7 MCAR I

Department of Health

Environmental Health Division

Adopted Rule Governing Formaldehyde in Housing Units

Rule as Adopted

7 MCAR S 1.448 Formaldehyde in housing units.

A. Applicability. This rule applies to newly constructed housing units containing urea formaldehyde and to installations of urea formaldehyde foam insulation. The rule establishes a maximum permissible ~~ambient~~ indoor air level for formaldehyde and prescribes the methods for measuring levels of formaldehyde and the conditions under which the measurements are to be made.

B. Definitions. For the purpose of this rule, the following terms have the meanings given them.

~~1. "Building materials" has the meaning given it in Minn. Stat. S 325F.18, subd. 1a.~~

~~2.~~ "Commissioner" means the Commissioner of Health.

~~3.~~ 2. "Housing unit" means one or more rooms which are intended for long-term human habitation. It includes any mobile home, single family residence, or living unit in a multi-unit structure, regardless of type of ownership, and any health care facility such as a nursing home, boarding care home, intermediate care facility, or hospital.

~~4.~~ 3. "Newly constructed" means that the housing unit has not been previously occupied and that construction of the unit was completed more than 30 days after the effective date of this rule.

C. Maximum permissible formaldehyde level in housing units.

1. At the time of sale of a newly constructed housing unit, the ambient indoor air of any habitable room in the unit shall not contain more than ~~0.4~~ 0.5 parts of formaldehyde per million parts of air as measured according to the procedures specified in D. and E. The seller is responsible for assuring that the unit complies with this level.

2. The installation of urea formaldehyde foam insulation

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in a housing unit which is not newly constructed shall not cause the ~~ambient~~ indoor level of formaldehyde in any habitable room in the unit to exceed ~~0.4~~ the higher of 0.5 parts per million or the preinstallation level as measured according to the procedures specified in D., E. and F. The installer of urea formaldehyde foam insulation is responsible for assuring that the installation complies with this level.

D. Test method.

1. Formaldehyde shall be measured according to the National Institutes of Occupational Safety and Health (NIOSH) Manual of Analytical Methods, Volume 1, 2nd Edition, NIOSH 77-157-A, 1977, Method Number P&CAM 125. Air samples shall be collected in a solution of one percent sodium bisulfite in distilled water.

2. For the purpose of determining compliance with C., measurements made using an alternate analytical method are valid only if the alternate method has been approved by the commissioner. The approval shall be granted if the proponent of the alternate method can demonstrate to the satisfaction of the commissioner that the alternate method results in numerical values which have at least the same precision, reliability and accuracy as those obtained with the use of the method described in 1.

E. Testing conditions. Whenever the level of formaldehyde is to be measured, all of the conditions prescribed in 1.-4. must be met before a measurement is considered valid for the purpose of determining compliance with this rule.

1. Testing shall be carried out at an indoor temperature within the range of 70 degrees Fahrenheit to 85 degrees Fahrenheit and at ambient relative humidity. The resulting formaldehyde test levels shall be corrected to a 78 degree Fahrenheit condition using the following formula:

~~$C = C_o \times e^{-R(1/t - 1/t_\theta)}$~~

$C = C_o \times e^{-R(1/t - 1/t_0)}$

Where,

C = test formaldehyde concentration level

C_o = corrected formaldehyde concentration level

e = natural log base

R = coefficient of temperature = 9799

t = actual test condition temperature in degrees Kelvin

t_o = corrected temperature in degrees Kelvin

2. The housing unit shall be prepared for measurement as follows:

a. For two hours prior to the close-up period, the housing unit shall be aired out at a ventilation rate of at least one outdoor air change per hour, with all interior doors, cabinets, closets and drawers open for maximum air exchange;

b. For the next two hours, the windows and exterior doors of the housing unit shall be closed. All nonvented gas appliances shall be turned off. No smoking shall be allowed;

c. Immediately after the two hour close-up period, the collection of air samples shall begin. The conditions prescribed for the close-up period shall be maintained until all samples have been collected; and

d. A housing unit equipped with a device to provide tempered outside air may be tested with the ventilation system operating at a maximum rate of one air change per hour.

3. At a minimum, a sample of air shall be taken from the kitchen and another sample shall be taken from one bedroom. Each air sample shall be taken in the center of the room, at a point which is approximately equidistant from opposing walls and at a height of 3-1/2 to 4 feet above the floor.

4. Each sample of air shall be analyzed separately.

F. Special testing conditions for use with urea formaldehyde foam insulation. In order to assure compliance with C.2., procedures in addition to those prescribed in E. must be followed with urea formaldehyde insulation. Those procedures are:

1. The level of formaldehyde in a housing unit shall be measured no more than two weeks prior to installation and shall be measured again within 30 days after the installation of the urea formaldehyde foam insulation.

~~2. The consumer shall, at least two hours before the air samples are taken, cease any activity and remove from the unit any major source of formaldehyde which has been introduced by the consumer into the unit which may contribute to the level of formaldehyde in the air of the unit. The major sources include, but are not limited to the following: draperies, furniture made of plywood or particleboard and upholstered furniture, any of which are less than one year old, and~~

~~3.~~ If the entire roof or all exterior walls are to be insulated, the preinstallation air samples shall be taken as prescribed in E.1.-2. If only a portion of the unit is to be urea formaldehyde foam insulated the preinstallation measurement for formaldehyde shall be made in those two rooms closest to the walls where the installation is to be made. Postinstallation air samples shall be collected from the same rooms as those which were sampled prior to installation.

G. Effective date. The levels prescribed in C. shall apply 30 days after the effective date of this rule.