HUT EMERGENCY EVACUATION IN THE EVENT OF A DISASTER OF USING THE WOODEN PANEL

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ABSTRACT: This project aims to quickly and inexpensively deliver, to people who have lost their homes due to a variety of reasons, safe and secure huts that use wooden panels and can be used for longer periods than tents. The huts will be provided to people in areas including those stricken by natural disasters such as earthquakes, as well as war zone refugee camps, thereby aiding them in their recovery from disasters and conflict.

KEYWORDS: wooden panel, constructability

1 PROJECT SUMMARY

1.1 PARTS

The parts composing the hut include wooden panels, a plastic foundation, metal components, a waterproof sheet, and ropes. The parts are easily obtainable even in times of disaster, are cheap in price, and are easily transportable in size and weight. (Figure1)

1.2 WOODEN PANELS

The wooden panels are composed of structural plywood, frame member, insulation and adhesives.

The wooden panels are produced and managed at the factory, and they are characterized by high levels of precision and load resistance. Furthermore, the panels can be adapted for use in various regions by varying the types of wood and insulation materials composing the panels.

3. Characteristics of the Hut (Figure2)

1.3 THE SIZE OF THE HUT AND ITS USES

The horizontal dimensions of the hut are 4mx4m; its height is 2,500mm. About a few years is envisioned for the period of use. All parts, apart from the waterproof sheet, are made to be recyclable. The hut is envisioned for such uses as a temporary shelter, workplace, or meeting place. (Figure3,4)

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2 CHARACTERISTICS OF THE HUT

2.1 HIGH LEVEL OF SAFETY

By employing wooden panels, the hut provides the structural capability to withstand earthquakes, strong winds, and snow cover.

2.2 QUICKLY ASSEMBLED AND DISASSEMBLED, EVEN BY THE LAYMAN

The hut is possible to assemble and disassemble in a short period of time, even by inexperienced personnel. Each joint is created using simple tools such as ratchets and utility knives and does not require specialized tools. By employing few parts, simple joints, and simple building procedures, the hut is made so that even the amateur builder can construct a high-safety building in a short period of time.

The envisioned construction time is 2 hours for three people to build one unit. (Figure5)

2.3 TRANSPORTATION EFFICIENCY

In disaster-stricken areas, roads are often blocked or narrowed by factors such as rubble from collapsed buildings and land subsidence. In this project, one unit can be transported with one 3-ton truck. Transportation is possible with small trucks. Furthermore, each part can be carried by two adults and can thus be transported quickly to various regions. (Figure6)

2.4 LOW PRICE

Employing commercially available materials and a design enabling construction by even inexperienced personnel, the hut is obtainable at a very low price and allows fast and stable delivery to disaster-stricken areas.