San Diego, California
Floating Double-Deck Pier

CLIENT
U.S. Navy, Naval Facilities Engineering Service Center
Port Hueneme, California

REFERENCE
Dr. George Warren
Project Director

PROJECT FEATURES
• Double-deck floating pier
• 88- by 1,300-foot pier
• Flexibility of function and location
• Minimizes naval operations disruption
• Off-site pier construction
• 50- by 100-foot floating test bed
• 100-year service life
• Special corrosion resistant reinforcement

SERVICES BY BergerABAM
• Concept Development
• Research
• Design
• Cost Estimating
• Test Bed General Contractor

PROJECT DATES
1998 to 2004

KEY STAFF
Bob Mast
Mike LaNier
Lee Marsh
Manfred Zinserling
Markus Wernli
Kåre Hjorteset
Phil Birkeland

The floating characteristic of the modular hybrid pier maintains the elevation difference between pier and ships during tidal changes.

BergerABAM developed a pier concept for the U.S. Navy, Naval Facilities Engineering Service Center (NFESC), offering a design alternative to the traditional pile-supported structure. The design goal was to develop a pier with a maintenance-free service life of 100 years that was flexible in function and location. This flexibility allows the capability to berth a range of Navy surface combatants with differing demands on utilities and access, and enables the Navy to move or reconfigure a pier as a naval base mission changes. Additionally, the pier mobility allows off-site pier construction, lowering the costs by accessing a larger construction market and minimizing the disruptions to naval station operations. The pier is minimally dependent on site parameters, such as soil condition, tidal difference, seismicity, and climate.

An initial concept study compared floating to fixed double-deck piers and investigated the durability of innovative construction materials. NFESC opted for a floating double-deck pier, referred to as a modular hybrid pier, comprised of concrete modules that join to form the desired length, and are fabricated in dry dock for subsequent transport and assembly at the site. A floating test bed was constructed in Tacoma, Washington, and towed to the U.S. Naval Station in San Diego, California, where it is being subjected to structural tests and long term monitoring.

BergerABAM’s expertise in waterfront and offshore structures, combined with superior knowledge of concrete technology, allows the development of innovative facilities that not only meet client needs, but alleviate drawbacks associated with more conventional designs.