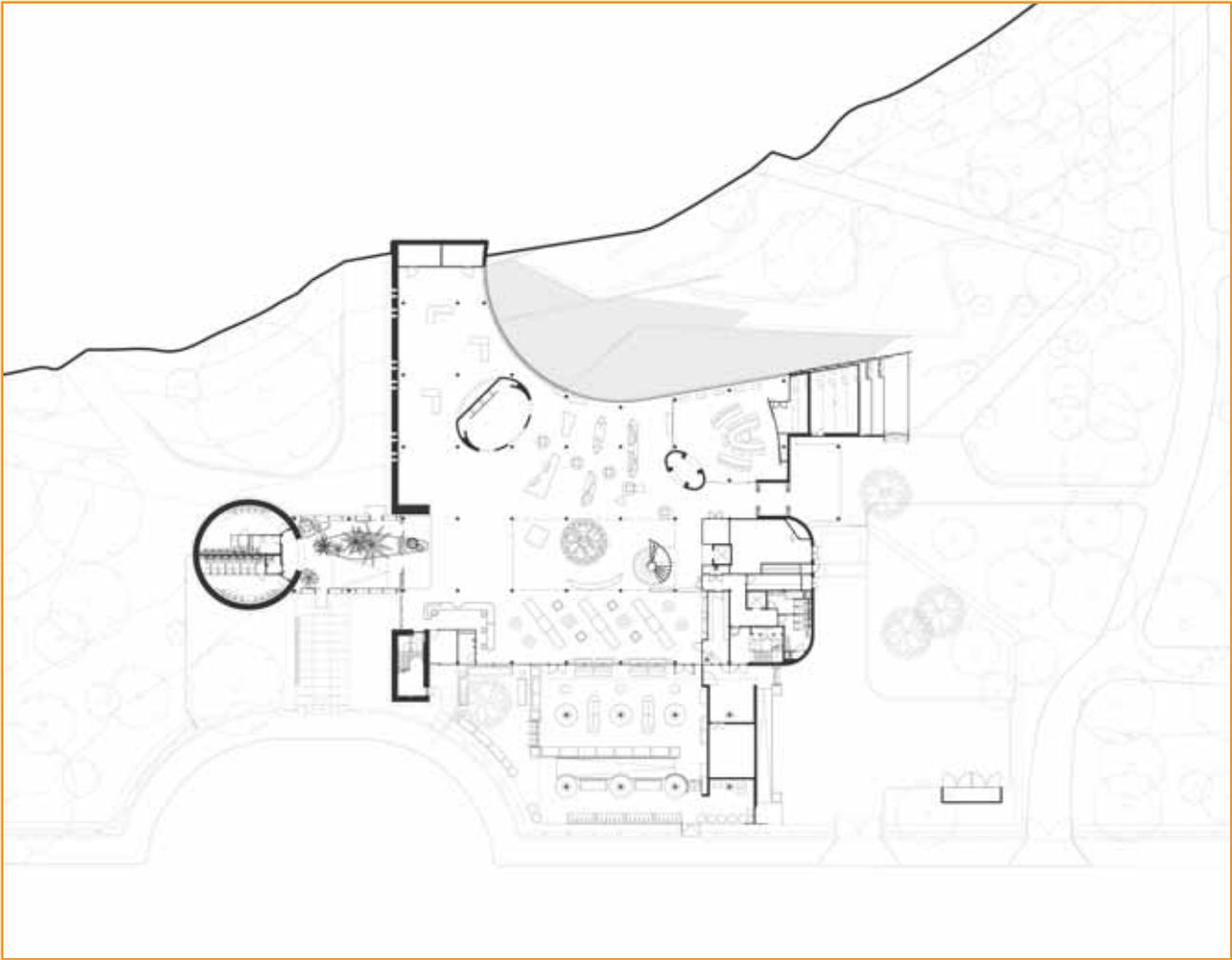


CASE STUDY
JOHN HOPE GATEWAY







With thanks to Edward Cullinan Architects and Matt Laver Photography for photography.

Timber technologies

The building is constructed using engineered timber sourced from across the continent, which is designed to be durable and stable.

Glue-laminated timber (glulam) from France is used for the primary and secondary beams to the first floor and roof. Glulam is made using planks of timber 45mm thick, graded, dried and then bonded together into larger elements.

The first floor and roof decks are made of cross laminated timber panels with long-span potential. Exposed partitions to the public areas also use these panels.

Douglas fir Structural Veneered Lumber (SVL) from Germany has been used for the mullions and transoms for the timber glazing system. To keep a consistent palette of materials SVL was also used for the helical stair and major items of furniture such as the reception desk and bar. SVL is made of thin veneers of timber glued together into large sheets.

Scottish larch forms the external cladding.

Special timber-related features

Vertically lapped, untreated Scottish larch boards are fixed to battens to act as a rain screen cladding. This is a first line of defence, fixed to a weather-tight insulated wall construction. It has been designed in consultation with the Timber Research and Development Association (TRADA) to ensure that it requires minimal maintenance and repair.

The roof is a lattice of 117 tapered glulam beams with cross-laminated KLH panels on top. At the top of the columns, steel rods receive the vertical load from the roof. Being on a diagonal grid, the beams meet at the centre of the rectangular grid. Steel fitch plates bolted into the timber are welded to a steel bar. This provides moment continuity in the structure and creates a strong visual location to the centre of the coffered slab.

At first floor level, the bolts to the column fitch plates are arranged in rectangular groups. At roof level, for visual reasons and for structural efficiency, the bolts are arranged in circular groups. This provides a strong visual contrast.

CASE STUDY

JOHN HOPE GATEWAY

Name of building

John Hope Gateway

Date completed

2009

Building type

Public

Location

Royal Botanic Garden, Edinburgh

Architect

Edward Cullinan Architects

Client

Royal Botanic Garden Edinburgh

Main contractor / timber supplier

Xircon

Donald and McConnell

Elmwood

Anticipated lifespan of building

60 years

Background to building

The John Hope Gateway provides a threshold to the Royal Botanic Garden Edinburgh with exhibitions, a media studio, shops, a restaurant and a new bio-diversity garden.

Most visitors arrive through the glass-house porch, their first view focused on the garden beyond, before they turn and rise gently into the main hall. A porous ground floor allows visitors to enter and leave the building from many other points and to flow freely between different areas.

Stacked slate walls extend out into the landscape and help to lock the building into its surroundings. A 60m curved glass wall looks out into the bio-diversity garden and the zigzag beds of plant species essential to biodiversity.

Sailing above this is the timber roof, extending to create sheltered indoor and outdoor spaces and framing views of the arboretum. The roof floats over the entire building as a single horizontal plane, supported by a diagonal timber roof structure on pencil-thin steel columns. A series of coffered timber bays define each sub-space within the open plan area below.

Material Considerations

A Natural Factory

Forestry Commission Scotland

Silvan House
231 Corstorphine Road
Edinburgh EH12 7AT

+44 (0)845 367 3787

fcscotland@forestry.gsi.gov.uk

Sust.

Architecture + Design Scotland

The Lighthouse
11 Mitchell Lane
Glasgow G1 3NU

+44 (0)141 204 3635

info@sust.org
