



AIVC
2485

THE CANADIAN UFFI ASSISTANCE PROGRAM

Ronald W. Shurb
Director Technical Services
UFFI Centre
Consumer & Corporate Affairs Canada
Hull, Quebec



The UFFI Assistance Program was established as a result of the ban placed on UFFI in December 1980. Approximately 57,000 homes have registered in the Program with about 72% having already undertaken corrective measures. Of those undertaking corrective measures, 84% have done removal, 12% installed a Heat Recovery Ventilator (HRV), and 4% sealing or demolition or some combination of corrective measures. Overall, the implementation of corrective measures has been successful in reducing reported health effects attributed to UFFI and in reducing average indoor formaldehyde levels (the primary indicator of improved air quality). Of those homeowners who stated that they had symptoms before undertaking corrective measures, fully 80% have reported the symptoms had either disappeared, or decreased, upon completion of their corrective measures. Results also indicated that homeowners perceived removal to be slightly more successful than an HRV, and this is borne out by the measurement of formaldehyde levels taken to date. The mean formaldehyde levels before corrective measures were undertaken was 0.062ppm and after completion of corrective measures was 0.049ppm.

#2919

THE CANADIAN UFFI ASSISTANCE PROGRAM

INTRODUCTION

In June 1981 a UFFI Information and Coordination Centre was established as the vehicle through which the Minister of Consumer and Corporate Affairs could offer assistance to owners of homes insulated with urea formaldehyde foam insulation.

Commencing in September 1981, a National Testing Survey (NTS) was undertaken to determine formaldehyde levels in the indoor air of some 2,000 UFFI homes and 400 control homes, and to evaluate the extent and the seriousness of the problems associated with the installation of UFFI in Canadian homes. Specifically it was to show the percentage of homes having formaldehyde levels above 0.1ppm and what could be done to bring those levels down. The survey showed the following:

1. 10.3% of UFFI homes had formaldehyde levels over 0.1ppm
2. 2.85% of non-UFFI homes had levels over 0.1ppm
3. UFFI homes had an average formaldehyde level of 0.054ppm (see Chart 1.)
4. Non-UFFI homes had an average level of 0.036ppm (see Chart 1.)
5. No specific or significant dose-response relationship between health effects and formaldehyde levels was identified. However, there did appear to be some increased incidence of reported health effects from those occupants who did not work outside the home.

The UFFI Act, Bill C-109, was passed by Parliament on August 4, 1982, and proclaimed on October 25, 1982. The legislation authorizes the federal government to provide the following services:

- information and assistance of a technical nature to homeowners encountering problems because they have insulated their dwellings with UFFI;
- financial assistance to registered homeowners who have incurred expenses in the course of undertaking corrective measures, including removal, up to a maximum of \$5,000, tax-free, per dwelling.

September 30, 1983 was the deadline for homeowner registration in the federal Assistance Program. Homeowners must have applied for assistance by that date, although corrective work could begin later, and so far no date has been set by which work must be finished.

The legislation specifically protects the right of the registered homeowner to benefit from the Program without relinquishing their right to legal action against the government in respect to UFFI.

The purpose of this paper is to outline the approach taken to implement Bill C-109, describe some of the problems encountered, and show some of the results to date.

IMPLEMENTATION

The UFFI Centre, located in Hull's Place du Centre, is headed by a Federal Coordinator directly responsible to the Deputy Minister of CCA. As of April 29, 1985, the Centre had 57,356 registered eligible dwellings. The final number is not expected to exceed 57,500. An eligible dwelling must be a single family house located in Canada, whether detached, link, semi-detached or part of a row, duplex or triplex, or pre-fabricated, or a condominium, or a mobile home on a permanent foundation.

PROGRAM STEPS

1. Application/Registration: The homeowner is eligible for assistance for work on up to three dwellings.
2. Preliminary Testing: A screen test establishes the level of formaldehyde inside the dwelling.
3. Full Scale Testing: Further detailed testing includes taking formaldehyde levels and moisture content readings in wall cavities.
4. Inspection/Information: The home is visited by a CMHC inspector who explains the results of testing and gives details of the various corrective measures especially in relation to the house in question.
5. Estimates/Authorization: The homeowner obtains cost estimates for the corrective measure chosen and authorization is given by CMHC to begin work.
6. Advance: The homeowner may apply for an advance of up to 50% of the contract price for corrective measures (maximum \$2,500) to assist in getting the work started.
7. Inspections: CMHC performs inspections of the work in progress, and when needed, after completion of the work.
8. Reimbursement: When the work is complete, the homeowner submits a claim.
9. Statement of Test Results: Three months after completion of work an optional test to establish formaldehyde levels is done, and the results are sent to the homeowner in the form of a Statement of Test Results.

PROBLEMS AND RESULTANT SOLUTIONS

Between June 1981 (when the UFFI Centre opened) and October 1982 (when the Act and Regulations were proclaimed) rapid efforts were made to design and field a program. Major policy decisions had to be made quickly, and new research and development challenges had to be met. Since formaldehyde was then the primary focus of concern, ways of measuring formaldehyde levels in the home had to be developed, testing protocols conceived, corrective measures assessed, and eligibility criteria established. How each of these problems was tackled could be a story in itself, but there is only time to describe some of the major events briefly in this paper.

In the Summer of 1982, we had already started to get the Program out to the people who needed help. At this point, however, significant changes in the direction the Program was taking had to be made. Interdepartmental consultation involving 13 federal departments, and consultation with the newly-formed National Advisory Council, made up of representatives of homeowner groups, greatly increased the scope of the Program so that before Proclamation, the following major changes were made:

1. Eligibility:

In the planning stages, access to the full Program was intended to be restricted to homeowners who had formaldehyde levels above 0.1ppm in their home or who had experienced medical problems due to UFFI. Ultimately, however, all owners of single family UFFI homes were made eligible for all benefits of the Program regardless of levels.

2. Choice of Corrective Measures:

Originally plans were that the UFFI homeowner had to implement corrective measures recommended by CMHC. Now the choice is up to the homeowner, with CMHC providing technical information and estimates for all possible corrective measures.

3. Testing:

Originally preliminary testing was compulsory and full scale testing cost the homeowner \$100. Now preliminary testing is optional and full scale testing, if required, is not charged to the homeowner.

4. Training Courses:

Originally homeowners wishing to attend the UFFI Centre's training course on corrective measures had to pay \$100, and had no choice but to study where the course was offered. Now the \$100 charge is eliminated and a home study program is available.

5. Advance Payments:

These were not originally available.

It can be seen, therefore, that the heavy emphasis on consultation resulted in extensive modifications to the Program, especially in the area of contracts, CMHC inspection procedures, and UFFI Centre operating procedures.

A number of interesting technical problems required solutions as well, among them:

1. Dosimeters:

There is only one source for our dosimeter testing kits. Twice there have been major problems in their production that we have been able to solve by sending people from the NRC, a private consulting firm, and the UFFI Centre to consult with the manufacturer.

2. Cold Weather:

In order to conduct full scale testing in cold weather we had to implement significant changes to the protocol as suggested by the NRC and in consultation with the contracted testing companies. Firm directions also had to be given to contractors carrying out UFFI removal in cold weather conditions.

3. Contractors:

Problems have occurred with some of the contractors registered in the Program,

and at one time there were 1,000 contractors spread across the country. A meticulous warning, suspension, deregistration policy that is tedious to implement but necessary to ensure the safety of the public and the environment has been put into place. Keeping the required number of contractors interested in seeing the Program through to completion could be difficult, especially since the number of homeowners with work left to be done gradually decreases. There are currently 756 contractors still registered in the Program.

4. Heat Recovery Ventilators (HRV's):

One of the accepted corrective measures in the Program is the installation of an HRV. This method of retaining heat while increasing ventilation has never previously been used in residential dwellings and as such there were growing pains to overcome. Acceptable manufacturers had to be found, and courses run both for installers as well as for CMHC inspectors.

5. Fungus:

At the start of the Program we were informed that a moisture content of 20% was required for fungal growth. In both the NTS as well as in our current Program we have found that less than 5% of the homes have at least one wall cavity with a moisture content greater than 20%. In such cases CMHC inspectors recommend removal of UFFI as the corrective measure to be done, and as well they look for other possible causes of moisture problems. It now appears that certain species of fungi may require less moisture than was previously thought. Less than 40% of all registered homeowners received full scale testing, and as a result the true extent of the problem and possibly related problems with fungi is not known. The matter of fungi and its possible effect on health is at present being seriously addressed by the NRC, Agriculture Canada, HWC, and the UFFI Centre as well as by several independent researchers.

TESTING

In our Program, measurements of formaldehyde in indoor air are made using the Air Quality Research (AQR) International PF-1 passive formaldehyde dosimeter. The dosimeter consists of a sodium bisulphite treated fiber-glass filter at the bottom of a glass tube. A testing kit of two dosimeters is sent to homeowners for their use as the preliminary or screening test. These kits are also used by contracted testing companies carrying out full scale testing and by CMHC inspectors during their inspections. The readings used for the final Statement of Test Results are taken from dosimeters

sent to the homeowner upon completion of their corrective measures. Dosimeters are hung ideally for a 7 day period but anywhere from 4 to 8 days is acceptable. Homeowners mail the testing kits to contracted laboratories where analysis involves a colorimetric procedure using chromotropic acid. The limit of detection is 0.01ppm formaldehyde.

From the start of the Program, both the NRC and the UFFI Centre have investigated and evaluated many different testing techniques and devices for measuring formaldehyde in indoor air. The AQR device offers the most reliable and accurate measurement of all techniques evaluated to date, with the possible exception of the DuPont C60 passive monitor. This latter device appears only marginally better than the AQR device but is 5 to 6 times the cost.

Measurement of formaldehyde in UFFI insulated wall cavities is performed using the Draeger 0.5 formaldehyde detector tube, according to procedures specified by the UFFI Centre.

CORRECTIVE MEASURES

The UFFI Centre, in consultation with the NRC, has arrived at three corrective measures - sealing, ventilation and UFFI removal - which have proven effective in reducing the level of formaldehyde in the majority of homes registered in the Program. The choice of which corrective measure to use is left up to the homeowner. CMHC can be of great assistance in this regard. Their inspectors explain the results of any testing done in the home and based on these results give advice and estimates on the recommended corrective measure to be taken. Estimates on alternative corrective measures are also given to the homeowner. A small number of homeowners have gone so far as to demolish their home, while others have combined two or more corrective measures. One restriction that we have made is that energy sealing can only be done in conjunction with the installation of a Heat Recovery Ventilator, and combustion air vents for fuel burning furnaces. Every home with an HRV receives a mandatory final CMHC inspection. One of the conditions for receiving financial assistance is that the work must be done by a registered contractor, or by a homeowner who has passed the training course offered by the UFFI Centre. Homeowners who have not taken the training course may carry out those procedures involved in corrective measures that do not require specialized knowledge of UFFI and do not entail contact with the insulation or any surface it has touched. Such procedures can include painting, wallpapering and reconstruction of brick walls.

RESULTS TO DATE

41,000 cheques have been issued to homeowners for claims received in the UFFI Centre as of April 29, 1985. Of these 84% have done full or partial removal of UFFI, 12% have installed HRVs, and 4% have done sealing or some combination of corrective measures. Contributions to homeowners now total \$200 million.

The health status of UFFI homeowners, both before and after the implementation of corrective measures, has been assessed by means of a mailout survey. The questionnaires were sent to homeowners who had undertaken some type of corrective measure prior to March 1984. They were requested to indicate for each member of the household which symptoms were experienced and attributed to the presence of UFFI. They were also asked to indicate whether the symptoms disappeared, decreased, did not change, or increased in severity, as a result of the implementation of corrective measures.

Of those homeowners who stated they had symptoms before undertaking corrective measures, fully 80% reported the symptoms had either disappeared, or decreased, upon completion of their corrective measures. Results also indicated that homeowners perceived removal to be slightly more successful than an HRV. The mean formaldehyde levels before corrective measures were undertaken was 0.062ppm and after completion of corrective measures was 0.049ppm. Overall, for those homeowners having both valid pre and post corrective measures dosimeter results, 78% had levels that either improved or had no significant change and 22% worsened. Most of the cases where the results worsened were attributed to testing and corrective measures not being properly done, or new sources of formaldehyde had been introduced in the home.

RESEARCH

Three federal agencies have been responsible for the majority of research conducted on UFFI, those being HWC, NRC, and CCAC through the UFFI Centre. HWC has been responsible for health-related research whereas the NRC has conducted or funded research into the chemical and physical properties of UFFI, corrective measures, testing devices, etc. Where Program requirements indicated a need for research in an area that could not be provided by these two agencies, the UFFI Centre undertook to fund specific projects as the need arose. In this way, research was funded to evaluate the effectiveness of corrective measures, for example, or on health-related issues where the findings could be determined over a short-term period and could be used as tools to direct Program policy.

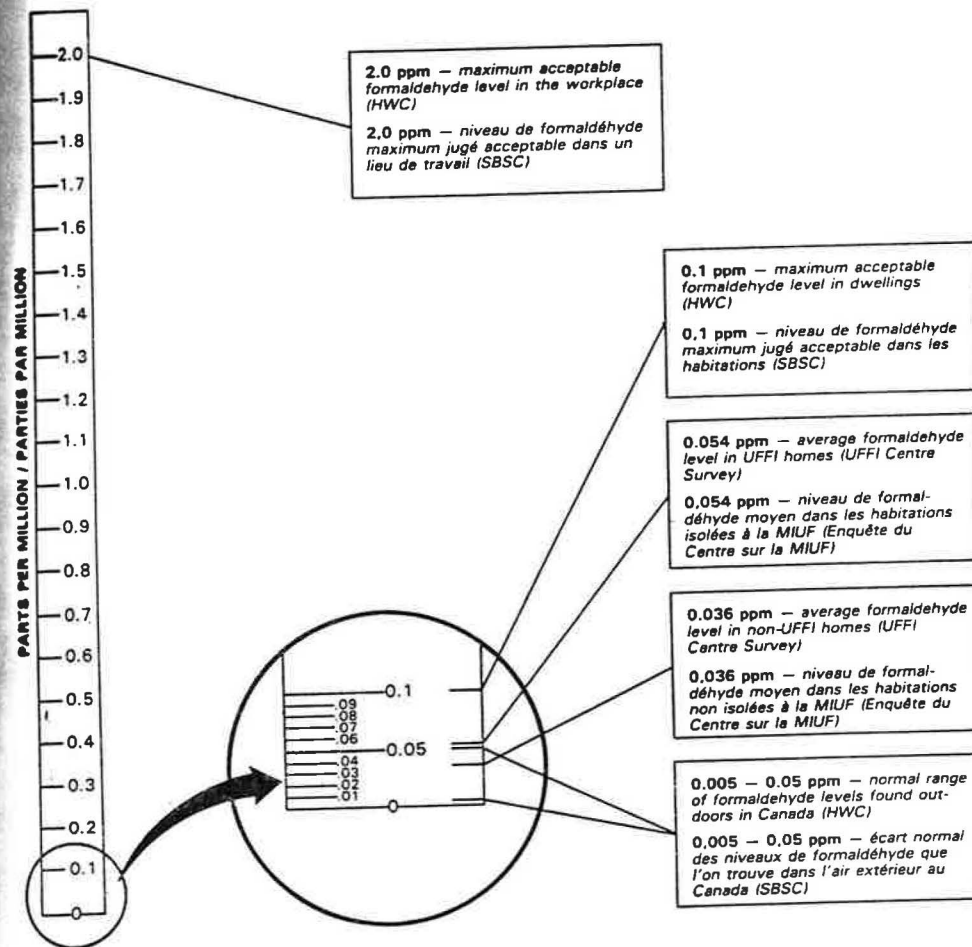
SUMMARY

The UFFI Assistance Program was established as a result of the ban placed on UFFI in December 1980. Approximately 57,000 homes have registered in the Program with about 72% having already undertaken corrective measures. Overall, the implementation of corrective measures has been successful in reducing reported health effects attributed to UFFI, and in reducing average indoor formaldehyde levels.

REFERENCES

1. UFFI Centre. 1983. Final Report of the National Testing Survey Conducted by the Urea Formaldehyde Foam Insulation Information and Coordination Centre (UFFI-ICC). Consumer and Corporate Affairs Canada, UFFI Centre, 70p.
2. UFFI Centre. 1984. Information handbook The Assistance Program for UFFI Homeowners. Consumer and Corporate Affairs Canada, UFFI Centre, 15p.
3. UFFI Centre. 1984. Training Manual on: Corrective Measures for Residences Insulated with Urea Formaldehyde Foam Insulation (UFFI). Consumer and Corporate Affairs Canada, UFFI Centre Specifications 82-03R2.
4. Various unpublished computer printouts concerning data collected to date from the UFFI Assistance Program.

CHART 1.



Interpretation of formaldehyde readings based on Health and Welfare Canada's (HWC) research and on the results of the UFFI Centre Survey of September 1981.