

A STUDY OF CONTAINER HOUSING AS A MEANS OF SLUM REHABILITATION

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Abstract: Considering today's increasing population and resulting rise in construction, there is a heavy demand for construction materials. In the aftermath of rampant exploitation of resources available naturally and synthetically, the need for incorporation of sustainability in every possible area of construction has been recognized. Keeping in line with the ideology, an alternative to traditional concrete houses must be found. With an increase in the population of cities, the area occupied by the slums has risen in the fringes. This project aims to find a sustainable solution to rehabilitate slum dwellers in a much more organized and habitable environment. This can be done through houses made from a shipping container. These containers are made of steel and can be customized to meet the structural needs with minimal efforts. With the help of market survey, market quotations and technical survey, the feasibility analysis of Container Homes shall be carried out. As per current findings, shipping container houses satisfy not only the structural needs but also the financial aspect of the project. Shipping container homes cost less than conventional homes.

Index Terms –Container Houses, Slum Rehabilitation, Conventional homes, Modern Technique, Smart Cities.

I. INTRODUCTION

People are adjusting to the new ways the construction industry is updating and trying to cope up with the fast moving world where the quality of living needs to be improved. In today's world standard of living is very important as it allows you to have a healthy lifestyle. The construction industry has been growing ever since people realized the homes are a necessity than a luxury. During the earlier times of construction, people used rocks and muds to build their houses, which later led to the usage of mud bricks, after which we have been developing all over the world which brings us to today's time where we use different materials together to build a home. Even today we are finding new ways to construct a home which is economical and will require less space.

In today's world, the biggest problem the construction industry faces is the land to build the homes for people, with slums covering so much of space with no efficiency in place. The slums are spread across acres of land which can be reduced to one-fourth of the space if proper means are provided.

New ways are being developed in the construction industry every day to speed up the time of construction in the most economical way and our project is to use one of the modern types of construction for slum rehabilitation and check the feasibility of the construction and will it be useful to recommend the same.

1.1 Container Housing

Shipping container architecture is a form of architecture using steel intermodal containers (shipping containers) as a structural element. It is also referred to as cargotecture.

The use of containers as a building material has grown in popularity over the past several years due to their inherent strength, wide availability, and relatively low expense. Homes have also been built with containers because they are seen as more eco-friendly than traditional building materials such as brick and cement.

Containers are in many ways an ideal building material because they are strong, durable, stackable, movable, modular, plentiful and relatively cheap. Architects, as well as laypeople, have used them to build many types of buildings such as homes, offices, apartments, schools, dormitories, artists' studios and emergency shelters; they have also been used as swimming pools. They are

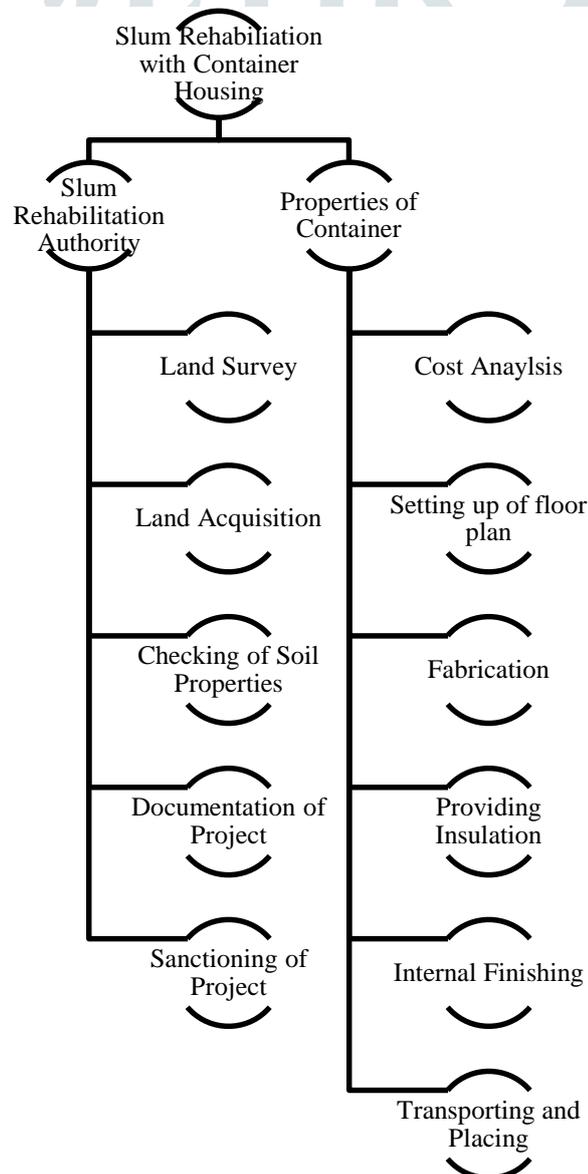
also used to provide temporary secure spaces on construction sites and other venues on an "as is" basis instead of building shelters.

1.2 Slum Rehabilitation

Slum Rehabilitation is an urban renewal strategy which consists of demolition of slums, undertaken cooperatively by large corporations to make way for various institutions. The main objective of slum upgrading is to remove the poor living standards of slum dwellers and largely focuses on removing slum dwellers altogether from a particular area onto another area. Many slums lack basic amenities such as the provision of safe drinking water, wastewater, sanitation and solid waste management. Slum upgradation is used mainly for projects inspired by or engaged by Commonwealth Bank and similar agencies. It is considered by the proponents a necessary and important component of urban development in the developing countries. However, many people do not believe that slum upgrading is successful as community planners believe that there is no successful alternative of where these displaced slum dwellers should go. They point to the difficulties in providing the necessary resources either in a way that is beneficial to the slum-dwellers or in a way that has long-term effectiveness.

II. OPERATIONAL PLAN

Table 2.1 Operational Plan



III. STRUCTURAL PLAN

Loads considered for Structural Design

Live Load= 1 kN/m

Dead Load= 2 kN/m

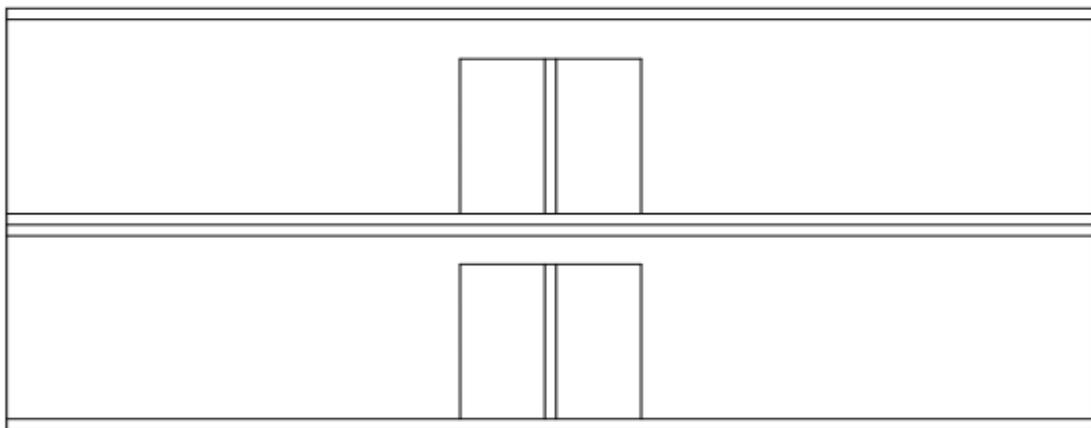
Floor Finish= 1 kN/m

Total Load= 5 kN/m

Figure 3.1 Architectural Plan



Figure 3.2 Elevation



Upon the structural analysis of the G+1 building through STAAD Pro V8i, the structure was found to be structurally safe and all parameters were within design requirements.

IV. RESULT AND CONCLUSION

Upon calculating the cost and its comparison with the conventional building, it was found that the container houses cost 40% less without any subsidy and also save the time of construction. The container houses are also structurally safe. The structure does not corrode when painted using a zinc paint and rubber insulation makes it safe from issues regarding electric conductivity. Temperature is maintained by providing Rockwool insulation which reduces the temperature on the inside by 7-9 °C.

Hence, it is concluded that Container Housing is feasible for Slum Rehabilitation and is also structurally safe and durable.

V. ACKNOWLEDGMENT

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