



FLORIDA DEPARTMENT OF EDUCATION

Betty Castor

Commissioner of Education

May 21, 1991

MEMORANDUM

To: District School Superintendents, Community College Presidents, Educational Facilities Planners, Maintenance Directors, and Uniform Building Code Inspectors

From: Suzanne A. Marshall, Office of Educational Facilities *S. Marshall*

Subject: Urea-Formaldehyde Insulation

In the past, the Federal Government held hearings on the subject of formaldehyde and its effects on human health. The hearings did not result in a ban in the use of formaldehyde; however, State Board of Education Rule 6A-2.067-1986, FAC, does not allow the use of urea-formaldehyde insulation in school construction, because at the time there were unresolved issues, such as sick building syndrome and release of disabling gas under fire conditions, which had to be considered from an extremely conservative viewpoint as related to school construction. It is virtually impossible to eliminate formaldehyde from buildings today; it is in carpet, wood glues for plywood, particle board, plastics, etc.

Therefore, the office will provide information to you for your decisions, and establish some limitations for use of the foam insulation product in school construction, using national standards and generally available publications. We will, upon request, approve an exception for experimentation for the urea-formaldehyde foam insulation, which will allow study and follow-up for a period of time. We are also enclosing a publication from the U.S. Department of Labor "OSHA Instruction CPL 2-2.52" concerning their standards for occupational exposure to formaldehyde.

Our office has contacted other authorities, at the state and national levels, for current information.

The State Fire Marshal indicated that there probably would be no problem using urea-formaldehyde foam, as long as the product were used inside an enclosed, firestopped wall, and the material were not exposed.

Tallahassee, Florida 32399

Affirmative action/equal opportunity employer

REC'd From Bob Rainer (DOE)
11/3/98

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Underwriters Laboratories indicated that there were UL designs for foam plastics, but not specifically urea-formaldehyde foam. Specific tested designs are: Design No. U902 Assembly Rating four-hour bearing wall; Design No. U911 Assembly Rating two-hour bearing wall, exposed to fire on the interior face only; and Design No. U912 Assembly Rating three-hour bearing or non-bearing wall.

Current Occupational Safety and Health Administration (OSHA) permissible exposure limit for formaldehyde is one part per million parts of air as a time weighted average concentration over an eight hour work shift. The National Institute for Occupational Safety and Health recommended exposure limit is 0.016 ppm as an eight-hour time weighted average.

The Florida Department of Health and Rehabilitative Services (HRS) has not set state levels for emissions of formaldehyde out-gassing; however, industry standards for other products are: .02 ppm (parts per million) for plywood and .03 ppm for particle board. The U. S. Consumer Product Safety Commission has suggested an overall level of .1 ppm.

The Office of Educational Facilities will authorize an exception for experimentation under Rule 6A-2.045(3), FAC, for the use of urea-formaldehyde insulation under the following conditions, which must be reflected in the bid documents.

- On a district basis, the initial use of a specific product shall be tested. These tests are required to certify that the product is stable. We are concerned that products in which there is left-over formaldehyde not in combination, will then off gas into the atmosphere. The products specified in the construction documents shall be laboratory certified to emit less than one part per million formaldehyde out-gassing after 28 days. Test samples will be taken after installation and curing has occurred. Tests will be conducted in a laboratory, to eliminate the presence of other formaldehyde emitting products and shall be certified to the board. During the experimental period, at least one additional test will be required after one year, the sample to be taken from a south or west wall in the afternoon when the wall has heated up to check for the long term stability and shrinkage of the product under conditions of heat and high humidity.
- The insulation contractor shall submit product data and laboratory certification to the design architect prior to installation. Laboratory certification shall confirm the insulation outgasses less than 0.1 ppm formaldehyde following curing.
- Urea-formaldehyde foam insulation is currently not permissible in walls required to have greater than two-hour fire rating per our industry information sources. This product is not used in stud walls or over ceilings because the water associated with installation of the product damages the dry finish products.
- SBC 704.3-1982, and SBC 717-1988 do not allow exposed foam plastics, therefore it shall be used only inside walls.

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- Use only factory trained and certified installers to assure the product installed is as specified.
- A copy of a label from the products being mixed for the insulation and MSDS sheets shall be available for the UBCI inspector, and shall be kept in the records of the "experiment" for submission to the office.

This office is recommending a change in Rule 6A-2 to allow the use of formaldehyde foam under the above conditions. The existing rule cannot be waived by this staff; however, the "Exception for experimentation" is the section of the rule which allows products to be tried in actual facilities. It provides a logical transition for changes in the code. Facilities planners should not be reluctant to request use of a material for experimental purposes.

Please contact this office if you have specific questions.

SAM/pla

Attachment

cc: H. James Schroeer
OEF Staff

(f) Kilns shall be provided with adequate exhaust to dispel the emitted heat.

(g) For requirements for kitchen ventilating hoods, see Rule 6A-2.070(11), FAC.

(h) Rooms containing batteries for emergency power shall be vented to the exterior.

Specific Authority 229.053(1), 235.01(2) FS. Law Implemented 235.01, 235.014(11), 235.211(1), 235.26, 240.293, 240.327 FS. History - Revised 4-11-70, Amended 9-17-72, Repromulgated 12-5-74, Formerly 6A-2.53, Revised 6-10-75, Amended 9-6-78, 6-21-83, 11-5-84, Formerly 6A-2.66, Amended 2-13-86. c.f. Industrial Ventilation Manual, 17th Edition, 1982.

6A-2.067 Thermal Insulation. All student occupied spaces of the educational plant, except any stadium toilet rooms which are not heated or air-conditioned shall be provided with thermal insulation for energy conservation as follows:

(1) All roof or roof/ceiling construction shall have a U-factor of not more than five hundredths (0.05) for roofs without openings, and "overall" U-factor shall not exceed six hundredths (0.06).

(2) Exterior wall construction shall have a U-factor of not more than seventeen hundredths (0.17) for walls without openings, and "overall" U-factor shall not exceed twenty-five hundredths (0.25).

(3) Floor construction, directly over an open crawl space, shall have a U-factor not to exceed seventy-five thousandths (0.075).

(4) Refer to Rule 6A-2.011(6)(c), FAC., for additional requirements when air-conditioning existing facilities.

(5) Cellulose insulation may be used only if it meets all the following requirements:

(a) It meets ASTM C 739-88 standards for Cellulosic Fiber (Wood-Base) Loose-Fill Thermal Insulation; and

(b) It meets ASTM C 1149-90 standards for spray-applied thermal and acoustical insulation; and

(c) It meets ASTM E-84 for surface burning less than twenty-five (25) and smoke development less than fifty (50); and

(d) The only fire retardant chemical allowed shall be boric acid; and

(e) The contractor shall retain bag labels on site for Uniform Building Code Inspector (UBCI) inspection.

(6) Foam plastic insulation may be used in conformance with SBC Section 717, and only if it meets all the following requirements:

(a) The product specified has been certified by an independent third party nationally recognized testing laboratory that the product emits less than one (1) part per million formaldehyde out-gassing after twenty four (24) hours. Product certification shall be filed with the A/E of Record; and

(b) The contractor shall retain bag/product labels and Materials Specification Data Sheets (MSDS) data on site for UBCI inspection; and

(c) Foam plastic insulation shall be separated from the interior of a building or space by an approved thermal barrier, or as provided in SBC Section 717.

(7) Form OEF 254, Thermal Insulation Review Form. (See Rule 6A-2.014, FAC.), shall be submitted with preliminary Phase II drawings.

Specific Authority 229.053(1), 235.01(2) FS. Law Implemented 235.01, 235.014(11), 235.211(1), 235.26, 240.293, 240.327 FS. History - Revised 4-11-70, Repromulgated 12-5-74, Formerly 6A-2.58, Revised 6-10-75, Amended 9-6-78, 8-12-80, 5-24-81, 6-21-83, Formerly 6A-2.67, Amended 5-18-86, 2-23-94.

c.f. OEF 254, Thermal Insulation Review Form.

6A-2.068 Sanitation Facilities Serving Students and Staff.

Every educational plant shall be provided with toilet and handwashing facilities for all occupants, located for convenient student access and faculty supervision. Faculty and staff facilities shall be provided in separate rooms from student facilities. Exception: Community college faculty and staff may use student facilities, and need not provide separate facilities unless desired. Toilet facilities shall be strategically located throughout the school plant with the number of fixtures in proportion to the number of students using the area, and large centralized group toilet room shall be avoided.

(1) The overall fixture count for an educational plant shall be based on the assumption that one-half (1/2) of the membership of the plant will be male and one-half (1/2) will be female. Only plumbing fixtures normally accessible to students, including all group toilet rooms and in special facilities such as shops and shower and locker rooms, shall be counted in the total number of fixtures required. The fixture count shall exclude fixtures located in or adjacent to clinics, teachers lounges, stage dressing rooms, kitchens or offices.

(2) In new construction, each classroom for preschool through grade three (3) shall be provided with one (1) water closet and handwashing facilities (satisfactory for both sexes) for up to each thirty (30) student grouping. Handwashing facilities may be located within or adjoining the toilet room. Common toilet facilities for both sexes shall be allowed through the third grade. This requirement shall also apply to new construction of relocatable buildings that house preschool through grade three (3). This requirement does not apply to remodeling and renovations of existing facilities which have sufficient facilities as listed in Rule 6A-2.068(4), FAC.

(3) Any toilet room required by occupancy load to contain two (2) or more of each type appropriate fixture shall be considered a group toilet room.

(4) Student toilet fixtures shall be provided for the student capacity of the facility according to the following ratio: (See table below for determining student capacity.)

	Female Students	Male Students
(a) Water Closets		
Grades 4-6	1:35	1:85
Grades 7-12	1:55	1:90
Postsecondary	1:90	1:100
(b) Urinals		
Grades 4-6	---	1:40
Grades 7-12	---	1:50
Postsecondary	---	1:60
(c) Lavatories		
Grades 4-6	1:60	1:60
Grades 7-12	1:90	1:110
Postsecondary	1:90	1:105