HOUSE OF COMMONS
CANADA

REPORT ON

UREA FORMALDEHYDE FOAM INSULATION

U.F.F.I.

STANDING COMMITTEE ON HEALTH, WELFARE
AND SOCIAL AFFAIRS

MARCEL ROY, M.P., CHAIRMAN

DECEMBER 1982

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HOUSE OF COMMONS

Issue No. 48

Wednesday, November 3, 1982
Tuesday, November 9, 1982
Tuesday, November 23, 1982
Wednesday, November 24, 1982
Thursday, November 25, 1982
Monday, November 29, 1982
Tuesday, November 30, 1982
Thursday, December 2, 1982

Chairman: Mr. Marcel Roy, M.P.

CHAMBRE DES COMMUNES

Fascicule nº 48

Le mercredi 3 novembre 1982
Le mardi 9 novembre 1982
Le mardi 23 novembre 1982
Le mercredi 24 novembre 1982
Le jeudi 25 novembre 1982
Le lundi 29 novembre 1982
Le mardi 30 novembre 1982
Le jeudi 2 décembre 1982

Président: M. Marcel Roy, député

Minutes of Proceedings and Evidence of the Standing Committee on

Health, Welfare and Social Affairs

Procès-verbaux et témoignages du Comité permanent de la

Santé, du bien-être social et des affaires sociales

RESPECTING:

Inquiry into urea formaldehyde foam insulation

INCLUDING:

Fourth Report to the House
Fifth Report to the House

CONCERNANT:

Étude sur la mousse isolante d'urée-formol

Y COMPRIS:

Le quatrième rapport à la Chambre
Le cinquième rapport à la Chambre

First Session of the
Thirty-second Parliament, 1980-81-82

Première session de la
trente-deuxième législature, 1980-1981-1982

STANDING COMMITTEE ON HEALTH, WELFARE AND SOCIAL AFFAIRS

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Vice-Chairman: Mr. Peter Lang

Messrs.

Berger
Blaikie
Bloomfield
Bossy
Burghardt
Côté (Mrs./M^me^)
Gurbin
Hawkes
Hudecki
Killens (Mrs./M^me^)

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MacDonald (Miss/M^lle^)
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Mayer
McGrath
Reid (*St. Catharines*)
Robinson (*Etobicoke—Lakeshore*)
Scott (*Hamilton—Wentworth*)
Skelly—(20)

(Quorum 11)

Le greffier du Comité
Judith LaRocque
Clerk of the Committee

Pursuant to S.O. 65(4)(*b*)

On Wednesday, November 3, 1982:

Mrs. Cossitt replaced Mr. McLean;

Mr. MacDougall replaced Mr. McGrath.

On Thursday, November 4, 1982:

Mr. Blaikie replaced Mr. Young.

On Monday, November 8, 1982:

Mr. McGrath replaced Mr. MacDougall.

On Tuesday, November 9, 1982:

Mr. Malépart replaced Mr. Bloomfield;

Mrs. Côté replaced Mr. Dubois.

On Tuesday, November 23, 1982:

Mr. Bossy replaced Mr. Prud'homme;

Mr. MacLaren replaced Mr. Hudecki;

Mr. Massé replaced Mr. Bossy;

Mr. Cyr replaced Mrs. Killens;

Mr. Robinson (*Etobicoke—Lakeshore*) replaced Mr. Schroder;

Mr. Chénier replaced Mr. Malépart;

Mr. Cullen replaced Mr. Marceau;

Mr. Bloomfield replaced Mr. Chénier;

Mr. Marceau replaced Mr. Cullen;

Mr. Masters replaced Mr. MacLaren.

On Wednesday, November 24, 1982:

Mr. Hudecki replaced Mr. Bloomfield.

Conformément à l'article 65(4)*b*) du Règlement

Le mercredi 3 novembre 1982:

M^me^ Cossitt remplace M. McLean;

M. MacDougall remplace M. McGrath.

Le jeudi 4 novembre 1982:

M. Blaikie remplace M. Young.

Le lundi 8 novembre 1982:

M. McGrath remplace M. MacDougall.

Le mardi 9 novembre 1982:

M. Malépart remplace M. Bloomfield;

M^me^ Côté remplace M. Dubois.

Le mardi 23 novembre 1982:

M. Bossy remplace M. Prud'homme;

M. MacLaren remplace M. Hudecki;

M. Massé remplace M. Bossy;

M. Cyr remplace M^me^ Killens;

M. Robinson (*Etobicoke—Lakeshore*) remplace M. Schroder;

M. Chénier remplace M. Malépart;

M. Cullen remplace M. Marceau;

M. Bloomfield remplace M. Chénier;

M. Marceau remplace M. Cullen;

M. Masters remplace M. MacLaren.

Le mercredi 24 novembre 1982:

M. Hudecki remplace M. Bloomfield.

On Thursday, November 25, 1982:

Mr. Schroder replaced Mr. Robinson (*Etobicoke—Lakeshore*);

Mr. Mayer replaced Mrs. Cossitt;

Mr. Bloomfield replaced Mr. Massé;

Mr. Robinson (*Etobicoke—Lakeshore*) replaced Mr. Cyr.

On Monday, November 29, 1982:

Mr. Bossy replaced Mr. McCauley.

On Thursday, December 2, 1982:

Mrs. Killens replaced Mr. Masters;

Mr. Burghardt replaced Mr. Schroder.

Le jeudi 25 novembre 1982:

M. Schroder remplace M. Robinson (*Etobicoke—Lakeshore*);

M. Mayer remplace M^me^ Cossitt;

M. Bloomfield remplace M. Massé;

M. Robinson (*Etobicoke—Lakeshore*) remplace M. Cyr.

Le lundi 29 novembre 1982:

M. Bossy remplace M. McCauley.

Le jeudi 2 décembre 1982:

M^me^ Killens remplace M. Masters;

M. Burghardt remplace M. Schroder.

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REPORT TO THE HOUSE

Tuesday, November 30, 1982

The Standing Committee on Health, Welfare and Social Affairs has the honour to present its

FOURTH REPORT

In relation to its Order of Reference dated Monday, July 26, 1982, respecting urea formaldehyde foam insulation, your Committee recommends that the deadline for submitting its final report to the House be extended to December 8, 1982.

A copy of the relevant Minutes of Proceedings and Evidence (*Issue No. 48*) is tabled.

Respectfully submitted,

RAPPORT À LA CHAMBRE

Le mardi 30 novembre 1982

Le Comité permanent de la santé, du bien-être social et des affaires sociales a l'honneur de présenter son

QUATRIÈME RAPPORT

Relativement à son Ordre de renvoi du lundi 26 juillet 1982 concernant la mousse isolante d'urée-formol votre Comité recommande que le délai de la présentation de son rapport final à la Chambre soit rapporté au 8 décembre 1982.

Un exemplaire des procès-verbaux et témoignages s'y rapportant (*fascicule nº 48*) est déposé.

Respectueusement soumis,

Le président,

Marcel Roy,

Chairman.

The Standing Committee on Health, Welfare and Social Affairs has the honour to present its

FIFTH REPORT

On Monday, July 26, 1982, your Committee received the following Order of Reference:

—That the Standing Committee on Health, Welfare and Social Affairs be empowered to consider urea formaldehyde foam insulation including:

1. The process used to approve the material for use in Canadian homes;

2. The questions raised on the health effects and the nature of the research being conducted or contemplated on these questions;

3. The questions raised on remedial action and the nature of the research being conducted or considered;

4. The question of the number of homes affected, specifically attempting to identify the reasons for the discrepancy between the number of homes estimated and the number registered;

5. The question of use of the foam in schools, public buildings and rental accommodation and recommendations of possible courses of action where remedial action is required;

6. The identification of homeowner groups with special needs and recommendations on how these special needs could be met;

7. The report of the Hazardous Products Board of Review on the aforementioned matters;

8. Any changes or additions to the regulations deemed advisable with regard to the aforementioned matters; and

That the Committee be instructed to report on the aforementioned matters no later than December 1, 1982.

On Tuesday, November 30, 1982, this deadline was extended to December 8, 1982.

Since September 4, 1982, your Committee has heard testimony from a cross-section of interest groups and regional representatives and from officials from federal departments and agencies on the subject of urea formaldehyde foam insulation. (The list of witnesses appears as Appendix I). We have also received a wide variety of written material from various

groups and individuals (Appendix II). We wish to express our special thanks to those who participated in this inquiry; they provided us with invaluable information and insight.

The Committee feels compassion towards those Canadians experiencing adverse health effects due to urea formaldehyde foam insulation as well to as those who, having used urea formaldehyde foam insulation, are now having difficulty in selling their homes.

We hope this report will assist these particular groups and we urge the Government to consider the advisability of implementing the recommendations we are making.

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INTRODUCTION

Product Description

1. Urea formaldehyde foam insulation belongs to a group of chemicals known as *organic polymers*. The term "organic" refers to compounds based on the carbon atom; organic chemicals invariably contain carbon in their molecular structure. The term "polymer" is defined as "a compound of high molecular weight whose structure can be considered as being made up of many smaller indentical parts."[1] Urea formaldehyde foam has two essential building blocks, the organic chemicals *urea* and *formaldehyde*.

2. The history of the development of urea formaldehyde foam generally parallels the history of organic chemistry and extends back, in part, for more than two centuries. Urea was first identified (in urine) in 1773 and was first synthesized in 1824.[2] Aldehydes as a chemical group were discovered in 1826; formaldehyde itself was identified in 1859.

3. Formaldehyde is an extremely reactive chemical and has numerous commercial uses. Formaldehyde is used as a fungicide, in disinfectants and embalming fluids, and in the manufacture of artificial silk and textiles, latex, dyes, inks, mirrors and explosives. Formaldehyde has the formula HCHO and is a colourless, pungent gas which, in sufficiently high concentration, can be very irritating to the eyes, nose and throat. Because of obvious problems with an irritating gas such as this, formaldehyde is marketed as *formalin*, an aqueous solution that contains from 37% to 50% formaldehyde by weight.

4. Urea has the molecular formula $CO(NH_2)_2$ and is also an important industrial chemical. As its name suggests, however, urea is of considerable interest to biochemists because it is the major product of nitrogen metabolism in mammals and is eliminated from the body in urine.

5. Urea and formaldehyde can enter into chemical reactions to produce a group of polymers known as *urea formaldehyde plastics* or *urea formaldehyde resins*. Polymerization is a pronounced characteristic of formaldehyde. Commercial formalin solutions ordinarily contain 6%-15% methyl alcohol to suppress the tendency of formaldehyde to form polymers.

6. Work on UF resins commenced as early as 1877, but the first important patent application for such a product was not filed until 1918. The first patent for a commercial urea formaldehyde foam was obtained in 1933 by I.G. Farbenindustrie of Germany although a type of foam, obtained by condensation of UF resins with sulphuric acid, had been described and patented two years earlier.[3]

7. Urea formaldehyde foam insulation is a cellular plastic product that is prepared on-site, at the time of its installation, by mixing urea formaldehyde resin with a foaming/hardening agent containing an acid catalyst (usually phosphoric acid) and with a propellant (usually compressed air or nitrogen). The product that results from this reactive mixture is a

foam with a consistency similar to that of shaving cream. The foam is usually white or cream-coloured—one product contained a blue dye, however—and when fresh contains about 75% water. The foam is forced under pressure into a wall cavity in a standing structure. After a "curing process", the foam solidifies and becomes firm, or self-supporting. The curing process for UFF insulation may last for as long as three years after installation. During this process, a mixture of gases, of which formaldehyde is the major component, is released in amounts ranging from trace to more than the Health and Welfare Canada reference level of 0.1 ppm. Emission of formaldehyde and other gases can also occur after the curing process has ended, as a result of the deterioration of the foam in the wall cavity.

8. The major operational or technical problem with UFFI is that the installed product cannot effectively be standardized because it is prepared on-site, even though the foam's ingredients may be of the highest quality. Therefore, the quality of the installed material is largely dependent upon the skill, and possibly the integrity, of the individual installer. It would also be necessary for the installer to use the best quality equipment to ensure that the material was installed properly. Product quality, then, cannot effectively be codified in a product standard. Inevitably, there will be considerable variation in quality of product in different installations. Many of the problems eventually caused by UFFI were due to faulty installations and/or product. Additional problems were created because the foam was often installed in ceilings and attics, and in brick and masonry structures, even though it was only accepted for use in wall cavities in wood-frame structures.

9. In addition to the matter of the installer's skill, a number of other variables can affect the final quality of the insulation and the amount of formaldehyde gas that may eventually be released into a dwelling. If the urea formaldehyde resin is too old, it may harden too quickly or too slowly, in both instances releasing excessive amounts of formaldehyde gas. If too much formaldehyde is used in the polymerization reaction, the unreacted gas may be released from the wall cavity; a similar occurence may be expected if the various chemicals are not thoroughly mixed. If the injected foam contacts free water in the wall space, the polymer may hydrolyze or depolymerize, releasing formaldehyde gas. Also, the UF foam is sensitive to temperature. If it is installed below 11.6°C, it may not harden properly; above 26.6°C, it may deteriorate. In both situations, excess formaldehyde gas will be released.[4] In all of the above situations, in addition to the release of formaldehyde and other gases, the installed foam insulation will be of less than optimal quality and its insulating potential will be compromised.

The History of UFFI in Canada

10. In his testimony before the Committee, Mr. David Cohen stated that the first home in North America was insulated with UF foam in 1959.[5] Mr. Cohen provided the Committee with an extensive chronology of the development and use of urea formaldehyde foam insulation (UFFI) in Canada, some parts of which are cited below.[6]

11. Between 1960 and 1965, Rapco Foam Inc. of Oakville, Ontario, marketed a foam system in Canada; during the same period, Rapco's counterpart in the United States was similarly active in that country. It seems clear that a number of companies were developing UFFI formulations in the 1960-1970 period, both in Canada and in the United States. It should be noted that UFFI was an unregulated product during this period; also, standards had not yet been written for the product by the then Canadian Government Specification Board (now the Canadian General Standards Board, CGSB) or by any other agency.

12. In 1968, A.C. Wild, a Toronto insulation company, requested an acceptance number for a UFFI product from the Central Mortgage and Housing Corporation (now the Canada Mortgage and Housing Corporation, CMHC). The company was granted acceptance number 6047 by CMHC on July 7, 1970; the acceptance was withdrawn on March 20, 1973. Mr. George Brewer, formerly a Materials Acceptance Officer with CMHC, informed the Committee that A.C. Wild's acceptance number was cancelled when tests by the National Research Council indicated that the product had "limitations... far greater than indicated by the company".[7] (U.F. Chemical Canada Ltd. of Dorval, Quebec, received an acceptance number for UFFI on March 21, 1972; that acceptance was also cancelled on March 20, 1973.) In 1971, CMHC had discussed the possibility of developing a standard for UFFI with CGSB and a meeting was held by the latter agency on March 11 of that year. In Mr. Brewer's view, a standard was not developed at that time since: "During the meeting, it was very apparent the UFFI industry at that time was not ready to face the realities involved in developing a consensus standard."[8]

13. UFFI products continued to be marketed through the early 1970s and CMHC received a number of requests from companies to issue acceptance numbers. By 1973, according to testimony presented to the Committee,[9] a technical committee of the CGSB had been formed to consider the development of a standard for UFFI. After a number of meetings and after development of suitable performance data by private companies and several federal government agencies, including the National Research Council and the Department of Public Works, a provisional standard (No. 51-GP-24P) was issued by the CGSB in May 1977. The final standard, No. 51-GP-24M, for "Thermal Insulation, Urea Based, Foamed in Situ", was issued by the CGSB in December 1977. In the same month, a provisional standard for the installation of UFFI, No. 51-GP-22MP, was issued.

14. The first CMHC acceptance number to be issued after the publication by CGSB of the provisional standard dates from July 1977.[10] On September 1, 1977, the Canadian Home Insulation Program (CHIP) was announced. The use of UFFI in homes increased greatly after this programme was inaugurated.

15. On May 28, 1979, CMHC withdrew acceptance numbers from all UFFI products, primarily because of concerns within the corporation that the UFFI companies were not accurately advertising the insulation value (R-value) of the foam. Other concerns included the training and certification of installers and fears that the installers were not adhering to the CGSB product standard or to the additional conditions for acceptance demanded by CMHC. Testimony presented to this Committee states that the acceptance numbers were withdrawn "in order to reinforce our (CMHC) requirements to the entire (UFFI) industry".[11] The acceptance numbers were reissued on June 5, 1979, after discussions between a CMHC official and individual company representatives.

16. In August 1978, two Federal Government officials expressed concern about the effects on health of the low levels of formaldehyde gas that were released by UFFI after its installation in buildings.[12] On November 7, 1979, Dr. George Stuart Wiberg of Health and Welfare Canada wrote to Mr. Alan Bowles of the CGSB recommending that an "upper ambient level of formaldehyde in homes that have been treated with UF Foam" be set at 0.1 ppm and that this level "be incorporated in the CGSB Standard".[13] In April, 1980, the CGSB Technical Committee on UFFI voted not to adopt the 0.1 ppm level in the product standard. Testimony presented to us stated that the government members on the technical

committee voted to adopt the 0.1 ppm level but industry representatives voted against the recommendation.[14]

17. In July 1980, Health and Welfare Canada officials met with UFFI producers at a meeting of the Society of the Plastics Industry. The industry representatives were informed that unless the 0.1 ppm level was adopted, the department "would have to examine... (its)...options under the Hazardous Products Act" to effect control of UFFI.[15] In September of that year, the Department of Health and Welfare established an Expert Advisory Committee on Urea Formaldehyde Foam Insulation. On December 8, 1980, the Expert Advisory Committee presented an interim report to the department and recommended an immediate moratorium on the use of UFFI in Canada. On December 18, 1980, the department announced a temporary ban on UFFI, under the Hazardous Products Act, effective December 17, 1980.

18. The Expert Advisory Committee presented its final report to the department in April 1981 and recommended that the ban on UFFI "be lifted when and only when industry shows to the satisfaction of appropriate government agencies that a stable and defined product has been developed" that would not cause an increase in a building's ambient interior level of formaldehyde following installation.[16] On April 23, 1981, the Department of National Health and Welfare announced that the ban of UFFI would be permanent.

19. On April 24, 1981, the Minister of Consumer and Corporate Affairs announced the formation of a Hazardous Products Board of Review under section 9(2) of the Hazardous Product Act; a request to form a Board of Review had been made to the minister by the Energlobe Company under section 9(1) of the Act. The Board of Review submitted its report to the Minister of Consumer and Corporate Affairs on October 5, 1982, and recommended that the ban on UFFI be continued.

Problem Definition

20. The UFFI issue has a number of important components which are addressed by the Committee's Order of Reference of July 26, 1982. Perhaps the most urgent question is the effect of UFFI on the health of individuals exposed to UFFI gases, including formaldehyde, on a continuous basis. A second, and related, concern is the fact that homes and other buildings insulated with UFFI have suffered a marked depreciation of market value. Not only does this situation portend a severe economic loss for affected individuals but it is also a direct contributor to stress-related health problems. Buildings which have been insulated with UFFI will have to be renovated to a greater or lesser degree. The necessary remedial measures will involve substantial costs, part of which will be borne by the owner of the building and part by the general public whose tax moneys will be used to finance government programmes of research and assistance.

21. A very important part of the UFFI issue is the matter of consumer product safety. At the present time, only a few products, such as pesticides, drugs, food additives and some medical devices, are subject to pre-market regulation. The great majority of products on the market are, in essence, unregulated commodities. This aspect of the problem, then, revolves around the issue of pre-market product regulation with its attendant costs, and the matter of public safety. It is a difficult and complex issue which has occupied much of the Committee's time and energy.

PRODUCT QUALITY: THE ROLE OF THE FEDERAL GOVERNMENT

Control without Government Intervention: Civil Liability

22. In considering the role of the government in controlling the quality of products available on the Canadian market, one essential point must be borne in mind: our economy is based on the free market principle, which means that most products can be marketed freely without any mandatory quality-control check having to be carried out beforehand. The consumer who is harmed by using a defective product can file a civil suit against the agent responsible to obtain compensation. Ideally, this possibility should encourage those who manufacture and distribute consumer goods to take the necessary precautions to avoid marketing a product which may be hazardous to the user. As the case of urea formaldehyde foam insulation illustrates, this recourse does not eliminate all of the risks. Moreover, the Committee heard testimony from a lawyer, Mr. Claude Masse, on the particular problems encountered by individuals in obtaining compensation through the courts.

23. There are, however, control mechanisms which involve the federal government.

Voluntary Standardization

24. The National Standards System provides for a system of voluntary standardization in Canada. The system was developed during the 20th century upon the urging of government and industry. In 1970, Parliament passed legislation respecting voluntary standardization, namely the Standards Council of Canada Act.[17]

25. The objective of the Council, as set out in section 4 of the Act, is as follows: "to foster and promote voluntary standardization...as a means of advancing the national economy, benefiting the health, safety and welfare of the public, facilitating domestic and international trade and furthering international co-operation in the field of standards". The Council accredits "in accordance with criteria and procedures adopted by the Council, organizations in Canada engaged in standards formulation, testing and certification in those fields..."

26. The Standards Council of Canada has accredited five organizations which are duly authorized to draft voluntary standards. These are the *Bureau de normalisation du Québec*, the Canadian Gas Association, the Canadian Standards Association, Underwriters' Laboratories of Canada, and the Canadian General Standards Board.

27. Two of these organizations are specialized. As its name indicates, the Canadian Gas Association is responsible for formulating standards relating to gas, while the Underwriters' Laboratories of Canada drafts standards on fire prevention and related matters.

28. The Canadian Standards Association deals primarily with electrical products, materials and equipment. However, like the Canadian General Standards Board, it writes standards for products in a number of fields.[18]

29. The Canadian General Standards Board (CGSB) is an integral part of Supply and Services Canada. The public identifies this organization with the Government of Canada. Further on, we will see how this has created some confusion as to the nature of the Board's

duties. Moreover, this is why it is important to clarify the role of accredited standards-writing organizations such as the CGSB.

30. In contrast with a regulation, which is a rule of law with which everyone must comply, the standards written by an organization such as the CGSB are applied voluntarily by those who manufacture or distribute a product for which a standard exists. Consequently, it is not the role of the CGSB to force a manufacturer to comply with a standard. The latter is made available to the manufacturers who decide on their own whether to comply with it or not. Compliance with voluntary standards rests primarily on the fact that the drafting process involves the participation of representatives of all interested parties. A consensus must be reached as to the content of the standard. Unanimity is not essential, but all viewpoints, whether held only by a minority of members or not, must be heard and taken into consideration by the group.

31. When the need to formulate a standard for a particular product arises, an interested person can contact the organization accredited in this field. The organization then sets up a committee to oversee the task. Various groups can be represented on the committee such as manufacturers, technical experts, labour organizations and consumers, and often both federal and provincial government departments.

32. Looking closely at the CGSB committee responsible for drafting the UFFI standards, we note that it was composed of representatives of Ontario Hydro, the Alberta Department of Labour, the B.C. government, the *Centre de recherche industriel du Québec*, the *Bureau de normalisation du Québec*, the Ontario Research Foundation and the Alberta Housing Corporation.[19] Representatives of the federal departments of National Defence, Indian and Northern Affairs and Public Works also sat on the committee. The National Research Council of Canada had two representatives on the committee while the Canada Mortgage and Housing Corporation had one representative. Private companies such as Borden Chemical Co. Ltd., Rapco Foam Inc., A.C. Wild Ltd., Canfor Heating Insulation Ltd., Roblee Enterprises Ltd., Craston Industries and Enterprises, and Leger Insulation Inc. also participated in the work of the committee, as did the *Ordre des Architectes du Québec* and Underwriters' Laboratories of Canada.

33. Mr. Alan Bowles, who became secretary of this committee in 1975, appeared before the Committee to explain the standards development process with respect to UFFI.[20] A draft standard on UFFI was considered in 1970 and the committee decided not to proceed any further until it received more specific data on some of the major concerns on product performance raised during the meeting. The committee received more specific data in 1974 and 1975.

34. In 1975, the committee was divided into three working groups, one group to inspect buildings insulated with UFFI to examine the condition of the foam in field situations, the second group to conduct the necessary research into the foam and develop test procedures to evaluate the foam in order to establish a product standard. The third group was to develop a standard for the installation of the product. The three groups completed their work in 1977 and drafted two provisional standards, one governing the product itself and the other respecting its installation. These standards bore the numbers 51-GP-24P and 51-GP-MP respectively.

35. In May 1977, the committee met to review the provisional standards and to reach a consensus. In August of the same year, the committee gave its full approval to the product standard. The CGSB, as the governing body, then ratified the standard. The standard, which was published in December 1977 under the number 51-GP-24M,[21] contained "requirements for the thermal performance of the foam, methods of testing and associated requirements for the thermal performance of the foam, for the corrosiveness, or possible corrosiveness of the foam, for resistance to fungal growth, for its surface-burning characteristics and its shrinkage and similar properties."[22]

36. The views expressed by the witnesses indicate that voluntary standardization on the basis of consensus opinion is a valid process. Mr. George Brewer, formerly with Canada Mortgage and Housing Corporation, explained just how important it was, for a product as complex as UFFI, to gather together qualified people and interested groups in order to develop a standard.[23] Accredited standard-writing organizations constitute a forum for such a purpose. Another witness, Mr. Alan Bowles, stated that before condemning the entire system, we must take into account the fact that some 5,000 standards have been formulated using the same process. In his opinion, the system as a whole has worked well in Canada, although not in the case of UFFI.[24]

37. Professor David Cohen from the Faculty of Law of the University of British Columbia expressed some concern as to the sources of information relied on by the CGSB committee to draft its standards. In his opinion, the committee relied heavily on the research findings of Borden Chemical Ltd., one of the largest manufacturers of UFFI. When a company has a financial interest in the product for which a standard is being developed, there is an "obvious conflict of interest" if this same company provides data. Obviously, such data should be very closely scrutinized.[25]

38. As stipulated in the Standards Council of Canada Act, it is clear that health protection must be one of the aims of voluntary standardization.

39. The evidence heard by the Committee shows that at the time the UFFI standards were formulated, no health-related concerns based on well-documented studies had been raised.[26] Medical experts confirmed this fact.

40. Moreover, it was established that no representatives of Health and Welfare Canada attended the meetings of the CGSB committee when the UFFI standards were being formulated. The fact that there was no medical expert on the committee is certainly a glaring oversight.

41. In view of the problems surrounding the UFFI case, there is some need to question the extent to which the voluntary standardization process could be improved by paying more heed to health implications. It is difficult to see how this could be done for every new product that is introduced into the marketplace. Canadian industry would be deluged if, in each instance, tests were conducted to evaluate the health implications of a product. However, Mr. Allan Bowles stated that perhaps such an initiative should be taken in more cases.[27]

Product Regulation

42. Contrary to a voluntary standard, a regulation imposes mandatory behaviour. It can therefore be used to force persons to act in a specific manner under certain circumstances. The Special Committee on Regulatory Reform adopted the following definition of "regulations": "the imposition of constraints, backed by government authority, that are intended to specifically modify the economic behaviour of individuals in the private sector. This included regulatory activity relating to health, safety, fairness, and the environment".[28]

43. It is therefore possible, by means of a regulation, to force manufacturers to conduct certain tests on their products before putting them on the market. In Canada, such tests are mandatory for certain products. Thus, products which come under the purview of the Food and Drugs Act[29] and the Pest Control Products Act[30] cannot be sold witbout being registered with the federal government. This registration procedure enables the government to demand that data be provided and the necesary tests conducted to judge the quality of a product. For each new drug product, the government receives reams of documents.[31] Not all new products must be registered. If this were the case, industry and government would be overwhelmed, so much so that it would be an impossible task from a practical standpoint. However, this fact should not serve as an excuse to end the discussion on the possibility of extending the pre-market review requirement to more products.

44. However, we must be aware that even if a product undergoes a pre-market review, its potential as a health hazard may not be discovered until it is widely distributed on the market.[32] Unfortunately, the possibility exists that consumers may use a dangerous product. At present, the federal government can intervene to regulate or ban a consumer product. The government can resort to such action under the terms of the Hazardous Products Act[33] if it "is satisfied that (any product or substance) is likely to be a danger to the health or safety of the public." UFFI was banned under this legislation in December 1980.[34] Recourse to this legislation seems, however, to cause some problems for the public, the manufacturers and the distributors of the product in question. The Hazardous Products Act does not provide for any formal procedure enabling the public to file a complaint to which the government must respond. Furthermore, it would seem that the manner in which the government intervened in the UFFI case took the public, the manufacturers and the distributors by surprise. The current system of issuing regulations or bans is such that the government is in no way obligated to inform and consult with the public and industry before taking action. A more open process would enable the public to be informed of the concerns raised about the hazards of using a particular product. As for industry, aside from the fact that it could make known its viewpoint, it is possible that a more open process would prevent a situation where the banning of a product creates an economic hardship for those firms involved solely in the manufacturing or distribution of the product.[35]

The Role of Canada Mortgage and Housing Corporation (CMHC)

45. CMHC is an agency of the Federal Government that operates, as its name indicates, in the field of housing. It was CMHC that was made responsible for administering the Canadian Home Insulation Program (CHIP), set up in 1977.[36] CMHC was also authorized to issue acceptance numbers for the building materials that could be used by someone who wished to be eligible for a contribution under the CHIP programme.[37] UFFI was not, of course, the only insulating material accepted for the purposes of the programme.

46. CMHC has published a document explaining its product acceptance procedures. To obtain an acceptance number, a manufacturer must submit the proper application and must prove that his product does what it is designed to do. The CMHC document sets down these guidelines:

To demonstrate that a product could meet its intended use, various approaches are used. Some of these are:

- demonstrated compliance with a recognized Canadian or other standard;
- evidence of good field performance in Canada or similar climates;
- ability to meet short-term performance criteria that are indicators of longer-term performance (such as accelerated weathering tests);
- expert advice by technical staff knowledgeable in building science.[38]

47. CMHC has no laboratories of its own: it is obliged to rely on testing carried out by other agencies and on the expertise of such bodies as the National Research Council, Forintek Canada Corporation, the Ontario Research Foundation and Health and Welfare Canada.[39] In general, CMHC does not carry out factory inspections, either at the initial evaluation stage or after official acceptance.[40] Nor does CMHC systematically investigate product performance in the field, except, where possible, when it receives reports from local offices or other sources indicating that a product is not performing adequately. The manufacturer is always informed in such cases.[41] "The control is the integrity of the company," said Mr. G. Brewer.[42] CMHC does carry out a certain number of inspections[43], but its personnel for this purpose is limited.

48. In the case of UFFI, CMHC accepted the product on condition that the manufacturers respect the CGSB standards when they installed insulation under the CHIP programme. In addition, CMHC attached to every acceptance a series of supplementary conditions to be observed. These two sets of conditions were to be followed by the manufacturer if he wished to retain his acceptance. The supplementary conditions imposed by CMHC dealt with installation methods, maximum product shrinkage after installation, the information that had to appear on containers used to transport the product to the site, and advertising. UFFI received only a very restricted acceptance for purposes of the federal government's housing assistance programmes: "This product may only be installed into completely empty exterior wood stud or wall framing spaces of existing houses."[44]

49. The companies did not respect the conditions imposed in the CMHC acceptances. On May 28, 1979, 20 months after the first acceptances had been awarded, CMHC decided to withdraw them temporarily, "in order to reinforce our requirements".[45] Given CMHC's limited resources, it would not have been possible to act more quickly.[46] Very sound reasons indeed are needed to withdraw an acceptance when an industry depends on it.[47]

A Serious Problem: The Public's Perception of the Government's Role

50. The UFFI case has highlighted a serious problem in that the public has an inaccurate perception of the role of the CGSB and CMHC. It is not clearly understood that the CGSB is a voluntary standardization agency, without the power to enforce compliance with its decisions. A similar misapprehension exists in regard to CMHC. The standards and conditions it sets in its acceptances are only obligatory under the housing assistance

programmes set up under the National Housing Act.[48] Some companies, however, may use the fact that they have received an acceptance from CMHC as an advertising gimmick, and when they work on projects not under CMHC's jurisdiction they do not necessarily observe the terms of the acceptance. The public thus uses a product like UFFI, which has been accepted by CMHC, without realizing that there are conditions on the acceptance.[49]

51. Another public misconception about the role of the CGSB and CMHC is that a standard set by the former or an acceptance issued by the latter constitutes a recommendation to use the product in question. At best, it is not clearly understood that a CMHC acceptance is in no way intended to be a recommendation, as is spelled out in every letter of acceptance:

> Acceptance of (product name) for use in National Housing Act-financed construction implies *neither endorsement nor recommendation.* As a government agency, this corporation cannot advocate the use of any particular product or practice.[50]

52. The impression that a product has been recommended by the government is reinforced in cases where the public receives a government subsidy. Mr. Rick Patten, Chairman of the UFFI Advisory Council, states, "The greatest volume of usage came under the CHIP programme. People saw this as an incentive... There was a financial incentive (to use UFFI)."[51]

53. The public also associates "government agency" with "safe and quality product". Mr. David Cohen expressed this idea in these words: "The public perception is, I think, that if the product has been accepted by CMHC, or meets the CGSB standards, then that product meets certain quality standards and certain safety standards."[52] The CGSB is, however, not obliged to undertake certain tests to see whether or not a product presents a health hazard; the work of the CGSB is to try to resolve known problems, in order to be able to set standards. In the absence of any specific information indicating a health problem it is most unlikely that the CGSB would take the initiative and order preventive testing. CMHC for its part is concerned above all with a product's performance as a building material. As long as it has proof that the product is in fact adequate for the purpose for which it is designed, CMHC does not ask for proof that the product presents no health hazard. Obviously if Health and Welfare Canada informed CMHC of such a hazard, no acceptance would be issued for the use of that product under a National Housing Act programme.

Conclusions

54. Voluntary standardization through consensus is a valuable process: it encourages consultation of experts and interested parties. The agencies that draw up accredited standards have a good track record. The Committee considers that these agencies have an important role to play in preventing situations similar to the UFFI problem from arising. There should have been a medical expert on the CGSB committee that looked into UFFI.

55. A large number of chemical products come on the market every year. Most of them do not undergo compulsory testing before being sold to the public. Although compulsory testing of all products whose manufacture included chemicals may not be a realistic idea from a practical standpoint, the Committee thinks that this solution deserves consideration.

56. The UFFI case has shown that there are serious shortcomings in the Hazardous Products Act. The public has no formal procedure for lodging a complaint with the

government. In addition, the procedure by which the government intervenes to control or ban a product does not encourage consultation and exchanges of information with the industry or with the public.

57. CMHC has a limited staff for inspection work. It took the corporation 20 months to gather the evidence that led to the temporary withdrawal of the acceptances for UFFI products. The delay would not have been so long if the corporation had had more staff to inspect housing sites.

58. The public has an inaccurate perception of the role of the CGSB and CMHC. They think that intervention by these agencies constitutes an iron-clad guarantee of the quality and safety of a product, not realizing that it is not the role of either of these agencies to recommend the use of a product. This misapprehension opens the way for improper use of the names of these government agencies to promote the sale of certain products.

RECOMMENDATIONS

- **The government should look into the possibility of having health specialists on the committees of agencies that draw up accredited standards. These health specialists would have the task of making sure that health and safety considerations are adequately understood by the other members of the committee and of establishing contact periodically with the Health Protection Branch of Health and Welfare Canada.**
- **The Federal Government should review the criteria by which new products are selected for toxicity testing to determine their potential for hazard to human health.**
- **The Hazardous Products Act should be amended. Firstly, it should include a mechanism by which a private individual could lodge a formal complaint with the government which would have to give a justified response to the complainant within a reasonable period of time. Secondly, the Committee agrees with the Hazardous Products Board of Review on Urea Formaldehyde Foam that the Hazardous Products Act should be amended so that a public inquiry would be instituted as soon as serious complaints have been lodged with the government and before any action has been taken to control or ban a product.**
- **The government should consider the necessity of increasing the number of CMHC inspectors.**
- **The government should take the necessary steps to inform the public of the exact role of the CGSB and CMHC.**

HEALTH CONCERNS

59. It is now well-known that UFFI is often an unstable product which can deteriorate after installation and may release formaldehyde and other gases into the living space of buildings. These "UFFI gases", of which formaldehyde is the major component, are the principal source of current concerns about possible effects on human health. The Committee has received a great deal of testimony on the health aspects of the UFFI issue. Unfortunately, much of the testimony is contradictory; even the most knowledgeable medical experts disagree on the degree of toxicity of UFFI and the gases it emits. The subject is, therefore, intensely controversial. This Committee is satisfied, however, that there is justification for

concern about possible health effects even though the precise dimensions of the problem remain to be delineated. We are of the opinion, however, that the possible health effects of UFFI have often been exaggerated and have caused unnecessary alarm among the general public.

60. Health effects associated with exposure to UFFI gases in homes and in other buildings may, for purposes of discussion, be divided into two groups: acute or short-term effects, and chronic or long-term effects. Although we recognize that the complex mixture of UFFI gases must be considered in a discussion of health effects of UF foam on humans, all of the available medical data on the subject of UFFI deals with formaldehyde gas itself. The identity and effects of other UFFI gases on human health are simply not known at the present time.

61. One health problem with urea formaldehyde foam that may arise in some situations derives from its vulnerability to break-down by micro-organisms. A number of fungal species have been identified as growing on the foam, particularly in situations where the cavity containing the foam has not dried properly after installation. Although formaldehyde has pronounced and commercially useful disinfectant properties, growth of fungi can be a significant problem and spores (microscopic reproductive cells) produced by these organisms can be carried into the living space of a dwelling from the insulated cavity. Some types of fungal spores are associated with human health problems, particularly allergic conditions. The extent and severity of this problem are not known and the presence of such fungi is not necessarily peculiar to UFFI.

62. During the course of our hearings on UFFI, we were advised that this insulation material is subject to colonization by insects. One example is carpenter ants.[53]. The Committee takes note that this aspect of UFFI was raised by a witness. However, we have no evidence that UFFI is any more subject to infestation by insects than is any other form of insulation. Also, we have not received any indication that this situation is associated with effects on human health.

Short-term Concerns

63. Formaldehyde is a gas with a characteristic pungent odour. Its principal quality with respect to short-term health effects is its irritant properties. Both the odour and irritant properties of formaldehyde are dependent on its concentration in the air. Individual persons display a wide range of sensitivity to formaldehyde; some people are adversely affected by concentrations of the chemical that are undetectable by the majority of the population.

64. The ambient levels of formaldehyde in the environment usually range between 0.005 and 0.06 ppm.[54] Formaldehyde emanates from many sources, including automobile exhausts, cigarette smoke, fireplaces, gas cooking stoves and heating appliances. Particle board and plywood bonded with urea formaldehyde resin adhesives may emit measureable quantities of formaldehyde gas, as does UFFI.

65. The odour threshold for formaldehyde—that is, the air concentration at which most people can smell the gas—appears to be approximately 1.0 ppm. Some individuals are acutely sensitive and can detect the gas at a level as low as 0.05 ppm.[55] The Committee has received evidence from Dr. Yves Alarie that an acceptable level of formaldehyde in air should be 0.001 ppm, 100 times lower than the level of 0.1 ppm originally recommended by

Health and Welfare Canada in 1979.[56] We note also that the Expert Advisory Committee on UFFI established by Health and Welfare Canada was "not prepared to recommend any level of formaldehyde exposure as inherently safe."[57]

66. Dr. Yves Dumont, a specialist in occupational health and public health, disputed this conclusion of the Expert Advisory Committee. Dr. Dumont asserted that a standard for exposure could be established and suggested that an air level of 0.1 ppm would be acceptable since this standard "already exists in Denmark, the Netherlands and West Germany."[58]

67. The principal acute effect of formaldehyde gas on humans is irritation of the eyes and of the mucous membranes of the nose and throat. A committee of experts in various fields, including medicine, of the National Research Council in the United States reported that symptoms of eye irritation have been documented at 0.05 ppm.[59] The symptoms of exposure to formaldehyde gas include, in addition to eye irritation, "nasal and respiratory tract irritation, dry mouth, cough, sore throat, headache and nosebleeds."[60] Most people will report these symptoms at 1.0 ppm but, again, acutely sensitive individuals will suffer these ill-effects at much lower levels. Asthmatic conditions, in some persons, may be exacerbated by the irritating properties of formaldehyde. The short-term symptoms described above typically disappear when the individual is removed from the contaminated environment.

68. The question of whether formaldehyde released by UFFI is responsible for a significant amount of human illness has not been satisfactorily addressed and the issue remains unresolved and controversial. There can be no doubt, however, that many homeowners and their families are convinced that UFFI-sourced formaldehyde has made them ill.

69. The Committee received evidence from Dr. Albert Nantel that the *Centre de toxicologie du Québec* received calls as early as 1979 from people whose homes were insulated with UFFI and who were complaining of symptoms of disease. By the end of July 1982, more than 9,000 families living in UFFI-insulated homes in the province had contacted the Centre. About 50% of these callers complained of health problems with UFFI. Ninety-four per cent of this latter group who submitted to a health examination had their symptoms confirmed by medical practitioners.[61] These are alarming statistics but it must be pointed out that, at the moment, these are observations of illness without demonstration of a proven cause-and-effect relationship.[62]

70. Dr. Yves Dumont informed the Committee that he doubted that these observations of illness were all related to UFFI exposure. "Basically, there is no data allowing us to state with reasonable certainty that there is a cause and effect relationship between the symptoms reported and exposure to formaldehyde".[63]

71. Dr. Michael Newhouse, a chest physician from Hamilton, Ontario, agreed with Dr. Dumont that "there was no scientifically sound evidence to support the contention that UFFI, or indeed formaldehyde in domestic concentrations, is a significant health hazard in man.[64]

72. It is clear that what is needed to prove or disprove a functional relationship between UFFI and the observed illness is a prospective epidemiological study using groups (cohorts) of homeowners exposed and unexposed to UFFI gases.

73. Dr. Newhouse stated that a comprehensive epidemiological study provides the foundation for evaluating health data. It is important, however, that the study be carefully designed. "Epidemiology is the study of patterns of illnesses within communities, workforces or other selected groups, such as people living in UFFI homes."[65] Dr. Newhouse cautioned, however, that the methodology used had to be rigidly scientific and appropriate controls should be used. He also warned that investigators should take into account the fact that formaldehyde and other gases might be emitted by other substances in the environment and design their study accordingly.

74. Dr. Yves Alarie stated that he did not believe that a classic epidemiological study will provide useful information on the health effects of UFFI because of the number of chemical pollutants present in the ambient air of the houses; further, he said the concentrations of formaldehyde in houses are not high enough to permit the development of a useful dose-response curve.[66]

75. Other medical experts, including Dr. Dumont and Dr. A.B. Morrison, maintain that a epidemiological study will provide useful medical information on UFFI. Such a study is presently being carried out by Dr. Albert Nantel at the *Centre de toxicologie du Québec* with funding provided by the Department of National Health and Welfare. This Committee agrees that such a study is necessary and desirable and looks forward to the publication of Dr. Nantel's findings.

Long-term Concerns

76. Three potential long-term effects of exposure to formaldehyde gas were expressed to the Committee and are of concern to health authorities. These are cancer, impairment of the body's immune system or immunocompetence, and a general sensitization to chemical pollutants.

77. Of the three, the threat of cancer is arguably the most important; certainly, the aspect of malignancy elicits a more immediate and pronounced fear reaction from the general public than does any other disease. Much has been written and said in the media about the link between UFFI and cancer. Some of these reports have bordered on the irresponsible as a result of inaccurate presentation of the available data. The suggestion that there is a direct link between UFFI and human cancer is incorrect; no such link has been shown to exist.

78. The evidence suggesting that UFFI may have a possible link to human cancers comes principally from laboratory studies in which rats and mice were exposed to various concentrations of formaldehyde gas by inhalation. This study was sponsored by the Chemical Industry Institute of Toxicology (CIIT). Groups of 120 animals of each sex and species were exposed to four dose regimens of formaldehyde gas for six hours per day, five days per week, for up to 24 months. This period of time almost equals the life-span of a mouse or rat. The formaldehyde gas levels were 0 (control), 2.1 ppm, 5.6 ppm, and 14.1 ppm.

79. The results of this study are quite clear-cut. After 24 months of exposure, 108 nasal cancers were found in 220 rats exposed to the highest level of formaldehyde, 14.1 ppm. Three rats at the 5.6 ppm dose level also develop nasal cancers. Eight rats exposed to 2.1

ppm formaldehyde developed benign tumors of the nasal passages. Two of approximately 85 mice exposed to the 14.1 ppm dose level also developed nasal cancers.[67]

80. A second 24-month experimental animal cancer study conducted by researchers at New York University (NYU) has provided confirmation for the original CIIT study. The NYU study also used rats and exposed them to formaldehyde by inhalation at a dose level of 14.6 ppm. Ten rats out of 100 developed nasal carcinomas (cancerous tumours).[68]

81. Formaldehyde has also been shown to be mutagenic in a variety of organisms in laboratory studies. Mutagenicity is described as the ability of an agent to cause an inheritable change in a cell's genetic material. Among the organisms which have shown a mutagenic response to formaldehyde are bacteria, fungi, yeast and insects. Also, laboratory cultures of mammalian cells (mouse lymphoma cells) have shown mutagenic effects from formaldehyde exposure. These observations are significant because most cancer-causing agents are also mutagenic.[69]

82. Although most health authorities are satisfied that formaldehyde is carcinogenic to rats, and possibly also to mice, under defined laboratory conditions, the relevance of this fact to the human population is hotly debated. A number of comments are appropriate on this issue.

83. First, formaldehyde is not an exotic, foreign chemical in terms of human metabolism. Indeed, formaldehyde is a normal metabolite in humans and other animals. Second, rats and mice, the species used in the CIIT and NYU studies, are "obligatory nose-breathers"; that is, these animals, unlike humans, are unable to breathe through their mouths. Therefore, the nasal passages of these animals are possibly subject to a higher level of formaldehyde exposure than the nasal passages of humans would normally be under the same conditions.

84. In his testimony to the Committee, Dr. A.B. Morrison, Assistant Deputy Minister of Health and Welfare Canada's Health Protection Branch, agreed that this factor (among others) made it very difficult to extrapolate from animal studies to humans: "In experimental animals who are obligatory nose-breathers, you may have an entirely different kind of concentration (of formaldehyde) in the nasal mucosa than you would have in man who breathes through his mouth."[70] However, Dr. Morrison iterated, as did several other medical witnesses, that a chemical that has been shown to be a carcinogen (cancer-causing agent) in an animal species must be viewed as having the potential to cause cancer in humans. This is the view of many authorities on cancer although other experts dispute this assertion.

85. Dr. John Higginson, M.D., until recently Director of the International Agency for Research on Cancer (IARC) in Lyon, France, testified before a subcommittee of the United States Congress that "No adequate criteria are presently available to interpret experimental carcinogenicity data directly in terms of carcinogenic potential for humans."[71] Dr. Higginson noted that an IARC monograph on formaldehyde, soon to be published, concludes that "There is sufficient evidence that formaldehyde gas is carcinogenic to rats. The epidemiological studies provide inadequate evidence to assess the carcinogenicity of formaldehyde in man. In the absence of adequate epidemiological data, formaldehyde gas should be considered, for practical purposes, as if it represented a carcinogenic risk to man."[72]

86. Dr. Higginson stated that the IARC is traditionally cautious in interpreting the relevance to the human population of a demonstrated carcinogenic response to a chemical in animals when satisfactory epidemiological data for humans are not available. However, Dr. Higginson concluded that the available epidemiological "data taken together provide no positive evidence of any cancer hazard at all. Although they are still limited and insufficient to exclude a minimal risk, I believe they weigh heavily against the view that formaldehyde gas constitutes any substantial risk for nasal cancer or other tumors to humans at the levels at which humans have been exposed."(73)

87. The degree of carcinogenic risk posed by formaldehyde for the human population has not been quantified. There are not, in fact, any data showing that formaldehyde causes cancer in humans. In this context, the Committee received testimony referring to several epidemiological studies in human populations. These studies deal with morticians, pathologists and chemical workers who were exposed to formaldehyde gas for varying periods of time and at various concentrations. In none of these studies was there any indication that individuals exposed to formaldehyde developed nasal or other respiratory cancer. One conclusion that has been drawn from these various studies is that "although the individual studies may be limited in scope, when combined they clearly indicate no increased cancer in the exposed population."(74)

88. The available human epidemiological studies have all been criticized as being inconclusive and deficient in a number of ways. Among the criticisms are: lack of information on formaldehyde exposure levels; inadequate length of follow-up period; insufficient number of workers studied; and inadequate controls. The conclusion reached by one critic of these studies is that they "do not provide any definite evidence upon which to evaluate the carcinogenicity of formaldehyde to humans."(75)

89. Dr. Geoffrey Norman of the Department of Epidemiology and Biostatistics, McMaster University, provided the Committee with an estimate of the possible cancer risk faced by humans exposed to UFFI. Dr. Norman emphasized that his estimate was based on a "worst-case calculation". Even so, he calculated that the risk of developing cancer from exposure to the formaldehyde released by UFFI is "almost precisely equal to the risk of being killed by a falling airplane."(76)

90. This Committee is of the opinion that a comprehensive, well-designed epidemiological study will provide important additional evidence on the possible carcinogenicity of formaldehyde to humans. We have received testimony that such a study is currently underway in the United States and is jointly sponsored by the National Institute of Occupational Safety and Health (NIOSH), the Formaldehyde Institute, and the CIIT.(77)

91. It was suggested to this Committee that an epidemiological study on the occurrence of nasal cancer in humans and its relationship to formaldehyde exposure, if any, could be conducted in Canada utilizing data from provincial cancer registries.(78) We believe that a comprehensive study of this type should be performed. Such a study would take two to three years to complete and could provide valuable information on this important and contentious subject.

92. The question of the possible effects of UFFI and/or formaldehyde gas on the immune system and on sensitization of people to chemical pollutants was raised by several witnesses.

93. Dr. Albert Nantel discussed this issue during his testimony to the Committee, stating that he and his co-workers "were struck by the...extremely high incidence of the various infectious phenomena," including ear infections, chronic pharyngitis and dermatitis, among people who complained of ill-effects as a result of prolonged exposure to UFFI. Dr. Nantel has formulated an hypothesis that these illnesses are the result "of a breakdown in the immunological systems of these people".[79] Dr. Nantel was careful to emphasize, however, that this was a "working hypothesis, not a demonstrated fact".[80]

94. Dr. A.B. Morrison agreed that the issues of the immune system and sensitization to chemicals were important and represent areas where research data are needed before conclusions can be drawn.[81] Dr. Morrison was emphatic, however, in stating that the possible effects of UFFI or its breakdown products on the immune system are hypothetical and that "we do not know what we need to know about this whole sensitization phenomenon".[82] Dr. Stuart Wiberg, also of Health and Welfare Canada, confirmed that the department was very concerned about the effect of UFFI on the immune process over the long term and had accorded the matter a "very high priority".[83]

95. The Committee has been informed by the Department of National Health and Welfare that funding has been provided to several Canadian researchers to study the possible effects of formaldehyde on the human immune system (Appendix IV). We believe that it is entirely premature to reach any conclusions on this subject, or on other questions of health, until the appropriate studies have been carried out and evaluated.

96. On the subject of the relationship of UFFI and formaldehyde to chemical sensitization in humans, Dr. Yves Alarie stated to the Committee that he was unable, in the course of his research, to sensitize experimental animals with formaldehyde vapour. His conclusion is that if formaldehyde "is a sensitizer, it would be an extremely weak one".[84]

97. It is known that allergic contact dermatitis can be caused by exposure to formaldehyde solutions (as opposed to vapour) but there is some doubt about the role of formaldehyde gas in causing bronchial asthma. The National Research Council (U.S.A.) Committee on Aldehydes has stated that "...asthmatic attacks are in some cases due specifically to formaldehyde sensitization or allergy", but the chemical "seems to act more commonly as a direct airway irritant in persons who have bronchial asthmatic attacks from other causes".[85]

98. Dr. James Day, Head of the Division of Allergy and Immunology at Queen's University in Kingston, Ontario, gave testimony to the Hazardous Products Review Board that is relevant to this discussion. Dr. Day stated that formaldehyde "causes the same symptoms as observed in an allergic reaction" but "whether formaldehyde is, strictly speaking, an allergen, is an open question..."[86] Dr. Day suggested that formaldehyde probably acts "as a sensitizer of the respiratory tract in certain individuals.... Allergic persons who might otherwise not react at low levels of formaldehyde would, therefore, be at special risk. When functioning as an allergen, formaldehyde would thus affect a segment of the population which would not otherwise react to exceedingly small doses".[87]

99. The question of whether the generally low levels of formaldehyde found in homes insulated with UFFI have a role in allergic or sensitization processes remains unanswered. The Committee hopes that research projects currently being carried out by Dr. Day and others will shed light on this important issue in human health.

Formaldehyde Gas Levels in UFF-Insulated Homes

100. An important issue in the debate over the hazards of UFF insulation is the level of formaldehyde actually measured in the living spaces of homes. The Health and Welfare Canada Expert Advisory Committee examined a number of reports and studies on ambient formaldehyde levels in homes insulated with UFF insulation. The Committee summarized its observations as follows: "Most of the levels reported by the (insulation) industry were less than 0.1 ppm and were in the range of 0.02 to 0.08 ppm, which is the usual ambient level. A few were in excess of 0.1 ppm.... In a few homes where measurements were made, levels of 0.1, 0.17, 0.17, 0.29, 0.42, 0.85 ppm of formaldehyde were found. One home in Quebec had a level of 2.6 ppm and the owners had to vacate the premises."[88]

101. In December 1981, a report of a national testing survey of formaldehyde levels in the air of UFF insulated houses was released.[89] This survey is the most extensive conducted to date; a total of 2,275 houses were tested for ambient formaldehyde levels. The houses were divided into four groups:

(a) 100 houses in which individuals had reported health problems or had vacated the UFF-insulated houses. These are designated the "First One Hundred";

(b) 1,146 houses insulated with UFFI under the CHIP programme. These are designated "UFFI CHIP";

(c) 651 houses insulated with UFFI and selected from UFFI/ICC files and provincial records. These are designated "UFFI Centre Files";

(d) 378 houses *without* UFFI but selected from CHIP files. These are designated "Control CHIP".

102. The survey was carried out with the co-operation of the National Research Council of Canada (NRCC) who developed the procedure for determining levels of formaldehyde in the air inside the houses and in the outdoor air near the houses. Representatives of the Canadian Chemical Producers Association (CCPA) reviewed the basic protocol for the tests and agreed with that protocol.

103. The results of the survey are summarized in Table 1. First, it will be noted that the average outdoor levels of formaldehyde were between .007 and .009 ppm. The second significant observation is that the "First One Hundred" group of houses had the highest formaldehyde levels; the average *house average* indoor readings were 0.139 ppm and the average *house maximum* indoor readings were 0.174 ppm. Fifty-seven per cent of the houses had formaldehyde levels at or above 0.1 ppm (the federal reference level) when house maximum indoor readings were used.

104. The "UFFI CHIP" group had the next highest recorded formaldehyde levels, although average levels were below the 0.1 ppm reference level. However, 16.5% of the houses had average house maximum indoor readings greater than 0.1 ppm. The "UFFI Centre Group" had the next lowest levels of formaldehyde in the air sampled; 8.6% of these houses had average house maximum indoor readings above 0.1 ppm. As expected, the "Control CHIP" group had the lowest readings, but even in this group—where no UFFI was installed—4.8% of the houses had average house maximum indoor formaldehyde readings in excess of the federal reference level of 0.1 ppm.

105. The results of this survey indicate that most houses insulated with UFFI have indoor formaldehyde gas levels below the 0.1 ppm federal reference level. However, a significant minority of insulated homes have formaldehyde levels in excess of 0.1 ppm.

106. The UFFI issue is an important part of the overall problem of indoor air pollution. This problem is becoming increasingly important in our energy-conscious society as more and more buildings are sealed tightly to reduce heat loss and reduce expenditures on heating fuels. Dr. A.B. Morrison made reference to this issue in his testimony, stating that his department has had "extensive consultation with the provinces" with the objective of developing "national standards for indoor air quality", based on consultation and review of the scientific literature. Dr. Morrison stated that the issue had also been discussed with the World Health Organization.[90] No indication was given, however, as to when these proposed national standards might be presented for public discussion.

TABLE 1: SUMMARY OF RESULTS OF NATIONAL TESTING SURVEY OF FORMALDEHYDE GAS LEVELS IN CANADIAN HOMES INSULATED WITH UFFI

Sample	Number of Houses	FORMALDEHYDE RESULTS				Average Outdoor Readings
		Using House Average Indoor Readings		Using House Maximum Indoor Readings		
		Average (ppm)	% at or over 0.1 ppm	Average (ppm)	% at or over 0.1 ppm	(ppm)
First One Hundred (a)	100	.139	47%	.174	57%	.007
UFFI Centre Files (b)	651	.040	5.1%	.048	8.6%	.008
UFFI Chip (c)	1,146	.054	10.2%	.067	16.5%	.009
Control Chip (d)	378	.034	2.6%	.042	4.8%	.007

Conclusions

107. There is sufficient concern about the potential short-term and long-term health effects of formaldehyde on humans to warrant reducing exposure to this chemical to the lowest possible level.

108. Formaldehyde gas is released by UFFI into the living space of homes and other buildings in amounts ranging from "trace" to in excess of 0.1 ppm.

109. UFFI may release a complex mixture of other gases, in addition to formaldehyde, but there is insufficient evidence at the present time to judge the potential effects of these gases on human health.

110. The effects on human health of formaldehyde gas released from UFFI have not been precisely characterized at the present time. It is clear, however, that some people are extremely sensitive to even low levels of formaldehyde gas and these individuals may be suffering ill-effects from the presence of UFF insulation in their home and/or work environments.

111. Formaldehyde gas has been shown to be carcinogenic to rats, and possibly to mice, under defined laboratory conditions. Formaldehyde is also mutagenic in a variety of non-mammalian organisms.

112. There is insufficient evidence at present to judge the carcinogenicity of formaldehyde to humans, but the available evidence does not indicate that a human cancer risk exists.

RECOMMENDATIONS

- **The Federal Government should consider funding a comprehensive epidemiological study to determine if there is any relationship between formaldehyde exposure and nasal cancer in humans.**
- **The Federal Government should co-ordinate a comprehensive study on indoor air pollutants and their potential health effects. Special reference should be made to the trend toward making buildings increasingly air-tight to conserve energy.**
- **The Federal Government should develop a clear and effective policy on formaldehyde exposure to the public since this chemical is emitted not only by UFFI but is essentially ubiquitous in the environment.**
- **The Federal Government should continue the ban on UFFI under The Hazardous Products Act and continue its efforts to inform the public of possible ill-effects associated with exposure to this substance, at least until more definitive medical evidence is available.**
- **Extensive studies should be undertaken by appropriate agencies of the Federal Government to identify other gases emitted by UFFI, to measure their concentrations and establish, if possible, their effects on human health.**

REMEDIAL ACTIONS

113. A major goal in the ultimate resolution of the UFFI problem is the restoration of affected houses and other buildings to an acceptable condition in terms of habitability and

marketability. There are two basic procedures to achieve this goal. One procedure involves renovating the structure to reduce the levels of formaldehyde and other gases present in the living space of a building. A second, more drastic, measure involves removal of the foam from wall cavities (and elsewhere) followed by decontamination and chemical treatment of the cavity.

114. The National Research Council of Canada has published a comprehensive document which describes remedial measures suitable for wood-frame buildings.[91] A similar publication is being prepared for masonry structures.

General Considerations

115. The solution of problems related to UFFI is best attained through a systematic investigation of the dwelling in question prior to implementation of remedial measures. First, it is necessary to recognize that each house and its problem will be unique in some aspects. The nature of the problem must be determined as to whether it is a definable health problem, an odour problem, a moisture problem or some other factor.

116. The most important factor for the homeowner is the concentration of UFFI gas in the living space. However, the potential for high formaldehyde gas concentrations in the living space is best defined by measurement of the gas concentration inside the insulated cavity. This concentration is one of the factors on which to base a decision concerning the extent of remedial measures needed for a specific house. Formaldehyde gas concentrations should also be measured in the living space provided that appropriate preparatory steps have been carried out to ensure that such measurements will be accurate and representative because the concentration of formaldehyde gas in the living area can be influenced by many environmental factors.

117. The moisture content in a series of insulated wall cavities should be measured. Excess moisture in a wall cavity insulated with UFFI will increase the rate of formaldehyde release through hydrolysis of the foam and will also encourage the growth of fungi in the cavity. Fungi can damage the wood structure and possibly contribute to health problems for occupants through the release of fungal spores. (This problem can, of course, also arise with any insulation product that traps moisture.)

118. All these various measurements may have to be repeated during and after the implementation of remedial measures to evaluate their effectiveness.

119. Formaldehyde gas is most likely to be carried into the living space from the insulated wall cavities by air infiltration or air flow. This will occur where a situation of negative pressure difference exists; that is, the air pressure outside the house is greater than the air pressure inside, resulting in a flow of air through the walls into the living space. Where the opposite situation exists, i.e., a positive pressure difference, the gas will be carried from the wall cavities to the outside.

Methods of Reducing Formaldehyde Levels

120. There are a number of ways of reducing formaldehyde levels in the living space of a building by effecting modifications in the building structure or heating system. These remedial procedures described by the NRC include:

a. The direct flow of outside air into the house can be increased. Installation of a fresh air intake on the cold air return duct of a forced-air furnace will reduce the negative pressure difference in a dwelling.

b. Window ventilation can be effective at appropriate times of the year when windows can be left open for extended periods.

c. Fireplaces should be sealed when not in use to reduce depressurization of the house caused by air flow up the chimney.

d. Where the fresh air intake on the furnace is inadequate for ventilation, a forced air ventilation system can be installed, for example, through the use of a basement-window fan or a heat exchanger.

e. In some situations it may be necessary to install an air filter system. This action will eliminate formaldehyde and other gases by circulating the air through a series of filters. This sytem has an additional advantage in that it will cleanse the air of a number of other pollutants to which an occupant may also be sensitive. Before installing an air filter, the reader is advised to contact the NRC's Division of Building Research or other recognized expert for guidance.

f. Formaldehyde and other gases may infiltrate into the living space through electrical outlets. These can be effectively sealed with gaskets which are available from retail stores. An important consideration with respect to electrical outlets is that the receptacles or boxes may have been filled with UFFI, and this may contribute to corrosion and overheating of the electrical terminal, possibly creating a fire hazard. Damaged units should be replaced by an electrician.

g. The reader is also advised to inspect recessed light-fixtures, commonly known as "pot-lights", in ceilings or walls to ensure that they are not in contact with UFFI or other flammable materials.

h. The inside surface of exterior walls should be sealed to reduce air infiltration from the insulated cavities into the living space. Wall/floor junctions can be sealed using acoustical sealant, flexible weatherstripping, special foam-backed tapes, or aluminum tapes. Holes and cracks in wall surfaces should be sealed and covered with good quality paint. Mylar, foil or vinyl wallpaper will provide an effective barrier to air infiltration.

i. If fungal growth in the insulated cavity is suspected or has been identified, a consulting engineer or architect knowledgeable in the control of fungus should be retained to investigate the problem and advise on remedial measures.[92]

121. In some cases, particularly where the installation of UFFI has been done carelessly or inexpertly, it will not be possible to effect an adequate reduction in the level of UFFI gases through modifications such as those described above. In such instances, it may be necessary to remove the foam from the building and re-insulate with another material.

Removal of Foam

122. The most difficult and costly remedial step is the removal of the insulation from the wall cavities. The material can be removed from the inside or the outside of the dwelling; the former option is usually the more desirable. Removal of the UFFI is followed by the

rebuilding of the walls. An important consideration in the removal procedure is the use of appropriate precautions in handling a material such as UFFI which may produce large amounts of dust or, in some cases, significant amounts of formaldehyde gas. The reader is urged to carefully study appropriate procedures before attempting to remove the foam. In addition to the NRC publication cited earlier, the reader is advised to contact the UFFI Centre in his region or in Ottawa to obtain information on training programmes for accredited contractors and/or to obtain the training manual, "Study Guide For The Homeowner on Remedial Measures For Residences Insulated With Urea Formaldehyde Foam Insulation", which is available from the UFFI Centre.

123. If the decision is made to remove the foam from the insulated building, the procedure must include chemical treatment of wood or fibre-board in the cavity. Assuming that the foam emitted significant quantities of formaldehyde, the gas will have impregnated the wood structure and may continue to emit gases if left untreated.

124. The recommended chemical treatments are the application of a 3% (by weight) sodium bisulphite or sodium sulphite solution to the wood in the cavity. The solution must be applied in sufficient quantity to soak the surface layers of the material being treated. Homeowners should exercise care when purchasing the chemical and ensure that a high-purity grade is selected. Also, the homeowner should be especially careful *not* to substitute sodium bisul*phate* or sodium sul*phate* for the chemicals named above. These chemicals are hazardous and unsuitable for this use. The reader is strongly advised to consult the NRC publication cited above for specific information on this important subject.

125. The final step in foam removal or other remedial measures is the careful and thorough cleaning of the living space. This includes the washing or cleaning of clothes, linens, walls and cupboards, and the cleaning of carpets and upholstered furniture. In addition, furnace air ducts should be vacuumed and furnace filters replaced.

Additional Considerations

126. It is clear from the testimony received by this Committee that the question of remedial measures, and their costs, is an emotional and controversial subject. It was apparent that homeowners' representatives favoured removal of foam over other remedial measures, mainly because removal was more likely to restore lost property values.

127. In the view of the National Research Council, the foam should not be removed from walls unless the formaldehyde concentrations in the wall cavity and living area are sufficiently high to warrant such action. It should be noted, however, that the homeowner can remove the foam if he chooses and qualify for a grant from the Federal Government, regardless of the level of formaldehyde gas in the living area of the home. The implication in the NRC publication is that other remedial measures will effect a sufficient reduction in formaldehyde levels to which the occupants are exposed, in most cases. Further, during removal of the foam the occupants may be exposed to high levels of formaldehyde gas and UFFI dust, a situation which would be undesirable.[93]

Conclusions

128. A variety of remedial measures is available to reduce formaldehyde levels in the living space of homes and other buildings without removing the foam from the structure.

These measures may not be satisfactory to many homeowners who fear that the continued presence of UFFI in their homes will cause depreciation of property values.

129. Removal of UFFI from homes is the most costly remedial measure but may be the only course of action that will satisfy many, if not most, homeowners.

130. Additional research is needed to develop more efficient and less costly methods of removing UFFI from buildings. Of particular importance is the necessity of developing methods of removing the foam from brick and masonry structures.

131. Improved methodology is needed for the measurement of formaldehyde and other UFFI gases in insulated buildings.

132. A long-term monitoring programme for formaldehyde and other UFFI gases is necessary to determine the rate and nature of the deterioration of the foam in buildings after installation.

RECOMMENDATIONS

- **Research on the development of more efficient and less expensive methods of removing UFFI from all types of buildings should be expedited by the appropriate departments and agencies of the Federal Government.**
- **The development of methodology for the detection and measurement of formaldehyde and other gases should be accorded a high priority by the Federal Government. Such methodology should be designed for easy use by homeowners.**
- **The Federal Government should develop an effective liaison with private industry to develop better methods for the removal of UFFI from all types of buildings.**

EXTENT OF USE IN RESIDENTIAL BUILDINGS

133. Before the ban of UFFI under the Hazardous Products Act, the insulation was widely used as a residential construction material for upgrading the energy efficiency of existing dwellings. The precise extent to which the product was used in Canada has not been established in the testimony heard by the Committee. The estimates of the number of dwelling units insulated with this material ranged as high as 120,000,[94] although the generally accepted figure appears to be the UFFI Centre estimate of between 55,000 and 60,000 homes.[95]

134. These figures contrast sharply with the approximately 25,000 homeowners who have registered their dwellings with the UFFI Centre.[96] It would therefore appear that at least 30,000 houses have yet to be identified under the Government's UFFI Assistance Program. This discrepancy may be due to a number of reasons. The potential property devaluation associated with UFFI homes has made some homeowners reluctant to come forward and register their claims for assistance. Other homeowners have been advised by their homeowner association that they should wait until the regulations pertaining to the assistance programme are published.[97] Finally, some homeowners may not know that this insulation material is in their homes, or may not be aware of what to do about their problem[98]

Conclusion

135. A substantial number of homes in Canada contain urea formaldehyde foam insulation. At least 30,000 and perhaps as many as 90,000 have not been identified. The owners of these dwellings may not be aware of the health risk that may be faced by present and future occupants.

RECOMMENDATIONS

- **Since urea formaldehyde foam insulation is considered to be a hazardous product, and because at least 30,000 homes insulated with UFFI have not yet registered with the UFFI Centre, the Federal Government should publicize the potential health hazard related to this form of insulation and the remedial measures that are available to households. This publicity campaign should entail the use of media services, including minority language broadcasts. Other suitable means could include pamphlets inserted with mother's allowance and old age security payments.**
- **Subsection 8.(1) of the Urea Formaldehyde Insulation Regulations should be amended to extend the deadline to December 31, 1983 for applications for payment to persons in respect of dwellings insulated with UFFI.**
- **All UFFI homeowners who choose to remove the insulation from their dwellings, shall be assured that the maximum amount of government assistance will be available to them, as long as their application has been submitted prior to December 31, 1983.**

USE OF UFFI IN OTHER BUILDINGS

136. There is abundant evidence that UFFI has been used in buildings other than single-detached dwellings. Specific information on the type and number of other structures involved were not given in the testimony presented before the Committee. However, as is often the case, information pertaining to a committee's mandate is uncovered by the research staff while they conduct tasks assigned to them by the committee. Such is the case with much of the information in this chapter. Though not received in the traditional manner, the Committee felt that the relevency of this information justified its inclusion in this report.

Schools

137. Some provinces have attempted to establish the number of schools in which UFFI is present. It would appear that as many as 54 schools may have used the material in an attempt to upgrade their energy efficiency.[99] Generally, wherever UFFI was found in a school, the provinces carried out tests for the presence of formaldehyde gas and subsequently undertook the appropriate remedial measures to protect the students from any off-gassing from the UF foam insulation.

138. The Federal Government's position in the matter of UFFI in schools is that the identification of such schools and the resolution of any related problems is the responsibility of the provinces.

Federal Buildings

139. According to a UFFI Centre document[100] received by the Committee's research staff, the Federal Government's Interdepartmental Committee on UFFI in Federal Buildings has identified approximately 140 Crown-owned and-leased buildings containing UFFI. Among these, 106 were residential and 33 consist mostly of office structures. In only a dozen cases, where the ambient formaldehyde gas levels exceeded 0.1 ppm, was removal of the foam undertaken. Monitoring of ambient formaldehyde gas levels continues.

Other Buildings

140. While UFFI may have been used in rental buildings, provincial and private offices and industrial structures, the Committee was unable to establish the extent of such uses.

Conclusions

141. UFFI has been installed in a wide variety of buildings but specific information on numbers and locations is presently not available.

142. The Federal Government has assumed responsibility for UFFI in federally-owned or -leased buildings and the foam has been removed from structures where the formaldehyde gas levels exceeded 0.1 ppm.

143. The Federal Government assumes no responsibility for the presence of UFFI in other buildings, whether they be provincial buildings or private sector commercial and industrial structures. Any remedial measures which may be necessary remain the concern of the owners of such buildings.

RECOMMENDATIONS

- **The Committee recognises that the degree of health risk associated with UFFI remains undetermined and subject to an ongoing debate within the health field. Nevertheless, the Committee considers it desirable that the Federal Government co-operate with and encourage the provinces to identify those public buildings containing UFFI, such as schools, hospitals, health-care facilities and senior citizens' homes.**

- **If a health hazard is found to exist in the public buildings described above, then the appropriate measures should be taken to inform the employees, residents or regular users of these buildings that such a risk exists.**

- **The Federal Government should encourage the identification of private buildings containing UFFI. This might be accomplished through such programmes as the National Energy Auditing Program.**

ECONOMIC ISSUES

144. The banning of a product under the Hazardous Product Act can have far reaching effects in the Canadian economy. While the cost of banning a product is usually borne by the manufacturers, the UF foam insulation ban has wider implications. UFFI is an integral part of many Canadian homes and because of the controversy surrounding its use, it has a

negative impact on the value of UFF-insulated houses. Furthermore, the health and economic concerns of consumers in this case are serious enough for governments to undertake costly assistance programmes. The economic impact of the ban on UFFI has therefore affected the three major agents in the Canadian economy: business, consumers and governments.

Effects on Industry

145. The ban on sales of urea formaldehyde foam insulation has forced out of business a significant portion of the Canadian insulation industry and affected the operations of several chemical manufacturers. While there was no precise measure of the impact of the sales ban on the industrial sector presented to the Committee, it did receive an estimate that the UF foam industry made up approximately a fifth of the insulation industry and involved up to 500 insulation contractors in 1980.[101] Although the larger manufacturers were adversely affected by the banning of the product, they were sufficiently diversified to avoid bankruptcy. This, however, according to witnesses, was not the case for most insulation contractors who simply were forced out of business when the ban was announced.[102] Through no fault of their own, many small business enterprises incurred substantial financial losses as well as a loss of consumer confidence in the quality of their work. While a few may re-establish themselves as reputable firms, it is doubtful if any business will be able to recover the expenses that were occasioned by the banning of UFFI.

146. According to the witnesses of the industry the losses which resulted immediately following the ban might have been reduced in three ways: government consultation with the industry would have permitted businesses to have adjusted their spending commitments in anticipation of reduced market opportunities;[103] the ban should not have applied to all types of UF foam insulation without regard to individual product quality;[104] the temporary ban should not have included industrial applications of UFFI.[105] Since the initial regulatory process failed to recognize these considerations, industry witnesses maintain that the UFFI product ban has resulted in the unjustified destruction of a segment of the Canadian economy with the subsequent loss of business income and industrial employment opportunities.[106]

Effects on the Housing Sector

147. The health concerns surrounding UFFI have made houses which contain this insulation less desirable to consumers than alternative accommodations.[107] In fact, homeowner groups with UFF-insulated homes have argued before the Committee that their houses have become stigmatized and that even the total removal of the insulation will not completely restore the value of their dwellings.[108]

148. The impact of the concern about UFFI on house prices could not be reliably determined by the Committee because there have been too few transactions involving UFF-insulated homes to date. The only systematic attempt at evaluating the effect of UFFI on house prices came from CMHC. On the basis of less than 100 sales of UFFI homes where the purchaser was well informed, CMHC estimated that the prices of the homes had suffered a 10% devaluation relative to other dwellings.[109] The Committee was not able to obtain estimates of the price of homes where the foam had been removed.

149. Testimony received by the Committee indicates that a number of barriers have been erected which are hindering the marketability of UFF-insulated homes. These impediments usually stem from legitimate concerns of business about the risk associated with the decline of house values for UFF-insulated homes. These barriers include declaration clauses in the offer-to-purchase forms used by real estate firms,[110] higher renewal cost at the end of mortgage terms,[111] the lack of financing for new purchasers of UFF insulated homes,[112] and the unavailability of home fire insurance.[113]

150. CMHC has assured the Committee that it stands prepared to insure any mortgage provided there is full disclosure regarding the presence of UFFI in the home.[114] Furthermore, the Corporation will insure these loans for amounts based on the full undiscounted value of the house. In its experience, the Corporation testified that some individuals did indeed meet with difficulties in financing UFF-insulated homes, but that, to its knowledge, all such cases were satisfactorily resolved.

151. In the matter of home fire insurance, the Insurance Bureau of Canada testified that some companies may be reluctant to provide coverage but that this is a minor concern as a sufficient number of firms stand prepared to offer the necessary fire insurance to homeowners with UFF-insulated homes.[115]

152. The uncertainty with respect to the potential health hazards of UFFI has led most homeowners to undertake drastic remedial measures such as removing the substance from their homes. Selection of this remedial measure creates two additional difficulties for homeowners. One problem is that the cost of removal generally exceeds the amount of assistance available from the Federal Government.

153. Homeowner groups have testified that, depending on the type of structure involved, the cost of removing the foam insulation from a house can be substantial.[116] For instance, it has been reported that the removal of foam from a brick structure might cost as much as $55,000.[117] On the other hand, the UFFI Centre has estimated, on the basis of about 1,400 cases on their files, that the cost of removing the foam insulation from a home costs in the area of $7,000 to $8,000.[118] However, in some cases the removal of the foam is an unavailable option to those households which cannot afford the extra cost. On this last point, the Minister of Consumer and Corporate Affairs has told the Committee that changes have been made to the Federal Assistance Program so that individual homeowners could do the work themselves at a lower cost.[119] Furthermore, the Minister informed the Committee that he is exploring other avenues of assistance that might be available through other Federal programmes and that he is soliciting the co-operation of the provincial governments and the industry in reducing the financial burdens of homeowners with UFF-insulated homes.

154. A second problem with choosing to have the foam removed is that insurance companies are not prepared to provide liability coverage to the accredited contractors.[120] In order to receive accreditation under the Government Assistance Program, a contractor is required to have at least $1 million in liability insurance. However, insurance firms are not prepared to provide such coverage to firms involved in removing the foam because the insurers are not fully aware of the extent of the liability involved.[121]

155. Homeowners with UFF-insulated homes face numerous problems in dealing with this hazardous substance. Their homes have depreciated in value, are difficult to finance and insure, and the removal of the substance by a qualified contractor is costly.

Effect on Governments

156. The Federal Government has already committed considerable funds to assess the health hazard of UFFI and toward finding suitable solutions to the problems that beset homeowners. Additional funds have been earmarked for the UFFI Information Centre and for grants to assist homeowners in dealing with the possible health threat. Beyond these amounts, the Federal Government may have to provide more funds if all or most of the homeowners elect to remove the foam, thereby qualifying for the maximum amount of assistance. Another area where the Federal Government faces rising UFFI-related expenditures is in the courts where it may be involved in several law suits.

157. Several municipalities and some provinces have recognized the depreciated real estate values of UFF-insulated houses and have subsequently reduced the property tax burden to these homeowners.[122]

Conclusions

158. The banning of urea formaldehyde foam insulation has resulted in significant economic costs for industry, government and for individual homeowners.

159. Barriers have been erected in the housing and mortgage markets which make it difficult for homeowners with UFF-insulated homes to pursue normal housing market transactions.

160. If all UFFI homeowners choose to remove the insulation from their dwellings and claim the maximum amount of government assistance, the current allocations under the Federal Government's assistance programme will probably not be sufficient to cover the total costs.

161. In some cases the removal of the foam is an unavailable option to those households which cannot afford the extra costs.

162. Without the availability of liability coverage, the Federal Government's contractor accreditation programme may be jeopardized.

163. In spite of quality workmanship many contractors have suffered substantial economic losses and the ability to continue as reputable firms in their communities.

RECOMMENDATIONS

- **The Federal Government should explore alternative procedures for the banning of a product under the Hazardous Products Act in order to mitigate any adverse economic effects on the consumers and manufacturers of those products which may, after review, prove not to be hazardous.**
- **The Federal Government should use its best efforts to ensure that homeowners with UFF-insulated homes are treated fairly and have reasonable access to mortgage, housing and home insurance markets.**
- **The Federal Assistance Program for homeowners of UFF-insulated homes should address those cases where the removal of the foam is not a reasonable option because**

of the cost. Where possible, provincial and municipal governments should be encouraged to assume a share of the responsibility.

- **The Federal Government must attempt to resolve the liability insurance issue as soon as possible so that homeowners with UFF-insulated homes may have access to qualified contractors for removal of foam insulation from houses or to other remedial measures.**
- **The Federal Government, through the auspices of the UFFI Centre, shall issue a certificate to those homeowners from whose dwellings UFFI has been removed and any hazard therefrom eliminated, confirming that these steps have been taken.**

SUMMARY OF RECOMMENDATIONS

1. **The government should look into the possibility of having health specialists on the committees of agencies that draw up accredited standards. These health specialists would have the task of making sure that health and safety considerations were adequately understood by the other members of the committee and of establishing contact periodically with the Health Protection Branch of Health and Welfare Canada.**

2. **The Federal Government should review the criteria by which new products are selected for toxicity testing to determine their potential for hazard to human health.**

3. **The Hazardous Products Act should be amended. Firstly, it should include a mechanism by which a private individual could lodge a formal complaint with the government which would have to give a justified response to the complainant within a reasonable period of time. Secondly, the Committee agrees with the Hazardous Products Board of Review on Urea Formaldehyde Foam that the Hazardous Products Act should be amended so that a public inquiry would be instituted as soon as serious complaints have been lodged with the government and before any action has been taken to control or ban a product.**

4. **The government should consider the necessity of increasing the number of CMHC inspectors.**

5. **The government should take the necessary steps to inform the public of the exact role of the CGSB and CMHC.**

6. **The Federal Government should consider funding a comprehensive epidemiological study to determine if there is any relationship between formaldehyde exposure and nasal cancer in humans.**

7. **The Federal Government should co-ordinate a comprehensive study on indoor air pollutants and their potential health effects. Special reference should be made to the trend toward making buildings increasingly air-tight to conserve energy.**

8. **The Federal Government should develop a clear and effective policy on formaldehyde exposure to the public since this chemical is emitted not only by UFFI but is essentially ubiquitous in the environment.**

9. **The Federal Government should continue the ban on UFFI under The Hazardous Products Act and continue its efforts to inform the public of possible ill-effects associated with exposure to this substance, at least until more definitive medical evidence is available.**

10. **Extensive studies should be undertaken by appropriate agencies of the Federal Government to identify other gases emitted by UFFI, to measure their concentrations and establish, if possible, their effects on human health.**

11. **Research on the development of more efficient and less expensive methods of removing UFFI from all types of buildings should be expedited by the appropriate departments and agencies of the Federal Government.**

12. **The development of methodology for the detection and measurement of formaldehyde and other gases should be accorded a high priority by the Federal Government. Such methodology should be designed for easy use by homeowners.**

13. **The Federal Government should develop an effective liaison with private industry to develop better methods for the removal of UFFI from all types of buildings.**

14. **Since urea formaldehyde foam insulation is considered to be a hazardous product, and because at least 30,000 homes insulated with UFFI have not yet registered with the UFFI Centre, the Federal Government should publicize the potential health hazard related to this form of insulation and the remedial measures that are available to households. This publicity campaign should entail the use of media services, including minority language broadcasts. Other suitable means could include pamphlets inserted with mother's allowance and old age security payments.**

15. **Subsection 8.(1) of the Urea Formaldehyde Insulation Regulations should be amended to extend the deadline to December 31, 1983 for applications for payments to persons in respect of dwellings insulated with UFFI.**

16. **All UFFI homeowners who choose to remove the insulation from their dwellings, shall be assured that the maximum amount of government assistance will be available to them, as long as their application has been submitted prior to December 31, 1983.**

17. **The Committee recognises that the degree of health risk associated with UFFI remains undetermined and subject to an ongoing debate within the health field. Nevertheless, the Committee considers it desirable that the Federal Government co-operate with and encourage the provinces to identify those public buildings containing UFFI, such as schools, hospitals, health-care facilities and senior citizens' homes.**

18. **If a health hazard is found to exist in the public buildings described above, then the appropriate measures should be taken to inform the employees, residents or regular users of these buildings that such a risk exists.**

19. **The Federal Government should encourage the identification of private buildings containing UFFI. This might be accomplished through such programmes as the National Energy Auditing Program.**

20. **The Federal Government should explore alternative procedures for the banning of a product under the Hazardous Products Act in order to mitigate any adverse economic effects on the consumers and manufacturers of those products which may, after review, prove not to be hazardous.**

21. **The Federal Government should use its best efforts to ensure that homeowners with UFF-insulated homes are treated fairly and have reasonable access to mortgage, housing and home insurance markets.**

22. **The Federal Assistance Program for homeowners of UFF-insulated homes should address those cases where the removal of the foam is not a reasonable option because of the cost. Where possible, provincial and municipal governments should be encouraged to assume a share of the responsibility.**

23. **The Federal Government must attempt to resolve the liability insurance issue as soon as possible so that homeowners with UFF-insulated homes may have access to**

qualified contractors for removal of foam insulation from houses or to other remedial measures.

24. The Federal Government, through the auspices of the UFFI Centre, shall issue a certificate to those homeowners from whose dwellings UFFI has been removed and any hazard therefrom eliminated, confirming that these steps have been taken.

FOOTNOTES

(1) Carl R. Noller, *Texbook of Organic Chemistry*, Second Edition, W.B. Saunders Company, 1958, p. 44.

(2) Beat Meyer, *Urea Formaldehyde Resins*, Addison-Wesley Publishing Company, Inc., 1979, p. 4.

(3) *Ibid.*, p. 15, 16.

(4) Health and Welfare Canada, *Toxicology of Thermal Insulation*, Health Protection Branch, Ottawa, June 1980, p. 4.

(5) Standing Committee on Health, Welfare and Social Affairs, Minutes of Proceedings and Evidence, Issue No. 42, Tuesday, October 5, 1982, p. 42A:11.

(6) *Ibid.*, p. 42A:11 - 42A:21.

(7) *Ibid.*, p. 42:44.

(8) *Ibid.*

(9) *Ibid.*, p. 42:109.

(10) *Ibid.*, p. 42A:16. See Appendix 3 for list of UFFI products accepted by CMHC after July, 1977.

(11) *Ibid.*, p. 47:12.

(12) *Ibid.*, p. 42A:18.

(13) *Ibid.*, p. 46A:1.

(14) *Ibid.*, p. 45:40.

(15) *Ibid.*, p. 45:41.

(16) Final Report of the Department of National Health and Welfare Expert Advisory Committee on Urea Formaldehyde Foam Insulation, April 1981, p. 10.

(17) R.S.C. 1970, 1st Suppl., C. 41.

(18) For the areas of activity covered by the organizations, see the *1976-77 Annual Report* of the Canadian Standards Association, Annex C, p. 36 and ff; the *Bureau de normalisation du Québec* is not listed in the report.

(19) *Minutes of Proceedings and Evidence*, p. 42:118.

(20) *Ibid*, p. 42:108 and ff.

(21) The standard was subsequently amended on two occasions: first, in April 1978 and second, in June 1979.

(22) *Ibid*, p. 42:112.

(23) *Ibid*, p. 42:44, 42:71 and 42:72.

(24) *Ibid*, p. 47:47.

(25) *Ibid*, p. 42:17.

(26) *Ibid.*, p. 42:124. The CGSB committee had at its disposal about 100 documents (draft standards from various countries and expert reports); none contained proof that the product was a health hazard.

(27) *Ibid*, p. 42:134 and 135.

(28) Canada, House of Commons, Special Committee on Regulatory Reform, *Minutes of Proceedings and Evidence*, First Session, Thirty-second Parliament, December 19, 1980, p. 27:8.

(29) R.S.C. 1970, C. F-27 and amendments.

(30) R.S.C. 1970, C. P-10 and amendments.

(31) See testimony of Dr. A.B. Morrison, Assistant Deputy Minister, Health Protection Branch, Health and Welfare Canada: "about 200,000 pages has been the average for a new drug submission." *Minutes of Proceedings and Evidence*, p. 45:9.

(32) *Ibid.*, p. 45:9.

(33) R.S.C. 1970, C. H-3.

(34) S.O.R. 81-30. Can. Gaz., II, 1980, p. 80.

(35) See, for example, the testimony of Mr. Art Jefford, President of Jefford Industries Limited, *Minutes of Proceedings and Evidence*, p. 44:97; "The problem with this whole thing is that there was no notice whatsoever given". See also the *Report of the Hazardous Product Board of Review on Urea Formaldehyde Foam Insulation*, Ottawa, October 5, 1982, p. 118, where the Board cites the ban as being *in part* "responsible for the loss of value of houses insulated with urea formaldehyde foam, notwithstanding the level of formaldehyde in the houses."

(36) *Appropriation Act No. 3, 1977-78*, S.C. 1977-78, c.2, Vote 11a: "Canadian Home Insulation Program—To authorize the Corporation to administer a home insulation programme...and in respect thereto, to make a contribution, in accordance with terms and conditions prescribed by regulations of the Governor in Council, to any person who...applies for the contribution and purchases materials for the purpose of insulating against heat loss so as to reduce energy consumption..."

(37) *Canadian Home Insulation Regulations*, SOR 78-241, Can. Gaz., II, 1978, p. 1032, s.2 and 3; s. 2 amended by SOR 79-552, Can. Gaz., II 1979, p. 2760, s. 1 (3).

(38) Canada, CMHC, "CMHC Materials Acceptance", October, 1981, p. 5.

(39) *Ibid.*, p. 5.

(40) *Ibid.*, p. 8.

(41) *Ibid.*, p. 8.

(42) *Minutes of the Proceedings and Evidence*, p. 42:69.

(43) *Ibid.*, p. 42:61. Without being able to affirm it absolutely, Mr. George Brewer said that one house out of 10 insulated under the CHIP programme was inspected.

(44) See Appendix "E" of the document "CMHC Materials Acceptance". See also *Minutes of Proceedings and Evidence*, p. 42:45.

(45) *Ibid.* p. 47:12. Evidence by Mr. Walt, (Director, Materials Evaluation, CMHC Technical Services).

(46) *Ibid.*, p. 47:25; and p. 42:62.

(47) *Ibid.*, p. 47:18.

(48) R.S.C., 1970, c. N-10 and amendments (in the case of UFFI).

(49) *Minutes of Proceedings and Evidence*, p. 42:46.

(50) Canada, CMHC, "CMHC Materials Acceptance", October, 1981, p. 6.

(51) *Minutes of Proceedings and Evidence*, pp. 40:25, 26.

(52) *Ibid.*, p. 42:39.

(53) *Ibid.*, p. 40:107.

(54) George Stuart Wiberg and Eugene Baranowski, "Health Implications of Urea Formaldehyde Foam Insulation", *Canadian Journal of Public Health*, Vol. 72, September/October 1981, p. 335.

(55) Bette Hileman, "Formaldehyde", *Environmental Science and Technology*, Vol. 16, No. 10, 1982, p. 546A.

(56) *Minutes and Proceedings of Evidence*, p. 46:64.

(57) *Final Report*, p. 9.

(58) *Minutes of Proceedings and Evidence*, p. 44:121.

(59) National Research Council, *Formaldehyde and Other Aldehydes*, National Academy Press, Washington, D.C., 1981, p. 187.

(60) Wiberg and Baranowski, p. 335.

(61) *Minutes of Proceedings and Evidence*, p. 43:9, 43:15.

(62) *Ibid.*, p. 43:29.

(63) *Ibid.*, p. 44:120.

(64) *Ibid.*, p. 43:43.

(65) *Ibid.*, p. 43:45.

(66) *Ibid.*, p. 46:70-71.

(67) Report of the Hazardous Products Board of Review to the Minister of Consumer and Corporate Affairs, Ottawa, October 5, 1982, p. 72-73.

(68) Hileman (1982), p. 545A.

(69) Report of the Hazardous Products Board of Review, p. 75.

(70) *Minutes of Proceedings and Evidence*, p. 45:30.

(71) Government of the United States, *Federal Response to Health Risks of Formaldehyde in Home Insulation, Mobile Homes, and Other Consumer Products*, Hearings before a Subcommittee of the Committee on Government Operations. House of Representatives, 97th Congress, 2nd Session, May 18 and 19, 1982, p. 390.

(72) Report of the Hazardous Products Board of Review, p. 86-87.

(73) Government of the United States, *Federal Response*, p. 391.

(74) Report of the Hazardous Products Board of Review, p. 80.

(75) *Ibid.*, p. 86.

(76) *Minutes of Proceedings and Evidence*, p. 43:56.

(77) *Ibid.*, p. 45:14.

(78) *Ibid.*, p. 46:61.

(79) *Ibid.*, p. 43:15.

(80) *Ibid.*, p. 43:16.

(81) *Ibid.*, p. 45:28.

(82) *Ibid.*, p. 45:31.

(83) *Ibid.*, p. 46:26.

(84) *Ibid.*, p. 46:78.

(85) National Research Council (U.S.A.), 1981, p. 193.

(86) Report of the Hazardous Products Board of Review, p. 71.

(87) *Ibid.*, p. 71-72.

(88) Health and Welfare Canada, *Final Report of the Department of National Health and Welfare Expert Advisory Committee on Urea Formaldehyde Foam Insulation*, Ottawa, April 1981, p. 8.

(89) Government of Canada, *The Report on the National Testing Survey to the Board of Review*, Urea Formaldehyde Foam Insulation Information and Coordination Centre (UFFI/ICC), Ottawa, 14 December 1981.

(90) *Minutes of Proceedings and Evidence*, p. 45:32.

(91) R.P. Bowen, C.J. Shirtliffe and G.A. Chown, *Urea Formaldehyde Foam Insulation: Problem Identification and Remedial Measures for Wood-Frame Construction*, National Research Council of Canada, Division of Building Research, Building Practice Note No. 23, Ottawa, August 1981.

(92) *Ibid.*

(93) *Minutes of Proceedings and Evidence*, p. 41:34.

(94) *Ibid.*, p. 40:8.

(95) *Ibid.*, p. 42:83.

(96) *Ibid.*, p. 42:79:

(97) *Ibid.*, p. 40:30.

(98) *Ibid.*, p. 40:30.

(99) This number was established by the Library of Parliament research staff through a telephone survey of Provincial Education Ministries.

(100) UFFI Centre.

(101) *Minutes of Proceedings and Evidence*, p. 42A:22.

(102) *Ibid.*, p. 44:26.

(103) *Ibid.*, p. 44:97.

(104) *Ibid.*, p. 44:39 and 44:107.

(105) *Ibid.*, p. 44:115.

(106) *Ibid.*, p. 44:97.

(107) *Ibid.*, p. 40:8.

(108) *Ibid.*, p. 40:34 and 40:64.

(109) *Ibid.*, p. 47:106.

(110) *Ibid.*, p. 40A:17.

(111) *Ibid.*, p. 44:102 and p. 47:106.

(112) *Ibid.*, p. 40A:12-13.

(113) *Ibid.*, p. 40:8 and p. 47:123.

(114) *Ibid.*, p. 47:106.

(115) *Ibid.*, p. 47:123.

(116) *Ibid.*, p. 40:95.

(117) *Ibid.*, p. 40:31.

(118) *Ibid.*, p. 42:97.

(119) *Ibid.*, p. 47:144.

(120) *Ibid.*, p. 47:117.

(121) *Ibid.*, p. 47:117.

(122) The response of these levels of government varies considerably. More information is available from the Clerk of the Committee.

GLOSSARY

ACUTE—An adjective which, when used to describe a toxicity test or a disease, means short term (see "chronic").

ALDEHYDES—A class of very reactive organic chemical compounds of which formaldehyde is an example.

ALLERGEN—A substance, which may be a chemical or physical agent, which induces an allergy.

AMBIENT—Literally, the word means an encompassing atmosphere. In the context of this report it refers to the air quality normally found in a specific environment such as in a room in a house.

CARCINOGENICITY—The capability of a substance to cause cancer in an animal or human. The adjective is "carcinogenic".

CATALYST—A substance that brings about or promotes a chemical reaction. In the installation of UFFI, a commonly used catalyst is phosphoric acid.

CGSB—The Canadian General Standards Board, formerly the Canadian Government Specifications Board.

CHIP—An acronym for the Canadian Home Insulation Program.

CHRONIC—An adjective which, when used to describe a toxicity test or a disease, means long term. (see "acute".)

CMHC—Canada Mortgage and Housing Corporation, formerly the Central Mortgage and Housing Corporation.

CONTROL—A group of test animals, or a segment of the human population, that gives a standard of comparison or means of verification in a scientific study.

DEPOLYMERIZATION—The process by which a polymer such as a plastic is broken down into simpler compounds. The depolymerization of UFFI releases formaldehyde gas, one of the building blocks of the foam.

DERMATITIS—Literally, an inflammation of the skin.

EPIDEMIOLOGY—The science that deals with the incidence, distribution and control of disease in a population.

FORMALDEHYDE—A very reactive chemical of the aldehyde class with the formula HCHO. It is a major constituent of UFFI. Formaldehyde gas is an irritating chemical with a number of potential health effects, depending on its concentration in the air.

HYDROLYSIS—In simple terms, a chemical reaction in which water is added to a molecule. The hydrolysis of UFFI leads to its depolymerization and the liberation of formaldehyde gas.

IMMUNE SYSTEM—The system in the human (or animal) body that fights disease.

IMMUNOCOMPETENCE—A medical term referring to the state of the body's immune system.

IN SITU—Literally means "in location". UFFI is a product that is "foamed in situ", meaning that the product was produced as a result of a chemical reaction within the wall cavity to be insulated.

MALIGNANCY—In general terms, refers to cancer or a cancerous tumour.

METABOLISM—The chemical processes which provide energy to living cells. A "metabolite" is a chemical that participates in the metabolic process.

MUTAGENIC—An adjective describing the ability of a substance to cause a heritable change in the genetic material of a living cell.

NRCC—The National Research Council of Canada. Also referred to as NRC.

POLYMER—A chemical compound or mixture of compounds consisting essentially of a very large number of similar molecules. UFFI is a polymer composed of urea and formaldehyde.

ppm—A form of measurement meaning "parts per million". One ppm refers to one part in a million parts.

SPORES—Microscopic reproductive bodies produced by lower organisms such as fungi and yeasts. Fungal spores have often been implicated in allergic diseases.

THRESHOLD—When used in a discussion of toxicity, it means the point at which a physiological effect begins to be produced.

UFFI—Urea formaldehyde foam insulation.

UFFI GASES—A complex mixture of gases produced by UFFI when it deteriorates. Formaldehyde is the major component.

UREA—A chemical compound containing nitrogen which is formed in nature by the decomposition of protein. It is one of the constituents of UFFI.

APPENDIX I

WITNESSES

The following individuals testified before the Committee:

October 4, 1982—Issue 40

Mr. Rick Patten, Mr. Len Cocolicchio and Mr. Carl Wentzell, National Advisory Council on U.F.F.I.

Mr. Robert Gahan and Mr. David Craimer, Association of Alberta Foam Fighters United

Mr. Yves Nantel and Mrs. Nicole Lamer, *La fédération des comités de victimes de la mousse d'urée du Québec*

Mr. Jacques Gravel, *l'Association des victimes de Laval*

Mr. Bill Tell, Etobicoke Chapter, HUFFI Ontario

Mr. Frank Spitzer, Toronto Chapter, HUFFI Ontario

Ms. Pat Clark, Scarborough Chapter, HUFFI Ontario

Mr. Jack Henderson, Kingston Chapter, HUFFI Ontario

Mr. David Morrissey, Scarborough-Windsor, Chapters HUFFI Ontario

October 4, 1982—Issue 41

Dr. L. Kerwin, D.Sc., President, National Research Council of Canada

Mr. C.B. Crawford, Director, Division of Building Research, National Research Council of Canada

Mr. Cliff Shirtliffe, Research and Analyst Engineer, National Research Council of Canada

October 5, 1982—Issue 42

Mr. David Cohen, Assistant Professor, Faculty of Law, University of British Columbia

Mr. Walter Raepple, former Coordinator of Information, Conservation and Renewable Energy Branch, Department of Energy, Mines and Resources

Mr. George Brewer, formerly from the Canada Mortgage and Housing Corporation

Mr. Campbell Mackie, Federal Coordinator, UFFI Center

Mr. Doug Youngson, Director, Technical Services, UFFI Center

Mr. A. Bowles, former Secretary, Canadian General Standards Board

October 6, 1982—Issue 43

The Honourable André Ouellet, Minister of Consumer and Corporate Affairs

Dr. Albert Nantel, M.D., M.Sc., *directeur du Centre de toxicologie du Québec, Centre hospitalier de l'Université Laval*

Dr. Michael Newhouse, M.D., M.Sc., F.R.C.P.(C), F.A.C.P., Head, Firestone Regional Chest and Allergy Unit, Hamilton; Clinical Professor of Medicine at McMaster University and Medical Centre

Dr. Geoffrey Ross Norman, B.Sc., Ph.D., M.A., Associate Professor of Clinical Epidemiology and Biostatistics, McMaster University and Medical Centre

Mr. Harry Cohen, Office of Program Management of the Consumer Product Safety Commission, Washington, D.C.

October 7, 1982—Issue 44

Mr. Bruce Forsyth, formerly of Canada Foam Limited

Mr. E.W. Perrin, former sales representative, Borden Chemical

Mr. Marcel Widman, engineer, formerly of Borden Chemical

Mr. Brian Wood, former head of research and development, present General Sales Manager, Borden Chemical

Mr. R.G. Elliott, former General Manager, Rapco

Mr. Eric Baker, Vice-President, Inocan Investment

Mr. Arthur L. Jefford, President, Jefford Industries Limited

Dr. Yves Dumont, M.D., *médecin-conseil, santé communautaire, conseiller médical canadien* to the American Formaldehyde Institute

October 7, 1982—Issue 45

Dr. A.B. Morrison, M.D., Assistant Deputy Minister, Health Protection Branch, Department of National Health and Welfare

October 8, 1982—Issue 46

Dr. George Stewart Wiberg, Ph.D., Head, Industrial Chemicals and Product Safety Section, Bureau of Chemical Hazards, Environmental Health Directorate, Health Protection Branch, Department of National Health and Welfare

Dr. James S. Campbell, Ph.D., Head, Pathology Section, Toxicology Research Division, Food Directorate, Health Protection Branch, Department of National Health and Welfare

Dr. Yves Alarie, Ph.D., Professor of Respiratory Physiology and Toxicology, Graduate School of Public Health, University of Pittsburgh

October 28, 1982—Issue 47

Mr. Gordon Walt, Manager, Materials Evaluation Department, Technical Services, Canada Mortgage and Housing Corporation

Mr. Alan Bowles, former Secretary, Canadian General Standards Board

Mr. Claude Masse, *professeur agrégé, Faculté de droit, Université de Montréal*

Mr. Bill Mulvihill, Director, Underwriting Directorate, Canada Mortgage and Housing Corporation

Mrs. Hélène Gagné, Legal Counsel, Insurance Bureau of Canada

The Honourable André Ouellet, Minister of Consumer and Corporate Affairs

APPENDIX II

SUBMISSIONS

The Committee acknowledges with thanks the contribution of the following groups and individuals who submitted written material to the Committee:

Dr. Yves Alarie, Ph.D., Professor of Respiratory Physiology and Toxicology, Graduate School of Public Health, University of Pittburgh

Association of Alberta Foam Fighters United

Association des victimes de Laval

Atlantic Analytical Services Ltd.

Mr. George Brewer, formerly of the Canada Mortgage and Housing Corporation

Mr. David Cohen, Assistant Professor, Faculty of Law, University of British Columbia

Dr. Yves Dumont, M.D., M.A., *médecin-conseil, santé communautaire, conseiller médical canadien* to the American Formaldehyde Institute

Fédération des associations de victimes de la mousse isolante du Québec

HUFFI Ontario (Etobicoke, Kingston, Scarborough, and Toronto Chapters)

Mr. Arthur Jefford, Jefford Industries Ltd.

Mr. Claude Masse, *professeur agrégé, Faculté de droit, Université de Montréal*

Dr. Albert Nantel, M.D., M.Sc., *directeur du Centre de toxicologie du Québec, Centre hospitalier de l'Université Laval*

National Advisory Council on UFFI

National Research Council

Dr. Michael Newhouse, M.D., M.Sc., F.R.C.P.(C), F.A.C.P., Head of Firestone Regional Chest and Allergy Unit, Hamilton; Clinical Professor of Medicine, McMaster University and Medical Centre

Dr. Geoffrey Ross Norman, B.Sc., Ph.D., M.A., Associate Professor of Clinical Epidemiology and Biostatistics, McMaster University and Medical Centre

Mr. Walter Raepple, formerly of the Department of Energy, Mines and Resources

Mr. Bruce Small, P.Eng., author of *The Susceptibility Report*

U.S. Consumer Product Safety Commission

Mr. Gordon Walt, Canada Mortgage and Housing Corporation

The Committee is also grateful for the telephone calls and letters it has received from individuals relating their personal experiences with UFFI and expressing their interest in this inquiry.

APPENDIX III

UFFI PRODUCTS ACCEPTED BY CMHC AFTER JULY 1977

COMPANY NAME (acceptance number)	PRODUCT NAME	DATES ACCEPTED	DATES CANCELLED
Rapco Foam Inc., Division of Lorcon Inc., 1785 Woodward Dr. Ottawa, Ontario K2C 0P9 (No. 8209)	Rapco Foam	3- 8-77	19-12-80
Borden Chemical Canada 595Coronation Drive Westmill, Ontario M1E 4R9 (No. 8211)	Insulspray	3- 8-77	30-11-80
Roblee Enterprises Ltd. 14151 Westminster Hwy. Richmond, B.C. V6V 1A4 (No. 8216)	Key Foam	3- 8-77	28- 8-79
Canada Foam Ltd. 105 Maple Street, North Winnipeg, Manitoba R2W 3L1 (No. 8220)	Key Foam	3-8-77	19-12-80
Duratex Chemicals of Canada Ltd. 407 B Vanguard Road Richmond, B.C. V6X 2P7 (No. 8336)	Foam-Ulate	28-10-77	4- 3-79
Brekke Enterprises Inc. 1320 Tidehaven Road, East Tacoma, Washington 98424 (No. 8350)	Key Foam	14-11-77	14-10-80
Schaum-Chem of Canada Ltd. 140 Milner Avenue, Unit 38 Agincourt, Ontario M1S 3R3 (No. 8651)	Urea-formaldehyde	29- 5-78	10- 3-80

COMPANY NAME (acceptance number)	PRODUCT NAME	DATES ACCEPTED	DATES CANCELLED
Reichhold Limited 600 The East Mail Islington, Ontario M9B 4B1 (No. 8921)	Urealite	11- 1-79	19-12-80
Insta-Foam Insulating 84 Sass Road, R.R. 4 Chatham, Ontario N7M 5J4 (No. 9115)	Instant Foam	1- 8-79	29- 8-80
Concorde Insulation Ltd. 1171-8th Street, East Saskatoon, Saskatchewan S7H 0S3 (No. 9160)	Celsius Foam	1- 8-79	19-12-80
Energlobe Foam Corporation* 79 Woodmound Drive Ottawa, Ontario (No. 9161)	Blue Ultrafoam** or Ultramousse Bleue	1- 8-79	19-12-80
Publix Food and Chemical Ltd. 186 Oakdale Road Downsview, Ontario M3N 2S5 (No. 9583)	Enfoam	3-11-80	19-12-80

* Formerly—General U.F. Foam Corporation Inc. 625 Georges Cros Avenue Granby, Quebec J2J 1B4

** Formerly—Interfoam

APPENDIX IV

HEALTH AND WELFARE CANADA UFFI RESEARCH STUDIES

Projects under the sponsorship of the Extramural Research Programs Directorate, Department of National Health and Welfare:

PRINCIPAL INVESTIGATOR(S)	TITLE AND DESCRIPTION
1. Dr. Jacques Lacroix 6605-1964-3	Clinical and biological study of the effects of exposure to urea formaldehyde foam insulation gases. The design of the study is to establish the human health effects for a prolonged exposure to UFFI insulation.
2. Dr. M. Pelletier 6605-1965-3	Effects of formaldehyde on the immunological system, susceptibility to infection and the development of tumors. Clinical and experimental studies are designed to investigate susceptibility to infection and the immunologic aspects of people exposed to low-level concentrations of formaldehyde in UFFI homes.
3. Drs. Cordier, Brisson Bernard 6605-1992-3	Identification of cohorts exposed and not exposed to urea formaldehyde foam insulation (UFFI). A cohort epidemiological study is designed to investigate the health effects of UFFI by examining one group exposed to UFFI, and a second group not exposed to UFFI.
4. Drs. A. Nantel and J.-P. Weber	The medical and environmental evaluation on the adverse health effects produced by the insulation of houses with urea-formaldehyde foam. Study is designed to examine adverse health effects and environmental parameters in various groups of home-owners for both UFFI and non-UFFI homes.

PRINCIPAL INVESTIGATOR(S)	TITLE AND DESCRIPTION
5. Drs. Dolovich, Muif, Verma 6606-2256-3	Health effects of Formaldehyde—UFFI: A controlled Double-Blind Exposure Study. Volunteer subjects under controlled experimental conditions will be examined for health effects due to a monitored formaldehyde exposure.
6. Dr. I. Broder 6606-2286-3	Health status of residents in homes insulated with Urea-Formaldehyde Foam before and after remedial measures are undertaken. Health status of residents of UFFI homes is to be compared with that of non-UFFI homes and variables found to differ will be examined to define risk factors and dose-effect relationships with exposure to formaldehyde vapour.
7. Drs. Hoffstein, Gibson 6606-2288	Acute effects of urea-formaldehyde on pulmonary function. Purpose of study is to examine effects of exposure to formaldehyde on pulmonary function and to correlate the presente of subjective complaints with objective tests.
8. Dr. Woodhams 6606-2195-3	Melamine as a formaldehyde scavenger. Melamine applied as a water slurry to the walls of UFFI homes can scavenge formaldehyde and possibly reduce air contamination of formaldehyde below 0.01 ppm.
9. Dr. J. Day (Proposed contract)	Health status and immunocompetence of homeowners exposed to varying levels of formaldehyde from UFFI. A group of homeowners in the Kingston, Ontario area who have had their homes tested for health examination. The health exam would be conducted by Dr. J. Day and include tests for immuno-competence, lung function, and general health status.

PRINCIPAL INVESTIGATOR(S)	TITLE AND DESCRIPTION
10. Dr. Williams Contract goal-Bureau of Chemical Hazards, Environmental Health Directorate	Formaldehyde survey in Northwest Territory buildings. This work is in the planning stages and consists of a survey for formaldehyde in buildings in the NWT for the winter of 1982-83. Included in the design is the consideration for both UFFI and non-UFFI buildings.
11. Contract goal-World Health Organization, European Regional	To develop and epidemiological approach to investigate the ill-health in humans living in homes insulated with UFFI, and to design a feasibility study to validate the approach.

APPENDIX V

THE ASSISTANCE PROGRAM FOR UFFI HOMEOWNERS

The UFFI Program offers owners of eligible dwellings **financial assistance** of up to $5,000 to correct problems arising from the use of Urea Formaldehyde Foam Insulation (UFFI).

It also offers **technical information and assistance**.

It is available to UFFI homeowners who register with the UFFI Centre before June 30, 1983.

This guide describes the Program and how to obtain assistance.

Once you have received the technical information offered, you will be in a position to choose the most appropriate corrective measures for you dwelling.

THE UFFI PROGRAM

What is an eligible dwelling?

A single family house located in Canada, whether detached, semi-detached or part of a row, is eligible. A duplex or triplex is also eligible as a single dwelling. A pre-manufactured dwelling is eligible, but a mobile home is not. Any condominium dwelling unit is also eligible.

If you are in any doubt about the eligibility of your dwelling, please contact the UFFI Centre.

One application is made per dwelling. No owner may receive a payment for more than three dwellings. That is, your name may not appear as either the applicant or a co-owner on more than three applications.

The full UFFI Program includes:

STEP 1.—**application**

STEP 2.—**testing** to determine the level of formaldehyde in the air of your dwelling

STEP 3.—**information on the corrective measures** available for your dwelling, a list of specially-trained **contractors registered with the UFFI Centre**, and information about **free courses for homeowners** who wish to do the work themselves

STEP 4.—**choice of corrective measures**

STEP 5.—**estimates**

STEP 6.—**authorization** from the Canada Mortgage and Housing Corporation (CMHC) to proceed with the work chosen and described in your estimates

STEP 7.—**provision of an advance payment**, if required, to start work

STEP 8.—**implementation of corrective measures**

STEP 9.—**inspection** of the work while being done and/or after completion, if required

STEP 10.—submission of **request for reimbursement** and supporting documents (possible final inspection)

STEP 11.—**reimbursement of eligible expenses**

STEP 12.—provision of a **Statement of Test Results** which gives the level of formaldehyde after completion of corrective measures

Source: From an information booklet available from the Department of Consumer and Corporate Affairs, UFFI Centre, Hull, Quebec, K1A 0C9

MINUTES OF PROCEEDINGS

WEDNESDAY, NOVEMBER 3, 1982
(64)

[*Text*]

The Standing Committee on Health, Welfare and Social Affairs met *in camera* at 3:37 o'clock p.m. this day, the Chairman, Mr. Marcel Roy, presiding.

Members of the Committee present: Messrs. Berger, Cossitt, Gurbin, Hawkes, Hudecki, Lang, Macdougall, Marceau, McCauley, Reid (*St. Catharines*), Roy, Scott (*Hamilton—Wentworth*) and Skelly.

In attendance: *From the Research Branch, Library of Parliament*: Dr. Tom Curren, Mr. Guy Beaumier and Mr. Jacques Rousseau; Judy Schrieder, Research Assistant to Jim Schroder, M.P.

The Committee resumed consideration of its Order of Reference dated Monday, July 26, 1982 regarding urea formaldehyde foam insulation. (*See Minutes of Proceedings and Evidence of Tuesday, August 3, 1982, Issue No. 39.*)

It was agreed,—That Members' research staff will be allowed to attend the *in camera* meetings for discussion of the report.

It was agreed,—That the *in camera* meetings be taped but that no transcript be prepared.

The Members discussed the draft outline of the report on urea formaldehyde foam insulation.

It was agreed,—That the next meeting of the Committee will be held on Tuesday, November 9, 1982 at 11:00 a.m.

At 5:20 o'clock p.m., the Committee adjourned to the call of the Chair.

TUESDAY, NOVEMBER 9, 1982
(65)

The Standing Committee on Health, Welfare and Social Affairs met *in camera* at 11:18 o'clock a.m. this day, the Chairman, Mr. Marcel Roy, presiding.

Members of the Committee present: Mr. Berger, Mrs. Côté, Messrs. Gurbin, Hawkes, Marceau, Reid (*St. Catharines*), Roy and Skelly.

In attendance: *From the Research Branch, Library of Parliament*: Dr. Tom Curren, Mr. Jacques Rousseau and Mr. Guy Beaumier; Judy Schrieder, Special Assistant to Jim Schroder, M.P.; Sean Berrigan, Special Assistant to Geoff Scott, M.P.; Holly Hidson, Special Assistant to Ray Skelly, M.P.

The Committee resumed consideration of its Order of Reference dated Monday, July 26, 1982 concerning urea formaldehyde foam insulation. (*See Minutes of Proceedings and Evidence, Tuesday, August 3, 1982, Issue No. 39.*)

The Members discussed the draft outline of the report.

At 12:58 o'clock p.m., the Committee adjourned to the call of the Chair.

PROCÈS-VERBAL

LE MERCREDI 3 NOVEMBRE 1982
(64)

[*Texte*]

Le Comité permanent de la santé, du bien-être social et des affaires sociales se réunit aujourd'hui à 15h37 à huis clos, sous la présidence de M. Marcel Roy (président).

Membres du Comité présents: M. Berger, M^me^ Cossitt, MM. Hawkes, Hudecki, Lang, MacDougall, Marceau, McCauley, Reid (*St. Catharines*), Roy, Scott (*Hamilton—Wentworth*) et Skelly.

Également présents: *Du Service de recherche de la Bibliothèque du Parlement*: MM. Tom Curren, Guy Beaumier et Jacques Rousseau; Judy Schrieder, adjointe spéciale à Jim Schroder, député.

Le Comité reprend l'étude de son Ordre de renvoi du lundi 26 juillet 1982 portant sur la mousse isolante d'urée formol. (*Voir les procès-verbaux et témoignages du mardi 3 août 1982, fascicule n° 39.*)

Il est convenu,—Que les adjointes des membres peuvent assister aux réunions à huis clos portant sur la discussion du rapport.

Il est convenu,—Que les réunions à huis clos soient enregistrées mais qu'une transcription ne soit pas préparée.

Les membres discutent le projet du rapport sur la mousse isolante d'urée formol.

Il est convenu,—Que la prochaine réunion du Comité aura lieu le mardi 9 novembre 1982 à 11 heures.

A 17h20, le Comité suspend ses travaux jusqu'à nouvelle convocation du président.

LE MARDI 9 NOVEMBRE 1982
(65)

Le Comité permanent de la santé, du bien-être social et des affaires sociales se réunit aujourd'hui à 11h18 à huis clos, sous la présidence de M. Marcel Roy (président).

Membres du Comité présents: M. Berger, M^me^ Côté, MM. Gurbin, Hawkes, Marceau, Reid (*St. Catharines*), Roy et Skelly.

Également présents: *Du Service de recherche de la Bibliothèque du Parlement*: MM. Tom Curren, Jacques Rousseau et Guy Beaumier; Judy Schrieder, adjointe spéciale à Jim Schroder, député; Sean Berrigan, adjoint spécial à Geoff Scott, député; Holly Hidson, adjointe spéciale à Ray Skelly, député.

Le Comité reprend l'étude de son Ordre de renvoi du lundi 26 juillet 1982 portant sur la mousse isolante d'urée formol. (*Voir les procès-verbaux et témoignages du mardi 3 août 1982, fascicule n° 39.*)

Les membres discutent le projet du rapport.

A 12h58, le Comité suspend ses travaux jusqu'à nouvelle convocation du président.

TUESDAY, NOVEMBER 23, 1982
(66)

The Standing Committee on Health, Welfare and Social Affairs met *in camera* at 9:47 o'clock a.m. this day, the Chairman, Mr. Marcel Roy, presiding.

Members of the Committee present: Messrs. Berger, Bossy, Mrs. Côté, Messrs. Hawkes, Lang, Miss MacDonald (*Kingston and the Islands*), Messrs. Malépart, Marceau, McCauley, Reid (*St. Catharines*), Roy and Scott (*Hamilton—Wentworth*).

In attendance: *From the Research Branch, Library of Parliament*: Dr. Tom Curren, Mr. Guy Beaumier and Mr. Jacques Rousseau; Francine Nantel, Translator; Sean Berrigan, Special Assistant to Geoff Scott, M.P.; Judy Schrieder, Special Assistant to Jim Schroder, M.P.; Gavin Murphy, Special Assistant to Ray Skelly, M.P.

The Committee resumed consideration of its Order of Reference dated Monday, July 26, 1982, concerning urea formaldehyde foam insulation. (*See Minutes of Proceedings and Evidence dated Tuesday, August 3, 1982, Issue No. 39.*)

The Members discussed the draft report.

At 12:43 o'clock p.m., the Committee adjourned to the call of the Chair.

AFTERNOON SITTING
(67)

The Standing Committee on Health, Welfare and Social Affairs met *in camera* at 4:43 o'clock p.m., this day, the Chairman, Mr. Marcel Roy, presiding.

Members of the Committee present: Messrs. Bloomfield, Chénier, Cullen, Mrs. Côté, Messrs. Cyr, Hawkes, Miss MacDonald (*Kingston and the Islands*), Messrs. Massé, Marceau, MacLaren, McCauley, Reid (*St. Catharines*), Robinson (*Etobicoke—Lakeshore*) and Roy.

Other Member present: Mr. Bossy.

In attendance: *From the Research Branch, Library of Parliament*: Dr. Tom Curren, Mr. Guy Beaumier and Mr. Jacques Rousseau; Judy Schrieder, Special Assistant to Jim Schroder, M.P.; Francine Nantel, Translator.

The Committee resumed consideration of its Order of Reference dated Monday, July 26, 1982, concerning urea formaldehyde foam insulation. (*See Minutes of Proceedings and Evidence dated Tuesday, August 3, 1982, Issue No. 39.*)

The Members discussed the draft report.

Ordered,—That the Committee's report on urea formaldehyde foam insulation be printed in a tumble format with an English cover on one side and a French cover on the other as indicated to the Clerk.

Ordered,—That 10,000 copies be printed of the Committee's Report on urea formaldehyde foam insulation.

Ordered,—That the Chairman report to the House seeking an extension of the Committee's original reporting deadline to December 8, 1982.

At 6:06 o'clock p.m., the Committee adjourned to the call of the Chair.

LE MARDI 23 NOVEMBRE 1982
(66)

Le Comité permanent de la santé, du bien-être social et des affaires sociales se réunit aujourd'hui à 9h47 à huis clos, sous la présidence de M. Marcel Roy (président).

Membres du Comité présents: MM. Berger, Bossy, M^me^ Côté, MM. Hawkes, Lang, M^lle^ MacDonald (*Kingston et les Îles*), MM. Malépart, Marceau, McCauley, Reid (*St. Catharines*), Roy et Scott (*Hamilton—Wentworth*).

Également présents: *Du Service de recherche de la Bibliothèque du Parlement*: MM. Tom Curren, Guy Beaumier, Jacques Rousseau; Francine Nantel, traductrice; Sean Berrigan, adjoint spécial à Geoff Scott, député; Judy Schrieder, adjointe spéciale à Jim Schroder, député; Gavin Murphy, adjoint spécial à Ray Skelly, député.

Le Comité reprend l'étude de son Ordre de renvoi du lundi 26 juillet 1982 portant sur la mousse isolante d'urée formol. (*Voir les procès-verbaux et témoignages du mardi 3 août 1982, fascicule n° 39.*)

Les membres discutent le projet du rapport.

A 12h43, le Comité suspend ses travaux jusqu'à nouvelle convocation du président.

SÉANCE DE L'APRÈS-MIDI
(67)

Le Comité permanent de la santé, du bien-être social et des affaires sociales se réunit aujourd'hui à 16h43 à huis clos, sous la présidence de M. Marcel Roy (président).

Membres du Comité présents: MM. Bloomfield, Cullen, M^me^ Côté, MM. Cyr, Hawkes, M^lle^ MacDonald (*Kingston et les Îles*), MM. Massé, Marceau, McLaren, McCauley, Reid (*St. Catharines*), Robinson (*Etobicoke—Lakeshore*) et Roy.

Autre député présent: M. Bossy.

Également présents: *Du Service de recherche de la Bibliothèque du Parlement*: MM. Tom Curren, Guy Beaumier, Jacques Rousseau; Judy Schrieder, adjointe spéciale à Jim Schroder, député; Francine Nantel, traductrice.

Le Comité reprend l'étude de son Ordre de renvoi du lundi 26 juillet 1982 portant sur la mousse isolante d'urée formol. (*Voir les procès-Verbaux et témoignages du mardi 3 août 1982, fascicule n° 39.*)

Les membres discutent le projet du rapport.

Il est ordonné,—Que le rapport du Comité sur la mousse isolante d'urée formol soit imprimé de façon tête-bêche, une couverture anglaise d'un côté, couverture française de l'autre tel qu'indiqué au greffier.

Il est ordonné,—Que 10,000 copies soient imprimées du rapport du Comité sur la mousse isolante d'urée formol.

Il est ordonné,—Que le Comité présente un rapport à la Chambre demandant une extension de l'échéance originale du Comité jusqu'au 8 décembre 1982.

A 18h06, le Comité suspend ses travaux jusqu'à nouvelle convocation du président.

EVENING SITTING
(68)

The Standing Committee on Health, Welfare and Social Affairs met *in camera* at 8:26 o'clock p.m. this day, the Chairman, Mr. Marcel Roy, presiding.

Members of the Committee present: Messrs. Berger, Gurbin, Hawkes, Miss MacDonald, Messrs. Masters, Reid (*St. Catharines*), Robinson (*Etobicoke—Lakeshore*) and Roy.

In attendance: *From the Research Branch, Library of Parliament*: Dr. Tom Curren, Mr. Guy Beaumier and Mr. Jacques Rousseau; Francine Nantel and Diane Burgess, Translators.

The Committee resumed consideration of its Order of Reference dated Monday, July 26, 1982, concerning urea formaldehyde foam insulation. (*See Minutes of Proceedings and Evidence dated Tuesday, August 3, 1982, Issue 39.*)

The Members discussed the draft report.

At 10:03 o'clock p.m., the Committee adjourned to the call of the Chair.

WEDNESDAY, NOVEMBER 24 1982
(69)

The Standing Committee on Health, Welfare and Social Affairs met *in camera* at 3:42 o'clock p.m. this day, the Chairman, Mr. Marcel Roy, presiding.

Members of the Committee present: Messrs. Berger, Gurbin, Hawkes, Hudecki, Miss MacDonald (*Kingston and the Islands*), Messrs. Marceau, McCauley, Robinson (*Etobicoke—Lakeshore*) and Roy.

In attendance: *From the Research Branch, Library of Parliament*: Dr. Tom Curren and Mr. Guy Beaumier; Judy Schrieder, Special Assistant to Jim Schroder, M.P.; Sean Berrigan, Special Assistant to Geoff Scott, M.P.; Francine Nantel, Translator.

The Committee resumed consideration of its Order of Reference dated Monday, July 26, 1982, concerning urea formaldehyde foam insulation. (*See Minutes of Proceedings and Evidence dated Tuesday, August 3, 1982, Issue No. 39.*)

The Members discussed the draft report.

At 5:55 o'clock p.m., the Committee adjourned to the call of the Chair.

THURSDAY, NOVEMBER 25, 1982
(70)

The Standing Committee on Health, Welfare and Social Affairs met *in camera* at 10:03 a.m. this day, the Chairman, Mr. Marcel Roy, presiding.

Members of the Committee present: Messrs. Berger, Bloomfield, Gurbin, Lang, Marceau, Mayer, Robinson (*Etobicoke—Lakeshore*), Roy and Schroder.

In attendance: *From the Research Branch, Library of Parliament*: Dr. Tom Curren and Mr. Guy Beaumier; Judy Schrieder, Special Assistant to Jim Schroder, M.P.; Sean Berrigan, Special Assistant to Geoff Scott, M.P.; Francine Nantel, Translator.

The Committee resumed consideration of its Order of Reference dated Monday, July 26, 1982 concerning urea formaldehyde foam insulation. (*See Minutes of Proceedings and Evidence dated Tuesday, August 3, 1982, Issue No. 39.*)

SÉANCE DU SOIR
(68)

Le Comité permanent de la santé, du bien-être social et des affaires sociales se réunit aujourd'hui à 20h26 à huis clos, sous la présidence de M. Marcel Roy (président).

Membres du Comité présents: MM. Berger, Gurbin, Hawkes, M^lle MacDonald (*Kingston et les Îles*), MM. Masters, Reid (*St. Catharines*), Robinson (*Etobicoke—Lakeshore*) et Roy.

Également présents: *Du Service de recherche de la Bibliothèque du Parlement*: MM. Tom Curren, Guy Beaumier, Jacques Rousseau; Francine Nantel et Diane Burgess, traductrices.

Le Comité reprend l'étude de son Ordre de renvoi du lundi 26 juillet 1982 portant sur la mousse isolante d'urée formol. (*Voir les procès-verbaux et témoignages du mardi 3 août 1982, fascicule n° 39.*)

Les membres discutent le projet du rapport.

A 20h03, le Comité suspend ses travaux jusqu'à nouvelle convocation du président.

LE MERCREDI 24 NOVEMBRE 1982
(69)

Le Comité permanent de la santé, du bien-être social et des affaires sociales se réunit aujourd'hui à 15h42 à huis clos, sous la présidence de M. Marcel Roy (président).

Membres du Comité présents: MM. Berger, Gurbin, Hawkes, Hudecki, M^lle MacDonald (*Kingston et les Îles*), MM. Marceau, McCauley, Robinson (*Etobicoke—Lakeshore*) et Roy.

Aussi présents: *Du Service de recherche de la Bibliothèque du Parlement*: MM. Tom Curren et Guy Beaumier; Judy Schrieder, adjointe spéciale à Jim Schroder, député; Sean Berrigan, adjoint spécial à Geoff Scott, député; Francine Nantel, traductrice.

Le Comité reprend l'étude de son Ordre de renvoi du lundi 26 juillet 1982 portant sur la mousse isolante d'urée formol. (*Voir les procès-verbaux et témoignages du mardi 3 août 1982, fascicule n° 39.*)

Les membres discutent le projet du rapport.

A 17h55, le Comité suspend ses travaux jusqu'à nouvelle convocation du président.

LE JEUDI 25 NOVEMBRE 1982
(70)

Le Comité permanent de la santé, du bien-être social et des affaires sociales se réunit aujourd'hui à huis clos à 10h03 sous la présidence de M. Marcel Roy (président).

Membres du Comité présents: MM. Berger, Bloomfield, Gurbin, Lang, Marceau, Mayer, Robinson (*Etobicoke—Lakeshore*), Roy et Schroder.

Aussi présents: *Du Service de recherche de la Bibliothèque du Parlement*: MM. Tom Curren et Guy Beaumier; Judy Schrieder, adjointe spéciale à Jim Schroder, député; Sean Berrigan, adjoint spécial à Geoff Scott, député; Francine Nantel, traductrice.

Le Comité reprend l'étude de son Ordre de renvoi du lundi 26 juillet 1982 portant sur la mousse isolante d'urée formol. (*Voir les procès-verbaux et témoignages du mardi 3 août 1982, fascicule n° 39.*)

The Members discussed the draft report.

At 12:15 o'clock p.m., the Committee adjourned to the call of the Chair.

MONDAY, NOVEMBER 29, 1982
(71)

The Standing Committee on Health, Welfare and Social Affairs met *in camera* at 3:44 o'clock p.m., this day, the Chairman, Mr. Marcel Roy, presiding.

Members of the Committee present: Messrs. Berger, Bloomfield, Hudecki, Miss MacDonald (*Kingston and the Islands*), Messrs. Masters, Reid (*St. Catharines*), Roy, Schroder and Scott (*Hamilton—Wentworth*).

In attendance: *From the Research Branch, Library of Parliament*: Dr. Tom Curren, Mr. Guy Beaumier; Judy Schrieder, Special Assistant to Jim Schroder, M.P.

The Committee resumed consideration of its Order of Reference dated Monday, July 26, 1982 concerning urea formaldehyde foam insulation. (*See Minutes of Proceedings and Evidence dated Tuesday, August 3, 1982, Issue No. 39.*)

The Members discussed the draft report.

At 5:54 o'clock p.m., the Committee adjourned to the call of the Chair.

EVENING SITTING
(72)

The Standing Committee on Health, Welfare and Social Affairs met *in camera* at 8:28 o'clock p.m., this day, the Chairman, Mr. Marcel Roy, presiding.

Members of the Committee present: Messrs. Berger, Bloomfield, Bossy, Hudecki, Miss MacDonald (*Kingston and the Islands*), Messrs. Reid (*St. Catharines*), Robinson (*Etobicoke—Lakeshore*), Roy, Schroder and Scott (*Hamilton—Wentworth*).

In attendance: *From the Research Branch, Library of Parliament*: Dr. Tom Curren, Mr. Guy Beaumier; Francine Nantel, Translator.

The Committee resumed consideration of its Order of Reference dated Monday, July 26, 1982 concerning urea formaldehyde foam insulation. (*See Minutes of Proceedings and Evidence dated Tuesday, August 3, 1982, Issue No. 39.*)

The Members discussed the draft report.

At 10:01 o'clock p.m., the Committee adjourned to the call of the Chair.

TUESDAY, NOVEMBER 30, 1982
(73)

The Standing Committee on Health, Welfare and Social Affairs met *in camera* at 10:00 o'clock a.m., this day, the Chairman, Mr. Marcel Roy, presiding.

Members of the Committee present: Messrs. Berger, Bloomfield, Bossy, Hudecki, Lang, Miss MacDonald (*Kingston and the Islands*), Messrs. Marceau, Reid (*St. Catharines*), Robinson (*Etobicoke—Lakeshore*), Roy, Schroder and Scott (*Hamilton—Wentworth*).

In attendance: *From the Research Branch, Library of Parliament*: Dr. Tom Curren, Mr. Guy Beaumier and Mr. Jacques Rousseau; Sean Berrigan, Special Assistant to Geoff

Les membres discutent le projet du rapport.

A 12h15, le Comité suspend ses travaux jusqu'à nouvelle convocation du président.

LE LUNDI 29 NOVEMBRE 1982
(71)

Le Comité permanent de la santé, du bien-être social et des affaires sociales se réunit aujourd'hui à 15h44 à huis clos, sous la présidence de M. Marcel Roy (président).

Membres du Comité présents: MM. Berger, Bloomfield, Hudecki, M^lle^ MacDonald (*Kingston et les Îles*), MM. Masters, Reid (*St. Catharines*), Roy, Schroder et Scott (*Hamilton—Wentworth*).

Également présents: *Du Service de recherche de la Bibliothèque du Parlement*: MM. Tom Curren et Guy Beaumier; Judy Schrieder, adjointe spéciale à Jim Schroder, député.

Le Comité reprend l'étude de son Ordre de renvoi du lundi 26 juillet 1982 portant sur la mousse isolante d'urée formol. (*Voir les procès-verbaux et témoignages du mardi 3 août 1982, fascicule n° 39.*)

Les membres discutent le projet du rapport.

A 17h54, le Comité suspens ses travaux jusqu'à nouvelle convocation du président.

SÉANCE DU SOIR
(72)

Le Comité permanent de la santé, du bien-être social et des affaires sociales se réunit aujourd'hui à 20h28 à huis clos, sous la présidence de M. Marcel Roy (président).

Membres du Comité présents: MM. Berger, Bloomfield, Bossy, Hudecki, M^lle^ MacDonald (*Kingston et les Îles*), MM. Reid (*St. Catharines*), Robinson (*Etobicoke—Lakeshore*), Schroder et Scott (*Hamilton—Wentworth*).

Également présents: *Du Service de recherche de la Bibliothèque du Parlement*: MM. Guy Beaumier et Tom Curren; Francine Nantel, traductrice.

Le Comité reprend l'étude de son Ordre de renvoi du lundi 26 juillet 1982 portant sur la mousse isolante d'urée formol. (*Voir les procès-verbaux et témoignages du mardi 3 août 1982, fascicule n° 39.*)

Les membres discutent le projet du rapport.

A 22h01, le Comité suspend ses travaux jusqu'à nouvelle convocation du président.

LE MARDI 30 NOVEMBRE 1982
(73)

Le Comité permanent de la santé, du bien-être social et des affaires sociales se réunit aujourd'hui à 10 heures à huis clos, sous la présidence de M. Marcel Roy (président).

Membres du Comité présents: MM. Berger, Bloomfield, Bossy, Hudecki, Lang, M^lle^ MacDonald (*Kingston et les Îles*), MM. Marceau, Reid (*St. Catharines*), Robinson (*Etobicoke—Lakeshore*), Roy, Schroder et Scott (*Hamilton—Wentworth*).

Également présents: *Du Service de recherche de la Bibliothèque du Parlement*: MM. Tom Curren, Guy Beaumier et Jacques Rousseau; Sean Berrigan, adjoint spécial à Geoff

Scott, M.P.; Judy Schrieder, Special Assistant to Jim Schroder, M.P.

The Committee resumed consideration of its Order of Reference dated Monday, July 26, 1982 concerning urea formaldehyde foam insulation. (*See Minutes of Proceedings and Evidence, Tuesday, August 3, 1982, Issue No. 39.*)

The Members discussed the draft report.

At 11:55 o'clock a.m., the Committee adjourned to the call of the Chair.

AFTERNOON SITTING
(74)

The Standing Committee on Health, Welfare and Social Affairs met *in camera* at 3:45 o'clock p.m., this day, the Chairman, Mr. Marcel Roy, presiding.

Members of the Committee present: Messrs. Berger, Bloomfield, Bossy, Hudecki, Miss MacDonald (*Kingston and the Island*), Messrs. Marceau, Robinson (*Etobicoke—Lakeshore*), Roy and Scott (*Hamilton—Wentworth*).

In attendance: *From the Research Branch, Library of Parliament*: Dr. Tom Curren, Mr. Guy Beaumier, Mr. Jacques Rousseau; Judy Schrieder, Special Assistant to Jim Schroder, M.P.; Diane Burgess and Francine Nantel, Translators.

The Committee resumed consideration of its Order of Reference dated Monday, July 26, 1982 concerning urea formaldehyde foam insulation. (*See Minutes of Proceedings and Evidence, Tuesday, August 3, 1982, Issue No. 39.*)

The Members discussed the draft report.

At 5:45 o'clock p.m., the Committee adjourned to the call of the Chair.

THURSDAY, DECEMBER 2, 1982
(75)

The Standing Committee on Health, Welfare and Social Affairs met *in camera* at 3:45 o'clock p.m., this day, the Chairman, Mr. Marcel Roy, presiding.

Members of the Committee present: Messrs. Berger, Bloomfield, Marceau, Reid (*St. Catharines*), Robinson (*Etobicoke—Lakeshore*), Roy, Scott (*Hamilton—Wentworth*) and Skelly.

In attendance: *From the Research Branch, Library of Parliament*: Dr. Tom Curren, Mr. Guy Beaumier and Mr. Jacques Rousseau; Francine Nantel and Diane Burgess, Translators; Judy Schrieder, Special Assistant to Jim Schroder, M.P.

The Committee resumed consideration of its Order of Reference dated Monday, July 26, 1982 concerning urea formaldehyde foam insulation. (*See Minutes of Proceedings and Evidence of Tuesday, August 3, 1982, Issue No. 39.*)

The Members began consideration of the final draft of the report.

At 4:10 o'clock p.m., the Committee adjourned until 9:00 o'clock p.m. this day.

Scott, député; Judy Schrieder, adjointe spéciale à Jim Schroder, député.

Le Comité reprend l'étude de son Ordre de renvoi du lundi 26 juillet 1982 portant sur la mousse isolante d'urée formol. (*Voir les procès-verbaux et témoignages du mardi 3 août 1982, fascicule nº 39.*)

Les membres discutent le projet du rapport.

A 11h55, le Comité suspend ses travaux jusqu'à nouvelle convocation du président.

SÉANCE DE L'APRÈS-MIDI
(74)

Le Comité permanent de la santé, du bien-être social et des affaires sociales se réunit aujourd'hui à 15h45 à huis clos, sous la présidence de M. Marcel Roy (président).

Membres du Comité présents: MM. Berger, Bloomfield, Bossy, Hudecki, Mlle MacDonald (*Kingston et les Îles*), MM. Marceau, Robinson (*Etobicoke—Lakeshore*), Roy et Scott (*Hamilton—Wentworth*).

Également présents: *Du Service de recherche de la Bibliothèque du Parlement*: MM. Guy Beaumier, Tom Curren et Jacques Rousseau; Judy Schrieder, adjointe spéciale à Jim Schroder, député; Diane Burgess et Francine Nantel, traductrices.

Le Comité reprend l'étude de son Ordre de renvoi du lundi 26 juillet 1982 portant sur la mousse isolante d'urée formol. (*Voir les procès-verbaux et témoignages du mardi 3 oaût 1982, fascicule nº 39.*)

Les membres discutent le projet du rapport.

A 17h45, le Comité suspend ses travaux jusqu'à nouvelle convocation du président.

LE JEUDI 2 DÉCEMBRE 1982
(75)

Le Comité permanent de la santé, du bien-être social et des affaires sociales se réunit aujourd'hui à 15h45 à huis clos, sous la présidence de M. Marcel Roy (président).

Membres du Comité présents: MM. Berger, Bloomfield, Marceau, Reid (*St. Catharines*), Robinson (*Etobicoke—Lakeshore*), Roy, Scott (*Hamilton—Wentworth*) et Skelly.

Également présents: *Du Service de recherche de la Bibliothèque du Parlement*: MM. Tom Curren, Guy Beaumier et Jacques Rousseau; Francine Nantel et Diane Burgess; traductrices; Judy Schrieder, adjointe spéciale à Jim Schroder, député.

Le Comité reprend l'étude de son Ordre de renvoi du lundi 26 juillet 1982 portant sur la mousse isolante d'urée formol. (*Voir les procès-verbaux et témoignages du mardi 3 août 1982, fascicule nº 39.*)

Les députés ont commencé l'étude du projet final du rapport.

A 16h10, le Comité suspend ses travaux jusqu'à 21 heures.

EVENING SITTING
(76)

The Standing Committee on Health, Welfare and Social Affairs met *in camera* at 9:10 o'clock p.m. this day, the Chairman, Mr. Marcel Roy, presiding.

Members of the Committee present: Messrs. Berger, Bloomfield, Bossy, Burghardt, Gurbin, Hudecki, Mrs. Killens, Mr. Lang, Miss MacDonald (*Kingston and the Islands*), Messrs. Marceau, Reid (*St. Catharines*), Robinson (*Etobicoke—Lakeshore*), Roy, Scott (*Hamilton—Wentworth*) and Skelly.

In attendance: *From the Research Branch, Library of Parliament*: Dr. Tom Curren, Mr. Guy Beaumier and Mr. Jacques Rousseau; Francine Nantel and Diane Burgess, Translators.

The Committee resumed consideration of its Order of Reference dated Monday, July 26, 1982 concerning urea formaldehyde foam insulation. (*See Minutes of Proceedings and Evidence, Tuesday, August 3, 1982, Issue No. 39.*)

The Members resumed consideration of the final draft of the report.

Mr. Berger moved,—That the second recommendation on page 71 in the English text be deleted.

After debate, the question being put on the motion, it was, by a show of hands, negatived: Yeas: 6; Nays: 7.

Mr. Skelly moved,—That the second recommendation on page 71 of the English text be deleted and replaced with the following:

"There should be no deadline for application and qualification for the program of original homeowners who had UFFI placed in their homes prior to the December 1980 ban."

After debate, the question being put on the motion, it was, by a show of hands, negatived: Yeas: 1; Nays: 12.

Mr. Scott (*Hamilton—Wentworth*) moved,—That dissenting views which may be submitted by members of the Committee be printed as appendices to the Committee's report on urea formaldehyde foam insulation.

After debate, the question being put on the motion, it was, by a show of hands, negatived: Yeas: 4; Nays: 6.

By unanimous consent, the Committee agreed to rescind its decision on the motion of Mr. Scott (*Hamilton—Wentworth*), and declared its intention of reconsidering the question if necessary.

Mr. Berger moved,—That the recommendations contained in the summary on pages 83, 84, 85, 86 and 87 of the English text, as amended, as well as the two recommendations to be submitted in written form by Miss MacDonald (*Kingston and the Islands*), to which the Committee has agreed in substance, be adopted.

And debate arising thereon;

On motion of Mr. Robinson (*Etobicoke—Lakeshore*), it was resolved,—That Mr. Berger's motion be amended by adding immediately after the words "as amended" the following: "(*except for the third recommendation on page 87 of the English text*)".

Debate resumed on the motion of Mr. Berger, as amended.

SÉANCE DU SOIR
(76)

Le Comité permanent de la santé, du bien-être social et des affaires sociales se réunit aujourd'hui à 21h10 à huis clos, sous la présidence de M. Marcel Roy (président).

Membres du Comité présents: MM. Berger, Bloomfield, Bossy, Burghardt, Gurbin, Hudecki, M^me^ Killens, M. Lang, M^lle^ MacDonald (*Kingston et les Îles*), MM. Marceau, Reid (*St. Catharines*), Robinson (*Etobicoke—Lakeshore*), Roy, Scott (*Hamilton—Wentworth*) et Skelly.

Également présents: *Du Service de recherche de la Bibliothèque du Parlement*: MM. Tom Curren, Guy Beaumier et Jacques Rousseau; Francine Nantel et Diane Burgess, traductrices.

Le Comité reprend l'étude de son Ordre de renvoi du lundi 26 juillet 1982 portant sur la mousse isolante d'urée formol. (*Voir les procès-verbaux et témoignages du mardi 3 août 1982, fascicule n^o^ 39.*)

Les membres reprennent l'étude du dernier projet de rapport.

M. Berger propose,—Que la première recommandation à la page 70 du texte français soit rayée.

Après débat, la motion, mise aux voix, est rejetée par un vote à main levée par 7 voix contre 6.

M. Skelly propose,—Que la première recommandation à la page 70 du texte français soit rayée et remplacée par ce qui suit:

Qu'il ne devrait pas y avoir de date limite pour la présentation d'une demande d'aide et d'admissibilité au programme des propriétaires qui ont fait isoler leur maison à la MIUF quant l'interdiction, de décembre 1980.

Après débat, la motion, mise aux voix est rejetée par un vote à main levée par 12 voix contre 1.

M. Scott (*Hamilton—Wentworth*) propose,—Que les divergences d'opinions que les membres du Comité voudront soumettre soient imprimées en annexes au rapport du Comité portant sur la mousse isolante d'urée formol.

Après débat, la motion mise aux voix, est rejetée par vote à main levée, par 6 voix contre 4.

Par consentement unanime, le Comité a convenu d'abroger sa décision sur la motion de M. Scott (*Hamilton—Wentworth*) et a déclaré son intention d'étudier cette question à nouveau s'il y a lieu.

M. Berger propose,—Que les recommandations qui figurent aux pages 82, 83, 84, 85, 86 et 87 de la version française, telles qu'elles ont été modifiées, ainsi que les deux recommandations que doit soumettre par écrit M^lle^ Flora MacDonald (*Kingston et les Îles*) et que le comité a approuvées en principe, soient adoptées.

Le débat s'engage; puis

Sur motion de M. Robinson (*Etobicoke—Lakeshore*), il est résolu,—Que la motion de M. Berger soit modifié en ajoutant immédiatement après les mots «tel que modifié» ce qui suit «(*à l'exception de la cinquième recommandation aux pages 86-87 du texte français*)».

Le débat a continué sur la motion de M. Berger, telle que modifiée.

And the question being put on the motion, it was agreed to on the following division:

YEAS:

Messrs.

Berger	MacDonald (Miss) (*Kingston and the Islands*)
Bloomfield	Marceau
Bossy	Reid (*St. Catharines*)
Burghardt	Robinson (*Etobicoke—Lakeshore*)
Gurbin	Scott (*Hamilton—Wentworth*)—12
Hudecki	
Killens (Mrs.)	

NAYS:

Mr.

Skelly—1

By unanimous consent, the Committee proceeded to make editorial changes to the final draft of the report.

Mr. Marceau moved,—That the report on urea formaldehyde foam insulation be adopted as amended.

After debate, the question being put on the motion, it was agreed to on the following division:

YEAS:

Messrs.

Berger	Marceau
Bloomfield	Robinson (*Etobicoke—Lakeshore*)
Bossy	Scott (*Hamilton—Wentworth*)—9
Gurbin	
Hudecki	
Killens (Mrs.)	

NAYS:

Mr.

Skelly—1

On motion of Mrs. Killens, it was ordered,—That the report be printed with a grey cover;

That the inside cover of the report feature a list of all Members of Parliament who participated in the inquiry on urea formaldehyde foam insulation as members of the Committee.

That a press release be prepared for distribution on the date of tabling and a press conference be called after tabling to highlight the major elements of the report;

That the Chairman table the report in the House as soon as possible.

By unanimous consent, the Committee proceeded to make further editorial changes to the report.

On motion of Mr. Skelly, it was ordered,—That the Minutes of Proceedings of this day's meetings be printed *in extenso*.

At 12:29 o'clock a.m., the Committee adjourned to the call of the Chair.

La motion, mise aux voix, est adoptée sur division:

POUR:

MM.

Berger	MacDonald (M^lle^) (*Kingston et les Îles*)
Bloomfield	Marceau
Bossy	Reid (*St. Catharines*)
Burghardt	Robinson (*Etobicoke—Lakeshore*)
Gurbin	Scott (*Hamilton—Wentworth*)—12
Hudecki	
Killens (*Mme*)	

CONTRE:

M.

Skelly—1

Par consentement unanime, le Comité apporte des précisions textuelles au projet final du rapport.

M. Marceau propose,—Que le rapport sur la mousse isolante d'urée-formol soit adopté (*tel que modifié*).

Après débat, la motion, mise aux voix, est adoptée sur division:

POUR:

MM.

Berger	Marceau
Bloomfield	Robinson (*Etobicoke—Lakeshore*)
Bossy	Scott (*Hamilton—Wentworth*)—9
Gurbin	
Hudecki	
Killens (*Mme*)	

CONTRE:

M.

Skelly—1

Sur motion de M^me^ Killens, il est ordonné,—Que le rapport soit publié avec une couverture grise;

Que le verso de la couverture comprenne une liste des députés qui ont participé à l'étude sur la mousse isolante d'urée-formol comme membres du Comité;

Qu'un communiqué de presse soit préparé le même jour que la date de présentation en Chambre et qu'une conférence de presse soit convoquée après la présentation pour souligner les éléments majeurs du rapport;

Que le président présente le rapport à la Chambre le plus tôt possible.

Par consentement unanime, le Comité apporte des précisions textuelles additionnelles au rapport.

Sur motion de M. Skelly, il est ordonné,—Que les procès-verbaux des réunions de ce jour soient imprimés *in extenso*.

A 00h29, le Comité suspend ses travaux jusqu'à nouvelle convocation du président.

Le greffier du Comité

Judith A. LaRocque

Clerk of the Committee