

MATERIALS

theme overview
planning & design decisions

goal

ensure the use of green neighbourhood and building practices
reduce the amount of materials used overall

detailed design tasks
fostering sustainable living

A huge proportion of the raw materials in the world economy are used for building and construction activities. This puts pressure on natural resources, results in significant energy use, and often results in negative impacts to human and ecosystem health. Sustainable urban neighbourhoods foster material selection that encourages sustainable harvesting practices, supports local manufacturers, increases building life, and creates the conditions for a healthy indoor environment.

theme overview

why is this theme important?

Forty percent of the raw materials entering the world economy are used for building and construction activities. These materials are produced from non-renewable resources, converted through energy intensive processes and transported over long distances. The increasing demand for housing and construction worldwide is therefore a clear threat to the dwindling supply of the resources and the impacts of transporting materials are felt everywhere – even on the local roads where movement of goods are clogging roads.

Buildings are not typically designed to survive and adapt the fast pace of change in our urban environments. They are demolished because they become functionally, economically or technologically obsolete. This contributes large quantities of waste to landfills and it is wasteful of the precious resources.

why are materials important to emerald hills urban village?

Building materials are not all created equal. Depending on which materials are selected, the overall building or development can encourage sustainable harvesting practices, support local manufacturing companies, reduce the overall carbon dioxide emissions of the product, or create the conditions for a healthy indoor environment. As Emerald Hills is a greenfield development, the environmental impact of the overall development is very much tied to careful material selection.

how can emerald hills urban village impact on this theme?

Using recycled, reclaimed, renewable, local, and low environmental impact materials for development can significantly lower construction costs, and reduce the need for costly material disposal. It will also reduce waste sent to landfills thereby conserving water, land and air resources. Materials with low-toxicity qualifications can ensure the health and well-being of citizens.

summary table of goals and strategies for materials

goals	charrette process strategy
Ensure the use of green neighbourhood and building practices.	Design in conformance with standardized green building rating protocols.
Reduce the amount of materials used overall.	Design compact buildings.

planning & design decisions

general intent of this strategy / A range of green building rating protocols are available that effectively address a series of strategies for dealing with materials. These include LEED-NC, LEED-CI, LEED for Homes, Built Green, BOMA GO Green, and numerous others. Once a decision is made as to which protocol(s) are to be used, careful attention needs to be paid to the requirements and credits at the appropriate scale.



Sustainable materials are those that can be perpetually circulated in closed loops.



Office interiors can now be LEED certified.



More sustainable options to commonly used materials are becoming more readily available.



Buildings are designed to meet recognized green building standards.

goal / ensure the use of green neighbourhood and building practices.

strategy / design in conformance with standardized green building rating protocols.

area i: institutional, residential, commercial

- Buildings are designed to LEED-NC standards, Built Green for Multi-Unit Residential Buildings and/or other rating protocols.
- This includes reducing lifecycle material needs, sourcing materials with low embodied energy, seeking out local and regional suppliers, and incorporating reclaimed and sustainable materials.

area ii: residential, commercial

- Buildings are designed to LEED-NC standards, Built Green for Multi-Unit Residential Buildings and/or other rating protocols.
- This includes reducing lifecycle material needs, sourcing materials with low embodied energy, seeking out local and regional suppliers, and incorporating reclaimed and sustainable materials.

area iii: residential, commercial

- Buildings are designed to LEED-NC standards, Built Green for Multi-Unit Residential Buildings and/or other rating protocols.
- This includes reducing lifecycle material needs, sourcing materials with low embodied energy, seeking out local and regional suppliers, and incorporating reclaimed and sustainable materials.

municipal reserve & public utility lot

- Open space areas and infrastructure are designed to LEED-NC standards, or equivalent.
- This includes reducing lifecycle material needs, sourcing materials with low embodied energy, seeking out local and regional suppliers, and incorporating reclaimed and sustainable materials.

area iv: residential

- Buildings are designed to LEED for Homes, Built Green standards, or equivalent.
- This includes reducing lifecycle material needs, sourcing materials with low embodied energy, seeking out local and regional suppliers, and incorporating reclaimed and sustainable materials.

area v: residential

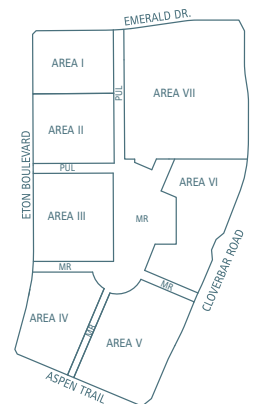
- Buildings are designed to LEED for Homes, Built Green standards, or equivalent.
- This includes reducing lifecycle material needs, sourcing materials with low embodied energy, seeking out local and regional suppliers, and incorporating reclaimed and sustainable materials.

area vi: residential, commercial

- Buildings are designed to LEED-NC standards, Built Green for Multi-Unit Residential Buildings and/or other rating protocols.
- This includes reducing lifecycle material needs, sourcing materials with low embodied energy, seeking out local and regional suppliers, and incorporating reclaimed and sustainable materials.

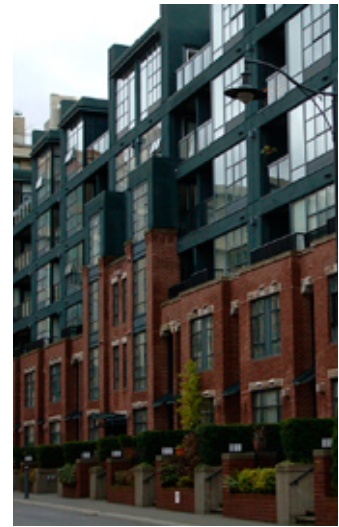
area vii: commercial, residential

- Buildings are designed to LEED-NC standards, Built Green for Multi-Unit Residential Buildings and/or other rating protocols.
- This includes reducing lifecycle material needs, sourcing materials with low embodied energy, seeking out local and regional suppliers, and incorporating reclaimed and sustainable materials.



planning & design decisions

general intent of this strategy / By having medium to higher residential density the predominant building form in the Village, housing types are incorporated that are more compact. This results in a reduced pressure on the amount of materials required.



Compact design can be applied to all building archetypes.

goal / reduce the amount of materials used overall.

strategy / design compact buildings.

area i: institutional, residential, commercial

- Apartment (life-lease senior residences), assisted living, and extended care facilities ranging from 2-14 stories are incorporated.

area ii: residential, commercial

- High-rise apartment and mid/low rise apartments provide housing in a more compact form of development.

area iii: residential, commercial

- High-rise apartment and mid/low rise apartments provide housing in a more compact form of development.

municipal reserve & public utility lot

- The network of greenway corridors and public / private outdoor spaces supports the compact development by offsetting the intensity of development and emphasizing the distribution of land uses.

area iv: residential

- Attached bungalow and single-loaded corridor units provide for housing in a more compact form of development.

area v: residential

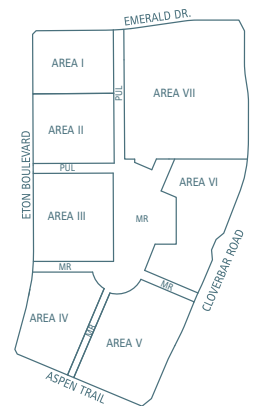
- Townhouse units provide housing in a more compact form of development.

area vi: residential, commercial

- High-rise apartment and mid/low rise apartments, along with commercial buildings provide housing and office space in a more compact form of development

area vii: commercial, residential

- Mixed-use commercial buildings of various heights are incorporated, and over time become more compact through infill.



detailed design tasks

general intent / This section highlights design tasks flagged during the charrette process as needing to be addressed during the detailed design process. LEED for Neighbourhood Development prerequisites and credits are to be satisfied.

detailed design tasks

- Ensure that infrastructure and building design strives to achieve the highest possible LEED-NC, Built Green for MURBS, and LEED-CI materials criteria as appropriate.
- Incorporate Optimum Value Engineering assessment into design process.
- Use a Life Cycle Assessment decision support tool during building design.

related leed-neighbourhood development credits

No credits available for Emerald Hills Urban Village.

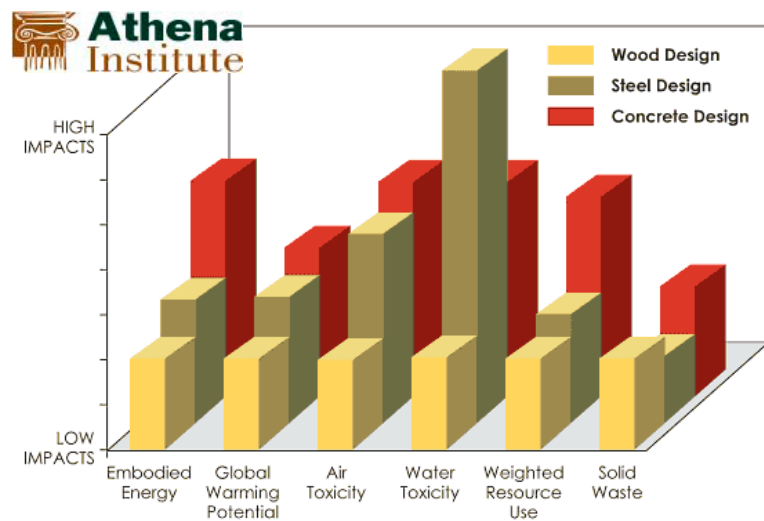
See www.usgbc.org for more information.



Use reclaimed material as an architectural feature.



Canada's first LEED Platinum building - Strive to achieve the highest possible green building standards.



Source materials with low embodied energy and low embodied effects.

fostering sustainable living

general intent / The detailed design decisions that enable sustainable development at Emerald Hills Urban Village must also foster sustainable living. The Strategies and Initiatives/Activities identified below represent an initial framework and point of departure for generating a Fostering Sustainable Living Program at the Urban Village. They are intended to provide the integrated design team with the sustainable living lens that is to be applied to all detailed design decisions. It is recognized that these lists will evolve and be refined as the detailed design for the Urban Village emerges.

strategies

- Ensure detailed design of built environment supports alternative material choices.
- Engage all Village citizens in creating an 'alternative material choices' program.
- Create partnerships with local NGOs working on sustainable material issues.
- Leverage green purchasing power to support sustainable material suppliers and build local capacity.
- Introduce community-based social marketing (CBSM) programs to foster sustainable material choices.
- Promote awareness-building and community mapping.

initiatives / activities

- Interpretive signage highlighting best materials practices in demonstration sites throughout Village.
- Host annual 'Green Consumers Fair' at the Village.
- Free 6 month supply of green cleaning products to each new Village resident.
- 'Healthy Material Choices' section in the "Living Smart at the Village" intranet handbook.
- Village / community mapping of green material products, services and opportunities.
- Green Alberta - Online Green Products Database (www.greenalberta.ca).
- 'Smart Material Choices' - a CBSM program to foster sustainable material choices.



Provide signage promoting best material practices.



Make sustainable material choices - Support green suppliers and retailers - Buy locally.