

Actual Condition and Trends in Retrofitting of Condominium External Thermal Insulation

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Housing Department, Housing Planning Division

Senior Researcher
(Ph.D. (Design))

MAKI Naho

Head

FUJIMOTO Hidekazu

Senior Researcher
(Ph.D. (Eng.))

UTSUMI Koya

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1. Introduction

The total stock of condominiums in Japan has reached approximately 6.943 million units (as of the end of 2022). Because many older condominium buildings also have low frame insulation performance, etc., promotion of retrofitting to improve energy conservation performance is required in order to respond to life prolongation and realize carbon neutrality. However, there are challenges when attempting to implement plans to install external wall insulation on external walls, which are considered “common parts” of condominium buildings, as the hurdles to consensus-building are high, including the positioning of the construction work in the long-term repair plan, the possibility of increases in the building’s reserve fund for repairs, etc., and experts in management and repair are not be able to present the effects of repairs in an appealing form.

This report introduces the actual condition and trends in this field as a basic survey of retrofitting of condominium external thermal insulation.

2. Actual Condition and Trends in Retrofitting of Condominium External Thermal Insulation

Based on information on examples of retrofitting available on the internet, in books, etc., the Housing Planning Division conducted an interview survey of various types of groups, persons engaged in actual work and others, and collected and organized examples of retrofitting of condominium frame external insulation. As a result, at least 41 cases (totaling 212 buildings with 5,897 units) could be understood as examples of implementation (as of the end of January 2024).

Arranging the trends in these cases, the largest number of sites, comprising 20 cases, was in Japan’s northern island of

Hokkaido, followed by 18 cases concentrated in the Tokyo Metropolitan area (Fig. 1). As the period of construction, the oldest were two cases in housing complexes consisting of staircase-type buildings completed in 1968, where retrofitting started more than 50 years after the original construction. The largest number of cases, 19 (totaling 121 buildings with 3,734 units), was condominiums built during or before the 1970s, including those mentioned above. Although the total number of retrofitted units increases as the buildings become older, we also found two examples (totaling 2 buildings with 47 units) from after the year 2000 (Fig. 2). Among condominiums constructed from the 1990s onward, there were some cases in which frame repairs were carried out at a comparatively early stage with a view to improving interior-environment performance or prolonging the life of the structure by protecting the frame with external thermal insulation. Cases of this type can be seen in Hokkaido, where retrofitting of external thermal insulation was carried out simultaneously with the first large-scale repair 13 to 16 years after construction.

3. Future Outlook

In the future, we plan to collect and analyze data on the cost and effects of external thermal insulation retrofitting and develop a technique for quantifying its cost effectiveness. Based on that work, we intend to summarize the results in a handbook, bearing in mind the need to present information that can contribute to supporting the experts who will study and plan performance improvement retrofitting for energy conservation, etc. and planned implementation by the condominium management associations.



Photo. External thermal insulation retrofitting

Fig.-1 Sites of examples

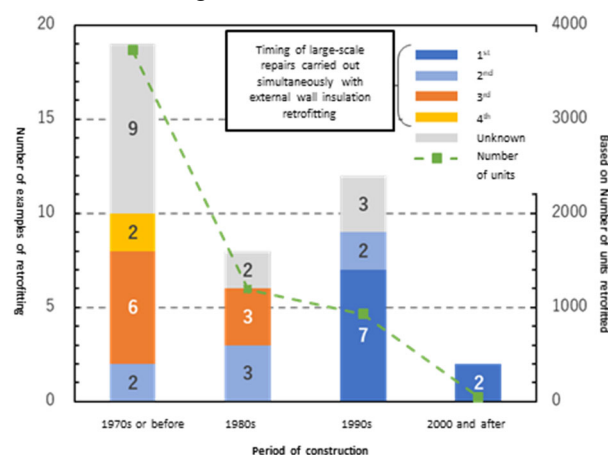


Fig.-2 Relationship of number of cases of retrofitting by construction period and large-scale repairs