14. Insulation Enhancement of Building Outer Walls by Pressure Feeding Insulating Material

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Energy-saving has been recently demanded also for buildings to protect the environment, and effective use of existing buildings has been promoted to achieve recycling society. With such a background, a method was developed to improve the heat insulation performances of the outer walls of existing buildings while utilizing the existing frames and interior materials as much as possible. The method improves the heat insulation performances by pressure feeding small insulating materials, such as foamed beads (materials for producing polyethylene foam in the bead method) and PET (polyethylene terephthalate) fibers to fill the space between the concrete outer walls (constituting the frame) and the finishing materials (boards, etc.). Because the insulating material are pressure fed, the method does not require the interior walls to be broken for a large extent. The method was found possible to improve the heat insulating performance of existing walls by about 1 grade in the Housing Performance Labeling System in moderate climate regions in Kanto and Kansai Areas. When PET fibers are used, the method can also improve sound insulation and contributes to the recycling of PET bottles.

Key words : heat insulation of outer walls, pressure feeding of insulating materials, foamed beads, PET fiber