

Integrating sustainability content and concepts in my course(s) at McGill University

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Course 1: Capstone Design Project (CIVE 418)

Course 2: Earthquake Resistant Design (CIVE 612)

We conducted **a survey** as part of a research study to assess what civil engineering students at McGill think about sustainability. Sample questions are provided below:

1. Formulate a definition and/or a diagram that expresses your vision of sustainable development in engineering design.
2. List criteria that assess the sustainability of a civil engineering material
- 3. Identify for each division of civil engineering, selected design solutions that can help achieve a more sustainable project.**
4. Identify tools, methods, and possibly software that can assist civil engineers quantify the sustainability impacts of projects.

Based on the survey → 121 page report summarizes:

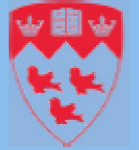
✧ Methodologies for sustainable design of structures

- ✓ Materials
- ✓ Construction techniques
- ✓ Energy

✧ Rating systems and software assessing “success” of sustainable civil engineering infrastructure

✧ Ways to conduct a life cycle assessment of buildings subjected to natural hazards through loss estimation over the serviceability period of construction

Indicators for Sustainable Design of Civil Engineering Systems: Towards Earthquake Resilient Steel Frame Buildings Through Loss Assessment



McGill University
Department of Civil Engineering

Master's Research Project

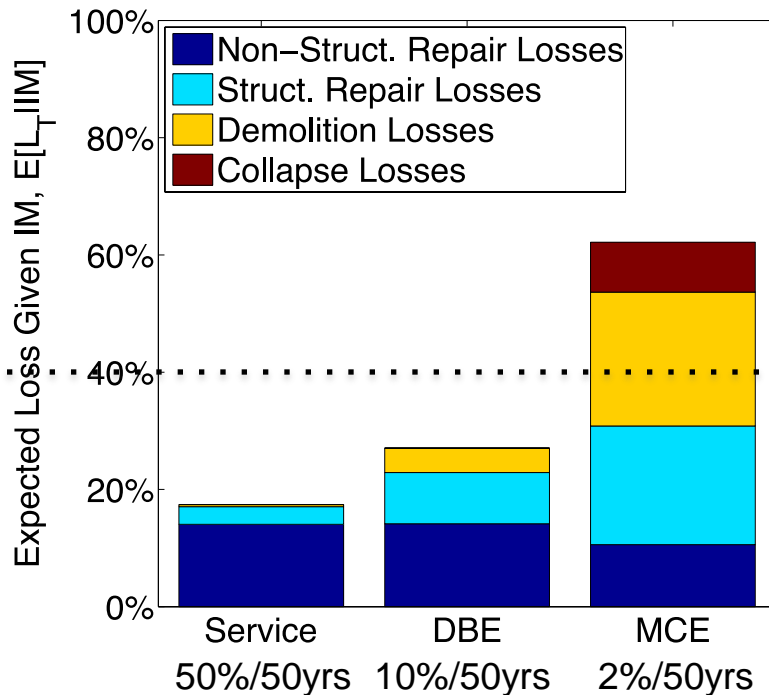
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By
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Montreal, Quebec

- ✧ Case Study: 4-story steel building design alternatives (Options 1 & 2)
- ✧ Initial investment for Design Option 2 costs 1% more than Design Option 1
- ✧ Selecting the best design based on life cycle assessment over 50 years
- ✧ Hazard: Earthquake in Vancouver Island
- ✧ Minimum monetary loss due to business interruption is not considered

Design Option 1



Design Option 2

