



Access to Information and
Privacy Office
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September 6, 2005

PROTECTED

Mr. John Cummins, M.P.
House of Commons
Room 548 Confederation Bldg.
Ottawa, Ontario
K1A 0A6

RE: Access to Information Request
Our File No. AF-2005-0035 / cf

Dear Mr. Cummins:

This is further to your request under the *Access to Information Act* ("the Act") dated August 19, 2005 which arrived in our Office on August 24, 2005. You asked for:


"Copy of letters that CMHC President R. V. Hession wrote to various provincial governments in August or September of 1981 similar in nature to the letter of August 27, 1981 to John Johnston, the B.C. Deputy Minister of Lands, Parks and Housing regarding" Moisture Induced Problems in Housing".

As requested, you will find enclosed copies of the records held at CMHC which fit the description of your request.

Please be advised that you have the right to make a complaint to the Information Commissioner with regard to this request. Complaints must be made within one year of the request being received by CMHC and must be forwarded to the Office of the Information Commissioner, 112 Kent Street, Ottawa, Ontario K1A 1H3.

Should you have any questions regarding your request or the *Access to Information Act*, please do not hesitate to contact this Office.

Sincerely


D. V. Tyler
Coordinator
Access to Information and Privacy Office

August 27, 1981

Mr. E. Dale Turner,
General Manager,
Prince Edward Island Housing Corporation,
11 Kent Street,
(Box 1388),
Charlottetown, Prince Edward Island.
CIA 7N1

6730-4

Dear Mr. Turner:

Re: Moisture Induced Problems in Housing

The purpose of this letter is to make you aware of a situation we believe requires your attention. It has become evident to the Corporation that there has been a significant increase in the incidence of moisture induced damage in frame construction. The problem is most commonly encountered in single family housing and the damage appears to be occurring in the exterior walls.

There is an apparent close relation between energy conservation attempts and high levels of moisture accumulation. In some cases, structural deterioration of the wall has resulted. The worst conditions have been encountered in the coastal areas, but there is insufficient evidence to conclude that the problem is confined to those regions.

I have attached to this letter a brief technical description of the problem and suggest that the matter be brought to the attention of your colleagues directly concerned with regulation of structural safety and public health. I have already written to the Chairman of the Associate Committee on the National Building Code, giving him the same information and requesting that he, with the Associate Committee NBC and the Provincial Advisory Committee NBC, take a lead role in providing a focus and impetus towards developing the regulatory standards and technical measures necessary to prevent such problems.

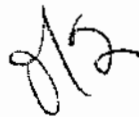
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I have also written separately to the Deputy Minister of Housing of the Province of Newfoundland, giving him the information we have and offering the close technical collaboration of CMHC with his officials. The problem is most prevalent in Newfoundland and the Deputy Minister of Housing in that Province is well aware of it.

I have committed substantial CMHC resources, both staff and money, towards seeking measures which will reliably diminish the problem in the future. Among the steps we are taking, are surveys to determine the exact nature, extent and severity of the moisture induced problems, as they are manifested in different parts of Canada. In my view, these efforts should involve close collaboration between our respective staffs and I would welcome your ideas on the form this might take, as it applies to your province.

Yours sincerely,



R.V. Hession,
President.

GWAYNEMURCHISON/HC/jb

c.c. G.D. Anderson, Vice-President, Field Operations

All General Managers

All Provincial Directors

JK
Docket F517

Typed August 20, 1981

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MOISTURE INDUCED DAMAGE IN HOUSING

It is now becoming evident that there is a significant incidence of moisture induced damage in the walls of housing units where extensive energy conservation measures have been attempted; more specifically, electrically heated flueless housing. The problem has been primarily noted in the coastal areas but it may well be more widespread.

In a preliminary study of this problem a majority of the severe cases examined were due to exfiltration condensation. In this process, warm, moist interior air, leaking through the walls or ceilings, reaches its dew point temperature within the structure and the excess moisture condenses out, destroying the thermal resistance of the insulation in the process. In order for this relatively new phenomenon to have occurred, several changes have had to take place in the way the house is behaving. Those changes are: an increase in the interior relative humidity and a change in the direction of the air flow through the structure.

A common difficulty in older houses was maintaining an adequately high humidity level in winter. As the houses were tightened up to meet the requirements of the electrical utilities, however, and as living habits increased the moisture generation within the building enclosure, a noticeable increase in the interior humidity levels took place, to the point where it became advisable to dehumidify many houses, in winter as well as in summer. Testing of houses in Newfoundland has shown a proportion of the houses with a 60 per cent, or higher, internal relative humidity. At room temperature, this represents a large moisture load in excess of the air's capability to hold moisture under outside temperature conditions. National Research Council/Division of Building Research have done preliminary calculations which show that a leak of only 0.1 air changes per hour, through the walls of a bungalow in St. John's, Newfoundland having an interior humidity of 60 per cent relative humidity, can transfer a tonne of moisture into the walls. If that amount of moisture were deposited in only two or three places, and if the sheathing and building paper does not let it escape, saturation of the insulation, sheathing and studding would be a foregone conclusion. The need for adequate communication of

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the changes that have taken place can be illustrated by recounting those instances of house owners who continuously boil water on the back of the stove or run a humidifier while bitterly complaining that their new double glazed windows are defective because they are streaming water onto the sill and floor. Old houses didn't have such "leaky" windows, the owners say, and they are incredulous at the suggestion that the interior relative humidity is simply being kept too high, because "everyone knows that houses are too dry in winter".

As part of the process of tightening houses, the flues that allowed a house to breathe moisture up and out safely to the exterior, were removed, blocked, or fitted with automatic dampers. In newly constructed electrically heated houses, flues were simply not installed. This change in construction practice has made a corresponding significant change in the way the house can breathe. Whereas the flow of air through the exterior shell or envelope was primarily infiltration in older houses, with the outflow taking place primarily through the flues, flueless houses must find new paths for that exfiltration. Total outflow must equal inflow and, with the major outflow opening deleted, the ceilings and upper walls become the next candidates. The plane of demarcation between the inflow and outflow, the neutral pressure plane, has therefore, moved down from the region of the ceiling to a location near the middle of the wall. This situation is not a safe one from a structural point of view, since any leaks in the air barrier, above the neutral pressure plane, can result in exfiltration condensation, unless the interior humidity is kept very low, or the exterior climate is very mild. In most parts of the country, it is not possible to rely on those two conditions of usage or weather for structural safety.

CMHC is investigating the desirability of placing insulated vents into new houses built in Newfoundland, for the purpose of moving the neutral pressure plane back up above the ceiling and thereby creating a negative air pressure inside the house. It is contemplated that the insulated vents can be made more energy efficient through the addition of heat exchangers. In the interim, the installed vents will eliminate exfiltration, and the associated moisture transfer, which is damaging the structure.

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At the same time, the Corporation will be stressing the need for extra care in the installation of all the components of the air barrier, to reduce the energy impact of the vent installation. Nevertheless, simple calculations have shown that, even if the air barrier is not installed to a better standard, the loss of energy due to the extra infiltration, created by that higher neutral pressure plane, will not be significantly greater than would have occurred because of the saturated insulation that is presently resulting from the exfiltration condensation.

Observed instances of damage to the exterior walls includes moisture-induced damage to the exterior siding. The Canadian Siding Soffet and Raingoods Manufacturers Association has asked CMHC for a bulletin requiring that all siding in Newfoundland be installed on strapping, to improve the conditions under which the siding must operate. The Corporation is preparing an interim advisory bulletin which will outline the requirements for such installation procedures, which will help protect the siding and still ensure that the insulating properties of the siding and strapping gap are effectively a part of the total wall thermal resistance.

Research by CMHC, in these areas, is being managed by Mr. A. Houston of the Technical Research Division, at the Corporation's National Office in Ottawa. Enquiries on this subject should be directed to that source.

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NAME LETTER SENT TO THE FOLLOWING:

Mr. Armand Pinard,
Executive Director,
Nova Scotia Housing Commission,
Royal Bank Building,
46 Portland Street,
(P.O. Box 815),
Dartmouth, Nova Scotia.
B2Y 3Z3

Mr. Kenneth C. Scott, P.Eng.,
President,
New Brunswick Housing Corporation,
Wilsey Road, Industrial Park,
(P.O. Box 611),
Fredericton, New Brunswick.
E3B 5B2

Mr. Richard M. Dillon,
Deputy Minister of Municipal Affairs and Housing,
Hearst Block, 4th Floor,
Queen's Park,
Toronto, Ontario.
M7A 2K5

Mr. Allan J. Shade,
General Manager,
Manitoba Housing and Renewal Corporation,
287 Broadway Avenue,
Winnipeg, Manitoba.
R3C 0R9

Mr. Stan Willox,
General Manager,
Saskatchewan Housing Corporation,
800 Chestemere Plaza,
2500 Victoria Avenue,
Regina, Saskatchewan.
S4P 3V7

Mr. Ray Purdie,
Deputy Minister of Northern Saskatchewan,
Box 5000,
La Ronge, Saskatchewan.
S0J 1L0

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Mr. Murray D. Rasmusson,
Deputy Minister of Housing and Public Works,
Third Floor,
10050 - 112 Street,
Edmonton, Alberta.
T5K 2J1

Mr. John C. Johnston,
Deputy Minister of Lands, Parks and Housing,
1019 Wharf Street, 6th Floor,
Victoria, British Columbia.
V8W 2Y9

Mr. Don Ilich,
Acting General Manager,
Yukon Housing Corporation,
203A Main Street,
Whitehorse, Yukon.
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Mr. Vic Irving,
Managing Director,
Northwest Territories Housing Corporation,
Box 2100,
Northern United Place,
Yellowknife, Northwest Territories.
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