I would like to thank you and the Western Dry Kiln Association for inviting me to be part of your program today. I am going to talk about kiln coatings and kiln coating maintenance. I have been told that dry kilns have been around since the turn of the century and I am sure that there was a need for kiln coatings and maintenance. But I would like to clarify that P.C.I. has not been coating dry kilns quite that long.

Protective Coatings Incorporated became an authorized applicator for the Standard Oil Company applying their roofing products with high pressure spray equipment. We were doing these applications all over the Western States on sawmills, plywood plants, and other types of commercial buildings. In 1964 P.C.I. coated our first dry kilns at Ochoco Lumber Company, Prineville, Oregon. This type of application would fit in with our type of equipment and experience of spraying coatings. So the next four years we were coating many dry kilns and steam vats. P.C.I. built a special truck and equipment and added a crew for just applying kiln coatings along with our roofing program. It the late 1960's it was a turning point for drying lumber faster. Mills were increasing their productions and also increasing their dry kiln capacity. Some mills were experimenting with elevated kiln temperatures, up to 200 plus degrees. This created problems for kiln coatings and also problems for the older dry kilns. The problems it caused was shorter coating life and deterioration of mortar joints, concrete blocks, and concrete. So we were coating more often. Kiln manufactures were building all types of kilns. Some were direct fired with natural gas and oil and some were heated with heat pumps and some were heated with steam and were constructed with concrete, wood, concrete block and plywood. The newer style of aluminum prefabs were becoming very popular.

About twenty years ago at one of the annual meetings someone during one of the presentations made a statement that every 10 degrees above 150 degrees doubled the acid activity in the lumber. So this was telling us that kiln coating maintenance was becoming more important. It seems that up too about the 1960's most dry kilns operated with lower temperatures. Coatings lasted longer and in the pine kilns in some areas the pine would cast off a coating onto the walls and metal duct work that would do a good coating and protection of the kiln. Kiln capacity in some of the larger mills was not a problem. Edward Hines Lumber Company was operating about sixty single track kilns that were approximately 104 foot long with fans in the basement. We also have coated what they called the natural draft kilns with no fans and very old. So things have really changed in dry kiln equipment in the 1960's, 1970's, 1980's and 1990's. Kilns are using higher temperatures and moving more air through the lumber and drying it faster. The need for a good kiln coating preventive maintenance program is very important.

We have seen a lot of different types of coatings in the past thirty years. They were the heavy asphalt asbestos fiber coatings, water and clay emulsion coatings and polyurethane foam. Coatings with asbestos fiber have not been used for many years. Emulsion coatings were not practical due to the clay and water carriers. This coating was hard to hold on vertical walls. Polyurethane foam is a two-part product very
difficult to apply and did not work well in dry kilns under high temperatures and would blister and fall off.

Now I am going to talk about aluminum coatings. About twenty years ago there was a statement made that if you use an aluminum coating you could decrease your drying time up to 50 percent because of the reflection of the aluminum. Boise Cascade in Elgin, Oregon ran a test using aluminum coating in two double track kilns and a black coating in another two double track kilns. They kept a record of drying time for one year. At the end of the year there was no difference of the drying time.

Aluminum coating will reflect ultra violet rays and you only have this with a heat lamp or sun light not inside of a dark dry kiln. P.C.I. has some customers that like to use aluminum coating on the interior of their prefab kilns because it lightens up the kiln inside. Aluminum coatings are two to three times the cost of black coatings and depending on temperature and type of lumber you are drying. Asphalt aluminum coatings will sometimes turn dark in three to five months. I have to agree aluminum coating applied in a new dry kiln looks a lot better than basic black. Coatings that we are using today are the same type of asphalt product that have been used in dry kilns for many years. Asphalt is one of the worlds' oldest natural products. It is a 100 percent moisture barrier, very flexible, very durable and it will adhere to almost all surfaces. You can spray it, brush it or roll it. It's available in aluminum and basic black and is very affordable for preventive maintenance kiln coating programs.

In all of the thirty-five years that I have been associated with the Western Dry Kiln Association annual meetings and the Dry Kiln Club meetings I do not remember of any workshops or technical sessions on dry kiln coatings or kiln coating maintenance programs. So all of my so-called expertise and knowledge of this subject are strictly working experience and self educated. When P.C.I. had any technical dry kiln problems, we were really fortunate to have the help of well-informed people and friends in the kiln industry like Ed Knight, Bob Beckley, Dick Neely, Charlie Kozlik, John Harold and Mr. Dry Kiln himself Oly Munson. With that I will sign off unless any of you have questions.

Thank you.