

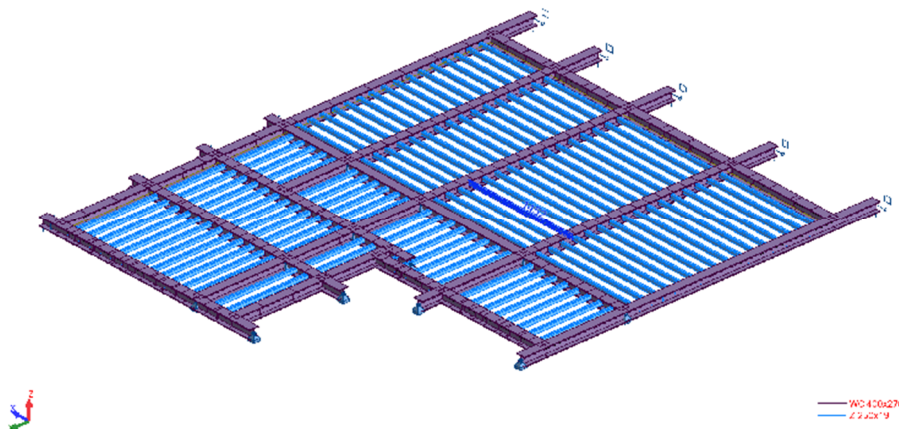
Lands Department Roof

Existing Roof

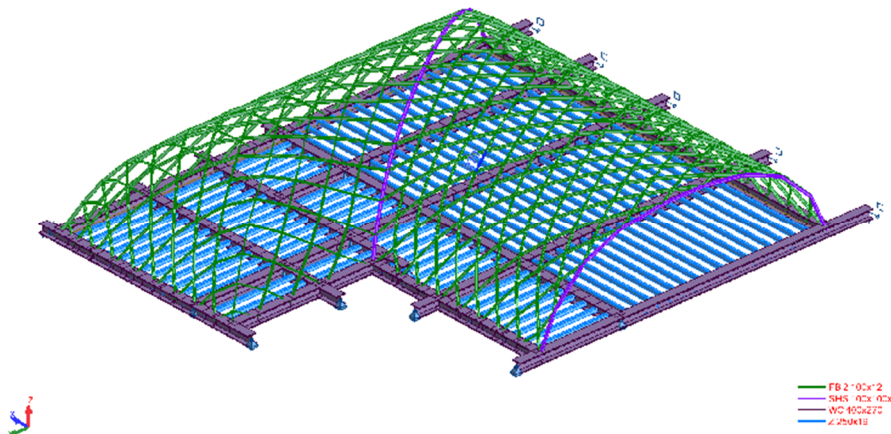
The existing roof to the Lands building consists of steel riveted built-up beams supporting concrete arches. The steel beams are supported by the perimeter sandstone / brick walls and a central line of steel (or possibly cast iron) columns. This flat concrete roof structure supports the pitched roof trusses.

Proposed Floor and Roof Construction

The proposal is to demolish the exiting pitch roof and replace it with a new light weight floor structure and roof. The new structure will consist of steel beams supporting joists and a diagrid roof. The steel beams will be built over the existing structure without touching it, ensuring that no additional load is applied to the existing roof or steel columns.



New steel and joisted floor structure to the North West corner of the Roof



New steel and glass diagrid roof supported by steel beams

The new steel beams will span onto the existing load bearing walls, in the same way as the existing structure does. A steel spreader beam and concrete pad stones will spread the load from the new structure onto the existing walls to ensure it is applied evenly across the existing walls.

The new construction has deliberately been kept very light, this will ensure the existing walls and foundations can take the new loads. Our calculations show that the increase in load from the new structure onto the existing walls is less than 5%, at the base of the wall, and that the existing walls and foundations can easily take this load.

Detailed material testing and structural analysis will be done to ensure the existing structure is capable of taking the proposed loads.

TTW's Experience on Heritage Buildings

TTW have extensive experience working with and preserving the heritage of some of the countries most monumental buildings. A couple of relevant examples are shown below.

50 Martin Place

Location: Sydney

Client: Macquarie Bank

Architect: Johnson Pilton Walker / BVN (Interior)

Refurbished to house the new global headquarters for Macquarie Bank. The interior was stripped back to its original proportions, opening up the atrium and inserting the world's first glass cylindrical lifts and glass-shingled dome.



Radisson Plaza Hotel in Wales House

Location: Pitt Street, Sydney

Client Radisson Hotels

The Fairfax Printing Building was converted into a 363 room hotel. Three additional levels were added to the top of the existing structure necessitating column strengthening and stiffening for additional lateral loads. The 100 tonne stone cupola was raised as one piece to its final location.

Awards: Institution of Engineers Australia 2000 Highly Commended in Heritage Category