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TITLE CASE STUDY FOUR

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DURABILITY: MARINA IN SWITZERLAND AFTER 38 YEARS



Hot dip galvanizing can provide long-term, maintenance-free corrosion protection in even the harshest of environments. An example of this is the marina and port installations at Arbon and Bottighofen in Switzerland. These two small towns are idyllically situated on the Southern shore of Lake Constance and are very popular with water sports enthusiasts.

Use of galvanized steel

A new port was built in Bottighofen in 1968 and used considerable quantities of steel. The sheet piling used along the 150m long port basin and many other steel elements such as railings, barriers, doors, gates, the landing stages with ship caissons, plus the bollards and heavy tubular jetties, were all protected against corrosion by hot dip galvanizing.

The port installation in Arbon was extended in 1971. Galvanizing was also used as the main system for corrosion protection of the steel components. Over 100 tonnes of sheet piling and fender profiles were used in the project.

Inspection results

When the two port installations were first inspected, in 1983, no significant corrosion was found on the galvanized coating. Even in the most aggressive areas, (sheet piling) no corrosive effects could be detected.

A second inspection of the two port installations took place in the autumn of 2006 about 38 years since the original construction project. The galvanized coating was again shown to be in good condition and fully functional. As expected, the original silvery, glossy zinc appearance had changed into a dull grey surface. This change in appearance occurs as the protective film is built up on the coating surface during reaction with the atmosphere.

The inspection report emphasised the good condition of the sheet piling after so many years of exposure, despite the exposure to abrasion and impact from boats. In fact, it was only on some steel bollards, to which large ships moor up using heavy chains, that the galvanized coating had been damaged.

The electrochemical protection of the surrounding zinc will prevent this damage from spreading through sideways corrosion.

Most importantly, the inspected thicknesses of the remaining coating was still between 50 and 100 μm . So, the galvanized steel elements of these port installations will also remain protected against corrosion for many more years to come.