



tookee tree /
PASSIVE HOMES

seed building systems™
SUSTAINABLE • ECOLOGICAL
EFFICIENT • DURABLE

**Want to Fight
Climate Change?**

Fix Housing!



Who are we?

We manufacture S.E.E.D. panels:
(Sustainable, Ecological, Efficient, Durable)

PreFab wall, floor and roof panels

Using natural materials

For buildings that meet Passive House standards.

For a wide variety of building types,
mostly residential



tooke^{tree}ree
P A S S I V E H O M E S





PreFab Advantages

- Panels can be manufactured upon approval of plans and as build site is being prepared, saving project time.
- Installation is fast and efficient.
- Controlled manufacturing environment means better product quality control, attention to detail and sealed, dry wall cavities.
- Windows can be pre-installed before delivery.
- Cellulose insulation is blown in while panel is horizontal. Density is consistent throughout.



Fabricated indoors
Dry Material
High Quality
Installed quickly





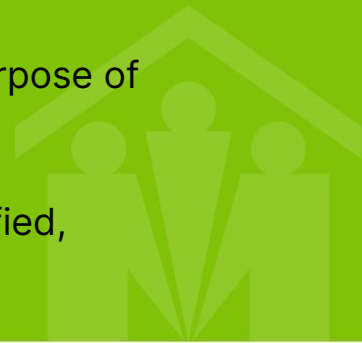
About Muskoka Community Land Trust

Mission

A community led, nonprofit organization that acquires and stewards land for the purpose of developing permanently affordable housing, social enterprise and food security.

Vision

The MCLT will be a long-term stakeholder in providing perpetually affordable, dignified, climate-ready housing to support a healthy community.



What is a Community Land Trust?



Community Land Trusts (CLTs) are community led, non-profit organizations which acquire and hold land for the benefit of their local community.

CLTs are an alternative to for-profit real estate and land ownership.

CLTs are long-term stewards of land as a community asset rather than a commodity. This can ensure perpetually affordable housing and space for high social-benefit, non-profit enterprises.



**Homes as
community.**

**Not homes as
commodity.**

Contact the MCLT

www.muskokactl.org | info@muskokactl.org
(705) 640-1625

Contact G.R.E.A.T.

www.greathousing.org | info@greathousing.org

PASSIVE HOUSE

- 1. Insulation** at least twice code requirements
- 2. Air-tight** protecting building from moisture
- 3. Windows** triple glazed with insulated frames
- 4. Ventilation** keeping warm air inside
- 5. Thermal Bridges** avoid by-passing your hard work
- 6. Upfront carbon** avoid carbon intensive materials



Material Embodied Carbon

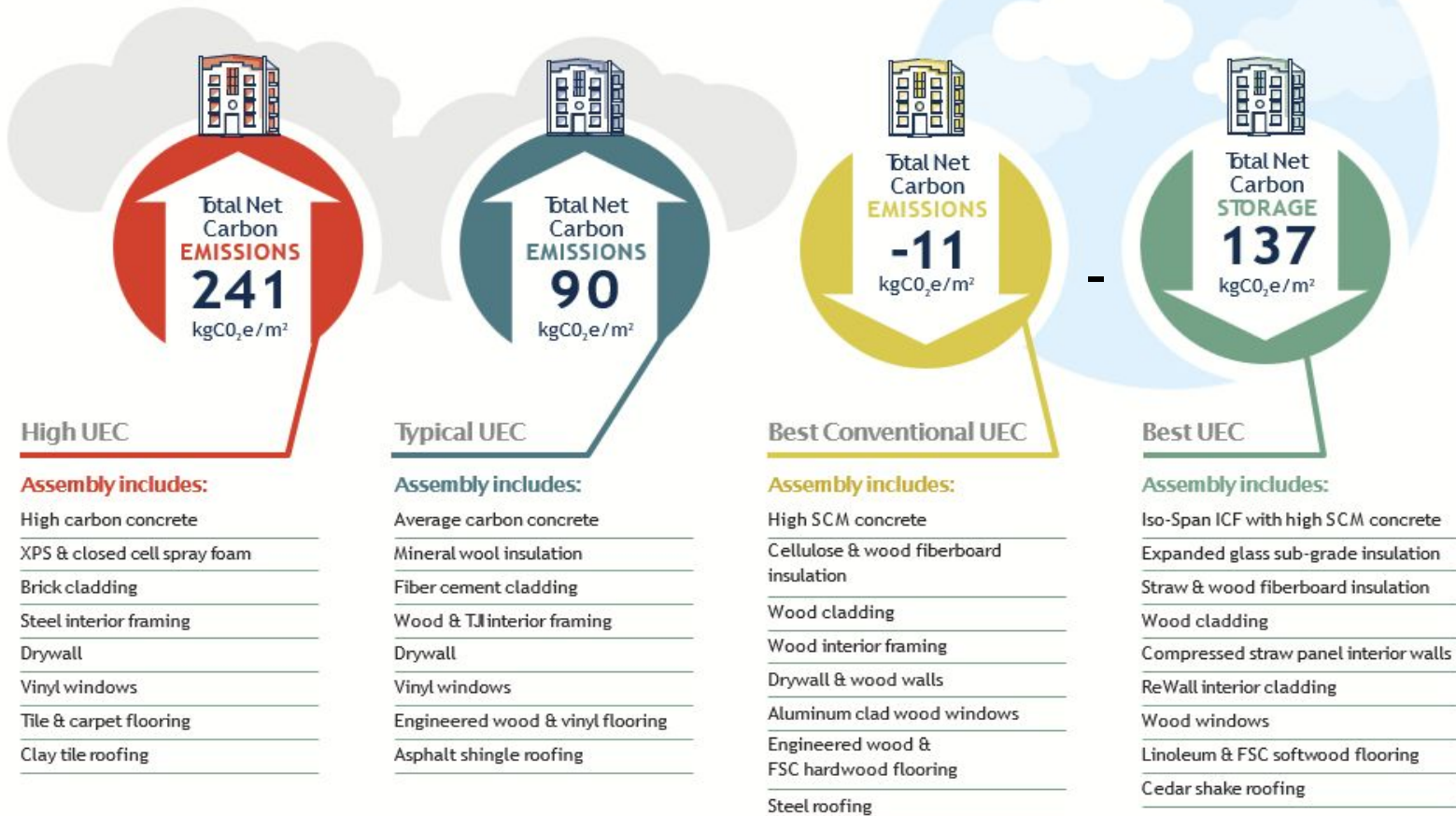
EXTRACTION + TRANSPORTATION + MANUFACTURING
Stages A1-A3 of Life Cycle Assessment



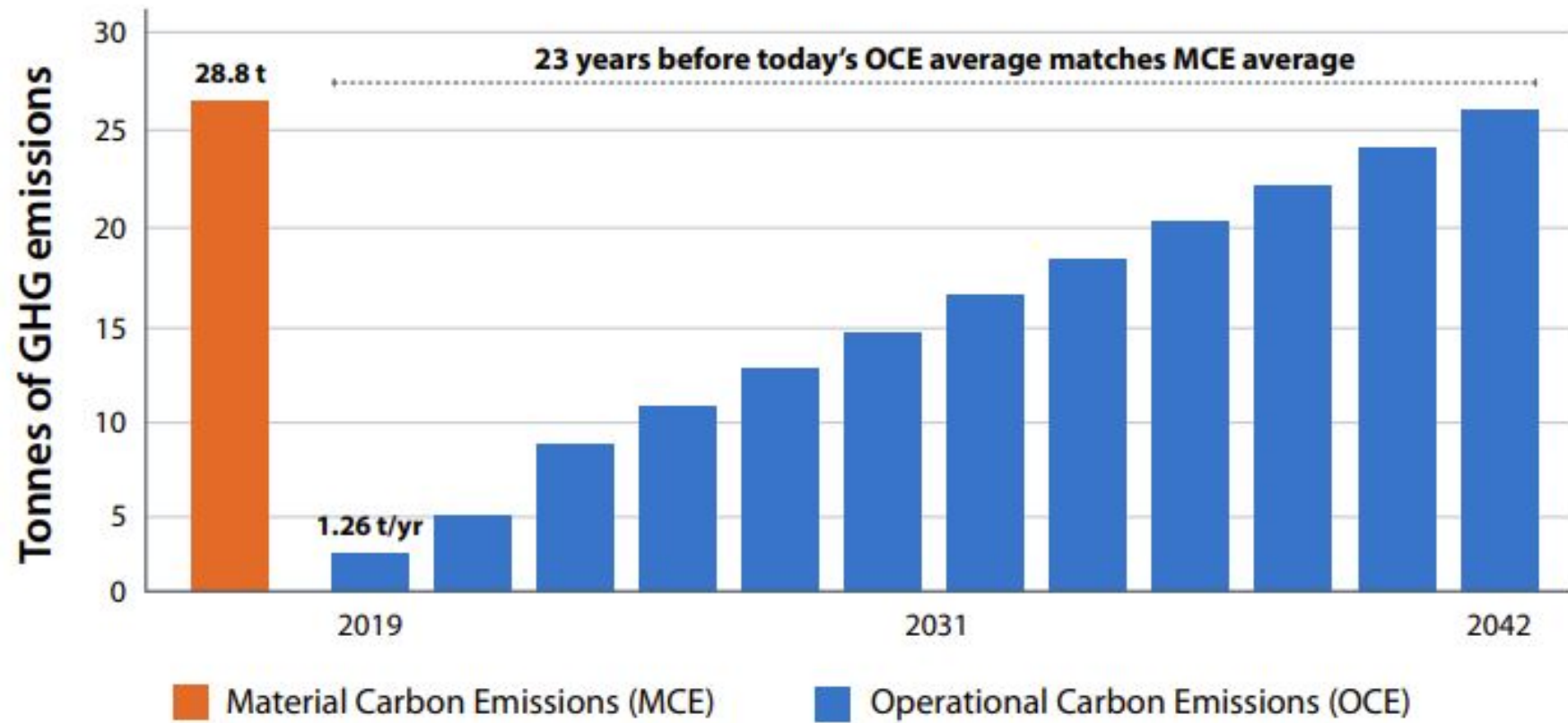
"Cradle to Gate" Emissions

Materials Matter

The same building can have very different up-front embodied carbon emissions (UEC)



Carbon Emissions Typical for Residential Construction



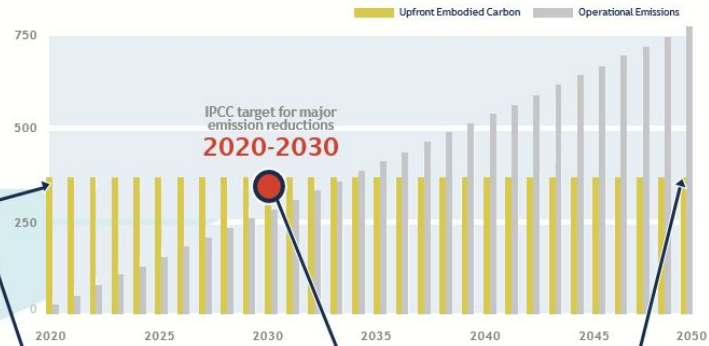
Time is a Critical Factor

TIME is a critical factor

Emissions averted today contribute more to slowing climate change than emissions averted in the future



Total Carbon Emissions of Global New Construction
Every Year from 2020 • Business as Usual Projection



DAY 1

A building will have emitted 100% of its embodied carbon the day it is built

TODAY to 2030

Embodied carbon is the largest contributor of GHGs

BY 2050

Embodied carbon can still be the majority of emissions

There are many building materials that are:

- ✓ **highly effective**
- ✓ **renewable**
- ✓ **have low embodied carbon**
- ✓ **do not have adverse health effects on humans**
- ✓ **natural**



Natural Carbon Sequestering Materials



Natural Building Materials

- Insulation from natural, mostly plant-based, often recycled materials.
- Wood-frame construction
- All plant-based materials sequester carbon. Product of photosynthesis.
- Buildings can provide an ecological service *in addition* to shelter, and can help mitigate climate change.
- Natural materials are healthier for the home's occupants and the builders.



HIGH

LOW

Bungalow
Prince Albert
High Carbon Material Selection
Tier 5
Embodied Carbon Intensity 748 kg CO₂e/m²
Embodied Carbon 185 t CO₂e



Bungalow
Prince Albert/Quebec City/Halifax/Toronto/Vancouver
Best Possible Carbon Material Selection
Tier 5
Embodied Carbon Intensity -42 kg CO₂e/m²
Embodied Carbon -11 t CO₂e

Two-storey house
Prince Albert
High Carbon Material Selection
Tier 5
Embodied Carbon Intensity 758 kg CO₂e/m²
Embodied Carbon 177 t CO₂e



Two-storey house
Quebec City / Prince Albert
Best Possible Carbon Material Selection
Tier 5
Embodied Carbon Intensity -88 kg CO₂e/m²
Embodied Carbon -21 t CO₂e

Row house end unit
Prince Albert
High Carbon Material Selection
Tier 5
Embodied Carbon Intensity 621 kg CO₂e/m²
Embodied Carbon 92 t CO₂e



Row house end unit
Quebec City / Prince Albert
Best Possible Carbon Material Selection
Tier 5
Embodied Carbon Intensity -48.0 kg CO₂e/m²
Embodied Carbon -7 t CO₂e

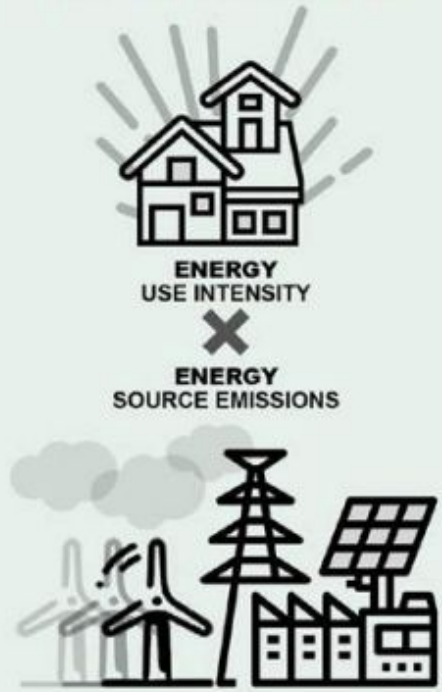
Figure 6 Visual summary of highest and lowest material carbon intensity and carbon emissions for the three archetypes

**MATERIAL
CARBON EMISSIONS**



+

**OPERATIONAL
CARBON EMISSIONS**



=

**CARBON USE
INTENSITY**

CUI

Figure 15 Carbon Use Intensity (CUI) a combined metric of upfront MCE plus OCE

Municipal opportunities for climate action:

- Implement embodied and operational carbon targets.
- Incorporate embodied carbon standards in procurement policies.
- Provide incentives based on reductions from embodied carbon targets.
- Prioritize projects which incorporate adaptive reuse.
- Measure the carbon use intensity of all construction.
- Join the fossil fuel non proliferation treaty



Take Action! Get involved!

- Ask your municipality to prioritize climate friendly buildings
- Ask your mortgage broker/insurance company to provide financial incentives for climate resilient and mitigating buildings
- Avoid red list materials “no vinyl, that’s final”
- No fossil fuels (no ~~natural~~ methane gas in your home or community!)
- Ask your municipality to join the Fossil fuel non proliferation treaty – no new fossil fuel infrastructure
- Become a plastic free community <https://bluebayfield.ca/get-involved/>
- Support local orgs: CAM, the Muskoka Community Land Trust
- Ask for upfront carbon information on everything you buy!



Tell your builder/Direct your builder



- You want a net zero carbon and energy home/renovation
- No vinyl, that's final
- Building science, not rocket science
- Indoor Air Quality – it matters and how you build makes it good or bad! Athsma, viruses, mold and bad smells or a fresh, clean sanctuary? (yes you want an HRV or ERV with hepa filtration, make sure it is a quiet model so you use it!)
- Make all design decisions well ahead of time
- No red list materials
- Get a 3rd party blower door test before and after drywall and at occupancy – give your builder a target they must meet (i.e. .6 ach @50pa)
- Design for the long term - repairable and maintainable vs throw out at end of life, climate resilient and adapted





<https://www.buildersforclimateaction.org/about.html>

HomebuildersCAN

Developed by RMI with an industry stakeholder group, HomebuildersCAN is a community of practice to educate and support builders to reduce the embodied carbon emissions associated with their homes and prepare builders for anticipated regulation and investor pressure.

<https://rmi.org/homebuilderscan/about/>

A few links and resources:

Tooketree Passive House www.tooketree.com

Muskoka Community Land Trust www.muskokaact.org

Vancouver Zero Emissions Buildings program

<https://vancouver.ca/green-vancouver/zero-emissions-buildings.aspx>

RMI Homebuilders CAN www.rmi.org/homebuilderscan

Builders for climate action www.buildersforclimateaction.org

Fossil Fuel Non-Proliferation Treaty <https://fossilfuel treaty.org/>

Living Future RED LIST

<https://living-future.org/red-list/#red-list-and-watch-list-casrn-guide>

Thank-you



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**Muskoka
Community
Land Trust**