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8. Cardiff Arms Park Stand (United Kingdom)

Owner: Welsh Rugby Union, Cardiff

Architect: Osborne V Webb & Partners, Cardiff

Consultants:

1st Phase: Williamson Partnership, Porthcawl

2nd Phase: James & Nicholas, Port Talbot

Quantity Surveyor: Paterson & Seaton & Co.

Contractor: Redpath Dorman Long Limited

Completion: 1st Phase: 1969 2nd Phase: 1978

Introduction

A decision to enhance the Stands at Cardiff Arms Park was taken in the 1960s when the Ground was adopted as the National Stadium for Welsh Rugby Union. The development was in two separate phases, both of which were undertaken by RDL's Treorchy (South Wales) Works. The Phase 1 rebuilding of the North Stand (1,300 t of structural steel) was completed in 1969, and the rebuilding of the West Stand (400 t of structural steel) was completed in 1978. Together, these stands offer thousands of spectators comfortable accommodation and un-interrupted views across one of the finest pitches in Europe.

The Roof Trusses which are bolted construction some 38 m long are then erected once back leg has been encased using 150 mm diameter (No. 2) Pins to BS4360 Grade ND2B quality material and galvanised.

General Description of Works

As shown, the works consist of forty-five frames at 6.1 m centres, each frame being of:

- a) Two vertical reinforced concrete columns on independent foundations 9.1 m apart. At the top of each concrete column, structural steel stub-columns and plates to receive the Main Raker Beams are fixed at 11.6 m and 8.2 m levels respectively.
- b) Structural steel Main Raker Beams comprising 14×14.5 U.C.s booms and U.B. and U.C. lacings 30.5 m long.
- c) Structural steel Vertical Mast 12.2 m in length monolithic with the Raker Beam.
- d) Cantilever Roof Truss 38.4 m long and 24.4 m above ground level measured to the underside of the Truss.
- e) Horizontal and vertical bracing to the cantilever trusses and associated U.B. ties.
- f) Vertical bracing and longitudinal ties to the Mast Section.
- g) Longitudinal ties to the bottom of the Raker Beam Section.
- h) Gutters and gutter supports.
- i) Glazing supports at high level.



Aerial photograph of the Stadium taken in 1978

The Main Raker Beam and Vertical Mast Section are encased in concrete to form a composite construction prior to the erection of the cantilever Roof Trusses.

Under each truss there was a pressed steel galvanised gutter lipped to receive the pressed steel roof sheets spanning the 6.1 m between frames, which drained to the main gutter at the rear of the Stand.

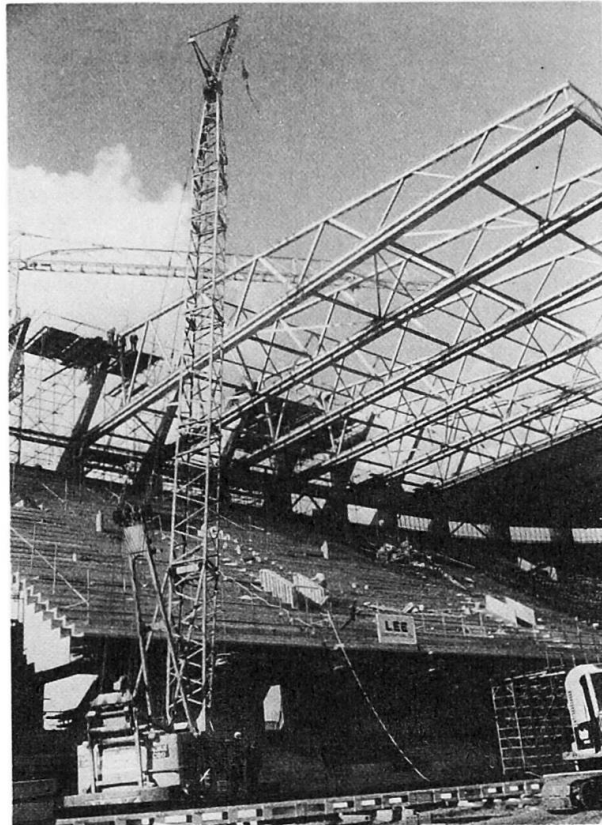
Expansion joints are incorporated at every 18.3 m where the steel sliding surfaces were treated with molybdenum disulphide grease before connecting.

The exposed steelwork comprising the cantilever trusses and associated ties, etc., were galvanised and then painted subsequently with one coat of Calcium Plumbate followed by two coats of Micaceous Iron Oxide.

An unusual feature of the 1st Phase was the double cantilever to provide the Cardiff Rugby Club with a stand using the one concourse for access for both stands.

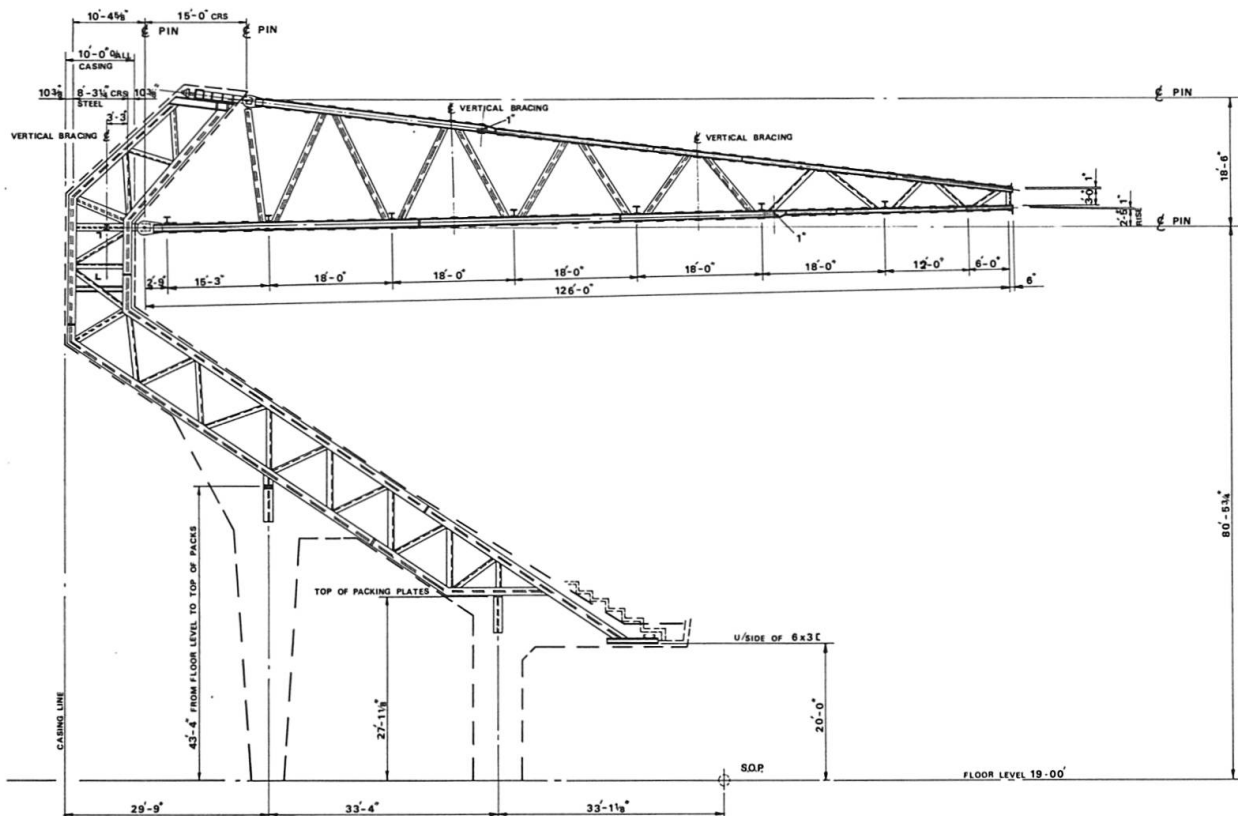
A second unusual feature was the use of structural steelwork as reinforcement for what was basically an R.C. design for the raking back legs and mast section amounting to 20 t in each leg.

With the completion of the 2nd Phase development of the West Stand in 1978, 4,300 spectators were accommodated in weatherprotected comfortable seating with cover for a further 4,000 standing spectators under cover beneath.



(C. M. Bishop)

Construction: photograph taken in Dec 1977



WELSH RUGBY UNION

EXTENSION TO WEST END NATIONAL STADIUM