



mills is approximately 600 TPD. As a result of modernizations and expansions, some of the mills have been expanded to 1000 TPD production. New construction since 1975 has tended to be mills of 1500 TPD or more, except for specialty mills. The cost of new plant construction has become prohibitive except for very large corporations primarily because the capital requirement for the capacity of mill that will produce an acceptable return on investment is so large.

Although it is impossible to describe a typical southern pulp and paper mill, there are some common design factors or equipment utilization which can be said to be the norm. In the woodyard, for instance, all mills will have at least one chip unloading truck dump and some kind of chip storage and reclaim system. The mills larger than 1200 TPD production will also have an additional chip unloading system for rail deliveries. The mills commonly have at least two drum debarkers for processing roundwood and more if their dependence on roundwood is high. At least 50% of the mills are dependent on one chipper. The mills constructed since 1970 tend to have two chippers for redundancy and to achieve higher chip production rates. All chip production is screened for oversize removal and approximately one-third of the mills also remove fines during screening. The capacity of the woodyards has been increased in most mills to permit processing of the entire daily fibre demand in long wood form (approximately 800-1500 cds/day) to insure continuity of supply in case of chip delivery problems.

The older mills tend to rely entirely on batch digesters and in order to increase pulp production simply added further digesters. The newer mills have either had a combination of batch and continuous digesters or converted completely to continuous digesters. Those mills with a reliable source of sawdust generally have a specialized continuous digester to maximize fibre recovery. Most mills have a single lime kiln and this is generally the bottleneck in each mill. The initial design of the mills was very conservative in sizing recovery boilers, as compared to other parts of the United States and Canada. It is typical to find at least two recovery boilers at each site. Those boilers that are being run at capacity are generally in mills where pulp production has been significantly increased from the original design. The most common bleaching cycle for southern bleached pulp mills is C-E-D-E-D with the exception of those on tissue grades that utilize C-E-H-E-D.

The number and manufacture of paper machines is probably the most variable equipment factor when attempting to describe a "typical" mill. The mills in the 1000 TPD and higher production rates generally have two or more paper machines. The mills with single machines are generally specialty mills or an older mill that has not been modernized.

Energy costs were not a significant design factor when the original mills were constructed. It has only been since 1973 that corporate management has directed that the mills become self-sufficient for steam and electrical energy. The typical mill has three power boilers and one turbine generator. The power boilers were initially designed to fire on natural gas or oil; however, the