



PENNSYLVANIA LUMBERMENS MUTUAL  
INSURANCE COMPANY

# DIRECT FIRED DRY KILNS

## PROCEDURE:

This procedure will address only Direct Fired Dry Kilns.

## DEFINITION:

1. Direct Fired Kilns - any kiln where combustion gases enter the kiln, coming in direct contact with the lumber charge.
2. High Temperature Kilns - is any kiln which operates at or above 200 degrees F.
3. Direct Fired Solid Fuel - is any kiln where heat is supplied by burning wood (sawdust) and products of combustion may enter the kiln.

## NORMAL SAFE OPERATING PRACTICES:

1. Follow kiln manufacturer specifications on stacking sticks and size of kiln loads. Also, follow prescribed safety rules as outlined by manufacturer.
2. Kiln loads must be stacked evenly to facilitate proper air movement thus reducing potential "hot spots".
3. Baffles in kilns must be utilized as per manufacturer's instructions. If damaged must be repaired or replaced.
4. Typically kilns should not be operated with partial loads.

## SAFETY DESIGN FUNCTIONS:

1. A 2 foot clear space should be provided between the lumber charge and any duct work or re-heat riser that carry combustion gases exceeding 300 degrees.
2. Heating devices, piping, etc. should be arranged so that surfaces of lumber charge are not exposed to temperatures over 300 degrees.

## SAFETY LIMIT CONTROLS:

1. All direct fired kilns must have a high temperature safety limit switch placed in the input duct set at no more than 50 degrees higher than the operating temperature. This should never exceed 500 degrees maximum temperature.
2. High temperature limit switches shall be placed in the kiln located on the rear wall near the ceiling area. Should have one limit switch for each 30 feet of kiln area (unless manufacturer requires more).  
Example: A 90 foot kiln would require 3 switches. These limits should be set at 50 degrees above operating temperature. Should never exceed 350 degrees.
3. All high temperature safety limit switches must shut down the burner in an overheat situation.

## PROTECTION:

All high temperature direct fired kilns must have automatic sprinkler protection in addition to safety limit switches.