CHAPTER TWO

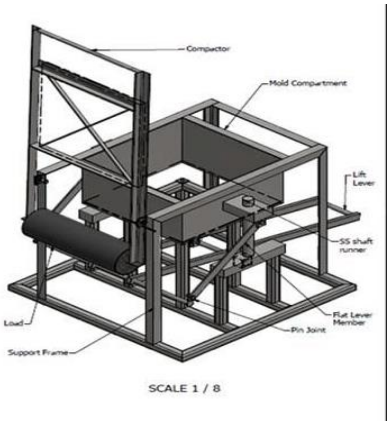
2.0 LITERATURE REVIEW

2.1 AUTHOR'S NAME AND YEARS

Rufus et al (2008) in their work DESIGN MODELING AND SIMULATION OF BLOCK MOULDING MACHINE. Use gantt chart in scheduling in manufacturing of a more efficient and versatile block molding machine. The block moulding machine was designed to operate at 151.8 rad/s (speed of vibrator) which compacted with the strength of 0.99nlmm^2 the production rate was 500 block in 8hour working day.

2.2 QUALITY ASSESSMENT OF SANDCRETE BLOCK PRODUCED IN ADETA, KWARA STATE NIGERIA

In the work of Odeyemi et al., (2018) the work They find experimentally that the absorption rate of the sandcrete block were higher than 12% specification. The compressive strength of the block which ranges from 0.19nlmm^2 to 0.40nlmm^2 fall below the minimum specification of 2.5nlmm^2. In adequate mix ratio is a factor that resulted in the poor quality sandcrete block produced in the area.



Anthony et al., (2018) in their work on how SANDCRETE BLOCK AND BRICK PRODUCTION IN NIGERIA. Evaluate sandcrete block and brick are produce for use in Nigeria. A case study survey of about 15 block production factories was conducted to find out how block manufacturer produce sandcrete block and brick for use in Nigeria.

2.3 INNOVATIVE CONNCEPTUAL DESIGN OF MANUAL -CONCRETE – MAKING- MACHINE

Diana S.O. (2016) worked on this project was aimed to complete a conceptual design of an innovative undemanding stationary manually -operated concrete block -machine that molds concrete block at a fraction of a cost in comparison with power-operate option.

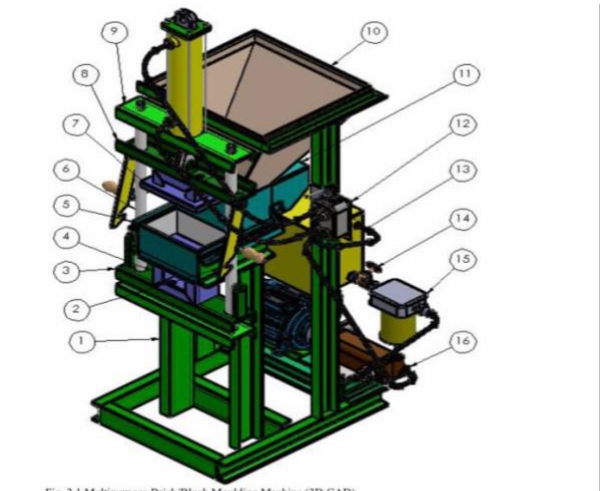


Fig. 2.1 Multipurpose Brick/Block Moulding Machine (3D CAD)
1. Main frame 2. Ejector latch 3. Ejector bar 4.Ejector
5. Mould 6. Guide rod 7. Rammer 8. Rammer Bar
9. Hydraulic cylinder bar 10. Hopper 11. Feeder 12. Control valve
13. Hydraulic oil tank 14. Oil supply valve 15. Oil filter 16. Hydraulic pump

2.4 DESIGN AND PROTOTYPE OF SEMI-AUTOMATIC MOVABLE CONCRETE BLOCK MAKING MACHINE

Debre B. et al., (2018) in their work aims in achieving some of the design constrain by designing a semi-automatic movable concrete block making. Before concept generation and selection,

characteristics, type of block was analyzed to facilitate the next design phase, different concepts were proposed using generation method and the best concept were selected. From the selected concept the design was developed in accordance with technical and economic criteria and general arrangement, component shapes and material were determined. The project involved by integrating a hydraulic system in to the design for efficient mobility and optimizing the equipment design.

2.5 DESIGN SIMULATION AND ANALYSIS OF MANUAL BLOCK MAKING MACHINE

Martin N.N et al (2016) in their work analysis of various component that make up the final design was done in order to establish the forces, stresses and dimension. The studies include dynamic simulation frame analysis and stress examination. Finite element analysis was conducted on the component that could have failed during the normal operation of the machine, as such two analyses were done, one to investigate the effect of member components weight due to gravity and the second to investigate the effect of the return load on the frame members.

2.6 DEVELOPMENT OF MOBILE BLOCK MOLDIND MACHINE TO AMELIORATE SHELTER CHALLENGES IN NIGERIA

Ejiko, S.O et al., (2022) worked on the advancement of a machine for making three hallow sandcrete block, by laying the across a platform and moving on to lay another set of blocks in batches. The machine is engineered to solve the glitches encountered in the existing sandcrete hollow block making machine by optimizing the formulation of basic component increasing the construction rate and minimizing damages incurred during transfer. The compacted block measuring 460mm x150mm x 230mm, was generated at a production rate of 33 block per hour with a cycle time of 5.25 minute per batch.

2.7 DEVELOPMENT AND EVALUATION OF A DUAL-BLOCK MACHINE

Oladimeji S.T et al., work on this research focused on construction and testing of a dual-block mould machine that produces high quality block for low cost housing. The construction of a twin block making machine was carried out as an improvement of the manual production of single block locally with a lot of ergonomic problem. The machine was evaluated for physical and mechanical properties like bulk density, durability and compressive strength. The average bulk density for wet block was obtained to be 1927 (+47.37) kglm^3 while the dry blocks gave 1838(+40.35) kglm^3.