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Comparative Study of Jointing material used in Blockwork

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Abstract: Nowadays, the making of mortar on site is lacking today due to its significant growth and necessity of exact gauging and mixing of the mortar which has been manufactured by many industries due to increasing share of a market that would expunge rare contemporarily on-site mixing happen are to be observed. The practical experiment aims at this paper which presents the comparison of two mortars with their general specifications entitled in this project overview and difference of initial work to be carried out for the laying of brickwork by alternate types of jointing mortar i.e. e-mix mortar and Ultratech fixoblock jointing mortar at the construction site and conclusion of this project comprise that as per contractors condition and client requirement any one material can be adopted at a particular site.

Keywords: Jointing Material, e-mix Mortar, Ultratech fixoblock, Compressive Strength, Bulk Density.

I. INTRODUCTION

In the construction world, the construction is full of activity which has to be recognized by the reputed firm of the organization by the major activities which include RCC (reinforced cement concrete) in reinforcement shuttering quantity, brickwork, plaster, and finishing. In the whole activities of the construction site, the main focused are in a mortar. Mortar plays an important role in construction which acts as a joining material to fill the gaps between two blockwork, act as a sealant and used as plastering work for smooth finishing. Mortar is a feasible paste which is used to cover building lumps such as stones, bricks and concrete blockwork combined together to pack and close uneven crack developed in them and join them for decorative shade and design in masonry block. Blockwork is a wall which is made of blocks which have been laid one over the other by placing mortar into it with a toothed trowel.

In earlier days, cement mortar i.e. the mixture of cement, sand, and water which has to prepare at the site were used in blockwork but nowadays new mortar of jointing materials are introduced in the market are as follows:

- e-mix mortar.
- Weber block-fix.
- Ultratech fixoblock.
- AAC ACCOfix Mortar.
- Sikar block Jointing Mortar.
- T9 block-fix.
- Rockstar block joint mortar.

II. METHODOLOGY

The following methodology adopted:

1. Data Collection of jointing material used on this site.
2. Data Collection of jointing material on the previous site.
3. Finding of both materials using comparison.

III. DATA COLLECTION

The data collection on site are as follows:

1. The surface to be prepared for Ultratech fixoblock is to be carried out by removing dust, lubricant, and laitance.
2. By using the wire brush, water jetting are carried out for cleaning purpose.
3. The Ultratech fixoblock mortar is to be applied in the wet block before fixing it.
4. The mortar is mixed by mechanical stirring for 2-3 minutes for greater stability and free from lumps.
5. It saves the valuable cost as compared to ordinary mortar and it is time-consuming mortar also.
6. There are no fracture and shrinkage at joints provided in the blockwork.
7. These are least consumption chemical used to joint block by a thin layer of 3mm.

IV. DATA ANALYSIS

KRC IT PARK KHARADI PUNE is the first project by the Millennium Engineers Contractors Pvt Ltd Pune (Maharashtra) using Ultratech Fixoblock thin jointing mortar. In the earlier project, an e-mix mortar was used as a jointing material. The reason behind the shifting of material is preferred as per the client requirement and contractors overview.

V.COMPARISON

TABLE I
COMPARISON BETWEEN E-MIX MORTAR AND ULTRATECH FIXOBLOCK

| Sr. No | Criterion | e-mix mortar | Ultratech fixoblock |
|--------|---------------------------------|------------------------------------------------------|---------------------------------------------|
| 1. | Compressive strength at 28 days | 8Mpa | 6-7Mpa |
| 2. | Shelf Life | 8 month from the day of manufacturing | 12 month from the date of manufacturing |
| 3. | Pot Life (Initial Setting Time) | 60 mins | 1 hrs at 27°C |
| 4. | Density | Wet density 1650 kg/m ³ | Bulk density 1450-1550 kg/m ³ |
| 5. | Appearance | Having fine grain particles | Free flowing powder |
| 6. | Mixing | 25-30% water with 70% mortar i.e. 10-15 lit/40kg bag | 25% water by weight of material |
| 7. | Consumption | 4-5 kg/m ² | 3-5 kg/m ² |



VI. OBSERVATION

1. Both of the material requires skilled labour to apply mortar on a surface of the block.
2. Both are having a non-hazardous chemical which is not affected by the health of labour.
3. As cement mortar is used on the baseline of the blockwork i.e. at a ratio of (1:4, 1:5) and thickness of 20mm between the RCC and AAC (Autoclaved Aerated Concrete) blocks were both of the mortar can't be adopted.
4. Both of the jointing mortar act as a grouting material.
5. Both of the mortar is time consumed as it takes less time to build it up as compared to cement mortar which takes more time duration to set a block for brickwork.

VII. CONCLUSION

As per criteria and comparison were done, Ultratech fixoblock is a finer than e-mix mortar due to its appearance, density, and compressive strength but still at certain points such as pot life and consumption we can use e-mix mortar and hence it is eco-friendly product with low carbon footprint but according to the contractors condition & client requirement any one of the material can be adopted.

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- 3) e-mix mortar Brochure.