

TREATED WOOD FOR USE IN CALIFORNIA COASTAL WATERS





"We Treat Wood Right"

3400 Patterson Road
Riverbank, CA 95367

TREATING SERVICE ONLY(TSO)

Quality Wood Treating Services Since 1977

www.thunderboltwoodtreating.com

Wood Protection For Today's Environment

Bob Palacios

Thunderbolt Wood Treating, Marketing & Sales Manager

Miguel Gutierrez

Thunderbolt Wood Treating, Marine & Industrial Sales



Treatments & Services



Kiln Drying

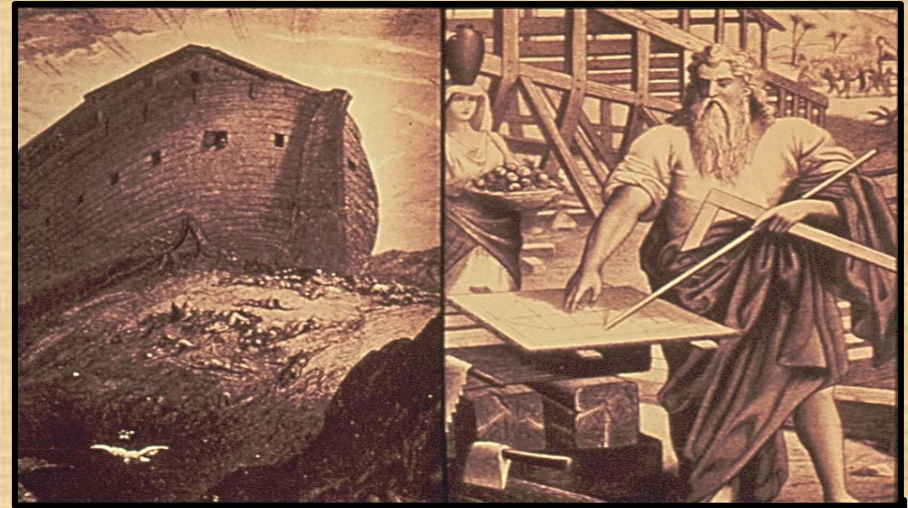
Custom Staining



SG E-375-08 Marine Grade Polyurea Spray Coating

THE HISTORY OF WOOD PRESERVING.

Wood decay has plagued humans since they began building with wood thousands of years ago. When trees with natural durability were available they were commonly used. But the scarcity of durable timbers in some areas of the world coupled with the need to make wood products last longer led us to develop techniques to preserve wood.



When Noah built the ark he coated the wood with pitch. The pitch preserved and water-proofed the ark to keep it afloat.

Charring is perhaps the oldest wood preservative. Tree pitch and tar were also used in an attempt to protect wood.

T HUND E R B O L T



CCA-C

Throughout the centuries just about every new chemical discovered has been tried as a wood preservative. Impregnating wood with chemicals using vacuum and pressure started in the early 1800's by the French. Thousands of chemicals have been tested since but relatively few have proven suitable.

There are two basic classes of wood preservatives used today, oil-borne, and sometimes referred as organics. Oil based solutions are used to move chemicals into the cells of the wood. The other type is water-borne preservatives using water as the carrier.

The workhorse of the industry since the 1950's has been Chromated Copper Arsenate (CCA) Copper had been well known for its preservative properties and is relatively inexpensive but two factors limit its effectiveness without modifications. It is very soluble in water so it could have a tendency to leach out leaving the wood unprotected.

CCA-C

Copper Sulfate protects wood from most fungi but is ineffective against insects such as termites and other copper tolerant organisms found in our oceans and waterways.

The solubility problem was solved by adding chromates to the copper sulfate to “fix” the copper into the wood in an insoluble form. The second problem was solved by adding arsenic as a co-biocide to control the copper tolerant organisms. Beginning in 2004, because of some concerns over the effects of arsenicals to the health of the general public, the EPA and the major chemical companies agreed to limit the use of CCA to industrial and agriculture. It is still considered a very good treatment but with the development of new non-arsenical co-biocides new treating chemicals have been developed. Where safety new chemicals such as ACQ / Ammoniacal Copper Quat are now widely used where safety and environmental effects are of concern.

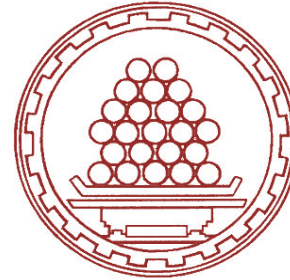
These new treatments have not been proven effective in the harsh environment that exists in our oceans. A treatment consisting of Ammonia, Copper, Zinc and Arsenic (ACZA) was developed and has become the most effective treatment for Western Wood Species in today’s West Coast ocean environment.

Thunderbolt Treating Process

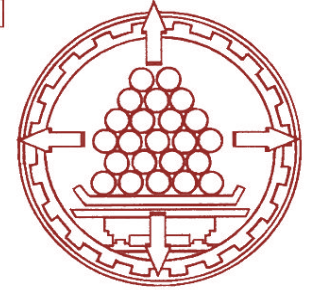
The basic treating process is simple and highly controlled

- 1) Lumber, timber or plywood is loaded onto tram cars. The trams are moved into a large horizontal treating cylinder
- 2) The cylinder door is sealed and a vacuum is applied to remove air from the cylinder and wood cells.
- 3) Preservative solution is then pumped into the cylinder and
- 4) The pressure is raised to 150 psi forcing the chemical into the wood. Treating times varies depending on the species of wood, commodity being treating and the amount of preservative being impregnated.
- 5) At the end of the process, excess treating solution is pumped out of the cylinder and back into the storage tank for later re-use.
- 6) A final vacuum removes excess preservative from wood cells. This is an opportune time to start utilizing BMPs. The cylinder door is opened and the trams are pulled out. The wood is wet, so it is kept on a concrete pad until all dripping ceases.

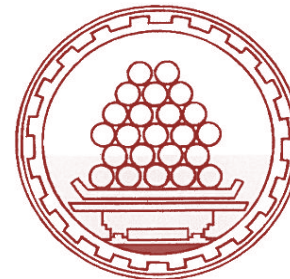
1



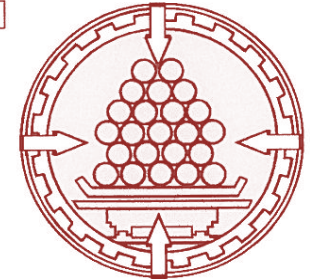
2



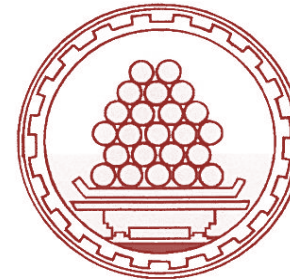
3



4



5

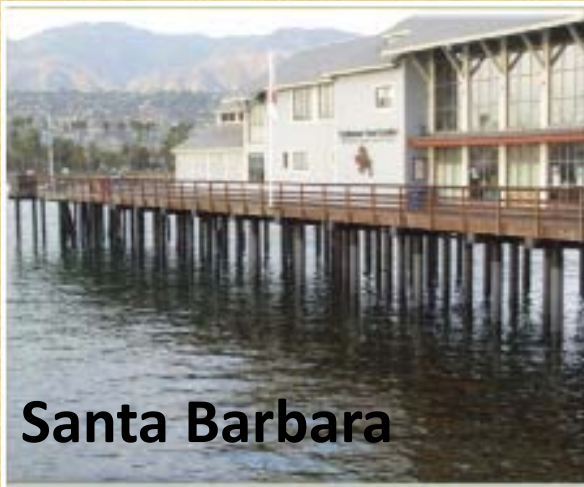


6



ACZA in California Waters

CHEMONITE ACZA



Santa Barbara



Port San Luis



Bodega Bay



Santa Cruz Municipal Wharf



Ammoniacal Copper Zinc Arsenate, also known as Chemonite[®], was first developed in the 1920's as a blend of copper and arsenic in ammonia, formulated to provide a highly effective waterborne preservative treatment that would penetrate Douglas Fir and other difficult to treat western species.

It is the primary waterborne treatment approved for use in salt water immersion applications. It offers protection against Formosan and subterranean termites, marine borers, carpenter ants, and acts as a deterrent to woodpecker attack.

Common usage is in industrial applications, marine applications, bridges, highway guardrail and signposts.

Advantages:

- ✓ Protects against fungal decay and marine wood borers such as Shipworms, Limnorias, Pholads and even Formosan termites
- ✓ Effectively penetrates Coastal Douglas Fir
- ✓ Long history of successful use
- ✓ Studies indicate resistance to carpenter ants, woodpecker damage and has fire resistant properties
- ✓ Provides protection at all levels of exposure – above ground, ground contact, fresh water and salt water
- ✓ Leach resistant – utilizing BMP standards
- ✓ Leaves surfaces free of chemical deposits – utilizing BMP standards



Is Chemonite wood suitable for aquatic applications?

Yes. Treatment in accordance with AWPA Standards provides a long service life. Specifying that the wood conforms with the Best Management Practices (BMPs) of the Western Wood Preservers Institute ensures that Chemonite wood is suitable for use in aquatic environments

How long will treated wood last?

The length of time that a piece of treated wood lasts will depend on how it is being used and where. For best results, it is important that you use a treatment level (retention) appropriate to the end use. Thus, for ground-contact application 0.40 pcf ACZA is suitable. For salt-water splash applications, 0.60 pcf ACZA is appropriate and for salt-water immersion, 2.50 pcf ACZA is required in Southern California.

Will the chemicals wash out in water or in the ground?

Treated wood is very leach resistant. The U.S. Environmental Protection Agency (EPA) has stated that “Arsenicals in treated wood have a very low tendency to leach into the soil.”

ACQ Preserve®



**Mill
Valley**



Imperial Beach



San Clemente



Pismo Beach

American Wood Protection Association

- Founded in 1904
- International, nonprofit technical society
- Standards writing organization for the wood preserving industry in U.S.
- Provides a technical forum for industry, research and users.
- Protects consumers by ensuring uniform product performance.
- Reference in all building codes.
- Updated Annually - Currently the 2008 Edition

AWPA

- Determines if a preservative is effective and can be listed in the standards.
- Establishes how much of the preservative is needed (retention) depending upon the exposure and use. May vary from .25 to several pounds per cubic foot of the treated shell.
- Industry seeks to minimize chemicals through lower retentions.

How To Specify With the AWWPA Use Category System

Treated Wood News

May 2011

How to Specify Treated Wood with the AWWPA Use Category System

The purpose of the Use Category System (UCS) is to provide a simple tool of selection and specification for the use of treated wood products. The UCS defines a series of different categories for treated wood products. Each category has a different degree of degradation based on the product and the application. The system helps specify and select wood to have the appropriate UCS treatment for the intended application as a specific combination of product and use conditions.

The advantage of the UCS is consistency. All treated wood manufacturers can be placed into one of the Use Categories. The owner knows at the time of purchase that the product has met certain performance ratings that enable prediction of its useful service life. A rating that is higher is preferred for the intended application.

The use of this system should first be for applications that require the use of treated wood products and a defined application in the Specification Guide to Treated Wood and Fast.

The goal of the Use Category System is to provide a simple tool of selection and specification for the use of treated wood products. The UCS defines a series of different categories for treated wood products. Each category has a different degree of degradation based on the product and the application. The system helps specify and select wood to have the appropriate UCS treatment for the intended application as a specific combination of product and use conditions.

USE CATEGORY SELECTION GUIDE

UC1 – Wood and wood-based materials used in outdoor construction are in contact with the ground or foundation. Such products are protected from weather and other sources of water such as leaking plumbing, condensation, pools and spas.

WOOD'S COMPOSITION:
• Natural materials, dry above ground

USE ENVIRONMENT:
• Foundation, ground-line contact or other contact condition

CRITICAL QUALITY OF PERFORMANCE:
• Durability

TYPICAL APPLICATIONS:
• Decking, siding

UC2 – Wood and wood-based materials used in outdoor construction that are in contact with ground but are not subject to degradation. These products are not protected from the weather but may be exposed to occasional contact with water.

WOOD'S COMPOSITION:
• Natural materials, dry above ground

USE ENVIRONMENT:
• Protected from weather but subject to contact with water

CRITICAL QUALITY OF PERFORMANCE:
• Decay, fungi, and insects

Guide to Preservative Treated Wood

Download
the
Specification

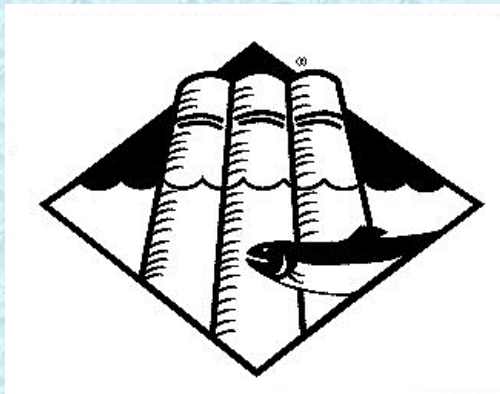


ACZA Treated Wood Specification Guide For Aquatic Use

	Structural Members	AWPA Standards		Preservative Retention
		U 1 Use Category	Commodity Specification	Lbs. per cubic foot ACZA
MARINE AND FRESH WATER	<u>Lumber & Timbers:</u>			
	Ground contact and fresh water use	4A	A	.40
	Salt water splash	4B	A	.60
	Subject to tides, waves or in salt water	5B	G	2.50
	<u>Plywood:</u>			
	Ground contact and fresh water use	4A	F	.40
	Salt water splash	4B	F	.60
	Subject to tides, waves or in salt water	5B	F	2.50
	<u>Piling:</u>			
	Round piling – severe exposure	5B	G	2.50
	Round piling – northern waters	5A	G	1.50
	Round piling – land & fresh water	4C	E	1.00

Where Teredo and Limnoria tripunctata are expected and where pholad attack is not expected, high retentions of ACZA for Douglas fir provide maximum protection.

A Few important things to remember when specifying and using treated wood in aquatic environments:



**Western Wood Preservers Institute
Best Management Practices (BMPs)**



SG E-375-08 Polyurea Spray Coating

Sometimes called "termites of the sea"

they are marine [bivalve molluscs](#) , also often known as Shipworms or Teredo Worms.



**Creosote sample
section taken from
the
Port of Los Angeles
in 2002 by
Mr. Ping Lit**

***T* HUNDERBOLT**

POLYUREA SPRAY COATING SYSTEM



SG E-375-08 Marine Grade Polyurea Spray Coating System

Marine Grade SG E-375-08 Polyurea is a slow-cure 100% solids spray system designed for variety of applications including the encapsulation of treated timber products to prevent toxins from leaching into the environment.

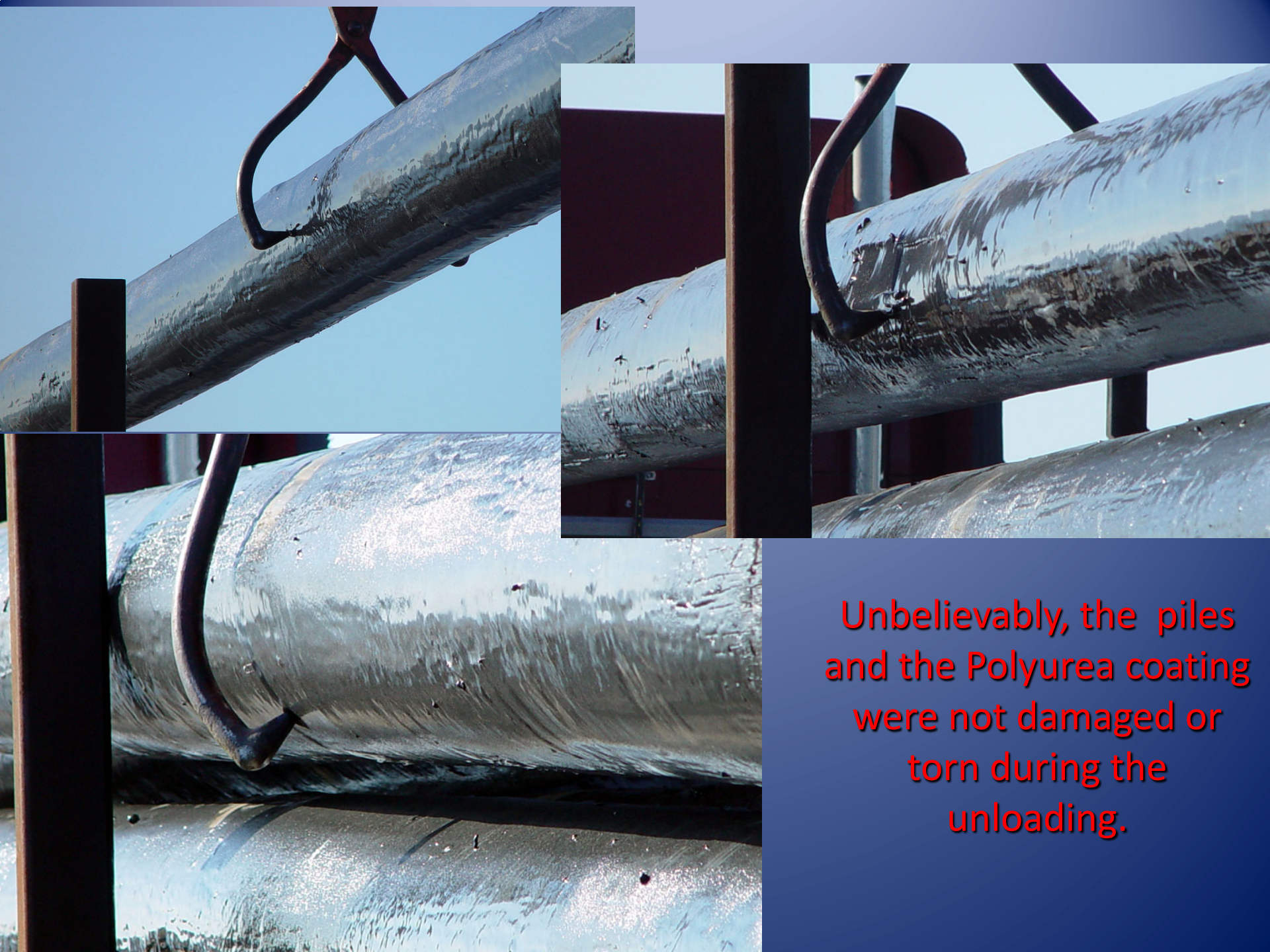






Another Successful,
High Quality, Durable
Finished Product

25/08/2009 02:07 PM



Unbelievably, the piles and the Polyurea coating were not damaged or torn during the unloading.

**NEW COATED
PILINGS
WERE
INSTALLED
NEXT TO
WRAPPED
PILES TO
PROVIDE
ADDITIONAL
STRENGTH**



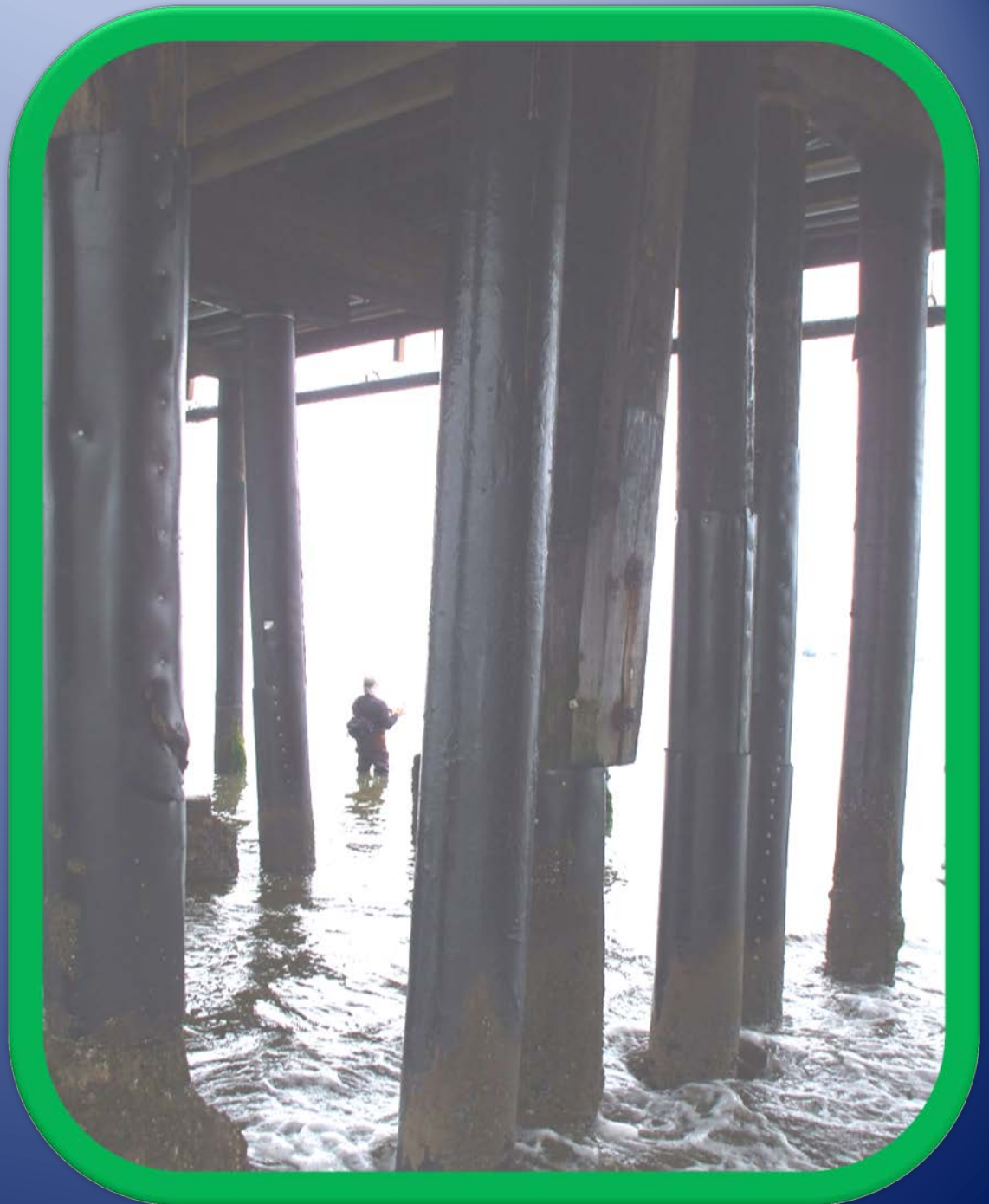


**These are 10" x 10" DF
Timbers treated with .60#
ACZA and then coated with
Polyurea to a 125mil average
thickness**



Santa Cruz Boardwalk - 2011

**EXCELLENT FOR
USE IN ANY
WETLAND
AQUATIC
ENVIRONMENT.**



PROVEN HISTORY OF PERFORMANCE





"We Treat Wood Right"

Bob Palacioz

Sacramento, CA.

916.402.3248 cell

916.339.2477 fax

bob@thunderboltwt.com

Miguel Gutierrez

Lodi, CA.

209.747.7773 cell

209.451.0425 fax

miguel@thunderboltwt.com

www.thunderboltwoodtreating.com

THE END