

NATIONAL LIBRARY

The National Library comprises two blocks: a 15-storey block which is the main reference library where the National Arts Council Drama Centre is co-located, and a 16-storey block which has the library's ancillary offices and an Observation Pod at its topmost level. It has 3 basement levels, with Basement 1 housing the Community Regional library branch and the other 2 lower levels providing for parking and services.



The superstructure is designed with steel structure and metal decking. No temporary scaffolding was required to support the slab during construction. The metal deck acted as the temporary formwork and at the same time as the permanent slab, thus providing quick access for the construction of slab.



A transfer steel plate girder was provided at the third and fifth storey to provide column free space for the ground floor atrium.



For the project, fire safety engineering was implemented to reduce the large amount of fire proof material to be used on steel structure. As one of the first structures in Singapore to have its composite steel structure designed using performance-based fire safety engineering, the design does not rely on strict adherence to prescriptive building codes.

Traditionally, structural steel beams are coated with sprays, boards or paints to protect the structure during a fire. This protection can be expensive, and requires maintenance throughout the building's lifetime. For the National Library, the design allowed for a majority of the steel floor beams to be either unprotected or to have reduced applied fire protection, while maintaining the building's structural stability in the unlikely event of a fire. This has enabled the bare steel structure to be expressed and allowed cost-effective construction of the building.



A performance-based solution was also developed enabling the two blocks of the Library building to face each other without any additional fixed fire protection systems.



For the façade, prefabricated, unitized curtain walling was adopted for the majority of the floors, which delivered high quality finishes with good construction speed.