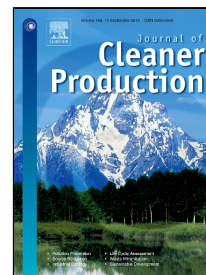


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Life Cycle Assessment Data Structure for Building Information Modelling

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3 **LIFE CYCLE ASSESSMENT DATA STRUCTURE FOR BUILDING INFORMATION**  
4 **MODELLING**

5

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15

16 **Abstract**

17 The assessment of the environmental impacts related to the building lifecycle is a very complex issue  
18 because of the high number of variables involved. The aim of the research is to structure the information  
19 content into the Building Information Modelling (BIM) framework in order to conduct a Life Cycle  
20 Assessment (LCA). An information flows matrix is developed through the investigation of the parameters  
21 responsible for the environmental impacts of buildings. Such information content is tested on a case study  
22 after implementing the proposed parameters into a BIM. The purpose is to verify that the identified  
23 parameters, implemented in the BIM environment, are sufficient to conduct the LCA. The results show that  
24 the proposed parameters could potentially improve the data reliability and consistency in the process of  
25 sharing information from the digital model to the LCA software.

26

27 **Keywords**

28 Building Information Modelling (BIM)

29 Life Cycle Assessment (LCA)

30 Design process

31 Sustainability

32

33 **1. Introduction**

34 The achievement of sustainable projects involves the management of a large number of environmental  
35 variables throughout the stages of building’s lifecycle. The construction industry consumes a large amount of  
36 natural resources (Yeheyis et al., 2013), contributing to their depletion and to the generation of significant

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