

Study on the management and control of construction quality of building energy-saving

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Abstract

Only control the management and control of construction quality of building energy-saving work in order to maximize the harmonious development between human beings and ecological. Therefore, firstly, the overview of architectural energy saving in China project FAQ, summed up the management and control of construction quality of building energy-saving basis puts control of construction quality of building energy-saving and improvement of construction quality of building energy-saving recommendations, with a view to achieving good management and control of construction quality of building energy-saving, ensure the quality of energy-saving building requirements.

Keywords

Building energy saving engineering, construction quality control of construction quality control

1. Introduction

Severely affected by deteriorating ecological environment, energy saving building project had to be put on the agenda. Now, in the implementation of construction projects, building energy efficiency has become a part must be taken into account. Energy-saving building practice is difficult, demanding and energy-saving building has become increasingly prominent, hindering the rapid development of architectural energy-saving. Therefore, vigorously strengthen the management and control of construction quality of building energy-saving, for a programme to improve the operation and to guarantee engineering quality of building energy saving is very important for ^[1].

2. Common problems in energy-saving building

At present, China is pushing forward the construction of energy-saving building, energy-saving materials, energy-saving technology has made a great progress, but judging from present situation of energy-saving of building construction, there are the following questions:

2.1 Not strict with construction management of building energy-saving

In construction of energy-saving in practice, there are many phenomena not strictly in accordance with national standards for energy-saving construction, mainly in the energy-saving design is not strict, not in strict accordance with the design standards of construction and other issues, owners and even altering energy efficient design, casual relaxed design requirements for energy-saving construction quality is poor, not able to play a good energy-saving goal. Energy-saving design, designers in strict accordance with the design of energy-saving standards, but because of the energy-saving project construction in strict accordance with the design standards will significantly increase construction costs, so there is free to change or even to give up by owners of energy-saving building design or construction contracts ^[2].

2.2 Problems of energy-saving building materials management

According to the different energy-saving, energy-saving materials in the market can be divided into a number of different grades, and prices will appear different. Some suppliers in order to pursue personal interests will fraud, shoddy. Construction unit in order to save money, not according to the

specifications in the purchase process for sampling the energy-saving materials to ensure energy-saving materials with the design and specification of requirements, thus making energy-saving materials are not up to the purpose of ^[1].

2.3 Energy-saving building inspection neglected

Completion of the construction of the last hurdle is to verify that building products are qualified, acceptance of energy saving is an important part of final acceptance, is the key to test building can achieve good energy . And the acceptance of building energy saving in China and was not taken seriously, individual areas even before the final acceptance of the work and do not have a special energy-saving acceptance or just go for a cut scene, building energy-saving and quality assurance, energy-saving effect is unclear .

2.4 Other problems

In addition to the problems listed above in addition to common problems as well as design issues, management issues, security issues, and so on. Design problem main highlights in: selection building standard figure set not accurate; selection of outside wall outside insulation system not mature, no national, and industry and the area related of technology standard and construction technology procedures, exists security hidden; design change not specification, change text expression not rigorous, no description change of reasons; lack on basement roof, and men Dou of energy-saving design, ^[3]. Supervision problems highlighted in: perform the process of management responsibility is not enough, led to some poor engineering quality and even security breaches; some supervision of enterprises for entering products sample inspection or evidential systems in place are not in place, resulting in poor product quality and the selection of projects. Safety problems are mainly prominent in fire prevention. In recent years, produced by the burning of exterior wall thermal insulation material of the fires have occurred, had not only caused huge property, are hazardous to people's personal safety. The cause of the fire have two, one is the improper material, second, construction mismanagement, construction site fire insulation materials such as cigarette lit ^[4].

3. The basis for management and control of construction quality of building energy conservation

Construction quality control of the construction, first of all should be clear basis for quality control. Building energy-saving engineering of construction quality control according to for:1) by building energy-saving special review qualified of design file;2) by approved of building energy-saving special construction and technology measures, for example squeeze plastic poly benzene Board outside insulation wall surface construction technology, and poly benzene particles insulation mortar wipe gray technology, and poly benzene Board insulation roofing technology, and steel doors and Windows, ^[5];3) applies to the project construction quality of building energy-saving control of the existing norms, standards, such as, for example, of the architectural engineering construction quality approval unification standard (GB50300) and the construction of energy-saving project construction quality approval standard (GB50411) And so on.

4. Main points of construction quality control of building energy-saving

Management and control of construction quality of building energy-saving projects, the key to strict "construction preparation phase quality control", "quality control in the construction stage" and "quality control of project acceptance of" three points. In construction prepared stage main strict put personnel training and practice industry qualification, and corresponding regulations file and standard and do design low-down and construction figure triage work; in construction stage to strict put material equipment quality, strictly implementation regulations specification and related technology standard, rein Jerry behavior, and focus grasp secret engineering of check work; in completed acceptance stage should strict put energy-saving design standard on construction units submitted of energy-saving engineering completed report and the technology information of review work. Specific control points are as follows:

4.1 Main points of quality control of the construction preparation stage

Building energy saving engineering construction enterprise should possess appropriate qualifications, should establish an effective quality management system in construction site, construction quality control and inspection systems, professionals equipped with and deliver the training, technology and equipment related to the technical standards for the construction. Construction unit should be familiar with already qualified prior to the construction of energy-saving design drawings and files, this project uses new technology, new equipment, new materials, and new processes, in accordance with the relevant provisions of the assessment, identification, and record. And new or previously used in process evaluation and construction technology for specific programmes. Energy-saving design drawings in compliance with regulatory requirements related to the subject, the construction unit should take full account of local market supply of material, its construction techniques and construction requirements, is difficult to press the original energy-saving construction drawings, construction unit should design reasonable energy saving design changes in advance [6].

Construction unit should be based on energy-saving design files and energy-saving requirements related to the preparation of specific construction program for energy-saving projects in advance and approved by the supervisor or employer to review. Construction workers engaged in building energy-saving construction technology to give the low-down and the necessary hands-on training. Technical standards for the construction process is a process of standard construction specifications, including Atlas, specifications, procedures, acceptance criteria and the Ministry of construction and local departments issued the relevant provisions and documents, the construction site must be equipped with the relevant technical standards for the construction, construction must not be lower than the requirements of technical standards for energy-saving projects.

4.2 Main points of quality control in the construction stage

Quality control in the construction stage, should take the following aspects [7]:

A And supervising engineer should audit contractor submitted according to the requirements of the proposed approach of energy-saving building materials / Frame accessories / Equipment review request (including wall materials, insulation materials, Windows and doors, heating systems, lighting and so on) and quality of supporting information. Strict control of engineering materials and components quality level, quality level and ensure that we meet the design requirements of energy-saving standards strictly quality of equipment, to ensure the successful completion of construction, so as to ensure construction quality of engineering.

B Building energy saving standard, in accordance with the management contract and provisions for energy-saving building materials, components, equipment for entry test of witness sampling and review report. Check for uses prohibited by the State, out of materials, equipment, components. When the construction unit used when building new energy-saving technologies, new technology, new materials, construction units should be required to submit the appropriate documents (relevant Department "approved three new" certificate), and specialized construction scheme, supervising institutional review approval before implementation.

C Units based on building energy-saving design, supervision and contracting documents and construction plans for construction. Chief supervision engineer or contractor review-building units of the engineering changes, found guilty of building energy conservation standards, written comments should be stopped.

D Construction control points in the process is to ensure that construction units mainly to construction in strict accordance with the design documents to avoid contracts. In the course of construction, inspection of building energy-saving construction process, especially hidden works. On building energy efficiency in the construction of walls, roofs and other concealed works of hidden processes, next step is completed it is difficult to check the key parts, site or site inspection, meet the requirements to sign.

E And the contractors submitted building hidden project quality inspection, testing and project evaluation review information, in line with the request be signed by the supervising engineer beyond

recognition. Contractors submitted building energy-saving construction and engineering quality checking and evaluation data for review and on-site inspections of units, in line with the request to sign.

4.3 Main points of quality control of the project acceptance

At the acceptance stage, in strict accordance with the design standard for energy efficiency of the construction unit to submit energy-saving project completion reports (quality inspection division table as table 1 See below) review and technical data, if problems are found, urging its schedule for rectification, and construction units will also be examined whether the rectification issues discovered during construction to ensure their rectification is completed according to the requirements can only be signed after project completion inspection. In the preparation of the construction quality of energy-saving evaluation report, and to integrate the construction units, design units and supervision units, such as the implementation of building energy-saving standards and design requirements, and given that the project is in line with national and local building energy efficiency standards and design requirements clarification ^[8].

Table 1 Energy-saving for construction quality acceptance of partition tables

Division of engineering	Child projects	Component project	Inspection lot
The main structure of	Masonry structures	Ceramic blocks, thermal bridge, brick, concrete block, insulation wall	Each floor
Building roof	Insulation housing Li	Overhead, planting and plastic roofing	500m ²
Install energy-saving equipment	Equipment types	Equipment installation requirements	The basic requirements for different types of
Architectural decoration	Doors and Windows	Windows, door insulation	Each floor

5. Improvement of construction quality of building energy-saving recommendations

5.1 Enhance the qualification of construction units

Building energy-saving engineering construction quality and construction units of qualification level has close of relationship, if construction units no professional of qualification level or no good of reputation, not can strictly according to contract agreed and the design drawings for construction, and or not can strictly according to specification standard implementation, on engineering construction of all link for strictly checks, on May will appeared various of problem, not conducive to energy-saving engineering construction quality control. So, should strictly control the construction of unit qualification tubes, eliminate inconsistent quality of joint venture construction company, participated in the operation, guarantee construction quality of building energy-saving projects in the source.

5.2 Strengthen the quality control of the construction process

Construction process and quality control of insulation material should be controlled and construction quality control of key content. Insulation and construction as key elements of quality control. Prior to the construction of insulation comes into play, you want to check, and resolutely put an end to the use of substandard, adulterated materials. The construction process in strict accordance with the corresponding technical rules, substitution of conventional materials shall not be used for Design materials and construction staff should operate according to the standard construction method, ensure the quality of construction. Quality insulation material correct construction techniques and methods, to prevent thermal insulation tiles on the surface to fall off and the occurrence of cracks in plastering.

Meanwhile, to developed detailed of energy-saving engineering quality regulatory control plans and programme, clear energy-saving construction process in the of key points and acceptance requirements; to focus concern engineering construction process in the on design of change behavior, each a times change are to after design party, and construction party and supervision party, multi common discussion confirmed to for change, on not meet energy-saving requirements of change not confirmed, shall not purposes; to strictly according to design drawings of requirements, on energy-saving engineering construction key points for quality checks, Ensure that indicators meet the design requirements for energy-saving projects.

5.3 Division of strengthening building energy efficiency project acceptance

National and local authorities should increase the emphasis on energy-saving project supervision work, discovering and correcting problems in a timely manner. Strengthening engineering quality of building energy saving files and system of enforcement and supervision and enforcement; promoting the concept of building energy efficiency, strict enforcement of the code for acceptance of construction quality of building energy-saving (GB50411), really the idea of architectural energy-saving, standard and deep into the acceptance of completion of the construction work. Meanwhile, establish and improve various systems and standards for building energy efficiency Division, seeking work in the larger context of building energy-saving, effective protection of construction quality of building energy conservation ^[9].

5.4 Energy conservation, acceptance criteria

With the national emphasis on energy-saving building continues to improve, and promoting the development of energy-saving project supervision work, building energy efficiency project is developing fast. To further improve the quality of building energy efficiency, establish and improve the evaluation of building energy conservation standards, evaluation systems, energy-saving building logo, is the key to realize the control of construction quality of building energy-saving management, only the establishment of a sound comprehensive energy-saving building standards system and a complete supervision system makes the quality of building energy saving engineering get real guaranteed ^[10].

6. Concluding remarks

A positive development is the development of energy-saving building "two types of society" must go, is the inevitable trend in the development of the construction industry. Building energy efficiency is a complex system, such as quality of materials, design, construction and installation processes are closely related to, and especially the quality of construction. And to overcome building energy-saving engineering common of problem, do energy-saving engineering of construction management and quality control, guarantee energy-saving engineering quality of long-term, and stability and energy-saving effect, construction units should strictly according to national legal, and regulations of related provides, strictly implementation energy-saving engineering various guarantee measures and standard, and will its throughout Yu engineering implementation prepared stage to completed acceptance full process, layer layer implementation strictly checks, save energy of while to for national, and for social, and for people dedication excellent of boutique engineering.

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