

## A Review Paper on-Movable Wall System A Flexible Solution for Every Space

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**ABSTRACT:** Now a day, there is great problem of space available in different areas such as residential areas, commercial areas, industrial areas, etc. It becomes necessary to effectively utilize the space available in these areas. When we use the internal brick wall as partition wall, the dead load of structure increases so more construction material is required as the size of members such as beam, columns, etc. increases to carry this increased load. The solution for all this is to replace the internal brick walls with movable walls. Partitions walls in most cases are non-loading a wall which means these walls only needs to support itself and does not need too much strength. Typically, such walls are designed to divide the space and do not need a lot of strength but should strong enough to carry its own load. These walls are lighter and thicker than brick walls which decrease the dead load of the structure.

**KEYWORDS** – Wood, Dry Sheets, Glass, Technical Drawing, Installation

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### I. INTRODUCTION

The construction industry is rapidly growing in India but still we use traditional methods for the construction work. Major disadvantage of these methods is the that it require more time for construction as well as it generates more waste age after demolition process. There is great problem of the space availability so it becomes necessary to utilize the available space.

Movable Wall System is the concept inspired form the partition wall. In Movable Wall System numbers of panels are connected to each other and can move freely.

When the internal brick walls are replaced by Movable Wall System the time require for construction get reduced as well as the wastage of material is less so automatically economy is achieve in the construction project. The dead load of the structure reduces so the size of the different members also reduces like beam, columns, etc. It will become possible that the available space can be easily utilized by installing this technique.

### II. SCOPE OF THE RESERCH

When the construction projects are completed with the internal brick wall system has some major disadvantages such as it require more time for construction, material requirement is more, it require different equipments and skilled labors as well as the wastage of material is more.

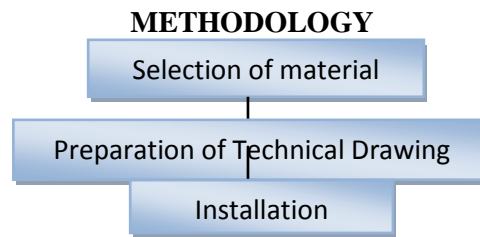
This research will help to reduce the material require for construction, time require for construction, wastage of material after demolition.

### III. OBJECTIVES

- Promote the low cost housing by reducing the cost of construction.
- Maximum utilization of the space available by using movable wall system.
- Reduce the sizes of beam and column as the dead load of the structure decreases.
- Reduce the dead load of the structure by replacing the internal brick wall with movable partition wall.
- Reduce the time required for the construction.
- Make the rooms more soundproof and fireproof as per the requirement.
- Reduce the cost required for plastering, painting, etc.
- Increase the aesthetic view or make the structure more beautiful and attractive by choosing right material as per the requirement.
- Adjust the size of room as per the requirement.
- Reuse the material used in movable wall system and reduce the wastage of material used in brick wall at the time of demolition.

#### IV. METHODOLOGY

The methodology section depicts a flow chart which depends on the requirement of the costumers, necessity of the Movable Wall such as soundproof, heatproof, aesthetic purpose, etc.



**Figure I-** Methodology

##### 4.1 Selection of material:-

The selection of materials for the construction Movable Wall System is really important thing. For the selection of materials following parameter should be consider:-

- Requirement of Movable Wall
- personal preferences,
- the overall design
- Functions or purpose

When the materials are properly chosen, the Movable Wall will serve for a long time and entertain you by their appearance.

The material used for Movable wall system consists of the following types:-

##### 4.1.1 Wood:-

For the decoration point of view wood serve as very good material. It is quite strong, durable and environmental friendly when used in the construction of Movable Wall System. But sound insulation of the wooden Movable Wall is not at the highest level and the need for a specific temperature and humidity for long preservation of wood makes this material suitable not for everyone. Movable Wall made of timber can withstand loading from 100 to 135 kg/m<sup>2</sup>, suitable for the average buildings. But the wood materials are flammable, so the electrical wiring, which will be installed under the partition, must be isolated.

##### 4.1.2 Dry sheets:-

Dry Sheets are used as Movable Wall System materials for decoration and room construction years ago. Dry Sheet panels are mounted on the metal frames on both which provide sound and thermal insulation materials inside – and your partition is ready in a short period of time. Light and fire resistant, Dry Sheets are perfectly smooth and often doesn't need additional processing. But there are some disadvantages of this material, such as it has poor moisture resistance, fragility, inability to hold heavy objects. On the other hand, the flexibility of this material allows us to produce varied and diverse shapes, curves and three-dimensional constructions.

##### 4.1.3 Glass:-

Use of glass in the movable wall system is become more popular in the design of homes and offices. When the Glass is used in Movable Wall System clear lines, combination of light and transparency not only visually increase the room but also add an atmosphere of lightness. The Glass used in Movable Wall System is tempered toughened glass with the thickness of 12 mm in different configurations – transparent, frosted, tinted, and patterned, with the paintings, in other words – for every taste. The Glass panels Mounted on an aluminum frame. The only nuance is the size of the glass – we need to accurately measure all the parameters, because it will be impossible to change the size of the panel during installation. But it provides fashionable design and bright room decoration.

##### 4.2 Preparation of Technical Drawing:-

After selecting the right material for the Movable Wall system the next step is preparation of the technical drawing. Technical drawings are essential for design purpose of movable Wall System. Technical drawings are gives the clear idea about the size of panels used in the Movable Wall System, stacking process of the panels, thickness of panels, etc. Technical drawings are essential for the communicating ideas to the site engineer and also to the labor that is install the movable wall system.

Following figure give the idea about the technical drawings.

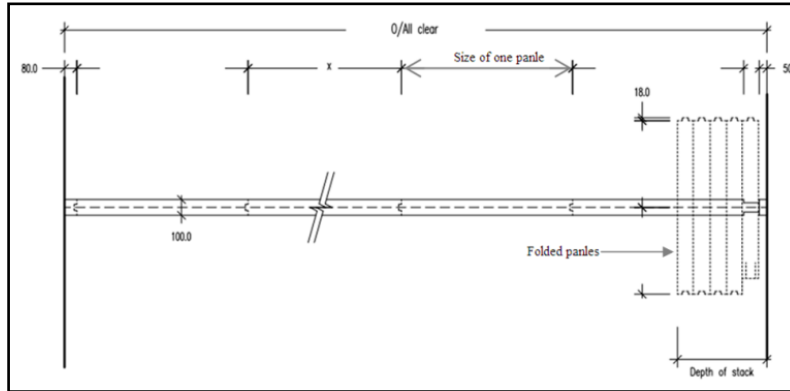


Figure II- Technical Drawing of Movable Wall

**4.3 Installation: -**

After preparation of Technical drawings, installation of Movable Wall is done at required place. The panels are stacked to each other and Movable Wall is formed. End of the Movable Wall is fixed at the place where it is require to be installed. Rollers are connected at the bottom of Movable Wall for the movement of the movable wall.

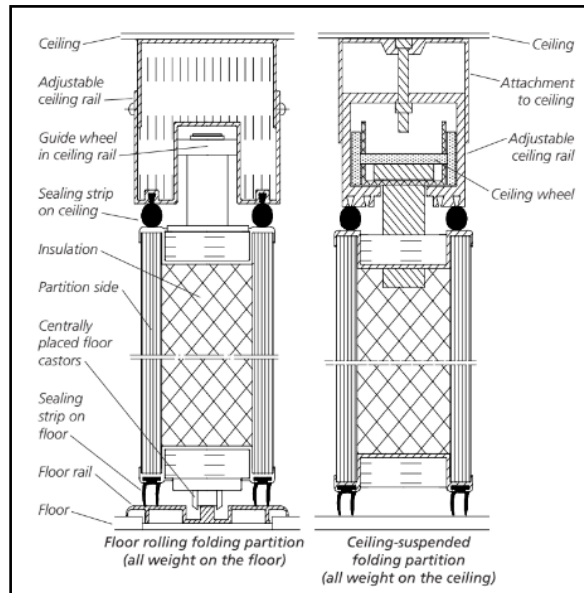


Figure III- Connection of Movable wall at ceiling and floor level

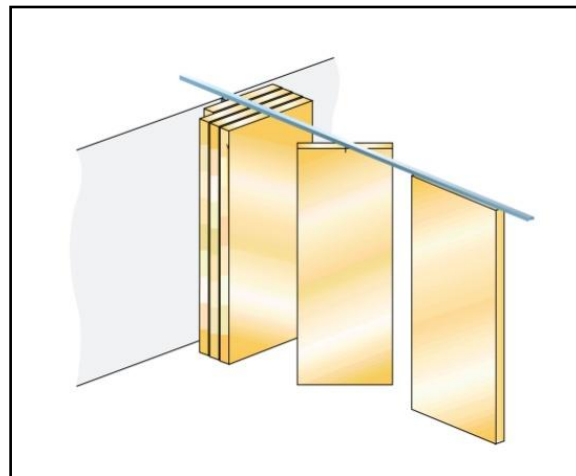


Figure IV- Installation of Movable Wall

## V. CONCLUSION

- Replacement of brick wall system with movable wall system is quite economical.
- It requires less time for construction as well as the wastage of material is less. So this technique has good impact on environment as compare to brick wall system,
- This technique does not require plastering and painting. It can be built in factory or workshop and simply install where we want.
- Various options are available for the selection for material as per the requirement and situation.
- The material can be reused for other purpose.
- This technique is quite suitable where the space availability is less and is requirement to utilize the maximum space. The room size can be easily adjusted as per the requirement.
- The dead load of the structure will reduced by using this technique and therefore the sizes of the member will get reduced. So the requirement of material will get reduced.

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