

5.1 Conclusion:

This research provides information related to the importance of economy, safety structures, planning and designing the formwork system as an integral part of the process of designing and constructing concrete structures. There are decisions that must be made during the design process that will have major impacts.

To produce concrete forms that meet all job requirements, the construction engineer must understand the characteristics, properties, and behaviors of the materials used; be able to estimate the loads applied to the forms; and be familiar with the advantages and shortcomings of various forming systems.

The Selection of the formwork system depends on the available materials, the size of the construction work and these factors affect the total cost of the construction project.

Materials generally used in formwork are Timber, Steel and Plastics with different types and classifications. The systems used can be a combination of two materials. Selection of materials suitable for formwork should be based on maximum economy to the contractor, consistent with safety and the quality required in the finished work.

Formwork system can be generally classified as Vertical Systems (wall and column) and Horizontal Systems (slab and beam). The material serving as the contact face of forms is known as sheathing and it is used in both the vertical and horizontal systems. **Formwork** consists of primary beam (stringer) and secondary beam (joist). Design of all members of formwork is satisfaction for bending, shear and deflection. **Falsework** (shoring system) consists of compression members

(standards), horizontal members (ledges) and diagonal members. Standards are designed as studs, ledges and diagonal members are used for bracing.

So Formwork should be designed by an engineer or by someone who has sufficient knowledge of forces and resistance of form materials.

The safety of workers is a concern of all parties: owners, designers, and contractors. Safety is everyone's responsibility, including workers in the field, supervisors, and top management. There are many risks in the process of erecting and dismantling forming systems. Every precaution should be taken to ensure a safe working environment.

5.2 Recommendation:

Future works may include:

- 1- Investigate for other formwork systems.
- 2- Use of steel and aluminium materials in manufacturing formwork.
- 3- Selection and cost analysis for formwork systems.