

ARCHITECTS

Lyster, Grillet & Harding
STRUCTURAL ENGINEERS
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STEELWORK CONTRACTOR
R. Moore (Structural) Ltd

Judges Comments

A combination of glass cladding and structural form which links the internal and external environment into a satisfying entity. The welded details are exceptionally neat and unobtrusive.

The Welding Institute is the national centre for research and training in all aspects of welding, and has a research and administrative staff of about 400 – having approximately doubled in the last 15 years. Courses and conferences are run throughout the year and there are about 100 people resident in the Hall and Conference Centre at any time, as well as a continual stream of visitors for meetings, committees and so on. The Hall and its wooded grounds, in a village 6 miles south-east of Cambridge, have been gradually developed since 1945 with a complex of research, training and administrative buildings as well as the social facilities for staff and visitors necessary for an institution of this size, particularly in a rural situation. Pressure for more working areas and increase in numbers led to the idea of building a new staff restaurant to replace the old canteen, built in 1961 to cater for 220 people. This released the old canteen for other uses.

The most suitable position for the new building was on the old tennis courts, a north facing site, surrounded by trees, slightly raised and looking across an undulating lawn to the Hall, with the conference centre and a belt of trees completing a square. Two footpath links could be made to the research and office buildings, and deliveries would be made on an access road running along the south boundary.

The building was to serve three groups of people: students having all meals during the day, staff who would eat lunch and have coffee afterwards and senior staff and visitors who are waited upon and also may require privacy – members of a committee for instance. The student/staff dining rooms should be able to be combined as one space for occasional dances.

The glass-skinned building gives views from the dining and coffee areas of the Hall, lawn, trees and the open fields to the south. Externally, the glass gives views through the building showing the internal structure of steel trees with real trees beyond. A flat-roofed building seemed most appropriate for the site, the chosen structure of four-branched steel 'trees' allows for the roof to be constructed of members of an economical size (3.6m span), while leaving a relatively unobstructed floor – the spacing of the 'trunks' being 7.2m.

Wind bracing is provided by the blockwork core, where walls replace trees, and by groups of trees acting together accommodating moments at branch/roof and branch/trunk junctions. No moments could be taken into the foundations due to the low bearing capacity of the soil at the formation level of the reinforced raft. The primary structure of the roof is a grillage of 152×83 RSJ's in one plane, each member being continuous over one 'branch' support. The roof itself is asphalt and woodwool slabs on softwood joists spanning between webs of the grillage. The window-walls are glazed directly into the 100×50 RHS structural mullions the glass being held in place by flat plates screwed through a timber spacer to the steelwork.

Heating is by low pressure hot water to two 75mm pipes running around the window-wall, counteracting down draught and providing protection to the glazing against knocks. This is augmented by fan convectors placed on top of each of the three entrance porches, which come on a short time before each meal.

