

The Contractor elected to construct temporary steel work between the superstructures of the road and rail bridges to support the individual sections of the services bridge until the field bolting was completed and the bridge could span between bearings.

All erection of box girders, temporary supports and bridge sections was by crane from the deck of the road bridge, carried out with full Sunday morning closures of the Great Western Highway.

The rising main went into service in October 1981, and the water main in July 1982. The water main was designed by the Board, while Gutteridge Haskins & Davey acted as Consultants to Penrith Council and were responsible for the design of the services bridge and rising main, and supervision of construction.

Main Hall Roof Trusses — E. G. Whitlam Indoor Recreation Centre

Liverpool is one of Sydney's rapidly expanding outer local Government areas. To cater for the recreational needs of the local community, Liverpool City Council has embarked on the development of a major recreational centre in Woodward Park.

The ultimate scheme entails a combined indoor/outdoor complex incorporating the existing swimming complex and a broad range of facilities for family recreation. Activity areas have been designed to be multi-purpose and as flexible as possible to allow for the inevitable changes in popularity that various activities will undergo.

The indoor centre will comprise a main hall of dimensions 65 m x 72 m for championship sporting events, or for functions such as pop concerts and stage shows; there are also a functions room, squash courts, meeting rooms, kitchen and dining rooms, and administrative areas, etc.

The main hall, because of its size and application, will be unique as a recreational facility in Australia. In the first stage the hall will have a column free area measuring 65 m x 36 m with the roof trusses spanning the long dimension to enable one of the side walls to be removed for future extension of the hall to its final size.

The requirements for a column-free area and for the future removal of one of the longer walls led to the adopted structural system for the roof of a set of five parallel trusses spanning the length of the hall with the maximum bearing-to-bearing distance of 65.96 metres.

Each truss is trapezoidal in cross section with chords and web members of universal column section, as seen in Fig 2. The chords are centred to facilitate fabrication.

A series of secondary trusses span between the main trusses at their midpoint to provide lateral stability to the top chords — see Fig 3.

The main trusses comprise all welded construction with field-bolted splices (using 8.8/TF procedure) at the third points. They were lifted in sections onto falsework towers and bolted together in place.

The towers were lowered to bring the trusses into a self-supporting state after the secondary trusses were in place between successive main trusses.

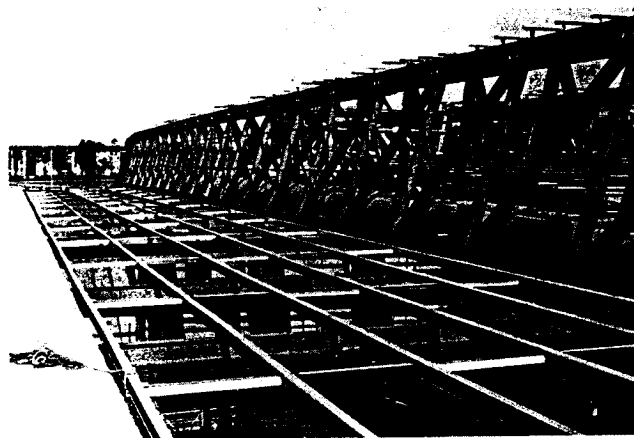


Fig. 2

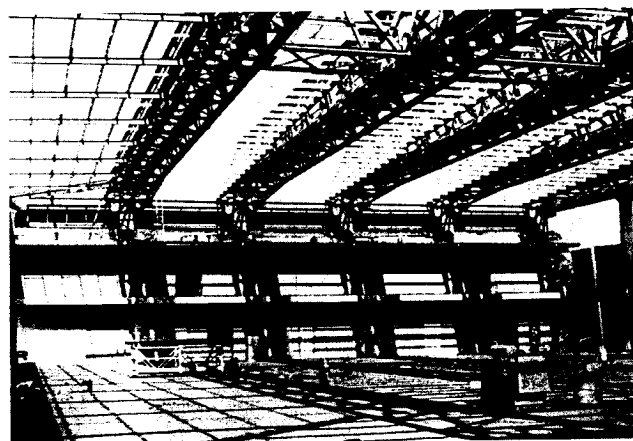


Fig. 3

Approximately 240 tonnes of Grade 250 structural steel were used in the roof trusses. Opening of the Recreation Centre is expected in mid-1983.

Architectural design was by Liverpool City Council's Engineering Department, with Gutteridge Haskins and Davey acting as Consultant for the design of structural work.