

Briefly Talk about the Acceptability Control of Thermal Insulation Glazed Hollow Bead Mortar of High Building External Wall

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2

With the rapid development of society and the continuous improvement of people's living standards, people living green building energy requirements are getting higher and higher and external wall insulation is one of the main measures of building energy efficiency, but also an important part of building energy efficiency. Thermal insulation glazed hollow bead mortar has a good weather resistance, thermal insulation, good fire resistance and other advantages. In the hot winter areas like Nanchang, the external wall insulation materials are usually made of thermal insulation glazed hollow bead mortar. The thermal insulation glazed hollow bead mortar in energy-efficient designed building is much thicker (the thickness usually is 35-40mm), resulting in that it is easy to crack the insulation layer, which will reduce the thermal insulation performance largely. The water permeability, water permeability, freeze-thaw damage of external wall will lead to a large area of hollowing and even lead to falling off of insulation layer, which will affect the appearance and quality of

buildings and even affect their service life badly.

1. Engineering General Situation

The engineering in F02 residential section in Huanan of Nanchang includes 22 #, 23#, 24 #, 26#, 27 #, 28#, 29 #, 30 # building and The underground refuse station has a large underground garage. The total construction area of 249,772.12 square meters which includes nearly 12 million square meters of external insulation area.

2. Architectural Feature

Inorganic thermal insulation glazed hollow bead mortar has the features as low thermal conductivity, crack resistance, non-toxic, non-polluting, fireproofing, low cost and simple construction, etc. Compared with the traditional construction methods, it has obvious advanced nature and novelty in the use, function and construction methods. So it is widely used in modern architecture.

2.1 The Scope of Application

Inorganic thermal insulation glazed hollow bead mortar can save 50% and 65% of energy.

Abstract: Thermal insulation glazed hollow bead mortar is a new type of non-toxic green inorganic materials with the advantages of excellent sound absorption, low combustion performance, good air permeability, high temperature resistance, water resistance and frost resistance, low shrinkage, no cracks in the construction and no thermal bridge formation. The stability is very good in using, which greatly improves insulation effect of exterior wall and then improve the living environment. Thus the energy can be saved efficiently, which can be in line with the requirements of sustainable development and green building. This paper analyzes the acceptability control of thermal insulation glazed hollow bead mortar of high building external wall and hopes it can provide practical reference to further specific work.

Key words: External wall insulation; inorganic glass bead; thermal mortar, construction

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The transforming and extension of existing buildings and industrial and civil buildings involves internal and external thermal insulating wall, basement, garage, staircase, corridor, special insulation, fire channel, EPS, XPS fire rating layer and every part of covering layer; The building height can't be over 100m; The thermal insulation mortar directly constitute the external wall insulation system and external wall insulation system and two kinds of wall foundation composed by other insulating materials; Reinforced concrete walls and masonry walls can be used; The surface layer can be used for paint or tile walls. Inorganic thermal insulation glazed hollow bead mortar can be used in all situation mentioned above.

2.2 Process Principle

Inorganic hollow glass beads external wall insulation system consists of the interface layer, inorganic hollow beads insulation mortar layer, crack protection layer, alkali-resistant fiber mesh, flexible waterproof putty and decorative layer. Insulation layer, used in wall surface to form hollow insulating layer, consists of inorganic hollow glass bead, microbeads, silicate, inorganic cementing materials, and imported high-level coagulant. The insulation principle of the whole building insulation system is basically the same with that of refrigerator. The roof insulation and external wall insulation will form a closed system and block indoor and outdoor heat transfer to reach the goal of saving energy. In overheat construction, overhead roof insulation mortar shall be used or energy-saving and insulation measures shall be taken on the surface of roof.

3. Countermeasures of "Hollowing"

3.1 Hierarchical Structure is Too Big

3.1.1 Materials of team technology quality rewriting

Rewrite the materials of team technology quality; increase and improve relates measures; clear about the team technology; the personnel who masters key technology shall be examined for post; implement quality responsibility system and punishment system. The project department conducts technical disclosure for external wall insulating workers, clear technics requirements and carry on an examination. The pass rate of the examination is 100%, excellent rate of theoretical examination is 81.25% and excellent rate of operational skill is 87.5%.

3.1.2 Implement the "Three Investigation" System

Through on-site inspection and physical examination, timely detect and correct the staff's irregularities.

3.1.3 The Establishment of "Model First" System

Engineering sample walls and model rooms are set up in room 304 of building B in 26 # mansion. Signs, procedures and other text descriptions are posted for observation and learning. Construction acceptance quality standards can only be higher than the sample, not lower than the sample. Team construction is especially important for controlling the each layer of mortar. The thickness of every mortar layer can't be over 2cm and every layer must be washed by hand.

3.2 Horizontal Separation Gap is Too Large

3.2.1 In the case of a beautiful appearance, make the division more intensive appropriately

Make the coal seam standard as 580mm and according to the size of dry handing stone of 1-3 levels, Horizontal separation spacing is

600mm, wash coal seam and stone seam.

3.2.2 Crack Construction Shall Be Strict in Accordance with Procedures Openly.

After the insulation layer is completed, cutting can cut and the cut depth shall be on the base of shear wall. The window cover shall be parallel with top line and the width of the slot is 5cm. First, paint mortar on the seam of wall surface and then embed in the entire inner wall with fiberglass webs. Then extend to external wall to the depth of no less than 20cm from two directions and ensure the wall to be cover by screen cloth. And then install the mortar filling tank after assembling the prefabricated panel. After installing the grid, coat the wall with mortar. Draw the interface on the panel.

3.3 Freeze-thaw Damage

3.3.1 The wall surface will have crack caused by see invasion and freeze- thaw cycle, which lead to hollowing between insulation layer and base layer and crack continue to spread. Thus, insulation anchor is very important and anchor shall be plugged into wall no more less than 2.5cm.

3.3.2 After completing mortar construction, the strength of mortar shall be ensure and then determine the fixing position of anchor and the size shall be about 600mm*60mm (note: the actual depth of hole shall be 7cm). Insulated rod screws shall be through the insulation board.

4. Conclusions

In short, thermal insulation glazed hollow bead insulating system has many advantages as green, good integrity, crack resistance, aging resistance, good impact resistance and weather resistance. With good adhesion and short construction period, its quality is also convenient and reliable, which can save cost.

Reference

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