

CASE

World's largest passenger ferry fleet has 15 year old exterior steel deck coatings still performing well under year round northern Pacific sea conditions.

The British Columbia Ferry fleet operating in the waters off Canada's Pacific shores is the world's largest passenger ferry fleet, operating several ships carrying passenger, automobile and freight traffic throughout the network of islands off Canada's westernmost province of British Columbia. Fleet vessels including the Queen of Surrey, Queen of Oak Bay and Queen of Capilano have been operating using plasticized gypsum technology since the mid-1990s as protective coatings for the traffic bearing outside steel decks. These coatings have outlasted traditional epoxy coatings by several years and are easily maintained.

Problem

A major fleet operator needed a deck coating system that would protect outside steel decks exposed to year round sea and weather conditions with minimum cost and maintenance requirements. Epoxy coatings tend to be too costly and brittle, polyurethane coatings too uncertain and polyester coatings blister too easily. Marine paints do not have enough thickness to protect the deck surfaces adequately. These coatings tend to require replacement or major repair work in a couple of years. Coating replacements are costly and require substantial time and effort.

Solution

The operator began choosing Castagra's predecessor plasticized gypsum coating in the mid 1990s. The coating remained flexible throughout its service life and in some cases remains after 15 years in service. Coatings are easily maintained and the underlying steel decks remain intact.



Application Results

The total installed cost was less than for competing epoxy coatings considered the industry standard for traffic bearing marine deck coatings. Initial installation was completed more easily, in less time and with no solvent odors or risk of fire during installation. Unlike the hard and relatively brittle epoxy coatings, the completed coating system was flexible and does not crack under normal wear and tear. Additionally, the normal thermal expansion and contraction of the underlying steel decks during seasonal, daily and hourly hot and cold cycles does not cause the flexible coating to crack or delaminate at or near the welds and joints, unlike for the competing epoxy or polyester coatings which often show signs of failure within the first year of service. An additional benefit is that whereas epoxy coatings cannot be easily repaired where there are cracks, peeling or blistering, the flexible plasticized gypsum coatings can be easily patched or painted where required. Conventional and relatively inexpensive marine enamel paints are occasionally applied to the intact coating to give the overall system a newer appearance. This cannot be done with epoxy coatings which do not accept marine enamels and generally require the entire coating system to be replaced at much greater cost. The flexible coating system also offers greater sound dampening than do the harder and thinner epoxy coatings. The "green" coating provides superior performance, costs less and installs more quickly than conventional petrochemical coatings.

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