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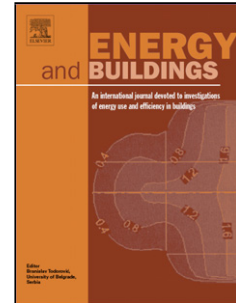
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Dynamic LCA Framework for Environmental Impact Assessment of Buildings

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Abstract: Traditional Life Cycle Assessment (LCA) methods are used to conduct building environmental impact assessment (EIA) with little consideration of influential factors that vary in time and of variation in occupancy behaviors. Because the life cycle of a building is quite long, such details have significant influence on the accuracy of evaluation results. To fill in this gap and extend the LCA system, this paper developed a dynamic assessment framework based on LCA principles after reviewing the research progress of DLCA (dynamic LCA). The new framework identified four dynamic building properties (i.e., technological progress, variation in occupancy behavior, dynamic characteristic factors, and dynamic weighting factors) and considered them in corresponding assessment steps to realize real-time EIA. In addition, residential occupancy profiles were described at personal level, family level, and social level; and three potential quantification methods were introduced to

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