FAQ's

1. Explain the Waterloo international train terminal, UK with details.

The International Terminal Waterloo is a multi-faceted transport interchange that was designed to facilitate the journeys of 15 million international rail passengers per year.

Grimshaw's brief for the project was to build a streamlined terminal, and because of the international service, it had all the requirements of an airport including full security screening, immigration and customs border control.

The roof responds to the dictates of the site, specifically to the west where it must rise more steeply in order to accommodate the height of the trains and the other side it was relatively shaded with diffused light. The building design of the western side is clad in glass, providing arriving passengers with views of Westminster.

Underground, a two-storey viaduct supports the platforms and incorporates two floors of passenger facilities: Departures and Arrivals, a basement car park.

Departures and Arrivals are assigned a level each to encourage a single direction of passenger movement on each floor.

In contrast to more recent complex curved glass roofs, such as Grimshaw's own Eden Project or Norman Foster's British Museum courtyard, the Waterloo roof was designed to use standard-size glass sheets, which overlap and use a concertina joint to accommodate the dual curve of the roof-arch and the track.

The building is best known for its roof, a superstructure of glass and steel held together by 299,000 individual components.

Its luminous skin undulates gently as it curves and tapers along the tracks. Expansive glazing gives the arriving and departing trains impressive views out across Westminster, and the whole concourse a remarkable quality of light throughout the day.

Waterloo is a definitive work in the oeuvre of Sir Nicholas Grimshaw and a key example of British high-tech design.

2. Explain the British Pavilion Expo, Seville, Spain with details.

The British Pavilion was a temporary construction created for Expo '92 in Seville, Spain. Grimshaw and Associates were asked to design the pavilion by the Department of Trade Industry, who asked for

maximum open-floor space, a shaded outdoor area for people waiting to enter, and a "strong United Kingdom identification on the exterior."

Grimshaw chose to use the pavilion to make a statement about energy flows, and to consciously make very specific design choices that resulted in a structure highly attuned both to climate and to the needs of an exhibition space. Accounting for this dynamic climate, the building envelope changes on each wall.

Both the North and South walls are created using "yacht technology" Fabric is stretched between masts. The stretched fabric is shaded by a layer of additional fabric that keeps the hot southern sun from entering in directly, especially on the lower levels. This layer allows for more shading as well as a heat-buffer, keeping heat from entering the pavilion

The PVC coated fabric makes up the South and North walls, as well as steel mast rigging technology is used on the walls.

The same technique used on the South side is also used here, however the double-layering technique is not used, so the more indirect Northern light cannot enter.

This fabric creates a similar effect to a sheer curtain, and successfully create a gradual transition between indoor and outdoor variations in brightness. Outside of the North wall is a courtyard, which is shaded by the roof panels.

East side of the building is referred to as the "water wall." It features the UK flag, which sits behind the layer of falling water that covers the wall. This water wall cools the Easter side of the building, and is not heated by the Sun for most of the time people are using the pavilion. This means the water stays cool, and the continual cycling of falling water cools the pavilion to approximately 82F, when the outside temperature was 102F.

This electricity is powered by the photovoltaics on the roof. The cooling effects of the water wall also mean that the air conditioning system utilize in some places in the pavilion only has to cool the air another 10 degrees, as the air conditioned space was kept at 72F.

As the west wall gets the afternoon sun, Grimshaw chose to make it a barrier condition, lining it with heavy water tanks filled with sand. This design choice keeps the Western afternoon sun from heating the interior of the pavilion.

The roof has a set of solar panels that are suspended above the roof plane, which provide shading from direct sunlight as well as power,

from the photovoltaic cells.
The solar cells face south to catch maximum sunlight.