

**COMPENDIUM OF RESEARCH
1996**

**COMPENDIUM DE RECHERCHE
1996**

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Prepared for

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Pour le

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INTRODUCTION

Under Part IX of the National Housing Act, the Government of Canada provides funds to Canada Mortgage and Housing Corporation to conduct research into the social, economic and technical aspects of housing and related fields.

This thirteenth Compendium of Research has been compiled to publicize and increase access to the research and scholarship reports produced under research programs sponsored by the Corporation during 1995/96. A few reports not included in the earlier compendiums have also been added.

ARRANGEMENT

The Compendium is arranged by broad subject area and consists of abstracts of Part IX research reports, reports produced under the External Research Program, and dissertations produced under the CMHC Scholarship Program. Detailed subject, author, and title indexes can be found at the end of the Compendium.

AVAILABILITY OF REPORTS

Most research reports are available from the Canadian Housing InformationCentre. All theses and scholarship reports are available for consultation at the Centre.

AVANT-PROPOS

En vertu de la Partie IX de la Loi nationale sur l'habitation, le gouvernement du Canada fournit des fonds à la Société canadienne d'hypothèques et de logement pour la recherche sur les aspects sociaux, économiques et techniques du logement et des domaines connexes.

Nous avons rassemblé ce treizième Compendium de recherche afin de rendre publics et plus accessibles les rapports de recherches et d'études rédigés au titre de programmes de recherche que la Société a parrainés en 1995/96. Quelques rapports non compris dans les premiers Compendiums ont aussi été ajoutés.

PRÉSENTATION

Le Compendium se divise en domaines d'études généraux et réunit des abrégés de rapports de recherches préparés en application de la partie IX des rapports produits au titre du Programme de subventions de recherche, et des thèses et mémoires rédigés par des diplômés admis au Programme de bourses d'études de la Société. Des index matières, auteurs et titres plus détaillés se trouvent à la fin du Compendium.

CONSULTATION DES RAPPORTS

On peut se procurer la plupart des rapports de recherches au Centre canadien de documentation sur l'habitation. Quant aux thèses et mémoires de boursiers nous les avons en bibliothèque, mais il faut les consulter sur place.

Canada Mortgage and Housing Corporation, the Federal Government's housing agency, is responsible for administering the National Housing Act.

This legislation is designed to aid in the improvement of housing and living conditions in Canada. As a result, the Corporation has interests in all aspects of housing and urban growth and development.

Under Part IX of this Act, the Government of Canada provides funds to CMHC to conduct research into the social, economic and technical aspects of housing and related fields, and to undertake the publishing and distribution of the results of this research. CMHC therefore has a statutory responsibility to make widely available, information which may be useful in the improvement of housing and living conditions.

This publication is one of the many items of information published by CMHC with the assistance of federal funds.

La Société canadienne d'hypothèques et de logement, l'organisme du logement du gouvernement du Canada, a pour mandat d'appliquer la Loi nationale sur l'habitation.

Cette loi a pour objet d'aider à améliorer les conditions d'habitation et de vie au Canada. C'est pourquoi la Société s'intéresse à tout ce qui concerne l'habitation, l'expansion et le développement urbains.

Aux termes de la Partie IX de la Loi, le gouvernement du Canada autorise la SCHL à affecter des capitaux à des recherches sur les aspects socio-économiques et techniques du logement et des domaines connexes, et à publier et diffuser les résultats de ces recherches. La SCHL a donc une obligation légale de veiller à ce que tout renseignement de nature à améliorer les conditions d'habitation et de vie soit connu du plus grand nombre possible de personnes ou de groupes de personnes.

La présente publication est l'un des nombreux moyens d'information que la SCHL a produits avec l'aide de capitaux du gouvernement fédéral.

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NOTE TO INTERNATIONAL CLIENTS

The "Compendium of Research" cites research reports, scholarship reports and priced publications.
Availability and place of ordering varies with the type of report

PRICED PUBLICATIONS

Publications with prices listed in the Compendium are available for sale to international clients. Prices are payable in U.S. dollars. Orders can be placed and the exact price, with shipping and handling, can be obtained from the following address:

CMHC Information Products
700 Montreal Road
Suite 1000
Ottawa, Ontario
K1A 0P7
Tel.: 613-748-2003
Fax: 613-748-2016

SCHOLARSHIP REPORTS

Scholarship reports are identified as such and are available for consultation at the Canadian Housing Information Centre. In some cases they may be available for loan. To enquire about a loan, contact the Centre at:

Interlibrary Loans
Canadian Housing Information Centre
Canada Mortgage and Housing Corporation
700 Montreal Road
Ottawa, Ontario
K1A 0P7
Tel.: 613-748-2235
Fax.: 613-748-4069
Internet: chic@cmhc-schl.gc.ca

RESEARCH REPORTS

Research reports are listed without a price in the Compendium. They are free to Canadian residents. However, to recover some of our distribution costs there is a fee to mail research reports to locations outside of Canada. The price for research reports mailed to destinations in the United States is \$10.00 U.S. for each report. The price for research reports mailed to destinations in other countries is \$15.00 U.S. for each report. Research reports can be ordered from the address listed below:

Canadian Housing Information Centre
Canada Mortgage and Housing Corporation
700 Montreal Road
Ottawa, Ontario
K1A 0P7
Tel.: 613-748-2367
Fax.: 613-748-4069
Internet: chic@cmhc-schl.gc.ca

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NOTE AUX CLIENTS INTERNATIONAUX

Le Compendium d'enquête fait état de rapports de recherches, de rapports d'études et de publications payantes. **La disponibilité des documents et le bureau où commande varient en fonction du genre de rapport demandé.**

PUBLICATIONS PAYANTES

Les clients internationaux peuvent se procurer les publications payantes inscrites dans le compendium. Les prix sont indiqués en argent américain. On peut commander ces publications et obtenir de l'information sur leur prix exacts, avec les frais de port et d'expédition, à l'adresse suivante :

Produits d'information de la SCHL
700, chemin Montréal
Pièce 1000
Ottawa (Ontario)
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Téléphone : 613-748-2003
Télécopieur : 613-748-2016

RAPPORTS D'ÉTUDES

Les rapports d'études sont indiqués tels quels; on peut les consulter au Centre canadien de documentation sur l'habitation. Dans certains cas, on peut les emprunter. Pour obtenir des renseignements sur un prêt, communiquer avec le Centre à l'adresse suivante :

Prêts entre bibliothèques
Centre canadien de documentation sur l'habitation
Société canadienne d'hypothèques et de logement
700, chemin Montréal
Ottawa (Ontario)
K1A 0P7
Téléphone : 613-748-2235
Télécopieur : 613-748-4069
Internet : chic@cmhc-schl.gc.ca

RAPPORTS DE RECHERCHES

Les prix des rapports de recherches ne sont pas indiqués dans le compendium. Ils sont gratuits pour les résidents Canadiens. Toutefois, pour récupérer une certaine partie des coûts de distribution, des frais sont demandés pour l'envoi de ces rapports par la poste à des endroits situés en dehors du Canada. Pour un envoi aux États-Unis, les frais sont de 10 dollars américains par rapport. Ces frais sont de 15 dollars américains pour les autres pays. On peut commander les rapports de recherche à l'adresse suivante :

Centre canadien de documentation sur l'habitation
Société canadienne d'hypothèques et de logement
700, chemin Montréal
Ottawa (Ontario)
K1A 0P7
Téléphone : 613-748-2367
Télécopieur : 613-748-4069
Internet : chic@cmhc-schl.gc.ca

ACOUSTICS/ACOUSTIQUE

1.

MODELLING OF ROAD NOISE AND OPTIMAL BARRIER DESIGN.

Prepared by K.R. Fyfe and C.C. Harrison. Ottawa: Canada Mortgage and Housing Corporation, 1995. (External Research Program).

Numerous models have been developed around the world for conducting road noise studies that claim to account for many geometrical factors and acoustic properties, but most, if not all, have been carried out using geometric energy-based analysis that by and large ignores phase. This assumption is valid for higher frequency regimes, but is inadequate for the low frequency spectrum typical of traffic noise. This report describes and compares traditional energy-based models with more recently developed wave-based models. In particular, a two dimensional boundary element model is applied to systematically compare variations of the barrier's size, cross-sectional shape, absorptive coatings and general orientation. A barrier insertion loss rating parameter that takes into account the traffic noise spectrum is introduced to facilitate comparison of the different configurations.

Several significant relationships between barrier design characteristics and insertion loss have been observed. The results obtained for the single barrier cases suggest a basically linear relationship between the insertion loss and changes in basic barrier parameters such as height, width, absorptive coating, as well as source and receiver locations. This suggests that results for a geometry with small variations from the standard case may be able to be tabulated, rather than recomputed for each special case.

For single barriers, absorptive coatings were found not to have significant positive improvements in the barrier performance except when the source was located close to the barrier. Alterations of the barrier cross-sectional shape were observed to have significant influence on the barrier's acoustic performance. A tee-shaped barrier, for example, was found to have an insertion loss 5dB greater than that for a semi-circular mound of the same height. Barriers on either side of the noise source have also been studied. The addition of a second barrier greatly impairs the acoustic performance of the shadow region of a single barrier unless absorptive coatings are applied to the source side of the barriers.

2.

LA QUALIFICATION DU DEGRÉ DE CONFORT ACOUSTIQUE PROCURÉ PAR LES IMMEUBLES MULTILOGEMENTS.

Préparé par Michel Morin, MJM Conseillers en Acoustique inc. Ottawa : Société canadienne d'hypothèques et de logement, 1996. (Programme de subventions de recherche).

Si tous les occupants d'immeubles multilogements exigent le droit de pouvoir vivre paisiblement chez eux sans se soucier de déranger les voisins ou d'être dérangés par ceux-ci, peu d'entre eux peuvent décrire objectivement l'intimité acoustique que procure leur logement. Dans la tête de la plupart des gens, le confort acoustique est un concept flou qui ne se précise que lorsqu'on en est insatisfait. Il existe au Canada et dans d'autres pays des règlements de construction et des normes qui visent le confort acoustique des occupants de logements. Il existe de plus des normes pour mesurer l'affaiblissement des bruits aériens et d'impact (ASTM et ISO). Cependant, les mesures faites en stricte conformité avec ces normes peuvent être coûteuses et ne sont pas à la portée de toutes les bourses; de plus elles ne représentent peut-être pas le meilleur outil lorsqu'on les utilise dans une optique de contrôle ou d'évaluation de la qualité globale d'un immeuble.

Ce rapport constitue la première phase de la mise au point d'une méthode d'évaluation du degré de confort acoustique procuré par les unités d'habitation des édifices à logements multiples. La projet vise à faire une synthèse des connaissances disponibles, à les traduire sous forme d'objectifs d'isolation sonore à atteindre

dans les constructions multilogementset a élaborer un protocole d'évaluation du confort acoustique que procurent les unités d'habitations d'un complexe multilogements.

BUILDING CODES CODES DU BÂTIMENT

3.

GUIDE D'APPLICATION DE LA PARTIE 9 DU CODE NATIONAL DU BÂTIMENT AUX IMMEUBLES EXISTANTS.

Préparé par A.T. Hansen Consulting Services. Préparé pour la Division des normes et services professionnels, Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1995.

Ce rapport a été commandé par la SCHL pour répondre aux préoccupations de ceux qui souhaiteraient avoir une orientation plus spécifique aux immeubles existants tout en tenant compte des inquiétudes exprimées par la Commission canadienne des codes du bâtiment et de prévention des incendies (CCCB) concernant la souplesse et un niveau égal d'hygiène et de sécurité à assurer aux occupants de tous les immeubles, qu'ils soient neufs ou anciens.

Le rapport comporte trois chapitres. Dans le premier, on traite des principes qui devraient régir l'application du Code dans le cas des immeubles existants. Le deuxième énonce les objectifs de chacun des articles de la partie 9. Dans le troisième, on trouve cinquante exemples de problèmes types occasionnés par l'application du Code national du bâtiment aux immeubles existants. On y propose des solutions, accompagnées d'une explication de la manière dont les nouvelles solutions de rechange ont été élaborées.

Un projet d'article à inclure dans la partie 9 est présenté à l'annexe A. Ce nouvel article a pour objet d'établir des exigences propres à la réglementation des immeubles existants, dans la mesure où cela est réalisable. Il devrait faire le pont, juridiquement parlant, entre les dispositions du CNB et l'information que renferme le présent guide. Il a été proposé que le nouvel article soit appliqué de concert avec le Guide pour assurer une marge de manœuvre dans la réglementation relative aux immeubles existants, tout en offrant aux intéressés une orientation plus précise quant à la mesure dans laquelle le CNB devrait être appliqué aux immeubles existants.

NOTE: Also available in English under the title *Guide for the Application of Part 9 of the National Building Code to Existing Buildings. (Compendium of Research, 1995).*

4.

IMPLICATIONS OF ADOPTING THE NATIONAL ENERGY CODE FOR HOUSING IN ONTARIO.

Prepared for Ontario Hydro, Ontario Ministry of Housing, Ontario Ministry of Environment and Energy, Ontario Natural Gas Association and Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1995.

This study examines a broad range of implications associated with the adoption of the National Energy Code for Housing (NECH) in Ontario. The NECH differs in structure from the present provisions for energy efficiency in the Ontario Building Code (OBC) in that it is a companion document to the National Building

Code (NBC), whereas requirements for energy efficiency in new housing are integral to Part 9 of the OBC. Its adoption would imply a major revision to the current version of the OBC.

This study compares the OBC and the NECH providing commentary on key differences between the documents. It examines the energy, environmental and industry implications of adopting the NECH in Ontario. It reviews the cost implications of adoption from a capital, energy and life cycle viewpoint while examining environmental costs by monetizing space heating equipment emissions. A number of technical issues are examined by this report in relation to specific NECH requirements. Finally, adoption issues which have been identified by two focus groups comprised of industry and enforcement officials are presented.

The NECH contains a number of positive aspects including specific improvements over the current version of the OBC. However, for the large majority of Ontario houses, the energy and environmental benefits of fully adopting the NECH are marginal in relation to the most recent requirements for energy efficiency adopted by the OBC in 1993. A general consensus among stakeholders indicates that positive aspects of the NECH should be incorporated into Part 9 of the OBC, while the trade-off and performance compliance paths of the NECH should be referenced in OBC Section 9.38, Thermal Design

BUILDING MATERIALS MATERIAUX DE CONSTRUCTION

5.

BUILDING MATERIALS FOR THE ENVIRONMENTALLY HYPERSENSITIVE.

Prepared by Jools Development. Project Team: Julie Van Vliet, Oliver Drerup, Jeff Feigin, Ed Lowans, David Rousseau, Lynda Brooks and George Bruce. Ottawa: Canada Mortgage and Housing Corporation, 1995.

Order number: 6742E. ** Price: \$29.95 + GST and handling charges.

NOTE: Available from: CMHC Information Products, 700 Montreal Road, Suite 1000, Ottawa, Ontario, K1A 0P7. Tel.: 1-800-668-2642. Fax orders from Canada: 1-800-245-9274. International clients see page viii for order instructions.

"Building Materials for the Environmentally Hypersensitive" was prepared to help individuals and builders select building materials that have minimal negative effects on the health of environmentally hypersensitive occupants. The materials included are those typically used in residential construction in cold climates. Two kinds of information were used in evaluating the materials: 1) known or published information about the products; and 2) the experiences of hypersensitive individuals with these materials. The responses of hypersensitive individuals to the building materials were used as an indicator of how these materials affect the environmentally hypersensitive.

NOTE : Aussi disponible en français sous le titre: *Matériaux de construction pour les logements des personnes hypersensibles. (6743F).*

6.**E Z CORNERS METAL ANGLE FRAMING ACCESSORY.**

Prepared by Drago Blazevic and Paul Skerry Associates Ltd. Prepared for Social Economic Policy and Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1995. (Housing Technology Incentives Program).

Work was begun in the summer of 1995 to set up a testing protocol which would generate sufficient data to manufacture and market a framing accessory or a series of framing accessories under the trade name E Z Corners. The idea was to eliminate the use of unnecessary framing lumber by substituting a sheet metal angle or another shape which would be versatile, not subject to shrinkage, economical and easy to install. It was decided that the simple "L" shape and the "L" shape in combination with a standard steel stud would be the most useful and most practical shape to develop. A project was selected that was in the wood-frame phase of construction and the E Z Corners system of sheet metal angles was installed. The project was allowed to weather for a complete heating season and was examined, in March 1996, for signs of deformation, screw popping, or any signs associated with shrinkage or drying. None were found.

7.**MATÉRIAUX DE CONSTRUCTION POUR LES LOGEMENTS DES PERSONNES HYPERSENSIBLES.**

Rédigé par Jools Development; équipe de rédaction: Julie Van Vliet, Oliver Drerup, Jeff Feigin, Ed Lowans, David Rousseau, Lynda Brooks et George Bruce. Ottawa : Société canadienne d'hypothèques et de logement, 1995.

Numéro de commande: 6743F. **Prix : 29,95\$ + TPS et frais d'expédition.

NOTE : Disponible par la poste : Produits d'information de la SCHL, 700, chemin de Montréal, pièce 1000, Ottawa (Ontario) K1A 0P7. Tél. : 1-800-668-2642. Commandes par télécopieur au Canada : 1-800-245-9274. Clients internationaux : voir à la page viii les instructions relatives aux commandes.

Le guide "Matériaux de construction pour les logements des personnes hypersensibles" a pour objet d'aider les individus et les constructeurs à arrêter leurs choix sur des matériaux et produits peu préjudiciables à la santé des personnes hypersensibles aux polluants environnementaux. Les matériaux et produits répertoriés sont d'usage courant en construction résidentielle dans les régions froides. Deux catégories d'informations ont servi à l'évaluation des matériaux : l'information connue ou publiée à l'égard des produits, de même que les expériences de personnes hypersensibles. Les réactions que suscitent les matériaux de construction chez les personnes hypersensibles indiquent comment ces matériaux peuvent les affecter.

NOTE: Also available in English under the title *Building Materials for the Environmentally Hypersensitive. (6742E)*.

CITY PLANNING AND HUMAN SETTLEMENTS URBANISME ET ÉTABLISSEMENTS HUMAINS

8.

THE CITY AS SURFACE: INVESTIGATIONS IN FRACTAL THEORY AND SOCIAL SPACE IN SAINT-LOUIS, SENEGAL.

Prepared by David Broscoe. Thesis (M.A.) - Carleton University, 1993. (Scholarship Program).

This thesis explores the links between the texture of scanned aerial imagery of Saint-Louis, Senegal and that city's morphology. The texture of the imagery is analyzed using a fractal-based method, implemented by the author, which produces raster "surfaces" indicating both the local fractal dimension (texture) and the fit of the imagery to the fractal-based method. As these derived surfaces can be viewed in a raster Geographic Information System (GIS), this approach offers a new way of visualizing the texture and morphology of human settlements.

This study explores to what extent the city may be considered fractal. The theoretical framework of this examination links Henri Lefebvre's concept of "social space" to multidisciplinary discussions of the concept of texture and its links to order and disorder. Given that space is frozen time, this thesis also explores the processes which have formed the "colonial city", in the generic sense as well as the specific history of Saint-Louis. The thesis finds that the fractal categorization of urban neighbourhoods augments rather than contradicts a visual interpretation of the imagery, while an advanced classification of the city's morphology requires extensive knowledge of local and colonial history.

9.

LA COLLECTIVITÉ INTÉGRÉE : UNE ÉTUDE DES NOUVELLES NORMES D'AMÉNAGEMENT FONCIER.

Préparé par Berridge Lewinberg Greenberg Dark Gabor Ltd., Cosburn Patterson Wardman Limited et Glatting Jackson Kercher Anglin Lopez Reinhart. Préparé pour la Division des politiques et de la recherche sociales et économiques, Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1996.

Numéro de commande: PF207. **Prix : 12,95 \$ + TPS et frais d'expédition.

NOTE : Disponible par la poste : Produits d'information de la SCHL, 700, chemin de Montréal, pièce 1000, Ottawa (Ontario) K1A 0P7. Tél. : 1-800-668-2642. Commandes par télécopieur au Canada : 1-800-245-9274. Clients internationaux : voir à la page viii les instructions relatives aux commandes.

Dans cette étude, on évalue de deux manières l'état actuel des normes et initiatives d'aménagement liées aux mécanismes de contrôle de l'aménagement en faisant d'abord une étude des normes d'aménagement actuelles, suivi d'une examination des manifestations physiques dans quatre villes nord-américaines. On a examiné les normes d'aménagement liées aux parcs, aux terrains exposés, à la gestion des eaux pluviales, aux écoles, aux routes, au cyclisme, aux transports en commun et aux utilisations des sols pour les villes suivantes: Toronto/Markham (Ontario); Calgary (Alberta); Portland (Oregon); et Ottawa/Kanata (Ontario).

Dans le cadre de l'étude, on a également établi un ensemble de principes et de directives pour mettre en œuvre une nouvelle façon d'aborder les normes d'aménagement et fait la démonstration des possibilités d'une nouvelle méthode par la conception d'une collectivité fictive appelée la collectivité intégrée. La collectivité intégrée est une forme urbaine hybride qui adopte les éléments réussis des formes conventionnelles des

collectivités urbaines et suburbaines et propose une intégration des éléments physiques et culturels du paysage tout en respectant le milieu naturel.

NOTE: Also available in English under the title *The Integrated Community: A Study of Alternative Land Development Standards*. (PE207)

10.

AN EXPLORATION OF THE HEALTHY COMMUNITIES CONCEPT AND ITS APPLICABILITY TO COMMUNITY PLANNING PRACTICE.

Prepared by Susan Blumenthal Freig. Thesis (Master of City Planning) - University of Manitoba, 1996. (Scholarship Program).

This thesis explores the concept of healthy communities and its applicability to community planning practice. Their linkages and mutually reinforcing commonalities in the areas of social equity, public participation, empowerment and sustainability are examined. In addition qualitative information is gained from planners, and those in associated fields, selected on the basis of their knowledge and experience with healthy communities. Through a telephone interview process, they were asked about their level of support or resistance to the concept of healthy communities, their perceptions relating to the value of their involvement with healthy communities and their needs for further knowledge and skill development for integrating healthy communities into their planning practice.

One of the contentions of this thesis was that the greater the planners' orientation to the concepts of equity, participation, sustainability and empowerment the more positive their attitudes would be to healthy communities, and the more they would have integrated them into their professional practices. A relationship between the respondents' planning philosophies, and their interest and involvement with healthy communities does, in fact, emerge from the study results, but not equally with each of the four objectives. The relationship is strongest with the planning objective of public participation, followed closely by social and economic equity and empowerment. The relationship is weakest with the planning objective of sustainability.

The great diversity amongst the theories of planning that the respondents described as guiding their professional practices is a significant stumbling block for the planning profession when it comes to the application of the concept of healthy communities to planning practice. There is no one particular framework or approach for incorporating healthy communities into planning practice, which leaves it to each planner to link the healthy communities concept with their own particular theories of planning, and to then integrate it into their practice.

11.

GLOBAL BEST PRACTICES INITIATIVE FOR IMPROVING THE LIVING ENVIRONMENT: REPORT OF THE BEST PRACTICES JURY.

Prepared for Habitat II, the Second United Nations Conference on Human Settlements, Istanbul 1996. Toronto: Habitat II, 1996.

As part of the Habitat II preparations and activities, an international competition was organized to showcase some of the best urban practices from around the globe. Over 640 proposals were received. An international Technical Advisory Committee (TAC) was constituted to review all submissions and narrow the selection down to the top 100 entries. Forty-three proposals were noted as worthy of special attention, including two from Canada: Hamilton-Wentworth and Metro Toronto. The recommendations of the TAC were reviewed by an International Selection Jury which made the final decisions. Metropolitan Toronto hosted the meeting of

this Jury which was held on March 28 & 29, 1996 with support from CMHC. The Jury selected the top 12 practices which included the submission from Metro Toronto

12.

HABITAT II: CANADIAN NATIONAL REPORT: UNITED NATIONS CONFERENCE ON HUMAN SETTLEMENTS, ISTANBUL, TURKEY, JUNE 1996 = HABITAT II : RAPPORT NATIONAL CANADIEN : CONFÉRENCE DES NATIONS UNIES SUR LES ÉTABLISSEMENTS HUMAINS, ISTANBUL (TURQUIE) JUIN 1996.

Ottawa: Canada Mortgage and Housing Corporation, 1996. (NHA/LNH 6909).

The content of this report addresses the two central themes of Habitat II - adequate shelter for all and sustainable human settlement development in an urbanizing world. The report describes Canada's housing system, the jurisdictional and policy context for the development of housing, the condition of the housing stock, and current and anticipated housing trends. The evidence indicates that housing conditions have improved remarkably for most Canadians and that efforts are underway to make housing more sustainable. However, there are still households living in substandard housing including many in Aboriginal communities.

The report also identifies current planning and development trends and highlights the implications for sustainability. A number of components of the urban environment, ranging from transportation to waste water treatment and use of land, are examined. The report highlights initiatives introduced by the various levels of government, the private sector and community groups to achieve a more sustainable environment. Finally, the report addresses the various activities of Canadian agencies that assist other countries to provide adequate shelter and improve the sustainability of development.

NOTE: Bilingual/bilingue

13.

HABITAT II : RAPPORT NATIONAL CANADIEN : CONFÉRENCE DES NATIONS UNIES SUR LES ÉTABLISSEMENTS HUMAINS, ISTANBUL (TURQUIE) JUIN 1996 = HABITAT II: CANADIAN NATIONAL REPORT: UNITED NATIONS CONFERENCE ON HUMAN SETTLEMENTS, ISTANBUL, TURKEY, JUNE 1996.

Ottawa : Société canadienne d'hypothèques et de logement, 1996. (LNH/NHA 6909).

Ce rapport porte sur les deux thèmes centraux d'Habitat II - un logement convenable pour tous et l'aménagement d'établissements humains durables dans un monde en voie d'urbanisation. Le rapport traite du système de logement du Canada, le contexte des politiques et des compétences qui entourent la production de logements, l'état du parc de logements ainsi que les tendances actuelles et prévues dans ce domaine. On peut constater que les conditions de logement de la plupart des Canadiens manifestent une amélioration remarquable, et qu'on travaille à rendre les habitations plus durables. Toutefois, certains ménages vivent encore dans des logements inférieurs aux normes, dont plusieurs dans les collectivités autochtones.

Le rapport dégage également les tendances actuelles en matière d'urbanisme et d'aménagement et les conséquences qu'elles comportent pour la durabilité. Plusieurs composantes du milieu urbain sont étudiées, dont les transports, le traitement des eaux usées et l'utilisation du territoire. Le rapport souligne les initiatives mises en place par les divers paliers de gouvernement, le secteur privé et les associations communautaires en vue de rendre l'environnement plus durable. Enfin, le rapport traite des diverses activités des organismes

canadiens qui aident les autres pays à assurer un logementconvenable et à améliorer la durabilité du développement.

NOTE : Bilingue/bilingual

14.

**HABITAT II: SECOND UNITED NATIONS CONFERENCE ON HUMAN SETTLEMENTS,
ISTANBUL 1996: CANADIAN NGO'S POST-CONFERENCE REPORT.**

Prepared by Diane Saibil. Prepared for the Canadian Housing and Renewal Association and Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1996.

This report reviews Canadian participation at the Habitat II Conference and Canadian issues emerging from the Conference. It discusses the role of the Canadian government's delegation, the collaboration of NGOs delegates and the results of the NGO Forum. It also examines the outcomes of the Habitat Agenda as well as the commitments made by the Canadian government during the Conference.

15.

THE INTEGRATED COMMUNITY: A STUDY OF ALTERNATIVE LAND DEVELOPMENT STANDARDS.

Prepared by Berridge Lewinberg Greenberg Dark Gabor Ltd., Cosburn Patterson Wardman Limited and Glatting Jackson Kercher Lopez Rinehart. Prepared for Social and Economic Policy and Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1996.

Order number: PE207. ** Price: \$12.95 + GST and handling charges.

NOTE: Available from: CMHC Information Products, 700 Montreal Road, Suite 1000, Ottawa, Ontario, K1A 0P7. Tel.: 1-800-668-2642. Fax orders from Canada: 1-800-245-9274. International clients see page viii for order instructions.

This study assesses the current state of development standards and initiatives related to development controls by undertaking two tasks: conducting a literature review; and identifying the current development standards and exploring their physical manifestations in four North American cities. Development standards related to parks, hazard lands, storm water management, schools, roads, cycling, transit and land use were explored for the following cities: Toronto/Markham, Ontario; Calgary, Alberta; Portland, Oregon; and Ottawa/Kanata, Ontario.

The study also developed a set of principles and guidelines for an alternative approach to development standards and demonstrated the potential of an alternative approach through the design of a fictitious community entitled the Integrated Community. The Integrated Community is a hybrid urban form which adopts successful elements from conventional urban and suburban community form and proposes an integration of physical and cultural elements of the landscape while respecting the natural environment.

NOTE : Aussi disponible en français sous le titre : *La Collectivité intégrée : une étude des nouvelles normes d'aménagement foncier.* (PF207).

16.

PLANNING THE ACTIVE NEIGHBOURHOOD: A DISCUSSION OF RESIDENT-DIRECTED NEIGHBOURHOOD PLANNING: A PAPER PREPARED IN SUPPORT OF A PRESENTATION AT THE 1996 MEETING OF THE CANADIAN INSTITUTE OF PLANNERS.

Prepared by W.H. James Taggart. Ottawa: Canada Mortgage and Housing Corporation, 1996.

Planners face a special challenge in responding to the Brundtland Commission's call for the empowerment of disadvantaged local populations which they can address within the concept of resident-directed planning. Planners can provide the tools these citizens need to become truly effective participants, whether it be knowledge of community survey techniques or introductory concepts in democratic structuring and project management.

The federal government has supported local community involvement in housing and urban issues through a variety of programs over the past thirty years. Examples include the co-operative housing programs, community resource organization funding and, perhaps most relevant, the Neighbourhood Improvement Program from the 1970s. The community-building success of one low-income community is provided as illustrative of the potential of community-based approaches. Various evaluations have demonstrated the benefits of resident-initiated and resident-directed efforts, largely focusing on the development of new skills and the enhanced self-reliance of participants. Other potential benefits include the leverage of a wide range of social goods by the empowered citizenry. On the other hand, a number of potential problems of citizen-controlled planning have been suggested, ranging from NIMBYism, through the issue of parochial versus wider interests, to the question of how representative participants are of the population and the danger of cliques.

One of the most prevalent myths throughout the debate has been that home owners are the most committed residents, perhaps founded on the notion that economic self-interest is the most powerful force in human decisions. A study of townhouse occupants under four different tenure forms found strong contradictory evidence: freehold owners were less likely to be active in their neighbourhoods than condo owners and most particularly less active than members of not-for-profit co-ops. At the low end of the scale, tenants exhibited both the lowest satisfaction and participation, with rates far below what could be predicted on the basis of their relative income or education levels.

17.

U.N. CONFERENCE ON HUMAN SETTLEMENTS "THE CITY SUMMIT": REPORT ON THE HABITAT II CONFERENCE HELD IN ISTANBUL, JUNE 3-14, 1996.

Prepared by Louise Constantin, Rooftops Canada. Prepared for International Relations Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1996.

Louise Constantin represented the views of Canadian NGOs interested in human settlements as part of the Canadian delegation attending the third Preparatory Committee Meeting (PreCom) of Habitat II held in New York as well as Habitat II which took place in Istanbul, Turkey. This report provides background information on the PreCom meetings as well as the outcome of the discussions at Habitat II, the NGO Forum which offered workshops on a variety of topics, and the sessions of the women's super-coalition.

18.**URBAN SOLUTIONS TO GLOBAL PROBLEMS: VANCOUVER- CANADA- HABITAT II.**

Edited by Patrick J. Smith, H. Peter Oberlander and Tom Hutton. Vancouver: Centre for Human Settlements, University of British Columbia in association with the Institute of Governance Studies, Simon Fraser University, 1996.

A majority of the articles included in this volume are from work initially presented at the Habitat II Vancouver Colloquium. Together with input from other Habitat II meetings, locally and in other settings across the country, this volume is intended as a contribution to the Canadian position at Habitat II, and as a record of "what needs to be done".

Urban Solutions to Global Problems is divided into six sections:

Part One discusses the links between urban/metropolitan problem solving and solutions to the range of ecological, socio-economic and governing problems currently confronting us globally. The focus *Part Two* is environmental sustainability. It includes articles on air quality, land use and water resources, with a particular concentration on the experience of the Vancouver region in the period since Habitat *Part Three* examines the roles of Canada Mortgage and Housing Corporation, in supporting the work of the UN Commission and Centre for Human Settlements - from the period leading up to Habitat I, 1976, through to today. In *Part Four*, the forces which influence the economic and social development of city-regions like Vancouver are examined. *Part Five* addresses current debates about the capacity of urban governance structures, particularly their metropolitan iterations. Finally, the last section sets out specific recommendations for commitment and action on environmental sustainability, on social and economic development and equity, and on urban governance.

19.**WRITING URBAN DESIGN.**

Prepared by Nicholas Dobbing. Thesis (Master of Landscape Architecture) - University of Guelph, 1995. (Scholarship Program).

In 1988, the City of Guelph received Ministerial approval of an update to its Official Plan. A new draft zoning by-law was prepared to bring the city's zoning up to date with the revised plan, and this was taken to public review in 1992. During the public review, many of the participants from the community raised strong concerns about the conservation of the character of built form in the city, and particularly in older areas of Guelph. These concerns were spurred in part by various recent proposals for infill and redevelopment, with respect to the construction of high-rise apartments. Such projects were seen to be out of scale with, and inappropriate to, the surrounding built context. Residents expressed their desire to preserve the particular qualities of older urban landscapes in Guelph which they saw as being threatened.

This thesis investigates the development of urban design policy for the City of Guelph. It proceeds from a critique of conventional research methodology in landscape architecture and advocates an alternative methodology within which the political dimensions of landscape change may be explored. Within a postmodern framework, the study focuses on the process through which a particular ideal of landscape was brought forward through local institutions governing landscape change. A qualitative case study was undertaken involving interviews with members of the City's 1994 Urban Design Project team. Special attention was paid to the exercise of power in landscape change, the construction of legitimacy for particular directions by team members, competition for control of the landscape, and the way changes to the urban landscape are constrained by local institutional practices and structures.

CLADDING/PAREMENT

20.

BRICK VENEER STEEL STUD. BEST PRACTICE GUIDE: BUILDING TECHNOLOGY.

Prepared by James B. Posey and Andrew Little. Ottawa: Canada Mortgage and Housing Corporation, 1996.

Order number: 6915E. ** Price: \$89.00 + GST and handling charges.

NOTE: Available from: CMHC Information Products, 700 Montreal Road, Suite 1000, Ottawa, Ontario, K1A 0P7. Tel.: 1-800-668-2642. Fax orders from Canada: 1-800-245-9274. International clients see page viii for order instructions.

After an initial field study of the performance and durability of brick veneer/steel stud wall systems (BV/SS), CMHC commissioned a series of building sciences experiments and theoretical studies to see how deficiencies observed in the field could be avoided in future BV/SS designs. This guide summarizes the findings of several of these projects and shows how to apply the results. Subjects dealt with in the guide include: rain penetration control; condensation control; thermal bridging; construction sequencing; quality control; testing and commissioning; and maintenance and repair. Drawings of construction details (in DWG and DXF format) and the master specifications for lateral loadbearing steel studs (in WordPerfect 5 and ASCII text) are provided on two diskettes which accompany the guide and can be copied and modified for project use. Measurements are provided in both metric and imperial versions.

NOTE : Aussi disponible en français sous le titre : *Ossature en acier et placage de brique.* (6916F).

21.

CONTRÔLE DES TAUX D'HUMIDITÉ DE LA CAVITÉ DE L'IMMEUBLE DE LA CANADA VIE.

Préparé par Canadian Building Envelope Science and Technology. Préparé pour la Division de l'innovation dans l'habitation, Société canadienne d'hypothèques et de logement. Étude financée par la Société canadienne d'hypothèques et de logement en collaboration avec Adason Properties Limited. Ottawa : SCHL, 1995.

Cette étude avait pour but d'étudier sur le terrain les taux d'humidité de la cavité murale de l'écran pare-pluie du siège social de la Canada Vie, situé à Toronto, durant et après une chute de pluie. Deux panneaux muraux donnant sur l'ouest ont été équipés d'instruments destinés à mesurer l'intensité des chutes de pluie, l'humidité relative, la température et la pression barométrique. Le premier panneau était situé près du centre de l'immeuble, tandis que le second se trouvait au quart environ de la largeur du bâtiment à partir de l'angle nord. Il est survenu un épisode important de pluies torrentielles pendant une période de contrôle de quatre semaines. Le panneau du centre a reçu moins de pluie que le panneau situé plus près de l'angle de l'immeuble. Durant une période de pluie de 15 minutes, le pluviomètre affecté au panneau du centre a enregistré 124 mm de précipitations comparativement à 205 mm pour l'autre pluviomètre.

À partir des données recueillies sur l'humidité relative, la température et la pression barométrique, on a pu tracer sur graphique des courbes d'humidité spécifique (HS) pour chaque cavité murale et pour le milieu ambiant intérieur et extérieur avant, pendant et après les précipitations. Les courbes d'HS ainsi obtenues ont fait ressortir que la limite d'apport maximal de vapeur (AMV) à la teneur en humidité de l'air de la cavité avait été atteinte avant les précipitations. Grâce au tandem HS et AMV, il a été possible de détecter la présence d'eau libre ayant pénétré dans les panneaux muraux. On a également pu estimer le temps de

séchage de chaque panneau. Le temps de séchage minimal ainsi prévu a été de 2,25 heures pour le panneau du centre et de 10,0 heures pour l'autre panneau.

NOTE: Also available in English under the title *Monitoring of Cavity Humidity Levels at Canada Life Building. (Compendium of Research 1995)*.

22.

ÉTUDE DE PERFORMANCE D'UN SYSTÈME DE MURS À OSSATURE D'ACIER RECOUVERTE D'UN PLACAGE DE BRIQUE : RÉSULTATS DE LA PHASE 2.

Préparé par Steven P. Laviolette et H. Keller, Keller Engineering Associates Ltd. Préparé pour la Division de l'innovation dans l'habitation, Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1995.

Dans le cadre du programme d'évaluation de la SCHL, la firme Keller Engineering Associates Inc. a étudié la tenue en service d'un mur à ossature d'acier recouvert d'un placage de brique (OA-PBr). Les chercheurs ont contrôlé la performance d'un mur d'essai au moyen de capteurs de température, d'humidité et de pression d'air qu'ils ont raccordés à un système informatisé d'enregistrement automatique de données. Après la période de contrôle, des ouvertures d'inspection ont été ménagées dans le mur d'essai afin de vérifier les résultats de l'analyse des données. Le présent rapport fait état des conclusions de la deuxième année d'étude de performance.

Les résultats de la phase 2 sont similaires à ceux obtenus lors de la première année d'étude. Bien que le mur OA-PRr réponde aux normes de construction actuelles, il n'offre pas la performance escomptée. À longue échéance, l'humidité emprisonnée dans la cavité et le placage de brique pourrait entraîner de graves problèmes. Les ponts thermiques qui se forment au niveau des poteaux d'ossature diminuent aussi la performance du mur. Les problèmes de performance observés sont surtout le fait de l'inefficacité du pare-air/pare-vapeur, d'une mauvaise aération de la cavité et de l'absence d'isolation extérieure. Ces résultats font ressortir la nécessité d'améliorer les normes de conception et de construction relatives aux murs OA-PBR.

NOTE: Also available in English under the title *Performance Monitoring of a Brick Veneer/Steel Stud Wall System: Phase 2 Results. (Compendium of Research 1995)*.

23.

OSSATURE EN ACIER ET PLACAGE DE BRIQUE. GUIDE DES RÈGLES DE L'ART : TECHNOLOGIE DU BÂTIMENT.

Préparé par James B. Posey et Andrew Little. Ottawa : Société canadienne d'hypothèques et de logement, 1996.

Numéro de commande: 6916F. **Prix : 89,00 \$ + TPS et frais d'expédition.

NOTE : Disponible par la poste : Produits d'information de la SCHL, 700, chemin de Montréal, pièce 1000, Ottawa (Ontario) K1A 0P7. Tél. : 1-800-668-2642. Commandes par télécopieur au Canada : 1-800-245-9274. Clients internationaux : voir à la page viii les instructions relatives aux commandes.

À la suite d'une première étude en service sur la performance et la durabilité des murs à ossature d'acier et placage de brique (OA-PBr), la SCHL a commandé une série d'études théoriques et d'expériences en science du bâtiment dans le but de déterminer de quelle façon les défaillances observées sur le terrain pouvaient être

évitées au moment de la conception defuturs murs OA-PBr. Ce guide résume les conclusions de plusieurs de ces recherches et montre comment en appliquer les résultats. On y traite des sujets suivants : maîtrise de l'infiltration de la pluie, maîtrise de la condensation, ponts thermiques, jalonnement de la construction, contrôle de la qualité, essais et mise en service, entretien et réparation. Les dessins des détails de construction (en formats DWG et DXF) ainsi qu'un devis directeur touchant les poteaux d'acier soumis à des charges latérales (en formats WordPerfect 5 et ASCII) sont fournis sur deux disquettes accompagnant le guide et peuvent être copiés et adaptés à des besoins concrets. Les mesures sont données en unités métriques et impériales.

NOTE: Also available in English under the title *Brick Veneer Steel Stud. (6915E)*.

24.

RENOVATION STRATEGIES FOR BRICK VENEER STEEL STUD WALL CONSTRUCTION.

Prepared by M.A. Postma, C.I. Wegner, and E.F.P. Burnett, Building Engineering Group, University of Waterloo with assistance from Trow Consulting Engineers Ltd. Prepared for Housing Innovation Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1992-1994, i.e., 1996. 5 volumes.

A research and development contract was awarded to the Building Engineering Group (BEG) b@MHC to assess methods of repairing brick veneer/steel stud (BV/SS) walls. The primary objective of this multi-task research project was to develop various strategies for the remediation and, thus, the control or avoidance of problems in existing BV/SS wall systems. A number of tasks were formulated and the following five task reports have been produced:

Task 1: Brick Ties - Options for Remediation. The main objective of the first task of the research project was to identify, demonstrate, assess and document methods of providing supplemental ties on BV/SS buildings. Of the eleven remedial strategies considered, seven tie systems were exterior installations (or fixes) and four were interior approaches.

Task 2: Four Remedial Tie Systems - Development and Conformance Testing This task involved a test program to establish and document the structural performance of four retrofit tie systems; two methods permitted installation from inside the building (interior fixes) and two were exterior repair methods (exterior fixes). These four tie systems were chosen from the eleven considered in Task 1. Numerous design and code related issues are addressed in detail in the Task 2 report.

Task 3: Some Performance Considerations. This task involved the testing and/or assessment of the likely performance of BV/SS walls after remediation with particular regard to considerations such as thermal bridging, condensation, drainage, corrosion and stiffness (both flexural and torsional).

Task 4: Dinal Remedial Tie System. This task involved the testing and assessment of the Dinal tie system for the purpose of tie remediation. The Dinal tie was not available when Task 1 and 2 were initiated and the Task 4 report should be regarded as a supplement to the Task 2 report.

Task 5: Summary Report This report synthesizes the work done in Tasks 1, 2, 3, and 4 and is written for a wider audience than the research community.

25.**STRUCTURAL INVESTIGATION OF SLENDER PRESTRESSED BRICK WALLS.**

Prepared by Edward M. Lacika and Robert G. Drysdale. Prepared for Canada Brick and Social and Economic Policy and Research Division, Housing Technology Incentives Program, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1996.

This report contains the results of an investigation of the out-of-plane structural behaviour of slender prestressed brick walls. Eleven simply supported walls with slenderness (h/t) ranging from 30 to 67 ($h = 2.7$ m to 6.0 m) were tested. Prestress in the walls was induced using a 26 mm diameter threaded rod which was unbonded but guided. The 1.2 m wide walls were constructed by an experienced mason using 90x90x290 mm bricks. The construction of the prestressed walls did not require special equipment, and it was possible to use commercially available tools and materials. Multiple tests were conducted on each wall to maximize the amount of information obtained. Material properties of the individual wall components were determined to provide data for use in analyses.

The assessment of the structural behaviour included investigating the interaction between slenderness, axial load, and prestress, as well as determining the influence of repeated loading on the response. The effect of eccentric axial load, applied at 30 mm from the center of the cross-section, was also investigated. For direct comparison, normally reinforced walls were also tested. Axial loads up to 800 kN were applied as the walls were subjected to out-of-plane loading. The precompression in the masonry due to prestress ranged from 0.9 to 2.7 MPa.

The findings indicate that, compared to conventional reinforcement, prestressing greatly improved the behaviour of slender brick walls. At all slenderness levels, the walls supported axial loads greater than those which would typically be found in low-rise construction. As well, the use of prestress was more effective at higher slenderness and controlled the onset of cracking. At low slenderness, the axial load also behaved as a prestress. Prestressed walls also exhibited a high resistance to repeated loading, which made it possible to perform multiple tests on one wall.

The experimental investigation identified two major difficulties which need to be addressed in future work. The ultimate limit state behaviour may be governed by the prestressing bar bursting out of the wall resulting in a sudden collapse. Moreover, a closer examination of the stress concentrations near the stress distribution plate/beam is required to avoid vertical splitting of the wall.

26.

**SYSTÈMES DE FINITION ET D'ISOLATION EXTÉRIEURS : ÉVALUATION EN
LABORATOIRE DE MATÉRIAUX ET DE JOINTS EXPOSÉS À DES CONDITIONS
CONTRÔLÉES : RAPPORT DE RECHERCHE DE LA SOCIÉTÉ CANADIENNE
D'HYPOTHÈQUES ET DE LOGEMENT (SCHL).**

Préparé par Lawrence Gibson. Essais entrepris par Doug Docherty, Ken Zeleschuk et Geri Nischio. Préparé pour la Division de l'innovation dans l'habitation, Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1995.

Durant la dernière décennie, les systèmes de finition et d'isolation extérieurs sont devenus une solution de rechange populaire aux parements traditionnels. Or, au cours des dernières années, on s'est aperçu que la résistance aux intempéries de ces systèmes pouvait laisser à désirer. Ce rapport fait état d'essais menés sur les joints des systèmes de finition et d'isolation extérieurs en vue de déterminer la résistance d'adhésion et la résistance à l'eau de certains types de joints lorsqu'ils sont soumis à un vieillissement accéléré et à un

mouvements simulé. Les essais ont également porté sur la lame de ces systèmes afin d'en évaluer la perméance à la vapeur d'eau, le coefficient de dilatation thermique et le retrait au séchage.

Les principales conclusions tirées des essais sont résumées ci-dessous :

- Le complexe de scellement à faible module, à base d'uréthane, offrait la plus grande résistance d'adhésion sur une couche de fond avec apprêt alors que le produit de scellement à base de silicone présentait le meilleur degré d'allongement lorsqu'il était appliqué sur une couche de fond avec apprêt.
- Les joints qui bénéficiaient d'un dispositif de scellement secondaire offraient une meilleure résistance à l'infiltration d'eau que les joints de surface traditionnels dont l'usage est courant.
- L'épaisseur de la lame influait beaucoup sur la perméabilité à l'humidité. En effet, les lames minces présentaient davantage d'imperfections laissant passer l'humidité.
- Durant le séchage, les taux de retrait au séchage de la lame se sont révélés relativement faibles, soit de l'ordre de 1 mm/m.
- Le coefficient de dilatation thermique obtenu était de l'ordre de 0,011 mm/m.

NOTE: Also available in English under the title *Exterior Insulation Finish Systems: Laboratory Evaluation of Materials and Joints Subjected to Artificial Conditioning: Canada Mortgage & Housing Corporation (CMHC) Research Report. (Compendium of Research 1995)*.

27.

USER REFERENCE MANUAL FOR MVSS: A FINITE ELEMENT ANALYSIS PROGRAM FOR MASONRY VENEER/STEEL STUD WALL SYSTEMS.

Prepared by Drysdale Engineering and Associates Limited and Chidiac Engineering Inc. for T.W.J. Trestain Structural Engineering. Prepared for Technical Policy and Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1993.

The MVSS finite element computer program was developed to provide an accurate analytical tool for studying the real behaviour of masonry veneer/steel stud wall systems. This User Reference Manual provides a detailed description of the program capabilities and limitations, complete instructions on how to use the program and 4 case studies.

The program has the capability of analyzing:

- Two way bending of the brick
- The flexibility of the steel components (ties, tracks and studs)
- Maximum tie strengths
- The effect of windows and other openings
- Loads from windows or doors which can be distributed to the stud frame or the veneer at pre-selected attachment points
- Various boundary conditions for the brick and the stud (such as corners and intersecting shearwalls)
- The cracking behaviour of masonry
- The effect of missing brick ties or the introduction of retrofit brick ties
- The structural effects of full or partial pressure equalization

28.**VENTS, VENTILATION DRYING, AND PRESSURE MODERATION.**

Prepared by Eric Burnett and John Straube, Building Engineering Group, University of Waterloo. Ottawa: Canada Mortgage and Housing Corporation, 1995. (External Research Program).

The orientation, size, and nature of vents in screened exterior wall systems are important to wall performance because these characteristics affect venting, ventilation and pressure moderation. With funding from CMHC's External Research Program, the Building Engineering Group at the University of Waterloo undertook an experimental and theoretical study of vents and venting in screened walls. The objective of this study was to define the problems and potentials, develop upper and lower bounds of likely performance, and provide some theory and complementary experimental measurements as a precursor to future more detailed and directed studies. The scope of the study extended to all screened and vented exterior wall systems. Masonry veneer walls were of special interest because of their wide use and the special importance of ventilation to this type of wall.

Ventilation, even small amounts, can provide significant benefits to wall performance, mostly by contributing to the removal of moisture from behind the screen. If unobstructed cavities and several strategically located large vents are provided in a screened wall, significant ventilation air flow can occur, even with the very small driving pressures that typically occur in service. The same measures will allow for the moderation of wind-induced pressure differences across the screen.

Laboratory testing of air flow through proprietary masonry vent inserts shows that these inserts greatly reduce ventilation flow. The flow of air through vents driven by dynamic pressure variations is greater, sometimes significantly so, than when driven by a static pressure difference.

Designing new or theretro-fit of existing wall systems that encourage ventilation flow can greatly increase the drying potential of a wall assembly. In masonry veneer construction, it is recommended that minimum venting, i.e., an open head joint every 600 mm² at the top and bottom of a 2.5 m high cavity or 0.2% of the wall area, should be provided. To achieve significant benefits from pressure moderation and ventilation drying, at least three times this area (0.6% of wall area) should be provided. To ensure clear cavities (which encourage good ventilation and allow drainage), the minimum width of the air space should be 30 mm; preferably, a width of 40-50 mm should be provided.

29.**THE ZERO CAVITY AND DPV WALL PROJECT.**

Prepared by Building Engineering Group, University of Waterloo. Prepared for Technical Policy and Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1996.

One of the most important and problematic functions of walls is the control of moisture penetration. Various strategies are used for moisture control in exterior walls. The popular brick veneer "rainscreen" wall system uses an exterior brick wythe to resist water and a cavity and water barrier to drain any water that penetrates the brick screen. The provision of a clear cavity and effective drainage in this form of construction is an important, if not critical, issue for moisture control. In field surveys it has been found that many cavities are obstructed by mortar dams and crossed by mortar bridges. Ensuring a clear cavity presently depends largely on the mason and the level of quality control during construction.

This project is a full-scale, field assessment of two alternative solutions to ensure a clear cavity. One alternative involves filling the cavity with an air and water permeable fibrous insulation to reduce the effect of mortar droppings and mortar dams on the cavity (called the Zero-Cavity approach). The other alternative is to avoid blockage by preventing the mortar from entering the cavity space while at the same time ensuring the drainage, pressure-moderation, and ventilating capabilities of the cavity (called the DPV approach). A

prototype of a unique insulated sheathing being developed by Dow Chemical Canada in conjunction with the Building Engineering Group was used in the DPV wall system. To provide a comparison with standard construction techniques, a Datum wall system with a clear cavity was also included in the study.

The Zero-Cavity panel performed poorly. Spring and summer diffusion of moisture from the fiberglass-filled cavity produced saturated wood framing in the bottom of the stud space. However, this was the result of the combination of the water permeability of the brick screen, the moisture retention characteristics of the fiberglass cavity fill, the vapour permeability of the TyvekTM, and the solar-induced inward vapour drive. Two of these factors can be easily resolved. It is recommended that only hydrophobically-treated fibrous insulations and sheathing or sheathing paper with sufficient vapour resistance be used in the future.

The performance of the **Datum** panels was often dominated by solar effects. The vapour drive from the cavity through the TyvekTM and glass fiber insulating sheathing into the stud space created high wood moisture levels in late summer. Instrumentation indicated moisture contents of more than 20%, and temperatures over 15°C for two weeks in the upper portion of one stud. Slight mold growth was subsequently found at this location when the panels were inspected at the end of the project. Mortar droppings were also found at the base of the Datum panel cavities. On the other hand, the **DPV** panels performed very well. The restriction of water vapour transfer inwards by the less vapour-permeable EXPS sheathing in the DPV panels resulted in considerably more stable and lower relative humidity levels in the stud space in the summer, and more stable and slightly higher winter relative humidity levels than the other two pairs of panels.

CONCRETE/BÉTON

30.

DURABILITY OF FIBRE-REINFORCED PLASTIC REBARS IN CONCRETE STRUCTURES: II: CLIENT REPORT.

Prepared by D.A. Taylor, A.H. Rahman, D. Guenter ... et al., Institute for Research in Construction, National Research Council Canada. Prepared for Canada Mortgage and Housing Corporation and Public Works and Government Services Canada. Ottawa: Institute for Research in Construction, NRCC, 1996.

This is the second and final report on a two-year project on the durability of fibre-reinforced plastic (FRP) in concrete. The project forms part of a larger strategic research effort on the application of FRP in structures which has been underway since 1991 at the Institute for Research in Construction, National Research Council Canada. Initially the research was focused on mechanical/structural properties of FRP reinforcing bars and tendons, later, on their performance in structural members - beams, strip slabs (narrow 1-way slabs), and square 2-way slabs, and ultimately, on their durability in concrete structural members under sustained and cyclic loads in air and in corrosive (saline/alkaline) solutions.

The report describes the final stage of work in a preliminary study of FRP durability, based primarily on the behaviour of glass- and carbon-fibre rebars in concrete beams subject to sustained loads while immersed in saline/alkaline solutions. As well, results are presented on the cyclic loading and punching shear tests of 2.68 x 2.68 m FRP-reinforced slabs. In addition, a field trial is described in which carbon tendons (as non-prestressed rebars) were used in lieu of steel rebars for the tension reinforcement of a concrete slab in part of an underground parking garage.

CONDOMINUMS/COPROPRIÉTÉS

31.

PLACEMENT-HABITAT DESJARDINS : APPRÉCIATION DU PROGRAMME.

Préparé par Robert Chagnon. Ottawa : Société canadienne d'hypothèques et de logement, 1995. (Programme de subventions de recherche).

Alors qu'à travers le Canada s'expérimentaient différentes formules de financement de projets pour personnes retraitées du types de copropriété ou de bail viager, la Fédération des Caisses populaires Desjardins de Montréal et de l'Ouest du Québec initiait, en 1987, le programme expérimental, Placement-Habitat, en vue de promouvoir le développement de l'habitation s'adressant aux pré-retraités et retraités à revenus moyens et disposant d'une certaine liquidité à placer. Depuis, 97 unités de logement ont été réalisées dans différents milieux urbains à travers le Québec.

Ce programme consiste en une formule dont le concept est basé sur le principe de l'usufruit, c'est-à-dire qu'il constitue un démembrément du droit de propriété laissant aux acquéreurs un droit d'usage sans nécessairement leur donner toutes les responsabilités inhérentes au fait d'être propriétaire en bonne et due forme. Ce programme permet d'acquérir, moyennant une mise de fonds, un droit d'usufruit qui est enregistré contre l'unité de logement désignée. En adhérant au programme Placement-Habitat, l'acquéreur détient alors un logement en copropriété divise, détenu par un organisme sans but lucratif connu sous le nom de Habitations populaires Desjardins.

Les résultats de cette étude mettent en évidence l'importance que les personnes âgées de 55 ans et plus accordent à la sécurité de la formule du programme Placement-Habitat en ce qui a trait à l'assurance rachat, à l'exclusivité des projets à des personnes de leur âge et à la sécurité des lieux. L'avenir se présente cependant différemment pour les administrateurs des deux corporations concernées. Les administrateurs des Habitations populaires Desjardins du Centre du Québec, poursuivent le développement par la réalisation d'un nouveau projet de six (6) logements et agiront comme mandataire des autres fédérations des Caisses populaires Desjardins dans les autres régions du Québec. Quant aux administrateurs des Habitations populaires Desjardins de Montréal et de l'Ouest du Québec ils ont décidé de mettre fin au programme et de convertir les unités en copropriété conventionnelle, tout en respectant les ententes convenues avec les occupants actuels.

COOPERATIVE AND NON-PROFIT HOUSING LOGEMENT SANS BUT LUCRATIF ET COOPÉRATIVES

32.

COOPÉRATIVE-ÉQUITÉ : PROBLÉMATIQUE, CONTRAINTES RÉGLEMENTAIRES, ET MOTIVATIONS DES MEMBRES.

Préparé par Marie J. Bouchard, Gilles Roy et Danielle Dunn. Ottawa : Société canadienne d'hypothèques et de logement, 1995. (Programme de subventions de recherche).

Cette recherche, qui se divise en trois parties, explore des pistes qui permettraient de consolider les acquis des coopératives d'habitation locative québécoises de même qu'en soutenir la croissance future. La première partie présente la problématique de la recherche. Les enjeux auxquels se confronte aujourd'hui le secteur coopératif d'habitat locatif sont d'abord exposés. Les grandes lignes de la problématique de recherche sont

ensuite présentées. Y sont aussi décrits les trois modèles ayant servi à conduire la recherche : la coopérative avec épargne, la coopérative avec refinancement hypothécaire, la coopérative avec fiducie foncière.

La deuxième partie du rapport expose une analyse de l'encadrement réglementaire du secteur coopératif d'habitation locative. Y sont présentés, sous un angle général d'abord, le type d'encadrement auquel est soumis le secteur, et les contraintes que cet encadrement pose en termes de consolidation et d'auto-développement des coopératives. Les principaux ajustements qu'entraînerait la mise en application des modèles en regard des règles d'action coopérative sont ensuite identifiés. Suivent ensuite les interdits spécifiques aux conventions d'exploitation des coopératives, en regard de l'implantation éventuelle des modèles étudiés.

La troisième partie du rapport est consacrée aux résultats d'une enquête menée auprès de coopérateurs sur leurs motivations à adopter éventuellement l'un ou l'autre des modèles. Y sont d'abord traités des mécanismes par lesquels la formule coopérative en habitation peut produire une accumulation patrimoniale. Ensuite, les impressions des répondants quant aux modèles étudiés sont exposées. Puis, les préférences des répondants en regard d'une éventuelle utilisation de la valeur patrimoniale sont décrites. Enfin, y sont recensées les réactions que suscite l'idée d'intercoopération financière chez les répondants.

CRIME PREVENTION CRIMINALITÉ -- PRÉVENTION

33.

EN SÉCURITÉ CHEZ SOI : LUTTE CONTRE LE CRIME.

Vidéocassette (50 min.); VHS. Produit en collaboration avec la Gendarmerie royale du Canada, la Société canadienne d'hypothèques et de logement, Friday Communications Inc. et BCTV. Ottawa : SCHL, 1996.

Numéro de commande : VF064. **Prix : 21,95 \$ + TPS et frais d'expédition.

NOTE : Disponible par la poste : Produits d'information de la SCHL, 700, chemin de Montréal, pièce 1000, Ottawa (Ontario) K1A 0P7. Tél. : 1-800-668-2642. Commandes par télécopieur au Canada : 1-800-245-9274. Clients internationaux : voir à la page viii les instructions relatives aux commandes.

Les introductions par effraction constituent un problème de plus en plus grave dans nos collectivités. Cette vidéocassette présente des reconstitutions de cambriolage et montre comment les voleurs s'y prennent pour entrer dans une maison et commettre leurs délits. Elle comprend aussi des entrevues avec des voleurs condamnés qui révèlent les mesures de sécurité qu'ils jugent les plus dissuasives. De plus, des experts de la GRC soulignent les faiblesses en matière de sécurité ainsi que les mesures correctives à prendre, présentent des trucs précis pour vous aider à protéger votre demeure et vos biens, et expliquent comment la collectivité peut s'entraider pour faire échec au crime. Plusieurs des mesures suggérées dans la vidéo sont tirées des renseignements dans la publication intitulée *Gare au crime : protégez votre résidence contre le vol.* (6924F)..

NOTE: Also available in English under the title *Safe At Home: How to Lock Out Crime.* (VE064).

34.**GARE AU CRIME : PROTÉGEZ VOTRE RÉSIDENCE CONTRE LE VOL.**

*Préparé par la Société canadienne d'hypothèques et de logement et la Gendarmerie royale du Canada.
Ottawa : SCHL, 1996. Édition révisée.*

Numéro de commande : 6924F. **Prix : 9,95 \$ + TPS et frais d'expédition.

NOTE : Disponible par la poste : Produits d'information de la SCHL, 700, chemin de Montréal, pièce 1000, Ottawa (Ontario) K1A 0P7. Tél. : 1-800-668-2642. Commandes par télécopieur au Canada : 1-800-245-9274. Clients internationaux : voir à la page viii les instructions relatives aux commandes.

Cette version de *Gare au crime : protégez votre résidence contre le vol*, décrit des mesures simples pour rendre votre maison plus sûre, de même que des actions communautaires qui réduisent les risques d'entrées par effraction. Elle préconise une approche proactive vis-à-vis de la sécurité et de la sûreté. En connaissant les conditions favorables aux cambrioleurs et en prenant des mesures pour éliminer de telles conditions, vous pouvez grandement réduire les risques d'une entrée par effraction dans votre résidence. Ce livret illustré décrit également des précautions simples à prendre notamment comment verrouiller les fenêtres, les portes et les portes-fenêtres et comment choisir un système d'alarme.

NOTE: Also available in English under the title: *How to Lock Out Crime: Protecting Your Home Against Burglary.* (6923E).

35.**HOW TO LOCK OUT CRIME: PROTECTING YOUR HOME AGAINST BURGLARY.**

*Prepared by Canada Mortgage and Housing Corporation and the Royal Canadian Mounted Police.
Ottawa: CMHC, 1996. Revised edition.*

Order number: 6923E. ** Price: \$9.95 + GST and handling charges.

NOTE: Available from: CMHC Information Products, 700 Montreal Road, Suite 1000, Ottawa, Ontario, K1A 0P7. Tel.: 1-800-668-2642. Fax orders from Canada: 1-800-245-9274. International clients see page viii for order instructions.

This edition of *How to Lock Out Crime: Protecting Your Home Against Burglary*, describes simple steps you can take to make your home more secure, and outlines community-based approaches that reduce the opportunities for break-ins to occur. It promotes a *pro-active* approach to safety and security. By knowing the conditions favourable to burglars and taking steps to eliminate those conditions, you can greatly reduce the chances that your home will be broken into. This illustrated booklet also describes common-sense security precautions, including how to secure windows, doors and patio doors and how to choose a burglar alarm system.

NOTE : Aussi disponible en français sous le titre : *Gare au crime : protégez votre résidence contre le vol.* (6924F).

36.**LES OUTILS DE LA VÉRIFICATION SÉCURITAIRE ET LE LOGEMENT : LA FINE POINTE DE PROGRÈS.**

Préparé par le Centre d'action des femmes contre la violence (Ottawa-Carleton). Préparé pour la Division de l'élaboration de propositions, Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1995.

L'outil de vérification de la sécurité, élaboré en 1989, est désormais employé à travers le Canada. Il permet d'évaluer la conception et la gestion du cadre bâti d'après le point de vue des femmes et des autres groupes susceptibles d'être victimes de violence. Ce rapport présente les résultats d'une enquête conçue pour obtenir une vaste gamme d'information sur l'utilisation et l'efficacité des vérifications de la sécurité. L'enquête a été menée auprès de 250 personnes et organisations en tout reconnues comme ayant une connaissance du sujet ou ayant participé d'une façon ou d'une autre à des vérifications de la sécurité.

Les résultats de l'enquête démontrent, sans le moindre doute, que les vérifications de la sécurité offrent une vaste gamme d'avantages aux participants, à la collectivité en général, aux planificateurs et aux organismes qui parrainent les vérifications. Ce processus peut s'avérer particulièrement utile dans le domaine de l'habitation, surtout en ce qui a trait au logement sans but lucratif ou social. Parmi les facteurs essentiels au succès d'une vérification de la sécurité citons : la participation des résidents de la collectivité à l'établissement du processus; une attention particulière accordée aux femmes et aux autres groupes susceptibles d'être victimes de violence; des ressources humaines et financières adéquates; la participation de facilitateurs ayant été formés et une prise de contact avec les groupes susceptibles d'être marginalisés.

Il est tout aussi manifeste que l'on tire rarement parti des vérifications de la sécurité à cause de la difficulté d'obtenir la participation des groupes les plus susceptibles d'être victimes de violence et du nombre limité de facilitateurs ayant reçu une formation dans le domaine. Les auteurs du rapport ont aussi noté qu'il était nécessaire d'avoir un outil servant spécifiquement à la vérification de la sécurité dans le secteur résidentiel. Ils suggèrent que la SCHL pourrait appuyer l'utilisation efficace des vérifications de la sécurité dans le domaine de l'habitation et ils recommandent l'élaboration d'une trousse de la sécurité pour l'habitation, d'un processus de formation des fournisseurs de logement et des gestionnaires d'immeubles et la production d'un manuel portant sur les vérifications de la sécurité.

NOTE: Also available in English under the title *Safety Audit Tools and Housing: The State of the Art, and Implications for CMHC. (Compendium of Research, 1995)*.

37.**SAFE AT HOME: HOW TO LOCK OUT CRIME.**

Video cassette (50 mins); VHS. Produced in partnership with the Royal Canadian Mounted Police, Canada Mortgage and Housing Corporation, Friday Communications and BCTV. Ottawa: CMHC, 1996.

Order number: VE064. ** Price: \$21.95 + GST and handling charges.

NOTE: Available from: CMHC Information Products, 700 Montreal Road, Suite 1000, Ottawa, Ontario, K1A 0P7. Tel.: 1-800-668-2642. Fax orders from Canada: 1-800-245-9274. International clients see page viii for order instructions.

The crime of breaking and entering is becoming an increasing problem in our communities. This video features realistic reenactments of how thieves enter and burglarizeIt also includes interviews with convicted burglars who reveal the security measures that deter them the most. In addition, RCMP experts point out security weaknesses as well as corrective measures to be taken, provide specific tips to help safeguard your

home and property, and explain how the community can work together to prevent crime. Several of the recommended measures in the video are taken from information in the publication entitled *How to Lock Out Crime: Protecting Your Home Against Burglary. (6923E)*.

NOTE : Aussi disponible en français sous le titre :*En sécurité chez soi : lutte contre le crime. (VF064)*.

38.

SAFETY AUDITS IN CANADA: LIMITATIONS AND PROMISING DEVELOPMENTS.

Prepared by Women's Action Centre Against Violence. Prepared for Policy Development Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1995.

This report presents the results of a survey conducted by the Women's Action Centre Against Violence to study the use of safety audits in Canada. Respondents were grouped into three categories: postsecondary educational institutions; community organizations; and municipal organizations.

In terms of the tool used for safety audits, 70% of respondents had used the METRAC guide, but two-thirds said they had adapted it to suit their own circumstances. The majority of audits took place after dark. The most common areas to audit were parking lots, other outdoor areas, college and university campuses, and indoor shared spaces such as laundry rooms. Community associations were most likely to have planned the audit but police officers, municipal politicians and the media were frequent participants. Although women were involved in almost all the audits, they were not always identified as being a vulnerable group. Other vulnerable groups mentioned were persons with disabilities, people of colour and seniors.

The survey results showed that postsecondary institutions, community organizations and municipal organizations had a very different access to resources and often approached safety audits from different perspectives. It was also clear from the survey that a safety audit involves two processes: conducting the actual audit; and implementing change as a result of the audit. One major conclusion of the study is that the implementation step is definitely a stumbling block. Where there was funding to support the follow-up process, it was much more likely to occur. Also, groups such as postsecondary institutions and organized safety audit groups funded through municipal governments had the systems and the institutional knowledge to be able to push for implementation. Community groups very often lack the human and financial resources necessary to support the completion of the safety audit process.

39.

LA THÉORIE ET LA PRATIQUE DE LA PRÉVENTION DU CRIME PAR L'AMÉNAGEMENT DU MILIEU.

Préparé par Steve Schneider et Patti Pearcey, B.C. Coalition for Safer Communities. Préparé pour la Division des politiques et de la recherche en matière socio-économique, Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1996.

La prévention de la criminalité dans la collectivité ne saurait ignorer le rôle que joue le milieu physique dans la promotion ou la prévention du crime. Les rapprochements qu'on a tenté d'établir entre le milieu physique, le crime et la prévention du crime ont donné lieu à la production de blocs de connaissances aussi variées et controversées que considérables. Une approche de la prévention de la criminalité, communément désignée sous l'appellation de prévention du crime par l'aménagement du milieu (PCAM), regroupe une bonne partie de ces connaissances. La PCAM préconise qu'un aménagement approprié du milieu, joint à une exploitation efficace du milieu bâti, peut contribuer à réduire l'incidence de la criminalité et la peur du crime et amener les résidents à exercer davantage de responsabilité et un meilleur contrôle à l'égard de leurs maisons et de leur quartier. Le présent rapport veut donner une vue d'ensemble de la théorie et de la pratique de la PCAM et

dégager pour la Société canadienne d'hypothèques et de logement des options de lignes de conduite et de programmes à envisager.

Ce rapport livre d'abord du projet une vue d'ensemble qui fait état de ses objectifs, des méthodes de recherche et de la portée ainsi que des limites de cette recherche. Suit une analyse bibliographique, qui commence par un résumé des théories qui posent en principe l'existence d'un rapport entre le milieu physique et le crime. La définition de ce problème précède une analyse de la documentation dont la PCAM a fait l'objet. Cette analyse présente une vue d'ensemble de la théorie de la PCAM et un résumé des nombreux principes et composants de la PCAM. Suit une analyse de la documentation pertinente à la PCAM qui cherche surtout à dégager et à examiner les critiques et les lacunes des études théoriques et empiriques. En guise de conclusion, le rapport dégage certaines leçons à tirer des études effectuées sur la PCAM, et formule des options et des recommandations de lignes de conduite et de programmes à l'intention de la SCHL.

NOTE: Also available in English under the title:*The Theory and Practice of Crime Prevention Through Environmental Design: A Literature Review*.

40.

THE THEORY AND PRACTICE OF CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN: A LITERATURE REVIEW.

Prepared by Steve Schneider and Patti Pearcey, B.C. Coalition for Safer Communities. Prepared for Social and Economic Policy and Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1996.

The field of community crime prevention would not be complete if it failed to recognize the role of the physical environment in encouraging or preventing crime. The hypothesized relationship between the physical environment, crime and crime prevention has produced a considerable, diverse, and controversial body of knowledge. A central part of this body of knowledge is a crime prevention approach commonly referred to as Crime Prevention Through Environmental Design (CPTED). The rationale behind CPTED is that the proper design and effective use of the built environment can lead to a reduction in the incidence of crime and fear of crime as well as encourage residents to take greater responsibility and control over their homes and neighbourhood. The objective of this report is to provide an overview of the theory and practice of CPTED with a view to outlining policy and program options for Canada Mortgage and Housing Corporation.

The report first provides an overview of the project background, including objectives, research methods and the scope and limitations of the research. The review of the literature then begins with a summary of the theories which posit a relationship between the physical environment and crime. Following this problem definition, a review of the CPTED literature is undertaken. This review includes an overview of the theory of CPTED and a synopsis of the many principles and components of CPTED. This is followed by an analysis of the CPTED literature with emphasis on identifying and examining both the criticisms of and gaps in the theoretical and empirical literature. This report then concludes by identifying some of the lessons learned from the CPTED literature. Finally, policy and program options and recommendations for CMHC are made.

NOTE : Aussi disponible en français sous le titre :*La Théorie et la pratique de la prévention du crime par l'aménagement du milieu.*

DISABLED/HANDICAPÉS

41.

CRITÈRES DE PERFORMANCE EN ACCESSIBILITÉ UNIVERSELLE.

Préparé par Société d'habitations communautaires Logique Inc. Ottawa : Société canadienne d'hypothèques et de logement, 1994, c.-à-d. 1996. (Programme de subventions de recherche).

L'accessibilité universelle est un concept architectural qui permet à tous les individus, incluant les personnes ayant des limitations fonctionnelles, d'évoluer sans contraintes dans un lieu ou un édifice. Ce projet de recherche a pour but de vérifier la fonctionnalité des critères d'accessibilité universelle utilisés pour la réalisation de trois immeubles d'habitation de type multifamilial et de proposer des améliorations et des pistes de recherche afin de définir les nouveaux critères de performance à utiliser pour de futurs projets d'habitation.

Une enquête auprès de 67 locataires habitant un logement universellement accessible a permis de recueillir des informations sur l'utilisation, la satisfaction et les difficultés rencontrées avec les différents éléments architecturaux de l'immeuble et du logement. Les résultats ont démontré qu'à part quelques exceptions, l'adaptation de logements universellement accessibles n'a pas demandé de travaux de nature architecturale. La grande majorité des adaptations réalisées ont consisté à installer des équipements spécialisés. Comparativement aux travaux d'adaptation requis pour le logement traditionnel, l'adaptation de logements universellement accessibles s'avère nettement avantageuse pour les personnes handicapées et les organismes subventionneurs d'adaptation de domicile.

En conclusion, on peut affirmer que le concept d'accessibilité universelle et ses critères de performance conviennent bien aux besoins d'une population diversifiée, que certains ajustements sont encore nécessaires pour optimiser la réponse aux besoins de cette population et des clientèles qui la composent et qu'ils présentent des avantages importants comparativement aux critères traditionnels de conception. De plus, cette étude démontre également qu'un logement répondant aux besoins d'une personne ayant des limitations fonctionnelles peut répondre également de façon adéquate aux besoins des personnes sans limitations, facteur essentiel pour un promoteur ou un constructeur qui désire obtenir la clientèle des personnes ayant des limitations, sans pour autant perdre sa clientèle régulière.

NOTE: Also available in English under the title:*Universal Accessibility Performance Criteria*.

42.

AN EXPLORATION OF THE DESIRABILITY OF HOUSING LOCATION BY CONSUMERS OF PSYCHIATRIC SERVICES.

Prepared by Katherine M. Boydell, Brenda M. Gladstone, Elaine S. Crawford and John N. Trainor. Ottawa: Canada Mortgage and Housing Corporation, 1996. (External Research Program).

This study examines how people with psychiatric histories feel about their neighbourhoods and highlights those neighbourhood qualities that are important to them. A focus group consisting of seven tenants living in supported housing apartment buildings was conducted to discuss the desirability of the neighbourhood. Following this, semi-structured face-to-face interviews were conducted with 60 tenants living at seven different supported housing sites in Metropolitan Toronto. Based on tenant descriptions of their neighbourhood, the seven sites were classified into three categories, twenty-two people in the middle class area, twenty in the lower-middle class area and eighteen people in the lower class area.

Tenants who participated in the focus group identified the importance of differentiating between two types of neighbourhoods: their immediate neighbourhood in the building itself and the wider neighbourhood surrounding the building. Tenants generally rated their building (immediate neighbourhood) as more appealing than the surrounding area. This was particularly true of those living in the lower-middle class and lower class categories. The majority of tenants interviewed indicated that they preferred a residential area to a commercial one. A few preferred a residential/commercial mix because of increased access to resources such as shopping and transportation.

Most tenants felt they integrated with people living in their building, that is, their immediate neighbourhood. Most tenants from all three areas also felt fairly safe within their building. Simply knowing other people in the building contributed to feelings of safety. As with integration into the surrounding area, safety in the area surrounding the building differed between middle, lower-middle and lower class. Tenants from the middle class area felt most safe; those in the lower class spoke of the crime and violence surrounding their building.

The findings of this study confirm the fact that neighbourhood characteristics are of great importance and highlight several factors that contribute to neighbourhood quality. Certain elements were common in most of the tenants' descriptions, including safety, quietness, closeness to resources and transportation. Attractive and nice homes, trees and parks were also considered important.

43.

HOME TECHNOLOGY TO SUPPORT INDEPENDENT LIVING.

Ottawa: Canada Mortgage and Housing Corporation, 1996.

Order number: PE184. ** Price: \$10.95 + GST and handling charges.

NOTE: Available from: CMHC Information Products, 700 Montreal Road, Suite 1000, Ottawa, Ontario, K1A 0P7. Tel.: 1-800-668-2642. Fax orders from Canada: 1-800-245-9274. International clients see page viii for order instructions.

This report was produced in support of the federal government's Strategy for the Integration of Persons with Disabilities. It reflects a wide range of home technologies, interests and issues, including home security, concern for the environment, the desire for more choices in entertainment, working from home, and the economics of operating a home.

Increasingly, home technologies are being automated. Much of the material in the report is therefore devoted to automation with an eye to the future. By understanding automation and what it can do for housing, builders and renovators will be able to integrate wiring and other systems into homes today, so that technologies can be supported as they are needed by occupants and developed by industry. The report also discusses many non-automated technologies that can be of particular benefit to seniors and people with disabilities.

NOTE : Aussi disponible en français sous le titre :*Technologie domiciliaire favorisant l'autonomie.* (PF184).

44.

HOUSING FOR PERSONS WITH DISABILITIES.

Ottawa: Canada Mortgage and Housing Corporation, 1996.

Order number: 5467E. ** Price: \$11.95 + GST and handling charges.

NOTE: Available from: CMHC Information Products, 700 Montreal Road, Suite 1000, Ottawa, Ontario, K1A 0P7. Tel.: 1-800-668-2642. Fax orders from Canada: 1-800-245-9274. International clients see page viii for order instructions.

The intent of this publication is to provide design information that will stimulate appropriate solutions in a broad range of residential accommodation for persons with disabilities. It features new design practices and technologies, includes schematics and illustrations and presents current design and building code standards.

NOTE : Aussi disponible en français sous le titre :*Logements pour les personnes handicapées.* (5468F).

45.

LOGEMENTS POUR LES PERSONNES HANDICAPÉES.

Ottawa : Société canadienne d'hypothèques et de logement, 1996.

Numéro de commande : 5468F. **Prix : 11,95\$ + TPS et frais d'expédition.

NOTE : Disponible par la poste : Produits d'information de la SCHL, 700, chemin de Montréal, pièce 1000, Ottawa (Ontario) K1A 0P7. Tél. : 1-800-668-2642. Commandes par télécopieur au Canada : 1-800-245-9274. Clients internationaux : voir à la page viii les instructions relatives aux commandes.

Ce document se veut une source d'information en conception offrant des solutions appropriées à la conception pour une vaste gamme de logements pour les personnes handicapées. Il fait état de nouvelles méthodes et techniques de conception, comporte des schémas et des illustrations, et présente les normes en vigueur en conception et les exigences du code du bâtiment.

NOTE: Also available in English under the title:*Housing for Persons with Disabilities* (5467E).

46.

RAIL ASSISTED BATHROOM TRANSFER DEVICE: FINAL REPORT-PHASE III.

Prepared by Thomas Baleshta, Tetra Society of North America. Ottawa: CMHC, 1995. (Housing Technology Incentives Program).

The Rail Assisted Bathroom Transfer Device developed by the Tetra Society allows disabled users to move between the shower/bathtub and the toilet in a regular sized bathroom, without having to use their wheelchair. The device consists of a seat equipped with rollers mounted on rails. The seat rolls back and forth between the toilet and the shower/tub which reduces the number of transfers necessary in standard-sized bathrooms. This project was undertaken to test the performance of the device.

Using people of different disabilities, ages and sizes, the Rail Assisted Bathroom Transfer Device was tested and evaluated in the G.F. Strong Rehabilitation Centre. The results of the testing were analyzed and modifications were made to the second prototype which was used in home tests. Based on the tests in

people's homes the device was found to be best suited to all bathrooms where the bath or soaker tub could be connected via rail to the toilet seat. The modifications to the second prototype improved the device and made it more marketable.

47.

TECHNOLOGIE DOMICILIAIRE FAVORISANT L'AUTONOMIE.

Ottawa : Société canadienne d'hypothèques et de logement, 1996.

Numéro de commande : PF184. **Prix : 10,95 \$ + TPS et frais d'expédition.

NOTE : Disponible par la poste : Produits d'information de la SCHL, 700, chemin de Montréal, pièce 1000, Ottawa (Ontario) K1A 0P7. Tél. : 1-800-668-2642. Commandes par télécopieur au Canada : 1-800-245-9274. Clients internationaux : voir à la page viii les instructions relatives aux commandes.

Ce rapport a été produit afin d'appuyer la Stratégie nationale pour l'intégration des personnes handicapées mise en oeuvre par le gouvernement fédéral. Il reflète un large éventail de technologies, d'intérêts et de questions touchant les immeubles résidentiels, y compris la sécurité des résidences, les préoccupations touchant l'environnement, le désir d'un choix plus vaste de divertissements, le travail à domicile et les aspects économiques du fonctionnement des systèmes d'une maison.

On automatise de plus en plus les technologies résidentielles. Par conséquent, une grande partie de l'information dans ce rapport porte sur l'automatisation en vue de l'avenir. En comprenant l'automatisation et ce qu'ils peuvent en attendre, les constructeurs et les rénovateurs pourront intégrer les fils et autres systèmes dans les maisons dès aujourd'hui, afin que les technologies puissent être installées au fur et à mesure que leurs occupants en auront besoin et qu'elles seront mises au point par l'industrie. Le rapport traite aussi d'un grand nombre de technologies non automatisées qui peuvent être particulièrement utiles aux aînés et aux personnes handicapées.

NOTE: Also available in English under the title *Home Technology to Support Independent Living (PE184)*.

48.

UNIVERSAL ACCESSIBILITY PERFORMANCE CRITERIA.

Prepared by Société d'habitations communautaires Logique Inc. Ottawa: Canada Mortgage and Housing Corporation, 1994, i.e., 1996. (External Research Program).

Universal accessibility is an architectural concept making it possible for all individuals, including people with functional limitations, to function without constraints in a particular place or building. This research project has as its goal to verify the functionality of the universal accessibility criteria used in building three multi-family housing projects and to propose improvements and avenues of research in order to define new performance criteria to be used in future housing projects.

A survey involving 67 tenants living in universally accessible units made it possible to collect information on the use, satisfaction level and difficulties with the various architectural elements in the building and in the individual units. The results showed that, with very few exceptions, the adaptation of universally accessible units did not require any architectural modifications. Most of the adaptations implemented consisted of installing specialized equipment. Compared to traditional units which usually require major interventions in

the entrance, the bathroom and kitchen, universally accessible units are clearly more user-friendly for residents with disabilities and more economical for agencies providing grants to finance unit adaptation.

In conclusion, it can be affirmed that the universal accessibility concept and its performance criteria mesh well with the needs of a diversified population, that certain adjustments are still necessary to optimize the extent to which this concept meets the needs of the population and of the various component client groups and that these criteria offer substantial advantages compared to traditional design criteria. Moreover, this study also shows that a unit meeting the needs of a person with functional limitations may also adequately meet the needs of people without limitations, an essential fact for a housing promoter or builder wishing to reach people with limitations without, at the same time, losing its regular clients.

NOTE : Aussi disponible en français sous le titre :*Critères de performance en accessibilité universelle*.

ELDERLY/PERSONNES ÂGÉES

49.

AGING IN PLACE: STRATEGIES TO MEET THE NEEDS OF SENIOR TENANTS IN NON-PROFIT HOUSING.

Prepared by Christine Kluck Davis. Prepared for Social and Economic Policy and Research Division, Canada Mortgage and Housing Corporation. Co-sponsored by CMHC and the Nova Scotia Department of Housing and Consumer Affairs. Ottawa: CMHC, 1996.

This study was commissioned to find which building and apartment design features and service delivery mechanisms for aging in place are possible and preferred. The principle aim of the study was to explore options that could enable senior tenants in non-profit housing in Nova Scotia to continue to live independently in their homes for as long as possible.

Information was collected from several sources including 517 senior tenants of non-profit housing; 36 housing managers; and 12 individuals representing a variety of support service providers. A detailed architectural evaluation of six typical building styles for seniors was conducted in order to assess the physical and design aspects of the buildings and individual units.

The results of interviews with tenants showed that between one-third and one-half of the senior tenants living in non-profit housing in Nova Scotia require more support to maintain their independence than they are currently receiving. These are tenants who reported fair or poor health, were limited in their mobility and had difficulties carrying out activities such as bathing, dressing and walking up and down stairs. In addition, as many as one fifth of the tenants may be socially isolated. Ten percent of the tenants surveyed had no one they could call in an emergency. Up to twenty percent had only infrequent visits from friends and family.

The study also revealed that housing managers were concerned about their aging tenants. Collectively, housing managers have found their role changing dramatically over the last ten years. Increasingly, they see themselves as "managing people" rather than buildings.

50.**THE CHINESE ELDERLY: SOCIAL INTEGRATION IN METRO TORONTO HOUSING COMPANY LTD.**

Prepared by Morris Saldov, with the assistance of Peter C. P. Chow, Poon Kumyuen Saldov and May-Lin Poon, Ginto Enterprises Limited. Ottawa: Canada Mortgage and Housing Corporation, 1996. (External Research Program).

Demographic changes in the seniors' population in Metro Toronto Housing Company Limited (MTHCL) have resulted in large concentrations of ethnic minority elderly in some apartment buildings. The largest and fastest growing, visible minority, ethnic seniors group in Toronto is the Chinese. This study was undertaken to examine barriers to accessing housing services experienced by Chinese seniors in MTHCL. Interviews were conducted with 306 Chinese elders in nine MTHCL buildings. The majority of respondents were female, born in China, spoke only Chinese, and had a limited ability to speak and understand English. A little more than half could read Chinese.

Many housing services were identified by respondents as problematic. These included activities such as changing light bulbs, cleaning kitchen and bathroom vents, and defrosting refrigerators. The practice of tipping for MTHCL services and the uncertainty this engendered about staffs' regular duties created much confusion and concern among the Chinese elders. Chinese elders worried that unless they paid tips they would be unable to get service when needed. Seniors liked the location of their buildings, which in many cases was close to shopping and transportation. They disliked poor building maintenance, poor electrical appliances and the lack of security and day check. A few of the elders thought that the rent was too high and noise was a problem. Their suggestions for improvement included: replacement of non-self defrosting fridges; better building maintenance; Chinese-speaking staff and more provisions for security and day check.

Considerable numbers of Chinese elders did not know how to reach non-emergency services such as volunteers, doctors, homemakers and Meals on Wheels. However, most elders said that they knew how to obtain fire, ambulance or police services, by phoning 911. Many, however, were confused about how the language barrier would be handled. Approximately 25% of the elders said they did not know how to get help in an emergency.

51.**A COMPARISON OF CO-OPERATIVE AND PRIVATE NON-PROFIT HOUSING OPTIONS FOR OLDER CANADIANS.**

Prepared by Barbara Loevinger Rahder. Revised edition. Ottawa: Canada Mortgage and Housing Corporation, 1990, i.e., 1995. (External Research Program).

This study provides a comparison of three seniors' housing co-operatives and three seniors' private non-profit housing developments located in Metropolitan Toronto. They are: the Stanley Knowles Housing Cooperative; the Beech Hall Housing Cooperative; the Parkview Housing Co-operative; St. Joseph's Place; the Wexford; and St. Matthew's Bracondale House.

The report focuses on how well these six co-ops and non-profit housing developments are meeting the needs of seniors. It examines the physical design and location of the buildings, as well as their access to needed shops, services and transit. It looks at the demographic characteristics of tenants, as well as their socio-economic and ethnic backgrounds. It describes the self-management structure of co-op housing boards and committees, as well as the professional management structures of the non-profit housing developments, and examines tenants' feelings about their potential for aging in place. The report also examines social life within the developments, from organized social activities and events to general feelings

of attachment and informal visiting patterns. It details the former living arrangements of residents and contrasts this with life in their current housing.

The findings of the study indicate that the vast majority of seniors feel satisfied or very satisfied with almost every aspect of their current housing environment. The report concludes with a series of comments and suggestions made by the respondents themselves. Most of these emphasize the vitality of life within seniors' co-ops and non-profit developments and suggest the need for more of these types of housing options for older Canadians.

52.

THE COMPLETE GUIDE TO GARDEN SUITES.

Prepared by Allan E. Brass Associates Inc., Lovatt Planning Consultants, and Smith, Lyons, Torrance, Stevenson & Mayer. Ottawa: Canada Mortgage and Housing Corporation, 1995.

Order number: 6853E. ** Price: \$24.95 + GST and handling charges.

NOTE: Available from: CMHC Information Products, 700 Montreal Road, Suite 1000, Ottawa, Ontario, K1A 0P7. Tel.: 1-800-668-2642. Fax orders from Canada: 1-800-245-9274. International clients see page viii for order instructions.

This Guide which is divided into eight parts is intended to foster a wider familiarity and acceptance of garden suites as a suitable housing option for senior Canadians and persons with disabilities. More specifically, the Guide is intended to facilitate the deployment and control of garden suites by describing their physical and functional characteristics, their installation requirements, and the basic administrative procedures that are needed to process municipal applications for garden suites.

NOTE : Aussi disponible en français sous le titre :*Pavillons-jardins : guide complet.* (6854F).

53.

AN EXPLORATORY STUDY OF THE TRANSPORTATION REQUIREMENTS OF THE SPATIALLY DISPERSED URBAN ELDERLY.

Prepared by Gina M. Sylvestre. Thesis (M.A.) - University of Manitoba, 1996. (Scholarship Program).

The principal objective of this thesis is to determine the effect of residential location, as well as the diminishing capabilities of the individual resulting from the aging process, on the transportation requirements of the spatially dispersed urban elderly. Three research questions are formulated to evaluate the effect of both (i) the socio-demographic characteristics, health and functional status, and transportation resources of the individual, and (ii) varying residential locations on the mobility of the elderly.

Data for the study are elicited by an interview survey. Respondents for the survey were chosen based on systematic sampling of three distinct areas of Winnipeg, Manitoba. As the focus of the study is to consider whether the low density design of suburban environments impacts negatively upon the mobility of seniors, the three locations represent varying density levels. The sample areas of Fort Garry and Charleswood are outer suburbs characterized by low density development, while the sample area of St. Boniface is a higher density inner suburb.

Results of the study provide evidence that the diminishing physical, social, and financial resources of the elderly individual result in greater mobility problems. In addition, it was found that the suburban environment does not impact upon the mobility of seniors. Rather, the findings suggest that elderly persons in the area of higher density development experience greater difficulty in accessing appropriate transportation.

It is speculated that the mobility problems of the St. Boniface respondents are not caused by environmental factors, but instead reflect the higher proportion of individuals in this area with decreasing capabilities.

54.

THE GRAYING OF CANADIAN SUBURBS: PATTERNS, PACE, AND PROSPECTS.

Prepared by Gerald Hodge with the assistance of Laurie McKay and John B. Collins, COPLAN Consultants. Ottawa: Canada Mortgage and Housing Corporation, 1994, i.e., 1996. (External Research Program).

The residence patterns of Canada's elderly, those 65 and older, shifted significantly from 1971-1991. First, was the metropolitization of the elderly; that is, the more rapid growth in numbers of the elderly who live in metropolitan areas as compared to those living in non-metropolitan areas. Second, was the suburbanization of the elderly within metropolitan areas. 1991 saw, for the first time, more seniors living in the suburbs than in core cities of Census Metropolitan Areas (CMAs). Both of these shifts parallel those that occurred in the United States in the late 1970s.

Metropolitan aging is occurring across the country. In 1991, the concentration of the elderly in nearly half of the 25 CMAs was greater than the national average. CMAs, both new and old, and located in all parts of Canada, are experiencing extensive aging. This aging also involves major increases in the numbers and proportions of the very old, those aged 75+, a population group more prone to frailty and in need of support. From 1971-1991, the concentration of the elderly population grew in each suburban zone as well as in core cities. The most dramatic aging was in the Inner Suburbs. The fastest rate of growth of numbers of elderly occurred in the Outer Suburbs. The more distant Suburban Fringe also experienced a progressive aging of its population. The number of the very old (75+) in the suburbs increased more than twice as fast as they did in core cities, thereby underlining the pervasiveness of suburban aging.

A final component study sought to determine how the broad findings regarding the metropolitan elderly applied in actual neighbourhood situations. Two basic tendencies emerged: (1) both the concentrations of the elderly and their living arrangements showed considerable diversity among census tracts, even in the same zone; and (2) there was considerable diversity among tracts within geographic sectors. These census tracts were examined for their complement of supportive features for seniors; e.g., seniors housing, intermediate care, public transit, seniors centres, sidewalks. No tract lacked these features internally or lacked easy access to them. The number of key features did decline the more distant the tract from the core city (excepting for public transit). Also, the more distant the tract the more likely its shopping facilities were not accessible except by car, and it lacked alternative housing to the single family home.

This study highlights the growth of the elderly within previously family-oriented suburbs. Most of the metropolitan elderly already live there, and their numbers will continue to grow, including increases of the very old (75+). There will be a growing number of suburban seniors living alone, becoming more frail, and possibly being over-housed, all with broad implications for planning and housing. The diversity among the neighbourhoods in which seniors live suggests the need for fine-tuned planning and policy initiatives.

55.

PAVILLONS-JARDINS : GUIDE COMPLET.

Préparé par Allan E. Brass Associates Inc., Lovatt Planning Consultants et Smith, Lyons, Torrance, Stevenson & Mayer. Ottawa : Société canadienne d'hypothèques et de logement, 1995.

Numéro de commande : 6854F. **Prix : 24,95 \$ + TPS et frais d'expédition.

NOTE : Disponible par la poste : Produits d'information de la SCHL, 700, chemin de Montréal, pièce 1000, Ottawa (Ontario) K1A 0P7. Tél. : 1-800-668-2642. Commandes par télécopieur au Canada : 1-800-245-9274. Clients internationaux : voir à la page viii les instructions relatives aux commandes.

Ce Guide qui se divise en huit parties vise à faire connaître les pavillons-jardins et à favoriser leur acceptation en tant que forme de logement convenant aux Canadiens âgés ou handicapés. Plus précisément, ce guide est destiné à faciliter l'implantation et la réglementation des pavillons-jardins par la description de leurs caractéristiques physiques et fonctionnelles, de leurs contraintes d'installation et des dispositions administratives de base dont les municipalités ont besoin pour traiter les demandes d'installation.

NOTE: Also available in English under the title:*The Complete Guide to Garden Suites (6853E)*.

56.

POLICIES AND REGULATIONS FOR SENIORS' HOUSING: CASE STUDY = POLITIQUES ET RÉGLEMENTATION CONCERNANT LE LOGEMENT DES AÎNÉS : ÉTUDE DE CAS.

Affordability and Choice Today (A.C.T.) Case Study Project / City of Burlington, Burlington, Ontario. Prepared by Energy Pathways Inc. Prepared for the Federation of Canadian Municipalities, Canadian Home Builders' Association, Canadian Housing and Renewal Association and Canada Mortgage and Housing Corporation. Ottawa: The Associations: The Federation: The Corporation, 1995.

In consultation with community and non-profit organizations, the City of Burlington reviewed its policies and regulations to facilitate the development of housing that would meet seniors' needs. The project was designed primarily to address regulations that have a direct bearing on the land development approval process.

The comprehensive review undertaken by Burlington's Planning Department resulted in several amendments to the City's zoning by-law. The project also achieved the objective of streamlining the approval process. Applications for seniors' housing projects no longer need to be examined on a site-specific basis. With many new types of seniors' housing and related standards now being addressed in the City's zoning by-law, the potential for a wider range of housing options for seniors readily exists.

Planning staff anticipate that the revised by-law will enable them to process most applications for seniors' housing projects within about eight weeks. This represents a marked decrease from the approximately six months required previously to accommodate rezoning.

NOTE: Bilingual/bilingue.

57.**POLITIQUES ET RÉGLEMENTATION CONCERNANT LE LOGEMENT DES AÎNÉS : ÉTUDE DE CAS = POLICIES AND REGULATIONS FOR SENIORS' HOUSING: CASE STUDY .**

Abordabilité et choix toujours (A.C.T.) projet d'étude de cas / Ville de Burlington, Burlington (Ontario). Préparé par Energy Pathways Inc. Préparé pour La Fédération canadienne des municipalités, L'Association canadienne des constructeurs d'habitations, L'Association canadienne d'habitation et de rénovation urbaine et La Société canadienne d'hypothèques et de logement. Ottawa : Les Associations : La Fédération : La Société, 1995.

De concert avec les organismes communautaires et sans but lucratif, la Ville de Burlington a procédé à la révision de ses politiques et règlements afin de favoriser des aménagements résidentiels qui répondraient aux besoins des aînés. Au départ, le projet visait les règlements qui avaient une incidence directe sur le processus d'approbation en matière d'aménagement foncier.

L'étude globale entreprise par le service d'urbanisme de Burlington a donné lieu à de nombreuses modifications aux règlements municipaux de zonage. Le projet a également atteint son objectif qui consistait à rationaliser le processus d'approbation. Il n'était plus nécessaire, désormais, d'étudier les demandes relatives au logement des aînés en fonction de chaque emplacement. Comme les règlements municipaux de zonage englobent maintenant de nombreux nouveaux genres de logement pour les personnes âgées ainsi que les normes connexes, il est actuellement possible d'offrir à ces personnes un plus vaste choix en matière de logement.

Le service d'urbanisme prévoit que la réglementation révisée leur permettra de traiter la plupart des demandes relatives à des aménagements résidentiels pour personnes âgées dans un délai d'environ huit semaines comparativement aux six mois auparavant nécessaires pour procéder au rezonage.

NOTE : Bilingue/bilingual.

58.**LA RELATION AU CHEZ-SOI DES PERSONNES ÂGÉES EN RÉSIDENCES SPÉCIALISÉES ET LEUR PERCEPTION DE L'IMAGE DES CENTRES D'ACCUEIL.**

Préparé par Elaine Caouette. Mémoire (M. Arch.) - Université Laval, 1995. (Programme de bourses d'études).

Cette recherche explore la question de la signification du chez-soi pour les personnes âgées relocalisées en résidences spécialisées. Pour une personne âgée, le déménagement en résidence spécialisée ou en centre d'accueil d'hébergement (CAH) par exemple, signifie une rupture importante avec son milieu de vie mais aussi avec son identité personnelle. De plus, dans les institutions d'hébergement de longue durée, le caractère résidentiel est souvent oublié au profit de la fonctionnalité des lieux. Cette étude tente donc d'identifier, premièrement, les changements dans la signification et l'expérience du chez-soi qui surviennent chez les aînés suite au déménagement en résidences spécialisées, et deuxièmement, la perception qu'ils ont des centres d'accueil en tant qu'éventuels résidants et finalement, les préférences qu'ils expriment pour des centres d'accueil à l'image plus ou moins institutionnelle, plus particulièrement les facteurs architecturaux qui pourraient faciliter le développement d'une expérience positive au chez-soi.

Vingt-cinq résidants ont réagi à des énoncés sur la signification du chez-soi et ont comparé des photographies d'extérieurs et d'intérieurs de CAH. Les résultats suggèrent que l'état de santé, l'identité personnelle, la difficulté de maintenir les liens familiaux et de contrôler les interactions sociales, le manque d'intimité et d'espace ainsi que l'abandon d'objets personnels modifient la relation au chez-soi. Les répondants évaluaient les qualités de CAH à partir de leurs activités quotidiennes, de leurs restrictions physiques, des composantes architecturales et urbaines des bâtiments puis de la fonction associée aux expressions architecturales. Ils cherchaient un bâtiment sécuritaire et suffisamment gros pour offrir les services nécessaires à leurs besoins, tout en privilégiant une image résidentielle qui ne serait pas associée à la vieillesse et aux soins de santé.

59.

RETIREE MIGRANTS TO A SMALL ONTARIO COMMUNITY.

Prepared by Roy T. Bowles, Kenneth B. Beesley and Cynthia Johnston. Ottawa: Canada Mortgage and Housing Corporation, 1994, i.e. 1996. (External Research Program).

This report presents the results of a social survey based on interviews with 172 residents in the Village of Bobcaygeon, Ontario who were 55 years of age or older, retired, and who were migrants to the community. Most of these retiree migrants have come from urban centres and have been in the community only a few years. A major objective of the study was to document the ways in which the retirees who migrate from urban areas to small nonmetropolitan communities relate to these communities.

The research findings show that the retiree migrants who have settled in Bobcaygeon make extensive use of local services, participate in local activities and associations, and have positive feelings about the community. The respondents express high levels of satisfaction with the local community as a place of residence and with the services which it provides, and most feel identified with the community. The most plausible integrating generalization for these patterns is that a large proportion of the respondents in this survey hold a lifestyle - i.e., a set of behaviour patterns and orientations - which is consistent with the resources and opportunities provided by the small nonmetropolitan community of Bobcaygeon and the region in which it is located.

Some cautions should be raised, even though they cannot be directly addressed by the data. Most of the housing constructed for retirees has been relatively expensive, and the growth in the village has been associated with increases in the prices for all real estate. Thus, it is possible that "affordable housing" is more difficult to obtain. While the participation of retirees in community social life sustains the viability of organizations and activities, it is possible that these new members bring different values and objectives which may come into conflict with those held by long term residents, and community conflict may result. In addition, the sample of residents interviewed have, at the present time, a profile characteristic of the "young elderly." If many of these migrants remain in the community as they age, increased patterns of dependency will occur in time. Municipal governments and other responsible bodies will then face the challenge of providing these services.

60.

SAFE AT HOME: A GUIDE TO PERSONAL RESPONSE SERVICES.

Prepared by Francine Trickey and François Renaud. Ottawa: Canada Mortgage and Housing Corporation; Montréal: Régie régionale de la santé et des services sociaux de Montréal-Centre; Québec: Société d'habitation du Québec, 1995. (NHA 6837).

More and more seniors and people with disabilities are choosing to live independently in their own homes. Personal response services can enhance their feeling of security and ensure that they have access to help and support in case of emergency. This publication describes the types of services that have been designed to

help seniors and people with disabilities feel safe at home. It will allow them to identify personal services that are, or could be, right for them.

NOTE : Aussi disponible en français sous le titre :*Vivre à domicile en toute confiance : guide sur le choix d'un service de surveillance et d'aide en cas de besoin.* (LNH 6838).

61.

SENIORS' HOUSING AND SOCIAL NEEDS STUDY: A PLANNING TOOL TO THE YEAR 2005: THE BEGINNING.

Prepared by Treeline Planning Services Ltd. Prepared for the N.W.T. Seniors' Advisory Committee. Ottawa: Canada Mortgage and Housing Corporation, 1995.

This report presents the results of a survey of approximately 300 seniors living in the Northwest Territories. It combines the views of seniors with the observations of service providers to create recommendations for housing and related needs to the year 2005.

This is the first study to statistically record vital information on NWT seniors. For example, seniors' income and their share of household expenses are described. Seniors' problems in personal care and daily living are outlined as well as their perceptions of their own health and well-being. The study also forecasts NWT seniors' housing needs into the next decade for the first time.

The study clearly shows that a number of problems exist for seniors which must be dealt with. Most of Northern seniors report low income. In addition, affordable and accessible housing for seniors is inadequate. Frail seniors, those most vulnerable of aged persons, are growing in numbers, and yet, care facilities are either in short supply or nonexistent in many NWT communities. These and other issues of concern to seniors are discussed in the study.

62.

VIVRE À DOMICILE EN TOUTE CONFIANCE : GUIDE SUR LE CHOIX D'UN SERVICE DE SURVEILLANCE ET D'AIDE EN CAS DE BESOIN.

Préparé par Francine Trickey et François Renaud. Ottawa : Société canadienne d'hypothèques et de logement; Montréal : Régie régionale de la santé et des services sociaux de Montréal-Centre; Québec : Société d'habitation du Québec, 1995. (LNH 6838).

Les aînés et les personnes ayant des incapacités choisissent de plus en plus de vivre de façon autonome dans leur propre logement. Les services de surveillance peuvent accroître leur sentiment de sécurité en leur donnant l'assurance d'avoir l'aide et le soutien requis en cas de besoin. Ce guide décrit les principaux services de surveillance et d'aide que ces personnes peuvent utiliser afin de vivre à domicile en toute confiance. Il leur permettra d'identifier le type de service qui répond, ou devrait répondre, le mieux à leurs besoins.

NOTE: Also available in English under the title:*Safe at Home: A Guide to Personal Response Services.* (NHA 6837).

ENERGY CONSERVATION ÉCONOMIES D'ÉNERGIE

63.

AIR LEAKAGE PERFORMANCE OF 11 LOG HOUSES IN EASTERN ONTARIO & WESTERN QUEBEC.

Prepared by Buchan, Lawton, Parent Ltd., Jools Development and Drerup Armstrong Ltd. Prepared for Technical Policy and Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1996.

This report contains the results of airtightness testing of 11 log homes of various construction details, sizes and ages in the region of Eastern Ontario and Western Quebec. Although the small sample prevents drawing scientific conclusions, the report indicated the following:

Sealing (chinking) the exposed face of the log joints increased airtightness about an order of magnitude compared to a double line of caulking between logs. The same was generally true for air sealing joints at window and door openings. It should be noted that the test method may have had some influence on this finding as it was not possible to place the test box tight against the internal air seals.

The airtightness of round V-scribe and hand hewn log construction was tighter than expected indicating that craftsmanship is a factor in developing airtightness. The results also demonstrate that tightening down gasketed walls with through bolts can maintain airtightness as shrinkage occurs. Various techniques for accommodating settling appear to be working well.

64.

DEVELOPMENT OF "STUD HUGGER" SYSTEMS FOR INSULATING WALLS WITH CELLULOSE FIBRE INSULATION.

Prepared by R.E. Platts. Ottawa: Canada Mortgage and Housing Corporation, 1996. (Housing Technology Incentives Program).

The newsprint cellulose insulation industry has long wanted to supplant mineral fibre batts in insulating walls in house construction, and tests show that pumped ("blown") cellulose can do a superior insulation job - given a supporting enclosure for the open interior face of the framed wall cavity. Following a brief review of two failed attempts to provide such support (the first, a site-manufactured polyethylene-skinned cellulose batt, the next a moveable, snugly fitting plastic form), this report recounts the successful research and development which offers the industry a workable and competitive system. The "stud hugger" approach first used a set of moveable rigid stanchions to hold the polyethylene air-vapour retarder against and slightly around each stud, drawing it drumskin taut to act as a firm formwork to contain the cellulose as it is blown into the cavity. Full trials in the field revealed some important limitations but led to an apparently complete solution: the stud hugger/polyethylene concept was transformed to become a fixed "cupped batten" that is stapled onto the framing to secure and tighten the polyethylene. The trials of paper composite battens were successful; the battens could also be economically extruded from recycled scrap polyethylene or similar plastics.

65.

ENERGY EFFICIENCY TECHNOLOGY IMPACT: APPLIANCES.

Prepared by Thermal Engineering. Prepared for Technical Policy and Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1996. 2 volumes.

Volume 1. Main report

Volume 2. Appendices

This project studies the effect of appliance efficiency on the overall residential end-use energy consumption in Canada, based on simulation studies conducted on the Expanded STAR database using the ENERPASS building simulation program. Included in this work was an evaluation of improved appliance efficiency effects on atmospheric CO₂ emissions as well as heating fuel substitution effects on energy consumption and atmospheric emissions.

The study included many tasks. Files for 239 houses in the Hot-2000 data base were converted to augment the newly corrected CMHC STAR-Housing data base which was then converted into both an ENERPASS and a Hot-2000 database for a total of 937 houses. The validity of the Expanded STAR database was assessed by comparing the distribution of houses, fuel consumption and type of fuels used in the database with Canadian statistics. The average annual end-use energy consumption per household, estimated from the baseline simulation done on the entire Expanded STAR database, was also compared to the Canada-2 housing stock model. It was found that the Expanded STAR database is acceptably accurate at the national level although less accurate on a regional basis.

Based on the research performed, the following trends are apparent. An improvement in appliance efficiency corresponds to an increase in space heating energy requirements as well as a decrease in domestic hot water heating and appliance fuel consumption. The savings associated with the improvement of appliance efficiencies only is less than 1% for 10% market penetration of high efficiency appliances, and less than 1.5% for 20% penetration. When energy saving measures, such as building envelope and mechanical system improvements are adopted along with high efficiency appliances overall savings can be as high as 4.2% of the total for 10% market penetration of energy saving measures.

CO₂ emission reduction is found to be very close in magnitude to energy consumption savings. The potential to reduce the CO₂ emissions by improving only the appliance efficiencies is less than 1%, depending on the level of efficiency improvements for a 10% penetration of improved appliances in the residential market. Emission reduction increases linearly with market penetration level. This potential increases to as much as 4.2% for a market penetration level of 10%, and to 8.4% for a market penetration level of 20% when other whole house energy saving measures are incorporated with appliance efficiency improvements.

An evaluation of two fuel substitution scenarios found that significant reductions in both total energy consumption and CO₂ emissions in Canada can be achieved by substituting certain fuels for others. However, it should be noted that these findings are only applicable to the two scenarios evaluated, and general conclusions cannot be drawn from these results.

66.

LES RÉSEAUX DE VILLES EN EUROPE : ÉTUDE.

Préparé par Lise Brousseau, Association québécoise pour la maîtrise de l'énergie (AQME). Préparé pour Relations internationales, Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1993 c.-à-d. 1996.

Cette étude a été rédigée par l'Association québécoise pour la maîtrise de l'énergie (AQME) dans le but d'examiner les activités menées par plusieurs villes européennes dans le domaine de la gestion de l'énergie. L'étude aborde deux sujets principaux. Tout d'abord, elle contient des renseignements sur les villes européennes, recueillis par l'AQME au cours de visites effectuées à l'automne 1992. Puis, elle explique comment le concept de réseau canadien d'échange d'informations sur l'énergie a évolué au sein de l'AQME, particulièrement au cours de ses congrès annuels. L'étude vise à connaître l'implication des villes européennes dans le domaine de la maîtrise de l'énergie tant au niveau de la gestion du patrimoine local que de la gestion énergétique territoriale et à connaître la nature et l'implication des réseaux d'échange entre les villes concernant l'énergie et l'environnement. Ces réseaux sont Cité-Vie (France), Cité de l'énergie (Suisse), Énergie-Cité (OCDE) et Ville-Énergie (Allemagne).

Les membres de la délégation ont rapidement découvert que le concept d'efficacité énergétique en Suisse, en France et en Allemagne est intimement lié à l'environnement et que ceci est une conséquence directe d'une gestion locale des enjeux énergétiques et environnementaux. En effet, la gestion de l'énergie, des déchets et du transport urbain contribuent à considérer la fonction efficacité énergétique dans son contexte global. Les organisations qui s'en occupent dans ces pays sont locales et ceci fait en sorte qu'il y a intégration complète de la gestion de l'énergie et de l'environnement. Au Canada, l'implication des gouvernements, pour qui les fonctions énergie et environnement sont gérées par des entités différentes, ne favorisent pas autant l'intégration des deux fonctions. La gestion centralisée de la production et de la distribution de l'énergie contribue bien sûr à cet état de fait.

Au cours de cette mission, les représentants des gouvernements fédéral et provincial ainsi que ceux de la ville de Montréal ont conclu qu'il serait opportun de mettre en place un réseau de villes au Québec, un réseau qui pourrait rapidement s'étendre au reste du Canada et à l'Amérique du Nord.

67.

A SUSTAINABLE ENERGY FUTURE: HOW DO WE GET THERE FROM HERE? = L'AVENIR D'ÉNERGIE RENOUVELABLE : COMMENT S'Y RENDRE D'ICI?

Solar Energy Society of Canada Conference, June 9-11, 1996, Orillia, Ont. Sponsored by Natural Resources Canada, Industry Canada and Canada Mortgage and Housing Corporation. Ottawa: Solar Energy Society of Canada Inc., 1996.

The Solar Energy Society of Canada held its 1996 conference at Fern Resort in Orillia, Ontario. These proceedings reproduce the text of each technical paper presented at the conference. There were two plenary sessions, one dealing with a world overview of building-integrated photovoltaics and the other with energy sustainability and the planning of cities and towns. The technical sessions addressed such topics as: photovoltaics; building envelopes and systems; active solar heating; environmentally responsible buildings; sustainable energy systems; and solar water distillation and disinfection in remote communities. There were

two papers that might be of particular interest to environmentally hypersensitive persons. They dealt with low-E windows and the use of plants in biofiltration systems to remove indoor air pollutants.

NOTE: None of the text is in French.

ENVIRONMENTAL POLLUTION AND CONTROL POLLUTION DE L'ENVIRONNEMENT ET SON CONTRÔLE

68.

ADDITIONAL ANALYSIS OF WALLACEBURG DATA: REPORT.

Prepared by Morrison Hershfield Limited. Prepared for Technical Policy and Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1996.

A previous study carried out in the Town of Wallaceburg, Ontario measured biologically active contaminants in houses and explored the health of occupants. In a second phase of the study, a group of 39 houses with the worst levels of biological contamination and a group of 20 with the least contamination were subject to more detailed study including detailed field inspections and testing, monitoring of indoor environmental conditions, and simulation to predict condensation formation potential in winter conditions. Subjective measures of health were gained through questionnaires and brief physical examinations of all occupants. Objective measures of health included analysis of blood samples drawn from a child in each house for T-lymphocyte and B-lymphocyte structure using a Fluorescence Activated Cell Sorter (FACS).

Preliminary analysis indicated that there was a link between measurements of mold growth and objective measures of health, and that the presence of indoor moisture sources is a more significant factor in fungal growth than air change. The analysis also indicated that the calculated moisture source strength was one of the strongest predictors of biological contamination levels and that condensation potential appeared to be a strong predictor of some lymphocyte measures.

69.

AFTER THE FLOOD.

About Your House Series; CE7. Ottawa: Canada Mortgage and Housing Corporation, 1996.

After a flood, it's important to restore your home to good order as soon as possible to protect your health and prevent further damage to your house and belongings. This fact sheet provides a homeowner's checklist of things to do to organize the clean up. It includes practical advice on: decontaminating and cleaning the house; what materials and objects to keep or discard; and what to do before moving back in.

NOTE : Aussi disponible en français sous le titre :*Après une inondation. (CF 7).*

70.

APRÈS UNE INONDATION.

Collection Votre maison; CF 7. Ottawa : Société canadienne d'hypothèques et de logement, 1996.

À la suite d'une inondation, il importe de remettre votre foyer en état le plus tôt possible afin de protéger votre santé et d'éviter que votre maison et vos possessions ne subissent de plus amples dommages. Ce feuillet documentaire fournit une liste de vérifications pour le propriétaire-occupant pour organiser l'

opérations de nettoyage. Il comprend des conseils pratiques sur : la décontamination et le nettoyage de la maison; les matériaux et objets qu'on peut garder et ceux qu'on devrait jeter; et ce qu'il faut faire avant de réintégrer la maison.

NOTE: Also available in English under the title *After the Flood. (CE 7)*.

71.

COMMENT ENRAYER LA MOISSISSEUR.

Collection Votre maison; CF 8. Ottawa : Société canadienne d'hypothèques et de logement, 1996.

La moisissure peut causer des allergies et des maladies respiratoires, et les toxines qu'elle produit peuvent miner le système immunitaire, ce qui rend les occupants du logement surtout les enfants, vulnérables devant plusieurs maladies. Ce feuillet documentaire décrit comment reconnaître et détruire les moisissures; les précautions spéciales à prendre en faisant disparaître des plaques de moisissure; et comment traiter la moisissure de surface et les moisissures qui ont envahi toute la maison.

NOTE: Also available in English under the title *Fighting Mold. (CE 8)*.

72.

AN EVALUATION OF THE SCREENING MEASUREMENT AS AN INDICATOR OF AVERAGE ANNUAL INDOOR RADON EXPOSURE.

Prepared by Michael W.R. LaFontaine, LaFontaine Consulting Services. Ottawa: Canada Mortgage and Housing Corporation, 1996. (External Research Program).

A study was conducted during the period 1994-1995, to evaluate the radon screening measurement as an indicator of average annual indoor radon exposure. Data for the study was obtained from 24 single-family detached homes from across the province of Ontario. Short-term (4 day) radon screening measurements were made in the basement and main living areas of each household, during each season: summer, fall, winter and spring. In addition to the screening measurements, a long-term (annual) radon measurement was made in the main living area of each home. All short-term and long-term measurements were made with electret ion chambers.

Using the annual measurement as the reference for each home, results of the current study indicated that a screening measurement made in any season had a 50-50 chance of under- or over-estimating the average annual indoor radon exposure. No correlation between the short-term screening measurement and long-term annual radon measurement was found.

The study also demonstrated:

- Guidelines or action levels based on annual radon exposure should not be used as the criteria for short-term screening measurement. A scaled criteria based on both the annual exposure level guideline and duration of screening measurement period should be developed and implemented.
- Instantaneous or grab sample readings should not be used as a basis for estimating annual indoor radon exposure.
- Peak radon values may occur in any season, though winter exhibits the highest number.
- Indoor radon levels can be extremely variable within the same community. Confounding factors include: house construction - nature of underlying fill material, proximity to and nature of bedrock, presence of exposed earth (sump pits, crawl spaces), condition of foundation, etc.; house location - urban versus rural;

lifestyles - ventilation type and frequency of use, nature and usage of depressurizing devices, e.g., basement fireplaces, clothes dryers.

- Electret ion chambers are easy to deploy by the homeowner and are small enough to facilitate postal delivery.

73.

FIGHTING MOLD.

About Your House Series; CE 8. Ottawa: Canada Mortgage and Housing Corporation, 1996.

Mold can cause allergies and respiratory disease, and the toxins it produces can wear down the immune system - leaving people, especially children, vulnerable to many illnesses. This fact sheet describes how to identify and destroy mold, the special precautions to take when working on mold patches and how to treat surface mold and whole-house mold.

NOTE : Aussi disponible en français sous le titre :*Comment enrayer la moisissure. (CF 8).*

74.

GUIDE FOR RESIDENTIAL INDOOR AIR QUALITY INVESTIGATIONS.

Prepared by George Vandrish and Lyle Davidson, Instruscience Ltd. Ottawa: Canada Mortgage and Housing Corporation, 1995, i.e., 1996. (External Research Program).

A Guide for Residential Indoor Air Quality Investigations presents a proposed series of steps that should be followed by trained specialists for identifying and determining the urgency, severity, cause and possible remedial actions needed when a possible indoor air quality problem is reported. The process involves five sequential steps of increasing complexity and cost and relies mainly on observation and analysis rather than measurement.

In the First Step, the specialist reviews the situation over the phone, determines whether an emergency exists, and may follow-up with a visit. If an emergency does not exist, the investigator will attempt to collect enough additional information over the phone to form a hypothesis and make suggestions (Step Two). If a solution is not found, the investigator visits the site to verify the information gathered and investigates in more detail (Step Three). Some remediation may be attempted after a thorough analysis of the data. The information obtained is analyzed in Step Four, a hypothesis is formed and tested, and more complex remediation is attempted. Step Five includes chemical, physical or biological testing. It is usually a last resort unless an emergency exists or a contract is developed which specifically directs such testing.

75.

HEALTHY MATERIALS: A COMMUNIQUÉ ON MATERIAL EMISSION TESTING AND STANDARDS ACTIVITIES.

Issue No. 4. Ottawa: Canada Mortgage and Housing Corporation, Winter/Spring 1996.

This fourth issue of *Healthy Materials* continues coverage of recent and ongoing emissions research in Canada, the U.S. and Europe. The initial activities of the National Research Council's multi-agency Consortium and the series of jointly-funded projects sponsored by the Task Force on Material Emissions underscore the effectiveness of collaboration between public sector research agencies and the manufacturing

industry. This is a theme which has also characterized the development of Danish and Swedish labelling programs and the dialogues held by the U.S. EPA with the carpet and paint industries.

This issue also provides summaries of the many emissions-related papers presented at the "Healthy Buildings '95" conference in Milan. Jim White's editorial focuses attention on the ongoing challenge of variability in emission test results. The articles on sources of information on low-emission materials and on the recently released "Building Materials for the Environmentally Hypersensitive" highlight the growing body of knowledge now available to practitioners.

NOTE : Aussi disponible en français sous le titre :*Matériaux sains : bulletin sur les essais et normes d'émission des matériaux.*

76.

LOW COST DETECTOR FOR VOCs (TVOC) FOR THE HOMEOWNER AND HOME INSPECTOR (ONGOING DEVELOPMENT).

Prepared by George Vandrish and Lyle Davidson, Instruscience Ltd. Ottawa: Canada Mortgage and Housing Corporation, 1994, i.e., 1996. (Housing Technology Incentives Program).

Commercial and scientific literature on sensors and instruments for VOC (Volatile Organic Carbon) sensing was reviewed and summarized. The low cost Taguchi sensor is being employed in substantial numbers of detectors and ventilation controllers, but it is humidity and temperature sensitive, and may be insensitive at the VOC concentrations typically found indoors. No other low-cost commercially available sensor, capable of detecting VOCs at the sub-ppm levels typical of indoor air, was identified.

Surface ionization, however, was identified as a promising alternative technology to the Taguchi sensor, and three prototype VOC detectors of the passive type, employing surface ionization sensors, were constructed and tested. The prototype detectors were tested with several aromatic hydrocarbons (xylene, toluene), an alkane (hexane), an amine (tributylamine), ketones (acetone, methyl ethyl ketone) and an aldehyde (formaldehyde). Sensitivity, minimum detectable level, linearity, range, reproducibility and the influence of vibration, power supply drift, humidity, and temperature, were investigated. The response to cleaning agents commonly employed in the household, to perfumes and to cigarette smoke was also established.

In general, large molecules such as xylene, were easily detected in the sub-ppm range while smaller molecules such as formaldehyde and acetone were more difficult to detect. The concentration of many cleaning agents, furniture polishes, and common solvents, when used indoors, following recommended practice, will quickly reach a significant easily measurable concentration.

Performance was unaffected over the temperature and humidity range studied and one of the prototypes operated continuously over a six-month period without any apparent change in operating characteristics. Rise time and recovery after exposure to high concentrations of VOC was instantaneous. A warm-up period of about 30 minutes is required if the sensor is turned off for several days, but the warm-up period rapidly decreases to 5-10 minutes for an off period of several hours.

77.

LOW COST DETECTOR OF FORMALDEHYDE AND IONIZABLE VOCs (TVOC) FOR THE HOMEOWNER AND HOME INSPECTOR.

Prepared by George Vandrish and Lyle Davidson, Instruscience Ltd. Ottawa: Canada Mortgage and Housing Corporation, 1994, i.e., 1996. (Housing Technology Incentives Program).

The purpose of this research was to find new and novel approaches for the measurement of formaldehyde at levels typically found indoors. The literature review focused, in particular, on identifying simple low-cost methods for ionizing molecules. Two methods, one based on a heated platinum catalyst, and a second, based on vacuum ultraviolet light, were selected for further study. Both sources produce ions only in the presence of organic materials and, when combined with a low-cost ion detector such as an electroscope, provide the basis for sensitive low-cost detectors for formaldehyde and VOCs.

This research project covered the development and testing of several portable detectors based on the platinum catalyst and vacuum ultraviolet (VUV) source-electroscope combinations. The research effectively demonstrated that both technologies can detect volatile organic carbon materials and formaldehyde at very low concentrations. The performance of both prototypes was better than expected and, it was possible to measure formaldehyde at or below 0.05 parts per million, the Health and Welfare Canada long-term exposure guideline. Several modifications were proposed which should increase sensitivity and lower the minimum level detectable even further, but more care must be taken to minimize chemical background and, to control the experimental conditions.

The prototypes were not selective and responded to acetone, a typical volatile organic carbon, as well as to formaldehyde. Although some additional work is required to make the detectors more selective, this research has proven the feasibility of developing simple, sensitive, low-cost detectors for volatile organic carbon materials. There is a need at the present time for low-cost, survey-type detectors of this nature.

78.

MATÉRIAUX SAINS : BULLETIN SUR LES ESSAIS ET NORMES D'ÉMISSION DES MATÉRIAUX.

No. 4. Ottawa : Société canadienne d'hypothèques et de logement, hiver/printemps 1996.

Le quatrième numéro de *Matériaux sains* se consacre encore aux recherches sur les émissions qui ont été effectuées dernièrement ou qui se poursuivent au Canada, aux États-Unis et en Europe. Les premières activités du consortium multi-agences du Conseil national de recherches de même que la série de projets bénéficiant d'un financement commun parrainés par le Groupe de travail sur les émissions des matériaux mettent en évidence l'efficacité de la collaboration entre les organismes de recherche du secteur public et l'industrie manufacturière. C'est le thème qui a également caractérisé l'élaboration des programmes d'homologation danois et suédois ainsi que le dialogue qu'a entretenu l'EPA des États-Unis avec l'industrie du tapis et de la peinture.

Ce numéro résume les nombreux documents traitant des émissions qui ont été présentés lors de la Conférence 95 sur les bâtiments sains tenue à Milan. L'éditorial de Jim White attire l'attention sur le défi que représente en tout temps la variabilité des résultats d'essais correspondants. Les articles portant sur les sources d'information quant aux matériaux à faible taux d'émission et le récent guide «Matériaux de construction pour les logements des personnes hypersensibles» font ressortir l'accroissement de la masse de connaissances que possèdent maintenant les praticiens.

NOTE: Also available in English under the title *Healthy Materials: A Communiqué on Material Emission Testing and Standards Activities*.

79.

LA MOISSISURE DANS LES SOUS-SOLS AMÉNAGÉS.

Préparé par Scanada Consultants Limited; Directeur de projet : Ken Ruest. Préparé pour la Division des politiques et de la recherche en matière technique, Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1996.

D'autres recherches ont démontré que la moisissure dans les maisons a un effet négatif sur la santé des occupants. Comme certaines moisissures sont hautement toxiques, les chercheurs ont été amenés, en raison de l'intérêt manifesté pour une meilleure qualité de l'air intérieur, à essayer de trouver les causes de la croissance de moisissures dans les habitations. Le but premier de ces travaux de recherche in situ était de déterminer si les sous-sols «aménagés» types nuisent à la qualité de l'air intérieur à cause de la croissance de moisissures dans les matériaux de finition. Les cavités murales des sous-sols aménagés ont été examinées au moyen de fibrescopes. Lorsqu'on a trouvé des signes visibles de moisissures, des échantillons ont été prélevés et les espèces ont été identifiées. Les échantillons ont été pris seulement sur les surfaces atteintes et aucun échantillon d'air ambiant n'a été prélevé. Il était présumé que les moisissures trouvées dans les cavités murales contamineraient l'air de la pièce parce que les cavités murales des sous-sols ne sont pas étanches à l'air.

Des moisissures ont été trouvées dans 18 habitations et 16 d'entre elles ont fait l'objet d'un échantillonnage (les moisissures dans les deux autres sous-sols n'étaient pas liées à l'aménagement). Des moisissures aux propriétés nocives pour les humains ont été trouvées dans chacune des 16 maisons susmentionnées.

On a recueilli les détails de construction des murs de sous-sol de chaque maison, puis identifié les causes des problèmes d'humidité. Dans la plupart des cas, les sous-sols comportaient une ossature de bois, une isolation thermique en fibre de verre et un revêtement intérieur en plaques de plâtre. Divers types et différentes conditions d'installation ont été observés relativement aux pare-air et pare-vapeur ainsi qu'à la protection contre l'humidité. Les sources d'humidité provenaient surtout de l'extérieur, à savoir de fissures dans les fondations, des fuites de puits de fenêtre du sous-sol (window wells) d'une protection inefficace contre l'humidité de sol et du drainage inadéquat sur le périmètre, d'un nivellement inadéquat et des descentes pluviales trop près des murs de fondation. Les sources intérieures étaient les suivantes : sécheuse et salles de bains non ventillées à l'extérieur; humidité relative élevée en été; fuites de la tuyauterie de plomberie.

NOTE: Also available in English under the title: *Molds in Finished Basements*.

80.

MOLDS IN FINISHED BASEMENTS.

Prepared by Scanada Consultants Limited; Project Manager: Ken Ruest. Prepared for Technical Policy and Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1996. 2 volumes.

Volume 1: Final Report

Volume 2: Appendix 1-4

Evidence from other research has shown that molds in houses have a negative impact on the occupants' health. Some molds are highly toxic and the interest in better indoor air quality is prompting researchers to determine the causes of mold growth indoors. The main objective of this field research project was to determine whether typical "finished" basements are contributing to poor indoor air quality as a result of mold growth in the finishing materials. Finished basements were investigated with optical fibrescopes to visually inspect the wall cavities. When visible signs of molds were found, samples were taken and sent for mold species identification. The mold samples were only taken from the surfaces affected and no room air samples were taken. It was assumed that the molds found in the wall cavities could contaminate the room air since the basement wall cavities are not airtight.

Molds were found in 18 houses and sampling was done in 16 of them (molds in the other two basements were not related to the finishing). In all of the 16 houses where sampling was done, molds with properties that are harmful to humans were found.

Details of the basement wall construction in each house were gathered and causes of moisture problems were identified. The majority of basements had wood framing, glass fibre insulation and drywall interior finish. A variety of types and installation conditions were observed with regards to air/vapour barriers and moisture barriers. Moisture sources were mainly from the exterior, such as from: foundation cracks; window well leaks; ineffective damp-proofing and perimeter drainage; poor grading; and downspouts at foundation walls. Interior sources were from: clothes dryers and basement bathroom fans which were not vented properly to the outside; high summer relative humidity; and plumbing leaks.

NOTE : Aussi disponible en français sous le titre :*La Moisissure dans les sous-sols aménagés*.

81.

A SURVEY OF PROBLEM HOMES OF THE ENVIRONMENTALLY HYPERSENSITIVE.

Prepared by Drerup Armstrong Ltd. Prepared for Technical Policy and Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1996.

This survey dealt with field testing an inspection protocol on houses suspected of causing or aggravating symptoms of the occupants. The primary purpose of this survey was to evaluate the method of investigating the indoor air quality of houses using the protocol. The draft protocol had been previously applied to the investigation of homes of environmentally hypersensitive individuals who were experiencing difficulties with the indoor air quality (IAQ) of their homes. Fifteen houses in three regions across Canada were selected. Two survey teams based in Ontario and Nova Scotia carried out the survey. Eleven of the fifteen houses were investigated by one team member. Three houses were subjected to duplicate investigations by two team members working independently. The data gathered from two of the houses were reviewed by an external reviewer.

The survey provided an indication of the types of problems encountered in the homes. Mold and moisture were found to be the predominant problem in nine houses, while five houses had predominantly chemical contamination. One house had both types of contaminants. The moldy houses were older houses (15 to 154 years); while three of the houses with chemical contaminants were new (under ten years old). Sources of chemical contamination were identified. Pets in many of the homes and lack of ventilation were found to contribute to poor indoor air quality. In six houses, the contamination problems were severe enough to cause adverse reactions; and in one case, the investigation had to be discontinued.

The inspection checklists, which are part of the protocol, were found by the survey team to be too detailed. Improvements in the format and removal of irrelevant information were suggested. In one of the houses investigated, different concerns were identified by the two investigators inspecting the same house. In other cases, similar conclusions about the house were obtained by the two investigators, but the prioritization of remedial actions appeared to be influenced by the investigators' personal sensitivities. A need for formal training of the investigators was identified. Such training would ensure consistent and comprehensive inspections of homes. The training would also address health issues as a result of possible exposure of the investigator to toxic contaminants.

82.

TRANSPORT OF CONTAMINATED GAS AND DUST IN HIGH-RISE APARTMENT BUILDINGS.

Prepared by Jacques Whitford Environmental Limited and Morrison Hershfield Limited. Project Team: Ted N. Hergel, Mark Lawton and Cindy Warwick. Prepared for Technical Policy and Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1996.

This study investigated the hypothesis that a high-rise apartment building with an underground parking garage can create an adequate concentration-reducing buffer between entry points for gaseous or dust contaminants and living spaces. Three main tasks were undertaken to fulfill the objectives of the research project: a literature search examining the risk associated with fugitive dust in high-rise apartment buildings; an evaluation of transfer paths of gaseous phase contaminants using perfluorocarbon tracer gas; and an evaluation of the effect of ventilation systems on the transfer paths of gaseous phase contaminants using sulfur hexafluoride (SF_6) tracer gas.

Based on the literature search conducted, it was concluded that the risk to high-rise apartment dwellers from contaminated dust is less than the risk to dwellers in single-unit homes. Emissions of dust can be reduced or eliminated at the contaminant source, and the number of exposure pathways are reduced by the building envelope and the limited on-site outdoor activities available at a high-rise building area.

Tracer gases can be transported through the high-rise apartment buildings by means of direct or indirect pathways. Indirect pathways pass through the parking garage area and the concentrations of tracer gases are buffered by dilution in this area. Direct pathways do not travel through the general garage space. Concentrations of tracer gases in building living spaces were found to be highest due to direct transport pathways.

The study has determined that gas transfer pathways are present in the high-rise buildings researched and that these pathways are not just stack-induced, seasonal phenomena. Generally, it was found that the dominant direct pathway for gas transfer was between the elevator sump pit and the upper floor living space. Results were compared to the gas concentrations that would exist if the tracer gas were equally mixed throughout the building. In upper floors, tracer gas concentrations as high as three times the fully mixed model were found during winter testing when stack forces were present. However, these concentrations were still 3 to 5 orders of magnitude less than the concentration at the point of entry into the garage. During summer testing, normalized tracer gas concentrations were found to be only marginally higher than the fully mixed scenario.

FAMILY VIOLENCE VIOLENCE FAMILIALE

83.

ÉVALUATION DE L'OPÉRATION REFUGE : LES POINTS SAILLANTS DES ÉTUDES DE CAS.

Préparé par la Division de l'évaluation de programme, Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1995.

Dans le cadre de l'initiative fédérale en matière de violence familiale, la Société canadienne d'hypothèques et de logement (SCHL) a entrepris l'évaluation de l'Opération refuge. Cette évaluation comprenait plus d'une année de suivi du programme (système d'information sur la clientèle), de même que des enquêtes et une recherche qualitative. Des études de cas ont été effectuées afin de recueillir des renseignements qualitatifs servant à compléter et à appuyer les statistiques contenues dans la base de données. Ces études de cas visaient surtout à examiner trois aspects : les besoins des collectivités en matière de refuges et de services destinés aux femmes et aux enfants victimes de violence familiale, les retombées sur ces collectivités, y

compris l'incidence liée à l'arrivée d'une maison d'hébergement dans une collectivité, et les modèles de services adoptés pour venir en aide aux victimes de violence familiale. Ce rapport comprend les études de cas utilisées aux fins de l'analyse de l'Opération refuge.

NOTE: Also available in English under the title *Project Haven Evaluation: Case Study Highlights*.

84.

PROJECT HAVEN EVALUATION: CASE STUDY HIGHLIGHTS.

Prepared by Program Evaluation Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1995.

As part of its responsibilities under the Federal Family Violence Initiatives, Canada Mortgage and Housing Corporation (CMHC) has undertaken an evaluation of the Project Haven Program. The overall evaluation included over a year of program monitoring (Client Information System), as well as surveys and qualitative research. Case studies were undertaken to collect qualitative information to supplement and support the statistical findings in the database. The three main areas addressed by the case studies included community needs related to the provision of shelters and services for women and children experiencing family violence, community impacts including the effects of locating the shelter for family violence in communities, and providing a description of service models adopted to address family violence. This report includes highlights of the case study reports prepared for the evaluation of the Project Haven Program.

NOTE : Aussi disponible en français sous le titre :*Évaluation de l'Opération refuge : les points saillants des études de cas.*

85.

A REPORT ON A STUDY OF THE SPECIAL NEEDS OF THE UNSERVED POPULATION OF ABUSED WOMEN (IN THE CONTEXT OF THE CLIENT INFORMATION SYSTEM FOR THE PROJECT HAVEN EVALUATION).

Prepared by SPR Associates Incorporated. Prepared for Program Evaluation Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1994.

The Project Haven Program, delivered by Canada Mortgage and Housing Corporation (CMHC) on behalf of Health and Welfare Canada, was developed as a component of the Federal government's interdepartmental Family Violence Initiatives which provided support to a national approach against family violence. As part of its responsibilities under the Federal government's interdepartmental Family Violence Initiatives, CMHC has undertaken an evaluation of the Project Haven Program. The overall evaluation included over a year of program monitoring (Client Information System), as well as surveys and qualitative research, including case studies, focus groups, and this study of special needs.

This specific study stemmed from reports from a number of shelters during Client Information System (CIS) operations that some shelters for abused women were having difficulty providing services to women whose experience of family violence is compounded by special needs. To understand the needs of women who are victims of family violence and who also have specialized needs, the study team examined the circumstances, and suggested approaches (from both the perspective of shelters and agencies/organizations) to respond to the needs of each special needs group: women who are of Aboriginal background; women who are of ethnocultural minority background; women who have mental health problems; women who have drug,

alcohol or substance abuse problems; and women who have physical disabilities. As well, interagency strategies, gaps in service and service needs as identified by all participants have been addressed in detail.

Although it has been noted that shelters have attempted to make their shelters accessible to Aboriginal women and women of ethnocultural minority background or immigrant women, service provision difficulties were still encountered for these groups. Moreover, the special needs of women with severe mental health problems, those with substance abuse problems and those with multiple special needs prove to be much more problematic given the issues reported by shelters. While it is widely thought that most shelters should not even attempt to handle severe mental health and substance abuse problems, or those of multiple special needs, it is at the same time widely believed that all shelters should have skills and mechanisms in place to refer and provide effective assistance to these women.

Consultation with selected national and provincial-level agencies and other organizations resulted in a number of suggestions and recommendations regarding the provision of services to these special needs groups. These included: expanded training of shelter staff and agency personnel to increase their understanding and knowledge of the specialized services required when special needs are compounded by family violence; the need for sufficient and accessible community services; the need for enhanced inter-agency cooperation to structure service delivery systems for all special needs groups which would involve shelters, their sponsor groups, law enforcement and justice agencies, service providers and others; and comprehensive follow-up and outreach services.

86.

TECHNICAL REPORT ON THE PROJECT HAVEN EVALUATION AND THE CLIENT INFORMATION SYSTEM: FINAL REPORT.

Prepared by SPR Associates Incorporated. Prepared for Program Evaluation Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1994.

The Client Information System (CIS) was implemented in 1992-93 as part of the evaluation of the Project Haven Program. The CIS was designed to collect information from women using the shelters on client needs, client satisfaction with shelters, service use, housing programs and service gaps. There were three parts to the CIS: the Monthly Resident Summary which consisted of an entry chart to collect information on all women who stayed at the shelter during the 12-month period of the evaluation; the Resident Departure Interview which gathered information on the abuse situation, the shelter experience, and the lives of clients after leaving the shelter; and the Non-Residential Component which involved a survey of non-residential services such as telephone and walk-in contacts as well as community and outreach services.

This report describes the start-up of the Client Information System and provides an overview of the CIS data. The findings show that women entered shelters primarily for reasons of battering or psychological abuse. A key goal of Project Haven was the provision of service to Aboriginal women; this was reflected in the overall clientele of the shelters (30% of the women were Aboriginal). The data also showed that only 10% of clients were employed full time. Forty-seven percent of women leaving the shelter returned home with 27% returning to an unchanged situation. Many women entered shelters more than once. Clients reported using a wide range of services in shelters. High client satisfaction was evidenced in positive client ratings of all aspects of shelters.

Follow-up analyses of the CIS pointed to two important types of findings. Shelters were found to experience significant ups and downs in entries depending on the time of the year, and also depending on the phase of the month (start of the month versus end of the month). These variations were seen as connected to the tendency of many shelters to be overcrowded at times. Analysis of factors related to the decision of women to return to an abuse/risk situation suggested that the woman's income and access to income support services (among other services) could be important factors enabling the woman's decision. Generally, women who

were able to access income support services, or women with independent incomes of their own, were more likely to decide not to return to the abuse/risk situation.

FIRE PREVENTION INCENDIES -- PRÉVENTION

87.

RESULTS OF FIRE RESISTANCE TESTS ON FULL-SCALE, INSULATED AND NON-INSULATED, GYPSUM BOARD PROTECTED WALL ASSEMBLIES.

Prepared by M.A. Sultan and G.D. Lougheed, National Fire Laboratory, National Research Council Canada. Prepared for Canada Mortgage and Housing Corporation, Canadian Home Builders' Association, Canadian Sheet Steel Building Institute, Cellulose Insulation Manufacturers Association of Canada, Fiberglass Canada Inc., Forintek Canada Corporation, Gypsum Manufacturers of Canada, National Research Council of Canada and Roxul Inc. Ottawa: CMHC, 1996.

This report presents the results of 22 full-scale fire resistance tests conducted at the National Fire Laboratory on insulated and non-insulated full-scale gypsum board protected wall assemblies. Three assembly arrangements were studied: symmetrical installation 1x1 (one layer of gypsum board on both the exposed and unexposed sides), asymmetrical installation 1x2 (one layer of gypsum board on the exposed side and two layers of gypsum board on the unexposed side), and symmetrical installation 2x2 (two layers of gypsum board on each of the exposed and unexposed sides) on wood and on lightweight steel studs. Two gypsum board types, Type X and regular, were considered. The effects of resilient channel installation, insulation types, types and thicknesses of gypsum board, symmetrical and asymmetrical installation of gypsum board and stud types on the fire resistance rating of wall assemblies were investigated. The insulations tested were glass, mineral and cellulose (blown dry and wet spray) fibres.

The results of these tests showed:

Resilient Channel Effects- In the asymmetrical loadbearing assemblies (1x2) with mineral fibre insulation and resilient channels, the assembly with resilient channels installed on the double layer side provided a better fire resistance rating than the assembly with resilient channels installed on the single layer side.

Insulation Effect- In non-loadbearing (1x2) assemblies the installation of the glass fibre insulation or the cellulose fibre insulation (wet sprayed) in the wall cavity did not affect the fire resistance rating of the assembly compared to a non-insulated assembly. However, the installation of the mineral fibre insulation provided a 54% increase in the fire resistance rating. In non-loadbearing (1x2) assemblies, the width of the mineral fibre insulation batts in the wall cavity played a significant role in the fire resistance rating compared to a non-insulated assembly. An assembly with insulation installed tight between the studs provided a better fire resistance rating (100 min) than an assembly with insulation installed loose (60 min).

Effects of Gypsum Board Thickness - In loadbearing (1x2) assemblies with glass fibre insulation in the wall cavity and resilient channels located on the single layer (fire-exposed side), changing the gypsum board thickness from 12.7 mm to 15.9 mm did not improve the fire resistance rating.

Effect of the Number of Gypsum Board Layers on the Exposed Side In loadbearing assemblies with glass fibre insulation in the wall cavity and resilient channels, an assembly with double layer (2x2), 12.7 mm thick, gypsum board provided a 55% increase in the fire resistance ratings compared to a (1x2) assembly with 12.7 mm thick gypsum board.

Effect of Stud Types - In non-loadbearing (2x2) assemblies, the assemblies with wood studs provided a slightly better fire resistance rating than assemblies with steel studs. A non-loadbearing (1x1) assembly with 15.9 mm thick Type X gypsum board on steel studs provided a 52-min. fire resistance rating. A loadbearing (1x2) assembly with 12.7 mm thick Type X gypsum board with staggered wood studs on a single plate and a layer of 90 mm thick glass fibre insulation on the exposed side provided a 51-min. fire resistance rating. A loadbearing (1x1) assembly with 15.9 mm thick Type X gypsum board and a double row of wood studs on two separate plates provided a 59-min. fire resistance rating.

HEATING AND VENTILATION CHAUFFAGE ET VENTILATION

88.

COMMENT SE CONFORMER AUX EXIGENCES DE VENTILATION DES BÂTIMENTS RÉSIDENTIELS DU CODE NATIONAL DU BÂTIMENT DE 1995.

Ottawa : Société canadienne d'hypothèques et de logement, 1996.

Numéro de commande : 6452F. **Prix : 12,95 \$ + TPS et frais d'expédition.

NOTE : Disponible par la poste : Produits d'information de la SCHL, 700, chemin de Montréal, pièce 1000, Ottawa (Ontario) K1A 0P7. Tél. : 1-800-668-2642. Commandes par télécopieur au Canada : 1-800-245-9274. Clients internationaux : voir à la page viii les instructions relatives aux commandes.

Tous les logements ont besoin d'air frais pour résister à l'humidité, aux odeurs et aux polluants intérieurs. Le Code national du bâtiment (CNB) de 1995 exige que les nouveaux logements soient dotés de systèmes de ventilation mécanique pouvant fournir cet air frais. Ce manuel donne un aperçu des exigences de la Partie 9 du Code national du bâtiment (CNB) de 1995 concernant la ventilation des bâtiments résidentiels.

Les six options décrites dans ce manuel aideront les constructeurs à satisfaire aux exigences du CNB et à y voir clair. Au moins une de ces options conviendra sûrement à la plupart des logements, bien que certains pourront exiger des systèmes de ventilation sur mesure. Le manuel contient également des renseignements déterminés sur chaque option de ventilation, y compris :

- deux arbres décisionnels permettant d'aider les utilisateurs à choisir le modèle préférable
- un encart documentaire de quatre pages pour chacune des options décrites relativement à la Partie 9; les encarts décrivent les fonctions et commandes de base pour chaque système de ventilation, fournissent les données nécessaires à l'établissement des dimensions et à la sélection des composantes du système, et donnent une liste de vérification des éléments à examiner pour planifier et installer le système de ventilation.

NOTE: Also available in English under the title *Complying with Residential Ventilation Requirements in the 1995 National Building Code*. (6451E).

89.

COMPLYING WITH RESIDENTIAL VENTILATION REQUIREMENTS IN THE 1995 NATIONAL BUILDING CODE.

Ottawa: Canada Mortgage and Housing Corporation, 1996.

Order number: 6451E. ** Price: \$12.95 + GST and handling charges.

NOTE: Available from: CMHC Information Products, 700 Montreal Road, Suite 1000, Ottawa, Ontario, K1A 0P7. Tel.: 1-800-668-2642. Fax orders from Canada: 1-800-245-9274. International clients see page viii for order instructions.

All dwellings require fresh air to deal with moisture, odours and indoor pollutants. The 1995 National Building Code (NBC) requires that new dwellings have mechanical ventilation systems capable of providing this fresh air. This manual provides an overview of the ventilation requirements for residential buildings falling under Part 9 of the 1995 National Building Code (NBC).

The six system options described in this manual will help builders meet the NBC requirements with a minimum of confusion. One or more of these ventilation system options will be suitable for most dwellings, although some dwellings may require custom designed ventilation systems. The manual also contains specific information on each ventilation system option, including:

- Two Ventilation System Decision Trees to help users determine which ventilation system design approach to use
- A four-page information pull-out for each of the Part 9 ventilation system options described. The pull-outs describe the basic functions and controls for each ventilation system, provide data needed to size and select ventilation system components, and give a checklist of items for consideration when planning and installing the ventilation system.

NOTE : Aussi disponible en français sous le titre : *Comment se conformer aux exigences de ventilation des bâtiments résidentiels du Code national du bâtiment de 1995.* (6452F).

90.

EFFICIENCY IMPROVEMENT TIMELINES FOR RESIDENTIAL VENTILATION EQUIPMENT: FINAL REPORT.

Prepared by Buchan, Lawton, Parent Ltd. Prepared for Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1995.

There is a major shift taking place in the role of ventilation in housing. Houses need continuous, controllable, unobtrusive and energy-efficient ventilation if they are to provide safe and healthy indoor environments. In recognition of the impact that the introduction of energy-efficient ventilation devices will have on national electrical energy consumption patterns, Canada Mortgage and Housing Corporation (CMHC) and the Ontario Ministry of the Environment and Energy sponsored this initiative to facilitate the integration of more efficient equipment into industry product lines.

Canadian residential ventilation industry members involved in the manufacture and distribution of exhaust equipment, HRVs and furnace fans were provided with a briefing document. Industry members attended a meeting and responded positively to the concept of efficiency improvement timelines for residential ventilation equipment. Given the variation in operating conditions of ventilation equipment, the industry decided that it would be best to group equipment by function and develop timelines for each product type separately. Industry members separated into groups to develop timelines for exhaust equipment, heat recovery ventilators, and circulation equipment.

The timelines presented in this document will make it possible to:

- compare the motor/fan set efficiency of residential ventilation devices in a fair manner;
- provide a fair and level playing field throughout the process for manufacturers;

- reduce the average electricity usage of ventilation devices within each category over time; and
- provide the framework for further reasonable upgrades to mandatory requirements and their enforcement.

91.

FANALYZER: AN AUTOMATED PORTABLE TEST BENCH FOR ANALYZING THE PERFORMANCE OF FRACTIONAL HORSEPOWER FAN-MOTOR SETS.

Prepared by Sheltair Scientific Ltd. Prepared for Technical Policy and Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1996. 2 volumes.

Volume 1: Main Report

Volume 2: FANalyzer Version 1.0: Operation & Maintenance Manual.

The research objective was to design, construct and pilot-test a prototype test rig capable of testing fans for both performance and efficiency, measuring the performance characteristics of small electric motors (from about 1/60 hp to 1/2 hp), and producing performance reports. The final product was named a "FANalyzer".

The FANalyzer provides a user-friendly interface with options for completing a wide variety of single point tests, or a fully automated fan efficiency or motor efficiency test. Outputs are graphically illustrated on standardized reporting forms. The forms permit analysis of all key variables, including speed, pressure, flow, torque, power, temperature, voltage and power factor. The FANalyzer is presently most easily used for testing fan efficiency in a Type B configuration (from ASHRAE Standard 51-85) which involves putting the test fan through a number of operating points at a single speed setting. Other configurations are also possible. The FANalyzer Operating Manual shows how the test routines are conducted, including location of the various sensors and pressure taps. The tests can be conducted automatically, using the LabVIEW test routines to control the fan and dampers, and collect, analyze and present the data. By choosing the appropriate transition connector, the FANalyzer can be used to accurately test everything from bathroom fans blowing 25 L/s to furnaces blowing 550L/s.

The rig provides extremely visual feedback to operators during automated motor-fan testing. This makes it especially effective when used to show manufacturers, builders, code officials and utility personnel the range of performance that can be expected from different types of equipment now available. By clarifying the opportunity for improved performance, it is expected that the FANalyzer will help drive requirements for, and delivery of, better ventilation technology.

92.

PERFORMANCE MONITORING OF A BUBBLE PUMPED SOLAR DOMESTIC HOT WATER SYSTEM.

*Prepared by P.D. Makuch and S.J. Harrison, Solar Calorimetry Laboratory, Queen's University.
Prepared for Bubble Action Pumps Ltd. Ottawa: Canada Mortgage and Housing Corporation, 1995.
(Housing Technology Incentives Program).*

The bubble pump developed by Bubble Action Pumps Ltd. is a concept that has the potential to be inherently reliable. It is unique in its design in that it has no moving parts and during operation requires no external electrical or mechanical input to operate. It is self regulating, in that it circulates anti-freeze, transporting

heat from an elevated thermal source to a lower elevation. An ideal application for this technology is the transport of heat from roof mounted solar collectors to a thermal storage located at a lower level. This configuration exists in solar domestic hot water (SDHW) systems located in cold climates.

During 1987 and 1992 prototypes of the bubble pump were tested in the Solar Calorimetry Laboratory under controlled conditions. Since that time, a number of significant modifications and improvements have been made in the design to increase its performance and ease of manufacture. In response to the continued refinement and development of the bubble pump, it was considered important to evaluate its performance on a real installation located outside of the laboratory environment. Consequently, a bubble pumped SDHW system was installed on a municipally owned row house and was instrumented with a remote data acquisition system to evaluate its performance. This report describes the monitoring and evaluation of this system.

During the monitoring period, the system delivered 1.17 MWh of solar energy to the load; however, system efficiency was lower than expected because of low hot water load. Performance was observed to increase toward the end of the monitored period as hot water demand and solar insolation increased. Estimates, based on six of the monitored months, indicated that annual system efficiencies and solar fractions of 19% and 41% are representative of the system's operation under modest load conditions, i.e., 180 to 245 L/day. It is expected that overall system efficiency will increase as daily hot water demand increases toward the design value of 300 L/day.

93.

RESIDENTIAL WOOD-FIRED COGENERATION.

Prepared by Allen Associates. Prepared for Technical Policy and Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1996.

The potential for generating electricity and heat from wood at a household scale has attracted attention from various quarters both in Canada and internationally. The prevalence of wood heating, the large number of remote dwellings and the strength of the wood burning industry in Canada are favourable conditions for the development and commercialization of wood-fueled microcogeneration.

This study examines the status of technologies that are suitable for electrical generation, the market opportunities and configurations that may best suit residential applications. Candidate technologies include Stirling engines, steam boilers and engines, wood gasifiers and various electric generators. Canadian demographics and energy demands indicate wide potential applicability of cogeneration with two generic strategies, one for conventional construction and electrical usage and one for advanced efficiency design and sustainable lifestyle. Typical applications are considered to be either electrical grid connected or stand-alone with batteries. Photovoltaic generation complements supply when heating loads drop.

For houses requiring space heating capacities greater than 5 kW and daily electrical usage greater than 5 kW, the fuel loading requirements favour a continuous feed system using pellets or wood chips, with electrical power output of 2 kW and respective hot water thermal output. A steam boiler feeding a piston engine or turbine is considered the most promising configuration. For a more advanced energy-efficient house, the equipment may be incorporated into a combination fireplace/cookstove which is fired once a day. The driver would be a Stirling engine coupled to a generator with 2 kW electric output.

94.

SURVEY OF NORTH AMERICAN HEAT EXCHANGER INTEGRITY TEST METHODS.

Prepared by Martin Thomas, Canadian Gas Research Institute. Prepared for Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1996.

This survey has been carried out as part of a larger project in which the intention is to develop an improved field test method for furnace heat exchanger crack/leak detection, which is repeatable, reliable, practical in field use and preferably quantitative. The need for this work has arisen from a rising number of complaints from home owners on the subject of furnace "red-tagging" due to a cracked heat exchanger. In many cases the heat exchanger may be cracked but will not present a threat to the homeowner. One major manufacturer has stated that they expect their heat exchangers to develop some innocuous stress relieving cracks after the first few months of operation. On the other hand, a furnace heat exchanger may show no signs of cracks but may leak due to either a design or construction flaw.

The survey was carried out by a combination of telephone contact and sending questionnaires to a total of 53 utilities in Canada and the U.S.A. These utilities were identified from an American Gas Association (AGA) survey of utilities and their services undertaken in 1993. Out of the 53 utilities contacted, 41 (77%) responded. The survey shows that almost all responding utilities are using a visible inspection of the heat exchanger and flame pattern in conjunction with a more detailed test if the service engineer is suspicious of a leak/crack. However, only about 15% of the respondents are using a quantitative method.

Through the survey and past work conducted by the Gas Research Institute (GRI), the Canadian Gas Research Institute (CGRI), and CMHC some 15 different test methods have been identified. Conclusions drawn from the survey indicate that no one test method stands out as being a clear candidate for development. However, due to deficiencies or over-sensitivity in some methods, a process of elimination suggests that the AGA/GRI test method, the CMHC test method, and CO/CQ monitoring in the flue and circulating air be evaluated.

This report recommends that the above tests be evaluated against an absolute measurement of heat exchanger leakage to determine the effectiveness of each test method. A suggestion is made that the current allowable leakage from direct vent furnaces (2% of combustion products) be used as a measure of the immediate hazard, but warns that further work would be required to establish this value as acceptable. The further work could be carried out as a theoretical study to predict potential indoor air CO/CQ concentrations.

95.

VENTILATION SYSTEM FOR NEW AND EXISTING HOUSES WITH BASEBOARD HEATING.

Prepared by James T. Reardon, Institute for Research in Construction, National Research Council Canada. Prepared for Technical Policy and Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1995.

Houses with forced-air heating systems which circulate air to most rooms in the house through ducts are generally regarded as well ventilated when the furnace fan is operating. Houses with alternative heating systems which do not include ducts may not experience enough ventilation air supply or adequate air distribution. This project examined five simple ventilation systems suitable for houses without forced-air heating systems. Four of the simple ventilation systems were exhaust-only: using either only local exhaust fans in the kitchen and bathrooms or the local exhaust fans supplemented with a partially distributed exhaust system with pickups in each bedroom. Each of these exhaust-only approaches was tested with deliberate passive inlet vents (both distributed or centralized) both open and closed. The fifth system was a supply and exhaust system with minimally-sized ducts supplying ventilation air to each habitable room, and the local exhaust fans providing the exhaust.

The five ventilation systems were installed in the NRC two-storey research house which also has an electric forced-air heating system. The ventilation performance of each system was measured for a variety of weather conditions using single and multiple tracer gas techniques. Their air change rates and room-by-room

ventilation rates were measured and compared with similar reference measurements in the house with no ventilation and with only the forced-air furnace fan operating.

The exhaust-only system using only local exhaust fans, with no passive inlet vents open, was found to provide inadequate ventilation performance, only marginally better than simple air leakage alone. With the distributed passive inlet vents open, the local exhaust system was found to overventilate the ground floor rooms and still underventilate the upper storey bedrooms. The partially distributed exhaust system was effective at improving the ventilation air distribution to the bedrooms, especially with a centralized passive inlet vent open. The minimal ducted supply system provided the required air distribution to all the habitable rooms.

HIGH-RISE CONSTRUCTION CONSTRUCTION D'IMMEUBLES DE GRANDE HAUTEUR

96.

ASSESSMENT REPAIR STRATEGY FOR EXISTING BUILDINGS CONSTRUCTED WITH MASONRY VENEER STEEL STUD WALLS.

Prepared by T.W.J. Trestain. Prepared for Technical Policy and Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1996.

Canada Mortgage and Housing Corporation (CMHC) retained T.W.J. Trestain Structural Engineering to undertake a review of assessment and repair techniques for problem masonry veneer steel stud (MV/SS) walls. This document is intended to define state-of-the-art "good practice", a needed reference point upon which evaluations of deficiencies, renovation strategies and construction methods can be based.

Two competing approaches to field investigation are discussed - the medical model versus the technical audit model. Neither approach is sufficient on its own and a blended model is therefore proposed. Methods of gathering field information are discussed including a proposed systematic approach to the review of problem MV/SS walls. The successful diagnosis(es) of problem MV/SS walls requires an understanding of the basic engineering and building science issues. Accordingly, typical MV/SS deficiencies and the consequences associated with those deficiencies are presented.

In order to assist the investigator to answer the question "Is it good enough?", a number of analysis tools are proposed along with some suggested decision making criteria. The analysis tools include reduced Limit States Design load factors, conventional analysis, finite element analysis and full-scale field testing. The basic analysis routine for the finite element program was developed as part of another CMHC project and then customized with a number of features specifically for this project. Lastly, a compendium of possible maintain or restore strategies is presented for problem MV/SS walls. Included is a section on economic analysis which provides guidance on the optimum course of action that best meets the needs of public safety, building performance and the financial position of the building owners.

97.

COMMISSIONING PLAN FOR THE BUILDING ENVELOPE: REPORT.

Prepared by Morrison Hershfield Limited. Prepared for Housing Innovation Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1995.

Inadequate building envelope performance associated with air leakage, vapour diffusion, water leakage and poor thermal performance has substantial consequences for building owners and users. Energy costs increase, user comfort decreases and the owner's repair and capital replacement budgets soar. Commissioning the building envelope can help control these consequences. The term commissioning, understood by many to be a process which starts at the completion of a project has been modified significantly. In this report, the commissioning plan extends the building envelope commissioning process from the project brief, through validation of the design, to progressive certification during and possibly following construction. Each section of the plan is followed by an example based on the development of a building envelope for a twenty-storey brick and steel stud residential building in Ottawa.

At the project brief stage, the owner must define clear performance requirements for the building envelope. The project design team responds with a progression of validated details from concept to final tender documents which ensures that the performance specified in the project brief can be achieved, if constructed as specified. During construction, progressive certification of the performance of critical materials, components and assemblies is required to assure that the project, as constructed, meets the same performance requirements. At completion, the building envelope may or may not be commissioned as a whole.

Throughout the building envelope commissioning process, from project brief to final construction, the design team requires the guidance of an individual to define initial performance objectives, complete design validation assessments and witness performance tests during and following construction. This individual may be the project architect or another specialist retained by the design team to assume these responsibilities.

NOTE : Aussi disponible en français sous le titre :*Plan de mise en service de l'enveloppe du bâtiment.*

98.

CONTROLLING STACK PRESSURE IN HIGH-RISE BUILDINGS BY COMPARTMENTING THE BUILDING: REPORT.

Prepared by Morrison Hershfield Limited. Prepared for High-Rise Innovation Centre, Technical Policy and Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1996.

An investigation was conducted of the effect of decreasing the air leakage area across internal partitions of a typical modern high-rise apartment. The objective of this work was to study the practicality of increased compartmentalization or separation of the living units from each other and from the corridors and vertical shafts in the building. A 12-storey condominium building in Nepean, Ontario was selected as the test case for the measurements. Measurements of pressure difference across 18 different partitions in the building were made under cold weather conditions, with doors across some of the separations opened and make-up air fans either operating or switched off. A total of 20 measurement sets are presented. The airflow rates through the make-up air vents on each corridor were also measured. A computer simulation model of the airflow network within the building was developed using the CONTAM93 program. The simulation model was calibrated so that the simulated pressures and airflow matched those measured in the building.

The doors were determined to represent the element of the interior partitions which could be improved most reliably and simply. It was felt that the best modern technology could produce interior doors providing 1/4 the leakage of the tightest doors commonly found in high-rise residential buildings. The effect of installing such tight doors in existing buildings was simulated. Three compartmentalization strategies were simulated, as follows: separating the units from the corridors, separating the corridors from the vertical shafts, and a combination of the first two. Separating the units from the corridors was found to have greater effects than separating the corridors from the shafts, but the combination of the two measures was nearly additive and

created the greatest differences from the base case in air movement and pressure differences across building elements.

Pressure differences across interior doors were increased by compartmentalization, while pressure differences across the exterior skin were reduced but not as much as expected. The combination strategy spread pressure differences across greater numbers of partitions, so that the peak pressure differences across interior doors were smaller with this strategy than the other two. Unit ventilation is more uniform under compartmentalization. Units on lower floors receive more total air and more of their air from the corridor, with essentially none from infiltration. Units on upper floors receive less total ventilation, and a greater proportion of their air is from the corridor ventilation system; virtually none is from the garage via elevator shafts and stairwells.

Total air leakage and airflow through the corridor ventilation system is reduced by up to 14% by the combination strategy. Peak loads and required heating and cooling capacities are reduced by the same amount. The existing corridor ventilation fans were found to provide more than enough building pressurization, and corridor ventilation flow rates could be further reduced without much impact on the benefits of compartmentalization.

99.

HIGH-RISE APARTMENT REPAIR NEEDS ASSESSMENT.

Prepared by Gerald R. Genge and Jacques Rousseau. Prepared for High-Rise Innovation Centre, Technical Policy and Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1996.

In a study performed for the City of Toronto on high-rise rental buildings, a different approach was used to evaluate the probable costs for repair. In order to understand the scope of the repair needs and the overall costs for the population of 464 high-rise rental properties, a typology approach to repair needs was established. On the basis of the consultant's experience and recognizing that certain aspects of design resulted in certain typical repair requirements, buildings of different age groups were characterized and expected repair needs were assessed. From this, costs were applied and aggregate expenses were computed. The costs were assessed in terms of the initial costs to bring buildings back to a satisfactory level of performance and then the expected ongoing costs for maintaining buildings at that level.

The characteristics found to most influence the repair costs were associated with specific elements of the building. In particular: cladding, windows, roofs, balconies, garage and exposed structural elements tended to dictate the level of expenditure. Other items, such as elevator control modernization, heating system retrofits and replacement of domestic water systems were also included when appropriate; however, the cost of these items did not affect the overall costs to the same degree as the envelope issues.

NOTE : Aussi disponible en français sous le titre :*Réparation des tours d'habitation.*

100.

THE INFLUENCE OF UNSTEADY PRESSURE GRADIENTS ON COMPARTMENTALIZATION REQUIREMENTS FOR PRESSURE-EQUALIZED RAINSCREENS: FINAL REPORT.

Prepared by D. Inculet and D. Surry. Prepared for Technical Policy and Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1996.

Seeking to improve the design of pressure-equalized rainscreens in high-rise residential buildings, Canada Mortgage and Housing Corporation has sponsored this research on unsteady exterior pressure gradients.

The work is intended for use in selecting compartment sizes in a pressure-equalized rainscreen, aimed at minimizing differential pressures across the rainscreen which are caused by these pressure gradients. The report details the following components:

1. Building and testing of a simple building model in the wind tunnel, fitted with a dense coverage of pressure taps on two faces. A comprehensive test program studying the effects of wind angle, upstream exposure, building height and face aspect ratio on the unsteady pressures was conducted. Possible effects caused by a similar-sized building placed upstream were also tested.
2. Seeking an analysis method (affected in part by the results) which would provide designers with the necessary information for compartment sizing, orthogonal decomposition as well as a simple gust factor approach was explored. A method for calculating the gradients from the discrete pressures was necessarily developed.
3. Analysis of a portion of the data set, intended to show some results of the methods employed and the extent of the problem.

Some very preliminary recommendations for unsteady horizontal and vertical gradients have been made using a combination of the orthogonal decomposition results and actual peak unsteady values. The maximum recommended non-dimensional horizontal pressure gradient is 25.0, found at the vertical edges; the maximum vertical pressure gradient is 30.0, located at the top edge of the building. These must be superimposed on the mean gradients. These recommendations have been developed using only a small portion of the data set and it is not yet known if they are applicable over a range of simple building geometries.

101.

LE MUR À ÉCRAN PARE-PLUIE: UN PROTOCOLE DE MISE EN SERVICE.

Préparé par Richard Quirouette, Quirouette Building Specialists Ltd. Préparé pour la Division des politiques et de la recherche en matière technique, Société canadienne d'hypothèques et de logement et Travaux publics et Services gouvernementaux Canada. Ottawa: SCHL, 1996.

Ce projet a été lancé par la SCHL et Travaux publics et Services gouvernementaux Canada (TPSGC) pour appliquer davantage le principe d'un système à écran pare-pluie à la conception des murs extérieurs et à la construction d'immeubles tant résidentiels que commerciaux. L'étude comprend trois volets:

1. la mesure et la surveillance de l'efficacité sur place des écrans pare-pluie;
2. l'élaboration d'un test de conformité en matière de conception et d'efficacité sur place (méthode de stimulation de la cavité ou MSC); et
3. la mise en service de la conception et de la construction de murs et de fenêtres à écran pare-pluie.

Ce rapport concerne le troisième volet, c'est-à-dire la mise en service de la conception et de la construction de murs et de fenêtres à écran pare-pluie. Il comprend un exposé sur les critères d'efficacité à appliquer pour la conception et la mise en service du mur à écran pare-pluie. Il présente une méthode de conception utilisant le programme informatique «Rain - V2.0» de la SCHL et propose un protocole de mise en service pour vérification sur place de la conformité. En outre, ce rapport comprend une étude de cas portant sur une conception d'un mur à écran pare-pluie, une évaluation sur place de l'efficacité et une procédure de mise en service pour l'immeuble de la Canada Vie à Toronto.

NOTE: Also available in English under the title:*The Rainscreen Wall: A Commissioning Protocol.*

102.

PLAN DE MISE EN SERVICE DE L'ENVELOPPE DU BÂTIMENT.

Préparé par Morrison Hershfield Limited. Préparé pour la Division de l'innovation dans l'habitation, Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1995.

Le rendement inadéquat de l'enveloppe d'un bâtiment, accompagné de fuites d'air, de diffusion de vapeurs, de fuites d'eau et d'une faible résistance thermique, a de graves conséquences pour le propriétaire et les utilisateurs de ce bâtiment. Les coûts de l'énergie augmentent, le confort des utilisateurs diminue et le propriétaire voit grimper ses budgets de réparation et de remplacement d'immobilisations. La mise en service de l'enveloppe du bâtiment peut aider à modérer ces conséquences.

Le terme de «mise en service», que plusieurs comprennent comme un processus qui commence à l'achèvement d'un projet, a été considérablement modifié. Dans ce rapport, le plan de mise en service prolonge le processus de mise en service de l'enveloppe du bâtiment à partir de l'avant-projet, en passant par la validation de la conception et jusqu'à l'homologation progressive pendant la construction et peut-être après l'achèvement. Chaque section du plan est suivi d'un exemple basé sur la production d'une enveloppe de bâtiment pour un immeuble résidentiel de 20 étages en briques et en poteaux d'acier situé à Ottawa.

À l'étape de l'avant-projet, le propriétaire doit clairement définir les exigences de rendement de l'enveloppe du bâtiment. L'équipe de conception du projet répond à ces critères en produisant des détails qui sont validés graduellement, depuis l'avant-projet jusqu'aux documents d'offre finale, et permettent de s'assurer que le rendement défini au moment de l'avant-projet peut être atteint si le bâtiment est construit tel que précisé. Pendant la construction, il est nécessaire d'assurer l'homologation progressive du rendement des matériaux, éléments et assemblages principaux, afin de s'assurer que le projet tel que construit est conforme aux exigences de rendement indiquées. À l'achèvement de la construction, l'enveloppe pourra être mise en service en totalité ou non.

Pendant tout le processus de mise en service de l'enveloppe du bâtiment, de l'avant-projet à la construction finale, l'équipe de conception doit avoir recours aux directives d'un spécialiste qui définira les objectifs de rendement initiaux, réalisera les évaluations de validation de la conception et assistera aux essais de rendement pendant et après la construction. Cette personne peut être l'architecte responsable du projet, ou tout autre spécialiste dont les services ont été retenus à cette fin par l'équipe de conception.

NOTE: Also available in English under the title *Commissioning Plan for the Building Envelope: Report*.

103.

THE RAINSCREEN WALL: A COMMISSIONING PROTOCOL.

Prepared by Richard Quirouette, Quirouette Building Specialists Ltd. Prepared for Technical Policy and Research Division, Canada Mortgage and Housing Corporation and Public Works and Government Services Canada. Ottawa: CMHC, 1996.

This project was commissioned by CMHC and Public Works Government Services Canada (PWGSC) to further advance the application of the rainscreen principle to exterior wall design and construction of both residential and commercial buildings. The study includes three areas of interest. These are:

1. The measuring and monitoring of rainscreen field performance.
2. The development of a field performance and design compliance testing procedure (the Cavity Excitation Method or CEM).
3. Commissioning the design and construction of rainscreen wall and window systems.

This report examines the third area of interest, commissioning the design and construction of rainscreen wall and window systems. It includes a discussion on the performance criteria for use in the design and

commissioning of the rainscreen wall. It presents a design method using the CMHC «Rain - V2.0» computer program and proposes a commissioning protocol for on-site verification of compliance. Further this report presents a case study which involved a rainscreen design, field performance evaluation and a commissioning procedure for the Canada Life Building in Toronto.

NOTE : Aussi disponible en français sous le titre :*Le Mur à écran pare-pluie : un protocole de mise en service.*

104.

RÉPARATION DES TOURS D'HABITATION.

Préparé par Gérald R. Genge et Jacques Rousseau. Préparé pour le Centre d'innovation pour les tours d'habitation, Division des politiques et de la recherche en matière technique, Société canadienne d'hypothèques et de logement. Ottawa: SCHL, 1996.

Dans une étude effectuée pour le compte de la ville de Toronto à l'égard des tours d'habitation, on a utilisé une démarche différente pour évaluer les coûts probables de réparation. En effet, on a établi une typologie des besoins en matière de réparation, pour comprendre l'ampleur de ces besoins et les coûts globaux pour le parc de 464 tours d'habitation. En se fondant sur l'expérience des experts-conseils et en prenant acte du fait que certains aspects de la conception présentaient des exigences types en ce qui concerne les réparations, on a cerné les caractéristiques des bâtiments de divers groupes d'âge et évalué les besoins prévisibles en matière de réparation. A partir de ces données, des coûts ont été appliqués et les dépenses cumulatives ont été calculées. Les coûts ont été évalués à l'origine pour remettre les bâtiments dans un état de rendement satisfaisant, puis on a déterminé combien il en coûterait pour conserver les bâtiments à ce niveau.

Les caractéristiques qui influaient le plus sur les coûts de réparation ont été reliées à des éléments précis du bâtiment. Plus particulièrement, le revêtement mural extérieur, les fenêtres, les toits, les balcons, le garage et les éléments de charpente apparents avaient tendance à dicter le niveau de dépenses. D'autres aspects, comme la modernisation des commandes des ascenseurs et la rénovation des systèmes de chauffage ainsi que le remplacement des réseaux de distribution d'eau domestique ont également été inclus le cas échéant; cependant, leur coût a moins influencé les coûts globaux que ceux ayant trait à l'enveloppe des bâtiments.

NOTE: Also available in English under the title:*High-Rise Apartment Repair Needs Assessment.*

HOME OWNERSHIP HABITATIONS -- POSSESSION

105.

BUYING INTO THE SYSTEM: HOUSING TENURE, ECONOMIC DEPRIVATION, AND POLITICAL PARTICIPATION.

Prepared by Norine Verberg. Thesis (Ph. D) - University of Waterloo, 1995. (Scholarship Program).

Homeownership is widely believed to yield many positive benefits including economic gains, increased social status, and a greater sense of identity and control. While this may be true for many homeowners, recent evidence suggests that the benefits associated with owning a home vary considerably depending upon one's place within the socioeconomic system and one's personal circumstances. This study explores whether the predicted patterns of greater political conservatism and political involvement for homeowners hold under circumstances of economic deprivation. The political conservatism-involvement hypothesis is tested for

sub-samples of respondents who expressed either satisfaction or dissatisfaction with their standard of living, and respondents with low and high levels of family income. Because holding a mortgage implies a very different economic experience from outright ownership, tenure is measured in terms of three categories: own outright, own with mortgage, and rent.

After controlling for income, material satisfaction, region, city size, education, occupation, gender, marital status, and age, the survey results show that housing tenure is associated with voting in provincial and federal elections, economic conservatism, moral conservatism, and attitudes toward labour rights. As in previous research, the findings indicate that owners (mortgaged owners and outright owners) are more conservative and more involved than tenants. This study provides support for the view that homeowners are more politically active and more conservative than renters for a nationally representative Canadian sample.

106.

LA CLÉ DE VOTRE PREMIÈRE MAISON : D'ÉTAPE EN ÉTAPE : UN GUIDE DÉTAILLÉ À L'INTENTION DES ACCÉDANTS À LA PROPRIÉTÉ.

Ottawa : Société canadienne d'hypothèques et de logement, 1996. (LNH 6876).

Autrefois, l'achat d'une première maison se révélait une tâche fort simple. De nos jours cependant, l'achat d'une propriété peut ressembler à une course à obstacles. *La Clé de votre première maison* est un guide qui traite en profondeur de tous les aspects inhérents à l'accession à la propriété. Il décrit les types de propriétés disponibles ainsi que les avantages et les désavantages que comporte toute propriété, neuve ou non. On trouve dans le guide plusieurs fiches pratiques à remplir et des listes de vérification pour aider les accédants à la propriété à déterminer : la valeur de la propriété dont ils peuvent se porter acquéreur; leurs besoins en matière de logement; leur situation nette; les coûts exacts de maisons de prix différents; les diverses options hypothécaires; et la mise de fonds initiale et le coût de l'assurance-prêt hypothécaire. Le guide décrit également comment préparer une offre d'achat et la prise de possession de la maison.

NOTE: Also available in English under the title *Homebuying for Beginners: A Step-by-Step Guide to Help You Buy Your First Home. (NHA 6876)*.

107.

HOMEBUYING FOR BEGINNERS: A STEP-BY-STEP GUIDE TO HELP YOU BUY YOUR FIRST HOME.

Ottawa: Canada Mortgage and Housing Corporation, 1996. (NHA 6876).

Buying a home used to be straightforward. For a beginner today, however, buying a home is a journey with many twists and turns. *Homebuying for Beginners* is a workbook which provides in-depth details about every aspect of buying a home. It describes the types of housing that are available as well as the advantages and disadvantages to new and resale homes. Several worksheets and checklists are provided in the guide to help buyers determine: how much they can afford to spend; their housing needs; their net worth; the exact cost of differently priced homes; their various mortgage options; the initial down payment and the cost of mortgage loan insurance. The guide also describes how to prepare an offer to purchase and the closing process.

NOTE : Aussi disponible en français sous le titre : *La Clé de votre première maison : d'étape en étape : un guide détaillé à l'intention des accédants à la propriété. (LNH 6876)*.

108.

LITERATURE REVIEW ON THE TENURE DECISION OVER THE LIFE CYCLE.

Prepared by Marion Steele and Gillian Leslie. Prepared for the Centre for Future Studies in Housing and Living Environments, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1996.

The objective of this research is to do a literature review of the theoretical and empirical studies on the life cycle tenure decision. The project consists of an analysis of documents published in the last decade that deal with the question of life cycle and tenure decision in Canada. As the size of this literature survey (32) makes clear, there are a large number of studies in existence which deal with tenure choice over the life cycle. Most of these focus on the general issue of tenure choice but include some discussion of life cycle effects. Some do this by including demographic variables such as the age and the marital status of the household head and the number of children in their model. Others confine the analysis to specific demographic groups, most often young households. Some estimate the model separately for different demographic groups.

Generally the findings are:

- Age has, at first, a very strong positive effect on the probability of being an owner, with the effect of an additional year of age declining as the household gets older, where the sample is all households.
- On the cohort effect, it has been found that the experience of a household in earlier periods will substantially affect its tenure choice in the current period. Thus, it seems likely that the homeownership rate for households less than 25 years will never rise to the levels seen in the 1970s, partly because of the large numbers attaining post-secondary education, delaying entry into the labour market.
- Heads who are not married have a substantially lower probability of homeownership than married heads. The reduced probability appears to be particularly great for young single women.
- The presence of children, or the number of children has a strong effect on the probability of homeownership for young households, an effect which is robust to different specifications.
- Income is generally found to have much more impact on the homeownership of young households than on that of older households.

HOMELESSNESS/SANS-ABRI

109.

DEVELOPMENT OF A HOMELESS DATA COLLECTION AND MANAGEMENT SYSTEM: PHASE ONE: FINAL REPORT.

Prepared by Tim Aubry, Shawn Currie and Celine Pinsent. Prepared for Social and Economic Policy and Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1996.

This study is the first phase of a three-phase project launched by CMHC to develop and test a data collection and management system for shelters of the homeless. It identifies the data elements for the system and develops guidelines for the provision of confidentiality in data collection and dissemination. The first phase was carried out in close collaboration with the Data Collection Working Group of the *Alliance to End Homelessness* in Ottawa-Carleton. Information gathered through this group of shelter agencies was supplemented with information from a key informant survey of housing officials in provinces and municipalities across Canada.

The operational definition of the studied homeless population was the subgroup of homeless persons that stays at least one night in a temporary shelter. Temporary shelters are defined as emergency housing units intended for single adults, youths, and families (not including shelters that serve as temporary refuges to victims of family violence). Based on the results of consultations with local agencies, the Data Collection Working Group ranked data elements in order of importance and decided which data elements should compose a common minimum data collection system. The chosen data elements will produce information on: shelter user characteristics, reasons for their shelter use, their service needs, and their housing plans upon leaving the shelter.

Guidelines were developed for the three different aspects of data management in an information system:

- data collection (i.e., principle of informed consent);
- data storage (i.e., security of data); and
- data sharing (i.e., restriction of data uses to those permitted by informed consent).

110.

ESTIMATING HOMELESSNESS: TOWARDS A METHODOLOGY FOR COUNTING THE HOMELESS IN CANADA: BACKGROUND REPORT.

Prepared by T. Peressini, L. McDonald and D. Hulchanski. Prepared for Social and Economic Policy and Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1996.

Many different methods have been employed to study and count the homeless. These range from the more recent telephone surveys of the general population to attempts to include the homeless and other disadvantaged groups in the Canadian and American national censuses. In general, eight basic strategies for enumerating or measuring the homeless population have been used: censuses and one-night counts; key-person surveys; partial counts; heroic extrapolations from partial counts; windshield street surveys; adaptations of area probability designs; service-based designs; and automated (computerized) client tracking systems.

Counting the homeless has proven to be an arduous task. The most pernicious obstacles to developing a standard method for estimating the size of the population include: problems of duplication; timeframe; variations across geographical locality; the number and type of services available in a locality; the degree of service utilization by the homeless; and the level of cooperation with efforts to enumerate the homeless in the community. To examine these obstacles and the challenges they create for those trying to estimate homelessness, Canada Mortgage and Housing Corporation (CMHC) sponsored a special workshop.

The Workshop on Homelessness brought together a panel of experts from the United States and Canada to critically review the various definitions and methods that are currently available, and to offer recommendations concerning those that are preferred or optimal. The participants arrived at three main conclusions. First, support must be garnered for the initiative through development of a community involvement process. Second, community agreement needs to be sought on a precise definition of who is to be considered homeless. Third, given the definition selected, an appropriate method for estimating homelessness should be chosen. Complete documentation of the initiative should then be kept, detailing: the definition of the homeless; who is and is not counted by what sampling frame; what services are included and excluded in the count; and how the data are collected.

111.

VIEW FROM THE STREET.

Prepared by Close Up Film Productions Limited. Prepared for Social and Economic Policy and Research Division, Canada Mortgage and Housing Corporation. Toronto: Close-Up Film Productions, 1996. 2 volumes.

Volume 1: Main Report

Volume 2: Development Report for Canada Mortgage and Housing Corporation

"View from the Street" will be a one hour documentary about homelessness as seen through the eyes of people living at StreetCity on Front Street in downtown Toronto. StreetCity is an internationally recognized, innovative approach to housing people who have lived on the street. Through the portrait of StreetCity, the film investigates the challenges and consequences of life on the street.

The film is being produced at an important juncture for StreetCity - the entire community is preparing to move to new housing on the other side of town. The new building is at 53 Strachan, an old lumber warehouse which is being renovated into individual "houses", each occupied by 6 to 8 people. Residents have had a say in the layout, decor, shared space and some of the amenities incorporated in the new building. They are deciding who lives in which house. There is a small crew of residents assisting with the gutting and rebuilding of the building's interior. The film documents steps in a major transition for this community.

This report provides details on the film treatment, production budget, market research and on the proposed cost, form and content for the development of a teaching guide for the film.

HOUSE CONSTRUCTION CONSTRUCTION RÉSIDENTIELLE

112.

DEVELOPING AND PROOF-TESTING THE "PRESTRESSED NEBRASKA" METHOD FOR IMPROVED PRODUCTION OF BALED FIBRE HOUSING.

Prepared by Fibrehouse Limited with Scanada Consultants Limited for Linda Chapman, Architect, Ottawa: Canada Mortgage and Housing Corporation, 1996. (Housing Technology Incentives Program).

A method has been developed for prestressing stacked strawbale and other baled fibre building constructions, in which the prestressing is effected by means of the wire or plastic mesh which covers the exterior and interior surface of the strawbales. The mesh is normally required to reinforce final stucco/gypsum renderings against shrinkage cracking. The prestressing method reduces the number of steps and components entailed in "Nebraska Strawbale" wall construction. Prestressing tools were devised, using auto jacks. A structural test project and field construction of a 1-1/2 storey studio were carried out as "proof of concept" demonstrations and in order to explore the value of such prestressing in correcting or sidestepping the main problems and limitations of the Nebraska approach.

The testing proved that the one-step tensioning of the mesh from the top simultaneously and equally compresses the strawbales internally and together, greatly increasing the shear resistance as well as compression properties of the bales. The tensioning of the mesh acts with those properties to produce an adequate sandwich composite structure, to the point where the designer can avoid most or all dependency on the tensile qualities of any final renderings or coverings. The operation also accomplishes the final levelling of the walls and can be used as well to produce pitched roof structure or arched or vaulted roof structures.

The work showed that the mesh preparation for prestressing bestows substantial construction stability and safety, eliminating the Nebraska system's tradition of using a forest of sapling dowels to attempt such stabilization prior to rendering. The new approach can also achieve plane surfaces that require much less stucco or plaster.

113.

PROOF OF CONCEPT: DEVELOPMENT AND TESTING OF THE BIOCRETE HOUSE CONSTRUCTION SYSTEM.

Prepared by R.E. Platts, Scanada Consultants Limited. Ottawa: Canada Mortgage and Housing Corporation, 1996. (Housing Technology Incentives Program).

Turning "waste" organic fibre such as forest and construction wood wastes into sound, affordable housing is an attractive idea. Using just such wastes, Internatural Canada has demonstrated successfully that their "Bioblock-Biocrete" concept can readily produce exterior walls that are technically sound and should offer very low costs; further, the concept could well be extended to produce vaulted wall-roofs comprising much more of the house envelope. The Internatural team developed a production approach and prototype "blockmaker" for producing dry-compacted "Bioblock" composites; produced a viable variety of prototypical Bioblocks, primarily using shredded forest canopy and construction lumber wastes for proof-of-concept purposes; built structural sandwich walls (using just unreinforced cement-lime stucco to substitute for the variety of soil-fibre-cement "Biocrete" skins that are attainable); and structurally tested the components and the whole.

The prototyping of components and assemblies also afforded insights into production, construction and cost considerations, including construction methods, and stability and safety issues before the structural skins are applied and cured. Even at this first prototype stage - more akin to mock-up than prototype in several aspects - the system's overall structural and general feasibility for housing production has been demonstrated successfully. Stiffness and strength were shown to greatly exceed that of common wood frame construction. No crucial drawbacks are seen. However, immediate opportunities for improvement are clear: mesh choices for lower cost; the types and application methods of the Biocrete skin; and the size and shape of particles used in Bioblocks to achieve better thermal values. Detailing to avoid moisture accumulation and ensure durability will be vitally important. As well, it will be necessary to ensure that issues such as fire propagation characteristics are addressed.

114.

RIGID AIR BARRIER ASSEMBLIES.

Prepared by Mario V. Petrone. Ottawa: Canada Mortgage and Housing Corporation, 1995. (External Research Program).

The National Building Code of Canada 1990 requires the installation of an effective air barrier system to prevent infiltration and exfiltration of air through the building envelope. Moreover, the Associate Committee on the National Building Code set, as an objective for the NBCC 1995 edition, to revise the section dealing with airtightness to include quantitative criteria. At the present time, designers and builders are being required to produce airtight buildings. Shortly, designers will have to hone their knowledge of airtightness to be in a position to produce air barrier systems which respect certain airtightness and structural resistance criteria as set forth in the Code.

This study was thus undertaken to familiarize designers and builders with an air barrier system for building walls making it possible to effectively respect the various requirements of the Code. This system, referred to as a rigid air barrier system, is made up of rigid panels applied to the walls. These panels must be airtight and must resist any building movements and pressure differentials between the outside and inside. The rigid panels themselves are air barriers but the joints are not. A different material must thus be used to render the joints airtight. Strategies must be developed to make the joints formed by disparate elements airtight : air barrier + windows, etc.

This report proposes a series of construction details specifying the procedures for assembling the various components. Each series of details is applicable to one building type, whether this be a concrete, wood, steel, renovation, or new structure.

NOTE : Aussi disponible en français sous le titre :*Pare-air rigide. (Compendium of Research 1995)*.

HOUSING/LOGEMENT

115.

ÉTUDE SUR LES PROGRAMMES DE GARANTIE-HABITATION AU CANADA.

Préparé par Prairie Research Associates Inc. Préparé pour la Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1994, c.-à-d., 1996.

L'industrie du logement neuf offre des programmes de garantie-habitation depuis une vingtaine d'années déjà. Aujourd'hui, dans toutes les régions au Canada sauf dans les Territoires du Nord-Ouest, l'acheteur d'une nouvelle maison peut se prévaloir d'un régime d'assurance, qu'administre l'industrie, et qui les protège contre un certain nombre de défauts de main-d'œuvre et de construction. Les régimes administrés par l'industrie sont offerts par des sociétés sans but lucratif ou sont affiliés aux associations de constructeurs d'habitations provinciales. Dans la plupart des cas, ces régimes se rattachent aussi au Conseil national de garantie des maisons neuves.

La Société canadienne d'hypothèques et de logement a confié à la firme de consultants Prairie Research Associates Inc. (PRA) la tâche de décrire les programmes de garanties des maisons neuves offerts à la grandeur du Canada. Ce rapport se divise en trois parties. La première donne un bref aperçu de la méthodologie employée pour présenter l'information, et des principales caractéristiques des programmes de garantie des maisons neuves (sans but lucratif). La deuxième partie décrit les objectifs de ces programmes, la portée de la garantie offerte ainsi que les diverses procédures inhérentes à chacun. La troisième partie du rapport fournit un aperçu statistique et financier des activités entreprises par les groupes chargés d'administrer les sept programmes affiliés au Conseil national de garantie des maisons neuves.

NOTE: Also available in English under the title:*A Survey of Home Warranty Programs in Canada.*

116.

HOUSING TRENDS IN INNER SUBURBS: A CASE STUDY OF KITCHENER, ONTARIO.

Prepared by Scott Michael Conrad. Thesis (M.A.) - University of Waterloo, 1994. (Scholarship Program).

The premise of this thesis is that the inner suburbs of Canadian cities are poorly understood as an integral component of contemporary urban form. Accordingly, the research carried out in the thesis focuses on the demographic composition, home renovation trends, and future planning of inner suburban Kitchener. Evidence of the dynamism that is occurring in inner suburban Kitchener is first provided by a brief analysis

of its sales prices and sales levels, as compared to Kitchener's inner city and the rest of the city at large. Further evidence is also provided by an examination of the residential structure and home improvement trends in this area. Analysis is then used to examine whether recent movers to the inner suburban area differ from the incumbent population in terms of their socioeconomic profile, reasons for moving to the inner suburb, future residency plans, perceived advantages and disadvantages of inner suburban living, renovation activities and levels, and motivations for renovation work.

The thesis provides evidence to suggest that the inner suburb is experiencing change in the form of a "filtering up" of the housing stock, and that recent movers are a socially distinctive group. There is also evidence of disinvestment, on a relatively small scale, primarily by the elderly population. The thesis concludes with planning alternatives that will allow the inner suburbs to remain viable into the future.

117.

A SURVEY OF HOME WARRANTY PROGRAMS IN CANADA.

Prepared by Prairie Research Associates Inc. Prepared for Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1994.

New home warranty programs have been a feature of the new housing industry for the past two decades. Now all regions of Canada except the Northwest Territories have an industry-supported program designed to provide the purchaser of a new home with coverage against a number of workmanship and structural defects. Industry-supported programs are organized into not-for-profit corporations or are affiliated with provincial home builders associations. In most cases, they are also affiliated with the National Home Warranty Council.

Canada Mortgage and Housing Corporation engaged Prairie Research Associates Inc. (PRA) to prepare a description of the home warranty programs available across Canada. This report is divided into three sections. The first provides a brief outline of the methodology used in the report and of the major features of the not-for-profit new home warranty programs. The second section provides a description of the objectives, coverage, and various procedures used by the not-for-profit new home warranty programs in Canada. The third section provides a statistical and financial summary of program activity of the seven New Home Warranty Programs affiliated with the National Home Warranty Council.

NOTE : Aussi disponible en français sous le titre :*Étude sur les programmes de garantie-habitation au Canada.*

HOUSING AFFORDABILITY LOGEMENT ABORDABLE

118.

L'ABORDABILITÉ DU LOGEMENT DANS UNE SOCIÉTÉ EN ÉVOLUTION : ACTES DU SYMPOSIUM, OTTAWA, ONTARIO, LE 2 NOVEMBRE 1995.

Ottawa : Société canadienne d'hypothèques et de logement, 1996.

La Société canadienne d'hypothèques et de logement (SCHL) a parrainé un symposium d'un jour sur l'**Abordabilité du logement dans une société en évolution** fin de susciter une prise de conscience et encourager la discussion relativement à certaines questions concernant l'abordabilité du logement et

d'élaborer un plan de recherche sur ces questions. La SCHL avait commandé trois documents d'information qui ont été présentés et discutés au cours du symposium :

- Tendances futures du logement
- Loger une société diverse
- Mesurer les effets des règlements municipaux sur le prix des logements et les loyers.

Après chaque exposé, un panel de cinq spécialistes a fait part de ses réactions, puis il y a eu discussion générale entre tous les participants. La dernière partie du symposium a été consacrée à un débat ouvert sur les «Prochaines étapes : Plan de recherche et autres initiatives de suivi». Cette publication résume chacun des exposés au symposium ainsi que les discussions ouvertes.

NOTE: Also available in English under the title *Housing Affordability in a Changing Society: Symposium Proceedings, Ottawa, Ontario, November 2, 1995*.

119.

AUTOMATED PERMITTING SYSTEM: CASE STUDY = SYSTÈME AUTOMATISÉ DE PERMIS = ÉTUDE DE CAS.

Affordability and Choice Today (A.C.T.) Streamlined Approval Process Project / City of Fredericton, Fredericton, New Brunswick. Prepared by Energy Pathways Inc. Prepared for the Federation of Canadian Municipalities, Canadian Home Builders' Association, Canadian Housing and Renewal Association and Canada Mortgage and Housing Corporation. Ottawa: The Associations: The Federation: The Corporation, 1995.

With funding from an A.C.T. grant, Fredericton commissioned a study in 1992 to identify suitable options for an automated permitting system. The City had installed a Geographic Information System (GIS), and it was a requirement of the project that the automated permitting system would be able to link with the GIS. The City also had initiated a review of its zoning by-law. In particular, the City wished to broaden the range of residential zoning options to facilitate affordable housing. With an automated permitting system linked to the City's GIS, Fredericton would have a coordinated zoning and property development approval system and database.

The study included an evaluation of the Planning and Development Department's procedures, its regulatory environment and responsibilities, and its resources. The project consultant, DMR Group Inc., identified opportunities for improvement, determined hardware and software requirements, and evaluated six software programs available in the marketplace.

In the final project report, DMR recommended a software program by Manatron called Building Permits System and advised that the hardware system be based on PC-LAN (Local Area Network) technology to facilitate integration with other systems, specifically the City's GIS.

NOTE: Bilingual/bilingue.

120.

CENTRE DES DEMANDES ET DES RENSEIGNEMENTS SUR L'AMÉNAGEMENT : ÉTUDE DE CAS = ONE-STOP DEVELOPMENT INFORMATION AND APPLICATIONS CENTRE: CASE STUDY.

Abordabilité et choix toujours (A.C.T.) projet de simplification du processus d'approbation / Le service de l'urbanisme et de l'aménagement, Ottawa (Ontario). Préparé par Energy Pathways Inc. Préparé pour La Fédération canadienne des municipalités, L'Association canadienne des constructeurs d'habitations, L'Association canadienne d'habitation et de rénovation urbaine et La Société canadienne d'hypothèques et de logement. Ottawa : Les Associations : La Fédération : La Société, 1995.

En 1989, peu après avoir été réorganisé, le Service de l'urbanisme et de l'aménagement de la Ville d'Ottawa a mis sur pied un Centre des demandes et renseignements sur l'aménagement selon le principe du "guichet unique". Le Centre reçoit en moyenne 3 000 demandes de permis par année, le nombre variant selon le niveau d'activité de la construction. Les clients reçoivent maintenant des renseignements techniques et une aide sur les exigences de présentation, y compris les dispositions du Code du bâtiment et du règlement de zonage ainsi que les autres approbations nécessaires à la demande. Les clients peuvent ainsi prendre conscience dès le début des nombreuses exigences auxquelles leur demande doit se conformer et décider s'ils doivent demander ces approbations simultanément (ce qui réduit encore le délai nécessaire au traitement du permis) ou subséquemment.

En 1990, le Service de l'urbanisme et de l'aménagement de la Ville d'Ottawa a reçu une subvention A.C.T. pour qu'il puisse partager avec les autres municipalités les avantages du Centre des demandes et renseignements sur l'aménagement et de son guichet unique.

Le projet a favorisé une meilleure collaboration entre la Ville d'Ottawa et les constructeurs de même qu'au sein du Service. En outre, il a contribué à réduire le temps et les efforts nécessaires pour obtenir un permis de construire, ce qui améliore l'abordabilité des logements. Par plusieurs mesures, notamment le programme de formation et de perfectionnement du personnel sur l'excellence et le service à la clientèle, le projet a permis d'améliorer les normes de service au public, ce qui réduit substantiellement le nombre de plaintes reçues à propos des délais des permis de construire.

NOTE : Bilingue/bilingual.

121.

CHANGEMENTS À LA RÉGLEMENTATION TOUCHANT LES MAISONS POUR ACCÉDANTS : ÉTUDE DE CAS = REGULATORY CHANGES FOR ENTRY-LEVEL HOUSING: CASE STUDY.

Abordabilité et choix toujours (A.C.T.) projet de simplification du processus d'approbation / Service de la planification et du développement, Municipalité de Fort Saskatchewan, Fort Saskatchewan (Alberta). Préparé par Energy Pathways Inc. Préparé pour La Fédération canadienne des municipalités, L'Association canadienne des constructeurs d'habitations, L'Association canadienne d'habitation et de rénovation urbaine et La Société canadienne d'hypothèques et de logement. Ottawa : Les Associations : La Fédération : La Société, 1995.

Une vague de prospérité a valu à l'Alberta de connaître une croissance appréciable à la fin des années 1970. Pour garder mainmise sur l'aménagement du territoire, le gouvernement de cette province a adopté à cette fin, en 1977, une loi obligeant les municipalités à se doter d'un règlement de zonage. Imitant à cet égard beaucoup d'autres collectivités de la région d'Edmonton, la Municipalité de Fort Saskatchewan a résolument adopté un règlement restrictif devant permettre de contenir l'aménagement foncier.

Constructeurs et promoteurs immobiliers plaidèrent la nécessité de modifier le règlement de zonage limitatif de Fort Saskatchewan de façon à permettre la construction de logements abordables de qualité pour le marché bas de gamme. Il s'imposait, par ailleurs, de modifier l'entente de développement type de la

Municipalité et de rationaliser le processus d'approbation afin de favoriser le développement et de réduire les coûts.

À l'automne de 1992, la Municipalité a confié le soin d'étudier ce dossier à une équipe de projet composée de trois dirigeants municipaux et de représentants de la Société Genstar Development. Les discussions avec l'industrie du logement étant déjà chose faite, il ne restait plus à la Municipalité qu'à passer résolument à la préparation du projet de modification du règlement et à consulter les constructeurs et les promoteurs immobiliers au sujet de la formulation des détails. La préparation du document a amené la Municipalité à examiner le règlement de zonage de municipalités déterminées de la région d'Edmonton et de la province. Le règlement modificatif, adopté et mis en vigueur à la mi-décembre de 1992, autorisait l'aménagement de petits terrains d'une largeur minimum de 12,2 m (13,5 m pour un terrain d'angle).

La modification du règlement de zonage autorisant l'aménagement de terrains étroits a donné lieu, en 1993, à l'aménagement d'un lotissement de petits terrains. Non seulement a-t-on pu réduire les coûts d'aménagement, mais cette mesure, ainsi que les modifications apportées à l'entente de développement type, ont eu également pour effet de faire profiter le consommateur de l'épargne ainsi réalisée. Le projet a atteint l'objectif que s'était fixé la Municipalité d'étendre sa gamme d'options en matière de logement tout en répondant aux besoins des accédants à la propriété.

NOTE : Bilingue/bilingual.

122.

THE CONVERTIBLE HOUSE: A FLEXIBLE ALTERNATIVE: CASE STUDY = LE LOGEMENT POLYVALENT : UNE SOLUTION DE RECHANGE SOUPLE : ÉTUDE DE CAS.

Affordability and Choice Today (A.C.T.) Demonstration Project / Dovertel Construction Ltd., Richmond, British Columbia. Prepared by Energy Pathways Inc. Prepared for the Federation of Canadian Municipalities, Canadian Home Builders' Association, Canadian Housing and Renewal Association, and Canada Mortgage and Housing Corporation. Ottawa: The Associations: The Federation: The Corporation, 1995.

In 1988, the City of Vancouver initiated its Secondary Suite Program to ensure that existing and new suites would meet appropriate standards, and also to control their location in residential zones. The program resulted in amendments to Vancouver's Zoning and Development By-law, and to approval procedures, that would legalize existing income-generating secondary suites, simplify the installation of new suites in existing buildings, and permit the construction of new houses with built-in secondary suites.

As an innovative alternative to installing a secondary suite as a permanent feature, Dovertel Construction Ltd., a local builder, proposed construction of a "Convertible House." Designed to look like a single-family dwelling on the outside, the house can be built with or without a secondary suite in place, and converted to the alternate form as homeowners' income and space requirements change throughout their lives.

The cost of building the Convertible House with the secondary suite in place was approximately \$150,000, about \$10,000 more than it would cost for a similar house without the convertibility features. The project team found, however, that although a convertible house costs more to build than a comparable conventional house, the rental income from the secondary suite lowers considerably the qualifying income required of first-time homebuyers. Depending on variables such as construction costs, land value, income from the rental suite, the amount of downpayment and interest rates, the increase in affordability can make convertible housing a very attractive option.

NOTE: Bilingual/bilingue.

123.**DES TERRAINS EN PRÉVISION DE L'AVENIR : GUIDE SUR LES FIDUCIES FONCIÈRES ET LE LOGEMENT ABORDABLE AU CANADA.**

Rédigé par Lynn Hannley et Brian Scott. Élaboré par l'Association canadienne d'habitation et de rénovation urbaine sous le patronage de la Société canadienne d'hypothèques et de logements. Ottawa : SCHL, 1995.

Numéro de commande : 6824F. **Prix : 3,95\$ + TPS et frais d'expédition.

NOTE : Disponible par la poste : Produits d'information de la SCHL, 700, chemin de Montréal, pièce 1000, Ottawa (Ontario) K1A 0P7. Tél. : 1-800-668-2642. Commandes par télécopieur au Canada : 1-800-245-9274. Clients internationaux : voir à la page viii les instructions relatives aux commandes.

Une fiducie foncière est une organisation créée dans le but précis de détenir un terrain au bénéfice de la communauté. Le terrain est la propriété d'une organisation (en général sans but lucratif) qui a la responsabilité à long terme de protéger une partie de l'intérêt public. Ce manuel est destiné à tous ceux qui désirent mettre sur pied leur propre fiducie foncière communautaire. Il explique le but et les objectifs de ce type de fiducie, décrit les divers modèles qui ont été utilisés, examine les diverses questions qui se posent au groupe qui veut créer une fiducie foncière et fournit de l'information utile pour lancer le projet.

NOTE: Also available in English under the title *Land for Our Future: A Guide to Land Trusts and Affordable Housing in Canada.* (6823E).

124.**LES «HEARTH HOMES» : PETITES MAISONS POUR LES COLLECTIVITÉS RURALES : ÉTUDE DE CAS = HEARTH HOMES: SMALL HOMES FOR RURAL COMMUNITIES: CASE STUDY.**

Abordabilité et choix toujours (A.C.T.) projet d'étude de cas / Interchurch Housing Society, Kentville (Nouvelle-Écosse). Préparé par Energy Pathways Inc. Préparé pour la Fédération canadienne des municipalités, L'Association canadienne des constructeurs d'habitats, L'Association canadienne d'habitation et de rénovation urbaine et La Société canadienne d'hypothèques et de logement. Ottawa : Les Associations : La Fédération : La Société, 1995.

Dans le Kings County (Nouvelle-Écosse), comme dans les autres collectivités rurales canadiennes, de nombreuses personnes habitent des logements inadéquats et insalubres. Pour améliorer les conditions de logement, l'Interchurch Housing Society (IHS), organisme communautaire sans but lucratif, a commencé à fournir des prêts à faible intérêt à des propriétaires-occupants ayant de faibles revenus pour leur permettre d'effectuer des réparations et des améliorations. Mais cette approche s'est révélée rapidement inadéquate et,

en 1983, l'IHS a établi le Hearth Homes Program pour répondre aux besoins en matière de logement des ruraux pauvres dans le Kings County. L'habitation «Hearth Home» est un petit bungalow de deux chambres, d'une superficie de 53 m² (572 pi²), qui comporte un poêle à bois central dans l'aire de la cuisine et de la salle de séjour.

Deux logements pilotes ont été achevés (un en 1983 et l'autre en 1984) grâce au financement hypothécaire fourni par l'IHS. Les coûts de la construction des logements ont été de 25 000 \$ et 27 000 \$ respectivement. Puis l'IHS a présenté, à la SCHL, une demande de garanties d'hypothèque pour 20 logements supplémentaires. La demande a été rejetée parce que la conception proposée des petites maisons ne répondait pas aux normes de construction résidentielle de la SCHL. Le projet a été en fin de compte soutenu par le ministère du Logement de la Nouvelle-Écosse par l'entremise de la Nova Scotia Housing Development Corporation. En 1990, 80 logements avaient été bâtis.

Le Hearth Homes Program montre que les besoins en matière de logement ne sont pas uniformes partout au Canada, et que les normes relatives aux programmes subventionnés par le gouvernement fédéral devraient tenir compte des circonstances et des exigences locales. Vu le succès remporté par le Hearth Homes Program pour ce qui est de répondre aux besoins de logement des ruraux pauvres dans Kings County, il semble nécessaire de réexaminer les exigences réglementaires et hypothécaires des programmes de logement subventionnés par les gouvernements.

NOTE : Bilingue/bilingual.

125.

HEARTH HOMES: SMALL HOMES FOR RURAL COMMUNITIES: CASE STUDY = LES «HEARTH HOMES» : PETITES MAISONS POUR LES COLLECTIVITÉS RURALES : ÉTUDE DE CAS.

Affordability and Choice Today (A.C.T.) Case Study Project / Interchurch Housing Society, Kentville, Nova Scotia. Prepared by Energy Pathways Inc. Prepared for the Federation of Canadian Municipalities, Canadian Home Builders' Association, Canadian Housing and Renewal Association and Canada Mortgage and Housing Corporation. Ottawa: The Associations: The Federation: The Corporation, 1995.

Many people in Kings County, Nova Scotia, as in other rural Canadian communities, live in inadequate and substandard housing. To upgrade housing conditions, the Interchurch Housing Society (IHS), a non-profit, community organization, began providing low-interest loans to low-income homeowners for repairs and improvements. This approach soon proved inadequate, however, and in 1983, the IHS developed the Hearth Homes Program to address the housing needs of the rural poor in Kings County. The "Hearth Home" is a small, two-bedroom, 53 m² (572 ft²) bungalow, which features a central woodstove in the kitchen/living area.

Two pilot units were completed (one in 1983 and another in 1984) with the IHS's own mortgage financing. The unit construction cost was \$25,000 and \$27,000 respectively. The IHS then applied to Canada Mortgage and Housing Corporation (CMHC) for mortgage guarantees for 20 additional units. The request was denied because the proposed small-house design did not meet CMHC's residential standards. The project was eventually supported by the Nova Scotia Department of Housing through the Nova Scotia Housing Development Corporation. In 1990, 80 units had been constructed.

The Hearth Homes Program illustrates that housing needs are not uniform across Canada. The success of the Hearth Homes Program in meeting the housing needs of the rural poor in Kings County may point to a need to re-examine the regulatory and mortgage requirements of government-funded housing programs.

NOTE: Bilingual/bilingue.

126.

**HOUSING AFFORDABILITY IN A CHANGING SOCIETY: SYMPOSIUM PROCEEDINGS,
OTTAWA, ONTARIO, NOVEMBER 2, 1995.**

Ottawa: Canada Mortgage and Housing Corporation, 1996.

Canada Mortgage and Housing Corporation (CMHC) sponsored a one-day symposium on **Housing Affordability in a Changing Society** in order to raise awareness and facilitate discussion on select issues regarding housing affordability and to develop a research plan in response to these issues. CMHC commissioned three background papers to be presented and discussed at the symposium:

- Future Trends in Housing
- Housing a Diverse Society
- Measuring the Effects of Municipal Regulations on House Prices and Rents.

Each presentation was followed by responses from five panelists and then opened to general discussion among all participants. The final part of the symposium was an open discussion on "Next Steps: Research Plan and Other Follow-up Action". This publication summarizes each of the presentations at the symposium as well as the open discussions.

NOTE : Aussi disponible en français sous le titre :*L'Abordabilité du logement dans une société en évolution : actes du symposium, Ottawa, Ontario, le 2 novembre 1995.*

127.

HOUSING OURSELVES AFFORDABLY: A GUIDE TO AFFORDABLE HOUSING THROUGH COLLECTIVE SELF-HELP.

Prepared by Jim Duke and Sue MacLeod. Prepared for the Canadian Housing and Renewal Association under the sponsorship of Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1995.

Order number: 6825E. ** Price: \$9.95 + GST and handling charges.

NOTE: Available from: CMHC Information Products, 700 Montreal Road, Suite 1000, Ottawa, Ontario, K1A 0P7. Tel.: 1-800-668-2642. Fax orders from Canada: 1-800-245-9274. International clients see page viii for order instructions.

Many Canadian households are finding it difficult to obtain the kind of housing they need at a price they can afford. Self-help housing, also known as "sweat-equity housing," is a possible solution, particularly when it involves a group of people pooling their ideas, their skills and enthusiasm, and their commitment to realize their dreams. Self-help housing is a broad category: it can be single- or multi-unit housing, can involve community sponsors, as well as future occupants, and can be developed by tenants, homeowners, or members of a co-op. It can even combine residential space with space for other uses.

This manual concerns itself with any self-help or renovation that develops a project containing a number of housing units. In particular, it explores the potential for this approach in urban settings. The manual describes the process step by step: basic concept, feasibility, planning, development, construction, and, finally, moving in. It also provides a list of housing organizations -- the local offices of Canada Mortgage and Housing Corporation, provincial and territorial housing agencies, and non-governmental organizations which may be able to provide additional information, help and guidance.

NOTE : Aussi disponible en français sous le titre :*Se loger à bon compte : guide sur le logement abordable grâce à l'autoconstruction collective (6826F)*.

128.**INNOVATIVE ROOMING HOUSES: CASE STUDY = MAISONS DE CHAMBRES NOVATRICES : ÉTUDE DE CAS.**

Affordability and Choice Today (A.C.T.) Demonstration Project / Foyer des Cent Abris Non-Profit Organization, Montreal, Quebec. Prepared by Energy Pathways Inc. Prepared for the Federation of Canadian Municipalities, Canadian Home Builders' Association, Canadian Housing and Renewal Association and Canada Mortgage and Housing Corporation. Ottawa: The Associations: The Federation: The Corporation, 1995.

The Foyer des Cent Abris Non-Profit Organization, in cooperation with the Habitations communautaires Centre-Sud Technical Resource Group, the Housing Section of the City of Montreal's Service de l'habitation et du développement urbain and the Société d'habitation du Québec, undertook a demonstration project of two rooming houses containing a total of 24 studio apartments. This project involved the development of innovative architectural ideas aimed at creating an environment that would meet the needs of low-income single persons.

Because of their dimension (35 m²) and innovative design, the studio apartments in both buildings fell between the definitions for rooming house units and for apartments included in the City of Montreal's zoning regulations. According to municipal regulations, a unit equipped with a bathroom and kitchen is defined as an apartment rather than a room. The regulations also stipulate that an apartment have an area of at least 55 m² and that an apartment building provide at least one parking space for every 230 m² of floor area. Therefore, to encourage the development of housing that meets the needs of the target group, the City revised its zoning by-law to reduce the requirements for unit area and parking spaces.

This A.C.T. project shows that it is indeed possible to build, at a reasonable cost, rooming houses that provide low-income persons with a decent quality of life within their community.

NOTE: Bilingual/bilingue.

129.**LAND FOR OUR FUTURE: A GUIDE TO LAND TRUSTS AND AFFORDABLE HOUSING IN CANADA.**

Prepared by Lynn Hannley and Brian Scott. Prepared for the Canadian Housing and Renewal Association under the sponsorship of Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1995.

Order number: 6823E. ** Price: \$3.95 + GST and handling charges.

NOTE: Available from: CMHC Information Products, 700 Montreal Road, Suite 1000, Ottawa, Ontario, K1A 0P7. Tel.: 1-800-668-2642. Fax orders from Canada: 1-800-245-9274. International clients see page viii for order instructions.

Land trusts are organizations created specifically to hold land for the benefit of the community. The land is owned by an organization (usually not-for-profit) that has a long-term responsibility to protect some public interest. This manual is designed for use by those interested in establishing their own community land trust. The manual explains the purpose and objectives of community land trusts, outlines the various models that have been used, reviews the various issues that a group must address in developing their own land trust, and provides information to assist a group in getting started.

NOTE : Aussi disponible en français sous le titre :*Des Terrains en prévision de l'avenir : guide sur les fiducies foncières et le logement abordable au Canada.* (6824F).

130.**LE LOGEMENT POLYVALENT : UNE SOLUTION DE RECHANGE SOUPLE : ÉTUDE DE CAS = THE CONVERTIBLE HOUSE: A FLEXIBLE ALTERNATIVE: CASE STUDY.**

Abordabilité et choix toujours (A.C.T.) projet de démonstration / Dovertel Construction Ltd., Richmond (Colombie-Britannique). Préparé par Energy Pathways Inc. Préparé pour La Fédération canadienne des municipalités, L'Association canadienne des constructeurs d'habitations, L'Association canadienne d'habitation et de rénovation urbaine et La Société canadienne d'hypothèques et de logement. Ottawa : Les Associations : La Fédération : La Société, 1995.

En 1988, la Ville de Vancouver a entrepris la mise en oeuvre du Secondary Suite Program afin de s'assurer que les appartements existants et neufs répondaient aux normes appropriées, et pour contrôler leur emplacement dans les secteurs résidentiels. Le programme a donné lieu à des modifications du règlement relatif au zonage et à l'aménagement à Vancouver, ainsi qu'à des procédures d'approbation qui légaliseraient les appartements accessoires existants de rapport, simplifieraient l'installation de nouveaux appartements dans les immeubles existants et permettraient la construction de nouvelles maisons dotées d'appartements accessoires intégrés.

À titre de solution de rechange innovatrice à l'installation d'appartements accessoires de façon permanente, la société Dovertel Construction Ltd., entreprise de construction locale, a proposé la construction d'une «habitation polyvalente». Conçu pour avoir l'aspect d'une maison individuelle à l'extérieur, le logement peut être construit avec ou sans appartement accessoire. Il peut être transformé au fur et à mesure que le revenu du propriétaire-occupant et ses besoins en espace changent, tout au long de sa vie.

Le coût de la construction du logement polyvalent doté de l'appartement accessoire était d'environ 150 000 \$, soit presque 10 000 \$ de plus que celui de la construction d'une maison semblable sans les caractéristiques polyvalentes. Cependant, l'équipe du projet a constaté que malgré le coût de construction supérieur du logement convertible par rapport à la maison classique comparable, le revenu locatif de l'appartement accessoire réduisait considérablement le revenu admissible requis des accédants à la propriété. Compte tenu de variables telles que le coût de la construction, la valeur du terrain, le revenu de l'appartement locatif, le montant de la mise de fonds et les taux d'intérêt, l'augmentation de l'abordabilité peut faire du logement polyvalent une option très attrayante.

NOTE : Bilingue/bilingual.

131.**MAISONS DE CHAMBRES NOVATRICES : ÉTUDE DE CAS = INNOVATIVE ROOMING HOUSES: CASE STUDY.**

Abordabilité et choix toujours (A.C.T.) projet de démonstration / OSBL Foyer des Cent Abris, Montréal (Québec). Préparé par Energy Pathways Inc. Préparé pour la Fédération canadienne des municipalités, l'Association canadienne des constructeurs d'habitations, l'Association canadienne d'habitation et de rénovation urbaine et la Société canadienne d'hypothèques et de logement. Ottawa : Les Associations : La Fédération : La Société, 1995.

L'organisme sans but lucratif (OSBL) Foyer des Cent Abris, en collaboration avec le Groupe de ressources techniques Habitations communautaires Centre-Sud, le Module de l'habitation du Service de l'habitation et du développement urbain de la Ville de Montréal et la Société d'habitation du Québec, a présenté un projet de démonstration qui avait pour but de construire deux maisons de chambres, comprenant 24 studios. Ce projet visait le développement d'idées architecturales novatrices en vue de créer un environnement adapté aux besoins de la clientèle visée.

En raison de leur superficie (35 m²) et de leur conception novatrice, les studios dans les deux immeubles ne correspondaient ni à la définition de chambre dans une maison de chambres ni à celle d'appartement selon les règlements de zonage de la Ville de Montréal. En effet, selon les règlements municipaux, un logement doté d'une salle de bains et d'une cuisine constitue un appartement plutôt qu'une chambre. La réglementation exige en outre qu'un appartement ait une superficie minimale de 55 m² et que chaque immeuble offre un espace de stationnement pour chaque 230 m² de surface utile qu'il contient. Pour favoriser le développement d'habitations adaptées aux besoins du groupe cible, la Ville a donc assoupli ses règlements de zonage en ce qui concerne la superficie des logements et les espaces de stationnement.

Ce projet A.C.T. démontre qu'il est possible de construire, à un coût raisonnable, des maisons de chambres qui donnent aux personnes seules à faible revenu une qualité de vie convenable au sein de leur communauté.

NOTE : Bilingue/bilingual.

132.

ONE-STOP DEVELOPMENT INFORMATION AND APPLICATIONS CENTRE: CASE STUDY = CENTRE DES DEMANDES ET DES RENSEIGNEMENTS SUR L'AMÉNAGEMENT : ÉTUDE DE CAS.

Affordability and Choice Today (A.C.T.) Streamlined Approval Process Project / Department of Planning and Development, City of Ottawa, Ottawa, Ontario. Prepared by Energy Pathways Inc. Prepared for the Federation of Canadian Municipalities, Canadian Home Builders' Association, Canadian Housing and Renewal Association and Canada Mortgage and Housing Corporation. Ottawa: The Associations: The Federation: The Corporation, 1995.

In 1989, the City of Ottawa's recently reorganized Department of Planning and Development established a "one-stop" Development Information and Applications Centre. The Centre receives an average of 3,000 permit applications each year, depending on the level of building activity. Clients now receive technical information and assistance on submission requirements, including building code and zoning by-law requirements and other approvals necessary relevant to the application. This allows clients to be aware of the many requirements pertaining to their applications from the outset, and to determine the appropriateness of applying for approvals concurrently (thereby further reducing the time required to process the permit) or consecutively.

In 1990, the City of Ottawa's Department of Planning and Development was awarded an A.C.T. grant so that the benefits of the one-stop Development Information and Applications Centre could be shared with other municipalities.

The project fostered renewed cooperation between the City of Ottawa and the building community, as well as within the Department. Furthermore, it has contributed to a reduction in the time and effort required to obtain a building permit, thereby improving housing affordability. Through several initiatives, including the staff training and development program on excellence and customer service, the project has improved the standard of service to the public, thereby substantially reducing the number of complaints received about building permit delays.

NOTE: Bilingual/bilingue.

133.

**REGULATORY CHANGES FOR ENTRY-LEVEL HOUSING: CASE STUDY =
CHANGEMENTS À LA RÉGLEMENTATION TOUCHANT LES MAISONS POUR
ACCÉDANTS : ÉTUDE DE CAS.**

Affordability and Choice Today (A.C.T.) Streamlined Approval Process Project / Planning and Development Department, City of Fort Saskatchewan, Fort Saskatchewan, Alberta. Prepared by Energy Pathways Inc. Prepared for the Federation of Canadian Municipalities, Canadian Home Builders' Association, Canadian Housing and Renewal Association, and Canada Mortgage and Housing Corporation. Ottawa: The Associations: The Federation: The Corporation, 1995.

Alberta experienced a great deal of growth beginning in the late 1970s with its development boom. To control land development, the Alberta government adopted a planning act in 1977 that required municipalities to have a land use by-law. The City of Fort Saskatchewan, like many other communities in the Edmonton area, adopted a by-law that was purposely restrictive in order to limit land development.

Builders and developers pointed out that Fort Saskatchewan's restrictive land use by-law needed to be changed in order to permit development of affordable, quality homes for the low-end market. In addition, the City's standardized development agreement needed to be modified and the approval process streamlined to facilitate development and reduce costs.

The City formed a project team with three municipal officials and Genstar Development Co. in the fall of 1992 to deal with these issues. Given the discussions that had already taken place with the housing industry, the City was able to proceed directly with preparing a draft by-law amendment and consulting with builders and developers for input on specifics. When preparing the draft, the City also reviewed land use by-laws of selected municipalities in the Edmonton region and elsewhere in the province. The amending by-law was approved and in effect by mid-December 1992, permitting small lots to a minimum of 12.2 m in width (13.5 m for corner lots).

Changes to the land use by-law permitting narrow lots cleared the way for a small-lot subdivision development in 1993. This, coupled with changes to the standardized development agreement, has reduced development costs, and the resulting savings have been passed on to consumers. The project has fulfilled the City's goal to increase its range of housing options, with emphasis on meeting the needs of entry-level homebuyers.

NOTE: Bilingual/bilingue.

134.**SE LOGER À BON COMPTE : GUIDE SUR LE LOGEMENT ABORDABLE GRÂCE À L'AUTOCONSTRUCTION COLLECTIVE.**

Préparé par Jim Duke et Sue Macleod. Préparé pour l'Association canadienne d'habitation et de rénovation urbaine sous le patronage de la Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1995.

Numéro de commande : 6826F. **Prix : 9,95\$ + TPS et frais d'expédition.

NOTE : Disponible par la poste : Produits d'information de la SCHL, 700, chemin de Montréal, pièce 1000, Ottawa (Ontario) K1A 0P7. Tél. : 1-800-668-2642. Commandes par télécopieur au Canada : 1-800-245-9274. Clients internationaux : voir à la page viii les instructions relatives aux commandes.

De nombreux ménages canadiens éprouvent de la difficulté à trouver le type de logement dont ils ont besoin à un prix abordable. L'autoconstruction, connue également sous l'expression «mise de fonds en travail», est une solution possible au problème du logement, en particulier lorsqu'elle est retenue par un groupe de personnes qui mettent en commun leurs idées, leurs compétences et leur enthousiasme, et s'engagent à réaliser leur rêve. L'autoconstruction regroupe de nombreux types de logement : il peut s'agir d'unités unifamiliales ou d'immeubles multi-logements, on peut faire appel à des parrains dans la communauté, ainsi qu'aux futurs occupants, et l'entreprise peut être prise en charge par des locataires, des propriétaires ou les membres d'une coopérative. On peut même se trouver devant une combinaison d'aires résidentielles et de locaux réservés à d'autres usages.

Ce manuel couvre tous les types d'autoconstruction ou de rénovation qui visent à créer un ensemble comprenant un certain nombre de logements. Il examine, en particulier, le potentiel de cette approche en milieu urbain. Le manuel décrit le processus étape par étape : concept de base, faisabilité, planification, développement, construction et, finalement, emménagement. Il présente également une liste d'organismes, dont les bureaux locaux de la Société canadienne d'hypothèques et de logement, les organismes provinciaux et territoriaux de logement et les organismes non gouvernementaux qui peuvent fournir de l'information supplémentaire, de l'aide et des conseils.

NOTE: Also available in English under the title *Housing Ourselves Affordably: A Guide to Affordable Housing Through Collective Self-Help* (6825E).

135.**SYSTÈME AUTOMATISÉ DE PERMIS : ÉTUDE DE CAS = AUTOMATED PERMITTING SYSTEM: CASE STUDY.**

Abordabilité et choix toujours (A.C.T.) projet relatif au processus rationalisé d'approbation / Ville de Fredericton, Fredericton (Nouveau-Brunswick). Préparé par Energy Pathways Inc. Préparé pour La Fédération canadienne des municipalités, L'Association canadienne des constructeurs d'habitats, L'Association canadienne d'habitation et de rénovation urbaine et La Société canadienne d'hypothèques et de logement. Ottawa : Les Associations : La Fédération : La Société, 1995.

Grâce à une subvention A.C.T., Fredericton a commandé en 1992 une étude visant à circonscrire des options convenables en matière de système automatisé d'attribution des permis. La ville mettait en place un système d'information géographique (SIG) et le fait qu'on puisse relier le système automatisé d'attribution des permis au SIG constituait l'une des exigences du projet. La ville avait également entrepris un examen de ses

règlements de zonage. De façon plus particulière, la ville désirait élargir le champ des options en matière de zonage résidentiel afin de favoriser la construction de logements abordables. Un système automatisé d'attribution des permis lié au SIG de la ville permettrait à celle-ci de posséder un système coordonné d'approbation et une base de données en matière de zonage et de développement immobilier.

L'étude comportait une évaluation du service d'urbanisme, de son milieu réglementaire et de ses ressources. L'expert-conseil du projet, le Groupe DMR Inc., a décrit certaines possibilités d'amélioration, défini les exigences en matière d'équipement et de logiciels, et procédé à l'évaluation de six logiciels disponibles sur le marché.

Dans le rapport sur le projet d'exécution, DMR recommandait un logiciel appelé Building Permits System, produit par Manatron, et conseillait que l'équipement informatique se base sur la technologie du PC-LAN (Local Area Network) pour faciliter l'intégration à d'autres systèmes, notamment au SIG de la ville.

NOTE : Bilingue/bilingual.

HOUSING AND IMMIGRATION LOGEMENT ET IMMIGRATION

136.

IMMIGRANTS AND THE CANADIAN HOUSING MARKET: LIVING ARRANGEMENTS, HOUSING CHARACTERISTICS, AND PREFERENCES.

Prepared by Lapointe Consulting with Robert A. Murdie, York University. Ottawa: Canada Mortgage and Housing Corporation, 1996

Order number: PE199. ** Price: \$12.95 + GST and handling charges.

NOTE: Available from: CMHC Information Products, 700 Montreal Road, Suite 1000, Ottawa, Ontario, K1A 0P7. Tel.: 1-800-668-2642. Fax orders from Canada: 1-800-245-9274. International clients see page viii for order instructions.

This report describes differences in housing choices of immigrants and non-immigrants in Canada and in Montreal, Toronto, and Vancouver. It also compares the housing choices of non-permanent residents to those of immigrants and non-immigrants. Based on an analysis of unpublished 1991 Census data, focus group discussions, and a review of literature, it updates a previous study completed for CMHC using 1986 Census data. The report focuses on age-specific average household sizes and household headship rates, as well as tenure and dwelling type choices. In addition, it also explores how immigrant housing choices vary by factors such as place of birth, period of immigration, and income, and includes a multivariate analysis of tenure choice. An assessment is made of the implications of identified differences in immigrant and non-immigrant choices for long-term projections of household growth.

The study confirms some of the main findings of the previous study. The report concludes that housing is an important element in the integration of immigrants into Canadian society and that most immigrant groups have a strong attachment to owning their dwelling. Over time, headship and ownership rates of immigrants become more and more similar to those of non-immigrants. Eventually, immigrant ownership rates exceed those of non-immigrants for most age groups. Housing tenure is strongly related to income, household type, age of the household maintainer, place of birth, and period of immigration. The study finds

that utilizing a projection methodology that accounts for differences in immigrant and non-immigrant housing choices does not result in major differences in projected household growth over the long term.

NOTE : Aussi disponible en français sous le titre : *Les Immigrants et le marché de l'habitation canadien modalités de vie des occupants, caractéristiques et préférences en matière de logement.* (PF199).

137.

LES IMMIGRANTS ET LE MARCHÉ DE L'HABITATION CANADIEN : MODALITÉS DE VIE DES OCCUPANTS, CARACTÉRISTIQUES ET PRÉFÉRENCES EN MATIÈRE DE LOGEMENT.

Préparé par Lapointe Consulting, de concert avec Robert A. Murdie, York University. Ottawa : Société canadienne d'hypothèques et de logement, 1996.

Numéro de commande : PF199. **Prix : 12,95\$ + TPS et frais d'expédition.

NOTE : Disponible par la poste : Produits d'information de la SCHL, 700, chemin de Montréal, pièce 1000, Ottawa (Ontario) K1A 0P7. Tél. : 1-800-668-2642. Commandes par télécopieur au Canada : 1-800-245-9274. Clients internationaux : voir à la page viii les instructions relatives aux commandes.

Ce rapport décrit les écarts entre les choix de logement des immigrants et ceux des non-immigrants au Canada et à Montréal, Toronto et Vancouver. Il compare également les choix de logement des résidents non permanents à ceux des immigrants et des non-immigrants. Se fondant sur une analyse de données non publiées du recensement du Canada de 1991, sur les comptes rendus de réunions de groupes de discussion et sur l'étude d'ouvrages de référence, il vient mettre à jour une étude précédente réalisée pour le compte de la SCHL à l'aide des données du recensement de 1986. Le présent rapport porte surtout sur les tailles moyennes des ménages et les taux de chef de ménage ainsi que sur les modes d'occupation et les choix de logement propres à chaque groupe d'âge. En outre, il explore de quelle manière les choix de logement des immigrants varient en fonction de facteurs comme le lieu de naissance, la période d'immigration et le revenu, et il renferme une analyse multivariée des choix de mode d'occupation. On y évalue les implications des écarts observés dans les choix de logement des immigrants et des non-immigrants sur les prévisions en matière de croissance des ménages à long terme.

Cette étude confirme certaines constatations faites dans l'étude précédente. Le présent rapport conclut que le logement est un élément important de l'intégration des immigrations à la société canadienne et que la plupart des groupes d'immigrants tiennent beaucoup à être propriétaires de leur logement. À mesure que s'allonge leur temps de résidence au Canada, les taux de chef et de propriété des immigrants rejoignent ceux des non-immigrants. Les taux de propriété des immigrants finissent par surpasser ceux des non-immigrants pour la plupart des groupes d'âge. Le mode d'occupation est étroitement relié au revenu, au type de ménage, à l'âge du soutien de ménage, au lieu de naissance et à la période d'immigration. L'étude en vient à la conclusion que l'utilisation d'une méthode prévisionnelle tenant compte des écarts entre les choix de logement des immigrants et ceux des non-immigrants ne produit pas d'écarts importants dans la croissance des ménages à long terme.

NOTE: Also available in English under the title: *Immigrants and the Canadian Housing Market: Living Arrangements, Housing Characteristics, and Preferences.* (PE199).

HOUSING CHOICE CHOIX DU LOGEMENT

138.

RESIDENTIAL PATHS OF BABY BOOMERS: REPORT.

Prepared by François Gohier, Le Groupe Multi Réso inc. Prepared for the Association provinciale des constructeurs d'habitations du Québec, la Société d'habitation du Québec and Canada Mortgage and Housing Corporation. Montreal: Le Groupe Multi Réso inc., 1995.

The purpose of this study was to identify the future housing and locational choices of baby boomers in Quebec. Eight focus groups were formed to examine the residential paths of baby boomers: two from the North Shore of Montreal, two from the South Shore, two from the centre of the Island of Montreal and two from Quebec.

Most homeowners, aged 40 to 50 years, expressed a high level of satisfaction with their current living environments. The greatest sources of satisfaction were: tranquillity; proximity of services; space; and a certain quality of neighbourhood which is often associated with the idea of security. Both city dwellers and suburbanites shared the same criteria for choosing homes. What differentiates city dwellers from suburbanites is their interpretation of the advantages and disadvantages of their chosen options. However, both of these groups are so convinced that they have found the best solution that no significant transfers from one location to the other can be anticipated in the future.

Over half of homeowner baby boomers have given some thought to the possibility of leaving their current residences in the foreseeable future. The useless maintenance of a large house after the children have gone was the main reason given for moving. Very few reasons for leaving had anything to do with real estate speculation.

Three major trends emerged from the future housing intentions of baby boomers: keeping current homes with major interior changes (demand for renovations); moving into smaller dwellings or houses (new or recent) in neighbouring areas; and migrating to resort areas (cottages or secondary homes in the Laurentians or Eastern Townships) resulting in an acceleration of the urban sprawl phenomenon.

NOTE : Aussi disponible en français sous le titre :*La trajectoire résidentielle des babyboomers : rapport.*

139.

LA TRAJECTOIRE RÉSIDENTIELLE DES BABYBOOMERS : RAPPORT.

Préparé par François Gohier, Le Groupe Multi Réso inc. Préparé pour l'Association provinciale des constructeurs d'habitations du Québec, la Société d'habitation du Québec et la Société canadienne d'hypothèques et de logement. Montréal : Le Groupe Multi Réso inc., 1995.

Cette étude avait pour but de cerner les choix futurs des babyboomers au Québec en matière d'habitation et de localisation. Huit groupes de discussion ont été réalisés pour examiner la trajectoire résidentielle des babyboomers: deux du Rive-Nord de Montréal; deux du Rive-Sud; deux du centre de l'île de Montréal; et deux de la région de Québec.

La plupart des propriétaires, âgés de 40 à 50 ans, montrent une grande satisfaction par rapport à leur milieu de vie actuel. Les plus grandes sources de satisfaction sont: la tranquillité; la proximité des services; l'impression d'avoir de l'espace; et la qualité du quartier, souvent associée à la notion de sécurité. Les citadins, autant que les gens de banlieue partagent les mêmes critères de choix en matière d'habitation. Ce qui différencie les citadins et les banlieusards, c'est l'interprétation qu'ils font des avantages et des inconvénients de l'option qu'ils ont choisie. Ces deux groupes sont à ce point ancrés dans leur conviction

d'avoir trouvé la meilleure solution qu'on ne peut escompter de transferts significatifs d'un endroit à l'autre dans le futur.

Plus de la moitié des babyboomers propriétaires ont entrepris une quelconque réflexion sur la possibilité de quitter la résidence actuelle dans un avenir prévisible. On cite surtout l'entretien inutile d'une grande maison après le départ des enfants comme motif de déménagement. Très peu de motifs de départ sont associés à la spéculation sur la propriété. Trois mouvements majeurs se dessinent dans les intentions futures des babyboomers en matière d'habitation: le maintien du domicile actuel avec des changements importants à l'intérieur des propriétés (une demande pour des travaux de rénovation); le déménagement dans un logement ou une maison plus restreinte (neuf ou récent) dans les régions avoisinantes; une migration nette vers les endroits de villégiature (chalets ou maisons secondaires dans les Laurentides et les Cantons de l'Est) entraînant une accélération du phénomène de l'étalement urbain.

NOTE: Also available in English under the title *Residential Paths of Baby Boomers: Report*.

HOUSING DESIGN ARCHITECTURE RÉSIDENTIELLE

140.

BÂTI-FLEX : CONCOURS DE CONCEPTION : BROCHURE DE RENSEIGNEMENTS.

Ottawa : Société canadienne d'hypothèques et de logement, 1995. (LNH 6820).

Cette brochure de renseignements donne un aperçu général du concours de conception de Bâti-Flex. Elle passe en revue les objectifs du concours et les critères de sélection, le concept et les caractéristiques de l'habitation Bâti-Flex, l'aspect «maison saine», les avantages de participer au concours et la promotion des gagnants.

NOTE: Also available in English under the title *FlexHousing Design Competition: Information Booklet*. (NHA 6819).

141.

BÂTI-FLEX : CONCOURS DE CONCEPTION: GUIDE D'INSCRIPTION.

Ottawa : Société canadienne d'hypothèques et de logement, 1995. (PF187).

Ce guide offre des renseignements aux participants au concours Bâti-Flex pour les aider à élaborer leur concept et à rassembler l'information nécessaire à l'inscription. Il décrit les lignes de conduite du concours ainsi que les exigences relatives aux présentations et souligne certains des éléments de conception et des installations les plus importants que les concurrents doivent songer à intégrer à leurs concepts de logement Bâti-Flex. Le guide comprend un document de présentation qui est conçu de façon à ce que les concurrents puissent s'en servir pour consigner et présenter des renseignements de nature générale et descriptive sur le logement proposé dans leur présentation. Le document indique aussi le genre d'information graphique devant être fournie sous forme de dessins ou de croquis, et prévoit des espaces où inscrire les numéros des dessins et des croquis présentés.

NOTE: Also available in English under the title *FlexHousing Design Competition Entry Guide*. (PE187).

142.**BÂTI-FLEX : DES LOGEMENTS ADAPTABLES EN FONCTION DES BESOINS.**

Ottawa : Société canadienne d'hypothèques et de logement, 1996. (PF217).

En janvier 1996, la Société canadienne d'hypothèques et de logement (SCHL) lançait le Concours de conception Bâti-Flex afin d'encourager l'élaboration de concepts de logements qui peuvent facilement s'adapter aux besoins changeants des occupants, et de sensibiliser les consommateurs, les consommatrices et l'industrie de l'habitation aux avantages de ce type d'habititations. Dans le cadre du Concours de conception Bâti-Flex, les intéressés de tous les coins du Canada ont été invités à soumettre des propositions dans trois catégories d'habititations: les maisons individuelles, les logements groupés (comme les maisons jumelées, les maisons en rangée et les duplex) et les immeubles d'appartements d'au plus quatre étages. Les critères de sélection des gagnants se fondaient sur les principes Bâti-Flex d'adaptabilité, d'accessibilité financière et de possibilités de ventes. Un comité de sélection indépendant recherchait les caractéristiques de la maison saine qui devraient être attrayantes pour tous les Canadiens et les Canadiennes, notamment l'efficacité énergétique, le respect de l'environnement et la santé des occupants.

Cette trousse comprend des feuillets documentaires qui décrivent les propositions des gagnants nationaux. La SCHL prévoit mettre en vedette les propositions primées à l'échelle nationale à l'aide de projets de démonstration.

NOTE: Also available in English under the title *FlexHousing: Homes that Adapt to Life's Changes.* (PE217).

143.**DESIGN OPTIONS FOR BARRIER-FREE AND ADAPTABLE HOUSING.**

Prepared by Pierre Richard and Patricia L. Falta, Société Logique Inc. and Roy LGL. Ottawa: Canada Mortgage and Housing Corporation, 1996. 2 volumes.

Part I: Main Report. Order number: PE185. ** Price: \$10.95 + GST and handling charges.

Part 2: Design Options (Costs) for Barrier-Free and Adaptable Housing. Order number: PE185-1.
** Price: \$8.95 + GST and handling charges.

NOTE: Available from: CMHC Information Products, 700 Montreal Road, Suite 1000, Ottawa, Ontario, K1A 0P7. Tel.: 1-800-668-2642. Fax orders from Canada: 1-800-245-9274. International clients see page viii for order instructions.

This publication, which is divided into two parts, provides design information that will enable developers to make informed decisions on accessibility. Part I of the document describes the architectural characteristics of barrier-free and adaptable housing and outlines criteria for building components and dwelling units. In all, it contains 33 themes, 31 of which focus on multi-family housing, small residential units, the dwelling unit and common elements. The last two themes deal with special issues: meeting special needs; and home automation.

Part 2 of the study presents an estimation of costs generated by the barrier-free and adaptable features described in Part 1 of this document. The objective is to indicate the possible range of these costs, so as to enable a developer to make a summary evaluation of the impact that barrier-free elements have on the construction cost of his project. In order to facilitate the referencing of the design elements described in Part

1, the costs are presented under the theme headings and the numbering system corresponds to the features described. The two parts can thus be easily consulted in parallel.

NOTE : Aussi disponible en français sous le titre :*Solutions applicables à la conception de logements accessibles et adaptables.* (PF185 et PF185-1).

144.

ÉLÉMENTS DE CONCEPTION BÂTI-FLEX.

Ottawa : Société canadienne d'hypothèques et de logement, 1996.

Numéro de commande : PF231. **Prix : 2,95\$ + TPS et frais d'expédition.

NOTE : Disponible par la poste : Produits d'information de la SCHL, 700, chemin de Montréal, pièce 1000, Ottawa (Ontario) K1A 0P7. Tél. : 1-800-668-2642. Commandes par télécopieur au Canada : 1-800-245-9274. Clients internationaux : voir à la page viii les instructions relatives aux commandes.

Le principe essentiel du concept Bâti-Flex est qu'il est facile à adapter aux besoins particuliers des occupants plutôt que de se baser sur des aménagements créés sur commande. Le logement devrait continuer à offrir à ses premiers occupants, et à ceux qui viennent ensuite, l'accessibilité, la sécurité, un fonctionnement facile, la commodité, le confort et l'accès aux services à domicile, selon l'évolution des besoins et préférences des occupants. Pour qu'un logement soit assez souple pour répondre à une vaste gamme de besoins individuels, il vaut mieux que certains éléments y soient intégrés aux moments de la construction. Il s'agit notamment d'éléments qui seraient difficiles à ajouter après la construction, comme l'accessibilité sans barrières, l'espace de manœuvre et des embrasures de porte de grande largeur. Il y a aussi des détails à prévoir pendant la construction afin de simplifier l'addition ultérieure d'éléments qui pourraient devenir nécessaires. Ce livret fait l'esquisse des caractéristiques essentielles du concept Bâti-Flex et vous reporte aux autres publications connexes de la SCHL.

NOTE: Also available in English under the title *FlexHousing Design Considerations.* (PE231).

145.

FLEXHOUSING: HOMES THAT ADAPT TO LIFE'S CHANGES.

Ottawa: Canada Mortgage and Housing Corporation, 1996. (PE217).

In January 1996, Canada Mortgage and Housing Corporation (CMHC) launched the FlexHousing Design Competition to stimulate the development of housing designs that can easily adapt to meet the changing needs of the occupants, and to promote its benefits to consumers and the housing industry. The FlexHousing Design Competition invited entries from across Canada in three categories of housing: single-detached, horizontal multiple (such as semi-detached, row and duplex), and low-rise apartment buildings up to four stories. Winners were chosen based on how well their designs reflected the FlexHousing principles of adaptability, affordability, and marketability. An independent selection committee looked for Healthy Housing features like energy efficiency, environmental responsibility, and occupant health which should appeal to all Canadians.

This kit contains fact sheets which describe the entries of the national winners CMHC plans to feature the national winning projects in leading-edge demonstrations.

NOTE : Aussi disponible en français sous le titre :*Bâti-Flex : des logements adaptables en fonction des besoins.* (PF217).

146.

FLEXHOUSING DESIGN COMPETITION: INFORMATION BOOKLET.

Ottawa: Canada Mortgage and Housing Corporation, 1995. (NHA 6819).

This information booklet provides an overview of the FlexHousing Design Competition. It outlines: the objectives of the competition and selection criteria, the FlexHousing concept and design features, the "Healthy Housing" component, the benefits of entering the competition and the promotion of the winners.

NOTE : Aussi disponible en français sous le titre : Bâti-Flex : concours de conception : brochure de renseignements. (LNH 6820).

147.

FLEXHOUSING DESIGN COMPETITION ENTRY GUIDE.

Ottawa: Canada Mortgage and Housing Corporation, 1995. (PE187).

This guide provides information to help participants in the FlexHousing Design Competition develop their designs and compile the information required for their entries. It outlines the competition guidelines, describes the submission requirements and highlights some of the more important design features and facilities that competitors should consider including in FlexHousing. The guide includes a Submission Brief which is designed so that it can be used by competitors to record general and descriptive information on the housing included in their submissions. It also identifies the types of graphic information that should be provided by way of drawings or sketches and makes provision to record the relevant drawing or sketch numbers.

NOTE : Aussi disponible en français sous le titre : Guide d'inscription au concours de conception Bâti-Flex. (PF187).

148.

FLEXHOUSING DESIGN CONSIDERATIONS.

Ottawa: Canada Mortgage and Housing Corporation, 1996. (PE231).

Order number: PE231. ** Price: \$2.95 + GST and handling charges.

NOTE: Available from: CMHC Information Products, 700 Montreal Road, Suite 1000, Ottawa, Ontario, K1A 0P7. Tel.: 1-800-668-2642. Fax orders from Canada: 1-800-245-9274. International clients see page viii for order instructions.

The key to FlexHousing is that it is easily adapted to meet specific needs rather than relying on custom designs. FlexHousing dwellings provide the initial occupants and subsequent occupants with accessibility, safety, security, ease-of-operation, convenience, comfort, and access to in-home services, as their needs and preferences change over time. To ensure that a dwelling will be flexible enough to meet a broad range of individual needs, certain features should be incorporated at the time of construction. These would include features that would be difficult to retrofit, such as barrier-free access, space for maneuverability, and wide doorways. Provisions should also be made during construction to simplify the later introduction of additional

features that may be required. This booklet outlines key FlexHousing features and refers to other CMHC FlexHousing publications.

NOTE : Aussi disponible en français sous le titre :*Éléments de conception Bâti-Flex. (PF231)*.

149.

LA MAISON ESPACE VIVANT : POLYVALENTE ET DYNAMIQUE.

Publication fondée sur une étude du Programme de subventions de recherche préparée par Sevag Pogharian. Ottawa : Société canadienne d'hypothèques et de logement, 1995.

Numéro de commande : 6846F. **Prix : 5,95\$ + TPS et frais d'expédition.

NOTE : Disponible par la poste : Produits d'information de la SCHL, 700, chemin de Montréal, pièce 1000, Ottawa (Ontario) K1A 0P7. Tél. : 1-800-668-2642. Commandes par télécopieur au Canada : 1-800-245-9274. Clients internationaux : voir à la page viii les instructions relatives aux commandes.

Nouvelle venue sur le marché des maisons adaptables, la Maison espace vivant permet aux accédants à la propriété d'acheter leur toute première maison, une maison modeste, sans renoncer à la beauté ou à la qualité. Cette publication présente la Maison espace vivant aux consommateurs, aux constructeurs et aux administrateurs municipaux et explique pourquoi elle est bien positionnée sur le marché des années 1990. Elle présente les plans et les élévations de trois variantes de la maison et trace l'évolution de chacune, de la phase de construction initiale à l'évolution maximale de la surface habitable. Chaque transformation est accompagnée d'une estimation des coûts et d'une description des besoins du ménage qui le poussent à procéder à des modifications.

NOTE: Also available in English under the title:*Sprout: The Versatile, Dynamic House. (6845E)*

150.

SOLUTIONS APPLICABLES À LA CONCEPTION DE LOGEMENTS ACCESSIBLES ET ADAPTABLES.

Préparé par Pierre Richard et Patricia L. Falta, Société Logique inc., et Roy LGL. Ottawa : Société canadienne d'hypothèques et de logement, 1996. 2 volumes.

Partie 1: Rapport principal. Numéro de commande : PF185. **Prix : 10,95\$ + TPS et frais d'expédition.

Partie 2 : Solutions applicables à la conception de logements accessibles et adaptables (coûts) Numéro de commande : PF185-1. **Prix : 8,95\$ + TPS et frais d'expédition.

NOTE : Disponible par la poste : Produits d'information de la SCHL, 700, chemin de Montréal, pièce 1000, Ottawa (Ontario) K1A 0P7. Tél. : 1-800-668-2642. Commandes par télécopieur au Canada : 1-800-245-9274. Clients internationaux : voir à la page viii les instructions relatives aux commandes.

Ce document, qui se divise en deux parties, fournit aux développeurs les informations requises pour leur permettre de prendre une décision éclairée sur la question de l'accessibilité. La Partie 1 du document décrit les caractéristiques architecturales de l'habitation accessible et adaptable et présente les critères de performance pour chacune des composantes de l'immeuble et de l'unité d'habitation. En tout, elle comporte 33 thèmes dont 31 sont consacrés à l'immeuble d'habitation multifamilial et aux éléments communs. Les

deux derniers thèmes - répondre à des besoins spéciaux; et automatisation - constituent des pistes de réflexion.

Partie 2 de l'étude présente une estimation des coûts générés par les éléments d'accessibilité et d'adaptabilité décrits dans la Partie 1 du document. L'objectif est d'indiquer un ordre de grandeur de ces coûts, afin de permettre à un développeur d'évaluer sommairement l'impact de l'accessibilité sur le coût de réalisation de son projet. Afin de faciliter la référence, les coûts sont présentés sous forme de thème et la numérotation des éléments de coûts correspond à la numérotation des éléments du descriptif (Partie 1). Les deux parties du document peuvent aisément être consultées en parallèle.

NOTE: Also available in English under the title *Design Options for Barrier-Free and Adaptable Housing*. (PE185 and PE185-1).

151.

SPROUT: THE VERSATILE, DYNAMIC HOUSE.

Based on an External Research study carried out by Sevag Pogharian. Ottawa: Canada Mortgage and Housing Corporation, 1995.

Order number: 6845E. ** Price: \$5.95 + GST and handling charges.

NOTE: Available from: CMHC Information Products, 700 Montreal Road, Suite 1000, Ottawa, Ontario, K1A 0P7. Tel.: 1-800-668-2642. Fax orders from Canada: 1-800-245-9274. International clients see page viii for order instructions.

The Sprout House is a new entry in the adaptable housing market. It allows first-time buyers to purchase a modest starter home without compromising their expectations for attractive, high-quality shelter. This publication introduces the Sprout House to consumers, home builders and municipal administrators and explains why the Sprout House is well positioned for the market of the 1990s. It presents the plans for three variations of the house and traces the evolution of each variation from the initial period of construction to its point of maximum habitable area. Each conversion is accompanied by cost estimates and a description of the household needs that precipitate the modifications.

NOTE: Aussi disponible en français sous le titre :*La Maison espace vivant : polyvalente et dynamique*. (6846F).

HOUSING EXPORT OPPORTUNITIES DÉBOUCHÉS EXTÉRIEURS POUR LE SECTEUR DE L'HABITATION

152.

APERÇU DES DÉBOUCHÉS EXTÉRIEURS POUR LE SECTEUR CANADIEN DE L'HABITATION.

Préparé par The Bayswater Consulting Group, Inc., membre d'une équipe menée par Scanada Consultants Limited de concert avec Silverman Consulting Services Limited et Tuffboard Industries Limited. Préparé pour la Division des relations internationales, Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1996.

Numéro de commande : 6848F. **Prix : 24,95\$ + TPS et frais d'expédition.

NOTE : Disponible par la poste : Produits d'information de la SCHL, 700, chemin de Montréal, pièce 1000, Ottawa (Ontario) K1A 0P7. Tél. : 1-800-668-2642. Commandes par télécopieur au Canada : 1-800-245-9274. Clients internationaux : voir à la page viii les instructions relatives aux commandes.

Au cours des dernières années, la Société canadienne d'hypothèques et de logement (SCHL) a mené une vaste consultation auprès des industriels canadiens afin de déterminer ce qu'il faut pour réussir à percer les marchés internationaux. L'une des réponses les plus fréquentes a été qu'il fallait des renseignements de meilleure qualité et en plus grand nombre sur les débouchés extérieurs dans le domaine de l'habitation. Ce document de référence est une source pratique de renseignements destinés à aider les entreprises canadiennes à repérer des débouchés extérieurs éventuels. Il est facile à consulter et il vous permet de trouver petit à petit une série logique d'informations portant à la fois sur les types de marchés auxquels une entreprise donnée convient le mieux et sur la nature des débouchés qui sont offerts. Il met l'accent sur deux questions principales : quels marchés faut-il viser et quelles sont les exigences de ces marchés?

Rien ne peut remplacer les recherches menées par les entreprises elles-mêmes afin de trouver des débouchés précis compte tenu de leurs points forts et de leurs avantages particuliers. Bien que ce guide puisse aider les entreprises à réduire l'éventail des débouchés, le choix définitif revient aux entreprises. Il peut, cependant, indiquer aux entreprises les types de produits, de techniques et de services susceptibles d'être les mieux appropriés, mais il ne peut garantir le succès de quelque orientation adoptée. Si une entreprise a ses propres relations dans d'autres pays, les capacités linguistiques et culturelles nécessaires, ainsi qu'une gamme de produits, de techniques et de services à offrir à des prix concurrentiels, elle est susceptible d'en connaître davantage au sujet des marchés cibles que ce que le présent guide peut lui apprendre. Toutefois, celui-ci peut s'avérer un outil précieux pour combler certaines lacunes et même aider des entreprises à envisager des possibilités qui peuvent leur avoir échappé.

NOTE: Also available in English under the title *Overview of Housing Export Opportunities for Canadians.* (6847E).

153.

CANADA-CHINA LOW-COST HOUSING DEMONSTRATION PROJECT: PRE-FEASIBILITY ASSESSMENT: FINAL REPORT.

Prepared by Chreod Ltd. Prepared for International Relations Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1996.

A proposal to undertake a joint low-cost housing demonstration project in Shanghai was made by China under the auspices of the Canada-China Memorandum of Understanding on housing. To address Canadian industry requests for additional information and a more complete proposal package for consideration, a technical mission to China was initiated. The mission team consisted of CMHC, Department of Foreign Affairs and International Trade and Chreod Ltd. The primary objective of the project was to conduct a pre-feasibility assessment of the Shanghai demonstration project in order to: define the market opportunity and identify potential risks to Canadian private sector participants; identify feasible measures to mitigate any risks; and recommend responsibilities for implementing these measures.

The mission concluded that the demonstration project offers a viable opportunity for the Canadian housing industry as a means to gain visibility in, and entry to, the Chinese housing market. Strong support from national and local Chinese government agencies was found for the project. The assessment found that: 1) the market for the project appears to be secure; 2) the site is technically feasible; 3) local parties with which Canadian companies might joint venture are experienced and appear technically sound; and 4) the Chinese guaranteed purchase agreement with local government appears to be sound. Although financial, technical and regulatory risks exist they are not considered unusual in the China market and, with careful planning, could be mitigated.

154.

CANADA'S HOUSING EXPORT EXPERIENCE AND PROSPECTS.

Prepared by The Bayswater Consulting Group, Inc. in association with Greg Lampert, Terrence McGrath and Eric Bonnyman. Prepared for International Relations Division, Canada Mortgage and Housing Corporation. Ottawa:CMHC, 1996.

This report provides information on Canada's housing exporters and their principal activities during the period from 1990-1995 and analyzes the opportunities for those entering the export-marketing field in the next 3-5 years. The report describes Canada's housing industry and looks at its size, characteristics, distribution, nature of exports, labour force size, export markets and export experience. It also examines current trends in the international marketplace, focusing on those elements which are most likely to affect Canada's housing exporters in the near to medium term. Internal and external factors that are most likely to shape export markets in the future are discussed.

The competitiveness of Canada's housing industry in international markets is analyzed with reference to the strength and weaknesses of Canada's principal competitors. The report also raises considerations that need to be taken into account as firms in the industry look to foreign markets to justify their plans for expansion. The report concludes with a review of how the private sector and governments can work together to support the development of export strategies for Canada's housing industry.

155.

**FEASIBILITY STUDY FOR THE ESTABLISHMENT OF A HOUSING EXPORT WEB SITE:
A NEW TOOL FOR HOUSING INDUSTRY COMPANIES WHO WANT TO BEGIN
EXPORTING OR EXPAND THEIR CURRENT EXPORTS.**

Prepared by Perwit International. Prepared for International Relations Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1996.

In order to help Canadian housing sector companies improve their export performance, CMHC has undertaken to assess the feasibility of expanding its current Web presence to include a CMHC sponsored housing industry export-oriented flag Web site. The proposed Web site would be advertised in selected overseas publications and promoted at relevant international conferences and trade fairs.

This report presents the results of a survey of 408 housing industry participants representing a regional cross-section of builders, developers, construction companies, renovators, component manufacturers and suppliers, and professional service providers. The objective of the survey was to determine whether the housing industry would be interested in participating and supporting a CMHC-led, export-oriented, flag Web site.

It would appear that a significant segment of the industry is either already exporting or seriously considering it; export oriented companies are getting connected to the Internet and they intend to use it for a full range of services, not only for e-mail. The study highlights the fact that the housing industry needs CMHC's assistance in this area and that CMHC is perceived as a valued, trusted industry partner. The study confirms that there is eagerness to participate, but reluctance to commit to significant financial contributions. Fortunately, the report also indicates that there are enough potential sponsors and advertisers to cover ongoing costs.

The report also deals with the possible design, costs and revenues of the proposed Web site. The report discusses why, in order to become the flag site for housing exports from Canada, the site will have to focus on the needs of prospective foreign clients, as well as those of prospective Canadian exporters and would-be exporters, and invest a significant amount in overseas advertising and promotion.

The report concludes with an estimate of potential costs and revenues for the proposed Web site. Given the forecasted level of support from corporate sponsors and advertisers, one of the proposed options would involve a complete cost recovery by CMHC.

156.

OVERVIEW OF HOUSING EXPORT OPPORTUNITIES FOR CANADIANS.

Prepared by The Bayswater Consulting Group, Inc. as part of a team led by Scanada Consultants Limited with Silverman Consulting Services Limited and Tuffboard Industries Limited. Prepared for International Relations Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1996.

Order number: 6847E. ** Price: \$24.95 + GST and handling charges.

NOTE: Available from: CMHC Information Products, 700 Montreal Road, Suite 1000, Ottawa, Ontario, K1A 0P7. Tel.: 1-800-668-2642. Fax orders from Canada: 1-800-245-9274. International clients see page viii for order instructions.

Over the past several years, CMHC has consulted extensively with Canadian industry about what is required to succeed in international markets. One very frequent request is for more and better information on housing export opportunities. This reference document provides a practical source of information that can help Canadian companies identify potential housing markets around the world. It is designed to be user-friendly,

moving step-by-step through a decision-making sequence that considers both the types of markets for which a business is most suited and the nature of the opportunities that await. It focuses on two major questions: which markets should be considered and what do these markets require?

There is no substitute for a company's own investigations of specific market opportunities in relation to its own particular strengths and advantages. While this report can help to narrow the range of possibilities, it cannot make the final choice. It can, however, signal which types of products, technologies and services may be most appropriate. If a company has its own contacts in other countries, the necessary language and cultural capabilities, unique products, technologies or services to sell, and competitive prices, it may well know more about its target markets than this volume can offer. However, this document may still prove valuable in filling some gaps, and perhaps, in helping companies think of other opportunities not yet considered.

NOTE : Aussi disponible en français sous le titre :*Aperçu des débouchés extérieurs pour le secteur canadien de l'habitation (6848F)*.

HOUSING FORECASTING AND DEMAND PRÉVISION ET DEMANDE DE LOGEMENTS

157.

GENDER DIFFERENCES IN HOUSING DEMAND.

Prepared by Andrejs Skaburskis. Ottawa: Canada Mortgage and Housing Corporation, 1996. (External Research Program).

This study assesses the effects of reducing the income disparity between men and women on aggregate housing demand in Toronto and Vancouver. It shows that an increase in women's income prospects reduces family formation and fertility rates in ways that can have a major impact on housing demand. The demand for single-family detached houses and for rental accommodation will decline with increases in women's income should immigration or migration not compensate for the shift. The demand for condominiums will increase by a large amount. Without migration and immigration urban populations will not be able to maintain themselves should the trend toward income and career equality continue. The rate of decline in population and household size increases as income disparities are reduced.

HOUSING MARKET MARCHÉ DU LOGEMENT

158.

RESIDENTIAL BUNDLE STRUCTURE AND MARKET SEGMENTATION: THE QUEBEC CASE.

Prepared by François Des Rosiers. Ottawa: Canada Mortgage and Housing Corporation, 1992, i.e., 1996. (External Research Program).

This research project consists of a comparative analysis of the similarities and differences between different residential products and submarkets within the limits of the Quebec City Urban Community (QCUC), in terms of property value assessments. Using an econometric approach, i.e., a statistical method applied to the economic phenomenon, this research project made it possible to determine with great accuracy, first of all, the added-value represented by each real estate property attribute in the total market value and, secondly, the elements which differentiate the submarkets within the limits of the QCUC. Thus, the results have shown, for example, that a bathroom, fireplace, carport and swimming pool represent added-values of 6.9%, 6.0%, 6.1% and 8.7% respectively. The added-value of the carport in terms of total property value is relatively greater in products and submarkets in the lower price ranges. The inverse is true in the case of auto garages.

These results seem to confirm not only the economic theory on the various types of consumer goods but also the assessment procedure. Luxury amenities (garages) or "superior goods" as they are referred to in economic theory, represent higher added-values in rich residential districts than in sectors where the residents earn less. Moreover, this research project also made it possible to introduce factors such as municipal taxes, neighbourhood and proximity to services as variables explaining residential property values. The results of this study also demonstrated that the "hedonic" approach, which consists of determining, through econometric analysis, the marginal added-value of each residential attribute in terms of the property's total market value, only provides valid results in relatively homogeneous markets. It does not prove to be as accurate in heterogeneous markets in the presence of a multitude of different products and sectors.

159.

SEVEN SOURCES OF CHANGE IN VANCOUVER HOUSING PRICES, 1981-1991.

Prepared by Eric J. Heikkila and Stan W. Hamilton. Ottawa: Canada Mortgage and Housing Corporation, 1996. (External Research Program).

The objective of this research is to gain fundamental empirical insights into the sources of change in residential property values in the metropolitan Vancouver area through a detailed analysis and comparison of 1981 and 1991 census and real estate data. Using the methodology outlined below, 1981-1991 price changes are decomposed into seven distinct components: (i) demand due to population growth, (ii) changing preferences for housing attributes, (iii) changing preferences for neighbourhood characteristics, (iv) changes in the accessibility gradient, (v) market valuation of changes to housing attributes, (vi) market valuation of changes in neighbourhood profiles, and (vii) market valuation of changes in accessibility.

The methodology employed is purposely patterned after a similar study conducted in Los Angeles. The comparability of data and methods enables the consultants to make direct benchmark comparisons with changes in residential real estate markets elsewhere. In both cases the statistical model was highly significant, a fact that underlines the general utility of this approach. However, the findings for Vancouver differ in many ways from the Los Angeles case, thereby lending further empirical evidence in support of those who argue

that the Canadian urban experience is fundamentally different from that of the U.S. The empirical results also support the general contention that accessibility to the central business district continues to be valued highly in Vancouver, unlike the Los Angeles case.

The study accomplished its main aim of decomposing changes in residential prices in Vancouver into seven distinct sources of change. As in the case of Los Angeles, it found that a pure demand shift was absolutely dominant among these effects. This is not surprising in light of the real estate booms that visited each city during the 1980s. However, unlike Los Angeles, the net contribution of the other six factors was positive in Vancouver, whereas in Los Angeles prices would have fallen were it not for the pure demand shift attributable to population inflow. This may suggest that the changes affecting Vancouver over the past decade are on the whole of a more positive nature, with six of seven sources contributing to an increase in residential land values.

HOUSING POLICY POLITIQUE DU LOGEMENT

160.

RÉSUMÉ DU PLAN D'ENTREPRISE 1996-2000, SOCIÉTÉ CANADIENNE D'HYPOTHÈQUES ET DE LOGEMENT = SUMMARY OF THE 1996-2000 CORPORATE PLAN, CANADA MORTGAGE AND HOUSING CORPORATION.

Ottawa : SCHL, 1996.

Ce document est un résumé du Plan d'entreprise 1996-2000 et des budgets annuels de la Société canadienne d'hypothèques et de logement pour 1996, lesquels ont été approuvés en mars 1996 par le Conseil du Trésor et le gouverneur en conseil. Il décrit sommairement les responsabilités, le rôle et le mandat de la SCHL. Il porte aussi sur les principaux défis que doit relever la Société et met en lumière les grandes orientations, les objectifs de programme et les stratégies adoptées afin de tirer efficacement parti des possibilités. Le document traite aussi des ressources financières requises pour mettre en oeuvre la politique de logement du gouvernement pour la période de 1996 à 2000.

NOTE: Bilingue/bilingual.

161.

LE RÔLE DU LOGEMENT DANS LA POLITIQUE SOCIALE.

Parrainé par le Centre d'études prospectives sur l'habitation et le cadre de vie, Société canadienne d'hypothèques et de logement. Organisé par le Caledon Institute of Social Policy, Septième congrès de la politique sociale canadienne, Vancouver (Colombie-Britannique) juin 1995. Ottawa: Caledon Institute of Social Policy, 1996.

Cette monographie comprend un ensemble d'exposés qui ont été présentés pendant un panel dans le cadre du Septième congrès de la politique sociale canadienne, dont le thème était *Repenser la politique sociale au Canada*. Le Caledon Institute of Social Policy cherche à promouvoir les débats informés sur les programmes sociaux. Bien que le logement soit un domaine critique de la politique sociale, il y a très peu de débats publics sur le rôle du logement dans le cadre plus vaste de la politique sociale.

Le logement social englobe la totalité de la structure du système de logement qui permet aux individus d'obtenir et de conserver un logement à un coût abordable, et ce, quel que soit leur niveau de revenu. Ces

exposés présentent plusieurs points de vue sur le logement et montrent qu'il est un complément inestimable de la politique sociale. Ces exposés indiquent qu'un logement abordable et de qualité raisonnable peut jouer un rôle important dans l'atteinte du but de la politique sociale, qui est d'améliorer la santé et le bien-être. Ils montrent aussi qu'une mauvaise politique du logement et que le manque de coordination avec les autres programmes et services sociaux peuvent aller à l'encontre du but recherché.

NOTE: Also available in English under the title:*The Role of Housing in Social Policy*.

162.

THE ROLE OF HOUSING IN SOCIAL POLICY

Sponsored by the Centre for Future Studies in Housing and Living Environments, Canada Mortgage and Housing Corporation. Hosted by the Caledon Institute of Social Policy at the 7th Annual Social Welfare Policy Conference, Vancouver, British Columbia, June 1995. Ottawa: Caledon Institute of Social Policy, 1996.

This monograph contains a set of papers presented in a panel session at the Seventh Biennial Social Welfare Policy Conference, *Remaking Canadian Social Policy*. The Caledon Institute of Social Policy seeks to promote informed debate on social programs. While housing is a critical area of social policy, there has been little public discussion of the role of housing in the broader social policy context.

Social housing encompasses the entire framework of the housing system that allows individuals to access and retain shelter at a cost that is affordable at all income levels. These papers present a number of perspectives on housing and demonstrate how it is an invaluable complement to social policy. The papers show that housing which is affordable and in a reasonable state of repair can play an important role in achieving the social policy goal of improving health and well-being. They also indicate that poor housing policy and the lack of coordination with other social programs and services can be counterproductive.

NOTE : Aussi disponible en français sous le titre :*Le Rôle du logement dans la politique sociale*.

163.

SUMMARY OF THE 1996-2000 CORPORATE PLAN, CANADA MORTGAGE AND HOUSING CORPORATION = RÉSUMÉ DU PLAN D'ENTREPRISE 1996-2000, SOCIÉTÉ CANADIENNE D'HYPOTHÈQUES ET DE LOGEMENT.

Ottawa: CMHC, 1996.

This document provides a summary of the 1996-2000 Corporate Plan and 1996 Annual Budgets of Canada Mortgage and Housing Corporation, which received Treasury Board and Governor in Council approval in March 1996. It outlines the Corporation's mandate, roles and responsibilities. Major challenges facing the Corporation are highlighted, as are the main directions, program objectives and strategies being pursued to effectively respond to these opportunities. The document also communicates the planned financial resources required to carry out Government housing policy for the 1996-2000 period.

NOTE : Bilingual/bilingue.

INFRASTRUCTURE

164.

MUNICIPAL EXPERIENCE WITH INNOVATIVE INFRASTRUCTURE RENEWAL: FINAL REPORT.

Prepared by REIC Consulting Ltd. in association with Marshall Macklin Monaghan; Principal consultant: Chris Gates. Prepared for Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1995.

This study provides a summary of municipal experiences with innovative infrastructure renewal and rehabilitation techniques (defined as any technology or application that requires minimal surface disruption). It focuses on repairs and improvements to linear, below grade components of water supply and wastewater treatment systems (watermains, storm sewers and sanitary sewers). The information was gathered via a survey questionnaire sent to municipal infrastructure professionals across Canada in mid-1995. The survey obtained just over an 85% response rate and determined that, although conventional construction and repair techniques are still preferred by the majority of municipalities, interest in and experience with innovative techniques is growing. Six of the responding municipalities with innovative renewal or repair experiences are highlighted in a series of brief case studies in an appendix to the report. The report concludes that the more rapid diffusion of these newer techniques is hampered by a series of barriers. These barriers relate to how municipal infrastructure is designed, financed, constructed, operated and maintained -- and how information on infrastructure alternatives is shared with infrastructure professionals. A series of conclusions and observations are offered which address these barriers in the hopes of hastening the uptake of technological innovation in municipal infrastructure repair and rehabilitation.

INNER CITY NOYAU URBAIN

165.

LIVING WITH REVITALIZATION.

Prepared by Malcolm Holt, HSP Humanité Services Planning (B.C.) Ltd. Ottawa: CMHC, 1993, i.e., 1996. (External Research Program).

This study builds on previous research that examines the social and geographical impacts of revitalization on Vancouver's West Side. It focuses on the three Kitsilano neighbourhoods of Kitsilano-Point Grey, Kitsilano-Bayview and Central Kitsilano and documents the changes to the local area while exploring the perceived costs and benefits of staying in a revitalizing neighbourhood assumed by local residents.

Over the last four decades, the changes in social profile and to the built environment of Kitsilano have been considerable. The neighbourhood initially developed as a middle-income family area characterized by a single-detached home residential landscape. From 1961 to 1986, the social profile of the neighbourhood and its physical landscape changed with family households replaced by non-family households made up of mid-life adults and an associated increase in multiple rented dwellings. Between 1986 and 1991, this general trend changed, however, with the addition of mid to late life adults to the community and the development of condominiums for owner-occupiers.

Residents' overall views of the recent changes in their neighbourhoods differ on the basis of their housing tenure. For some renters the revitalization of Kitsilano resulted in negative changes in their housing

conditions and this in turn influenced their overall views of the neighbourhood's development. Almost half of the renters surveyed indicated that it was likely they would move in the next two years.

By contrast, most owners view the changes to the neighbourhood in a more positive light. The security of home ownership, allied with the desirability of Kitsilano as a residential location were emphasized. These different views of changes in the area further suggested some measure of distrust between renters and owners. Despite this, both groups remained attached to Kitsilano as a place to live, although more so for owners than renters.

INNOVATION AND HOUSING INNOVATION ET HABITATION

166.

LA RÉALITÉ VIRTUELLE DANS LE LOGEMENT ET L'URBANISME.

Préparé par John Thurston. Préparé pour le Programme d'experts en résidence, Centre d'études prospectives sur l'habitation et le cadre de vie, Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1996.

Numéro de commande : PF204 . **Prix : 12,95\$ + TPS et frais d'expédition.

NOTE : Disponible par la poste : Produits d'information de la SCHL, 700, chemin de Montréal, pièce 1000, Ottawa (Ontario) K1A 0P7. Tél. : 1-800-668-2642. Commandes par télécopieur au Canada : 1-800-245-9274. Clients internationaux : voir à la page viii les instructions relatives aux commandes.

Dans l'usage général, le terme «réalité virtuelle» (RV) désigne un groupe de technologies informatiques utilisées pour simuler des mondes artificiels, de telle sorte que ceux qui pénètrent dans ces mondes ont l'illusion que ceux-ci existent réellement - virtuellement - et peuvent être habités et manipulés de l'intérieur. L'objectif de ce rapport est de donner un résumé et une analyse du domaine varié et en pleine expansion qu'est la réalité virtuelle, particulièrement pour les spécialistes du logement et de l'urbanisme.

Il se fait actuellement beaucoup de recherche et de développement sur les applications architecturales de la RV. Dans le domaine de l'éducation et de la formation, on étudie des applications visant à améliorer la qualité de vie des personnes handicapées, recréer à des fins éducatives des sites perdus à valeur culturelle et présenter des simulations de situations d'urgence à des fins d'évaluation et de formation. Dans les domaines de la conception et des essais, la RV est utilisée pour les essais, l'évaluation et la modification des conceptions. Les architectes, les constructeurs et les promoteurs peuvent concevoir des modèles en réalité virtuelle et déceler les problèmes de conception et les résoudre avant le début des travaux. Une des principales applications de la technologie de la réalité virtuelle à cet égard est l'essai interactif des milieux de vie sans obstacles.

Dans le domaine de la commercialisation, les recherches se poursuivent sur les possibilités qu'offre la réalité virtuelle d'illustrer les modèles conceptuels de maisons et de collectivités. Dans le domaine de l'urbanisme, la technologie de la réalité virtuelle permet aux urbanistes de gérer une énorme somme d'information et de recréer des emplacements complets à aménager. La technologie permet d'espérer une vraie participation à la conception, au point où les profanes pourraient un jour modifier ou même générer leurs propres modèles.

NOTE: Also available in English under the title:*Virtual Reality in Housing and Community Planning*.
(PE204).

167.

THREE DECADES OF INNOVATION IN HOUSING TECHNOLOGY: 1966-1996.

*Prepared by Scanada Consultants Limited with Clayton Research Associates Ltd. and Marc Denhez.
Prepared for Technical Policy and Research Division, Canada Mortgage and Housing Corporation.
Ottawa: CMHC, 1996.*

"Two Decades of Innovation in Housing Technology: 1946-1965", which was published in 1994, chronicled the innovations which emerged in response to the post-war building boom. This report, "Three Decades of Innovation in Housing Technology: 1966-1996", continues the story, highlighting the many advances which took place to address rising costs, energy and environmental impacts, occupant health and safety, durability and new niche markets.

The 1966-1996 period was characterized by the continued and often rapid growth of Canadian cities, the impact of the "baby boom" generation on housing markets and fluctuating economic cycles. Interest in rehabilitating the existing stock led to renovation activity overtaking new construction in expenditure volume. Building codes and the development approvals process became more demanding. Federal and provincial housing policy evolved from being highly interventionist to being more targeted and market-sensitive. The most significant influence was the "energy crisis" of the mid-1970s, which prompted the development of air leakage control, advanced framing for increased insulation levels, heat recovery ventilators, high-performance windows and high-efficiency heating and lighting systems.

The response to the energy crisis raised concerns in two other areas - indoor air quality and moisture-related deterioration. Innovations contributing to healthier indoor environments included the emergence of low-emission building materials, spillage-resistant combustion equipment, more effective mechanical ventilation and filtration systems, and radon and lead mitigation techniques. Research into moisture problems in low-rise housing led to the development of construction practices which minimized the exfiltration of moisture into the building envelope, kept water away from basements and optimized the drying potential of walls.

Housing agencies and builders adopted successful approaches to construction in northern and remote areas, emphasizing stable foundations and durable building envelopes. New technologies assisted the elderly and disabled to live independently. Other areas of innovation included fire prevention, noise control and infrastructure renewal. As a result of these many innovations, Canadian housing has become more energy-efficient, environmentally responsible, healthier for its occupants and durable, while still remaining affordable to the majority. These accomplishments also created opportunities for many Canadian construction systems - both low-rise and high-rise - to expand into export markets.

168.

VIRTUAL REALITY IN HOUSING AND COMMUNITY PLANNING.

Prepared by John Thurston. Prepared for the Experts in Residence Program, Centre for Future Studies in Housing and Living Environments, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1996.

Order number: PE204. ** Price: \$12.95 + GST and handling charges.

NOTE: Available from: CMHC Information Products, 700 Montreal Road, Suite 1000, Ottawa, Ontario, K1A 0P7. Tel.: 1-800-668-2642. Fax orders from Canada: 1-800-245-9274. International clients see page viii for order instructions.

Virtual reality (VR) is the widely-accepted term for a group of computer technologies used to simulate artificial worlds in such a way that those who enter those worlds have the illusion that the worlds actually - virtually - exist and can be inhabited and manipulated from within. The objective of this report is to provide a summary and analysis of the diverse and expanding field of VR, especially for professionals involved in housing and community planning.

Current VR research and development on architectural applications is extensive. VR applications are being explored for education and training to improve the quality of life of people with disabilities, reconstruct lost sites of cultural significance for educational purposes, and simulate emergency situations for training and testing. In the area of design and testing, VR is used to test, evaluate and modify designs. Architects, builders and developers can construct conceptual designs in virtual reality to identify design flaws and resolve these flaws prior to actual construction. One major application of virtual reality technology in this context is testing barrier-free living spaces interactively.

In the marketing field, research is ongoing on the potential of VR to illustrate conceptual designs of homes and communities. For community planning purposes, virtual reality technology enables planners to manage an immense amount of information, and recreate complete sites for development. The technology holds out the promise of true participatory design, to the point eventually of allowing laypeople to change or even generate their own designs.

NOTE : Aussi disponible en français sous le titre :*La Réalité virtuelle dans le logement et l'urbanisme.* (PF204).

LANDSCAPE ARCHITECTURE ARCHITECTURE DU PAYSAGE

169.

LE PAYSAGE DE L'INTÉRIEUR OU EXPRESSIONS PAYSAGÈRES RÉSIDENTIELLES DANS L'ÎLE DE MONTRÉAL.

Préparé par Danièle Routaboule, Vincent Asselin et Catherine Eveillard. Ottawa : Société canadienne d'hypothèques et de logement, 1995. (Programme de subventions de recherche).

Cette recherche part de la prémissse que le paysage public montréalais a été principalement conçu à partir de courants de pensées externes, certains étant bien connus, identifiés et documentés. Elle cherche à découvrir, au-delà des mouvements de pensées culturels et internationaux connus et producteurs de paysages urbains publics, les usages, les expressions paysagères et la façon de prendre possession du sol des Montréalais. Le

thème abordé est donc celui du «paysage de l'intérieur, soit personnel» plutôt que celui du «paysage extérieur, soit officiel».

Trois quartiers ont été choisis comme étant particulièrement représentatifs de Montréal :

1. Plateau Mont-Royal pour l'homogénéité de sa typologie architecturale et celle de sa population essentiellement francophone.
2. Notre-Dame-de-Grâce pour l'hétérogénéité de sa typologie architecturale et de sa population s'apparentant à la culture anglophone.
3. Le Mile-End particulièrement cosmopolite.

L'ample provision d'espaces extérieurs qui caractérisent certains quartiers de la ville de Montréal a donné lieu à une extraordinaire floraison de paysages qui fait le charme de ces quartiers. À travers toutes les observations des chercheurs, une constante se dessine : l'évolution récente des paysages résidentiels est profondément liée aux changements de population et aux origines culturelles et ethniques des habitants, de même qu'à leur position sociale. Elle est aussi liée aux modes de vie et aux différentes typologies architecturales rencontrées. Trois facteurs apparaissent donc déterminants :

1. Les traditions jardinières liées aux origines ethniques des habitants et leur statut social. Deux cas de figure ressortent de l'étude. Le premier exemple concernant le quartier du plateau Mont-Royal met en évidence l'émergence de nouvelles pratiques jardinières fortement liées à une inspiration locale et québécoise, d'origine assez récente. Le second concernant le Mile-End et Notre-Dame-de-Grâce met en évidence l'influence des immigrants particulièrement européens dans la création d'un patrimoine jardinier propre à Montréal.
2. La morphologie urbaine de chaque quartier. La morphologie urbaine et la typologie architecturale ont une forte influence sur la perception que nous avons du monde des jardins. Dans certains cas la concentration des bâtisses crée deux mondes séparés : jardins avant et arrière, tandis que l'écartement des bâtisses conduit à la création d'espaces aérés avec de larges dégagements conduisant la vue vers les jardins arrière. Il en ressort l'impression de se promener dans une cité jardin.
3. Les changements de mode de vie. Deux cas de figure se dessinent : Le premier repose sur les traditions et les savoir-faire créés par les immigrants européens où l'activité de jardiner occupe une grande place. Chez les immigrants, le jardin fait partie de l'univers familial au même titre que la maison; il occupe une place importante dans la production domestique et les loisirs familiaux. Le second est lié au mode de vie contemporain où l'on passe un temps de plus en plus restreint chez soi et où le travail et la détente sont deux mondes séparés. On veut bien avoir un jardin, mais on ne veut pas y être lié; on veut bien jouer dans la terre au début du printemps, mais on souhaite que ça pousse tout seul le reste de l'année.

Enfin dans tous les quartiers visités, la présence des jardins renforce le sentiment d'appartenances habitants et cristallise la perception des caractères particuliers de chaque quartier et de chaque secteur. Les jardins sont une courroie de transmission entre les anciens et les nouveaux propriétaires; ils jouent un grand rôle dans le double aspect de la préservation de l'identité de chaque lieu et sa reconstruction continue en fonction des désirs et des projets des nouveaux arrivants. Parce qu'ils sont une matière vivante sans cesse en transformation, les vagues successives d'occupants peuvent y insérer leur propre projet tout en prolongeant l'histoire déjà inscrite dans les lieux.

LEAD/PLOMB

170.

RESIDENTIAL SOURCES OF LEAD.

Prepared by Metro Health Services Inc. Principal consultant: Richard E. Scott. Prepared for Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1995.

Five hundred homes were selected in Saint John, New Brunswick to evaluate the relationship between lead in blood and lead in drinking water. From this sample, one hundred homes were selected to examine the additional contribution of lead from food, soil, dust, and paint to the blood lead levels of residents. Fifty homes were selected where residents were known to have raised blood lead levels, and 50 further homes were selected where residents were known to have low blood lead levels. All 100 homes were visited and one food, two soil, and three dust samples were taken. Multiple measurements of lead in paint were performed using in situ, non-destructive X-ray fluorescence analysis. A statistical model was developed to explain the data. The primary predictors of raised blood lead levels in the residents were found to be resident age, household water lead level, and lead in paint. The primary residential source was confirmed to be lead in household water.

NOTE : Aussi disponible en français sous le titre :*Sources de plomb dans les habitations.*

171.

SOURCES DE PLOMB DANS LES HABITATIONS.

Préparé par Metro Health Services Inc. Consultant principal : Richard E. Scott. Préparé pour la Division de la recherche, Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1995.

Cinq cents maisons ont été sélectionnées à Saint John, au Nouveau-Brunswick, dans le but d'évaluer la relation entre la plombémie et la présence de plomb dans l'eau potable. De cet échantillon, cent maisons ont été choisies afin d'examiner dans quelle mesure d'autres sources de plomb comme les aliments, le sol, la poussière et la peinture modifiaient la plombémie des occupants. Parmi ces maisons, 50 étaient occupées par des gens chez qui on savait que la plombémie était élevée et les 50 autres étaient occupées par des gens dont la plombémie était faible. Dans chacune des 100 maisons, on a prélevé un échantillon d'aliment, deux échantillons de sol et trois échantillons de poussière. De plus, de multiples mesures du plomb dans la peinture ont été prises à l'aide d'une méthode d'analyse in situ non destructrice, la fluorescence à rayons X. Un modèle statistique a été mis au point pour expliquer les données. Les principaux indicateurs prévisionnels d'une élévation de la plombémie chez les occupants se sont avérés être l'âge des occupants, la concentration de plomb dans l'eau consommée dans la maison et la présence de plomb dans la peinture. La principale source de plomb à la maison s'est avérée être le plomb présent dans l'eau domestique.

NOTE: Also available in English under the title:*Residential Sources of Lead.*

LIGHTING/ÉCLAIRAGE

172.

LIGHTING AND HUMAN HEALTH: A REVIEW OF THE LITERATURE.

Prepared by B.Rusak, G.A. Eskes and S.R. Shaw. Prepared for Technical Policy and Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1996.

The goal of this literature review is to summarize current knowledge of the physiological and behavioural effects of light on people and on human health. The context of this review is the desire to assess the implications of our knowledge in this area for practices relating to the illumination of homes through windows. The literature review is divided into five major sections. Each subsection is preceded by a short synopsis (in bold type) which summarizes the main points of that section in non-technical language.

Section I, Light & Lighting, describes the physical characteristics of light reaching the earth from the sun and reaching the tissues of the human body. Issues discussed include the nature of the spectrum of electromagnetic energy we call light, the physical properties of light from different sources, the effects of glass acting as a light filter, and appropriate methods for measuring light intensity and spectral properties.

Section II, The Human Visual System, describes the anatomy of the human eye, the light filtering properties of the eye media, and the nature of the retinal photoreceptors. This is followed by a review of the nature of colour vision and the physiological mechanisms which are responsible for our perceptions of colour. The central neural mechanisms underlying vision and the mechanisms that code for brightness and contrast sensitivity are also addressed.

Section III examines the effects of light on physiological processes. These include both toxic and beneficial extraretinal effects of exposure to light of different wavelengths, as well as retinally mediated effects on circadian rhythms, pineal gland function and aspects of autonomic arousal.

Section IV deals with the effects of light on mental health. The major subject reviewed is the use of light in the treatment of seasonal affective disorder (SAD) and possible mechanisms underlying its efficacy. In addition, the possible effects of light on mood in forms of non-seasonal depression and on sleep disorders are reviewed.

The final section, Illumination in Home and Workplace, examines attitudes toward windows and windowless environments, effects of window tinting, the influence of room colour and full-spectrum lighting sources on mood and health, and the interaction of aging with characteristics of illumination sources.

MANUFACTURED HOUSING HABITATIONS USINÉES

173.

A STRUCTURAL PROFILE OF THE MANUFACTURED HOUSING INDUSTRY IN CANADA, UNITED STATES, JAPAN AND GERMANY.

Prepared by Terrence McGrath. Prepared for Strategic Planning Division, Canada Mortgage and Housing Corporation and the Canadian Manufactured Housing Association. Ottawa: CMHC, 1996.

A statistical profile of the Canadian manufactured housing industry has never been available to industry stakeholders. The absolute size of the industry and the relative shares of the differing market segments have not been known. Canada Mortgage and Housing Corporation and the Canadian Manufactured Housing Association sought to determine the absolute size of the Canadian manufactured housing industry, the size of the manufactured housing industry relative to the site built housing industry, as well as to identify market trends in the types of manufactured housing that is produced in Canada.

Manufactured housing is comprised of several types of factory built product; specifically mobile, modular, pre-cut packages, panelized, timber frame and log homes. This report presents a profile of the Canadian, United States, Japanese and German manufactured housing markets. It presents a macro view of the industry based upon the survey of manufacturers that was undertaken and analyzes each type of manufactured housing over the five year 1989-1993 period. The early years of this decade were characterized by a major recession in the Canadian housing market as well as in Europe, the United States and Japan. The results of this study illustrate that despite adverse overall market conditions, the Canadian manufacturing housing market has, in some aspects, become more competitive both at home and internationally.

MOISTURE PROBLEMS HUMIDITÉ

174.

ANALYSE DES DONNÉES D'UNE ÉTUDE SUR LA FORMATION DES BANCS DE GLACE : RAPPORT FINAL.

Préparé par Scanada Consultants Limited; Gestionnaire de projet : Ken Ruest. Préparé pour la Division des politiques et de la recherche en matière technique, Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1996.

Les conditions de l'hiver 1995-1996 étaient plus favorables que d'habitude à la formation de banc de glace sur les toits dans beaucoup de villes canadiennes. La Société canadienne d'hypothèques et de logement a demandé à des consultants de surveiller la température des greniers de 33 maisons d'Ottawa afin de déterminer si la formation de banc de glace sur les toits était provoquée par la température plus élevée des greniers. Les greniers ont été surveillés entre la fin de février et la mi-mars 1996. On a analysé les relevés de température du 5 mars. Les conditions atmosphériques de cette journée étaient aussi près que possible des conditions reconnues pour l'accumulation de glace. L'analyse des données n'a pas révélé l'existence d'un seul facteur particulier à toutes les maisons aux toits sans banc de glace. Il est toutefois ressorti certaines indications quant aux causes possibles de la température plus élevée des greniers aux toits avec banc de glace:

- Il faisait environ 4°C de plus dans les greniers des maisons aux toits avec banc de glace que dans ceux des maisons aux toits sans banc de glace.

- Les niveaux d'isolation des greniers étaient inférieurs à la valeur RSI minimale requise par le code du bâtiment dans sept des maisons aux toits avec banc de glace et dans quatre des maisons aux toits sans banc de glace.
- La valeur RSI des niveaux d'isolation des trappes des greniers était seulement 2,6 (R-15) dans cinq des maisons aux toits avec banc de glace.
- Les fuites d'air au point d'entrée de la cheminée dans le grenier sont une source possible de chaleur. Toutes les maisons aux toits avec banc de glace possédaient des cheminées intérieures.
- La ventilation inadéquate des soffites peut être l'une des causes de la température plus élevée des greniers. Certaines maisons comptaient moins de déflecteurs d'isolation que les maisons aux toits sans banc de glace. L'espace limité de ventilation des soffites dans deux cas (le surplomb du toit était seulement 20 cm) est peut-être l'un des facteurs ayant contribué au problème.

NOTE: Also available in English under the title: *Ice Dam Research Data Analysis: Final Report*.

175.

ICE DAM RESEARCH DATA ANALYSIS: FINAL REPORT.

Prepared by Scanada Consultants Limited; Project Manager: Ken Ruest. Prepared for Technical Policy and Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1996.

The winter of 1995/1996 presented unusually favourable conditions for roof ice damming in several Canadian cities. Canada Mortgage and Housing Corporation contracted consultants to monitor the attic temperatures of 33 Ottawa houses to determine if ice dams resulted from warmer attics. The attics were monitored from late February to mid-March 1996. Temperature readings from March 5th were used for the analysis. The weather conditions on this day were as close as possible to conditions recognized for the occurrence of ice dams. Analysis of the data did not find one single factor common to all of the ice dam cases. However, there were some indications of potential causes for the ice dam attics being warmer:

- The ice dam house attics were about 4°C warmer than the non ice dam house attics.
- Attic insulation levels were less than the building code's minimum required RSI level in seven of the ice dam houses and four non ice dam houses.
- Attic hatch insulation levels were only RSI 2.6 (R-15) in five ice dam houses.
- Air leakage at chimney penetration into the attic is a suspected source of heat. All ice dam houses had interior chimneys and most non ice dam houses had exterior chimneys.
- Inadequate soffit venting may be part of the warmer attics problem. Some houses had fewer insulation baffles installed compared to the non ice dam cases. Limited soffit vent area in two cases (roof overhang was only 20 cm) may be a factor contributing to the problem.

NOTE : Aussi disponible en français sous le titre : *Analyse des données d'une étude sur la formation des bancs de glace.*

MUNICIPAL GOVERNMENT AND FINANCE ADMINISTRATION MUNICIPALE ET FINANCES

176.

ICLEI HANDBOOK ON MUNICIPAL ENVIRONMENTAL PRICING.

Prepared by the International Council for Local Environmental Initiatives. Prepared for ICLEI and International Relations Division, Canada Mortgage and Housing Corporation. Toronto: ICLEI, 1996.

Too many municipalities are committed to environmental policies and program objectives which are undermined or contradicted by economic instruments which are within their control. The *ICLEI Handbook on Municipal Environmental Pricing* provides a blueprint for reforming these economic instruments so that they generally encourage sound environmental practice and specifically support compliance with and implementation of local environmental policy.

The *Handbook on Municipal Environmental Pricing* is largely organized according to key policy and management areas (water, energy, waste, etc.). In each major section, it provides an analysis of the feedbacks between typical environmental policies and programs and the traditional applications of various economic instruments (fees, subsidies, and fines). Proposals for restructuring or otherwise reforming these instruments are presented. These proposals are supported by concrete cases from the field or specific examples where cases cannot be found.

NATIVE PEOPLES AUTOCHTONES

177.

APPROACHING ABORIGINAL SELF-GOVERNMENT IN WINNIPEG: THE DEVELOPMENT OF ABORIGINAL SERVICE DELIVERY NETWORKS.

Prepared by Kevin K. Lee. Thesis- (Master of City Planning) - University of Manitoba, 1996. (Scholarship Program).

This thesis explores the issue of Aboriginal self-government in an urban setting with a focus on the interests of urban Aboriginal service organizations. The operating environment of these organizations with respect to self-government is discussed, including pertinent historical events, socioeconomic characteristics of the community, and legal precedents. Models of urban Aboriginal self-government and related issues described in the literature are explored. Existing research on the characteristics of urban Aboriginal organizations is reviewed. Results from new research, conducted for this project, on these organizations' relationships with entities in their operating environments are described.

The findings from this thesis suggest that existing urban Aboriginal service organizations can have a political and service provider role in the development and functioning of some forms of urban Aboriginal self-government. Of the models explored, the political autonomy and neighbourhood-based forms of urban self-government appear to be the most amenable to existing organizations. However, these organizations are not currently operating as either a political or service system and would likely have to increase their levels of coordination as a network to fulfill a governance function.

178.

THE HOUSING CONDITIONS OF ABORIGINAL PEOPLE IN CANADA, 1991.

Prepared by Ark Research Associates; Ark Research Manager: Aron Spector. Prepared for Social and Economic Policy and Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1996.

Many Aboriginal peoples in Canada have experienced considerable housing problems. Over the last few decades, numerous case studies have documented poor, unsafe and crowded housing in individual Aboriginal communities and among different groups. These studies have used a variety of approaches making it difficult to compare results or obtain a national perspective. The primary objective of this study is to portray the current housing situation of all peoples in Canada who identify themselves as Aboriginal. To do so, the commonly understood and applied housing norms and standards of the CMHC core housing need model are used in conjunction with data collected by Statistics Canada in the 1991 Census and post-census Aboriginal Peoples' Survey.

Housing conditions experienced by many Aboriginal households fall far short of those experienced by non-Aboriginal households. On-reserve, the majority of households (65% or 26,250 of 40,200 households) are in dwellings falling below at least one housing standard. The great majority face adequacy and/or suitability problems. Housing below standard is especially concentrated in the mid-north, in band housing and in Ontario, Manitoba and Saskatchewan. Much of this housing is also without basic amenities, such as adequate sources of potable water and full, operational bathroom facilities. Residents of on-reserve households are particularly likely to indicate that their housing does not meet their needs.

Off-reserve, 49% or 97,100 of 196,375 Aboriginal households reside in dwellings below at least one housing standard. The type and incidence of housing need incurred by Aboriginal households varies significantly among three distinct locales -- the far-north off-reserve urban areas, and off-reserve rural areas outside of the far-north. Most Aboriginal households reside in urban areas and it is there, particularly in rented accommodations, that the highest incidence of core need occurs. The great majority of these households spend 30% or more of their income on rent, and often are in crowded conditions. The high incidence of core need in urban rented accommodations is related to the great many young adults and Aboriginal women living there. A large proportion of these households have low incomes. Many urban renters in core need are female single parents and their children, and the disabled. In addition, reflecting the communal nature of many Aboriginal cultures, a significant proportion of these households contain non-census family persons.

The research indicates a need for further work which focuses on ways of integrating the strengths of Aboriginal peoples and their resources in order to change the conditions that have led to an extreme situation. It is clear that a strength of many Aboriginal communities in both urban and rural areas has been the capacity to provide a communal support system in the face of poverty. There is considerable evidence that this support system is effective in sharing limited human resources and housing. Yet there are a number of similar problems of housing and poverty, such as the plight of single mothers and the disabled, that affect both Aboriginal and non-Aboriginal communities. It is also clear that in rural and remote areas, there is a real need for continued research into the design of appropriate and context sensitive housing. Lastly, this study indicates that poor housing is both a symptom and a cause of a weak economic base within much of the Aboriginal community.

179.

THE HOUSING CRISIS IN CANADA'S INUIT COMMUNITIES: FINAL REPORT.

Prepared by the Inuit Tapirisat of Canada. Prepared for Canada Mortgage and Housing Corporation and Indian and Northern Affairs Canada. Ottawa: Inuit Tapiriiksat Kanatami = Inuit Tapirisat of Canada, 1996.

This study discussed housing conditions in Inuit communities in Quebec, Labrador and the Northwest Territories. It concluded that without action, conditions would deteriorate due to the fast growing population and continued high unemployment. The study set out an action plan to the year 2005, dealing with training, prioritization, delivery and design review. In addition, targets were established for social and economic achievements.

180.

MIGRATION AND MOBILITY OF CANADA'S ABORIGINAL POPULATION.

Prepared by Stewart Clatworthy. Ottawa: Canada Mortgage and Housing Corporation; Royal Commission on Aboriginal Peoples, 1996.

Order number: PE203. ** Price: \$12.95 + GST and handling charges.

NOTE: Available from: CMHC Information Products, 700 Montreal Road, Suite 1000, Ottawa, Ontario, K1A 0P7. Tel.: 1-800-668-2642. Fax orders from Canada: 1-800-245-9274. International clients see page viii for order instructions.

This report documents migration between broad regions and aggregated urban, rural and on-reserve areas. The report also examines residential mobility of Aboriginal peoples within 11 Canadian cities. It explores the reasons for moving, the housing conditions of movers and the level of concentration of Aboriginal peoples in Canadian cities. This report resulted from a joint project between Canada Mortgage and Housing Corporation and the Royal Commission on Aboriginal Peoples.

NOTE : Aussi disponible en français sous le titre :*Migration et mobilité de la population autochtone du Canada.*

181.

MIGRATION ET MOBILITÉ DE LA POPULATION AUTOCHTONE DU CANADA

Préparé par Stewart Clatworthy. Ottawa : Société canadienne d'hypothèques et de logement; Commission royale sur les peuples autochtones, 1996.

Numéro de commande : PF203. **Prix : 12,95\$ + TPS et frais d'expédition.

NOTE : Disponible par la poste : Produits d'information de la SCHL, 700, chemin de Montréal, pièce 1000, Ottawa (Ontario) K1A 0P7. Tél. : 1-800-668-2642. Commandes par télécopieur au Canada : 1-800-245-9274. Clients internationaux : voir à la page viii les instructions relatives aux commandes.

Ce rapport traite de la migration entre les grandes et vastes régions et les régions urbaines, rurales et les réserves rassemblées. Le rapport se penche également sur la mobilité résidentielle des peuples autochtones dans 11 villes canadiennes. Il aborde les raisons de ces déménagements, les conditions de logement de ceux

qui déménagent et le degré de concentration des peuples autochtones dans les villes canadiennes. Le document est le résultat d'un projet conjoint entre la Société canadienne d'hypothèques et de logement et la Commission royale sur les peuples autochtones.

182.

LES «NUNAVIMIUT» ET LES «QULIRIIT» À LA CONQUÊTE DE L'ESPACE : PARTICIPATION DES CITOYENS, LOGEMENTS SOCIAUX ET AMÉNAGEMENT DU TERRITOIRE DANS LA RÉGION KATIVIK.

Préparé par Marcelle Chabot. Mémoire (M. ATDR) - Université Laval, 1995. (Programme de bourses d'études).

Ce mémoire s'intéresse aux politiques qui concernent l'espace urbain et porte sur l'étude d'un cas dans l'Arctique québécois. La recherche comprend une description de l'évolution du cadre administratif touchant les affaires municipales ainsi que du mode de gestion du développement spatial dans cette région. L'étude de cas a pour objet la planification d'un projet de construction de logements sociaux en 1992 dans Kuujjuaq, le village inuit le plus populeux de la région Kativik. L'étude s'intéresse plus particulièrement à la place des citoyens dans la planification du projet et leur influence dans les décisions relatives à l'organisation de l'espace. L'analyse montre que la place des citoyens dans le processus est implicite et diffuse et que leur influence est indirecte. L'analyse permet également de dire que le rôle des citoyens et de leurs représentants est surtout légitimant et qu'il est parfois concerné par l'efficacité de la mise en œuvre du projet.

183.

TOWARDS A RESOLUTION OF THE ON-RESERVE HOUSING PROBLEM.

Prepared by Francis J. Lapointe. Thesis (Master of Architecture) - Technical University of Nova Scotia, 1996. (Scholarship Program).

This thesis re-examines various issues related to the housing problem on reserve. The social, physical and mental consequences of inadequate housing on those living on reserve are also detailed, and the right of Native peoples to be provided with funds to construct adequate housing is debated. This is followed by a critical analysis of recent policy and construction initiatives. An examination of past administrative proposals suggests that the federal government has responded slowly in the face of the growing housing problem. An analysis of past construction strategies concludes that projects with direct community involvement were more successful than those without. All of these conclusions were used to formulate a new Native housing strategy.

The new strategy suggests that the federal government should return housing policy development to the community. Both the federal and provincial governments should increase funding levels to a level comparable to other Canadians in similar economic and geographic circumstances. Governments should also eliminate discriminatory legislation, return control of Indian monies to First Nations, and increase the resource base of isolated bands. In return, band governments should pursue cooperative bulk purchasing arrangements with other bands and encourage economic initiatives related to housing. Individuals on reserve must be asked to participate more fully in the design, construction and maintenance of their dwelling. A partial solution to the housing problem lies in a return to the use of vernacular materials in the construction of a house. Drawings and photographs that feature innovative construction systems such as small diameter timber technology are included in the study.

NEIGHBOURHOOD IMPROVEMENT AMÉLIORATION DE QUARTIER

184.

TAKING ACTION: A NEIGHBOURHOOD-INITIATED HOUSING INSPECTION PROGRAM.

Prepared by Nancy C. Higgitt and Glen Grismer. Legal Brief prepared for the report by Piche Humphries, Barristers and Solicitors. Prepared for Technical Policy and Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1996.

As public-sector services continue to shrink, community-based action can provide an alternative strategy for addressing neighbourhood problems. The purpose of this study was to increase understanding of resident-initiated action by exploring how one group of residents tackled a problem in their neighbourhood. Research for the study took place in Riversdale, one of the oldest, inner city neighbourhoods in Saskatoon. The methods used for this case study included document analysis and in-depth interviews with persons who participated in the project and others who observed it.

The study documents how a group of residents with limited resources but plenty of determination was able to address the issues of unsafe and unhealthy housing conditions in their neighbourhood. By developing partnerships with three municipal departments, residents were able to develop and implement a successful housing inspection program. As a result of this program, houses were upgraded to meet municipal codes, illegal dwelling-units were reduced and some badly deteriorated housing was closed. Moreover, the departments of fire, planning, and health collaborated to change existing administrative procedures to better protect the health and safety of residents.

There is no doubt that the Riversdale Community Fire and Health Safety Program was successful. Many fire and health hazards were reduced or eliminated thus ensuring a safer and healthier community for residents. Other successful outcomes included changes to city bylaws, increased zoning compliance and recognition for volunteers.

THE NORTH/LE NORD

185.

FROSTLINE: NORTHERN AND REMOTE TECHNOLOGY IN HOUSING: A PUBLICATION OF THE NORTH COMMITTEE.

Ottawa: Canada Mortgage and Housing Corporation, Technical Policy and Research Division, Winter 1996.

In the first of a series of articles on renewable energy sources, Frostline presents a profile of Doug Craig, the consultant behind the Haeckel Hill wind turbine just north of Whitehorse. The publication also deals with other housing topics of relevance for northern Canada. They include: a new program to document advances in renewable energy technologies; sewage disposal alternatives for remote communities; a small native community without utility services; housing activity in the Northwest Territories; the Winter Cities Forum '96; and window designs for the eastern Arctic.

NOTE : Aussi disponible en français sous le titre :*Septentrion : recherche en technologie de l'habitation dans le Nord : publication du comité du Nord.*

186.

**RENATURALISATION DES SURFACES DÉCAPÉES AU VOISINAGE DES HABITATIONS
DANS LE VILLAGE NORDIQUE DE KUUJJUAQ.**

Préparé par Patrice Babeux et Gilles Houle. Ottawa : Société canadienne d'hypothèques et de logement, 1995. (Programme de subventions de recherche).

En milieu nordique, le développement domiciliaire s'accompagne généralement de perturbations importantes du couvert végétal au voisinage des habitations. Les problèmes engendrés par l'éolisation, suite au décapage des surfaces auparavant recouvertes de végétation, sont multiples. En mai 1995, la Société canadienne d'hypothèques et de logement confirmait sa participation financière à un programme de recherche sur la restauration du couvert végétal en milieu nordique. L'objectif général de cette recherche était de développer des méthodes efficaces de renaturalisation des surfaces décapées au voisinage des habitations du village nordique de Kuujjuaq.

En tout, dix expérimentations ont été planifiées pour rencontrer les objectifs scientifiques du programme de recherche. Six d'entre elles portent sur la production de plants par le bouturage de rameaux de divers espèces ligneuses locales. Une autre expérimentation concerne la production de semis de bouleau glanduleux, d'aulne crispé et de mélèze laricin. Deux autres expérimentations examinent la performance en plantation de certaines des espèces déjà mentionnées soit l'aulne crispé, le bouleau glanduleux, le mélèze laricin et le saule planifolié. Enfin, une dernière expérimentation porte sur le rendement, sur substrat sableux, de différents mélanges de graines de provenance locale.

Ce programme de recherche a permis d'apporter d'importantes précisions quant au potentiel de plusieurs espèces à des fins de renaturalisation des surfaces décapées au voisinage des habitations du village de Kuujjuaq. Les deux espèces de saule, *Salix planifolia* et *S. vestita*, du côté des espèces ligneuses bouturables, ainsi que l'aulne crispé et le bouleau glanduleux, parmi les espèces ligneuses dont les plants sont produits à partir de graines, présentent un potentiel très élevé. Du côté des herbacées, deux graminées, *Poa alpina* et *Agropyron violaceum*, et une légumineuse, *Oxytropis hudsonica*, sont susceptibles de renaturaliser efficacement et rapidement les surfaces décapées. L'utilisation de ces espèces est fortement recommandée.

187.

**SEPTENTRION : RECHERCHE EN TECHNOLOGIE DE L'HABITATION DANS LE NORD :
PUBLICATION DU COMITÉ DU NORD.**

Ottawa : Société canadienne d'hypothèques et de logement, Division des politiques et de la recherche en matière technique, Hiver 1996.

Dans le premier d'une série d'articles consacrés aux sources d'énergie renouvelable, Septentrion esquisse le profil de Doug Craig, consultant responsable de l'aménagement de l'éolienne du Mont Haeckel au nord de Whitehorse. La publication traite également d'autres sujets d'habitation et de leur à-propos pour le Nord. Ils comprennent : un nouveau programme qui vise à documenter les progrès technologiques réalisés dans le secteur des énergies renouvelables; des techniques d'évacuation des eaux usées dans les collectivités éloignées; une petite collectivité autochtone sans des services d'utilité publics; un profil du secteur de l'habitation dans les Territoires du Nord-Ouest; le Forum 96 des villes d'hiver; et les fenêtres conçues pour l'Arctique est.

NOTE: Also available in English under the title *Frostline: Northern and Remote Technology in Housing: A Publication of the North Committee*.

RENTAL HOUSING LOGEMENT LOCATIF

188.

ÉTUDE DE FAISABILITÉ POUR ÉTABLIR LE PROFIL DES INVESTISSEURS DE LOGEMENT LOCATIF AU CANADA.

Préparé par Marc Godbout. Préparé pour le Centre d'études prospectives sur l'habitation et le cadre de vie, Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1996.

L'objectif de ce projet était d'explorer les différentes possibilités d'obtenir les données pour établir un portrait des investisseurs dans le logement locatif avec une recommandation pour la méthode à retenir. Le consultant a révisé les bases de données accessibles qui ont des informations socio-économiques sur les investisseurs dans le logement locatif afin d'y déceler les avantages et les inconvénients en terme d'accessibilité, de fiabilité, de la capacité d'établir une tendance et de la désagréger géographiquement. Le consultant recommande que la SCHL utilise des sources d'informations nationales déjà disponibles (Système UPS de la SCHL, Enquête sur le taux d'inoccupation, compilation de Statistiques Canada à partir des déclarations de revenus des particuliers). La qualité des résultats obtenus et donc du profil établi dépendra largement des hypothèses de départ et du type d'analyse qui sera conduit.

189.

IMPACT D'UN PROGRAMME PARAMUNICIPAL SUR LE MARCHÉ DU LOGEMENT LOCATIF.

Préparé par Luba Serge avec la collaboration de Margaret Montfort. Ottawa : Société canadienne d'hypothèques et de logement, 1995. (Programme de subventions de recherche).

Cette étude vise à connaître l'impact du Programme d'acquisition de logements locatifs (PALL), géré par la Société d'habitation et de développement de Montréal (SHDM), sur le marché locatif avoisinant. Entre 1988 et 1993, la SHDM a acquis plus de 3 300 logements dans l'ensemble de la ville de Montréal. Les unités, souvent situés dans les quartiers les plus délabrés de la ville, étaient remises aux normes en utilisant des programmes provinciaux et municipaux et transférées à des organismes sans but lucratif ou des coopératives d'habitation. Une des questions de la présente étude est de voir comment réagiraient les propriétaires avoisinants qui se trouvent dans une situation généralement difficile face à un nouvel élément, soit le PALL, qui bouscule le marché local, souvent d'une façon importante.

L'étude reprend les quartiers utilisés dans l'évaluation entreprise par la SHDM. Deux zones d'intervention ainsi qu'une zone témoin ont été retenues dans quatre quartiers. L'analyse des impacts confirme que, dans les zones d'intervention majeure du PALL de certains quartiers, des investissements dans l'amélioration du parc ont été faites par les propriétaires privés. Dans deux quartiers, l'investissement dans la remise en état a été importante et la valeur des permis dans la zone d'intervention majeure est significativement plus élevée dans la période post-intervention pour les immeubles de six logements et plus. Par contre, l'activité dans les deux autres quartiers ne démontre aucun impact.

Un questionnaire sur les motivations et les perceptions de tous les propriétaires d'immeubles locatifs dans les trois zones des quatre quartiers a été envoyé par la poste. Les résultats démontrent que la propension de penser «long terme» est évidente: près de trois propriétaires sur quatre ont indiqué que c'était un facteur important dans la décision d'acheter et, quand on demande aux propriétaires combien d'années ils prévoient garder l'immeuble, 56,3% disent que ce sera pour plus de cinq ans. Deux tiers manifestent l'intention d'investir dans soit l'entretien ou la remise en état. Cet objectif de gestion à long terme est toutefois en

contradiction quand on demande si les propriétaires ont jamais mis leur immeuble en vente : 51,2% répondent «oui» et parmi ceux-ci, 61,5% disent que la propriété est toujours en vente.

Le parc locatif privé connaît d'importants changements qui le transforment dramatiquement. Les propriétaires ont beaucoup de difficultés à vivre ces changements et les problèmes qui les accompagnent. L'intervention du PALL semble inciter à la remise en état dans certains quartiers. Ce sont les nouveaux propriétaires qui semblent croire qu'il y a un avenir pour ces quartiers. Toutefois, la majorité des unités demeurent entre les mains de propriétaires qui, généralement, ne veulent plus y rester et qui non seulement ne récupèrent pas leurs coûts, mais encourrent parfois des pertes. Ces propriétaires sont très conscients des causes des changements : les politiques qui encouragent l'accès à la propriété, la fuite de la classe moyenne vers la banlieue et le fait qu'ils sont maintenant en concurrence avec le logement social pour la clientèle la plus défavorisée.

190.

L'INVESTISSEMENT DANS LE LOGEMENT LOCATIF RÉSIDENTIEL AU CANADA : LEÇONS DES ÉTUDES ET AVENUES DE RECHERCHE.

Préparé par Mario Fortin. Préparé pour la Division des politiques et recherche sociale et économique, Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1996.

L'objectif de ce projet était de déceler les motifs qui amènent les investisseurs à introduire les propriétés locatives dans leur portefeuille. Le travail comprenait une revue des écrits qui abordent la question du choix de l'investissement dans les propriétés pour fins de location résidentielle et sa place dans le portefeuille de l'investisseur. Le consultant devait donc présenter les différentes théories et approches utilisées pour déterminer les critères utilisés par les investisseurs.

Cette revue permettait de faire ressortir en premier lieu le manque de données fiables sur le rendement de l'immobilier. Sans ces données, les propriétés empiriques de ce type de placement, et en particulier son effet de diversification ne peuvent être établies avec précision. On remarque aussi l'absence d'étude canadienne sur le sujet. Nonobstant ces conclusions, certaines études sous-tendent à démontrer que la fiscalité reliée à l'investissement dans le logement locatif a eu un impact significatif pour introduire ce dernier dans les portefeuilles des investisseurs. Il y a aussi la forte corrélation du rendement de l'immobilier avec l'inflation qui aurait pu inciter les investisseurs à l'introduire dans leur portefeuille pour prévenir leur rendement contre l'inflation.

RESIDENTIAL DEVELOPMENT AMÉNAGEMENT RÉSIDENTIEL

191.

A CITY OF TOWNS: ALTERNATIVES FOR THE PLANNING AND DESIGN OF HOUSING IN ST. JOHN'S, NEWFOUNDLAND.

Prepared by Robert Mellin. Ottawa: Canada Mortgage and Housing Corporation, 1995. (External Research Program).

This research focuses on the urban form and houses of the older residential neighbourhoods in St. John's, Newfoundland, Canada. There are three main purposes for this study: first, to document the physical form of the older residential neighbourhoods by formulating a neighbourhood and housing typology (the older residential areas are quickly being eroded by unsympathetic new development); second, to analyze a

interpret details of urban and house form that contribute to the character of these neighbourhoods; and third, to demonstrate that nearly all the ingredients that could contribute to sensible planning for new residential areas in St. John's are contained in the older residential areas. Much of the information is presented in graphic format using computer-generated three-dimensional models of houses and neighbourhoods. The intent is to develop a graphic analysis that is detailed enough to provide a historical record of the form of various neighbourhoods, and to place this information in a format that would permit useful comparisons between older and newer residential neighbourhoods.

Selected residential areas in the older part of the city were analyzed with regard to housing density, lot proportions, setbacks, street space, house types, house size, housing costs, development costs (neighbourhood affordability), solar orientation, block lengths, infrastructure lengths, planning regulations (zoning), landscape features (fences, flora, gardens), and other features such as pedestrian paths and alleys. From the analysis, it became apparent that the major factors influencing housing affordability were plot proportions, block lengths, block widths, and infrastructure lengths. General principles or alternatives are proposed for new housing development, and these are all based on the best urban aspects of the existing, older residential areas (for example, St. John's was once a city composed of small towns, with courtyards, bridging between dwellings, outbuildings, grid-pattern streets, small houses, lanes and pedestrian paths, and mixed-use zoning).

192.

LAND USE PLANNING FOR AFFORDABLE HOUSING IN ONTARIO: NEIGHBOURHOOD CREATION UNDER THE PROVINCIAL POLICY OF 1989.

Prepared by Martin T. Siddles. Thesis (Master of Urban and Rural Planning) - Technical University of Nova Scotia, 1996. (Scholarship Program).

This thesis explores the physical outcomes of the Province of Ontario Housing Policy Statement of 1989: Land Use Planning for Affordable Housing relative to the 25% affordable unit requirement for new residential development. While the Policy directs land use planning towards the priority objective of affordable housing it is the responsibility of the individual municipality to infuse actual housing delivery with good planning and design.

Three subdivision developments under this policy regime are presented and analyzed. These include Countryside in Kitchener, West Morrison Creek in Oakville and Mackenzie Glen in Vaughan. The cases are analyzed in terms of meeting the housing provision requirements of the policy and the more qualitative aspect of neighbourhood creation. Four criteria are developed to test or measure the quality of neighbourhood creation of each case. These include variety physical integration, accessibility and social opportunity.

An examination of the cases indicates that although the obligatory requirements of the policy are being met, a range of outcomes is possible in terms of the integration of affordable units and the resultant quality of living environment created. In this sense, the policy did not work. The policy is really one piece of a larger issue with many players. Positive benefits beyond mere provision can only be achieved if there is the local will to provide affordability and do it in a fashion that brings about quality residential environments. In this particular situation, the policy merely provided the impetus or opportunity to achieve more by raising the issue in the form of a provincial interest statement with mandatory quantitative requirements. However, there is a need for a more concerted effort on the part of the development industry, local government and planning in general to ensure that a variety and range of affordable housing is provided in quality living environments.

193.

USING DEVELOPMENT CHARGES TO ACHIEVE HOUSING AND RESIDENTIAL LAND USE POLICY: A CASE STUDY OF YORK REGION.

Prepared by Mark R. Flowers. Research Paper (Master of Arts in Planning) - University of Toronto, 1996. (Scholarship Program).

At a time of rising demand for high quality local services, combined with declining provincial assistance and resistance to property tax increases, many jurisdictions in Ontario find themselves in a fiscal dilemma. In response, municipalities are increasingly turning to the private sector, by way of imposing development charges, to finance the capital costs associated with new development. Perhaps foremost among the issues that arise regarding the implementation of development charges is whether to employ an average or marginal cost pricing approach. Despite theoretical evidence to suggest that average cost pricing will encourage inefficient and costly development patterns, the majority of municipalities continue to opt for this form of charge, a decision seemingly inconsistent with the stated objectives of housing and residential land use policies.

Using the Regional Municipality of York as a case study, it is demonstrated that development charges applied on a marginal cost basis can potentially have a positive impact on residential development patterns. In particular, subdivision applications received subsequent to the implementation of area-specific charges in Markham and Richmond Hill are shown to include a wider range of housing alternatives and achieve higher residential densities. Given these findings, the paper concludes with a brief list of policy recommendations for municipalities to consider when reviewing development charge bylaws in relation to housing and residential land use objectives.

**RESIDENTIAL REHABILITATION
REMISE EN ÉTAT DES LOGEMENTS**

194.

AVANT DE RÉNOVER : CONSEILS PRATIQUES DES SPÉCIALISTES DE L'HABITATION AU CANADA = BEFORE YOU RENOVATE: RENOVATION ADVICE FROM CANADA'S HOUSING EXPERTS (ÉD. RÉV.).

Ottawa : Société canadienne d'hypothèques et de logement, 1996-1997. (LNH 6372).

Ce catalogue renferme une description des publications et des vidéocassettes que la Société canadienne d'hypothèques et de logement a produites sur la rénovation domiciliaire. Ces publications, dont quelques-unes sont gratuites, offrent une vaste gamme de renseignements précis sur la rénovation dans les domaines suivants : comment diriger une entreprise de rénovation prospère; les problèmes de construction et des solutions possibles; l'entretien et la réparation d'une maison; la qualité de l'air intérieur, la Maison saine; le chauffage et la ventilation; et l'adaption des logements pour des personnes ayant des besoins spéciaux.

NOTE : Bilingue/bilingual.

195.**BEFORE YOU RENOVATE: ADVICE FROM CANADA'S HOUSING EXPERTS = AVANT DE RÉNOVER : CONSEILS PRATIQUES DES SPÉCIALISTES DE L'HABITATION AU CANADA (REV. ED.).**

Ottawa: Canada Mortgage and Housing Corporation, 1996-97. (NHA 6372).

This catalogue describes publications and videos on home renovation that have been produced by Canada Mortgage and Housing Corporation. These publications, some of which are free, offer a wide range of detailed information on renovation in the following areas: how to run a profitable renovation business; construction problems and possible solutions; repairs and home maintenance; indoor air quality; healthy housing; heating and ventilation; and home adaptations for people with special needs.

NOTE: Bilingual/bilingue.

196.**CODE AND APPROVAL PROCESS MODELS FOR RESIDENTIAL RENOVATION: CASE STUDY = MODÈLES DE CODE ET DE PROCESSUS D'APPROBATION DE RÉNOVATION RÉSIDENTIELLE : ÉTUDE DE CAS.**

Affordability and Choice Today (A.C.T.) Streamlined Approval Process Project / Association for Preservation Technology, Ottawa, Ontario. Prepared by Energy Pathways Inc. Prepared for the Federation of Canadian Municipalities, Canadian Home Builders' Association, Canadian Housing and Renewal Association and Canada Mortgage and Housing Corporation. Ottawa: The Associations: The Federation: The Corporation, 1995.

Despite the contribution that renovation activity makes to housing affordability, choice and quality, there are several key regulatory issues that deter renovation and add to its cost. To address these issues, the Association for Preservation Technology (APT), an Ottawa-based non-profit organization dedicated to building preservation and heritage, initiated an A.C.T project to identify provisions of the National Building Code (NBC) and municipal approval processes that discourage residential renovation, and to recommend ways to address these challenges.

The project had four primary objectives:

- To identify a method for applying the NBC to existing dwellings;
- To propose a system for identifying the extent to which renovation activities must comply with the NBC, according to the nature and scope of the renovation, and to draft a set of "Alternate Technical Measures";
- To identify a method for assigning liability to the property owner in cases where the owner wishes to retain existing conditions that do not meet NBC requirements;
- To identify methods for reducing the time and effort required to obtain municipal approval for residential renovation projects.

This case study summarizes the findings and recommendations presented in the project team's final report Technical Code Update for Residential Renovation.

NOTE: Bilingual/bilingue.

197.

INCUMBENT UPGRADING IMPLICATIONS FOR RESIDENTIAL REVITALIZATION.

Prepared by Christine McKee and Christian Douchant. Ottawa: Canada Mortgage and Housing Corporation, 1994 i.e., 1996. (External Research Program).

The scope of this study involves conducting theoretical and empirical research into incumbent upgrading. Its purpose is to examine incumbent upgrading as a force in inner city residential revitalization. The study hypothesizes that home renovation in the inner cities of lower order cities like Winnipeg, whose socioeconomic and physical environment has not been greatly affected by post-industrial change, are more likely to exhibit characteristics of incumbent upgrading than the characteristics of gentrification. It proceeds to develop a framework for analysis based on indicators which measure both actual reinvestment and renovation in the housing stock and the socioeconomic characteristics of neighbourhoods, so that forces such as gentrification and incumbent upgrading can be identified as separate phenomena. Further, using methodological techniques such as correlation analysis, linear regression and spatial analysis, it tests the assumptions (based on an extensive literature review, the authors' knowledge of urban structure and feedback from practitioners) that incumbent upgrading is spatially associated with social status factors such as lower levels of education, income and employment status and factors such as neighbourhood stability, cohesiveness and public policy intervention. Incumbent upgrading areas are identified and described in terms of their physical and socioeconomic characteristics.

The study concludes that gentrification is not a force in inner city revitalization in Winnipeg; that incumbent upgrading is evident in several inner city neighbourhoods in Winnipeg; that public policy intervention is an important catalyst in encouraging incumbent upgrading; and that different forms of inner city revitalization can be observed if both socioeconomic and housing investment indicators are used.

198.

INDICE SYNTHÉTIQUE PRÉCURSEUR DES DÉPENSES DE RÉNOVATION RÉSIDENTIELLE AU QUÉBEC.

Préparé par François Raymond. Préparé pour le Centre d'analyse de marché, Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1996.

De nos jours, l'analyse prévisionnelle constitue un élément essentiel dans le processus de décision des agents économiques. Sans l'appréhension de ce que sera "l'avenir", il devient difficile pour les acteurs économiques de prendre des décisions éclairées et justes. À ce titre, cette étude a pour but de construire selon deux méthodes d'analyse prévisionnelle, un indice précurseur des dépenses de rénovation au niveau provincial afin de prévoir et d'anticiper l'évolution future de l'activité du secteur de la rénovation au Québec.

La méthode des indices a permis d'établir un indice précurseur doté d'une avance moyenne d'environ 9 mois avec un taux d'erreur de 13,0%. Bien que cette méthode ne puisse produire une estimation exacte du niveau des dépenses de rénovation, elle demeure néanmoins relativement facile d'usage et efficace pour prédire l'évolution future de l'activité du marché de la rénovation. La méthode économétrique, quant à elle, a permis de construire un indice non seulement efficace pour prédire l'évolution des dépenses de rénovation, mais un indice ayant également la capacité de chiffrer le niveau des dépenses de rénovation avec une avance de 6 mois. Ainsi, cette méthode présente l'avantage de projeter le niveau cardinal de la variable cible. Or, la fiabilité de cette méthode est grandement tributaire de l'analyse statistique.

199.

**MODÈLES DE CODE ET DE PROCESSUS D'APPROBATION DE RÉNOVATION
RÉSIDENTIELLE : ÉTUDE DE CAS = CODE AND APPROVAL PROCESS MODELS FOR
RESIDENTIAL RENOVATION: CASE STUDY.**

Abordabilité et choix toujours (A.C.T) projet de simplification du processus d'approbation / Association pour la préservation et ses techniques, Ottawa (Ontario). Préparé par Energy Pathways Inc. Préparé pour La Fédération canadienne des municipalités, L'Association canadienne des constructeurs d'habitats, L'Association canadienne d'habitation et de rénovation urbaine et La Société canadienne d'hypothèques et de logement. Ottawa : Les Associations : La Fédération : La Société, 1995.

Si la rénovation sait contribuer à améliorer l'abordabilité, le choix et la qualité du logement, plusieurs aspects réglementaires importants n'y font pas moins obstacle, tout en ayant pour effet d'en hausser le coût. Afin d'examiner cette situation, l'Association pour la préservation et ses techniques (APT), une organisation sans but lucratif d'Ottawa vouée à la préservation des bâtiments et des valeurs patrimoniales, a entrepris dans le cadre du programme A.C.T un projet devant permettre d'identifier les dispositions du Code national du bâtiment (CNB) et les processus d'approbation des municipalités qui font obstacle à la rénovation résidentielle et de recommander des moyens de composer avec ces situations.

Le projet poursuivait quatre principaux objectifs:

- Déterminer une méthode d'application du CNB aux logements existants;
- Proposer un système de détermination de la mesure dans laquelle les activités de rénovation doivent se conformer au CNB, suivant la nature et l'ampleur de la rénovation, et élaborer un ensemble de "mesures techniques de remplacement";
- Déterminer une méthode d'imputation de responsabilité au propriétaire pour les cas où celui-ci entend maintenir des conditions existantes qui ne se conforment pas aux prescriptions du CNB;
- Déterminer des méthodes de réduction du délai et de la démarche nécessaire à l'obtention de l'autorisation municipale d'entreprendre des projets de rénovation résidentielle.

Cette étude de cas résume les conclusions et les recommandations présentées dans le rapport final de l'équipe de projet intitulé Technical Code Update for Residential Renovation.

NOTE : Bilingue/bilingual.

200.

RÉNOVATION RÉSIDENTIELLE : LE CADRE INDUSTRIEL : RAPPORT SOMMAIRE.

Préparé par Kathleen Maynard, Energy Pathways Inc. pour le Comité conjoint de perfectionnement des ressources humaines - Entrepreneur en rénovation résidentielle de l'Association canadienne des constructeurs d'habitats. Ottawa : Association canadienne des constructeurs d'habitats : Développement des ressources humaines Canada : Société canadienne d'hypothèques et de logement, 1996.

Ce rapport porte sur les facteurs qui définissent l'état de l'industrie de la rénovation résidentielle aujourd'hui même et ceux qui participeront à son évolution future. Les recherches faites ont permis d'établir des profils pour l'industrie de la rénovation, pour le rénovateur de résidences et le consommateur de services de rénovation. Les infrastructures, les ressources et les activités actuelles en matière d'éducation et de formation ont été identifiées. Le chapitre sur l'**industrie de la rénovation résidentielle** aborde les grandes questions touchant l'ensemble de l'industrie : profil économique, impôt, règlements en matière de travail, garanties, inspections, codes et normes, technologie, environnement et partenaires de l'industrie. Le chapitre sur

'entrepreneur en rénovation résidentiel fournit des profils économiques et personnels ainsi qu'un aperçu de l'attitude actuelle des rénovateurs sur les règlements de travail, les garanties, la technologie, l'environnement et les besoins en éducation et en formation des rénovateurs. Celui **sûle consommateur de services de rénovation** présente des profils économiques et personnels en plus d'aborder le point de vue des consommateurs sur la protection de ces derniers, l'environnement et les besoins en éducation et en information des consommateurs.

NOTE: Also available in English under the title *Residential Renovation Industry Framework: Summary Report*.

201.

RESIDENTIAL RENOVATION INDUSTRY FRAMEWORK: SUMMARY REPORT.

Prepared by Kathleen Maynard, Energy Pathways Inc. for the Joint Human Resource Development-Residential Renovator Committee of the Canadian Home Builders' Association. Ottawa: Canadian Home Builders' Association: Human Resources Development Canada: Canada Mortgage and Housing Corporation, 1996.

This report discusses the factors that shape the residential renovation industry today and that will contribute to the evolution of the industry in the future. Profiles of the renovation industry, the residential renovator and the renovation consumer have emerged from the findings. Current education and training infrastructure, resources and activities have been identified. The chapter on residential renovation industry discusses key issues affecting the industry - economic profile, taxation, occupational regulation, warranties, inspections, codes and standards, technology, the environment and industry partners. The residential renovator provides economic and personal profiles, and insight into where renovators stand on occupational regulation, warranties, technology, the environment, and renovator education and training needs. The renovation consumer presents economic and personal profiles, and discusses consumer views on consumer protection, the environment and consumer education and information needs.

NOTE : Aussi disponible en français sous le titre : *Rénovation résidentielle : le cadre industriel : rapport sommaire.*

SELF-HELP HOUSING AUTOCONSTRUCTION

202.

THE ECONOMIC IMPACTS OF MULTIPLE SELF-HELP HOUSING IN CANADA.

Prepared by ARC, Andy Rowe Consultants Inc. Prepared for Canadian Housing and Renewal Association and Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1994, i.e., 1996.

This report assesses the economic and fiscal impacts which would result from the creation of multiple self-help housing to address the need for affordable housing. Working from two assumptions - that, in a time of fiscal restraint, governments can still do much to contribute to the development of needed housing without incurring ongoing subsidy costs and that low-income households are not presently engaged in self-help housing but could be encouraged to do so, this report attempts to set out the likely benefits to government in revenues and in the achievement of public policy objectives which self-help housing could generate. The basic assumptions underlying this study are that low-income households in Canada are not currently being

adequately housed and that private market housing cannot meet these needs, in part because of the costs of construction.

It has been shown that self-help housing can significantly reduce these costs and bring homeownership within reach of those in need. This leads to the suggestion that multiple self-help housing by low- and moderate-income households could generate benefits to government, since such housing is not currently being produced. It is estimated that, for every \$1 million spent on multiple housing in Canada, the federal and provincial governments receive over \$210,000 in revenue from income taxes paid on labour and provincial and federal sales taxes on materials. Additional corporate income taxes are generated and municipalities realize both development charges and property taxes on the resulting 15 units of housing.

Should governments act to encourage multiple self-help housing for low- and moderate-income households, the same expenditure is estimated to generate over \$237,000 in federal and provincial government revenues, again with other corporate taxes, development charges and property taxes being generated. The \$1 million in expenditures would result in the creation of 23 units of needed housing. It has been estimated elsewhere that this results in the creation of up to 30 person years of direct and indirect employment.

SEWAGE DISPOSAL EAUX USÉES

203.

ESTIMATION OF THE CONTRIBUTION OF PHOSPHORUS FROM ON-SITE SEWAGE DISPOSAL SYSTEMS TO LAKES.

Prepared by D.H. Waller, S.C. Sauveur and J.D. Mooers. Ottawa: Canada Mortgage and Housing Corporation, 1996. (External Research Program).

The objective of this research was to develop a modelling methodology that could be used to more accurately estimate annual phosphorus loads to lakes from on-site sewage disposal systems. The report begins with a review of approaches that have been used to estimate phosphorus loads to lakes. These approaches begin with estimates of the potential annual per-capita load from dwellings. They then estimate the lake loading as all or some proportion of the potential phosphorus loading from dwellings - in the total watershed, or in the portion of the watershed within a specified distance from the lake or its tributaries. These approaches do not include explicit consideration of factors and processes that control phosphorus removal in soils. These factors and processes, and commonly available computer models that have been used to describe them, are explored in detail, based on a thorough review of the relevant literature.

These reviews led to identification of models - CHEMFLO for the unsaturated zone, and MODFLOW and MT3D for the saturated zone - that offered the capability of representing the factors and processes involved in phosphorus removal. Exploration of the use of these models began with sensitivity analyses, based on a range of typical soil parameters; the results suggest responses, in terms of phosphorus removal, to variations in significant model parameters. Field and laboratory studies provided evidence about possible phosphorus removal under a variety of site and soil conditions. They also provided data for model calibration and verification.

Modelling results reported here include the application of field data from one site to calibrate the unsaturated zone model for phosphorus removal, and application of the calibrated model to other sites. Also included are results of groundwater flow modelling in the saturated zone. Continuing work to apply project data to modelling phosphorus movement in the saturated zone is described.

This study focused on phosphorus movement at the scale of single properties. Modelling at this scale can identify and quantify significant factors and processes that control phosphorus movement. However, further work is necessary to determine the most effective manner in which this information can be incorporated into watershed scale estimates of phosphorus loads.

204.

A PASSIVE FACULTATIVE WASTEWATER TREATMENT SYSTEM FOR SINGLE-FAMILY RESIDENTIAL USE.

Prepared by Ivo Van Bastelaere, NovaTec Consultants Inc. Prepared for Denis Barker & Associates Limited and for the Social and Economic Policy and Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1996. (Housing Technology Incentives Program).

This paper describes the performance testing of a passive facultative treatment process for onsite treatment of wastewater from a single-family residential dwelling. The intent of the system design was to treat domestic wastewater to comparable quality as would be obtained with conventional, mechanical, secondary biological treatment plants, but in a passive manner. The process was based on the principle of solids separation and extended retention time for anaerobic digestion of biological materials.

The system used two tanks and a solids separating system. Influent was directed through a passive, self-cleaning screen. Solids greater than 3 millimetres in diameter, and approximately 5% of the liquid flow were diverted into a tank dedicated to the storage and passive digestion of solids, while the remainder of the influent that passed through the screen was directed to the liquids retention tank. Supernatant from the solids tank was directed to the liquids tank. The liquids tank utilized inlet piping designed to distribute the flow across the tank cross-section and an underflow clarifying weir.

The system successfully and reliably produced an effluent with a quality such that the total suspended solids (TSS) concentration was comparable to, or better than, effluent produced by conventional secondary treatment plants sized for single-family dwellings. The system was not able to reduce biochemical oxygen demand (BOD) concentrations to the same standard.

SOCIAL HOUSING LOGEMENT SOCIAL

205.

ASSESSMENT OF THE CAPACITY TO USE STOCHASTIC MODELS IN BUILDING LIFE CYCLE COSTING.

Prepared by Aron N. Spector, Ark Research Associates. Ottawa: Canada Mortgage and Housing Corporation, 1996. (External Research Program).

This report provides the results of using statistical models to estimate maintenance and replacement expenditure levels over time in Canada's social and non-profit housing stock. Operating costs were obtained from CMHC and public and non-profit housing providers across Canada. Generally, stochastic models in the building sciences literature focus on the performance of specific materials or elements of a building structure. In contrast, the economics and appraisal literature provide a number of general factors which influence maintenance and replacement expenditures. Together they provide a set of hypothesis and

analytical methodologies which can be applied to understanding the factors influencing maintenance and replacement expenditures over time.

Data for approximately 75% of the Canadian social housing stock and 30% of the comparable maintenance and replacement expenditures were reviewed. However there were inconsistencies in classifying and recording the data, and the building technical characteristics and operating and maintenance practices were missing. As such, trends were developed resulting in an explanation for 40% of the maintenance and 20% of the replacement expenditure variances.

The major factors influencing maintenance and replacement expenditures for these buildings were:

- age (original and since rehabilitated if applicable);
- location (province; size, if urban community; location, if remote);
- size and unit type (e.g., number of units and bedrooms, apartment, row, or detached);
- occupancy (e.g., senior, family, etc.);
- institutional (ownership and management); and
- building characteristics (e.g., heating system, heating energy, presence of elevators, balconies and parking, etc.).

These results were used in a series of simulations which indicated that some currently prescribed replacement reserve contribution levels were inadequate for projects having multiple "risk factors". These risk factors include, for example, location in remote locales, high proportions of family housing and rehabilitation versus new construction.

206.

EVALUATION OF A SOCIAL HOUSING INTERVENTION WITH COMMUNITY SUPPORT FOR LOW-INCOME SINGLES AT RISK OF MARGINALIZATION IN CORE DISTRICTS IN MONTREAL.

Prepared by CLSC Plateau Mont-Royal; Marie Montpetit, General Manager and the Federation of Non-Profit Housing Organizations in Montreal; Norma Drolet, General Manager in collaboration with Yves Vaillancourt, Réjean Mathieu, professors and researchers from UQAM. Ottawa: Canada Mortgage and Housing Corporation, 1995.

This document presents a research design developed by the Federation of Non-Profit Housing Organizations of Montreal and the CLSC Plateau Mont-Royal to investigate the effectiveness of providing community supports within social housing to address the needs of low-income singles at risk of marginalization. The proposed research project will evaluate the contribution of social housing with community support to the tenants' quality of life and will situate it in a context of increased community involvement.

207.

AN EVALUATION PROTOCOL FOR COMMUNITY SUPPORTS FOR MARGINALIZED SINGLES IN SOCIAL HOUSING.

Prepared by the Federation of Non-Profit Housing Organizations of Montreal and the CLCS Plateau Mont-Royal. Prepared for the Social and Economic Policy and Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1995.

This document presents a research design developed by the Federation of Non-Profit Housing Organizations of Montreal and the CLCS Plateau Mont-Royal to investigate the effectiveness of providing community supports within social housing to address the needs of low-income singles at risk of marginalization in the central districts of Montreal. The proposed research project will assess the contribution of social housing with community support to the quality of life of tenants and situate this housing concept in a context of evolving communalization. Quality of life refers to individual satisfaction with life in general, place of residence, neighbourhood, food, clothing, health, financial situation, free time, outside entertainment, family, friends, coresidents, privacy, security and citizenship.

NOTE : Aussi disponible en français sous le titre :*Protocole d'évaluation du support communautaire des personnes seules marginalisées dans le cadre du logement social.*

208.

L'ÉVOLUTION DU COMITÉ DE SÉCURITÉ DE STAMP'S PLACE : ÉTUDE DE CAS SUR LA SÉCURITÉ DES COLLECTIVITÉS : RAPPORT PRÉSENTÉ À LA SOCIÉTÉ CANADIENNE D'HYPOTHÈQUES ET DE LOGEMENT.

Préparé par Calvin Lee et Patti Pearcey. Préparé pour la B.C. Coalition for Safer Communities et la Division de la planification stratégique et de l'élaboration de propositions, Société canadienne d'hypothèques et de logement, 1993, c.-à-d. 1996.

Stamp's Place est un important ensemble de logement public situé au coeur du centre-ville de Vancouver qui comporte 453 logements. Ce rapport présente l'historique et l'évolution du Comité de sécurité de Stamp's Place et il décrit les mesures prises par les membres du Comité pour prévenir le crime en renforçant la cohésion de la collectivité. Le Comité utilise un processus visant à créer des collectivités plus sûres et comportant des initiatives à court, moyen et long termes, entièrement axées sur l'organisation sociale.

La première partie du rapport décrit l'ensemble et le quartier de Stamp's Place. La deuxième partie explique en détail la structure du Comité, évalue le style de gestion de la British Columbia Housing Management Commission (BCHMC), et examine les défis que le Comité a dû surmonter dont certains sont particuliers aux ensembles de logements publics. Elle décrit aussi, le salon de la sécurité, qui s'est déroulé en 1993 durant l'été, et qui visait à encourager plus de résidents, d'organismes locaux, de politiciens et d'institutions à participer aux activités qui favorisent la prévention de la criminalité. Le rapport fait ressortir l'équilibre fragile qui doit être maintenu entre la responsabilisation de la collectivité et le partenariat avec les principales institutions, comme le service de police et l'organisme d'habitation.

Le rapport présente plusieurs recommandations de lignes de conduite. Il suggère que la SCHL devrait assumer un rôle plus important en ce qui a trait au soutien accordé à la recherche et dans l'élaboration de lignes de conduite et de programmes qui favorisent la sécurité et la diffusion de l'information. On considère que tous ces rôles font partie du mandat de la Société.

NOTE: Also available in English under the title:*The Evolution of the Stamp's Place Safety Committee. (Compendium of Research 1994).*

209.

UN HABITAT SOCIAL PLUS SÛR : RÉUNION NORD-AMÉRICAINE ET EUROPÉENNE SUR LA PRÉVENTION DE LA CRIMINALITÉ DANS LES COLLECTIVITÉS DE LOGEMENT SOCIAL, MONTRÉAL, QUÉBEC, CANADA, LES 16 ET 17 NOVEMBRE 1995 : RAPPORT FINAL.

Préparé par Brandon C. Welsh et Claude Roy. Préparé pour la Division des politiques et de la recherche sociales et économiques, Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1996.

Les 16 et 17 novembre 1995, le Forum européen pour la sécurité urbaine et le Centre international pour la prévention de la criminalité ont tenu à Montréal (Québec) une réunion, dont le thème était «Un habitat social plus sûr», pour examiner les problèmes croissants de criminalité et d'insécurité qui se posent dans les collectivités de logements publics à l'échelle de l'Amérique du Nord et de l'Europe. La première journée de la réunion, les participants ont entendu les exposés présentés sous forme de panel par diverses villes canadiennes, américaines et européennes (Belgique, France, Italie, Écosse et Espagne). Les organismes nationaux d'habitations du Canada, des États-Unis et de la France ont aussi présenté des exposés. La deuxième journée a débuté par une visite d'études et des exposés sur «La Petite Bourgogne», une communauté de logements publics du centre-ville de Montréal dans laquelle on a réduit substantiellement la criminalité par des programmes de prévention appliqués en collaboration avec les locataires, les policiers, les groupes communautaires et l'office municipal de prévention de la criminalité appelé Tandem Montréal. La Rooftops Canada Foundation Inc. a présenté un rapport sur l'importance qu'on accordera à la sécurité urbaine et à la prévention de la criminalité à Habitat II («Le Sommet urbain»), à Istanbul (Turquie), en juin 1996. Après les sommaires et les perspectives de la réunion, on a procédé à un dialogue sur les recommandations et le suivi.

Ce rapport constitue un sommaire des exposés des panels, des discussions entre participants et membres des panels, et des constatations clés de la réunion. Le rapport comprend quatre annexes : le programme de la réunion, un rapport intitulé «La Petite Bourgogne», une liste des personnes-ressources clés, et la liste des participants à la réunion.

NOTE: Also available in English under the title:*Safer Social Habitat: North American and European Meeting on Preventing Crime in Public Housing Communities, Montreal, Quebec, Canada, November 16 & 17, 1995: Final Report.*

210.

HOUSING AS A RESPONSE TO POVERTY: POVERTY AND THE DEFINITION OF HOUSING NEED.

Prepared by David M. Black, Ekos Research Associates Inc. Prepared for Social and Economic Policy and Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1996.

Over the past decade governments have begun to rethink traditional approaches to the provision of social security. One element of this rethinking is to emphasize policy and program designs that encourage individual initiative within partnerships where one or more of the partners can be a government department or agency. These initiatives often have a goal to increase an individual's self-sufficiency or independence. If housing subsidies are used as a key element (i.e., housing is used as a means in the amelioration of poverty) in such a policy then what implications, if any, does this have for the traditional definition of housing need?

This report reviews the definition of core housing need and looks at the impact of using a causal analysis of poverty as an approach to define need. The analysis suggests that it would be possible to use such an approach (in an augmented definition of housing need) and that it would have substantial benefits. In particular, such an approach would, over time, lead to improvements in program design and effectiveness. While the benefits would be considerable there are difficulties that need to be surmounted. The most difficult problem has to do with refining the definition of need and collecting and analyzing the appropriate data. While it is possible to view the work required as something that involves incremental improvements, creation of an appropriate longitudinal database would involve considerable effort.

The paper concludes by suggesting that augmenting the traditional definition of core housing need with a refined, fact-based understanding of the causes of poverty is possible and would produce important benefits. However, adopting this new approach should not be seen as a replacement for the existing definition of core housing need.

211.

PROTOCOLE D'ÉVALUATION DU SUPPORT COMMUNAUTAIRE DES PERSONNES SEULES MARGINALISÉES DANS LE CADRE DU LOGEMENT SOCIAL.

Préparé par la Fédération des organismes sans but lucratif d'habitation de Montréal et le CLSC Plateau Mont-Royal. Préparé pour la Division des politiques et recherche sociales et économiques, Société canadienne d'hypothèques et de logement. Ottawa : SCHL, 1995.

Ce document présente un plan de recherche élaboré par la Fédération des organismes sans but lucratif d'habitation de Montréal et le CLSC Plateau Mont-Royal afin de déterminer dans quelle mesure il est efficace d'offrir, dans le cadre du logement social, des services de support communautaire aux personnes seules à faible revenu et à risque de marginalisation dans les quartiers centraux de Montréal. La recherche proposée évaluera l'apport du logement social avec support communautaire à la qualité de vie des locataires et le situera dans un contexte évolutif de communautarisation. La qualité de vie réfère à la satisfaction de la personne face à la vie en général, le lieu de résidence, le quartier, la nourriture, les vêtements, la santé, la situation financière, le temps libre, le divertissement à l'extérieur, la famille, les ami(e)s, les co-résident(e)s, l'intimité, la sécurité et la citoyenneté.

NOTE: Also available in English under the title:*An Evaluation Protocol for Community Supports for Marginalized Singles in Social Housing.*

212.

REASON AND COMPASSION: THE ENABLING SOCIETY AND ITS STRATEGIC IMPLICATIONS FOR SOCIAL HOUSING POLICY IN CANADA.

Prepared by Ekos Research Associates Inc. Prepared for Social and Economic Policy and Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1996. 2 vol.

Volume 1: Main Report

Volume 2: Background Material

As part of an initiative to think about possible and likely changes in social policy/programs, Canada Mortgage and Housing Corporation asked Ekos Research Associates to develop a think piece on the types of changes that might occur and the impact they might have on housing policy. As an organizing principle, the study describes one key response to current pressures (concerns about budgets and effectiveness) as enablement. Understanding enablement requires, as a beginning, a definition. Enabling programs provide tailored, targeted support within partnerships, to enhance self-sufficiency and independence.

The study raises the issues of values and tentatively explores the value assumptions underlying an enabling philosophy and shows that they relate to larger core values of importance to Canadians. In addition, social housing assistance in Canada is reviewed to see to what extent it might be thought of as enabling. The study concludes that existing social housing programs are not typical enabling programs since they lack explicit partners aimed at enhancing self-sufficiency and independence. The main barriers to developing such programs are existing programs and the associated stock of units and subsidies. While there is not much fiscal room for innovation, enabling programs could be developed within existing legislation and programs.

A great deal of supporting material is contained in Volume Two of the study. It includes case studies that deal with enablement in Paraguay, Great Britain, the United States and Canada.

213.

SAFER SOCIAL HABITAT: NORTH AMERICAN AND EUROPEAN MEETING ON PREVENTING CRIME IN PUBLIC HOUSING COMMUNITIES, MONTREAL, QUEBEC, CANADA, NOVEMBER 16 & 17, 1995: FINAL REPORT.

Edited by Brandon C. Welsh and Claude Roy. Prepared for Social and Economic Policy and Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1996.

On November 16 and 17, 1995, the European Forum for Urban Safety (EFUS) and the International Centre for the Prevention of Crime (ICPC) convened a meeting under the theme, "Safer Social Habitat", in Montreal, Quebec, to address the growing crime and insecurity problems faced by public housing communities across North America and Europe. The first day of the meeting included panel presentations from cities across Canada, the United States, and Europe (Belgium, France, Italy, Scotland, and Spain). Presentations were also made by national housing organizations from Canada, the United States and France. The second day opened with a study tour and presentations of "La Petite Bourgogne", a downtown Montreal public housing community that has reduced crime significantly through prevention schemes carried out in partnership with tenants, police, community groups, and the city crime prevention agency, Tandem Montreal. A report on the importance of urban security and crime prevention to Habitat II ("The City Summit") in Istanbul, Turkey, in June 1996, was presented by Rooftops Canada. Meeting summaries and perspectives were followed by a dialogue on recommendations and follow-up.

This report presents a summary of the panel presentations, participant and panelist discussion, and the key findings of the meeting. Four appendices are included at the end of the report: the meeting program, a report on "La Petite Bourgogne", a list of key sources with contacts, and the list of participants in attendance at the meeting.

NOTE : Aussi disponible en français sous le titre :*Un Habitat social plus sûr : réunion nord-américaine et européenne sur la prévention de la criminalité dans les collectivités de logement social, Montréal, Québec, Canada, les 16 et 17 novembre 1995 : rapport final.*

214.

TENANT MANAGEMENT OF A ROOMING HOUSE.

Prepared by Harry MacKay and Andrew Love. Ottawa: Canada Mortgage and Housing Corporation, 1994, i.e., 1996. (External Research Program).

This report provides a literature review which tends to focus on the benefits of tenant management and empowerment based on experiences in public housing in the United States and Canada. There are few references to the problems of roomers and how their living conditions in a community might be similar to family households living in assisted housing projects. The research held out hope for some meaningful

involvement from rooming house project owners which never materialized. Interviews were held with key informants and some tenants living in small rooming houses, a questionnaire was distributed and several focus groups were held with tenants living in one large rooming house.

Because landlords would not cooperate, the research was unable to assess the impact of hiring tenants as "housing helpers" or the potential for "collective mutual aid". The implementation plan in the final report is basically a proposal from the proponents to try again, through an action research project, to engage roomers in identifying common problems and in improving their access to housing and community support services.

SUSTAINABLE DEVELOPMENT DÉVELOPPEMENT DURABLE

215.

ARMOUR PARK ECO-VILLAGE: PRAIRIE SETTLEMENT FOR A SUSTAINABLE FUTURE.

Prepared by Gregory Darren Kiloh. Practicum (Master of Landscape Architecture) - University of Manitoba, 1995. (Scholarship Program).

Any study of alternative urban form must necessarily begin with a question. This study was initiated by questioning the relationship between the city, its "countryside" and their common economy. One of the key factors in this query was the discovery of large areas of publicly owned and vacant land in the core area of Regina, Saskatchewan. Initially, the intent was to design a community which captured the dual essence of the prairie homestead: self-reliance and community co-operation. As the concept developed, it was found that others referred to such a community as an Urban Eco-village or sustainable community.

This study examines the potential for developing underutilized industrial land as the core of alternative model communities which address current concerns for social equity and ecological integrity. Factors which pertain to such goals are examined, case studies of similar and related developments discussed, and a demonstration plan for Armour Park Eco-village, a site on former railway land in Regina, is developed.

216.

CONSUMER RECEIPTIVITY TO SUSTAINABLE COMMUNITY DESIGN: DESIGNING AN ALTERNATIVE FOR THE RESIDENTIAL SUBURB IN CALGARY AND SEEKING THE CONSUMER'S OPINIONS AND CHOICES.

Prepared by William T. Perks and Andrea Wilton-Clark with the collaboration of Richard Perron and Eduard Epp. Ottawa: Canada Mortgage and Housing Corporation, 1996. (External Research Program).

Since the publication of *Our Common Future* (the "Brundtland Commission" report, 1987), planners and urban designers, architects, the development industry and homebuilders, and municipalities and local communities have been challenged to examine how urban environments can be composed, built and managed to satisfy sustainability. In this study, a sample of "consumers" in Calgary, Alberta are asked to say what they think about the possibilities for environmental betterment and resources conservation, and better affordability and choice in housing, that can be offered when a residential community is designed explicitly to achieve sustainable development goals.

The study:

- i) simulates a comprehensive design for sustainable community,
- ii) compares it with conventional suburban communities, in terms of costs and trade-offs, environmental-resource benefits to be gained, household opportunities and satisfactions, etc.,
- iii) provides the consumer with a substantial repertory of images and information in a computerized hypermedia visualization format, and
- iv) tests the receptivity of a small sample of householders to several features of sustainability.

From this first order investigation, it appears that consumers would be receptive to a rather fully-featured sustainable community design. Second, the hypermedia visualization and exhibit media used for the receptivity test procedure are assessed positively - for their effectiveness as a market research tool, and as an aid to public education and participatory community planning and design.

217.

DEVELOPING INDICATORS OF URBAN SUSTAINABILITY: A FOCUS ON THE CANADIAN EXPERIENCE.

Prepared by Virginia W. Maclarens with the assistance of Sonia Labatt, Jennifer McKay and Michael Van de Vegte. Prepared for State of the Environment Directorate, Environment Canada; Centre For Future Studies In Housing And Living Environments, Canada Mortgage and Housing Corporation; and Intergovernmental Committee on Urban and Regional Research. Toronto: ICURR PRESS, 1996.

There is considerable interest in the development of urban sustainability indicators both in Canada and elsewhere. Work on this topic is being performed at the municipal, provincial and federal levels in Canada, as well as by Round Tables and various other agencies. This study has examined a variety of sustainability indicator frameworks, a number of indicator selection criteria, examples of indicators, and case studies. Some suggestions of indicators that deserve consideration as urban sustainability indicators have been provided, but much work remains to evaluate a broader range of potential indicators.

The report begins with a discussion of alternative definitions of urban sustainability and then describes some of the general characteristics of indicators and indices. Following a brief investigation of the meaning of sustainability indicators, several potential sustainability indicator frameworks are examined, including those which could be adapted from the work on State-of-the-Environment (SOE) reporting, Quality of Life (QOL) reporting and Healthy City reporting. More detailed attention is given to appropriate criteria for identifying sustainability indicators and to the steps to be followed in applying those criteria. A number of examples of potential sustainability indicators are then described and evaluated against the criteria. The report concludes with detailed case studies of urban sustainability reporting in three jurisdictions in North America - Seattle, Hamilton-Wentworth, and British Columbia - as well as a brief description of sustainability reporting projects underway in Richmond, British Columbia and the Fraser River Basin.

NOTE : Aussi disponible en français sous le titre :*Élaboration d'indicateurs de durabilité urbaine : gros plan sur l'expérience canadienne.*

218.

THE ECOLOGICAL CITY: CANADA'S OVERVIEW.

Prepared by Steven W. Peck, Thompson Gow & Associates and the Federation of Canadian Municipalities. Prepared for Canada Mortgage and Housing Corporation as Canada's contribution to

the Project Group on the Ecological Cities of the Group for Urban Affairs of the Organization for Economic Co-operation and Development. Ottawa: CMHC, International Relations Division, 1995.

This Overview highlights the importance of the sustainability of urban regions in achieving national and global sustainability and is intended to act as a resource document in Canada and abroad. The Overview consists of a description of the major characteristics inherent in the ideal of an ecological city and an overview of the domestic factors which influence urban development in Canada, such as government finances, geography and demographics. These include areas such as energy consumption, land use, transportation, water and wastewater treatment, housing, and urban crime. Selected innovative developments are highlighted through the document. Data on municipal programs and policies across a number of areas such as energy efficiency and intensification has been included from the Canadian Urban Research on the Environment (CURE) database information project.

In order to provide assistance to those policy makers who are actively promoting urban sustainability the Overview identifies some of the fundamental or root challenges to establishing ecological cities in Canada. Key issues explored include social values, education, public participation, institutional structures, financial and economic challenges. As well, seven innovative policy tools which may be utilized to help overcome many of the challenges identified are described in detail. Included among these are Strategic Planning Approaches, State-of-the-Environment Reporting, the Ecological Footprint/Appropriate Carrying Capacity Concept, Ecosystem-based Planning, Consensus Decision-Making and Municipal Environmental Assessment.

The focus of the Project Group on the Ecological Cities is on integrated approaches to the development and implementation of sustainability. The Overview contains a description of the existing institutional structures, with emphasis on the important influence exerted by federal departments and agencies whose activities are often overlooked in their impact upon urban sustainability. Integrative institutions such as the Waterfront Regeneration Trust, Projet de Société, the Fraser Basin Management Board, Conservation Authorities and Round Tables are highlighted to illustrate different approaches to institutional frameworks in support of integration. A contact list for Canadian Round Tables and Healthy Communities as well as a listing of resource documents have been included in the Appendices.

NOTE : Aussi disponible en français sous le titre :*La Ville écologique : aperçu de la situation au Canada.*

219.

ÉLABORATION D'INDICATEURS DE DURABILITÉ URBAINE : GROS PLAN SUR L'EXPÉRIENCE CANADIENNE.

Préparé par Virginia W. Maclaren avec l'aide de Sonia Labatt, Jennifer McKay et Michael Van de Verte. Préparé pour La Direction générale de l'état de l'environnement (Environnement Canada); Le Centre d'études prospectives sur l'habitation et le cadre de vie, Société canadienne d'hypothèques et de logement; et Le Comité intergouvernemental de recherches urbaines et régionales. Toronto : Presses du CIRUR, 1996.

On peut percevoir un intérêt considérable pour l'élaboration d'indicateurs de durabilité urbaine, tant au Canada qu'ailleurs dans le monde. Au pays, les paliers municipal, provincial et fédéral, ainsi que les tables rondes et divers autres organismes, effectuent des travaux ou études en la matière. Dans ce document, on a exposé une gamme de cadres d'indicateurs de durabilité, un certain nombre de critères de sélection d'indicateurs, des exemples d'indicateurs et des études de cas. On y suggère certains indicateurs qui méritent d'être considérés aux fins d'évaluation de la durabilité urbaine, mais il faut tout de même effectuer beaucoup de travail pour évaluer un plus vaste éventail d'indicateurs potentiels.

Le rapport commence par un exposé des diverses définitions du concept de durabilité urbaine, ce qui est suivi d'une description des caractéristiques générales des indicateurs et des indices. Après un bref exposé sur la

signification des indicateurs de durabilité, on examine plusieurs cadres potentiels d'indicateurs de durabilité, notamment ceux que l'on a pu adapter à partir du travail effectué aux fins des rapports sur l'état de l'environnement, des rapports sur la qualité de vie et des rapports sur les villes en santé. Ensuite, on étudie de façon plus détaillée les critères appropriés servant au repérage d'indicateurs de durabilité, ainsi que les étapes à suivre pour l'application de ces critères. Après cela, on décrit un certain nombre d'exemples d'indicateurs potentiels de durabilité et on les évalue par rapport aux critères. Le rapport se termine par la présentation de quelques exemples pratiques d'études sur la durabilité urbaine à trois endroits en Amérique du Nord : à Seattle, à Hamilton-Wentworth et en Colombie-Britannique, ainsi que par une brève description des projets d'étude de la durabilité actuellement en cours à Richmond (C.-B.) et dans le Bassin du fleuve Fraser.

NOTE: Also available in English under the title *Developing Indicators of Urban Sustainability: A Focus on the Canadian Experience*.

220.

FEUILLETS DOCUMENTAIRES SUR LA MAISON SAINTE (Série 1 à 9).

Ottawa : Société canadienne d'hypothèques et de logement, 1996.

Il s'agit d'une série de feuillets documentaires sur la Maison saine, imprimés des deux côtés de la page et offrant aux consommateurs des renseignements sur divers aspects de la Maison saine. Ces neufs feuillets documentaires portent sur les rénovations résidentielles les plus populaires: la cuisine; la salle de bain; l'aménagement intérieur; l'ajout; l'aménagement extérieur; le sous-sol; les installations mécaniques; l'attique; et l'aménagement paysager. Les feuillets documentaires font la promotion des éléments essentiels de la Maison saine; ces éléments peuvent être appliqués d'une pièce à l'autre, lors de la construction ou de la rénovation. Au recto, on trouve un schéma détaillé de la pièce qui met en évidence les choix de matériaux et de produits applicables à la Maison saine. Au verso, on décrit brièvement les options par rapport aux cinq éléments essentiels de la Maison saine - la santé des occupants, l'efficacité énergétique, l'utilisation efficace des ressources, la responsabilité en matière d'environnement et l'abordabilité.

NOTE: Also available in English under the title *Healthy Housing Fact Sheets. (1 to 9)*.

221.

HEALTHY HOUSING: PRACTICAL TIPS = MAISONS SAINES : CONSEILS PRATIQUES.

Ottawa: Canada Mortgage and Housing Corporation, 1995. (NHA 6736).

This pamphlet, which is included in the Kit that is supplied to prospective competitors in the FlexHousing Design Competition, describes the objectives of Canada Mortgage and Housing Corporation's "Healthy Housing" initiative and provides practical tips on how to meet these objectives. The pamphlet outlines the five key elements of the Healthy House. They are: occupant health; energy efficiency; resource efficiency; environmental responsibility; and affordability. Up to 10 percent of the marks in judging entries for the FlexHousing Design Competition will be allotted to features that support the ideas of Healthy Housing.

NOTE: Bilingual/bilingue.

222.

HEALTHY HOUSING FACT SHEETS (1 to 9).

Ottawa: Canada Mortgage and Housing Corporation, 1996.

The Healthy Housing Fact sheets are a series of two-sided sheets offering information for consumers on various aspects of Healthy Housing. Nine fact sheets are available on the most popular renovation areas of a home: kitchens; bathrooms; interiors; additions; exteriors; basements; mechanical installations; attics; and landscapes. The fact sheets promote Healthy Housing principles that can be applied room by room through new construction or renovation. The front page offers a detailed diagram of the room pointing out Healthy Housing materials and product options. On the back there is a brief description of the various options categorized under the five Healthy Housing principles -- Occupant Health, Energy Efficiency, Resource Efficiency, Environmental Responsibility and Affordability.

NOTE : Aussi disponible en français sous le titre :*Feuilles documentaires sur la Maison saine (Série 1 à 9)*.

223.

LOCAL AGENDA 21 MODEL COMMUNITY PROGRAMME: REGIONAL MUNICIPALITY OF HAMILTON-WENTWORTH, CANADA: FINAL REPORT.

Prepared by the Regional Municipality of Hamilton-Wentworth and the Federation of Canadian Municipalities. Prepared for International Relations Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1996.

Agenda 21, developed by the United Nations at its Conference on Environment and Development (The Earth Summit) held in Rio de Janeiro in June, 1992, is a global plan of action to confront the most pressing economic, environmental, social and health problems facing our planet. In order to promote Agenda 21 amongst local authorities, the International Council for Local Environmental Initiatives (ICLEI) organized the Local Agenda 21 Model Community Programme. In October, 1993, the Federation of Canadian Municipalities (FCM) selected Hamilton-Wentworth as the Canadian community to serve in this global model community programme. An agreement was signed between Hamilton-Wentworth, ICLEI, and FCM to work in partnership in four areas of Hamilton-Wentworth's VISION 2020 Sustainable Community project.

This report outlines the progress that has been made by Hamilton-Wentworth in the areas that were identified for particular attention in the implementation of Vision 2020: establishing budget procedures or reforming the municipal budgeting process; developing and testing mechanisms to increase the accountability of the Municipality and its residents; developing an annual "report card" process to monitor progress; and developing programs to enhance community involvement.

224.

LA MAISON REDÉCOUVERTE M.C.

Préparé par Avi Friedman, David Krawitz ... et autres. Parrainé par Matériaux Cascades Inc., la Société canadienne d'hypothèques et de logement, Ressources naturelles Canada (Groupe du bâtiment) et la Société d'habitation du Québec. Montréal : Université McGill, École d'architecture, 1996.

NOTE : Disponible à : L'École d'architecture McGill, Programme de la maison à coût abordable, 815, Sherbrooke ouest, Montréal (Québec) H3A 2K6. À l'attention de David Krawitz. Prix : 35, 00\$.

Cette monographie décrit la Maison redécouverte, maison de démonstration abordable et écologique, construite devant l'École d'architecture de l'université McGill à Montréal, et qui sera en montre, pendant tout le mois de septembre 1996.

Comme pour son modèle précurseur, la Maison évolutive, l'abordabilité constitue le critère clé de la Maison redécouverte. La Maison redécouverte est constituée d'une seule structure pouvant former une maison individuelle, un duplex ou un triplex et être vendue sous l'une de ces trois formes. Les occupants peuvent en

outre adapter l'intérieur de la maison à leur style de vie ou à leurs ressources budgétaires en choisissant des composantes dans un catalogue. Pour la Maison redécouverte, les concepteurs ont étudié différents matériaux et techniques susceptibles de produire une habitation plus écologique. La démonstration établit qu'il est non seulement possible d'améliorer sensiblement les qualités environnementales d'une maison, mais également de la réaliser sans en augmenter considérablement les coûts de construction. Cet aspect pratique est essentiel au principe du développement durable qui veut que tout aménagement se fasse en harmonie avec les besoins environnementaux, sociaux et économiques de la société.

NOTE: Also available in English under the title: *The Next Home.* TM

225.

MAISONS SAINES : CONSEILS PRATIQUES = HEALTHY HOUSING: PRACTICAL TIPS.

Ottawa : Société canadienne d'hypothèques et de logement, 1995. (LNH 6736).

Cette brochure qui fait partie de la trousse fournie aux participants éventuels au concours Bâti-Flex décrit les objectifs de l'initiative «Maisons saines» de la Société canadienne d'hypothèques et de logement et offre des conseils pratiques pour atteindre ces objectifs. La brochure passe brièvement en revue les cinq éléments clés de la Maison saine. Ce sont : la santé des occupants; l'efficacité énergétique; l'utilisation efficace des ressources; la responsabilité en matière d'environnement; et l'abordabilité. Jusqu'à 10% des notes de l'évaluation des présentations pour le concours Bâti-Flex seront attribuées aux aménagements qui appuient les idées contenues dans l'initiative «Maisons saines».

NOTE : Bilingue/bilingual.

226.

MEASURING URBAN SUSTAINABILITY: CANADIAN INDICATORS WORKSHOP, JUNE 19-21, 1995: WORKSHOP PROCEEDINGS.

Prepared by David Dilks, LURA Group. Prepared for the State of Environment Directorate, Environment Canada and the Centre for Future Studies in Housing and Living Environments, Canada Mortgage and Housing Corporation. Ottawa: CMHC: Environment Canada, 1996.

In Canada, indicators are increasingly recognized as a key mechanism to encourage and measure progress toward sustainable urban development. When these are used to monitor the environmental, social and economic conditions in cities, the decision-making process is improved, as is policy and program evaluation. However, measuring progress on sustainable development at the urban level requires rethinking our approaches to information gathering and reporting.

Canada Mortgage and Housing Corporation (CMHC) and Environment Canada invited experts from municipalities, the provincial and federal governments and universities to participate in **Measuring Urban Sustainability: Canadian Indicators Workshop**. In this forum, they were able to discuss the successes and shortcomings of their current frameworks and approaches and begin charting a course for the future of urban sustainability indicators in Canada. This report shows that progress was made on a number of fronts. Participants worked toward the identification of key characteristics of urban sustainability, determination of effective selection criteria for indicators, and the development of a usable list of common sustainability indicators. In addition, they made recommendations for the further development of urban sustainability indicators.

NOTE : Aussi disponible en français sous le titre : *Mesure de la durabilité urbaine : atelier sur les indicateurs au Canada du 19 au 21 juin 1995 : compte rendu de l'atelier.*

227.

**MESURE DE LA DURABILITÉ URBAINE : ATELIER SUR LES INDICATEURS AU CANADA
DU 19 AU 21 JUIN 1995 : COMPTE RENDU DE L'ATELIER.**

Préparé par David Dilks, LURA Group. Préparé pour La Direction générale de l'état de l'environnement, Environnement Canada et Le Centre d'études prospectives sur l'habitation et le cadre de vie, Société canadienne d'hypothèques et de logement. Ottawa : SCHL : Environnement Canada, 1996.

Au Canada, on reconnaît que les indicateurs constituent un mécanisme clé permettant d'encourager et de mesurer les progrès accomplis à l'égard du développement durable des villes. Lorsqu'ils sont utilisés pour observer les conditions environnementales et socio-économiques des villes, les indicateurs permettent d'améliorer le processus de prise de décision et l'évaluation de l'action et des programmes publics. Néanmoins, pour mesurer les progrès accomplis dans le domaine de la durabilité urbaine, il faut repenser nos méthodes de collecte et de diffusion de l'information.

La Société canadienne d'hypothèques et de logement (SCHL) et Environnement Canada ont invité des experts provenant des universités, des municipalités ainsi que des gouvernements fédéral et provinciaux à participer à «**Mesure de la durabilité urbaine : atelier sur les indicateurs au Canada**». Cet atelier leur a fourni l'occasion de discuter des réussites et des échecs des méthodes et des cadres actuels et de commencer à modéliser l'avenir des indicateurs de durabilité urbaine au Canada. Comme en fait foi ce compte rendu, la question a progressé sur plusieurs fronts. Les participants ont travaillé à déterminer les caractéristiques clés de la durabilité urbaine, à établir des critères de sélection efficaces pour les indicateurs et à dresser une liste utilisable d'indicateurs de durabilité communs. En outre, les participants ont formulé des recommandations visant à poursuivre plus avant l'élaboration d'indicateurs de durabilité urbaine.

NOTE: Also available in English under the title: *Measuring Urban Sustainability: Canadian Indicators Workshop, June 19-21, 1995: Workshop Proceedings.*

228.

THE NEXT HOME ^{T.M.}

Prepared by Avi Friedman, David Krawitz ... et al. Sponsored by Matériaux Cascades Inc., Canada Mortgage and Housing Corporation, Natural Resources Canada Building Group and Société d'habitation du Québec. Montreal: McGill University, School of Architecture, 1996.

NOTE: Available from: McGill School of Architecture, Affordable Homes Program, 815 Sherbrooke St. West, Montreal, Quebec, H3A 2K6, Attn: David Krawitz. Price: \$35.00.

This monograph describes The "Next Home" - an affordable and sustainable demonstration house - constructed in front of the School of Architecture on the McGill University campus in Montreal, which will be on display throughout September 1996.

As with its forerunner, the "Grow Home", affordability is a key criterion in the "Next Home". The "Next Home" offers a single structure which can be built and sold as a single-family unit, a duplex, or a triplex. Residents can also adapt the unit's interior by selecting from a prepared catalogue of components which respond to life-style choice and budgetary constraints. Alternative building materials and techniques which could provide a more environmentally-friendly house have been surveyed and evaluated for use in the "Next

Home". The project will demonstrate that it is not only possible but practical to improve the environmental qualities of a home substantially without the need to increase construction costs significantly. This

practicality is fundamental to the concept of sustainability which requires that development take place which is responsive to the environmental, social and economic needs of society.

NOTE : Aussi disponible en français sous le titre :*La Maison redécouverte* M.C.

229.

VANCOUVER HEALTHY HOUSE MONITORING RESULTS: FINAL REPORT.

Prepared by Ken Cooper, SAR Engineering Ltd. Prepared for Research Division, Canada Mortgage and Housing Corporation. Ottawa: CMHC, 1995.

Canada Mortgage and Housing Corporation (CMHC) sponsored the Healthy Housing Design Competition to demonstrate to the Canadian public and housing industry that it is possible to design houses for the Canadian climate which are in keeping with the principles of sustainable development. The Vancouver Healthy House was monitored, in an occupied condition, from 12 February, 1994 through 30 April, 1995. Over this period of time there were two sets of occupants - a couple who had a baby during their stay, and two to four adults, from August, 1994 onward.

The study found that indoor temperatures and indoor air quality of the occupied house were generally within acceptable comfort ranges. However, the house overheated during the period from April to June, 1994 due to a combination of solar heat gain, windows that did not open in the third storey; heating system circulation when no heat was called for and heat recovery by the HRV on hot days.

Depending upon occupancy, hot water usage varied from approximately 87% to 116% of typical usage of about 68 L/person/day in B.C., pointing to the need for more consumer education. Total water usage varied from 64% to 117% of the predicted 212 L/person/day. Electrical energy use by the second set of occupants averaged 17.0 kWh per day for utilities, 7.7 kWh per day for fan energy use, and between 2.1 kWh per day in the summer to 4.8 kWh per day in winter for outdoor energy use.

There was no specific energy budget. However, the total energy usage amounted to approximately 23,500 kWh, or 172 kWh per square metre of heated floor area. Annual space heating demand (delivered to the space) amounted to 26.1 GJ, or 7,260 kWh.

230.

LA VILLE ÉCOLOGIQUE : APERÇU DE LA SITUATION AU CANADA.

Préparé par Steven W. Peck, Thompson-Gow Associates et la Fédération canadienne des municipalités. Préparé pour la Société canadienne d'hypothèques et de logement à titre d'exposé national au Canada, au Groupe du Projet sur la ville écologique de l'Organisation de coopération et de développement économiques. Ottawa : SCHL, Division des relations internationales, 1995.

Cet aperçu national fait ressortir la mesure dans laquelle le développement durable des régions urbaines est important pour parvenir au développement durable national et mondial et il est destiné à servir de document d'information pour les personnes intéressées au Canada et à l'étranger. L'aperçu national est une description des principales caractéristiques inhérentes à l'idéal de la ville écologique et une vue d'ensemble des facteurs intérieurs qui influent sur le développement urbain au Canada, comme les finances publiques, la géographie et les caractéristiques démographiques. Il relève les tendances nationales d'un large éventail d'indicateurs du

développement urbain durable. Ces indicateurs comprennent la consommation d'énergie, l'utilisation des sols, les transports, l'épuration de l'eau et le traitement des eaux usées, le logement et la criminalité en milieu urbain. Certaines initiatives novatrices sont mises en lumière dans tout le document. Ce dernier comprend aussi des données sur les politiques et programmes municipaux dans un certain nombre de domaines comme l'efficacité énergétique et la densification, qui ont été tirées de la base de données Canada Urbain : Recherche Environnement (CURE).

Afin d'aider les décideurs qui favorisent activement le développement urbain durable, l'aperçu national relève quelques-uns des obstacles fondamentaux à l'établissement de villes écologiques au Canada. Les questions clés examinées comprennent les valeurs sociales, l'éducation, la participation du public, les structures institutionnelles et les défis financiers et économiques. En outre, sept outils de politique novateurs qui pourraient être utilisés pour aider à surmonter un grand nombre des difficultés relevées sont décrits en détail. Ces outils comprennent les méthodes de planification stratégique, les rapports sur l'état de l'environnement, le concept de l'empreinte écologique ou de la capacité limite usurpée, la planification basée sur les écosystèmes, la prise de décisions par consensus et les évaluations environnementales municipales.

Le Projet sur la ville écologique est axé sur les méthodes intégrées de mise en oeuvre du développement durable. L'aperçu national contient une description des structures institutionnelles existantes et met l'accent sur l'influence importante qu'exercent les ministères et organismes fédéraux dont on oublie souvent les activités qui ont un impact sur le développement urbain durable. Le document présente certaines institutions d'intégration, comme la Fiducie de régénération du secteur riverain, le Projet de Société, le Fraser Basin Management Board, les offices de protection de la nature et les tables rondes, pour illustrer différents cadres institutionnels à l'appui de l'intégration. Une liste des personnes-ressources des tables rondes et des membres du Réseau canadien des communautés en santé ainsi qu'une liste de documents d'information sont présentées dans les annexes.

NOTE: Also available in English under the title *The Ecological City: Canada's Overview*.

231.

VISUALIZING SUSTAINABLE COMMUNITY DESIGN ALTERNATIVES: LINKING VISUAL CONCEPTS OF SUSTAINABILITY TO PERFORMANCE CRITERIA AND TO PLANNING AND DESIGN CONCEPTS.

Prepared by Eduard Epp and Richard Perron with the collaboration of William T. Perks, Andrea Wilton-Clark and David Van Vliet. Ottawa: Canada Mortgage and Housing Corporation, 1995. 2 vol. (External Research Program).

Volume 1: Final Report
 Volume 2: Hypermedia Document

This project is the culmination of work on the development of a hypermedia delivery system and computer modelling for testing community response to sustainable community design alternatives. The hypothesis of the project was that both the designer and the user could derive a better understanding of the implications of planning and design strategies using Advanced Computer Visualization (ACV) technology in addition to conventional media. Using ACV technology, the designer can investigate an existing (or proposed) project and, in the process of generating planning and design alternatives, test public attitudes and opinions towards design alternatives, which in turn could inform the design process in developing and evaluating these alternatives.

The scope of the research project was limited to modelling an existing community design project (Edgemont, Calgary), and evaluating plan and design alternatives using ACV technology. The goal was to introduce concepts of sustainable community design in an interactive group setting in which 'user' preferences could be identified and recorded. User responses were collected in a hard copy format to ensure confidentiality. Video records of the proceedings and the hypermedia presentation were also created. The resulting program has

been modelled and presented in this document. The final product is a multimedia product that can be used to test resident response to sustainable community design alternatives.

TRANSPORTATION TRANSPORT

232.

WORK-RESIDENCE RELATIONS AND URBAN SPATIAL STRUCTURE: A CASE STUDY OF THE GREATER TORONTO AREA, 1986 TO 1991.

Prepared by Darren M. Scott. Thesis (M.A.) - University of Western Ontario, 1994. (Scholarship Program).

Change in work-residence relations is examined to uncover the evolving spatial structure of the Greater Toronto Area between 1986 and 1991. Using data from the 1986 and 1991 Transportation Tomorrow Surveys, two analyses are employed. First, principal components analysis is applied to 1986 journey-to-work flow data for 40 Greater Toronto Area (GTA) zones. In addition, change in work-residence relations is examined from two perspectives: the origins of workers employed in each region, and the destinations of workers residing in each region. Second, change in the spatial configuration of GTA zones is examined using non-metric multidimensional scaling (MDS) to visualize structure in the destinations of workers residing in each zone.

Evaluation of the multidimensional model of urban spatial structure revealed robust differences in the average journey-to-work lengths of population subgroups with respect to gender, but not household type. Examination of the structural evolution of the Greater Toronto Area, between 1986 and 1991, demonstrated the increasing relative importance of the urban periphery as a place of work and residence. The regression results for 1986 and 1991 suggested that employment potential was more important in determining spatial variations in the average work-trip lengths of workers residing in GTA zones than either job density or centrality. Temporal variations in average work-trip length were accounted for by variables relating to the changing composition of the workforce and economic restructuring, as opposed to those relating specifically to the spatial separation of workplace and residence.

MISCELLANEOUS DIVERS

233.

L'AMORCE DU PROJET DE PAYSAGE LOCAL: ÉTUDE DE CAS: SAINT-ÉTIENNE-DE-BOLTON.

Préparé par Odette Lacasse. Mémoire (M.Sc.A.) - Université de Montréal, 1995. (Programme de bourses d'études).

Force est de constater que les régions rurales à fort potentiel touristique font face à de nouveaux enjeux. L'arrivée massive d'une population d'origine urbaine provoque des changements majeurs, dont le plus significatif est le passage de l'homogénéité à l'hétérogénéité de la population. Les conséquences de cette mutation se rapportent notamment à la pluralité des regards, des aspirations et des projets sur l'espace, d'où

émergent fréquemment des orientations divergentes, voire des conflits. Ce mémoire décrit le cas d'une petite municipalité rurale (Saint-Étienne-de-Bolton) qui fait face à une diversité de projets et à des tensions relatives aux modèles de développement à prioriser.

Cette recherche vise à: faire ressortir l'importance grandissante du mouvement de contre-urbanisation au Québec et la nécessité d'y porter une attention particulière; démontrer que la conjonction des mouvements de déprise agricole et de contre-urbanisation créent des conditions qui nécessitent l'élaboration pressante d'un projet de paysage collectif afin de contrer les effets qu'une telle situation engendre; et mettre en lumière le rôle crucial que le projet de paysage peut jouer dans la dynamique de résolution de conflits locaux liés à l'aménagement en vue de permettre une première amorce vers la définition d'un projet de paysage commun.

234.

PARTICIPATORY DISSENT: A CASE STUDY OF POLITICAL PARTICIPATION IN VANCOUVER'S DOWNTOWN EASTSIDE.

Prepared by Robert A. Case. Thesis (Master of Social Work) - University of British Columbia, 1995. (Scholarship Program).

Literature on political participation suggests that low-income people are not as politically active as other sectors of the population. However, observations of communities like Vancouver's Downtown Eastside seem to contradict this assertion. This study is a two-part descriptive investigation of the political behaviour of low-income people in the Downtown Eastside which endeavours to gain insight into the low participation rates among low-income people documented in the literature. Part I employs a survey methodology and is a quantitative investigation of the relationship between sociopolitical control and the political participation of low-income people. Part II is a qualitative investigation of political behaviour employing two focus groups (10 participants in total).

The results of this study suggest that the low political participation rates of low-income people documented in the literature may, to a large extent, be due to the way in which political participation is defined in liberal democratic discourse. Low-income people, according to the results, do participate politically, but often in ways that are not typically recognized in liberal democratic discourse as participation. Moreover, the ways in which many low-income people participate appear to be a consequence of their experience with conventional political processes which are deemed to be ineffective or counterproductive. Low-rates of participation, therefore, could more accurately be viewed as high rates of abstention. The implication of these findings for social workers and others interested in promoting political participation is that low rates of political participation among low-income people can more accurately be attributed to the inadequacy of conventional political processes than to the apathy that low-income people are presumed to exhibit. Further research will be needed before these findings can be confidently generalized and applied to other communities.

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