Swimming Pool for Richmondshire District Council

ARCHITECTS
Napper, Errington, Collerton Partnership
STRUCTURAL ENGINEERS
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STEEL WORK CONTRACTOR
T. J. Newton (Constructional Engineers) Ltd

Judges Comments

An historic setting of considerable significance which combines our Medieval Heritage with Railway History.
The project provides a modern solution which fits neatly into the environmental background.

The brief was to provide a 25m pool and a learners' pool, with associated changing, catering and administrative accommodation within the wider context of the Country Park on the banks of the River Swale adjacent to the historic town of Richmond, North Yorkshire.
The opportunity presented on this particular site, in an outstanding conservation area, was to produce a design which was of its own time in terms of structure and materials yet which would complement the historic setting and in particular the recently restored former railway station immediately next to the swimming pool. Richmond Station is a Grade II Listed Building, designed in 1848 by George T. Andrews, under the direction of the 'Railway King' George Hudson, and is one of the best examples in the country of Gothic railway architecture.
Equally important however are the views over the site from the town and in particular from the eleventh century Richmond Castle.
To reconcile the scale of the new construction with the existing Station and Engine Shed, the natural falls on the site were used to sink the building into the ground allowing the line of the new roof to coincide with the eaves and parapets of the existing buildings.
A further link with the past is that stone saved after the demolition of a former railway warehouse on the site was re-cut and re-used to form the plinth of the new building on which the main structure sits.
It is in the design of the roof and its supporting structure that the use of steel made its essential contribution to the design. The roof which provides an umbrella over the various users in the pool was conceived as three visually independent hipped roofs each supported by only two diagonally braced pairs of columns. Each bay, similar in scale and detailing to the existing railway roofs and finished in slates, provides a unity between the different uses and across more than a century and a quarter in time.
The supporting steel structure of the diagonally braced columns is clearly expressed yet by its economy of form it does not interrupt the flow of space between the pool hall and the surrounding landscape.
The architectural concept and functional requirements of the building demanded a pitched roof with a clear span of 30m. The ideal position for the columns placed these in the middle third of each of the three roof 'wedges'.
The solution meeting these requirements was a triangular truss making the maximum use of depth at the apex of the 'wedge' and supported on pairs of cross-braced columns. Secondary framing cantilever from these trusses to form the roof envelope. Lateral stability to the roof is provided by horizontal trusses placed outside the main trusses in the cantilevered section so simplifying the details of where the structure has to pierce the profiled ceiling, the void above the structural line of the triangular truss being required for ventilation.
During design, one invariably questions the choice of material and form of the structure. The general loading of the roof deserves some emphasis as it is much heavier than for the usual lightweight roof, slates having been chosen as the roof covering. Besides servicing loads and snow load, water tanks had to be supported by the roof. The choice of steel was therefore almost inevitable. Its high strength resulted in compact sections of comparative lightness which would be readily and economically erected over the pool. Its relative stiffness, i.e. low strain characteristics, minimises deflection without resorting to massive structural members.
Its only disadvantage in its particular use in a relatively corrosive environment was overcome by providing a high standard of corrosion protection. Its use in a roof structure required no special provision for fire protection.
The objectives of the design could not have been met other than by the use of steel and the logical expression of the steel structure has enhanced the quality of the building. Yet despite the elegance of the structural solution and its reliance on current design and technology, the new building is still able to acknowledge its unique setting and demonstrates perhaps that the forthright use of steel is as relevant in a conservation area of an historic town as in the latest new town.