

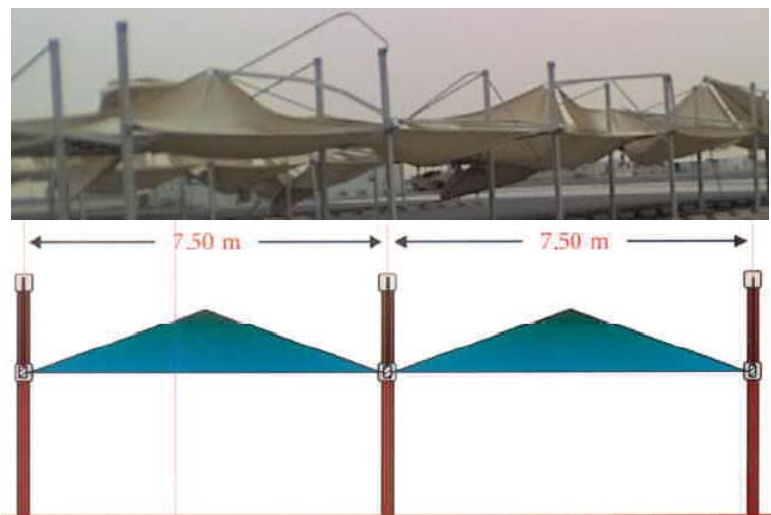
One of the cases where ASI expertise was used to optimize the structural design of a structural system was the case of newly developed innovative car-shed system. The producer has a successful product that has been installed in numerous locations. However, on installing the car shed at a certain location with relatively high wind loads it failed catastrophically.



Successful Implementation of the Car-Shed System

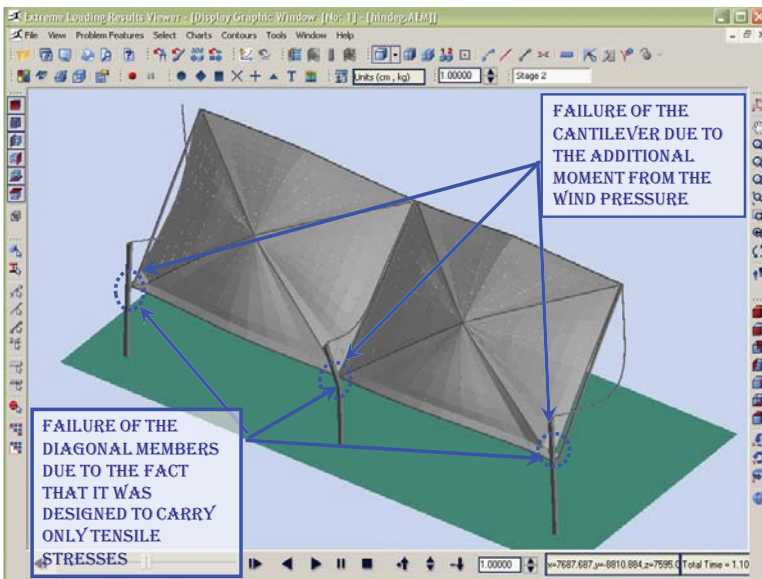


Accidental Failure of the System at One Location.

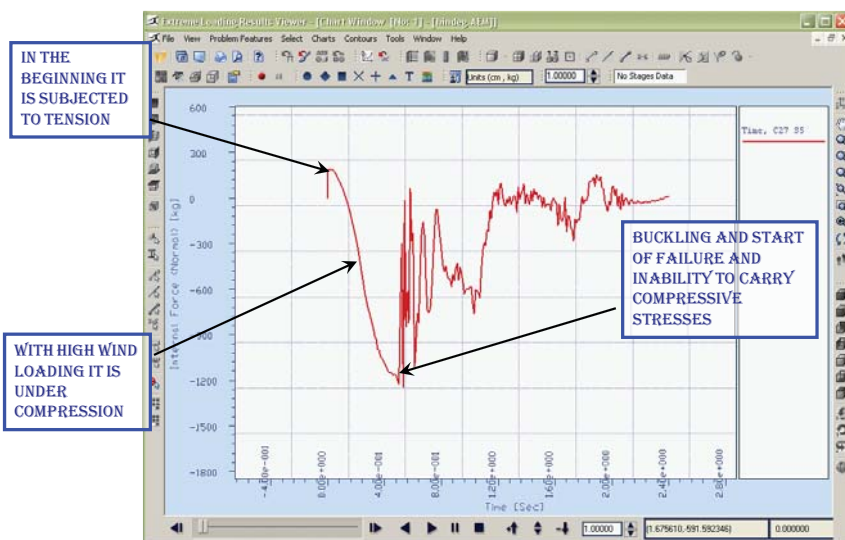


Applied Science International used its in-house structural analysis software Extreme Loading® for Structures (ELS) to create a three-dimensional model for the car-shed taking all construction details and material properties into consideration. ASI engineers performed nonlinear dynamic analysis of the structure under the effect of the wind loading.

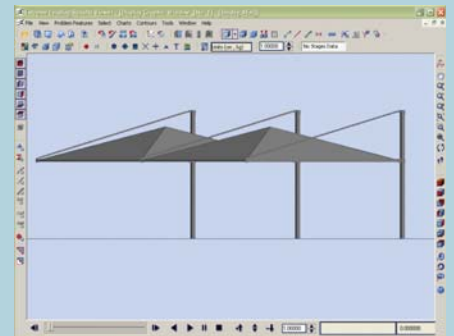
Based on the 3D nonlinear analysis, ASI was able to show the sequence of failure for the specific wind load case. ASI engineers provided recommendations for strengthening specific diagonal members which were designed as tension members but which were subjected to compression loads in this specific wind load case.



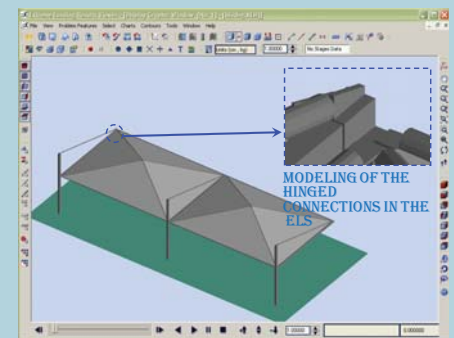
Locations of Initiation of Failure



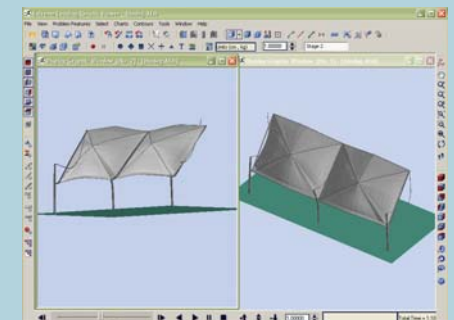
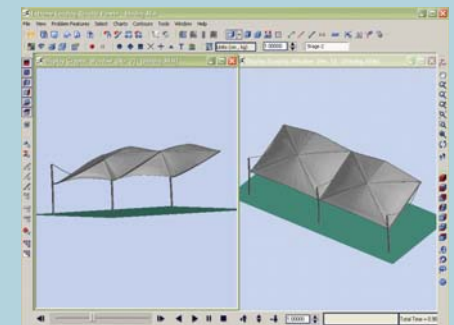
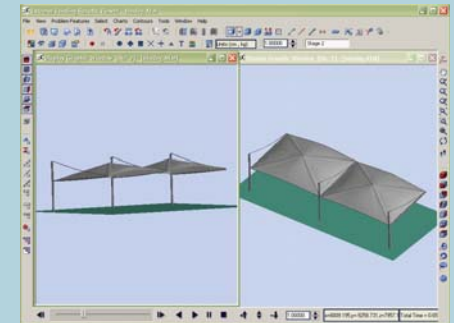
Time Deformation History for the Shed



ELS model of the Structural System of the Shed



3D view of the Model with Close-up to show Structural Details



Sequence of Failure for the System

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