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## **Structure Design Statement**

Project No.: J2106-05  
Project Name: Liverpool Hospital – Solar Car Park Shade Structures  
Date: 29 July 2021

The project structures are located on the roof top slab of a multi-level car park building. The roof top level is nominated as level 7.

There are 4 solar shade structures in total:-

Run 1 ~ 108m long x 6.3m wide – Single type (11 frames)  
Run 2 ~ 24m long x 5.2m wide – Single type (3 frames)  
Run 3 ~ 65.9m long x 5.2m wide – Single type (7 frames)  
Run 4 ~ 78.6m long x 14.7m wide – Double type (8 frames)

Single type structures incorporate frames formed by a monoslope rafter (8° to horizontal) with a singular cantilever column.

The Double type structure incorporate frames formed by a monoslope rafter (8° to horizontal) with 2 cantilever columns.

All structure columns are located at the project gridline intersection points and hence on top of the building RC columns / walls.

The solar panels are supported by system of C-purlins.

The structures are designed as monoslope free roofs with a minimum under rafter clearance of 2.8m.

Furthermore these structures have been designed in accordance with the principles of structural mechanics to resist loading in accordance with the relevant Australian Standards listed below:-

AS 1170.0	Structural design actions Part 0: General Principles
AS 1170.1	Structural design actions Part 1: Permanent, imposed and other actions
AS 1170.2	Structural design actions Part 2: Wind actions
AS 3600	Concrete Structures
AS 4100	Steel Structures

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