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INTERNATIONAL HOUSING ASSOCIATION

Greenhouse gas emissions from building sites

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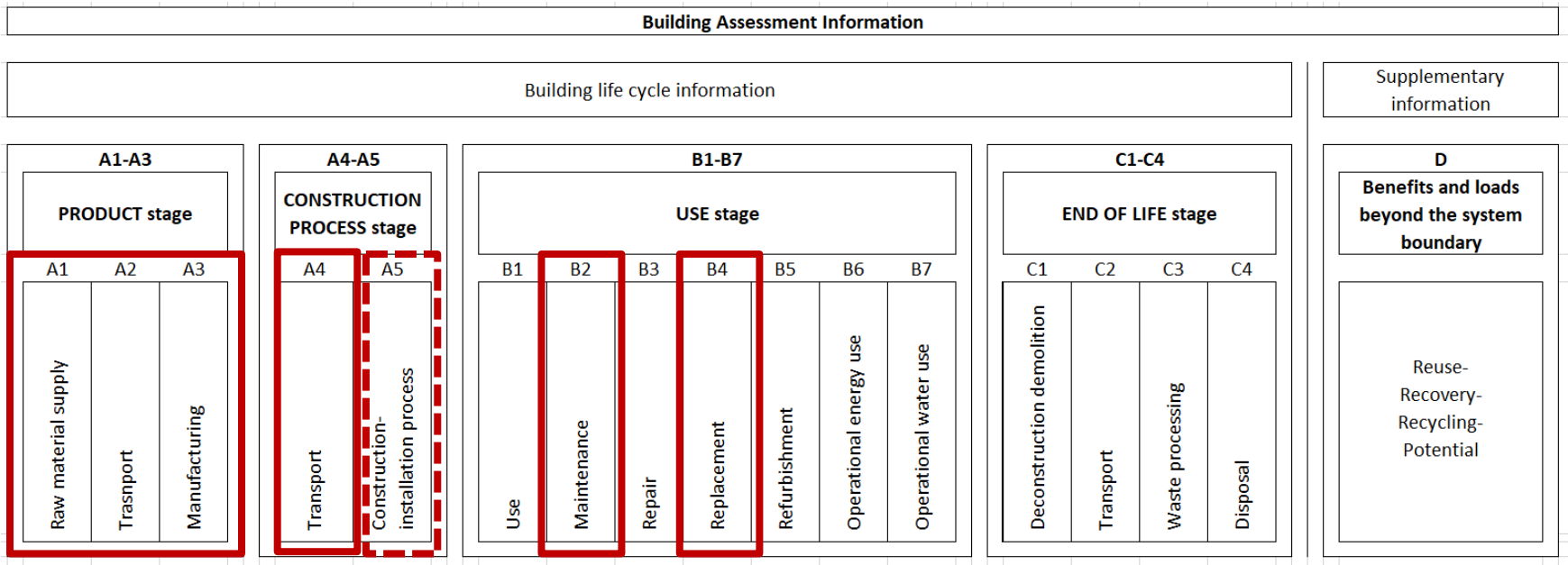
GHG emissions

Current requirements in the Norwegian technical regulations

- From 2022:
  Mandatory to calculate embodied GHG emissions for block of flats and apartment buildings
- From 2026:
  (most likely) introduction of limits on GHG emissions for all residential buildings

Life cycle modules included:



Only emissions from wastage on the buidling site

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Emissions from building sites

The GHG requirement in the technical regulations do not include emissions from:

- heating, ventilation and drying of buildings (during construction)
- construction machinery (excavators, bulldozers, trucks, lifts etc)

But GHG emissions on building sites are addressed in:

- criteria in public procurement
- local zoning plans

The GHG requirement for the building sites may be:

- emission free (= all electric)
- fossil free (= bio energy/bio diesel)

35 tons electric excavator

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Technical requirements are given in the technical regulations

Ministry of Local Government

- A main principle in the 'Planning and Building Act' that technical requirements are given in the national, technical regulations.
- Local municipalities do not have the authority to introduce their own technical requirements.
- Oslo is challenging this principle

Ministry of Environment

- Proposal to give local municipalities the authority according to the 'Pollution Act', to set requirements related to emission free and fossil free construction sites.
- Proposal to ban the use of fossil fuels on construciton sites from 2040.

Oslo lacks authority, but will still require fossil free building sites

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What about costs?

Cost challenges:

- Battery electric excavators approx. 3 times more expensive
- Sufficient power supply for charging of batteries
- Increasing time use, especially when it is cold (winter)

Benefits:

- Reduced energy costs
- Reduced noise level, improved air quality on building site

<u>Report #1</u>

- medium size, emission free building site:
  - extra costs: USD 66 000 – USD 136 000
  - CO2 reduction: 90 metric tons

Equals:
USD 730 to 1500 per ton CO2

<u>Report #2</u>

- larger non-residential, urban project
  - extra costs: 3 % of the contract value
  - no information on CO2 reductions

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Emission free building sites

- Significantly increasing construction costs
- Not cost-efficient

- More symbolic than effective measure to reducing GHG emissions

- Should not be enforced for residential developments

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