

# Review Paper Setup of Aluminium Formwork

Aridip Jana<sup>1</sup>, Prof. Priyanka Patil<sup>2</sup>

<sup>1,2</sup>Dept of Project and Construction Management

<sup>1,2</sup>MITCOM, MIT ADT University, Pune, Maharashtra

**Abstract-** This paper intends to study Setup of Aluminium Formwork on the construction stage of a construction project, various technologies and solutions offered Aluform Companies and how they can help during challenges faced during construction stage by its application and derive a desired output of the construction phase.

**Keywords-** Detail study of setup of Aluminium formwork in High Rise Tower.

## I. INTRODUCTION

One of the important economic sectors in India is construction, which plays a crucial role in development. India currently has the second-largest urban population in the world, and as it continues to develop, housing demand will only increase. To address this issue, India urgently needs to plan for the acquisition of land and the quick construction of houses. The formwork employed in the project, which accounts for around 35 to 40% of the entire project cost of the structure, is one of the most crucial elements in determining the success of a construction project in terms of speed, quality, cost, and safety of work. Formwork is referred to as transient constructions used to hold up concrete until it can support.

The formwork system's modular design makes it simple to fix and remove the forms, and the construction may move along quickly with very little variation in dimensional tolerances. Additionally, the system is extremely adaptable and can be quickly changed to accommodate any changes in the plan.

Before pouring the concrete, the window and door frames, as well as the ducts for the services, are installed in the form. The structure also incorporates pre-fabricated materials like chajjas, jalis, façade panels, staircase flights, etc. When compared to other contemporary construction methods, this demonstrates to be a significant advantage.

The only variation in the construction procedure is that the sub-structure is built using traditional methods. MIVAN construction methods are used to build the superstructure. A strong structure is produced by the technology's integrated application.

The aluminium formwork system is a finely engineered system. With the use of this technology, cast-in-place concrete may be used to build all the components of a building, including load-bearing walls, columns, beams, floor slabs, staircases, and balconies.

The accessibility of concrete from ready-mix facilities has been encouraging for the application of this work system. However, the utilisation of aluminium formwork systems has gotten a boost due to the growth of RMC facilities in Indian cities and the desire to use automated methods of transportation and concrete placement. It is discovered that the finished concrete is of higher grade.

## objective

To study the setup of Aluminium formwork in residential project.

## II. LITERATURE REVIEW

In this connection the following literature has been reviewed.

Concrete can be shaped into the right form during this quick process and will stay in the correct position until it hardens. Additionally, it supports the weight that has been put on it. False work is an infilled frame structure that holds the formwork in place. Formwork produces efficient healing techniques when it is left in place. The term "stripping" describes the removal of formwork. Reusing the stripped formwork is possible. Injuries and fatalities, as well as financial and time losses, come from formwork failure during construction. A number of materials, including as wood, plywood, aluminium, and precast concrete, could be used to create formwork. Over other materials, steel and aluminium have an advantage in that regard.

## NEED FOR QUALITY FORMWORK

- a. variety of loads should be able to be supported by it.
- b. It ought to be solidly constructed and sustained.
- c. Accurate construction lines are required.
- d. It ought to be easy to take away.
- f. It must not deteriorate or warp.
- f. It should be easily useful and accessible.

## TRADICTORY FORMWORK

This formwork is constructed from standard framed panels joined together by horizontal components called wailing.

The wailing opposes the longitudinal force of wet concrete. First, the formwork is built, then correctly positioned, plumbed, and strutted on one side. The other end formwork is built once the side formwork has been installed. This formwork system is used to construct each and every component of the building.

**Mandatory MIVAN Formwork** An alloy of aluminium is used to create the Mivan formwork. In addition to its own mass, the formwork must support the expansion of wet cement, the pressures placed on it by collaboration, and the effects of pouring concrete and workers while building is in progress. It is important to take into account the vibrations produced by vibrators used to reduce the solid. As a result, the formwork design, which takes into consideration its requirements, plays a significant role in the structure's growth. According to the manufacturer's requirements, the Mivan Formwork should be able to sustain a live load of around 370 kg/m<sup>2</sup>. It's only that, with a little bit of well-being calculation, the prefabrication configuration, whatever it may be, isn't too tough to work with.

**COMPONENTS OF ALUMINUM FORMWORK** - The panel, an extruded aluminium rail piece, is the formwork's fundamental component.

Extruded section and other components are welded to an aluminium sheet. This results in a lightweight part that has a great stiffness to weight ratio and has little deflection when loaded with concrete. Extrusions and panels are produced in the dimensions and configurations needed for particular projects. The parts that are frequently used in building are listed below.

### Slab Components

Slab Corner (SC)  
 Beam Splice Bar (BSB)  
 Prop Length Slab Panel (SP)  
 Slab Prop Head (SPH)  
 Mid / End Beam (MB / EB) (PL)  
 Wall Panel (WP)  
 External Corner (EC)  
 Rocker (RK)  
 Internal Corner (IC)  
 Kicker (K)  
 Pin and Wedge.

Soffit Corner Internal (SCI)  
 Soffit Corner External (SCE)  
 Beam Soffit Panel (BSP)  
 Beam Panel (BP)  
 Bulk Head Horizontal (BHH)  
 Beam Prop Head (BPH), and Beam Components (SCE).

## III. CONCLUSIONS

Due to the nation's growing population, the work of housing is getting more and more difficult. The potential for technical solutions to this problem is great; it only has to be wisely utilised.

- Construction companies have always been sluggish to absorb new technologies and developments. Contractors tend to be cautious people. Time is needed to fully understand the issue and come up with workable solutions. An economical and effective method for resolving issues with mass housing projects around the globe is aluminium formwork.

The complete proposal for aluminium formwork is designed to make the most of contemporary construction methods and tools.

- Based on the findings, it is clear that using aluminium formwork in construction projects results in lower overall project costs and shorter project durations than using a conventional formwork system.
- When aluminium formwork is utilised to construct ordinary floors, the floor cycle will last 7 to 10 days, which will save the structure's construction time by 35 to 40% compared to the traditional method. Additionally, there won't be any additional tasks like plastering or block construction, which further shortens the project's overall timeline by 3 to 4 months.
- The Aluminium Formwork System can reduce structural costs while simultaneously achieving a faster rate of construction.

Using aluminium formwork has many indirect benefits in addition to the direct ones.

System in the housing projects for the masses. For instance, aluminium is a material that is 100 percent recyclable, protecting our environment from the exploitation of natural resources like bauxite mining and reducing the need for tree cutting.

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