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### INNOVATIVE SLIP FORMWORK FOR RCC RECTANGULAR COLUMN

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**Abstract:** Day-by-Day requirement of special structure with good quality construction work increases. And for the members of these type of special structures normal or conventional formwork is not suitable. Slip formwork is new type of formwork which suitable for all type of structure members. Also free fall of fresh concrete should not be more than one meter criteria of Indian Standards also satisfied with this type of formworks. Slip formwork construction is a construction method in which concrete is decanted into a continuously moving form. Slip formwork is used for tall structures (such as bridges, towers, buildings, and dams), as well as flat structures, such as roadways. In vertical slip forming the concrete form may be bounded by a platform on which workers stand, placing steel reinforcing rods into the concrete and ensuring a smooth pour. In this study, we have tried to make slip formwork for rectangular RCC column to avoid segregation, bleeding in concrete as well as tried that the surface of concrete should be such that no need of hatching after hardening for bonding with plaster.

**Keywords:** Slip Formwork, Concrete, RCC Column, Steel.

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## INTRODUCTION

### A. FORMWORK

Formwork is a die or a mould including all supporting structures, used to shape and support the concrete until it attains sufficient strength to carry its own weight. It should be capable of carrying all imposed dead and live loads apart from its own weight.

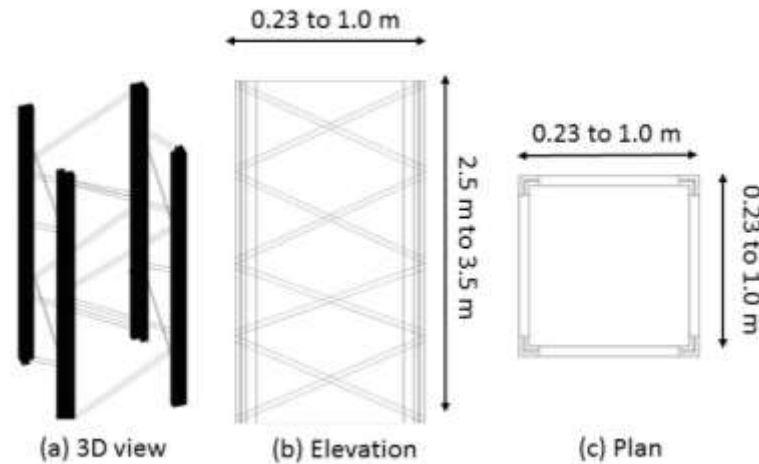
### B. FORMWORK HISTORY:

Some of the earliest examples of concrete slabs were built by Roman engineers. Because concrete is quite sturdy in resisting compressive loads, but has relatively poor tensile or torsional strength, these primary structures consisted of arches, vaults and domes.[1] The most notable concrete structure from this period is the Pantheon in Rome. To mould this structure, temporary scaffolding and formwork or false work was built in the future shape of the structure.[1] These building techniques were not secluded to pouring concrete, but were and are extensively used in masonry. Because of the complexity and the inadequate production capacity of the building material, concrete's rise as a favored building material did not occur until the invention of Portland cement (and developments by the Edison Portland Cement Company) and reinforced concrete.[1]



Fig. 1: Column Formwork [4]

### III. Formwork Specification



**Fig. 2: Formwork Design**

As shown in figure, the length & width of the column formwork varies from 0.23m to 1.0m and height of the column formwork varies from 2.5m to 3.5m made of steel. The approximate weight of the column formwork varies from 160kg to 200kg. Surface of inner plate is kept rough so the surface of RCC column also will be rough so there is no requirement of hammering to make surface of concrete for proper bonding between plaster and concrete column. Thickness of steel plates used in formwork is from 3 mm to 5 mm. size of angle used in corners is from 75 X 75 X6 mm to 90 X 90 X 8 mm.

### III. CONCLUSION

Segregation and bleeding in RCC column mainly took place due to free fall of concrete higher than 1 meter. To avoid free fall one should use slip formwork or trimie pipe. Using slip formwork, we can place concrete lesser than 1 m.

### REFERENCES

1. Garbett J, Darby AP and Ibell TJ (2010) Optimised beam design using innovative fabric-formed concrete. *Advances in Structural Engineering* 13(5): 849-860.
2. <https://www.masterbuilder.co.in/data/edata/Articles/March2014/150.pdf>
3. <https://www.concretcentre.com/Building-Elements/Formwork/System-column-framework.aspx>.
4. [http://img.bhs4.com/a9/5/a951703f3d119bcf5a3458350aba24548bb7f381\\_large.jpg](http://img.bhs4.com/a9/5/a951703f3d119bcf5a3458350aba24548bb7f381_large.jpg)
5. <https://thumbs.dreamstime.com/b/timber-support-timber-beam-formworkselangormalaysia-%C3%A2%E2%82%AC%E2%80%9C-august-used-as-temporary-45176799.jpg>
6. [http://img.directindustry.com/images\\_di/photo-g/56379-2484401.jpg](http://img.directindustry.com/images_di/photo-g/56379-2484401.jpg)

7. <http://vasha-opora.com.ua/wp-content/uploads/52.jpg>
8. [http://www.climbingformwork.com/photo/pc1742422steel\\_adjustable\\_construction\\_concrete\\_wall\\_formwork\\_to\\_support\\_shear\\_wall.jpg](http://www.climbingformwork.com/photo/pc1742422steel_adjustable_construction_concrete_wall_formwork_to_support_shear_wall.jpg)  
<https://4.imimg.com/data4/KA/FE/MY-4818468/plastic-formwork-panels-250x250.jpg>