MANUFACTURING OF BRICKS WITHOUT SCRAP

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Abstract – *The brick is one of the essential building materials and is extensively used at present as a leading material of construction because of its durability, strength, reliability, low cost, easy availability, etc. Bricks are moulded , sundried and are burnt in the kiln. But when the bricks are burnt in the kiln there are many scrap bricks which cannot be used or sold out further. So to prevent the loss these unused bricks are converted into used bricks without fluctuating the cost.*

Secondly, drying of brick depends on whether condition i.e. in the rainy season kilns are closed. So to prevent this loss here is a new technique of heater stores.

INTRODUCTION

The bricks should be well moulded, well burnt in kilns, copper-coloured, free from cracks and with sharp & square edges. The bricks should be uniform in shape and should be of standard size. The bricks should be sufficiently hard. No impression should be left on brick surface, when it is scratched with finger nail.
These are quality bricks which is to be used for construction purposes.

MANUFACTURING OF BRICK

In India, the brick is prepared by using mould . Firstly raw clay is mixed with 25 – 35 % sand to reduce shrinkage and mixed with water in appropriate proportion. Then this paste is transferred to the steel moulds and pressed manually or with the hydraulic press.

FIG 1 : BRICKS IN KILN

FIG 2 : SUN DRYING BRICKS

After this procedure the raw bricks are soaked into the sunlight for few days and then they are transferred into the kiln under the temperature 1100°C. Burning of brick in the kiln is very important procedure as burning beyond this temperature leads to cracking in the brick and below the temperature does not allow it to regain its strength.

The bricks are divided into following categories –

Class A – The brick which are properly burnt for rigid shape and appropriate strength. They are stronger and less porous. Class A bricks have a strength of 125N/mm^2 and water absorption of less than 4.5%;

Class B – Bricks are usually red. Class B bricks have a strength greater than 75N/mm^2 and water absorption of less than 7%. They quality is little less than class A brick.

Class C – Usually the bricks which lie under this category are usually distorted , non uniform shape and low strength. They are basically not used for construction of superstructure.

- According to the theory or specified in the book the brick is divided into 3 categories. But in actual practise bricks are divided into 5 categories and are sold according to their class.

BRICK CLASS	COST OF BRICK PER 1000 BRICKS
CLASS 1	Rs 4200
CLASS 2	Rs 3500
CLASS 3	Rs 3200
CLASS 4	Rs 3000
CLASS 5	Rs 2000

Next class of bricks is not specified as they are not use. They are the wastage of the prepared bricks as shown in fig 3. They are not sold and are wastage for any construction to sellers.


Fig 3: UNUSED BRICKS FIG 4: LIQUIFIED PASTE

So to degrade the wastage these bricks are been recycle by letting them into the pit and make them liquified by water as shown in fig 4. This does not cause any change in strength or any loss of ingredient. This liquified paste used as the clay which was used by the labours to mould a brick.

ADVANTAGES –

1. No loss of money.
2. Waste bricks dumped into the landfill which can be avoided by renewing it . Cross cutting of labour used to load and reload apparently help to reduce transportation charges.
3. Avoid in wastage of time. Customer wants the order on the specified time so time factor is an important aspect.

DISADVANTAGES –

1. The making of brick depends on the weather condition. Before transferring to the kiln they are soaked in the sun. In rainy season, the procedure is interrupted and the work is stopped for 6months.
2. This leads to turndown the fulfilling growing needs.
3. Economically not beneficial.

SOLUTION

- To solve this problem and to avoid the loss in the business, large heater are provided for the soaking of bricks. The installements of machine may be of higher price but in all it will compensate loss. For next season there will be no installation charge.
- Prior charges may be higher but in long run it will save money in ever monsoon season and would be able to fulfil the increasing demand of the customers.

CONCLUSION

Bricks are divided into many more categories as mentioned above. The scrap bricks from the kiln can be renewed.

Bricks can be stocked for selling in rainy season but cannot be prepare when change in weather conditions. So here is a plan to install the machine heaters for soaking of the bricks.

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REFERENCES

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