure of beams grounded on the concrete ring that aligns the structure where the glazing system meets the landscape, making the shape seamless. Gutters are utilized to collect rainwater for later usage at the concrete ring that outlines the structure.

Natural ventilation is possible due to the capability of opening individual glazing panels. A computer system monitors the inside and outside of the glass boundary to control the interior climate. It reacts to exterior conditions, such as sunlight angle and intensity, by adjusting individual glazing panels' angles to minimize energy consumption when controlling the interior climate.

As for the landscape within the dome, Kathryn Gustafson utilized rocks, stones, and gravel to resemble Mediterranean land, creating an extensive range of habitats for the plants. These spaces would later be utilized to house some of the world's most endangered plants coming from six areas: Australia, California, the Canary Islands, Chile, South Africa, and the Mediterranean Basin.

Bibliography

"Great Glasshouse." Foster + Partners, www.fosterandpartners.com/projects/great-glasshouse/.

Langridge, Bruce, and David Hardy. "Great Glasshouse." National Botanic Garden of Wales, 10 May 2022, <https://botanicgarden.wales/garden-areas/the-great-glasshouse/>.

Administrator. "Architecture: The Great Glasshouse Dome in Wales." Musée Magazine, Musée Magazine, 15 Sept. 2022, <https://museemagazine.com/features/2022/8/31/architecture-the-great-glasshouse-dome-in-wales>.

Arquitectura Viva. "Great Glasshouse at the Botanic Garden of Wales, Carmarthenshire - Norman Foster ." Arquitectura Viva, Arquitectura Viva, 12 Jan. 2021, <https://arquitecturaviva.com/works/great-glasshouse-del-jardin-botanico-de-gales-7>.

