

BAT-ECO2 : ENVIRONMENTAL AND ECONOMIC STRATEGY FOR THE GLOBAL COST OF LIFE OF THE BUILDING

Alain BATAILLE¹

¹LGCgE (Laboratoire de Génie Civil et géo Environnement), Université d'Artois

Mail of project coordinator: alain.bataille@univ-artois.fr

The BAT-ECO2 research project aims at contributing to the development of a new streamlined decision-support tool that compares environmental and economic performance of residential building renovation projects at the preliminary design phase. This research project was set up on September, 2015 and will end on August, 2018. It is developed in partnership with a local social landlord Maisons et Cités, SOGINORPA, with Lille I University, and with CD2E (a local public agency for sustainable development), CIRAIG (an international reference center on life cycle assessment) and 2 other partners, namely the CROA (Region Council of Architects) and the NJC Untec (Construction economics).

The research project comprises three steps. The first one is the determination of methodologies that are to be used for the forthcoming LCA and LCC of building renovation alternatives for a typical single-family house pertaining to M&C. During this first step, choices are to be made about the reference service life, the usage and maintenance scenarios, the software and database that will be used to model the building. The studied dwelling is a semidetached single-family house with two bedrooms together with the piece of land attached to the housing. The building is part of a group of more than 70 similar dwellings. 4 scenarios are considered depending on the operational energy per year and per m², in the range 160 KWh/m²/yr down to 100 KWh/m²/yr. A variety of bio sourced insulating material will be considered. Both LCA and LCC are to be carried out as a second step. From the results of the analysis, the main contributors of the whole life of the building will be pointed out and discussed, and a sensitivity and uncertainty analysis will be conducted. The final step is to draw the main technical specifications of a practical tool allowing both environmental and economic comparison between different building renovation alternatives.

In the line of the BAT-ECO2 project, a practical tool shall be built up from the main technical specifications obtained in the mentioned last step. This tool shall help the social landlord and the architect in their choice of environment friendly and cost friendly construction materials and flat equipment.

Research fields: Building Life Cycle Environment (LCA), Building Life Cycle Cost (LCC),

