PROVINCIAL DEMOLITION MATERIAL DIVERSION STRATEGY
DISCUSSION PAPER
Spring 1999

I. INTRODUCTION

Following the successful conclusion of the Demolition Material Diversion Symposium (DMDS) on May 13, 1998 in New Westminster, the steering committee for the symposium reconstituted itself as the Demolition/Deconstruction Planning Committee (D2PC) . In addition, the membership was expanded to include representatives from other sectors (See Appendix A for a list of current members and contact information). The purpose of the D2PC is to build on the work of the symposium participants and facilitate the development of the provincial Demolition Material Diversion Strategy.

This discussion paper is based on the Summary Report of the DMDS. It has been prepared to compliment the Summary Report as a resource for regional and sectoral symposia being organized by the D2PC. These symposia will allow stakeholders from all over the province to participate in the development of a "made-in-BC" strategy. The discussion paper will be a dynamic document in that it will be constantly improved and updated after each regional and sectoral symposium.

Participants in the New Westminster DMDS strongly supported deconstruction as the best approach for managing solid and hazardous waste materials from demolition projects. Deconstruction refers to taking a building or structure apart in a manner that achieves safe removal and disposal of hazardous wastes and maximum salvage and recycling of materials.

This discussion paper endorses the efforts of the DMDS working groups to develop a strategy to make deconstruction the norm and conventional demolition the exception. It outlines the benefits of deconstruction, identifies the barriers that must be overcome, and suggests solutions to facilitate the development of the provincial Demolition Material Diversion Strategy.

II. The Benefits of Deconstruction

Significant quantities of demolition waste can be diverted from disposal. Case studies in the Lower Mainland and elsewhere have shown that up to 90 percent of waste generated at demolition projects can be diverted cost-effectively. Deconstruction can be cost-competitive with conventional demolition when additional labour costs are recovered from the sale of salvaged building materials.

Proper removal, handling and disposal of hazardous materials is prioritized. Deconstruction ensures that worker health and safety and the surrounding community are well protected from the harmful effects hazardous building materials can pose during the demolition process.

Permanent jobs are created in the recycling, salvage & used building materials industry. More manual labour is required to remove, sort, clean and market reusable and recyclable building materials as compared to conventional demolition which relies primarily on heavy equipment to tear down buildings and dispose of waste materials.

High-quality, affordable building materials for new construction and renovation projects can be produced. For example, heavy timbers and dimensional lumber salvaged at deconstruction projects (typically made from first growth timber) offer better quality at a lower price than comparable virgin products.

Conservation of natural resources and environmental protection are built in to projects. Salvaged building materials and recycled-content products replace virgin products thereby reducing or eliminating environmental impacts from resource extraction, product manufacturing, distribution and disposal.

III. Barriers to Deconstruction and Possible Solutions

A. LACK OF AWARENESS

The working group results indicated that a lack of awareness is a key barrier to making deconstruction the standard approach. Many stakeholders -- industry contractors, consultants, government regulators and members of the public -- are not aware of the true costs of present demolition practices and the real and potential benefits of deconstruction.

Quality. Lack of education and promotion has resulted in distrust about the quality of used building materials and their suitability for reuse.

Neighbourhood stress. Without proper knowledge of the benefits of deconstruction, many neighbourhoods may still view the time needed as a stress rather than a benefit.

Industry attitudes. The “wrecking ball” mentality still prevails among many demolition contractors.

Hazardous materials. Many property owners are not aware of the presence of hazardous materials or of their responsibility to dispose of them properly. Also, some demolition contractors are aware of regulations surrounding hazardous wastes but do not inform building owners and do not comply with the regulations.

SOLUTIONS

Promotion. The province, regional districts, municipalities , industry and other interested parties should work together to promote deconstruction within their own organizations. A coordinated effort should be made to raise awareness of the issue in to the general public and all stakeholders.

Education. A strategy should be developed that identifies target groups for education. Presentations to educational institutions should be made on the value of

deconstruction to encourage its inclusion as part of the curriculum in applicable courses (e.g. carpentry, architecture). A web-site could be developed with local case studies, examples of products and their eventual application, and provide links to stakeholders both provincially and nationally.

Full Cost Accounting. Establish a life-cycle cost analysis approach to deconstruction that examines all of the implications of producing and manufacturing new products in comparison to reusing material removed through the deconstruction process

Research. Thoroughly documented case studies demonstrating the economic, environmental and social benefits of deconstruction are needed. Regional districts, municipalities and industry should cooperate to conduct and evaluate deconstruction pilot projects throughout the province.

Industry Association. The formation of a demolition/deconstruction industry association would promote deconstruction and provide a voice to speak on behalf of deconstruction firms in BC. The association could identify and develop strategic alliances between organizations (e.g., UBCM, non-profits, etc.)

B. INADEQUATE REGULATORY FRAMEWORK

1. REGULATORY BARRIERS TO THE RE-USE OF MATERIALS

Current Regulations. Current regulations (e.g. Building Codes) may not permit the re-use of materials in new construction or renovation projects.

Re-grading Process. Re-use of lumber in the construction of permitted buildings involves re-grading at additional costs and effort to builders. Current interpretation of the Building Code by inspectors often means that re-used dimensional lumber has to have an approved grade stamp on the material or that the lumber be re-graded. Beams and structural timbers must be certified by a professional engineer and a certificate is required for municipal inspection purposes. Both the re-grading and re-engineering of used materials can be costly and time consuming.

Lack of awareness/inconsistency of regulators. Regulators (e.g. building inspectors) may not be familiar with how to address the re-use of materials in new construction. Acceptance of used building materials often depends on the attitude and experience of the building inspector. This can lead to delays, difficulties or outright refusals for those attempting to do so.

Lack of incentives for deconstruction. At present there are no regulatory incentives (e.g. faster processing of permit applications) for using salvaged and recycled-content building materials in new construction or renovation.

SOLUTIONS

Amend the Building Code. The use of salvaged materials in structural and non-structural applications should be allowed provided that the material can meet set standards for structural application and is appropriate for non-structural applications.

Improve re-grading process. Develop an easier and more accessible standardized process for re-grading building materials for use in new construction.

Create de-construction and re-use application standards. An industry standard for re-use should be developed for architects and builders to promote consistency and acceptance among regulators.

Educate regulators/increase consistency of interpretation of Building Code. Discuss with regulators the potential of re-using materials in new construction. Sectoral symposia for building inspectors should be held. Invitations should be sent to all inspectors regardless of their stance on the use of salvaged materials.

2. LOCAL GOVERNMENT TAX, PERMITTING POLICIES, REGULATIONS AND LACK OF ACCOUNTABILITY

Municipal permitting systems. There are no specific provisions in the municipal permitting process for the deconstruction of buildings. The same permit and fee is required whether a building is deconstructed or demolished. Demolition permits are also issued at the same time , or as part of, the development permit so the speedy removal of a building becomes a priority.

Inconsistent inspection process. In some municipalities, an inspection of a building before demolition, for the presence of hazardous waste and the need for environmental assessments, is not always done, or is done for commercial buildings but rarely for residential buildings. In addition, the inspection process or requirements are not clear.

Tax disincentives. As long as a building is standing, the improvement portion of the tax assessment still applies. If the property is acquired prior to the assessment date, and is held as undeveloped land for more than a full year this creates an incentive to demolish the structures as soon as possible rather than taking the time for deconstruction.

Lack of Accountability. Landowners and developers delegate the responsibilities for hazardous materials and the disposal of demolition wastes to sub-contractors. These contracts may or may not require that the materials be handled and disposed of appropriately. There is no means to track accountability through the demolition process.

SOLUTIONS

Deconstruction Permits. Create a system that “fast-tracks” those projects with salvage and recycling by issuing a separate Deconstruction Permit. This permit would be issued for projects that submit an Environmental and Salvage Plan and would be

issued before the development permit thus giving the time required for the building to be deconstructed.

Improve inspection process. Require an environmental assessment for all building demolition projects. Create a standard environmental inspection process and inform the owner of their responsibility to deal with all hazardous materials in a manner that is consistent with the special waste regulation. This will create incentive for owners to ensure that hazardous materials are properly handled and disposed of.

Improve enforcement process. Increase enforcement on demolition projects by having enforcement officers on duty on weekends. Require proof of proper disposal as a part of the environmental assessment/plan.

3. INCONSISTENT REGULATORY REGIME FOR HAZARDOUS MATERIALS

Inconsistent enforcement of the regulations. Enforcement of the various regulations governing demolitions are inconsistent ,if applied at all, and reporting of infractions is sporadic. Inconsistent enforcement of both the Special Waste Regulation and the Occupational Health and Safety Regulation creates an unlevel playing field for deconstruction. These inconsistencies result in the quick demolition of buildings, especially residential buildings, without proper disposal of hazardous materials and with risk to workers' and neighboring residents' health.

Inconsistencies between regulations. There are inconsistencies between current regulations for hazardous wastes. For example, asbestos waste in the Special Waste Regulation must be friable, while any form of asbestos is regulated in the WCB regulations. These Regulations are also inconsistently applied between jurisdictions and the size or type of the demolition/deconstruction project.

SOLUTIONS

Link permit process to an assessment process. Issuing a demolition permit should be subject to the owner or owner's agent preparing an assessment of the potential incidence of hazardous material.

Responsible management deposit. Where a hazardous material assessment shows the presence of hazardous materials, owners should pay a deposit that is refundable with proof of proper disposal of the hazardous material found in the building.

Coordinate government regulators. The local government should provide the local offices of BC Environment and Workers' Compensation Board with a list of demolition permit applications, together with access to the new hazardous material assessment documentation.

Create a deconstruction association. There should be more self-regulation and "whistle–blowing "by the industry through an active deconstruction contractor's association.

4. REGULATORY DISINCENTIVES TO APPROPRIATE REUSE AND DISPOSAL

Disposal fees. If landfill tipping fees for mixed demolition waste are low, it is difficult for the deconstruction industry to compete. This is exacerbated by “fly-by-night” demolition contractors who may take their waste to landfill sites operated on ‘native’ lands or simply dump it illegally. Unsorted demolition waste generated by demolition contractors is, in some cases ,subject to lower tipping fees than the residual (source separated) waste generated by a deconstruction contractor. Export of waste to the US is also a problem in some cases.

Inconsistent fee schedules. Fees and other requirements for disposal of material are inconsistent both between and within many regional districts.
SOLUTIONS

Consistent disposal requirements. The different levels of government should strive for greater consistency in disposal requirements between and within regional districts.

Encourage source separation of materials. Regional/local governments should encourage private operators to create a tipping fee structure that encourages source-separation of reusable and recyclable building materials and penalizes the disposal of unsorted demolition waste.

Private landfills on ‘native’ or private lands should be permitted and amendments made to local solid waste management plans as required. This is a long term project but will address deconstruction barriers as well as many other solid waste management concerns associated with private facilities that operate independently of regional solid waste management systems. Individuals both within and outside of native bands that are respected by local Band Council members and elders should be identified and consulted with to develop a strategy for meeting this objective. As an example, many ethnobotanists may be approachable for this purpose and may indeed share concerns that potential contamination of soils and water supply from demolition waste may endanger plant species important to native culture.

C. TIME REQUIREMENTS

1. PERMITTING AND PROCESS TIME

Permitting process. Some municipalities dictate that approved development plans must be in place prior to considering a demolition permit in order to preserve their inventory of rental property. Developers are therefore anxious to begin construction immediately upon acquiring a permit as they have been paying taxes on a building they want demolished and interest on loans for a development that they haven’t started. This acts as an incentive to spend as little time as possible on the actual demolition.

Tenancy Act provisions. The Residential Tenancy Act requires that tenants in a building slated for demolition must be given two full-calendar months notice of eviction after the developer has acquired the permit for demolition. This motivates developers to choose traditional demolition over deconstruction to make up lost time.

SOLUTIONS

Fast-track deconstruction permits. Initiate a preferential system of permitting for deconstruction whereby a permit to deconstruct a building is processed quicker than a permit to demolish.
Make Tenancy Act and permit process compatible. Allow for initiating the eviction process concurrently with the permit process. Seek creative ways to allow both tenants and developers to be satisfied with a shorter eviction period such as a rent rebate for leaving before the end of the first month, or an increase in the moving expenses allowance (currently one months rent).

2. ADDITIONAL TIME FOR DECONSTRUCTING A STRUCTURE

Return on Investment. The developer's desire for return on investment with a property dictates a need to develop it as quickly as possible - several extra weeks delay to deconstruct a building may be too great a 'cost'. Completing a project several weeks sooner can mean hundreds or even thousands of dollars in terms of deposit interest.

Assessments can be time consuming. The time needed for adequate assessment and testing of a structure for hazardous materials, removal of these hazards ,and salvage is often longer than the time scheduled for demolition.

NIMBYism. Neighbourhoods may still view the time needed for deconstructing a structure as a stress rather than as a benefit.

Planning for Deconstruction. Deconstruction requires more time for planning and preparation than conventional demolition.

Construction Designed for Deconstruction. Structures need to be designed for eventual deconstruction to facilitate rapid dismantling and maximum salvage when the time comes.

SOLUTIONS

Allow time for deconstruction. Create methods that allow extra time for deconstruction to take place. For example, permitting offices could impose a 'time penalty' for projects that are not deconstructed.

Education of stakeholders. Developers, architects and project managers need to be educated about the need for time to do the proper assessments to manage hazards effectively.

Teach efficient deconstruction techniques. Information on planning for deconstruction projects and deconstruction techniques that expedite the dismantling of a structure should be collected. This information could be made available through an industry association. Techniques that become evident as excessive time-users could be identified and the industry challenged to find faster methods.

Promote Deconstruction-Friendly Construction Techniques. Methods of construction that expedite the eventual deconstruction and salvage of buildings should be promoted within the construction industry and educational partners (e.g. Vocational colleges, trade schools, etc)

D. LACK OF CULTIVATED MARKETS/RURAL INFRASTRUCTURE

Lack of markets for low-value items. While good market sexist for high-value items such as first growth timbers and hard wood flooring, finding markets for low-value, but abundant items like tongue-and-groove lumber, plumbing fixtures, lighting fixtures, and single-pane windows is difficult.

Poor public perception of 'used' materials. We live in a wasteful society that values 'newness' over reused materials. Salvaged materials have a negative public image as lower quality goods.
International markets and specific niche markets untapped. Many materials that currently do not have local or regional markets may find markets internationally. The international markets are inadequately identified, poorly tapped and transportation is a major barrier. Specialized markets, or non-traditional uses are also inadequately developed.

Inconsistent supply and quality. Markets rely on steady supply and consistent quality control. Supply and quality of salvaged material fluctuate with deconstruction.

Lack of market research. There are incomplete or no coordinated research efforts to identify markets for used building materials on a provincial, regional or local basis in BC.

Limited storage space. Many demolition/deconstruction sites have limited capacity for the storage of the salvaged materials. Salvage at many sites requires increased handling of materials and possibly higher trucking costs.

Added costs for deconstruction. All additional handling of materials (especially at union wages) adds substantially to the price of the product.

Barriers to on-site sales. Even if there is adequate space on a given site, liability issues or municipal regulations often prevent site sales.

Lack of facilities in rural regions. The long distance and high cost of trucking impede saccess to markets for deconstruction firms outside of the Lower Mainland.

SOLUTIONS

Encourage on-site sales. There must be research into the issues surrounding liability and municipal government allowances for conducting an on-site sale.

Encourage cottage industries. There may be potential for rural market development through small or cottage industry 'do-it your-selfers.

Collective marketing. It would be worthwhile to investigate the feasibility of central storage facilities to be used by several salvage companies. This would allow for large quantities to be collected and made accessible to end users in a form of collective marketing.

Real Time Materials Exchange. A central and easily accessible materials exchange program could aid in marketing of salvaged materials. This would be available over the phone or, more importantly, on the Internet linking salvage operations with buyers from around the world. Subscribers would have access to up-to-date information on types, location, quantity, and cost of materials and would be able to search by material type. As well as an on-line catalogue of available and wanted materials, this page could provide deconstruction case studies, notices of site sales and links to other web pages.

Education. The public and industry must be educated about the value of reused materials, to encourage reassessment of the belief that 'new is better'. This could be done through case studies and demonstration projects at home shows. Market demand is closely linked to public awareness.

Market Research. Coordinated research on the supply and demand for 'green' building materials and salvaged materials is necessary. Ensuring supply and quality control may have an impact on stabilizing market fluctuations and fixing the costs of salvaged materials. Salvaged materials cannot be more expensive than new.

Develop partnerships with retail industry. Use of the extensive retail system already in place, such as Revy and The Home Depot, could provide stable markets for a wide range of salvaged materials. For example, used products (fencing, paving stones, fixtures, etc.) could be sold wholesale or on a consignment basis to existing retailers.

For more information on the activities of the D2PC or a copy of the Summary Report, please contact, Brian Grant, Pollution Prevention and Remediation Branch, BC Environment, at (250)356-9834, or Thomas Mueller, GVRD Construction/Demolition Recycling Advisor at (604)436-6818.