Improving construction quality of energy saving renovation projects in northern China

Keywords: quality, energy saving renovations, construction process, northern China

OTB Department/ Housing Quality and Process Innovation

Area of Research: Construction Quality

Research Summary: The building sector is one of the largest energy end-use sectors, accounting for a larger proportion of the total energy consumption than both the industry and transportation in many developed countries. In China, the magnitude of building energy consumption is large and rising year by year. In order to reduce energy consumption of existing buildings, from 2007 onwards, the Chinese government has promoted and subsidized the energy saving renovation of existing urban residential buildings. Nowadays, energy saving renovation has entered a large-scale implementation stage in northern China. However, there are still some existing construction defects, which cause rework, repair and other loss, such as external wall insulation falling off, out-layer cracking, et al.

Construction defects have as big issues in energy saving renovation projects. It has turned out that there is a history of quality failures in almost every renovation project, which causes losses with non-completion, massive delay, cost overruns, and other resources waste, hindering energy saving renovation in China. For example, building exterior wall insulation has been appearing some quality problems like hollowing, deflection, cracks, and shedding, which directly affect energy-saving. Therefore, it is necessary that the construction quality should be improved in energy saving renovation projects of existing residential buildings in China.

Research Methodology: Firstly, quality failures and quality failure factors will be found. After categorizing into hierarchy and finding the essential factors, the existing quality management will be related to the common quality failure factors and the strategies will be clarified from quality management angle. In the research, qualitative and quantitative methods will be combined to accomplish the research aim. Qualitative methods contain literature review, interview, questionnaire and focus group, otherwise quantitative methods are fuzzy analytic network process (FANP) and fuzzy evaluation method.

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Main Question: How can the construction quality of energy efficiency renovations be improved in China?

Link(s)

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