The good lumber is similarly transferred on chain tables to the other side of the mill where it passes beneath a hand or automatic trimmer, which cuts each piece to the desired length. This apparatus is usually kept in good order and carefully built and there is little or no hazard connected with the same. In case the trim saws are operated by compressed air, there may be an attachment on the air pipe for fastening a tube to be used in blowing down the accumulated dry sawdust from the mill rafters. This should be done once a week, for there is no more potent factor in the rapid spread of fire than dry sawdust accumulated on the roof beams of such a plant.

From the trim saw the lumber goes to the re-saw, or gang saw, and to the lumber yard, usually through the medium of a slow moving set of transfer chains, called the sorting table—no especial hazard.

The mill building should be of standard heavy timbering throughout, with three-inch flooring, the enclosed mill being preferable to the open type. To prevent the rapid sweep of flames throughout the mill building, it is advisable to have partitions, or draft curtains, built down from the peak of the roof to the horizontal stringers, this curtain tending to break up overhead drafts and assisting the mill force in confining the fire.

One of the first points of interest outside of the mill is the refuse fire. This, if possible, should be separated 300 feet from any building or lumber piles on the leeward side of the plant. It should possess an iron sheathed crib wall on the mill side, and should have a hydrant with hose connection placed suitably to prevent any fire that might communicate to the main conveyor structure. The end of the conveyor should be constructed of sheet iron. In case the restricted area available should necessitate the placing of the refuse fire closer to the plant, it should be enclosed in a "Doty burner" or in a suitable closed burner of standard construction, with spark arrester. Due to the expense and power consumption of long conveyors, it may be found that the use of a standard burner with short chain conveyor will actually be an economy. For insurance purposes a standard burner is far preferable to an open refuse fire.

Lumber Yard: Next of interest will be found the fire pump station and water system. The fire pump should be of standard approved make, capacity 500 to 1,000 gallons, according to the size of the plant, and should be capable of exerting a pressure of 150 lbs. at the hydrants. The main should be six inches in diameter, running completely around the mill, through the principal strategic locations and back to the pump on the so-called "Circulating System" plan. There should be shut-off valves, locked open, in the center of the main and on either side of the pumps. In case of bleeding caused by a break in hydrants or main, or the burning of a hose connection at any point, this will enable the engineer to send the pressure around in the other direction and thus furnish practically a full supply to the remaining hydrants. The steam supply leading from the power house to the fire pump should be buried under ground safe from falling timbers, and surrounded by suitable protection to prevent excessive condensation or frost damage.

The gravity main from the static reservoirs where such is obtainable should be brought into the same circulating main by a T-joint with suitable valve connections. This main, at least eight inches in diameter, should show a pressure of 150 lbs. at point of entry. The reservoirs should be of at least 25,000 gallons in capacity, this being necessary to supply a fire stream at four standard hydrants for a period of twenty-five minutes. Such a reservoir should be sufficient for all prcatical necessities.

The mains, especially if built of wood pipe, should be underground at all points, to prevent freezing or physical damage. The hydrants should be enclosed in wood boxes packed with sawdust or of approved frost resistant pattern. There should be additional lines with cut-off valves branching from the main, to supply a suitable number of stand pipes and hose in the mill building. Other hydrants should be scattered throughout the lumber yard at important points, notably at the oil house and adjacent to bulkheads under the lumber platforms.

It is a great advantage in the modern mill to have the lumber platform laid flush on the ground, but owing to the unfortunate necessities of shipping, and of mill construction, these will usually be found to be elevated from four to ten feet. As the platforms adjoin the mill and finishing department, it is essential that they be suitably bulkheaded beneath by means of six-inch walls built from the ground flush to the lower floor of the platform, with no air spaces between. These walls should extend one foot beyond the edge of the platform and will not only form effective fire barriers but may be utilized as excellent vantage points from which to fight the spread of the flames to the lumber piles. The writer recalls the loss of the McCormick Lumber Company plant at McCormick, where the presence of these barriers saved the entire lumber yard or mill plant from destruction and many thousands of dollars for the companies.

Stock lumber piles should be separated 200 feet from any manufacturing buildings, and mill owners should not be allowed to litter this space with lumber trucks or fuel wood. A well observed clear space of only 100 feet in the Lindstrom-Handforth Lumber Company yard, proved wholly insufficient to prevent the total destruction of the yard.

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