

Modified design Solar Kiln for drying of wood and other non-wood forest produce

The standard steam heated timber-seasoning kilns with boiler and complement of boiler operating staff and kiln operators are not economically appropriate for all situations. Drying of timber can be appreciably accelerated compared to air seasoning and at appreciably reduced seasoning costs compared to conventional steam heated kilns using solar seasoning kiln. Solar kiln are based on greenhouse principle. The solar kiln is normally operated during day light hours only. A single passed force air-drying arrangement is incorporated making use of the dry air available on warm summer nights. Forest Research Institute has now developed a modified solar kiln design having a charge capacity of 250 cft for one-inch thick plank. The design consists of a super structure of timber/metal frame, single sheathed on the roof; southeast and west wall 5.5 mm clear transparent glass. The north wall is sheathed with 9.5 mm BWR grade plywood. The kiln is oriented east west along its length. The roof is tilted towards the south at an angle to the horizontal equal to 0.9 times the latitude for maximum year round absorption of solar energy. Corrugated blackened galvanized iron sheet is used for false ceiling and the entire structure is painted black on inside to absorb maximum solar radiation. Two electric fans are installed at the floor level in north wall for uniform air-circulation. The improved chimney type vents in south wall help in recovery of heat loss during venting operation. The modified design kiln is equally efficient and approximately 30 % cheaper compared to old version. The solar kiln can also be used for drying seeds, *bidi* leaves, raw material of ayurvedic medicines etc. The approximate cost of installation is about Rs. 8.0 Lakh for a 250-cft capacity kiln.



Modified Solar Kiln for Timber Drying