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# POLICY REPORT ENVIRONMENT

Report Date: July 18, 2011

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VanRIMS No.: 08-2000-20 Meeting Date: July 26, 2011

TO: Vancouver City Council

FROM: Director of Sustainability in consultation with the Director of Planning,

General Manager of Engineering Services, the Chief Building Official and

the Director of Development Services

SUBJECT: Advancing Deconstruction in Vancouver and Supporting By-Law

**Amendments** 

### **RECOMMENDATION**

- A. THAT Council receive for information an update on strategies being taken by the City and Metro Vancouver to advance the practice of deconstruction in Vancouver as a means of diverting waste, promoting reuse of materials, and creating "green jobs".
- B. THAT the Director of Planning be instructed to make an application to amend Section 5.7 and Section 10.12 of the Zoning and Development By-law to allow, in the case of deconstruction of one and two family dwellings, a building permit to deconstruct to be issued in advance of a development permit, and that the application be referred to a Public Hearing together with:
  - (i) draft by-law amendments, generally as presented in Appendix A; and
  - (ii) the recommendation of the Director of Planning to approve.
- C. THAT subject to approval of the amendments to the Zoning and Development By-law at the Public Hearing, consequential amendments to the Vancouver Building By-law to support deconstruction and support compliance with existing waste disposal regulations be approved;

FURTHER THAT the Director of Legal Services be instructed to bring forward the necessary amending by-law, generally in accordance with Appendix B, at the time of enactment of the amendments to the Zoning and Development By-law.

- D. THAT Council instruct staff to explore with partners the development of resale facility (deconstruction centre) for salvaged materials.
- E. THAT Council instruct staff to use deconstruction practices in city operations where practical and appropriate.

## CITY MANAGER'S COMMENTS

The City Manager RECOMMENDS approval of the above recommendations, recognizing that deconstruction will support two of Council's key priorities — to achieve zero waste and foster a green economy — helping Vancouver to become the greenest city in the world by 2020.

### COUNCIL POLICY

October 2009: Council received the *Greenest City Action Team 2020* report and directed the City Manager to work with staff and report back with recommendations on practical implementation steps to meet the targets set out in the report.

July 2010: Council adopted various recommended amendments to Metro Vancouver's April 28, 2010 draft *Integrated Solid Waste and Resource Management Plan* (ISWRMP). One of those recommendations was to revise the draft ISWRMP to indicate that it is Metro Vancouver's intent to implement disposal bans covering clean wood waste no later than 2015. Council also directed staff to report back with recommendations for banning the disposal of clean wood waste at the Vancouver South Transfer Station and the Vancouver Landfill.

July 2010: Council received for information a draft visioning document titled *Solid Waste Stewardship 2020*, which articulated a vision for solid waste management in Vancouver.

January 2011: Council adopted various Greenest City 2020 targets, including reducing total waste to landfill or incinerator by 50% from 2008 levels.

March 1, 2011: Council endorsed the general approach outlined in Metro Vancouver's draft Integrated Solid Waste and Resource Management Plan (ISWRMP) including municipal actions focussed on demolition, land clearing and construction (DLC) diversion:

- Work with Metro Vancouver to develop a process to require DLC recycling at construction/demolition sites.
- Review municipal DLC permitting processes with a view to requiring waste management plans as a condition of such permits.
- Review the desirability and feasibility of deposit systems or other financial incentives to increase enforcement of DLC waste management plans.

Section 5.7 of the Zoning and Development By-law sets out exemptions from development permit requirements in relation to demolition.

Section 10.12 of the Zoning and Development By-law restricts issuance of a building permit to demolish until a development permit for the new development has been issued.

### **SUMMARY**

Deconstruction is the practice of systematically disassembling a building in order to maximize the reuse, recycling or recovery of building materials thereby avoiding disposal to landfill or mass burn incinerator. By using deconstruction practices it is possible in some cases to keep up to 93% of a building out of the waste stream. Deconstruction typically takes longer and is more labour intensive than conventional demolition which can result in higher initial costs. Demolition can be undertaken by one person using large hydraulic machinery with unsorted materials being loaded into a large bin and taken to disposal facilities. In contrast, deconstruction typically uses a crew of people using both manual and mechanical techniques to disassemble the building and sort materials on-site. For these reasons, deconstruction is not common practice among demolition contractors.

Deconstruction is a strategy that can achieve multiple benefits including, waste diversion, green job creation, improved site cleanliness and safety, and can actually aid in the preservation of heritage structures by making appropriate period materials more available.

As a first step to encouraging deconstruction in Vancouver, staff are focusing on facilitating deconstruction in the one and two family home sector. Estimates are that one and two family home demolitions are the single largest source of wood waste generated; demolition waste from the one and two family homes has a lower diversion rate than larger buildings; and the development permitting process for one and two family homes is structured in such a way that there is no incentive for contractors to take the time necessary to demolish by deconstruction.

In early 2011, the City partnered with industry on a pilot project to deconstruct two Vancouver homes in order to gain a better understanding of the deconstruction process and potential waste diversion rates. Based on the findings of the pilot and research into what other cities are doing, staff propose as a strategic first step the establishment of a voluntary 'deconstruction' option as an alternative to 'standard demolition' for one and two family dwelling development projects. The deconstruction option would be structured to allow the additional time necessary to undertake deconstruction, without disadvantaging these projects from a scheduling perspective. Participants who deconstructed under this option would actually have the significant advantage of being able to start construction (having already cleared their site) as soon as their building permit was issued. Participants who opt in would be issued a building permit to demolish by deconstruction in advance of issuance of their development permit, which is different from current practice wherein a building permit to demolish is issued at the same time as a development permit. The purpose of this 'decoupling of permits is to counterbalance a developer's inclination to finish demolition as quickly as possible in order to begin construction sooner. Under this new process the incentive will be to deconstruct as it will be those projects that will be able to start construction the earliest. Amendments to the Zoning and Development By-law are required in order to 'decouple' the permits.

## **PURPOSE**

The purpose of this report is to:

- (1) provide information on strategies being taken by the City and Metro Vancouver to advance deconstruction in Vancouver, which include pilot programs, supply chain analysis, and market capacity building programs
- (2) recommend an incentive for deconstruction by proposing amendments to the Zoning and Development By-Law in order to allow a building permit to demolish to be issued in advance of a development permit for projects that demonstrate the intent to demolish by deconstruction
- (3) recommend amendments to the Vancouver Building By-law to define what constitutes deconstruction and encourage compliance with waste disposal regulations which will improve waste diversion overall.
- (4) outline procedures for implementing a new process once the Zoning and Development By-law and Building By-law changes have been enacted.

#### **BACKGROUND**

In July 2010, Council received staff's comments on Metro Vancouver's April 28, 2010 draft *Integrated Solid Waste and Resource Management Plan* (ISWRMP) and proposed several amendments. Many of those amendments were incorporated into an updated version of the plan, endorsed by the Metro Vancouver Board in June 2010. The first two goals of the ISWRMP are to minimize waste generation and maximize reuse, recycling and material recovery. The ISWRMP establishes a target of at least 70% waste diversion by 2015 and an aspirational target of 80% by 2020, compared to the current actual diversion rate of 55%. The overall 70% diversion target implies 80% diversion of all materials coming from the Demolition, Land Clearing and Construction (DLC) sector by 2020.

The ISWRMP proposes various strategies and actions for achieving DLC targets by 2015 which are expected to divert an additional 155,000 tonnes annually of DLC waste - primarily wood. Priority actions include:

- (1) banning wood waste from disposal,
- (2) providing depots for convenient collection of wood, and
- (3) mandating waste reduction and recycling on construction and demolition projects.

Metro Vancouver estimates construction and demolition activities generate approximately 1.3 million tonnes of waste annually with 900,000 tonnes being recycled and the remainder being disposed. The two main DLC disposal facilities in the region are the Vancouver Landfill and the privately owned Ecowaste Landfill. Select loads of DLC waste are accepted at the Vancouver Landfill at a lower rate than garbage and used for beneficial means including contouring a previously closed area of the Landfill or constructing drainage and gas collection layers. Contouring will likely be completed within 2-3 years while construction of drainage and gas collection layers is ongoing with waste placement. DLC waste in smaller loads is dropped off at public transfer facilities (approximately 150,000 tonnes) then hauled commingled with garbage to a public disposal facility (Vancouver Landfill, Metro Vancouver Waste to Energy Facility or Cache Creek Landfill).

In January 2011, reduced disposal fees for loads of clean wood waste were introduced at the Vancouver South Transfer Station and the Vancouver Landfill to encourage the diversion of this material. Since program inception, over 1700 loads (approximately 700 tonnes) of clean wood waste have been diverted from the waste stream. It is generally recognized that the demolition of single-family homes is the primary source of wood waste within the region.

In November 2010, City staff hosted a workshop on deconstruction that included members of Council, stakeholders from the building and demolition industries, and social development non-profits. The workshop featured Dave Bennink of RE-USE Consulting, who is an expert on deconstruction/green demolition and salvage in the US. Discussion focused on deconstruction as a method to divert and reuse DLC waste while also creating opportunities for "low threshold jobs" and "green" community economic development (CED). Case studies from other North American cities such as Seattle, Chicago, Detroit and Buffalo were presented to illustrate how deconstruction was used successfully as a tool to achieve these outcomes.

In December 2010, the City was approached by Pacific Community Resources Society (PCRS) to participate in a "youth at risk" job training pilot that would use deconstruction as a vehicle to teach job and life skills. The pilot involved deconstructing two Vancouver homes, in which the type, quantity and end-use (reuse, recycling or disposal) of waste was tracked and recorded by PCRS. The City's role in the pilot was to monitor progress and analyze results in order to understand how much waste could potentially be diverted. The pilot also provided an opportunity for the City to assess regulatory barriers and opportunities in regard to deconstruction. The two homes achieved diversion rates of 93% for all building materials. Twenty youth went through job training and worked on the deconstruction projects.

### DISCUSSION

Strategies to Advance Deconstruction:

Staff from the Sustainability Group, Solid Waste Management, Development Services, Planning, and the Vancouver Economic Development Commission, with support from Metro Vancouver, have investigated methods of leveraging deconstruction as an opportunity to help the City achieve its Zero Waste and Green Jobs targets. This initial collaborative investigation showed that integration resulting in a coordinated strategy would be the best approach.

Staff have taken the following strategic steps toward advancing deconstruction in Vancouver:

- collaborating with Metro Vancouver to develop a Market Analysis of Used Building Materials Study in order to determine where market gaps exist
- partnering with industry and non-governmental organizations to deliver pilot programs
- consulting with stakeholders on the concept of establishing industry training programs
- investigating incentive strategies for deconstruction
- investigating regulatory approaches for mandatory DLC recycling based on Metro Vancouver's proposed regulatory framework
- reviewing street space allocation to provide more space for separation of materials on demolition sites
- reviewing DLC tipping fees at the Vancouver Landfill to ensure that they support maximum diversion while also addressing other City objectives
- together with partners, identifying opportunities to further green community economic development through deconstruction projects and potential value-add programs.

## The Proposed Program:

Based on research into successful programs in other jurisdictions, including Seattle, Portland, Chicago and Baltimore, and the results of the recent pilot program, staff have developed an initial strategy to encourage deconstruction through the establishment of an optional program that removes a known barrier to deconstruction.

The Zoning and Development By-law currently limits deconstruction in the one and two family zones in that prior to the demolition of a building, a development permit must first be obtained and the development permit may not be issued until the building permit to construct and demolish are issuable. This does not allow for the additional time needed to undertake deconstruction (deconstruction can take 2 - 6 weeks as compared to 1 - 2 days for conventional demolition). The proposed amendments to the Zoning and Development By-law will 'de-couple' the building permit to demolish from the development permit, in cases where applicants apply for the option to demolish by deconstruction. Consultation with Vancouver's demolition contractors and research from other jurisdictions shows that these changes would improve the viability of deconstruction making it a competitive alternative to demolition and accelerate it being adopted as a common practice.

It is proposed that for one and two family homes, a building permit to demolish by deconstruction will be issued prior to issuance of their development permit provided the applicant:

- (1) demonstrates an intent to undertake deconstruction
- (2) commits to completing a compliance report detailing diversion rates for all waste
- (3) applies for a development permit.

Recognizing that one purpose of the 'coupling' of the building permit to demolish and the development permit was to protect and retain rental housing stock in our City, staff have designed the optional deconstruction program such that it will not impact residential rental buildings. Applicants are required to declare whether their proposed demolition or deconstruction project is used for rental. This serves two purposes: it allows City staff to monitor rental housing stock in the city and also it will help staff determine whether it is appropriate for the project to receive a building permit to deconstruct in advance of a development permit. Finally, the 'de-coupling' of the permits allows applicants to receive their building permit to demolish six weeks in advance of their development permit, so will have limited impact on rental tenants. (See Appendix A for proposed Zoning and Development By-law amendments).

Participants who undertake deconstruction will be expected to meet a minimum diversion rate of 75% of all building materials by weight, excluding materials which are hazardous or banned from landfill. Proof of compliance must be recorded on a Waste Management Plan Compliance Form which is to be submitted following deconstruction. The form tracks the type of salvaged materials, quantity (tonnage or volume) and end-use. The proposed program will not delay processing time for building permit applicants.

Staff recommend that deconstruction be recognized and defined in the Building By-law to align with the Zoning and Development By-law (Appendix B). An administrative bulletin (Appendix C) will detail the following program provisions:

- (1) defining what qualifies as deconstruction
- (2) waste diversion rates for deconstruction
- (3) compliance path for deconstruction
- (4) penalties associated with non-compliance.

It is proposed that the penalties will be:

- (1) a stop work order,
- (2) voiding the permit or
- (3) initiating a Business Licence hearing.

In addition to these recommended amendments, staff continue to strengthen the demolition process in order to provide a high level of public safety around demolition sites. Industry education, in the form of an administrative bulletin, mail-outs, and a dedicated website are being finalized, and demolition checklists for both City staff and demolition contractors are in use. In the case of higher risk type demolitions, building inspectors will initiate a more detailed review of permit applications, including the requirement for a professional engineer to oversee the demolition project.

Staff will report back to Council in 2012 to provide an update on the optional deconstruction program including rate of uptake, impact on staff resources, level of compliance and quality of submissions and documentation.

## Next Steps:

Communications, educational material and process refinement for the optional deconstruction program will be developed prior to the official program start date anticipated in October 2011. Staff will continue with their efforts to promote and develop deconstruction in Vancouver with the immediate focus on:

- (1) building market capacity for used materials
- (2) supporting, where possible, the establishment of deconstruction training programs
- (3) developing strategic policy initiatives.

To support deconstruction, staff will also be studying the impact of increasing DLC waste tipping fees at the Vancouver Landfill and potentially offering preferential tipping fees for Deconstruction residuals. The results of this study will be presented to Council with proposed tipping fee bylaw amendments in fall 2011.

Staff will also support the non profit Pacific Community Resources Society as it engages in a feasibility study of developing a deconstruction centre in Vancouver. The deconstruction centre would offer training and resources to industry, as well as a storage facility and a materials processing centre. The purpose of the centre is to build capacity, facilitate the growth of deconstruction as a mainstream practice in Vancouver, create new 'green' jobs, and further develop the market for used building materials. A review of best practices from other

cities such as Seattle, Portland, Chicago, and Baltimore showed that the establishment of facilities such as the proposed deconstruction centre was critical to the development of a robust deconstruction industry in those cities. Staff will look for opportunities to locate this potential facility in the proposed Green Economic Zone as identified in the recently adopted Final Greenest City 2020 Action Plan.

Following implementation of the voluntary deconstruction program, the goal is to move toward additional programs or policies that support, at a minimum, the DLC diversion targets set out in the ISWRMP. Staff will continue to explore methods of achieving these targets including the feasibility of mandatory DLC recycling programs as outlined in the ISRWMP. Any future proposals for mandatory DLC programs will be informed by the results of this optional program and further consultation with industry.

## FINANCIAL IMPLICATIONS

There are no financial implications.

### **ENVIRONMENTAL IMPLICATIONS**

On average, 750 homes are demolished in Vancouver each year. Based on US Environmental Protection Agency statistics, demolishing a typical home results in approximately 50 tonnes of waste, excluding the concrete foundation. Numerous examples, both locally and throughout the US, show that choosing deconstruction over conventional demolition can keep up to 95% of building materials out of the landfill or incinerator. In addition, deconstruction achieves lowered energy use and greenhouse gas emissions because the re-use of building materials diminishes the need for extraction of resources, manufacturing and transport of new building materials.

### **CONCLUSION**

Advancing deconstruction in Vancouver will help support several of Council's key priorities, including achieving zero waste and fostering a green economy. Implementation of the by-law amendments proposed in this report will facilitate greater uptake by industry of deconstruction as an alternative to standard demolition.

\* \* \* \* \*

# PROPOSED AMENDMENTS ZONING AND DEVELOPMENT BY-LAW

[All additions are shown in **bold italics**. Deletions are shown in strikethrough.]

By-law amendments will be prepared generally in accordance with the provisions listed below and are subject to change and refinement prior to by-law posting.

## Section 5 Exemptions From Development Permit Requirement

A person who complies in all other respects with this By-law, the Parking By-law, other City by-laws, any official Development Plan, and any development permit, to the extent any of them apply to that person's site, need not obtain a development permit for the following development and uses:

- 5.7 The demolition of any building except for
  - a building providing residential rental accommodation or listed on the Heritage Register and
  - ii. a residential building in the RS-1, RS-3, RS-3A, RS-5, RS-6, and RS-7 or First Shaughnessy District (FSD), unless subject to a lawful demolition order or where the demolition is required as a condition of subdivision approval
- 5.7 The demolition of any building, except for a building:
  - (a) used for residential rental accommodation;
  - (b) listed on the Heritage Register; or
  - (c) used for residential accommodation in the RS-1, RS-3 and RS-3A, RS-5, RS-6, RS-7 or First Shaughnessy District (FSD),

except that this section 5.7 does not apply to any building that is:

- (d) residential rental accommodation subject to the provisions of section 10.12.3:
- (e) subject to a demolition order;
- (f) subject to demolition as a condition of subdivision approval; or
- (g) used for residential accommodation in the RS-1, RS-3 and RS-3A, RS-5, RS-6, RS-7 or First Shaughnessy District (FSD) and for which a building permit has been issued to demolish by deconstruction."

## Section 10 General Regulations

## 10.12 Demolition of a Building

- 10.12.1 Except as exempted by the provisions of section 5, no person shall carry out any construction, engineering or other operation in, on, over or under any land which will result in the demolition of a building without first obtaining a development permit for the demolition from the Director of Planning.
- 10.12.2 Except as set out in section 10.12.3, where development necessitates the demolition of existing residential rental accommodation, no development permit shall be issued for the demolition unless and until a development permit for the new development has been issued.

The development permit for the new development shall not be issued unless and until all building permits for the new development and a building permit for the demolition are issuable.

- 10.12.3 The following cases of residential rental accommodation are exempted from the provisions of section 10.12.2:
  - (a) where located in RA-1, or any M or I district;
  - (b) where located in a building damaged or destroyed by fire to the extent of 60 percent or more of its value above the foundations, as determined by the City Building Inspector;
  - (c) where located above a commercial use and where the residential rental accommodation does not predominate in terms of floor space;
  - (d) where located in a building deemed by the City Building Inspector to be beyond reuse or rehabilitation for residential purposes;
  - (e) where located in a building deemed by the City Building Inspector to be appropriate for demolition because of hazard to public health or safety;
  - (f) where located in a multiple dwelling in which units are individually owned in accordance with the Condominium Act and no fewer than 75 percent of them are owner-occupied;
  - (g) where located in a multiple dwelling consisting of a co-operative tenure established prior to legislation permitting condominium ownership; or
  - (h) where located in a building deemed by City Council to be appropriate for demolition because the premises are a nuisance.
- 10.12.4 Except as set out in sections 10.12.6 and 10.12.7, 10.12.7 and 10.12.8, where development necessitates the demolition of (a) a building listed on the Heritage Register or (b) a residential building located in the RS-1, RS-1S, RS-3, RS-3A, RS-5, RS-5S, RS-6, and RS-7 or FSD District no development permit shall be issued for the demolition unless the Director of Planning is satisfied that all applicable policies and guidelines adopted by Council have been met, and until a development permit for the new development has been issued. The development permit for the new development shall not be issued unless and

until all building permits for the new development and a building permit for the demolition are issuable.

- 10.12.5 Except as set out in sections 10.12.6 and 10.12.7, 10.12.7 and 10.12.8, where development necessitates the demolition of a building listed as an "A" Evaluation Group heritage building in the Heritage Register and located in the RM-5, RM-5A, RM-5B, RM-5C, RM-6 or DD District, in addition to the provisions of section 10.12.4, no development permit shall be issued for the new development until the Director of Planning is satisfied with a calculation of density bonus provided by the applicant in accordance with the applicable policies and guidelines adopted by Council.
- 10.12.6 A building deemed by the City Building Inspector to be appropriate for demolition because of hazards to public health or safety is exempt from the provisions of sections 10.12.4 and 10.12.5.
- 10.12.7 A building deemed by City Council to be appropriate for demolition because the premises are a nuisance is exempted from the provisions of sections 10.12.4 and 10.12.5.
- 10.12.8 A building which is a one-family dwelling, one-family dwelling with secondary suite or two- family dwelling, in the RS-1, RS-3 and RS-3A, RS-5, RS-6, RS-7 or First Shaughnessy District (FSD), which is not listed on the Heritage Register, and for which a building permit has been issued to demolish by deconstruction, is exempted from the provisions of sections 10.12.4 and 10.12.5."

## PROPOSED TEXT AMENDMENTS BUILDING BY-LAW No. 9419

[All additions are shown in **bold italics**. Deletions are shown in strikethrough.]

By-law amendments will be prepared generally in accordance with the provisions listed below and are subject to change and refinement prior to by-law posting.

In Part 1 of Division A, in Article 1.4.1.2, after the definition of "Deep foundation", Council adds:

#### 1. Demolition

Demolition means the action or process of demolishing a building, and includes deconstruction

### 2. Deconstruction

Deconstruction means demolition by systematic disassembly of a building resulting in the reuse, recycling or recovery of not less than 75% of all building materials, excluding materials which are hazardous or banned from landfill.



## City of Vancouver Planning - By-law Administration Bulletins

Community Services, 453 W. 12th Ave Vancouver, BC V5Y 1V4  $\oplus$  604.873.7344 fax 604.873.7060 planning@vancouver.ca

## **DECONSTRUCTION**

Authority - City Council Resolution Effective September 2011

## 1 Introduction

On July 26, 2011 Vancouver City Council approved the Deconstruction Strategy, which proposes an alternative to conventional demolition practices as a means of reducing the volume of construction and demolition waste disposed in landfills, while creating new green job opportunities. While Council is supportive of deconstruction as a means of waste reduction and job creation, a barrier to widespread adoption of deconstruction as a common practice is that it takes more time than a conventional demolition. As such, Council supported the recommendation that the Zoning and Development By-law be amended to allow a building permit to demolish by deconstruction to be issued in advance of a development permit, in order to allow the necessary time to complete deconstruction. Council also supported amendments to the Vancouver Building By-law, including a definition of what constitutes demolition by deconstruction, the compliance path for demolition by deconstruction and penalties for noncompliance.

This bulletin will provide information about the benefits of deconstruction, changes to the bylaw and the requirements for deconstruction applicants.

### 2 Deconstruction

Deconstruction means the practice of systematically disassembling a building in order to maximize diversion. Diversion means reuse, recycling or recovery of sorted demolition waste to avoid disposal at a landfill or incinerator. Applicants can opt in to a deconstruction as opposed to a standard demolition on a voluntary basis.

To qualify as a deconstruction, projects must meet the following diversion rate:

• 75% of all building materials, excluding materials which are hazardous or banned from landfill.

## 3 Zoning and Development By-law

Section 5.7 of the Zoning and Development By-law states that rental buildings, heritage buildings and buildings in most residential districts may not be exempted from development permit requirement before demolition. Section 5.7 has been amended to allow an exemption for buildings within R-zoned residential districts for which a building permit has been issued to demolish by deconstruction.

Section 10.12 of Vancouver's Zoning and Development By-law regulates the demolition of a building, and stipulates that "...no development permit shall be issued for the demolition unless and until a development permit for the new development has been issued." Section 10.12 has been amended to allow a building permit to demolish by deconstruction to be issued in advance of a development permit.

## 4 Submission Requirements

For one and two family homes, applicants will be eligible to receive a building permit to demolish by deconstruction prior to issuance of their development/building permit provided they meet the following conditions:

- (1) Demonstrate the intent to undertake deconstruction by signing a letter of intent,
- (2) Commit to generating a waste management plan compliance report detailing diversion rates for all waste, and
- (3) Have an active development/building permit application in progress.

Upon issuance of a building permit to demolish by deconstruction, applicants will be expected to deconstruct the home and strive to maximize diversion of waste from landfill. Salvaged building materials must be tracked, measured (tonnage or volume), and end-use recorded on a waste management compliance report.

### 5 Penalties

Based on the degree of non-compliance, failure to comply with the stipulations of a building permit for demolition by deconstruction could result in:

- (1) Stop work order,
- (2) Revoking of permit, and/or
- (3) Business Licence hearing.