GUIDE

ECO-DESIGN AND CONSTRUCTION WASTE SEPARATION

TRAVEL BETTER THANKS TO CIRCULAR ECONOMY

Tools to Support the Adoption of Circular Economy Practices in Tourist Accommodations.

Image: Hôtel La Libertad

Construction waste accounts for nearly one third of all waste disposed of in Québec[1].

Figure 1 summarizes the key elements to consider throughout the entire life cycle of construction and renovation projects—from design, through construction and operation, to the end of the building's useful life. It is essential to ask the right questions at the right time in order to optimize residual materials management at each stage. This approach requires close collaboration among all stakeholders involved.

More specifically, the different steps shown in Figure 1 are described in the table on page 3.

[1]2023 Report – Étude de caractérisation des matières résiduelles acheminées à l'élimination 2023

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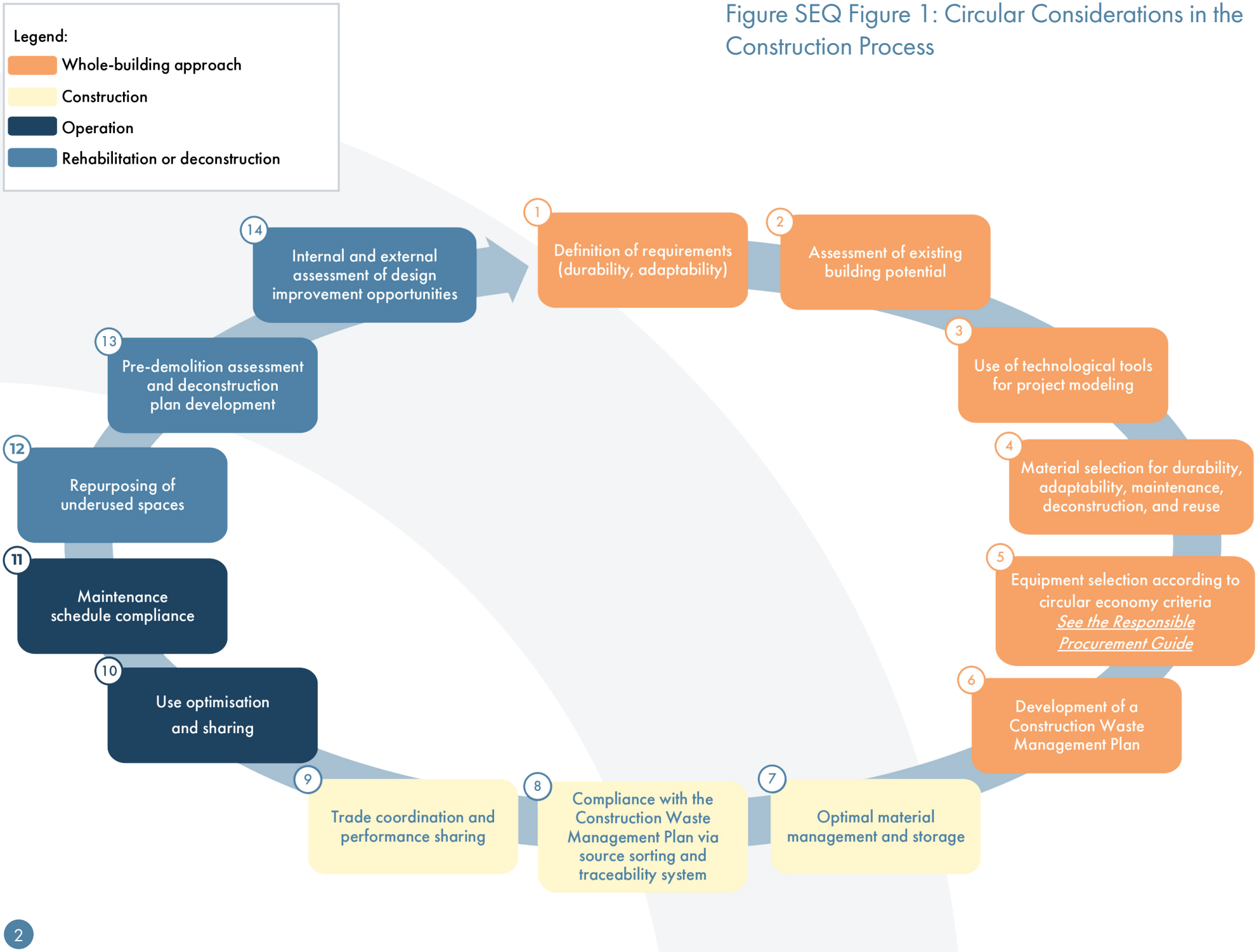
Figure SEQ Figure 1: Circular Considerations in the Construction Process



STEP	STAGE NAME	DESCRIPTION
1	Definition of the requirements (durability, adaptability)	Defining the requirement is an important stage in preventing waste generation throughout the building's life cycle. This stage is intended as a pause for reflection to consider several key questions, including: • How long will the building serve its intended purpose? • Can the building accommodate a variety of uses? • Are the facilities generic or specialized? • Is the design driven by current trends or timeless factors? • Could the need be met in ways other than a construction or renovation project?
2	Assessment of the potential of existing buildings	The restoration and reuse of existing structures is the best way to reduce construction waste. It also helps lower material costs, protect heritage, and take advantage of the building's aesthetic qualities. In this regard, the various components of the structure should be inspected to ensure their integrity, watertightness, and insulation. Similarly, the presence of contaminants must be verified.
3	Use of technological tools for project modeling	BIM (building information modelling) tools enabling: • the creation of a digital representation of all physical and functional characteristics; • the modelling of the construction site and the optimization of material use; • the centralization of information and the facilitation of the collaborative process.

STEP	STAGE NAME	DESCRIPTION
4	Selection of materials for durability, adaptability, maintenance, deconstruction, and reuse	Beyond the choice of materials, a design with sleek lines helps reduce the quantity and diversity of materials. Furthermore, several selection criteria should be considered, such as the material's technical properties, the percentage of recycled content, ease of repair, recycling, and reuse, as well as expected lifespan and origin. Eco-design of a project therefore involves not only planning for minimal and efficient material use, but also integrating climate resilience into the initial design, such as by planning a project that reduces energy or water consumption. Certain clauses may be added to calls for tenders. A webinar and a FAQ (Frequently Asked Questions) are also available on the RECYC-QUÉBEC website.
5	Selection of equipment according to circular economy criteria	The Responsible Procurement Guide provides a comprehensive overview for selecting equipment from a circular economy perspective.

Image: Hôtel Albert par G5

Image: Auberge Saintlo Montréal

STEP	STAGE NAME	DESCRIPTION
6	Development of a construction waste management plan	A PGRC consists of seven main stages and must be developed in collaboration with the contractor carrying out the work: 1. Assess the materials that will be generated and estimate quantities for each construction phase; 2. Identify materials that can be sorted, prioritizing those that will be generated in large quantities; 3. Contact the various potential collectors to verify the requirements. Consult the list of sorting centres recognized by RECYC-QUÉBEC and check the services provided by your municipality; 4. Confirm the materials to be sorted, establish the sorting schedule, and list the people involved; 5. Appoint a person responsible for implementation and monitoring; 6. Integrate the information into the project timeline; 7. Prepare signage for the equipment corresponding to the different sorted materials.
7	Optimal management and storage of materials	It is estimated that between 10% and 30% of all materials delivered to a construction site (by weight) are wasted due to damage, loss, and poor management. Optimizing waste and surplus for future use is therefore part of sound construction site waste management.
8	Compliance with the construction waste management plan through source sorting and traceability	During the implementation of the PGRC (see point 6), several factors can ensure the success of the source sorting project: • Order the collection equipment according to the established schedule; • Place the containers as close as possible to the points of generation. Verify the methodology withe the people involved. • Place signage on the containers and bins; • Train all employees; • Check for contamination regularly and respond to questions and suggestions from those involved. In addition, to ensure that construction waste containers reach their intended destination with the collector, you can: • Request a delivery slip; • Order a sorting report; • Require traceability (georeferenced tracking of material movements).

STEP	STAGE NAME	DESCRIPTION
9	Trade coordination and performance sharing	Training employees in source sorting is essential to ensure sound management of the residual materials generated on the construction site. Similarly, sharing results and best practices, as well as demonstrating your commitment, are factors that encourage engagement.
10	Optimization and sharing of spaces	To make better use of available space, we can seek to optimize and share its use, taking into account both time and space. This implies that the same space can be used for different types of activities or users at different times. This principle helps to limit the periods during which the space remains unused. For example, an organization can offer its underused premises in the evening to another local association, or share a storage space with a neighbouring company. To implement this type of sharing, several aspects can be considered: • Usage schedules; • The different possible uses of the space; • The different types of users with access to the space.
11	Compliance with the maintenance schedule	The maintenance schedule created during commissioning must be followed in order to ensure the building's lifespan and reduce work involving the generation of waste. Similarly, regular inspections help prevent isolated incidents or address them before they worsen.
12	Process for repurposing underused spaces	Beyond optimizing and sharing usage, spaces that are no longer used (or underused) should undergo a repurposing process to find new uses. Communications can be initiated to assess needs. The adaptability planned during the design phase is particularly beneficial at this stage.
13	Pre-demolition assessment and deconstruction plan development	As with the PGRC, the pre-demolition assessment and deconstruction plan aim to implement source sorting and facilitate the reuse or recycling of materials. Step-by-step and material-specific dismantling is particularly effective. The sale of used goods, equipment, and materials can help make the deconstruction project more cost-effective. It is also important to consider the reuse or refurbishment of materials during renovations.

STEP	STAGE NAME	DESCRIPTION
14	Internal and external assessment of design improvement opportunities	A post-project review is essential to identify and understand best practices to replicate and areas for improvement. This post-project review is an opportunity to encourage reflection and should be conducted throughout the building's life cycle. For example, could maintenance have been improved to ensure the quality of materials during deconstruction? Similarly, should the materials used have been reconsidered to simplify the sorting process? Could the building have been used for other purposes that would have benefited the community?

Digital Product Passport

New European regulations have introduced the Digital Product Passport to enhance product traceability and environmental performance. This passport provides digital access to all key information, including the materials used and their life cycle.

In the construction sector, this contributes to digitalization and facilitates the calculation of a building's carbon footprint. The Digital Product Passport includes, for example:

- The EU declaration of conformity;
- The performance requirements;
- The digital instructions for use and safety information;
- Technical documentation and performance label (e.g., energy) comparing the product with other products;
- A unique identifier with access via QR code or watermark.

This system promotes transparency, regulatory compliance, and supports efficient resource management. In the near future, Quebec could draw inspiration from it to strengthen product transparency obligations, more accurately assess environmental impacts, and encourage more responsible practices in the construction sector.

USEFUL RESOURCES

The following resources provide guidance for enhancing construction, renovation, and demolition (CRD) waste management practices:

RECYC-QUÉBEC website highlighting challenges and tools for effective CRD waste management (in French only):	https://www.recyc-quebec.gouv.qc.ca/entreprises-organismes/performer/crd/
List of construction, renovation and demolition (CRD) sorting centres recognized by RECYC-QUÉBEC (in French only):	https://www.recyc-quebec.gouv.qc.ca/sites/default/files/documents/liste-centres-tri-crd.xlsx. Selecting a recognized sorting centre ensures that CRD residues are managed in compliance with standards and with guaranteed traceability. This approach promotes material recovery by maximizing reuse or recycling, while contributing to environmental protection.
Responsible Procurement Guide	
Resources available on the Resources—Lab construction page (in French only)	For example : • Design clauses to support circular economy in buildings; • A toolkit to manage a deconstruction project; • A recommendation guide to facilitate the reuse of existing materials and the repurposing of built heritage.
Clauses de gestion des matières résiduelles dans les projets de construction, de rénovation et de déconstruction (CRD) Tool (in French only). [Online] Available at:	https://www.recyc-quebec.gouv.qc.ca/sites/default/files/documents/outil-ecpar-clauses-ao-crd.xlsx

Webinar presenting the residual materials management clauses tool for CRD projects (in French only):	Les Rendez-vous RECYC-QUÉBEC - RECYC-QUÉBEC
For further information on the new European regulations (digital product passport):	Regulation - EU - 2024/1781 - EN - EUR-Lex
Plan de gestion des résidus de construction (PGRC) developed by Stratzer and APCHQ (in French only) :	https://media.apchq.com/QIiEY8ITQfa3f_E_wsBxtg/25008-jlv-25-com-plan-gestion-residus-v1.pdf

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Association des professionnels de la construction et de l'habitation du Québec (APCHQ) and Stratzer (s.d.). PGRC : Plan de gestion des résidus de construction.(in French only). [Online] Available at: 25008-jlv-25-com-plan-gestion-residus-v1.pdf

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Produced by Stratzer, this tool was developed thanks to the collaboration and financial support of RECYC-QUÉBEC and the ministère du Tourisme, as part of the circular economy showcase project for the tourist accommodation sector.