
The Survey Practice in Ash Brick Plant

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Abstract : *The costing of machine 5 to 3 lacks of rupees for automatic machine. For manual machine 20,000/- is sufficient. Mostly machine production in Buttibori, M. I. D. C., Nagpur, M. S., India. Is in Nagpur city near about 30-35 ash bricks making plant available now. It has been observed in west Nagpur near Kamathi Road that most of the worker are doing work from morning to evening but production rate very low. Same way visited in lot of brick making die plant over the Hudkeshwar Road also very pathetic condition. Number of research paper read out and decide to do the work over this topic.*

Introduction: Today the urbanization very tremendously increasing on. In This Era Brick Production rate more require. For the development purpose need of productivity improvement to increase the production rate. Brick is very basic component in house construction, building construction, industry compound wall, and so many construction work. Therefore to developed system to improve the production rate by applying some advanced technique like, die extension/design method, Plant layout improvement, maintenance system, chart display system, time management technique, quality control process, ergonomics system. Road divider also manufacture on working spot. Window, door, grills manufacture by same ash in respective plant.

Keywords : *Variety of system, Bricks, Ash, Compressor, Die.*

Name of Industry: BASECO Industries, Eco Base Construction, Fly-ash based cement Bricks, Hudkeshwar Road, Nagpur.

Object: Ash Brick Making Plant, Die Set-up, ash, Mixer, Oil compressor system, Prepare brick Lifter.

Literature Survey: Over the ash project to bamboo production system at Fetri, Kalmeshwar side. That is increase the rate of growing bamboo at high speed due to utilizing ash near to its root. In brick composition rice scrap or soyabean scrap material also aided for making light waited brick. Personally survey in 2015 & discuss with owner why the production system weak. After long discussion it has been observed that here is the plant layout, die problem, maintenance schedule & quality control problem. Before that survey in 2002 same problems face in Nandanwan area, Nagpur. M. S., India. Therefore taking this research project for solution finding out. Is in China, north India, the larger size of bricks are manufacture 5-6 feet heighten bricks they make. In a day they erector the complete wall of building construction. The bricks are so lighted in weight, can easily throw from ground flower to the flower, hand to hand. Such away construct building in a day. Some of the plant are available in Amaravati district also.

Objectives: 1] Die design
2] Plant Layout improvement.
3] Maintenance schedule prepare.
4] Chart display system.
5] Time management Technique.
6] Apply Method study.
7] Ergonomic Principal
8] Make brick light weight.

Variable parameter : Diameter of shaft, area of land, Shape of brick, Market demand, Customer satisfaction, Manpower variation.

Constant variable : Variation in system, Ash, Cement, stone pebbles small sizes.

Mathematical Model: $l*b* w$ of bricks in centimeter.

Production rate in a day = Capacity of machine + Manpower utilizing

Data collection :1 [Machine operated system]

S.N.	Data	Numerical values	Units
1	Plant size	10,000/-	sq. feet
2	Set up valuation	7,00,000/-	Rupees
3	Compression Pressure	2000	Kg.
4	Existing Size brick size	3*4*9 & 4*6*9	Inches
5	Number of existing labors	10	labor
6	Production Type	Daily	Continuous
7	Ash	9000 per day	Kg.
8	Stone Powder(Granule size :5mm-6mm)	200 per day	Feet
9	Cement bag	20 bag	50 Kg each
10	Number of brick produce in a day in existing situation	5500to 6000	Per day
11	Water	1000	Liter

Data collection :2 [Machine operated system]

S.N.	Data	Numerical values	Units
1	Plant size	5000/-	sq. feet
2	Set up valuation	3,00,000/-	Rupees
3	Compression Pressure	2000	Kg.
4	Existing Size brick size	3*4*9 & 4*6*9	Inches
5	Number of existing labors	4	labor
6	Production Type	Daily	Continuous
7	Ash	5000 per day	Kg.
8	Stone Powder(Granule size :5mm-6mm)	200 per day	Feet
9	Cement bag	10 bag	50 Kg each
10	Number of brick produce in a day in existing situation	3000to 3500	Per day
11	Water	500	Liter

Data collection :3 [Manually operated Machine]

S.N.	Data	Numerical values	Units
1	Plant size	1000/-	sq. feet
2	Set up valuation	2,0000/-	Rupees
3	Compression Pressure	--	--
4	Existing Size brick size	3*4*9 & 4*6*9	Inches
5	Number of existing labors	1	labor
6	Production Type	Daily	Continuous
7	Ash	1000 per day	Kg.
8	Stone Powder(Granule size :5mm-6mm)	200 per day	Feet
9	Cement bag	3 bag	50 Kg each
10	Number of brick produce in a day in existing situation	500to 550	Per day
11	Water	100	Liter

Data collection :4 [Manually Local Level operated Machine]

S.N.	Data	Numerical values	Units
1	Plant size	500/-	sq. feet
2	Set up valuation	1,0000/-	Rupees
3	Compression Pressure	--	--
4	Existing Size brick size	3*4*9 & 4*6*9	Inches
5	Number of existing labors	1	labor
6	Production Type	Daily	Continuous
7	Ash	500 per day	Kg.
8	Stone Powder(Granule size :5mm-6mm)	100 per day	Feet
9	Cement bag	1 bag	50 Kg each
10	Number of brick produce in a day in existing situation	250 to 300	Per day
11	Water	50	Liter

Terminology :

Mixer- Where the ash, Cement, Stone pebbles small size are mixed.

Die : Die drawing in rectangular shape.

Compressor : Pressure range.

Trolley : Brick shifting.

Methodology :

- 1] Brick Design: Increase the height of brick from 3mm to 4mm. That is original size 3mm*4mm*9mm convert into new size 4mm*4mm*9mm.
- 2] Plant layout need to be improved with making wall compound for brick storage comfortably. Utilization of space very exactly.
- 3] Over oiling greasing weekly instead of 15 days.
- 4] Chart display over the wall with strict instruction.
- 5] Apply biometric system instead of sign register daily.
- 6] Process chart display on wall. Display plant layout on board at entry in the plant.
- 7] Brick making machine for orator siting arrangement purpose spring type chair design for their comfort point of view. To increase the production rate & not need to take the break while production rate going on. Hence the productivity of orator increase.

Flow chart Brick making :

- Ash, stone granules & cement-
- Flows in Mixer(15 minute)
- Pour on die
- Die packed by operator
- Apply oil compressor pressure(2tonn)
- Instantly prepare brick
- Ready brick shift in yard for dry purpose
- Finally brick prepare for construction.

Plant Machine : i) Air Compressor System Die, considering different stresses.

ii) As per requirement die size can change. [The base of marketing.]

iii) The depending upon air compressor pressure.

iv) Design of transportation trolley. How many no. of bricks loaded over the tray.

v) The shaft diameter design. With considering shearing forces.

vi) Depending upon the availability of land, finance & manpower.

Vii) Design of mixer.

Plant System Analysis: For one labor is sufficient for manually operated brick machine plant. The minimum 1,000sq. Feet land need to install the plant. Minimum 500 brick will produce in a day.

For medium capacity of machine I. e. 3 lacs rupees need of 5,000 sq. feet of land. Minimum 3,000 bricks will manufacture & three labors are sufficient.

For medium capacity of machine I. e. 5 lacs rupees need of 10,000 sq. feet of land. Minimum 6,000 to 6,500 bricks will manufacture & four labors are sufficient.

Quiring period need of 6-7 days, for brick to compose the material.

Expected outcome :

- 1] The mesons making the wall 100 sq. feet (e. g.10*10 feet) need of 3hour instead of construct in 2.15 hours. Cement & Sand saving for brick joining. The cost of brick increase 25%, because raw material spend 25% for brick making. But buyer easily ready to pay it, on the contrast buyer less cement & sand need to construct the wall.
- 2] Utilization of space very exactly.
- 3] Less maintenance of die machine, oil compressor & mixer.
- 4] Plant instruction display on notice board for safety from any accident.
- 5] Work measurement / time management very essential to improve production rate output.
- 6] Display process chart , to easily any orator perform the assigned task.
- 7] While brick production going on comfortableness require to seat orator on chair & produce maximum brick.

Costing : Low cast of ash brick as compare to conventional brick.

Output : Enhance the productivity of plant.

Significance:

- 1] In a limited time period maximum production rate increase. Existing rate 5500-6000 brick produce, it enhance up to 7000.
- 2] Due to brick size increase 25% time wall construct earlier.
- 3] Owner 25% more profit.

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