

## Wooden kindergarten that uses hardware by Stroog Inc.

Wooden kindergarten which use hardware manufactured by Stroog Inc. is in the middle of construction at Tsutsujigaoka chofu-city, Tokyo. It is a separate building of Chofu Shiragiku Kindergarten (Wooden building with two stories above ground). The first floor will be used for kindergarten and the second floor will be used as a warehouse. This building has a total floor area of 441 square meters and succeeds in huge cost reduction compared to steel structure and reinforced-concrete structure whose prices became high due to shortage of workers. The no-pillar space with span of 6.37m and depth of 21.8m, which is a feature of this building, is achieved by "Joist construction method " using HSS connector manufactured by Stroog Inc.

"Joist construction method" is the method which do not have beam in the longitudinal direction and construct frame using only joist. 105mm x 240 mm structural laminated lumber 'hirakaku' posts is placed at intervals of 910mm, 105mm x 360mm structural laminated lumber is used for floor joist of the second floor, 105mm x 20mm structural laminated lumber is used for the joist for the second floor attic (roof), and the building accommodate the span of 6,370mm. With no beams in ridge direction, the building use 24mm joist-less plywood for floor and attic of the second floor, so that the platform structure achieve enough stiffness. Partitions can be set up flexibly because the places of posts do not become an obstacle.



In the 2nd quarter 2016, the demand for domestic logs for lumber, imported logs, plywood and laminated lumber for the structural use was forecast to increase from the same period in the previous year. >> Page 2



European red pine laminated lumber used in the structural laminated lumber

The interior of building looks like a series of gate-type Rahmen frame, but in fact the structure is supported by wall. Independent posts are placed to fit to the size of structural plywood, and 3 x 9 sized structural plywood and 9mm dailite are fixed with screw. In the frontage direction, the joist using 105mm x 360mm structural laminated lumber is installed on the first floor and over that 24mm structural plywood is installed. Sands are placed on floor to provide the effect of sound insulation and the heat storage. Independent posts and anchors are fixed with pedestal connector manufactured by Stroog Inc., and column-beam joint parts are strengthened with beam receiving connector.

Osamu Watanabe architects, which is in charge of architectural design, and Rhythm Design Mov co.ltd, which is in charge of constructional design, said: "It is becoming difficult to construct buildings with reinforced-concrete structure and steel structure due to a problem with construction period attributable to a shortage of construction workers. Wooden buildings are easy to construct because

## Page 2

they have advantages such as precut lumber which is precut by machine, on-site correction using simple tools, and the availability of craftsmen who have experience to build many houses. Wooden structure is light and can reduce period of foundation work. If we can provide low price by selecting lumber with stable price, wooden structure will become popular buildings."







## ;Forecast;

## Forecast for the supply and demand for major timber

The Forestry Agency recently compiled the forecast of the supply and

Partly because the snowfall was light due to unusually warm winter, the output of domestic logs (for lumber) has been increasing. A trend to use domestic lumber is reaching a peak among housing manufacturers, etc., and the demand was forecast to increase in the second quarter and third quarter. On the other hand, the demand for logs for plywood was forecast to be almost unchanged or decrease as the shift from Southsea plywood to domestic plywood by users has slowed down.

As for North American logs, the demand has been firm, and the import volume was forecast to increase by 2-5% in the second quarter and third quarter. The import volume of lumber products in the second quarter was forecast to decline by 10% as trading companies that are concerned about the decline in the operation rate at precut factories are being cautious in making purchases.

As for European lumber products, it has become difficult to purchase whitewood logs in producing areas, and sawmills are cutting down their production. In the market, a move to shift to domestic cedar products that can be easily procured is becoming active, and the import volume was forecast to decline in both the second quarter and the third quarter.

The import volume of Southsea logs and lumber products was forecast to change in a way to meet the demand. It was forecast that the inquiries for Russian logs would increase if the output of North American logs declines due to forest fire incidents in summer. The import volume of lumber products was forecast to be at low levels as sawmills for Japan are slow to procure logs.

The demand for logs and lumber products from New Zealand and Chile was forecast to remain at low levels due to factors such as the competition with domestic lumber, sluggish demand for products for packing, inventory adjustment. The demand for the imported plywood was forecast to increase by 5% in the second quarter and the third quarter as the public work in the new fiscal year and the demand for floor base were expected to be generated.

As for laminated lumber for the structural use, the supply from a major European manufacturer was expected to be stable, and the import volume was forecast to increase both in the second quarter and the third quarter.