

# CONFIDENTIAL

#766

CMHC 2166  
9/79

Management Review Committee		Record of Decision	RESTRICTED
			Record of decision number: 82:C-50

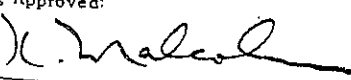
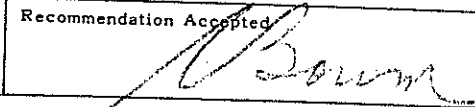
Proponent: Policy Development and Research Submission No: 462/82

Subject: DIRECTED EXPERIMENT - MOISTURE CONTROL BY VENTING - NEWFOUNDLAND

At a meeting held on 7 September 1982, the above submission was considered by Management Review Committee which recommended that:

1. CMHC ask the Province of Newfoundland whether it will make a financial contribution towards the project, but if it will not, CMHC undertake the project on its own;
2. an allocation of \$98 000 be made from the 1982 Part V Consolidated Research Budget to undertake the project, this allocation to be reduced by the amount of any Provincial contribution which may be forthcoming.

PRESENT: CHAIRMAN - R.J. Boivin  
 MEMBERS - G.D. Anderson, L.I. Birtz, E.A. Flichel,  
 N.E. Hallendy, B. Lacombe  
 OTHERS - A. Blair, J. O'Brien, J.M. Trowbridge

Pending Approved:  Corporate Secretary	Recommendation Accepted  President
Implementation by proponent <input type="checkbox"/> Executive Committee <input type="checkbox"/> Other <input type="checkbox"/>	

COPIES OF THE ABOVE SUBMISSION MAY BE OBTAINED FROM THE PROPONENT

C.R. FILE NUMBER:

DATE: 1 September 1982

MEMORANDUM TO MANAGEMENTTITLE: Directed Experiment - Moisture Control by Venting - Newfoundland1. PROBLEM

In Newfoundland it has been estimated that 20-30% of recently constructed houses built without conventional chimneys may be experiencing serious moisture buildup within the exterior walls, to the extent of the rotting of the wood components. This may require considerable investment in capital costs to repair structural damage. In addition, the accumulation of moisture can dramatically reduce the thermal resistivity of insulation, causing increased heating costs. The Corporation is involved in studying possible solutions, in order to assist the housing industry, and various agencies outside the Corporation in developing strategies to deal with the problem. Also, the Corporation is concerned with minimizing the impact on it from the point of view of an owner and an insurer of loans.

2. OBJECTIVES

The objective of this Submission is to obtain Management approval to carry out an experiment to determine whether moisture buildup in housing can be controlled by vent stacks or dehumidifiers.

The results of this study would supplement the work by the Technical Research Division's consultant (MMM) on Moisture Induced Problems in Housing, with the end objective of suggesting solutions to the Newfoundland housing authorities, professionals and general public.

3. FACTORS

3.1 In August 1981, the Management Review Committee approved a major study titled Moisture Induced Problems in Housing, R.D. No. 81-208. The objective of this study was to determine the extent of moisture induced problems in housing across Canada and to allow Management to decide on future courses of action.

Under the direction of the Technical Research Division, and under the overview of a multi-disciplinary Advisory Committee having representation from: other Federal government departments, the National Research Council, the Government of Newfoundland and Newfoundland Hydro, as well as building materials manufacturers' representatives, the consulting firm of Marshall Macklin Monaghan have been carrying out the aforementioned study. An interim report was presented to the Advisory Committee for discussion on May 12, 1982. This report suggested that vent stacks be examined as a means of reducing moisture levels in housing.

3.2 To verify the assumptions being made by the consultants (MMM), in their preliminary report, the Project Implementation Division of CMHC, late in the winter of 81/82, conducted a vent stacking experiment on an electrically heated house near Ottawa. The findings of the experiment (which indicated a relative humidity drop of 15% using a 200 mm. vent) were presented at the Advisory Committee meeting of May 12, 1982. It was recommended by the Newfoundland government's representatives, and strongly supported by other members of the Advisory Committee, that a further experiment of this nature be tried in Newfoundland.

3. FACTORS (cont'd)

3.3 The Project Implementation Division has been requested to undertake this applied research experiment. It is important that the housing to be tested be ready for the up-coming winter season and therefore, the necessary organizational work and arrangements be made with outside consultants as soon as possible.

This experiment would entail the use of five units. Two of these units would have dehumidifiers installed. The remaining three units are to have stack vents installed. All would be fully monitored.

The following is a list of the data to be gathered:

(Exterior)

This data will be obtained from the local airport weather station:

Wind Speed  
Wind Direction  
Temperature  
Relative Humidity  
Rain

(Interior)

Temperature  
Relative Humidity  
Dehumidifier Extraction Rate  
Differential Pressure across the walls  
Air Flow through vents.

This experiment is to be conducted over a three month period, from November 1, 1982 to January 31, 1983. In this Phase One study, the results are to be analysed prior to the completion date and a research strategy for a Phase Two will be determined. It is likely that, given favourable results, the experiment would be continued as is or a modified version will be run to the end of the 1983 summer in order that the drying out effect of the warmer months be measured. A further Submission to Management for Phase Two funding will be following at the end of the 1982 calendar year.

All of the units to be employed in this experiment come from the Newfoundland MIF portfolio. It is also proposed to utilize local St. John's consultants and trades people wherever possible.

The data gathered will be analysed to indicate primarily the effect of the addition of the vent stacks and dehumidifiers on the reduction in the moisture content in the building envelopes and structures.

3.4 A separate and subsequent Submission to Management will be forthcoming, proposing a similar and related experiment in the utilization of stack vents to control moisture buildup in housing in the Northwest Territories, where the temperature extremes and the drying conditions are radically different. The correlation of the information from these studies would be valuable in determining the effectiveness of stack venting.

4. ALTERNATIVES

N/A

5. PRODUCTIVITY CONSIDERATIONS

N/A

FINANCIAL AND BUDGETARY CONSIDERATIONS

The budget for the experiment is as follows:

St. John's consultant fees - physical changes to the housing, including labour, material and preparation of report	\$25,000.
Purchase of dehumidifiers	2,000.
Rental of recording equipment, purchase of sensors and instrumentation installation, including fees for instrumentation consultant	65,000.
Miscellaneous	<u>6,000.</u>
TOTAL	\$98,000.

Sufficient funds are available in the Sector Research 1982 Part V Budget.

7. CMHC DIVISIONAL/REGIONAL CONSIDERATIONS

The Corporation's field representatives in the Province of Newfoundland are familiar with the potential severity of the moisture related problems as it relates to existing housing stocks. The Provincial Director is a member of the Advisory Committee charged with investigating this phenomenon.

8. FEDERAL-PROVINCIAL RELATIONS CONSIDERATIONS

The Government of Newfoundland and the building materials industry is very sensitive to this problem. There is a very strong sentiment, on behalf of the Government of Newfoundland, that the Federal government should proceed, as quickly as possible, into the testing of possible solutions to this problem.

9. INTERDEPARTMENTAL CONSIDERATIONS

Other Government departments and agencies that have representation on the Advisory Committee on the Technical Research Division's moisture study will be kept informed of the progress of this directed research experiment.

10. PUBLIC RELATIONS CONSIDERATIONS

Corporation representatives in the Province of Newfoundland have already received complaints from homeowners whose houses have suffered damage as a result of moisture buildup. This is considered to be a very sensitive area from a public relations point of view. The Government of Newfoundland, for its part, has embarked on a program of public awareness, in an attempt to increase sensitivity to the problem. CMHC has taken the position that this problem is currently under study and that no solutions were, as yet, being recommended. \*

11. INTERNAL-EXTERNAL COMMUNICATIONS CONSIDERATIONS

Results from the major moisture study, and from field tests of possible solutions will be communicated to the field via technical bulletins. Further publication of results to external audiences will be coordinated with ICOM.

12. CORRECTIVE ACTION

This experiment is not intended, as yet, to recommend solutions to the problem.

13. APPLICATION OF GOVERNMENT RESTRAINT POLICY

The scope of this experiment has already been trimmed back from a test involving 10 houses to the current 5. It is felt that a further reduction in the number of units could endanger the quality of the experiment. Therefore the restraint policy is not considered to be applicable.

14. CONCLUSION

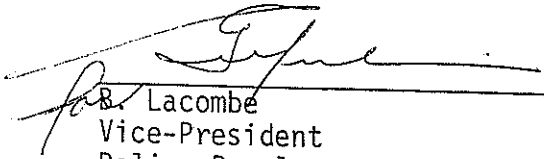
It is considered necessary and timely to establish by means of a field test whether vent stacks or dehumidifiers can control moisture buildup in housing in Newfoundland.

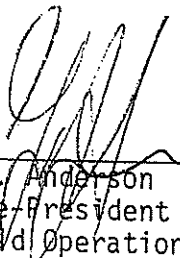
15. RECOMMENDATIONS

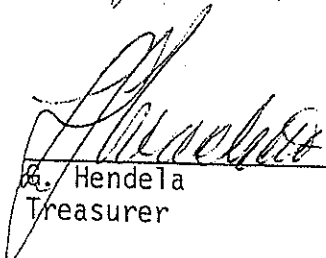
The requested record of decision is that

Management approve allocation of \$98,000.00 from the 1982 Part V Sector Research Budget to undertake a field test of moisture control by venting and dehumidifiers in Newfoundland.

16. SIGNATURES

  
B. Lacombe  
Vice-President  
Policy Development and Research Sector

  
G.D. Anderson  
Vice-President  
Field Operations

  
G. Hendela  
Treasurer