

THE RESIDENTIAL  
CONSTRUCTION WASTE  
MANAGEMENT CHALLENGE  
FOLLOW-UP SURVEY AND REPORT

Submitted by:  
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To:  
Canada Mortgage and Housing Corporation

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## TABLE OF CONTENTS

EXECUTIVE SUMMARY .....	1
BACKGROUND.....	2
QUESTIONNAIRE .....	4
RESPONSE HIGHLIGHTS.....	10
STATISTICAL DATA.....	12
ANECDOTAL DATA.....	16
QUESTION 19.....	16
QUESTION 20.....	16
QUESTION 23.....	17
QUESTION 24.....	18
QUESTION 25.....	18
QUESTION 26.....	19
QUESTION 27.....	19
QUESTION 28.....	19
QUESTION 29.....	20
QUESTION 30.....	20
QUESTION 32.....	20
CONCLUSION AND RECOMMENDATIONS.....	22
SURVEY RESPONDENTS LISTED BY PROVINCE AND CITY.....	24

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## **EXECUTIVE SUMMARY**

The purpose of this survey was to conduct a mid term follow up on the impact of a series of workshops, offered by CMHC, entitled the Residential Construction Waste Management Challenge. Participants who accepted the "Challenge", thereby committing themselves to implement the 3R's (reduce, reuse and recycle) in their operations, were surveyed two years after attending. The survey focused on whether the participants followed through with their commitment, whether they were still practicing construction waste management, and how it had affected their business.

The goal of the "Challenge" workshops was to attract builders and renovators to a technical seminar where they could be given practical information on, and examples of, construction waste management. The workshop was designed to raise participants awareness of the worsening landfill crisis and the huge contribution construction activities made. They were then offered practical alternatives to wasting this potentially valuable resource. Participants were then invited to accept the "Challenge" and implement on site construction waste diversion.

The data gathered by this survey indicates that recycling is neither as difficult nor as expensive in terms of time, labor or capital costs as many builders believe. In fact, when asked what effect waste diversion has had on their company's bottom line only 13% indicated there had been an escalation in cost, and those described it as "some" or "a little" increase or said "much can be billed back to the sub trades". Thirty eight percent said it had little or no effect, and 17 said they enjoyed a cost savings. One respondent stated that besides saving money, their job sites had become safer.

This report outlines the background of the "Challenge" workshops, presents the questionnaire used in the survey, summarizes some highlights of the results, presents the statistical and anecdotal data, and makes recommendations for future work in this area.

### RÉSUMÉ

L'objectif de cette enquête était la réalisation d'un suivi à mi-chemin sur les effets d'une série de séminaires, offerte par la SCHL, intitulée le Défi de la gestion des déchets de la construction résidentielle. Les participants qui ont accepté le «défi», et qui par conséquent se sont engagés à appliquer les 3R (réduction, réutilisation et recyclage) à leurs activités, ont été sondés deux ans après leur participation. L'enquête a permis principalement de vérifier si les participants avaient respecté leur engagement, s'ils appliquaient toujours les méthodes de gestion des déchets de la construction et comment cela avait modifié leurs activités.

Le but des séminaires du «défi» était d'amener les constructeurs et les rénovateurs à un séminaire technique où l'on pourrait leur donner de l'information pratique sur la gestion des déchets de la construction résidentielle et leur fournir des exemples. L'atelier était conçu pour sensibiliser les participants à la dégradation de l'état des décharges et au rôle énorme des activités de construction par rapport à cette situation. On leur offrait par la suite des solutions de rechange pratiques au recours à cette ressource précieuse. Les participants étaient ensuite invités à relever le «défi» et à mettre en oeuvre sur leurs chantiers des méthodes réduisant le quantité de déchets devant être dirigés vers les décharges.

Les données recueillies grâce à cette enquête indiquent que le recyclage n'est ni aussi difficile, ni aussi coûteux en temps, en main-d'oeuvre et en dépenses en immobilisations que ne le croient de nombreux constructeurs. En fait, à la question portant sur l'effet de la récupération des déchets sur le chiffre d'affaires de leur entreprise, seulement 13 % des répondants ont indiqué avoir perçu une hausse des coûts et l'ont décrite comme une «petite» ou une «légère» augmentation ou ont dit «qu'elle pouvait en grande partie être facturée aux sous-traitants». Pour 38 % des répondants, ces méthodes avaient peu d'incidences, sinon aucune, et 17 % ont dit avoir réalisé des économies. Un répondant a mentionné que ces méthodes lui avaient permis non seulement de réaliser des économies, mais aussi de rendre ses chantiers plus sécuritaires.

Le rapport souligne le contexte de la tenue des séminaires du «défi», présente le questionnaire utilisé pendant l'enquête, en résume les résultats principaux, présente les données statistiques et anecdotiques et fournit des recommandations pour les travaux futurs dans ce domaine.

## BACKGROUND

CMHC has recently begun supporting efforts to improve construction waste management practices in Canada. In 1990, CMHC helped fund a committee to implement the recommendations of a study commissioned by the Toronto Home Builder's Association (THBA), the previous year. The Corporation also became involved in waste management pilot projects in Vancouver, Toronto, and Montreal. The intention was to gather experience in residential construction waste management, and provide it to the industry. The outcome was a series of workshops called the CMHC Residential Construction Waste Management Challenge.

The series was aimed at builders and renovators and its objectives were stated as follows:

1. To generate public and industry awareness of the Federal Government's commitment to the quality of the environment, and that through its housing agency, CMHC, is working to promote construction waste reduction;
2. To promote the idea of reduction, reuse and recycling and to stimulate the building industry to participate in the challenge of waste reduction;
3. To transfer design and technological knowledge gained through these demonstration projects to the building industry best positioned to use this expertise;
4. Position CMHC as a leader, catalyst and partner in solving environmental issues relating to the housing industry.

The technical waste management seminars were developed as a three hour interactive session delivered by a local resource person, usually a builder or renovator. Regional resource contacts were hired for every province (except Yukon and NWT). The sessions were suitably tailored to reflect the local issues regarding construction waste in a particular region. For example, the session leader in a particular city was responsible for identifying local tipping fees as well as current and future regulations regarding landfills and construction waste.

To maximize the impact of the material being presented the seminars focused on waste management issues relating directly to the construction industry. Examples of these were rapidly rising tipping fees, material bans at landfills and new and pending legislation. Practical solutions were presented at the seminars making reference to examples used in some of the pilot demonstration projects that were funded by CMHC in Toronto, Vancouver and B.C. Resource directories of local businesses who accept various construction wastes or could help in diverting construction waste from landfills were developed for each session. At the end of the seminar, participants were invited to

register in the "Challenge", whereby they were asked to commit to implementing waste management practices on a current or upcoming project.

The seminars were delivered in a six week period starting in mid-September of 1991. A total of 32 seminars were delivered in 31 cities (two seminars were held in North York). The workshops drew in 463 participants from the building industry, waste haulers and municipalities. One hundred eighteen participants signed up for the "Challenge". The poor economy (few renovation projects) and the timing of the "Challenge" (late fall with few new projects planned until after Christmas) were cited as the main reasons for the low sign-up.

Those who registered for the "Challenge" were asked to complete a questionnaire shortly after the workshops were completed. The following data was generated from those who responded:

Over 60% had implemented a Waste Management Action Plan.

56% had altered building designs to make them more efficient.

78% had improved material storage procedures.

89% had improved their material procurement procedures.

90% had found uses for excess materials in other parts of their building projects.

60% believe that managing construction wastes will increase their costs in the short run.

100% believe that managing their construction waste will save money in the long run.

64% don't believe there are enough recycling businesses to adequately handle their construction wastes.

This survey revisits those who accepted the "Challenge" two years later, to investigate the longer term effects the CMHC Residential Construction Waste Management Challenge had on its participants.

## QUESTIONNAIRE

### FOLLOW-UP SURVEY TO THE CMHC RESIDENTIAL CONSTRUCTION WASTE MANAGEMENT CHALLENGE

Company:            «Company» \_\_\_\_\_  
Honorific:           «Honorific» \_\_\_\_\_  
First Name:         «First» \_\_\_\_\_  
Last Name:         «Last» \_\_\_\_\_  
Title:               «Title» \_\_\_\_\_  
Address:            «Address» \_\_\_\_\_  
City:                «City» \_\_\_\_\_  
Province:           «Province» \_\_\_\_\_  
Postal Code:       «Postal» \_\_\_\_\_  
Phone:              «Phone» \_\_\_\_\_  
Fax:                 «Fax» \_\_\_\_\_

Please correct any omissions, content errors or spelling errors in the spaces provided above.

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1) Did you practice job site waste management prior to attending The Residential Construction Waste Management Challenge workshop?

Yes       No

2) Which of the Waste Management Action Plan's ten steps did you implement?

- Designate a person to be responsible for waste management.
- Examine design details of building to ensure efficient use of materials.
- Evaluate materials ordering and storage procedures on site.
- Evaluate site layout.
- Evaluate waste production on site.
- Investigate waste disposal options.
- Investigate waste separation, storage, and transportation systems.
- Develop a system of worker incentives.
- Choose a strategy for each stage of construction.
- Count your money and time, and build on your successes.
- None of the above.



3) Have you saved money in tipping fees since implementing waste management practices?

Yes       No      If yes: we saved \$ \_\_\_\_\_ per house.

4) Are you still practicing waste diversion?

Yes, in a major way       Yes, in a minor way       No, not at all

5) How long have you practiced construction waste diversion?

From \_\_\_\_ month, \_\_\_\_ year; to \_\_\_\_ month, \_\_\_\_ year.

6) Are there bans on any form of construction waste in force at any landfill sites in your area?

Cardboard    Concrete    Dry Wall    Metals    Wood  
 Others (please list) \_\_\_\_\_

7) Are such bans being discussed for any landfill sites in your area?

Yes       No       Don't know

8) What are the tipping fees at the landfill you use to dispose of your construction waste?

\$ \_\_\_\_\_ per metric tonne

9) Did you keep track of the volumes and or weights of the above waste materials that were produced at your job sites?

Yes       No

If yes, please enclose a copy of the data you collected.

10) Did you keep track of the volumes and or weights of the above waste materials that were recycled at your job sites?

Yes       No

If yes, please enclose a copy of the data you collected.

11) Did you use forms provided by CMHC to keep track of this data?

Yes       No      If yes, please attach a copy of the forms you used.

12) Did your firm incur any capital costs as a direct result of participating in waste management activities (i.e. buying bins for sorting or storing recyclable materials)?

- Yes; \$ \_\_\_\_\_  No

13) Did your firm incur any additional labor costs as a direct result of participating in waste management activities?

- Yes; \$ \_\_\_\_\_  No

14) Does / did participating in waste management activities add significantly to the time to complete a construction job?

- Yes  No  
If yes, how much? \_\_\_\_\_ hours per house \_\_\_\_\_ days per house

15) How much time was needed to train your workers or trades in waste diversion techniques?

\_\_\_\_\_ hours per worker \_\_\_\_\_ days per worker

16) What method of training did you use?

- CMHC Waste Management Challenge video
- training sessions
- lecture style briefings
- written instructions drafted by your firm (if so, please enclose a copy)
- CMHC's Residential Construction Waste Management Challenge brochure
- other (please specify) \_\_\_\_\_

17) Have you advertised the fact that you are participating / participated in on site waste management / environmental initiatives?

- Yes  No

18) If so, has there been an improvement in the public's impression of your company?

- Yes  No  Don't Know

19) Do you feel your efforts to recycle are worthwhile?

Yes       No

Please comment \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

20) Do your workers feel their efforts to recycle are worthwhile?

Yes       No

Please comment \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

21) Did you experience difficulty in separating and or storing the waste on the construction site?

Yes       No

22) Did you have difficulty finding a recycler who would accept the reusable material once you had separated it from the non-recoverable waste?

Yes       No

23) Please describe any other problems you experienced in diverting construction waste from landfill.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

24) If you had any difficulties, including those listed above, how did you overcome them?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

25) How has / did waste diversion changed your normal daily procedures?

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26) What effect has waste diversion had on your bottom line?

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27) Did you develop any innovative ways of handling, storing, source separating construction waste? (If so, please describe in as much detail as possible)

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28) Did you develop any innovative uses or markets for the recycled construction waste? (If so, please describe in as much detail as possible)

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29) Does your action plan differ in any way from the one suggested by CMHC? (if so please describe the differences and why you made these changes)

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30) Please list any innovative methods of reducing, reusing, or recycling materials, developed or discovered by your firm, that we could publish and share with other builders.

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## **RESPONSE HIGHLIGHTS**

The preliminary survey, done in December of 1991 indicated that over 60% of "Challenge" participants had implemented a Waste Management Action Plan, 64% did not believe there were enough recycling businesses to adequately handle their construction wastes, and 60% believed that managing construction wastes would increase their costs in the short run.

After two years of recycling, the Follow-Up Survey indicated that 73% of respondents followed through with the "Challenge" and 88% of those who undertook recycling activities reported maintaining them. Only 24% reported having difficulty finding a recycler who would accept the reusable material once it had been separated from non-recoverable waste. When asked what effect waste diversion has had on their company's bottom line only 13% indicated there had been an escalation in cost. Furthermore, those who reported a cost increase described it as "some" or "a little" increase or pointed out that "much can be billed back to the sub trades". A further 38% said it had little or no effect on their bottom line, and 17% said they enjoyed a cost savings.

Garnet Kindervater Ltd. pointed out that their job sites became safer and they saved money because tipping fees were reduced and labor costs were lower.

Only 25 % of participants reported incurring significant capital costs, only 37% reported incurring significant labor costs, and only 17% said recycling added significantly to the time to complete a construction job.

Of the 9 participants that reported how much time they spent training their workers, all but one said it took only one or two hours.

It is not surprising to find that builders can save by recycling when rising tipping fees are taken into account. Of the 14 fees reported, only four were less than \$50/tonne, four ranged from \$50 to \$100/tonne, and six ranged from \$100 to \$200/tonne. Seventy one percent of participants reported saving money on tipping fees since implementing recycling.

The banning of at least some types of construction waste from landfill sites is spreading. Of the 58% of contractors who answered the question "Are there bans on any form of construction waste in force at any landfill sites in your area?", 54% answered that there were. Of the 50% who responded to a question regarding the contemplation of such bans, 38% responded that bans were being discussed in their area.

Only 42% reported having difficulty separating and or storing the waste on the construction site, and 92% said they felt their efforts to recycle were worthwhile.

Menno S. Martin Contractor gives its workers an incentive to recycle. When they are able to sell scrap metal, the money is used for employee's social activities such as a picnic or corn roast.

When Revelstoke Redi-Mix Ltd. has left over concrete they make concrete blocks, thereby reducing waste and water contamination.

Four companies complained that the general public was dumping garbage in the bins they were using to segregate their construction waste. Durham Homes built a compound, fencing off their bins. Dacon Corporation, a large builder and renovator, set up a central depot on their own land that was fenced in and out of sight from normal traffic. Way-Mar Aluminum Inc. got a bin with a lockable lid.

Durham Homes uses the short ends of wood to make bridging and survey stakes. They also save sod from land clearing for landscaping.

Way-Mar Aluminum Inc. takes used single glazed windows to a local entrepreneur who reuses it in smaller windows, such a barn sashes.

Les Constructions Du Tournant Inc. found that the weight of the recyclable material was a problem. They solved it by doing all recycling on site.

The Renovation Council of Waterloo recently started an annual Recycle Sale, where local contractors hold a two day yard sale of used building materials to raise money for a local charity. This year they raised \$6,000.

Ron Robinson Ltd. suggested that municipalities should stockpile the recyclable portions of construction waste for future use.

Tourond Construction Ltd. found that a lot of their waste was packaging, such as blister packs and mixed materials that are difficult or currently impossible to recycle. They solved the problem when they stopped buying poorly packaged items. They suggest packaging firms pay more attention to environmental concerns. The company has also extended their scheduling by about 10% to allow time for cleaning up between each stage of construction.

Polygon Construction feels that the most critical issue is the lack of markets for diverted material, and that governments should provide incentives to stimulate recycling.

Les Constructions Du Tournant Inc. said that recycling is more work but there is less waste. Furthermore, as can be seen above, it costs little or nothing to do, in the long run, and can in fact be profitable in some cases.

## STATISTICAL DATA

While it was reported that 116 participants signed up for the "Challenge", the list provided for this survey contained only 104 names, two of which were from the same company and one had withdrawn. Of this 102 companies who were sent questionnaires, 12 had moved, shut down, or been sold. Seven of these could not be traced, given the resources of this study. The size of the population covered by this survey was, therefore, 95. Thirty three companies returned the questionnaires, yielding a 35% response rate. Twenty four, or 73% of respondents followed through with the "Challenge".

The following information was gathered by asking questions which allowed the respondent to mark the appropriate answer. This made it possible to present the data in a statistical format. The questions appear as they did on the survey questionnaire, as can be seen by referring to the previous section. Where, on the questionnaire, an empty box was provided for the respondent's answer, there appears below the percentage of respondents who gave that particular answer. The percentage of respondents who did not answer each question is also given.

1) Did you practice job site waste management prior to attending The Residential Construction Waste Management Challenge workshop?

75 % replied YES      21 % replied NO      4 % did not reply to this question

2) Which of the Waste Management Action Plan's ten steps did you implement?

25% Designated a person to be responsible for waste management.  
50% Examined design details of building to ensure efficient use of materials.  
50% Evaluated materials ordering and storage procedures on site.  
29% Evaluated site layout.  
75% Evaluated waste production on site.  
83% Investigated waste disposal options.  
58% Investigated waste separation, storage, and transportation systems.  
17% Developed a system of worker incentives.  
25% Chose a strategy for each stage of construction.  
21% Counted their money and time, and built on their successes.  
4% None of the above.  
8% Did not reply to this question.

3) Have you saved money in tipping fees since implementing waste management practices?

71 % replied YES      21 % replied NO      8 % did not reply to this question

Five respondents specified an amount of savings per house: 1 reported saving \$20 per house; 1 reported saving \$25 per house; 1 reported saving \$75 per house; and 2 reported saving \$100 per house.



4) Are you still practicing waste diversion?

88 % replied YES      8 % replied NO      4 % did not reply to this question

5) How long have you practiced construction waste diversion?

25% have recycled for 2 years  
21% have recycled for 3 years  
4% have recycled for 4 years  
4% have recycled for 7 years  
4% have recycled for 10 years  
4% have recycled for 12 years  
4% have recycled for 29 years  
33 % did not reply to this question

6) Are there bans on any form of construction waste in force at any landfill sites in your area?

54 % replied YES      4 % replied NO      42 % did not reply to this question

42% reported cardboard was banned.  
29% reported concrete was banned.  
33% reported dry wall was banned.  
17% reported metals were banned.  
13% reported wood was banned.  
4% reported other substances were banned, including paint and asphalt.

7) Are such bans being discussed for any landfill sites in your area?

38 % replied YES      12 % replied NO      50 % did not reply to this question

8) What are the tipping fees at the landfill you use to dispose of your construction waste?

The following rates were reported as being charged for one tonne of construction waste: \$1; \$6; \$12; \$30; \$69; \$85; \$90; \$95; \$100; \$102; \$110; \$130; \$165; \$200.  
One respondent stated that he was charged a flat rate of \$185 per 35 yard bin.

9) Did you keep track of the volumes and or weights of the above waste materials that were produced at your job sites?

4 % replied YES      88 % replied NO      8 % did not reply to this question

10) Did you keep track of the volumes and or weights of the above waste materials that were recycled at your job sites?

4 % replied YES      92 % replied NO      4 % did not reply to this question

11) Did you use forms provided by CMHC to keep track of this data?

0 % replied YES      96 % replied NO      4 % did not reply to this question

12) Did your firm incur any capital costs as a direct result of participating in waste management activities (i.e. buying bins for sorting or storing recyclable materials)?

25 % replied YES      63 % replied NO      12 % did not reply to this question

Three firms reported capital cost expenditures relating to their recycling efforts; one spent \$400, another \$500 and another \$1,300. The \$1,300 expenditure was incurred for signage, by a company that reported advertising its recycling efforts and thereby enjoying an improvement in its public image.

13) Did your firm incur any additional labor costs as a direct result of participating in waste management activities?

37 % replied YES      50 % replied NO      13 % did not reply to this question

Four firms reported labor cost expenditures relating to their recycling efforts; two spent \$50, another \$100, and a fourth \$500.

14) Does / did participating in waste management activities add significantly to the time to complete a construction job?

17 % replied YES      75 % replied NO      8 % did not reply to this question

8% reported that recycling added 6 hours to the time needed to complete a house  
4% reported that recycling added 1 hour per house per day

15) How much time was needed to train your workers or trades in waste diversion techniques?

21% reported spending 1 hour training their workers in waste diversion techniques  
13% reported spending 2 hour training their workers in waste diversion techniques  
4% reported spending 8 hour training their workers in waste diversion techniques  
62% did not reply to this question

16) What method of training did you use?

- 0% used CMHC Waste Management Challenge video
- 4% used training sessions
- 42% used lecture style briefings
- 0% used written instructions they drafted themselves
- 0% used CMHC's Residential Construction Waste Management Challenge brochure
- 17% used informal verbal presentation or instruction, sometimes on site
- 4% used Making A Molehill Out Of A Mountain
- 38% did not reply to this question

17) Have you advertised the fact that you are participating / participated in on site waste management / environmental initiatives?

- 21 % replied YES
- 75 % replied NO
- 4 % did not reply to this question

18) If so, has there been an improvement in the public's impression of your company?

- 8 % replied YES
- 13 % replied NO
- 79 % did not reply to this question

19) Do you feel your efforts to recycle are worthwhile?

- 92 % replied YES
- 4 % replied NO
- 4 % did not reply to this question

20) Do your workers feel their efforts to recycle are worthwhile?

- 63 % replied YES
- 8 % replied NO
- 29 % did not reply to this question

21) Did you experience difficulty in separating and or storing the waste on the construction site?

- 42 % replied YES
- 46 % replied NO
- 12 % did not reply to this question

22) Did you have difficulty finding a recycler who would accept the reusable material once you had separated it from the non-recoverable waste?

- 24 % replied YES
- 63 % replied NO
- 13 % did not reply to this question

31) Would you or your firm be interested in more workshops or educational material on waste diversion?

- 50 % replied YES
- 42 % replied NO
- 8 % did not reply to this question

## **ANECDOTAL DATA**

The following data was gathered by asking questions requiring more than a 'yes/no' or 'fill in the appropriate box' response. The aim was to draw information from the experience of the participants that could be useful to readers who are planning to recycle. In each case the question is presented first (in bold print) followed by a sampling of responses. The answers are presented as they appeared on the questionnaires. Anything appearing in italics and enclosed by square brackets has been added, for the purpose of clarity, by the author of this report. This includes a rough translation of the responses from Les Constructions Du Tournant Inc. which first appear in the original French.

### **QUESTION 19**

**Do you feel your efforts to recycle are worthwhile?**

Job sites became safer and saved money

It is cheaper to dump everything in a close-by location then drive all across the town to dump clean lumber and still drive to the dump with the rest. We handle 200 job sites a year.

We use the Habitat for Humanity "Reuse Store" to drop off recyclable materials. Costs nothing. Landfill does cost.

We are environmentally responsible as individuals and as a company.

We are a supplier and participating or helping to develop proper waste management is important to all.

Every piece that is diverted from landfill is a step in the right direction.

### **QUESTION 20**

**Do your workers feel their efforts to recycle are worthwhile?**

Have become more conscious of safer job site and overall wastage.

At first the laborers did not like having to sort and make the additional trips to sort.

Occasionally we are able to sell scrap metal, aluminum etc. This money is used for employee activities - Builder's Picnic, Corn Roast, etc.

No one has anything negative to say about cutting back & reusing Material.

I hope so.

We make concrete blocks to reduce waste and water contamination. The workers think this is a good way to operate.

### QUESTION 23

**Please describe any other problems you experienced in diverting construction waste from landfill.**

Wood is difficult to dispose of. Also tree stumps. Renovations projects are a problem.

We had to maintain security 7 days a week to prevent people from filling the bins with domestic garbage. Build compound & fence. *[Two other builders gave similar responses.]*

We can recycle only some wood products. Drywall is heavier and nobody wants it.

Poids important des dechets a recycler. *[The weight of the recyclable material is a problem.]*

Having municipalities accept waste products as recyclable product (i.e. asphalt, concrete).

Sometimes-space or time constraints. Called Reuze Building Center every time had reusable material. They usually turned us away, only to call us a day later with a customer requesting the materials.

Getting co-operation of sub-trades . It cost them extra time. All contractors should do same thing - it would be easier to get CO-operation that way.

I usually recover gyproc ends, and lumber scraps. Some material like cardboard etc. got to go to the dumpsite.

Mostly problems with packaging, i.e. blister packs and mixed packaging (cardboard, styrofoam, and plastic wrap).

Cost of extra bins on site. Expectation of recycler re: purity of glass.

## QUESTION 24

**If you had any difficulties, including those listed above, how did you overcome them?**

Wood - give away burn. Tree stumps - burn.

*[In response to the public putting garbage in the builder's recycling bins]* Build compound. Maintain security. Locking bin with tarped lid (8 ft. high).

En ne faisant plus de transport. Le recyclage se fait sur place uniquement. *[We do not transport any of the recyclable material, all recycling is done on site.]*

Stopped buying poorly packaged items.

*[In response to the cost of extra bins]* Only get extra bins out on larger jobs and have other bins permanently at our shop for smaller amounts.

*[In response to the high expectations of recyclers regarding the purity of recycled glass]* Depending on type of windows - took single glazed windows to local entrepreneur that reuses it in smaller windows (barn sash).

## QUESTION 25

**How has/did waste diversion changed your normal daily procedures?**

Maintenance of waste bins

Not a great deal after the initial set up.

It has slowed down the production rate to some extent.

Plus de travail mais moins de déchets. *[It is more work but there is less waste.]*

Had to argue with sub-trades more. More time at clean up. Pulling nails from lumber for re-use takes time.

We have slowed the building process so that we can clean up between each stage of construction.

Not seriously - more bins sitting around. Drop stuff off at the restore instead of putting it in the garbage bin.

### QUESTION 26

**What effect has waste diversion had on your bottom line?**

*[Nine builders reported that their recycling activities had little or no effect on their company's bottom line. Three reported a cost savings. Two said there was some or a little additional cost.]*

More costly, however much can be billed back to sub trades.

Saves on water consumption & wash out time (plus).

Lengthened the building time by about a week out of ten. We allow more total time.

### QUESTION 27

**Did you develop any innovative ways of handling, storing, source separating construction waste? (If so, please describe in as much detail as possible)**

Set up central depot on own available land, completely fenced in to prevent vandalism and illegal dumping. Site is out of sight for normal traffic.

We placed four bins in a compound and we pick up and deliver each type of material with front end loaders.

We don't allow wastes to become mixed. If kept separate they are easier to handle.

K.I.S.S. (Keep It Simple Stupid!) It needs to be easily accessible or it does not happen.

### QUESTION 28

**Did you develop any innovative uses or markets for the recycled construction waste? (If so, please describe in as much detail as possible)**

Wood is offered free to surrounding home owners, also available from a large bin at own lumber yard. Other waste is recycled by an outside agency.

Short ends of wood go to shop to make bridging, survey stakes. Sod is taken etc.

Reused products are now stored and resold.

Habitat for Humanity Reuse Store.

We make concrete blocks to reduce waste and water contamination.

We chip our scrap wood waste for park trail build up.

We take single glazed window glass [to a local glazier] & he re-cuts it into smaller sizes.

### QUESTION 29

**Does your action plan differ in any way from the one suggested by CMHC? (if so please describe the differences and why you made these changes)**

Not greatly.

We rely on contractor to separate most waste & market recyclables. We compact & reuse if possible, on site.

### QUESTION 30

**Please list any innovative methods of reducing, reusing, or recycling materials, developed or discovered by your firm, that we could publish and share with other builders.**

No spectacular or unusual methods, just better controls.

We chip our wood waste for trail construction.

In Winnipeg & Waterloo, Habitat For Humanity has developed a "Restore" where resalable building products can be taken free of charge & allows "Habitat" a chance to make a bit of money.

### QUESTION 32

**Please provide any other information that you feel would support job site waste diversion.**

We are not convinced that recycling is really taking place. We have reason to believe that our recyclable material is being dumped somewhere (in or outside Canada). If it can be shown that recycling is profitable, then far more effort will be put out by the industry. As it is many believe that we "recycle" at a cost far greater than other methods of disposal would be. We believe that we have not exhausted alternative methods of disposal



sufficiently. *[in response to question regarding advertising the fact that they divert C&DW this respondent stated]* Afraid to do this. We usually incur wrath for not doing "more".

Je crois que la gestion des dechets est une conviction bien personnelle pur un employeur. Ce n'est pas un outil de vente. L'acheteur ne choisira pas une maison parce que l'entrepreneur a pris soin de gerer ses dechets. Je crois par contre que la gestion de toute sorte de dechet est entrain d'entrer dans nos moeurs. La S.C.H.L. devra continuer a stimuler les entrepreneurs afin que le recyclage devienne matiere courante. Toutefois, le recyclage demande plus d'efforts que de jeter une feuille de papier dans le bac de recyclage. *[I believe that the management of waste depends on the personal convictions of an employer. It is not a sales tool. A buyer does not choose a house because the builders recycled their waste. I believe, however, that the recycling of all sorts of waste is becoming customary. For waste diversion to become standard practice, C.M.H.C. must continue to encourage recycling in the construction industry. However, recycling construction waste takes more effort than dropping a piece of paper in a recycling bin.]*

#### Listing of Recycling Companies.

What we need is, as always, a market for separated items. That is the entire problem at the moment. I believe the will exists, but simply penalizing through higher tariffs does nothing, if the producer can't find a market for waste. There must be government induced incentives to make recycled material economically viable. As mentioned, our waste contractor recycles wood, metal & cardboard - balance is uneconomical.

We feel more effort could be made by municipal authority to provide bins for builders etc. to use for wood, cardboard, gyproc, metal and plastics. Packaging firms could make an effort to make packages more friendly towards recycling. Currently we ship our gyproc to another municipality. Wood waste is chipped for trail construction on our farm. Vinyl siding is recycled into fence posts by a Surrey, B. C. firm. Cardboard is recycled by a recycling depot in the other municipality. Thumbs up for other municipalities i.e.. Matsqui, B. C.! Builders need more education. Many builders still burn waste! Education needs to be done at the permit end (i.e.. before building).

Sittler Excavating (Elmira Ont.) has a massive wood chipper that takes tree stumps etc. & makes mulch - they should be on all lists for grinding up scrap wood. All re-usable products should be diverted to the Re-Store. We still need a better place to dispose of all window glass (not tempered).

## **CONCLUSION AND RECOMMENDATIONS**

In conclusion, it is clear from the experiences of "Challenge" participants that the anticipated costs, often used as an excuse to avoid or delay implementing on site waste diversion, are not incurred in the majority of cases. This is important information, and by disseminating it CMHC can serve both the public interest and enhance the Corporation's profile on environmental issues.

The recommendations offered below were specifically developed to be consistent with the stated goals of the Residential Construction Waste Management Challenge, listed in the section on background. The recommendations fall into three categories.

Recommendations one and two involve launching a series of workshops that is the same or similar to the original. Three to seven involve further research. Eight involves capitalizing on the preparatory work done to support the original series of workshops and leveraging this work by having other organizations deliver the workshops themselves. This is the most highly recommend option. CMHC could provide presentation materials such as overheads and hand outs which prominently display the Corporation's logo. This would guarantee the enhancement of CMHC's position "as a leader, catalyst and partner in solving environmental issues relating to the housing industry."

1. Repeating the series of workshops would likely draw a significantly larger response as awareness of waste management issues has increased dramatically since 1991, particularly among communities strongly effected by legislation, material bans and high tipping fees.
2. Offer workshops on job sites. This would involve selling the idea to local builders and renovators. Lists of potential participants should be available from local builder's associations. This would avoid the cost of advertising the workshop and renting facilities and would insure a captive audience. While it will likely be difficult to sell the idea to some builders, those in communities strongly effected by legislation, material bans and high tipping fees are likely to be receptive.
3. Develop a series of 'Best Practices' workshops each focused on a different construction waste material. For example there could be a module on recycling wood waste aimed at carpenters and cabinet makers, another on recycling used shingles for roofers, and so forth.
4. Establish and maintain a data base of building products which incorporate recycled material. Builders could query the data base depending on their need and it could be up dated regularly. This would avoid the expense of producing and distributing a catalogue that would rapidly become outdated. It would also put CMHC at the forefront of this issue as a major source of information.
5. Establish and maintain a data base of local recyclers and waste haulers who offer construction waste recycling services. It could incorporate a brief description of

services offered and destination of wastes. This would have the same benefits as the above mentioned data base.

6. Use the Job Site Innovator Program to gather and disseminate innovative ways to manage construction waste.
7. Develop case studies based on the experiences of "Challenge" participants. This would build on the public recognition gained from doing the original series of workshops and develop continuity. The case studies could concentrate on debunking the strongest objections raised against implementing recycling on job sites, such as increased labor, material, and capital costs. They could also promote the benefits of recycling as seen by the target audience's peers.
8. Have other organizations offer workshops based on the materials prepared for the "Challenge". This would involve promoting the use of training material CMHC has already developed to organizations who offer training programs to builders and renovators. A large number of associations and government departments at the federal and provincial levels are likely targets. The only costs would be for developing a client list, promoting the idea and producing the training materials. CMHC would enjoy a significant amount of exposure and have the added bonus of a list of potential clients for other CMHC generated training materials.

## SURVEY RESPONDENTS LISTED BY PROVINCE AND CITY

PROVINCE	CITY	COMPANY
Alberta	Calgary	Homes By Avi
	Edmonton	Award Contractors
	Edmonton	Park Royal Homes
British Columbia	Aldergrove	Tourond Construction Ltd.
	Vancouver	Polygon Construction
Manitoba	Winnipeg	Waltron Custom Homes
Newfoundland	Kilbride	Terry Walsh Contracting
	St. John's	Garnet Kindervater Ltd.
Ontario	Barrie	D. G. Pratt Construction Ltd.
	Kingston	Caraco Development Corp.
		Dacon Corporation
		Smith & Smith Developments
	Kitchener	Monarch Construction
	New Dundee	Paul Weber Construction
	Oshawa	Durham Homes
		Ron Robinson Ltd.
	St. Jacobs	Menno S. Martin Contractor
	Toronto	Rulestone Renovations Inc
	Wallenstein	Way-Mar Aluminum Inc.
Quebec	Quebec	Morneau Construction Enr.
	St. Hubert	Les Constructions Du Tournant Inc.
Saskatchewan	Regina	Sun West Construction Ltd.
	Saskatoon	Alstyck Construction
		Revelstoke Redi-Mix Ltd.