

Canada united in the achievement of zero waste, now and for future generations

CONSTRUCTION & DEMOLITION WORKING GROUP 2017 WORKPLAN

CONTEXT & LANGUAGE

Design Portfolio Matrix (from Packaging Group)

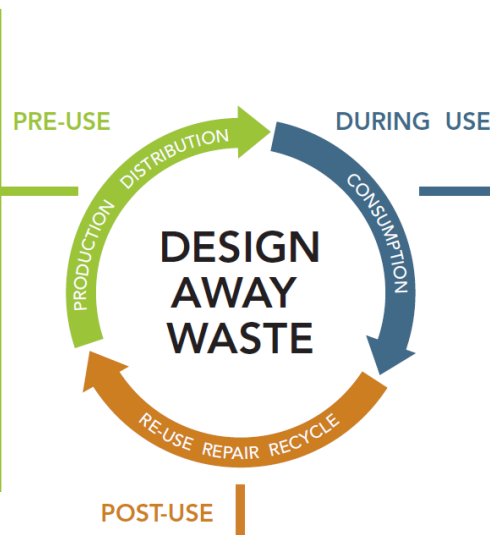
DESIGN PRINCIPLES FOR WASTE PREVENTION

4.3 - Attachment 1

- Design to source rapidly renewable, re-used, reclaimed, or recycled materials using low-waste extraction
- Choose materials wisely, considering post-use pathways
- Dematerialize; use less to make as much
- Add value to byproducts for use in other industries
- Use energy efficient and low waste manufacturing and transport
- Lightweight the products and packaging while preserving recyclability
- Minimize packaging relative to product size

What waste is created at each stage upstream?

What can we redesign?



- Design for what the user needs, without excess
- Optimize performance for the application
- Design for durability and repair
- Provide clear instructions for proper use
- Ensure accurate 'green' marketing claims
- Use requires low or no energy
- Plan a repair program

Will using this create solid waste?

How can we prevent or reduce the amount of waste created?

Can we enhance performance during use?

POST-USE

- Design for modularity; ease of repair, parts replacement or disassembly for recycling
- Reuse by user or by another industry
- Recyclable or Compostable
- Include instructions for disposal

How will the user know what to do once they're done using the item?

Communicate with waste handlers to understand and design for the post use reality of your products and packaging.

Waste prevention starts where design begins

The National Zero Waste Council offers these Design Principles for Waste Prevention and Systems-Thinking. Use these to put your company's design thinking to work designing away waste throughout the product or package life cycle.

To read the full list of Design Principles, visit: nzwc.ca/focus/design/principles-and-reviewers

Hierarchy of Waste Management (From Food Waste Study)

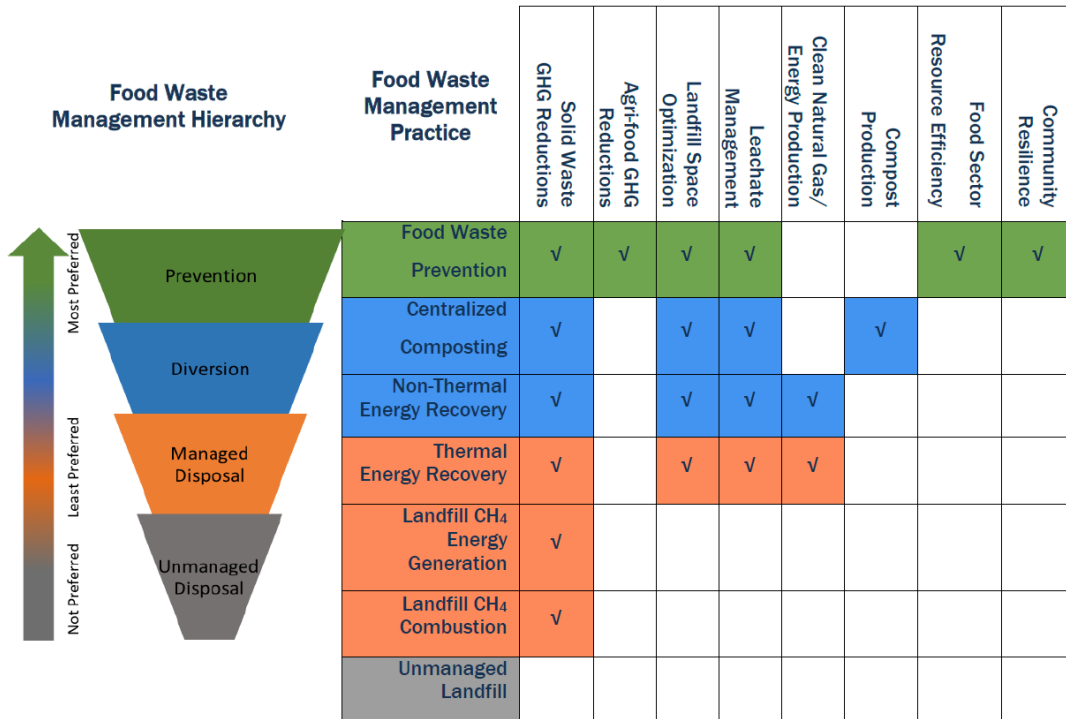


Figure 1: Food Waste Management Practice Hierarchy and Benefit Summary

Working Group Member Matrix

Stakeholder	Groups	Targeted Participants	#	Pre use	During use	Post Use	Key Action
Owner	Municipalities	Richmond, Surrey	2	x	x	x	Align objectives of Engineering, Sustainability + Procurement
Material Supply	Construction Material Suppliers	Lafarge, BASF	2	x	x		Determine methodology to optimize use of recycled materials while ensuring performance
Construction	Contractors + Engineers	Stuart Olson, VCRA (Helen Goodland), Integral	3		x	x	Determine methodology process + metrics to reward desired behaviour of Sustainability and NZW at equal or less cost
Waste Management / Recyclers	Municipal Private Industrial	GeoCycle				x	Determine methodology to minimize cost and maximize diversion to high value state
Other	Finance, Audit, Metrics	Deloitte, CanBim, MMCD	3	x	x	x	Build simple metrics that are easy to understand, simple to collect and auditable

Procurement as a Key Enabler

Advances have been made in the ability to utilize recycled materials and quantify life cycle value that the current procurement process does not fully leverage. By aligning the objectives of sustainability, engineering and procurement departments together with stakeholders from different stages of the construction process there is an opportunity to understand linkages to encourage desired behavior, identify roadblocks and improve results (cheaper, faster, greener.)

Key linkage to examine:

- *Inputs vs Outputs*
- *Specification vs performance*
- *Capability vs performance*
- *Procurement process vs performance*
- *Definitions of value – Engineering and Sustainability*
- *Quantification of value – life cycle vs NZW vs Cost vs Time*

Process to examine:

- *BIM to define value*
- *Definition and use of metrics*
- *Certification vs testing*

