

STRUCTURAL MODELING AND ANALYSIS HELIPORT

Bastion was contracted to model and re-analyze a heliport design located at the bow of a Self Elevating “Jack-Up” Drilling Unit. The heliport shape was a 12-sided polygon that inscribes a 73 - foot circle. The center of heliport was approximately 50.5 feet from the bow and 44 feet above the main deck. The heliport was supported by an intermediate truss work, which in turn is supported at the main deck.

The structure was designed and analyzed with the SACS IV Structural Analysis Program as per ABS MODU Rules 1997 and CAP 437, SOLAS 1997 regulations.

The heliport main design considerations were the minimum height and distance away from rig, as dictated by the codes

(SOLAS and CAP 437). The support structure of the helicopter was designed to clear a 10 - degree. pitch combined with a 20 - degree. roll of the vessel. The criteria determined the main geometry of the helideck structure. The truss type-structure and stiffened panel deck plate concepts were used as they offer a favorable strength to weight ratio. Care was taken to ensure minimum construction difficulties with methods, such as slotting crowded tubular connections to avoid overlapping and trimming webs of T-sections to allow stiffeners to run continuously. Vibration problems due to vortex shedding were considered and members were sized accordingly. The finished product is an efficient, structurally sound design that allows for streamlined construction.

