THE BASIS OF FUTURE THERMAL STANDARD OF BUILDINGS IN ALGERIA

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ABSTRACT

In this work, it will be presented the preliminary phases as well as the tools and methods that will be used to set the future thermal standard of buildings in Algeria. The actual state of building sector is briefly presented as well as national potentialities to improve thermal quality. Processing of most significant meteorological data was carried out in order to establish climatic maps of territory and calculate ambient base temperatures for heating and cooling needs. The thermal exigences are of two orders : comfort and energy savings. Calculations will be directed towards use of dynamic tools and development of simplified methods. TRNSYS code constitutes way to validate them or to determine technical solutions.

KEYWORDS

Standard; building; thermal; methods; tools.

ACTUAL STATE OF BUILDING SECTOR

The national park of housings is approximatively 3.5 millions; 55 % among them were constructed before 1962. The global deficit with respect to demand is about 1.2 millions. The electricity is installed in 81 % of housings and only 27 % among them are supplied by natural gas. On the other hand, there is no insulation for external walls excepting some roofs. Nevertheless, national possibilities are existing to provide insulation for buildings.Thus, national production of cork and polystyrene are respectively about 40 millions m^3 per year and 85 millions m^3 per year. The additional cost for insulating buildings is less than 2 %. Therefore, main conditions are existing to improve thermal quality of buildings according to comfort and energy savings exigences. However, a thermal standard of buildings must be set up to reach that objective.

CLIMATIC ZONING OF ALGERIA

The very well known works in this field where made from a study of algerian climate on a period over 25 years from 1913 to 1937 (Borel, 1962; Djenas, 1984). The delimitations where made from a combination of meteorological data processing and relief layout. It is obvious that those meteorological data are ancients and a reactualization of them is necessary. Thereas, new processing of data was carried out in our study from measurements of national meteorological office (ONM, 1987) covering a period of 10 years from 1975 to 1984. The SURFER software permitted to verify the Borel and Djenas zoning as shown in Fig. 1. However,