

Dry Kiln Fire Insurance

By Mr. T. M. Waarvick, U. S. Epperson Underwriting Company.

Possibly one of the earliest methods of drying lumber by artificial means was that of stacking a few boards over an open pit in which a fire burned. This primitive method entails little, if any, equipment and the operator accepted the frequent fire losses as one of the hazards of doing business.

The lumber operator today, however, requires volume production and good quality in his drying processes with a correspondingly heavy expenditure for fast and efficient drying facilities. To many lumbermen the presence of fire danger and the protection of his plant values leads him to think of types of construction materials, separation of plant units, fire prevention and how should these units be insured.

The vast majority of the dry kiln installations within the area in which we live are those using steam as a source of heat. There are many types of steam-heated dry kilns but the ones to which reference will be made are those such as Moore, Fryer, Northcoast, etc. The last several years has brought us new developments in oil and gas fired dry kilns of both the furnace type and the direct fire type. We feel these must be rated individually and can therefore draw no general conclusions to set before you.

The steam heated dry kilns of masonry or concrete block wall construction with a two ply thickness of two by six or two by eight plank roof is the basic dry kiln for our rating purposes. This basic dry kiln is the beginning of the rating process and for construction advantages over and above the \$3.00 basic rated kiln credits are allowed. For deficiencies not contemplated in the basic kiln unit appropriate charges are made.

The first item looked for in dry kiln rating is the wall construction. Should the walls be wooden and of laminated or cribbed construction not less than six inch (nominal) thickness, a \$1.00 charge is made. Should the kiln walls be not less than four inch nominal thickness a \$2.00 penalty is made. The theory of the wall thickness is that the heavier wood mass is less likely to sustain as serious loss should fire occur. Along this same line of thinking, the four inch laminated wooden roof is the break-even point as far as charges or credits are concerned. If a six inch wooden roof is used, either cribbed or laminated, a rate credit is allowed. We like to see the current standard practice of using two by six tongue and groove applied in three laminations with fifty-five pound roofing paper between the laminations and two layers of fifty-five pound roofing paper applied on the roof exterior. The outside surface is then generally surfaced with asphalt. A number of dry kiln owners cover the outside surface of the roof surface with galvanized iron or aluminum corrugated sheets. The asphalt roof surface has greater spark resistance than does untreated wood. The metal exterior roof surface is nearly spark-proof if all the joints are well sealed. Discussions are being made at the present time regarding the advantages of the six inch tightly-sealed roof. Over a period of time, the moisture given off the charges being dried will cause, along with other external elements, the wood in the roof structure to deteriorate. Should fire occur under such conditions, we have lost our "wood mass" advantage and could sustain a greater than usual fire loss. We, as fire underwriters, are open for suggestion and should a changed method of construction prove more practical from our viewpoint as well as from that of the kiln owner, we can and do change our methods also. As regards the dry kiln roof, there is one additional credit which may be obtained. If the operator will, in addition to his block, tile or poured concrete wall construction, use fire resistive roof material such as tile or poured concrete, a credit over and above the six inch laminated wood roof credit may be obtained.

Our company does allow a very substantial credit for a manual steam jet taken from the main header and used only for fire suppression. If the owner will make this steam suppression system automatic with use of Jumbo steam fire suppression heads, we allow an additional credit in the fire rate. There are other items taken into consideration on interior construction. If other than steel or concrete steam pipe supports are used, a substantial charge is made. Dry kiln doors of fire resistive construction allow us to make an additional credit while for the door constructed of steel angleiron framework with three-quarter inch plywood panels, no charge or credit is used. A dry kiln used primarily for the drying of hardwoods is allowed a rate credit for the commercial hardwoods do not have the resin content of douglas fir, ponderosa pine and other West Coast woods.

Location of the dry kiln in regard to the other plant units is vitally important if separate ratings of the individual plant units are desired. We advise our assureds to maintain at least one hundred feet between plant units. In case of dry kilns, if the dry kiln is erected other than parallel with the exposing or exposed sawmill, planing mill, etc. the one hundred feet clearance is measured from either the charging shed or the cooling shed or from the stickered charges on either end of the kiln. The one hundred foot rule is generally applicable but in some cases, depending upon type of construction, fire protection available and other factors, this clearance may be reduced.

Control rooms are generally constructed of light wooden framing with either wooden exterior or with walls metal clad. For this type construction, with either wooden or fire-resistant walls and roof, no charges or credits are made in rate. Other items we look for and suggest using are concrete bases for the fan motors and either concrete or steel for fan lineshaft supports. Concrete and steel materials are very desirable, not only because of their nonflammability, but also because of ease of cleaning. Woodworkers are classified in the "extra hazardous" code of manufacturing processes. Along with rigid requirements in fire protection, we insist upon rigid conduit wiring or an appropriate rate penalty will be made.

Construction and location of the boiler house are determined by the type construction used in erecting the dry kilns. A masonry or steel boiler house may be constructed adjoining the dry kiln if the dry kiln is of concrete or masonry construction. If the dry kiln is of wooden construction, a masonry or steel boiler house must be detached at least fifteen feet to escape any penalty in rate. Should the boiler house be constructed of light wooden framing and metal clad and the kiln constructed of wood, the boiler must be detached to allow a minimum spacing of at least sixty feet to avoid penalty.

This short paper on a very large subject would make it appear simple to plan, erect and rate the dry kiln of your choice. There are, unfortunately, a multitude of other factors to be taken into consideration in the establishment of the final fire rate. My company, U. S. Epperson Underwriting Company, and others are interested that the lumber plant be constructed in a manner which will allow a minimum of fire hazard and consequently a minimum fire rate. We hope you now have a better understanding of our work and of our desire to help you.