

Master/Bachelor Thesis

LEED Certification Modeling and LCA Evaluation of a Building Project

Green building certification systems are increasingly important in guiding sustainable construction practices worldwide. Among them, LEED (Leadership in Energy and Environmental Design) is one of the most widely adopted frameworks. LEED evaluates buildings across multiple categories, awarding points toward certification levels (Certified, Silver, Gold, Platinum).

This thesis will model a selected building project within the LEED certification framework, focusing particularly on the Materials and Resources (MR) category where Life Cycle Assessment (LCA) plays a critical role. The aim is to determine how many points the project can achieve, and to provide a more detailed evaluation of embodied carbon and environmental impacts as considered in LEED.

Main Tasks

1. Literature review on green building certification systems, with focus on LEED methodology and categories.
2. Selection of a building case study (residential or non-residential).
3. Modeling of the case study according to the LEED criteria, with emphasis on MR category.
4. Application of Life Cycle Assessment (LCA) to quantify embodied carbon and related impacts.
5. Calculation of LEED points achievable for the chosen project.
6. Critical analysis of how LCA contributes to LEED scoring and its effectiveness in promoting low-carbon construction.
7. Presentation and evaluation of the findings.

Details

- Start: Available immediately
- Level: Bachelor or Master (scope to be defined with student)
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<https://www.rakenapp.com/blog/what-is-leed-certification>

Green Building Certifications



<https://www.vmsconsultants.com/comparing-green-building-certification-systems/>



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