

IMMERSED PIER LEGS – KILLYBEGS FISHING PIER – IRELAND

The application of **ZINGA** on the pier legs at Killybegs Harbour was done in the summer of 2000.

The customer, the Irish Department of Marine and Natural Resources, and the contractor, **SAR Marine & General**, waited a full year before giving any official comment on the performance of the **ZINGA** coating.

Based on regular controls, they confirmed that the **ZINGA** is performing very well.

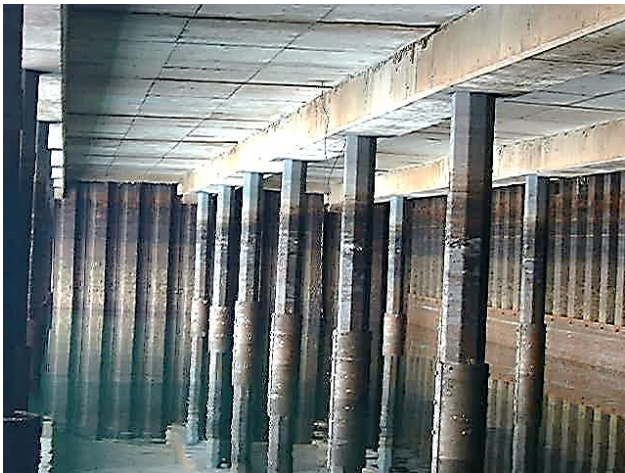


These pictures of the pier legs were taken in August 2001: one year after the application. The **ZINGA** is holding perfectly with no rust showing. Any marking on the legs is either seaweed or harbour contaminants.

The fishing pier, which supports the factory buildings, is held up by 309 mild-steel hexagonal shaped legs, all approx. 600 mm in diameter.

These pier legs have been in the sea for 25 years and due to the salt and the sulphate reducing bacteria present in the seawater, they were losing up to 2 mm per year of their thickness. The waters around Killybegs are unique because they have the highest rate of corrosion in Europe.

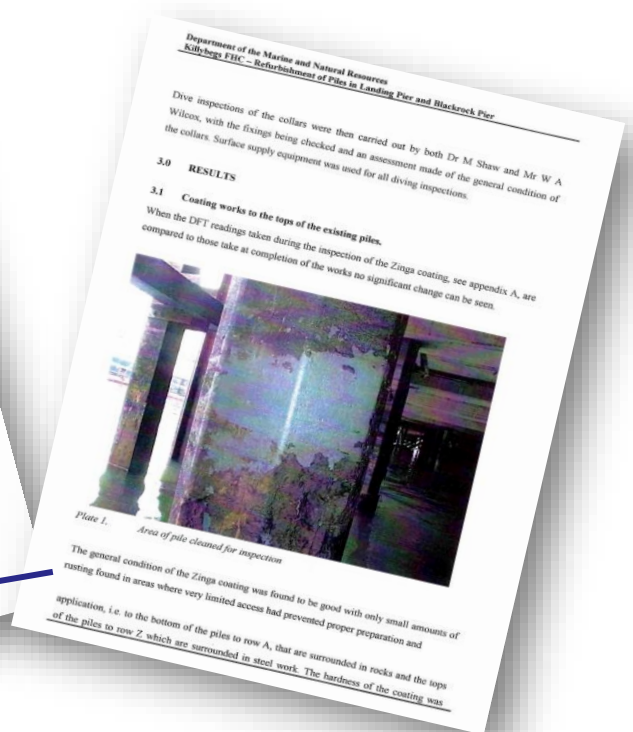
The height from the concrete deck to the water level at low tide is approx. 3 to 4 meter. At high tide, 1.5 to 2 meter of each pile is totally submersed in seawater.



The piles were prepared by UHP water-jetting and blasting to SA 2.5 with Rz 40 to 60 μm . The application happened under severe surveillance of SGS, because it was a very difficult and delicate application as they had to take into account the tidal movement of the water and the constant contact with sea water. SGS had prescribed a dry film thickness of ZINGA of $25 + 40 + 40 + 40 \mu\text{m} = 145 \mu\text{m}$, but in the end an average of $300 \mu\text{m}$ was measured.

An adhesion test by SGS, performed in August 2000 gave an average result of 3.5 N/mm^2 , which is very good.

Below you will find an extract from the final inspection report, issued by **SAR Marine & General** for the Department of the Marine and Natural Resources, dated 15/06/2001, that describes the excellent condition of the piles 12 months after the application.



"The general condition of the Zinga coating was found to be good with only small amounts of rusting found in areas where very limited access had prevented proper preparation"

In July 2003 SGS has done the first official inspection of the pier legs **after 3 years of service**. There was no significant change in the layer thickness of the **ZINGA**. Some minor repair work had to be done on piles that had received an insufficient surface preparation at the time of the application on areas that were difficult to reach. Below you can read an extract of the inspection report and view the pictures that were taken.

SGS

REPORT

Mr. JOHN CAMPBELL
DEPARTMENT OF THE MARINE AND
NATURAL RESSOURCES
Upper Main Street
BALLYSHANNON, CO. DONEGAL
IRELAND

Date:
14/08/2003

Our reference:
1127-N-1519-2003

Your reference:
AFIP ref. 086-B-2000 dd. 11/07/00

Type of intervention	INSPECTION
Object	Piles of Landing Pier and Blackrock Pier
Location	Killybegs Harbour, Ireland
Date inspection	14/07/2003
Re-inspection	First inspection after 3 years of service.

Brief conclusion	See paragraph
Some minor repair work has to be done on piles with areas difficult to reach. The cleaning of the reference piles with HP (warm) water didn't give any problem. The all-over dry film thickness hasn't change significantly.	



In July 2006, a second inspection by SGS took place, **6 years after the application and 3 years after the first inspection. The results were again promising.**

SGS

REPORT

Mr. John Campbell
Department of the Marine & Natural Resources
Upper Main Street
BALLYSHANNON CO. DONEGAL
IRELAND

Date:
02/08/2006

Our reference:
1127-N-0047-2006

Your reference:
AFIP ref. 086-B-2000 dd. 11/07/2000

Type of intervention	3-YEARLY INSPECTION
Object	Piles of Landing Pier and Blackrock Pier
Location	Killybegs Harbour, Ireland
Date inspection	15/07/2006
Re-inspection	Second inspection after 6 years of service

Brief conclusion	See paragraph
<p>The piles do not show any significant changes although the repair works after 3 years have just started recently.</p> <p>Only on some piles we find some corrosion on the upper 0,5 till 1 m. Touch-up is going on. The cleaning of the piles with nylon brushes and water doesn't cause any problem.</p> <p>The all-over dry film thickness has increased with another 11%.</p>	



In July 2009, a third inspection took place, **9 years after the application and the results were very good.**

ZINGA protects the steel of the pier piles very well, even in these very harsh conditions.

This is a short conclusion from the 2009 SGS inspection report:

Brief conclusion.

The piles didn't show any significant progress in corrosion since the last inspection in 2006 (after 6 years in service). Only on the piles at the Blackrock Pier we saw slight corrosion on the upper 0.5 to 1 m. The touch-up done before and during the last inspection in 2006 shows some blistering. This is probably caused by remaining salts underneath. The overall thickness has not significantly changed.



An extract of the report:

The coating is at present in quite good condition; if well maintained, the system can remain in service for another 10 years.

In March 2014, **14 years after the original application**, some pier legs were locally hydro-blasted for making an inspection.

The shells & barnacles on the surface of the **ZINGA** layer had grown more than 100 mm in thickness on some places, **but the ZINGA underneath was still in perfect condition.**



System:

ZINGA 1 x 25 µm DFT +
 3 x 40 µm DFT