

Vedic External and Internal Plaster

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ABSTRACT: In our project the focus on the study alternation of regular plastering by using Cow Dung Gypsum and Lime is fully replacement for cement in the Plaster. Normally Cow Dung is required much more water content. Gypsum is used to reduce the setting time of the plaster. Now a day the modern construction materials and technologies were well developed. In spite of quality of materials and availability of materials is less and also economically very high. So in this scenario in our project we have to choose an economically low as it is possible materials like Cow Dung and Lime. These materials are used alternative by cement. We hope that these materials are good quality and durability. Specialty of our project is Self-curing Plaster to prevent cracks in Plaster. Cow Dung has normally collected the more amount of water when we mixing the ingredients. After applying the finishing process the water will slowly react with the Plaster. The lime has also same property to store the water then it's released when water is required for Plaster. The target will be to obtain light weight samples with better thermal performance which can contribute to improve the thermal comfort in traditional construction. The major effect of cow dung addition is a significant improvement in the water resistance of adobe which leads to the conclusion that adobes stabilized by cow dung are suitable as building materials in wet climate.

KEYWORDS: Cow Dung, Gypsum, Lime powder (citric acid), Guar Gum, Vedic Plaster.

I. INTRODUCTION

Throughout the world cement is a major construction material. However, given the environmental hazards associated with the use of cement there is urgent need to use alternative, cost effective, wholly replace cement. Cow dung may improve workability and durability or may act as an additional binder. Dr. Shivardhan Malik of Haryana. They have created a 'Vedic plaster' from the cow dung, which will be used to provide relief to the raw houses of the village.

In our country, 3 million tonnes of dung is released every day. This is mostly a waste of not being used properly. In this Cow dung, Guar gum, Red soil, Citric acid and Gypsum are used to make Vedic external and internal plaster which is fire resistant and heat resistant and eco-friendly also. By application of such plaster, the moisture will be lost forever. Houses are free from pollution. These houses are useful for our health. The harmful germs and bacteria escape from the house. In addition to good health, there is positive energy, they are soundproof and fireproof.

This plaster is beneficial for the environment in that it also reduces the amount of water spent in building works by about 90 percent. At the same time, it is becoming a source of income for the people who follow cow dynasty at the rural level. Native cow dung, gypsum, red soil, guar gum and citric acid are used in the manufacture of plasters. In which cow dung is purchased from cattle ranchers. A cow gives 10 to 12 kg of cow dung per day. The age of plaster is also higher than cement because gypsum is mixed inside it. Gypsum and cow dung also improve saline land which does not have long-term saline effects on houses. The plaster and paint done on the house is less likely to deteriorate. In view of the demand for Vedic plaster, the villagers have started joining it as a cottage industry.

II. LITERATURE REVIEW

Sr. No	Title Of Paper	Author	Volume Number	Deliverable
1	Earth blocks stabilized by cow-dung	1) Younoussa Millogoa 2) Jean-Emmanuel Aubertc 3) Ahmed DouaniSéréa 4) Antonin Fabbri d 5) Jean-Claude Morele	DOI:10.1617/s11527-016-0808-6	In this paper author studies the stabilization of the earth blocks by using cow dung in it.
2	An experimental study of fully replacement of cow dung ash (CDA), alumina and lime for cement	1) S.Sathish Kumar 2) Dr.A.Anbuchejian	e-ISSN: 2395-0056	The author find the Option for the replacement to cement by using cow Dung ash, alumina and lime.
3	Effect of Cow's Dung on Thermo physical Characteristics of Building Materials Based on Clay	1) Abdallah Dadi Mahamat,	ISSN: 2040-7459	In This paper author study to reduce the heat generated in the building By using cow dung.
4	Strength and Durability Properties of Cow Dung Stabilized Earth Brick	1) Peter Paa-Kofi Yalley	ISSN 2224-5790	Increasing Strength and durability of the earth bricks by using Cow dung.
5	Utilization of Waste Paper Pulp by Partial Replacement of Cement in Concrete	1) Sumit A Balwaik 2) S P Raut	ISSN: 2248-9622	In this paper author study to replace the cement partially in the concrete by using waste paper pulp.
6	Compressive strength and durability properties of ceramic wastes based concrete	1) Fernando Pacheco-Torgal	DOI 10.1617/s11527-010-9616-6	The author uses ceramic wastes in concrete to increase the compressive strength and durability Of concrete.
7	Effects of Ceramic Tile Powder on Properties of Concrete and Paver Block	1) S. Aswin 2) V. Mohanalakshmi	ISSN: 2455-5703	Author studies the changes in the properties f concrete and paver block after using ceramic tile powder in it.
8	A Study of Sustainable Industrial Waste Materials as Partial Replacement of Cement	1) Chandana Sukesh 2) Bala Krishna Katakam	IPCSIT voL. 28 (2012)	In this paper author partial replace cement by using various industrial waste.



9	Use of Cow Dung and Local Brewery Waste as a Partial Replacement of Cement for Plastering Low Cost Houses	1) Okello Thomas 2) Prof. Oyawa Walter 3) Dr. Ajwang Patrick	ISSN: 2320-334	The Author Study to reduce the cost of the houses to replace cement in plastering By brewery waste.
10	Establishment of Sustainable Concrete by Effective Replacement of Cement with Ceramic Waste	1) Shruti Nagdeo 2) Satyendra Dubey	ISSN (Online) : 2349-6010	The author established the concrete by replacing the cement by ceramic waste.
11	Studies on termite hill and lime as partial replacement for cement in plastering	1) K.O. Olusola 2) E.A. Olanipekun 3) O. Ata 4) O.T. Olateju	ISSN: 0360-1323	In the plastering Cement is replaced by using termite hill and lime.

III. BASIC CONCEPT OF VEDIC PLASTER

Vedic plaster is the heart of the renowned Vagyanic doctor Shiva Darshan Malik who says that the Vedic plaster is sound and fire retardant and keeps the house cool in summer and warm in winter. In addition, the dung mixture in this plaster is a natural air purifier and keeps the environment pollution free. It is perfect in itself because it does not require sanding and does not need to be trimmed. Dr. Malik said that earlier people used to live in raw houses. Due to the clay being made and the dung wrapping, the raw houses were heat resistant and protected people from both cold and heat. Whereas now modern houses are made of steel, cement, stone, sand and brick. All these things are conductors of heat which keep the house hot in summer and cold in winter.

Dr. Shivardhan Malik of Haryana has created a 'Vedic plaster' from the cow dung of the desi cow which by using it will give relief to the raw houses of the village. Daya Kishan Shokin, a dairy director who lives in Chhawla near Dwarka, Delhi, made his home a year and a half ago with a plaster made from this cow. These village connections tell the contractor over the phone, "This type of house does not require AC to be installed in the summer. If the outside temperature is 40 degrees, then the inside remains only 28-31. Ten rupees square feet. It costs about six to seven times less than the cost of cement. He goes on to say, "The advantages of this house are minimal, the floors made after this kind of house can make the feet cool in the house by walking barefoot in the summer. According to our body, the temperature is achieved. In the cities, it is possible to build old houses of raw clay like village with this cow plaster. "

Like Kishan Shokin, over 300 hundred people in India are building houses with Vedic plaster of desi cows. Climate change has an impact on our homes as well. Earlier, mud made raw houses had the ability to withstand heat. These raw houses used to protect against cold and heat, but with the changing times, these raw houses are no longer practical. How to make perfect houses, which has the capacity to withstand heat, Dr. Shivardhan Malik, who lives in Rohtak, 70 km from Delhi, made a 'Vedic plaster' of desi cows after a long research, which was cheap as well as heat. Keeps it cold in summer and warm in winter. He said that the demand for Vedic plaster is catching up with the strong anti-heat feature. Vedic plaster made of native cow dung, lime and red soil, besides sound and fire retardant, keeps the house cool in summer and warm in winter.

IV. EXPERIMENTAL RESULTS

Non-Destructive Testing

Non-destructive testing (NDT) covers a wide group of techniques used to evaluate the properties of a material, part, product, weld, or system without materially affecting the integrity of the unit being inspected or investigated under the test procedure

Rebound Hammer Testing

Objective:

The rebound hammer method could be used for:

- i. Assessing the likely compressive strength of plaster with the help of suitable correlations between rebound index and compressive strength,
- ii. Assessing the uniformity of plaster,
- iii. Assessing the quality of the plaster in relation to standard requirements.

Principle:

When the plunger of rebound hammer is pressed against the surface of the plaster, the spring-controlled mass rebounds and the extent of such rebound depends upon the surface hardness of concrete. The surface hardness and therefore the rebound is taken to be related to the compressive strength of the concrete. The rebound is read off along a graduated scale and is designated as the rebound number or rebound index.

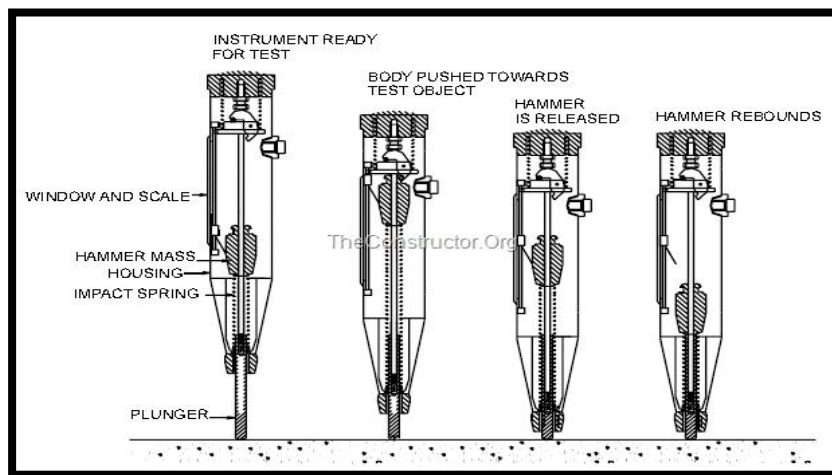


Fig 1. REBOUND HAMMER

Results of Rebound Hammer Test

Rebound number

For internal plaster – 18 to 20 N/mm²



For external plaster – 21 to 24 N/mm²

Fig 2. REBOUND HAMMER TEST

5.2 Destructive Testing

In destructive testing tests are carried out to the specimen's failure, in order to understand a specimen's performance or material behavior under different loads. These tests are generally much easier to carry out, yield more information, and are easier to interpret.

Compressive Testing

Objectives:

- i. To conduct compression test on a specimen using a compressive testing machine (CTM) to determine ultimate compressive strength of the material.
- ii. To determine batch quality
- iii. To determine consistency in manufacture
- iv. To aid in the design process
- v. To reduce material costs and achieve lean manufacturing goals
- vi. To ensure compliance with international and industry standards

Results of compression test:

Compressive strength

- For internal plaster
 - a) After 7 days – 16 N/mm²
 - b) After 28 days – 20 N/mm²
- For external plaster
 - a) After 7 days – 16 N/mm²
 - b) After 28 days – 24 N/mm²



Fig.3 COMPRESSIVE TEST MACHINE CUBE



Fig.4 COMPRESSIVE TEST MACHINE CUBE MOULD

Water permeability

A measure of how easily a fluid (e.g., water) can pass through a porous medium.

Objective:

To determine the water absorption of the plaster.

Results of water permeability test:

The water absorption of Vedic external and internal plaster is 10% or very minimum as compare to conventional plaster.



Fig.5 WATER PERMEABILITY

Thermal Insulation

This plaster is act as thermal insulator so it reduces heat / temperature in the buildings as compare to external heat / temperature.

V. CONCLUSION

As per our study concern Vedic external and internal plaster is easy for application. It does not required curing so it saves thousand liters of water and also it acts as a thermal insulator so keeps building cool in summer and warm in winter. One of the advantages of Vedic plaster is soundproof, heat proof and fire proof because of cow dung and gypsum is used in plaster and it have same characteristics.

The Vedic external and internal plaster has integrated approach to a conventional and non-conventional energy is properly utilized can be helpful to saving of electrical energy and water in entire life span of structure. Vedic external and internal is act as thermal insulator by reducing temperature in the building.

The strength of Vedic external and internal plaster is also satisfactory as compare to conventional plaster. Vedic external and internal plaster achieved the strength at 7mm which conventional plaster gain at 12mm thickness thus the material is saved, coverage area is increases and economy is achieved. This plaster is cost effective as compare to conventional plaster.

VI.FUTURE SCOPE

Vedic- External and internal plaster may be economical as it saves money as compared to other plasters as it is a compound of waste material. The wastage which is otherwise used as compost can be efficiently used as an alternative for cement. It would be healthy and eco-friendly because cow dung has antibacterial properties. It creates fresh environment in the building or structure. It can be used on the AAC blocks and bricks. Vedic- External and internal plaster may save water which has been used for keeping building cool in summer as well as it keeps building warm in winter season. The ingredients used in Vedic- External and internal plaster are environment-friendly / pollution-free so it makes the building green building. This plaster is durable as compared to cement and gypsum plaster. In view of the demand for Vedic- External and internal plaster, it was being used by the villagers traditionally as plaster but now there is awareness about it everywhere. Many villagers have started joining it as a cottage industry.

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