

**American Society of Civil Engineers, San Diego Section**  
**Historic Civil Engineering Landmark**  
**FLEET HANGAR BUILDING 340, NAS NORTH ISLAND**



*Story by Phil Kern, photos courtesy Steve Fitzwilliam and San Diego ASCE*



With war clouds looming on the horizon, the U.S. Navy's Bureau of Yards and Docks decided in 1940-41 that a new type of hangar design was needed to protect their aircraft. The main goals were to design a hangar that could be constructed relatively quickly and economically, had a long clear span to accommodate newer larger seaplanes and provided the flexibility to be adapted to

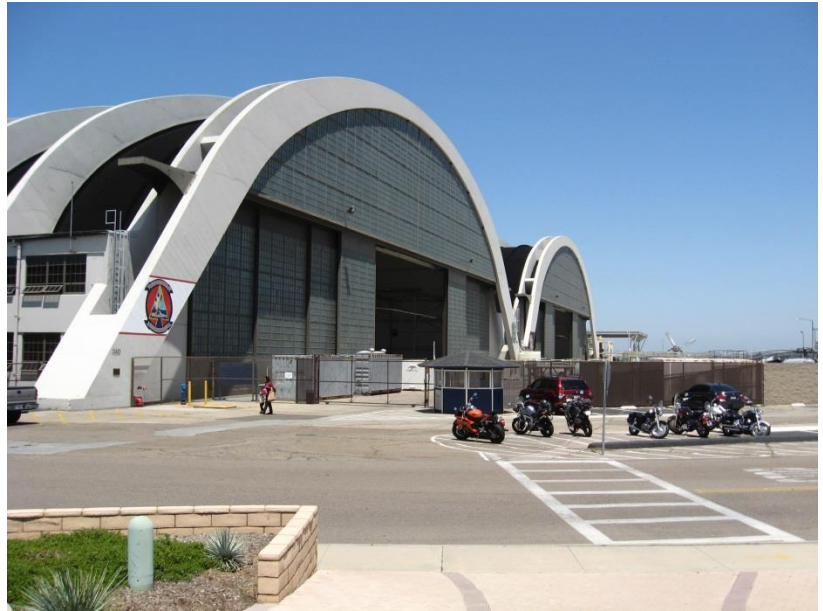
many different locations.

Previous hangars typically utilized wood or steel trusses supported by steel or concrete columns and walls, but these earlier designs had a number of limitations. The new design would be constructed entirely of reinforced concrete which provided several advantages. The basic cross section of the hangar was a barrel vaulted thin concrete shell with arches and intermediate stiffening ribs on the outside. This left the interior of the vault smooth to mount cranes, lighting or other equipment, and allowed the use of traveling "slip forms" which could be moved and reused on each section speeding construction. This arrangement could be repeated as many times as necessary providing a hangar of any length needed, with large openings at both ends for the

doors. Other benefits were that the arch shape would redistribute stresses to prevent total collapse in the event of battle damage or minor structural failure, and the shape of the building also cast a smaller shadow making it harder to spot from the air. This building also featured one of the first uses of high strength prestressed bridge cables for tension ties.



The Fleet Hanger Building was designed by the Roberts and Schaefer Company of Chicago under the supervision of Anton Tedesko, Engineer in Charge. U.S. Navy oversight was provided by Rear Admiral Ben Moreell, CEC, USN, Chief of the Bureau of Yards and Docks and Captain Edward L. Marshall, CEC, USN, head of the Aviation Facilities Division. The actual floor plan of Building 340 consisted of two side by side arched hangars joined by a shops structure in the center and containing offices along the sides of the hangars. At the time of their completion in 1941, the hangars were the largest reinforced concrete structures of their type in the U.S.



*Fleet Hangar Building 340 was recognized as California Historic Civil Engineering Landmark by the California State Council of ASCE in 1998.*