

Components facilitating thermal insulation of buildings with structural performances

Abstract

A large number of buildings is deficient in terms of energy and environmental requirements. The construction element which produces most of the problems is the shell, since the discontinuities between the materials present in the structure generate thermal dispersions. The invention consists of building components to be used when concrete elements on the façade create a cold bridge.

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load-bearing structure

building shell

energy dispersal

thermal bridge

insulating formwork

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Description

The distinctive feature of the invention is to obtain external insulation while maintaining consistency with the most common building types. The elements respond to three functions: first to thermally insulate concrete from the outside, second to create an insulating formwork system and finally to have a load-bearing function. The components are characterized by the use of insulating materials and of a metallic lattice which has all the load-bearing functions.



Applications

Although the legislation imposes several restrictions in order to reduce thermal losses, in the last decade the building-related power consumption has constantly increased and represents more than one third of the primary energy used in several developed countries. The proposed invention can be employed both in the construction of new buildings and in the renovation of the existing ones, which may represent a larger part of the structures that should be adapted to current standards.



Advantages

The market offers several systems to create insulated formworks but they do not provide structural performances and thus can not be used to build projecting elements such as balconies. The proposed component is placed, during the construction phase, in the external part of the formwork employed for making the slab. The invention can be used also for all the structures protruding from the façade and combine the features of the formwork with those of load-bearing elements.