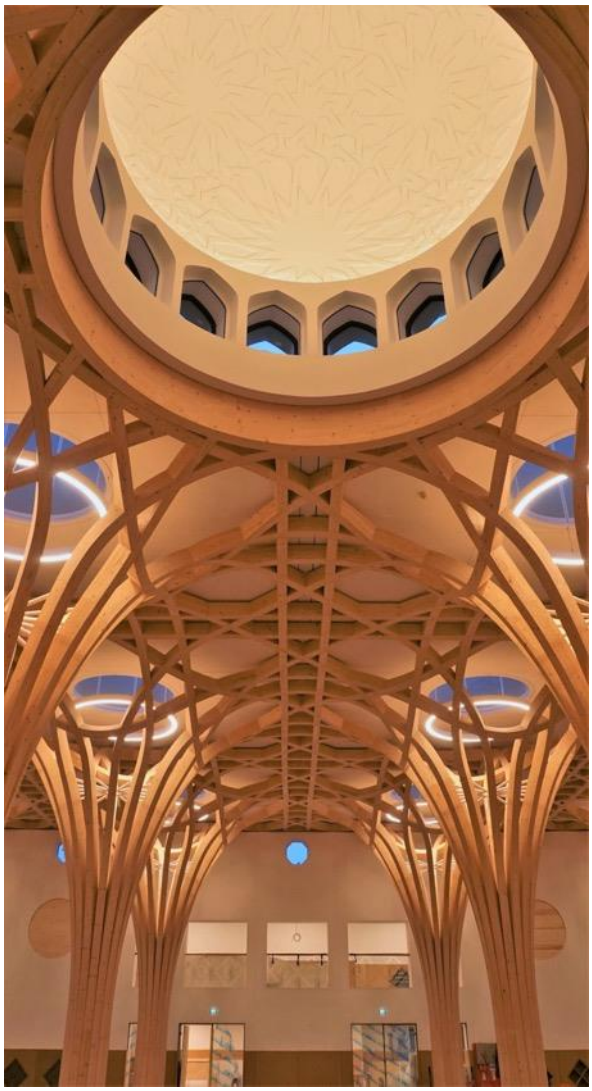
Cambridge Mosque - CB1 3DF

Beautiful architecture combining traditional Islamic design with energy-saving technologies

Meet your hosts, the Cambridge Mosque



The Cambridge Mosque is dedicated to the spiritual and social welfare of the city's estimated six thousand Muslims, with space for 1000 worshippers. People from all backgrounds are also welcome to come in and enjoy the space, including the garden, café and meeting rooms.

Tim Winter, chairman of the Cambridge Mosque Trust, notes that 'Islamic civilization has been based on the rejection of waste as an under-estimation of God's blessing'. This idea is central to the principles behind the design of the mosque, as well as being a calm 'oasis'.

The design is by the late David Marks, a Jewish architect who with his wife, Julia Barfield, designed the London Eye.

Structure

The laminated timber 'forest' of roof supports, the largest structure of this kind in the UK, was made in Switzerland and assembled on-site, as was the mosque's onion-style dome.

Insulation and air tightness

Insulation & air tightness is better than part L of the building regulations. Its EPC is A - very close to being a zero-carbon building.

Heating, ventilation and shading

Air source heat pumps in the basement heat water for underfloor heating, with sophisticated controls so only the occupied zones are heated. The heat pumps can also provide cooling in the summer.

Energy use will be minimised by using mixed mode systems – static heating and natural ventilation, supplemented by displacement cool air supply at times of high occupancy or high heat gains.

The main entrance foyer is arranged for maximum passive solar heat gain from the low sun in the winter months. Conversely there are external canopies to shade the building and reduce solar heat gains in the summer months.

Lighting

The mosque is designed so that no artificial lighting will be necessary during daylight hours. At other times natural light will be supplemented by low energy LED lighting. Roof lights have been specially designed to maximise daylight in all key areas but prevent direct sunlight reaching the space.

Water conservation

Rainwater harvested from the roof will be used in low flush W.C.s and for irrigation for the grounds and landscaping.

Cambridge Mosque - CB1 3DF

Beautiful architecture combining traditional Islamic design with energy-saving technologies

Age: 2019 completion
Project Timescale: Sept. 2016 – 2019
Cost: £23M
Wall type: Timber stud frame
Floor area: 5270m^2, incl 2565m^2 car park
Occupants: Imam residence 2-5, West residence 4, Prayer Hall and Mosque generally 1000 max.

Key features

- Timber frame structure
- Insulation & air tightness: better than part L
- Air source heat pumps for heating & cooling
- Building energy management system
- 115m^2 rooftop solar PV array
- Good daylight plus LED lighting
- EPC A rating: close to zero carbon
- Natural evaporative cooling
- Natural & controlled ventilation with heat recovery
- Shading & overhangs
- Materials chosen for durability and long life
- Microclimate control and gardens
- Off-site construction reduces waste
- Water saving features, rainwater

Electricity

A 115m^2 solar PV array will help offset the electricity used to power the heat pump, reducing the overall carbon emissions by an estimated 10%. The building's low initial carbon footprint will improve over time as mains electricity production from renewable sources increases.

Bikes, gardens

The Mosque will have ample space for bikes, along with underground parking for 82 cars, with charge points.

Upon entering the mosque, visitors will walk through a permeable green edge created by an enlargement of an existing community garden. This will also provide a cooling microclimate, including a fountain, providing shade, evaporative cooling and cleansing before the air enters the building.

The external walls have tile cladding, echoing Cambridge bricks, while incorporating Islamic calligraphy. Maximum height is 3 storeys to be in keeping with the surroundings. With its emphasis on sustainability and reliance on green energy, the Cambridge Mosque is Europe's first eco-mosque and a true landmark building for the city of Cambridge and its residents.

Key contacts and products

Project manager: Bidwells
Architect: Marks Barfield Architects
Structural engineer: Price & Myers
Building services consultant: Skelly & Couch
Quantity Surveyors: Faithful + Gould
Contractor: Gilbert-Ash
Timber frame, superstructure, internal partitions: Blumer Lehmann AG
Brick cladding: Corium
M&E contractor : Munro
Windows: Schueco
Rooflights: Roofglaze
Pre-cast concrete: Acheson + Glover
Cast stone: Haddonstone
Timber curtain walling: Raico
Paving: Marshalls