SMALL SAWMILL IMPROVEMENT
PRACTICAL POINTERS TO FIELD AGENCIES

PLAN OF SEMIPERMANENT SMALL MILL

Operators cutting up to 200M board feet at a set customarily spend about $50 for moving and installing equipment, put the mill directly on the ground, and provide little or no shelter (see .L52221)*. With a cut of between 200 and 1,000M board feet the installation costs may be up to $300 as a result of erecting a simple shelter (see .L52221)*. The equipment is usually on the ground or on a floor at ground level. With a prospective cut of more than 1,000M board feet an expenditure up to $1,000 in building and installation is justified. Such mills are equipped to produce between 1 and 2M board feet per hour with a minimum of labor. The following plan gives specifications for such a layout.

The mill is supported at least 4 feet off the ground by a series of piers at 6-foot intervals for the length of the mill with a spacing of 8 feet between individual piers across the mill except that the five series at the front of the mill to the saw are spaced 4 feet between individual piers (see end elevation). A plank floor is continuous except that the power unit base rests on the ground and the space over the unit, drive belt, and to the log haul-up mechanism is unfloored and may serve as a saw filing space. A blower delivers sawdust from the headsaw and edger and a conveyor belt delivers slabs and edgings to the refuse chain at the rear of the mill and thence to the burner placed at least 75 feet from the mill. The lumber after passing through the gravity dip tank (.L5221)* is piled for transportation to yard or elsewhere outside the mill opposite the tank (.L5221)*. The crew consists of at least 7 men as follows: one man to haul up logs, a deck man, sawyer, tail sawyer, tail edger man, trimsaw operator, and pile-out man. The equivalent to 100 horsepower diesel should be used for power. Approximately 12,000 board feet of sawed material, 2,500 board feet for piers, and 2,400 square feet of roofing are required.

The plan is drawn to scale and pulley sizes are based on the assumption that the drive pulley to the headsaw has a diameter of 17-1/2 inches and to the intermediate shaft 20 inches, each turning at 1,000 r.p.m. The suggested speeds for various pieces of equipment are as follows: headsaw 650 r.p.m., log haul 100 lineal feet per minute, edger saws 2,000 r.p.m., blower 2,800 r.p.m., trim saws 1,720 r.p.m., slab-conveyor belt and refuse chain 200 lineal feet per minute.

The drive shaft on the power unit has a diameter of 3-1/2 inches, that of the intermediate shaft 3 inches, of blower 1-7/8 inches, of trim saw and conveyors 2 inches. The drive belt to the headsaw should be at least 12 inches wide, to the intermediate shaft 10 inches, from intermediate shaft to trimsaw shaft 8 inches, from trimsaw driver pulley to drive belt 6 inches, from intermediate shaft to second intermediate and all belts beyond for conveyor transmission 6 inches, from intermediate shaft to edger 8 inches, from intermediate shaft to blower 5 inches. The belt conveying slabs is 15 inches wide and the lugs in the trash conveyor chain are spaced 8 feet apart.

Contributed by C. J. Telford
Forest Products Laboratory
Madison 5, Wis.

*See outline in Small Sawmill Improvement Working Plan, March 1930, for explanation of indexing system proposed

† Maintained at Madison, Wisconsin in cooperation with the University of Wisconsin