

The objective of this study is to diagnose and quantify energy consumptions of a real residential building in Ghardaïa site under Sahara weather conditions. This building can be considered as a thermal system, with a series of heat inputs and outputs. The method followed is based on an integrating approach for assessing the heating and cooling energy performance; the production of domestic hot water, free and internal loads related to lighting, occupants and equipment are not considered. Statistics of weather are devoted to calculate the annual heating and cooling requirements, based on climate data from 2012 to 2014. We are also interested in a technical and economic study to determine the corresponding energy cost. As results indicate, this residential building is not affordable to live in. Facade walls, roof and ground are the major sources of heat losses in buildings (more than 80% of the total losses). The evaluation served as a basic survey to build ecological and bioclimatic houses adapted to the region's climate. The integration of passive and active architectural concepts is an absolute necessity to improve the building's energy performance.

