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THE GENERAL ASSEMBLY OF PENNSYLVANIA

HOUSE BILL

No. 638 Session of 1981

INTRODUCED BY ITKIN, J. L. WRIGHT, SEVENTY, SWEET, CESSAR AND IRVIS, FEBRUARY 18, 1981

AS AMENDED ON THIRD CONSIDERATION, HOUSE OF REPRESENTATIVES, MARCH 24, 1981

AN ACT

Amending the act of December 15, 1980 (No.222), entitled "An act providing for the regulation for energy conservation purposes of the construction of buildings, the establishment of a Building Energy Conservation Committee and a Board on Variances, appeals and for penalties," further providing for EXCLUSIONS FROM THE DEFINITION OF "BUILDING" AND FOR steam and hot water heating systems. <—

The General Assembly of the Commonwealth of Pennsylvania hereby enacts as follows:

Section 1. ~~Section~~ THE DEFINITION OF "BUILDING" IN SECTION 103 AND SECTION 224, act of December 15, 1980 (No.222), known as the "Building Energy Conservation Act," ~~is~~ ARE amended to read: <—

SECTION 103. DEFINITIONS. <—

THE FOLLOWING WORDS AND PHRASES WHEN USED IN THIS ACT SHALL HAVE, UNLESS THE CONTEXT CLEARLY INDICATES OTHERWISE, THE MEANINGS GIVEN TO THEM IN THIS SECTION:

"BUILDING." ANY STRUCTURE THAT PROVIDES FACILITIES OR SHELTER FOR PUBLIC ASSEMBLY OR FOR EDUCATIONAL, BUSINESS, MERCANTILE, INSTITUTIONAL, WAREHOUSE OR RESIDENTIAL OCCUPANCY,

OR INDUSTRIAL USE INCLUDING, BUT NOT LIMITED TO, THOSE PORTIONS OF FACTORY AND INDUSTRIAL OCCUPANCY SUCH AS OFFICE SPACE EXCEPT FOR:

(1) BUILDINGS AND STRUCTURES OR PORTIONS THEREOF WHOSE PEAK DESIGN RATE OF ENERGY USAGE IS LESS THAN ONE WATT PER SQUARE FOOT OR 3.4 BTU/HR PER SQUARE FOOT OF FLOOR AREA FOR ALL PURPOSES.

(2) STRUCTURES OR THOSE PORTIONS OF STRUCTURES USED FOR HOUSING EQUIPMENT OR MACHINERY, OR IN WHICH MANUFACTURING OR PROCESSING IS DONE, WHERE THE OPERATION OF SUCH EQUIPMENT OR MACHINERY, OR THE MANUFACTURING OR PROCESSING PROCEDURES EMPLOYED REQUIRE THE USE OF OR GENERATE SUBSTANTIAL HEAT PRODUCING ENERGY OR COOLING WITHIN THE STRUCTURE. AS USED HEREIN, THE GENERATION OF SUBSTANTIAL HEAT SHALL MEAN GENERATION OF MORE THAN 6 WATTS PER SQUARE FOOT OF FLOOR AREA.

(3) BUILDINGS WHICH ARE NEITHER HEATED NOR COOLED.

(4) HISTORIC BUILDINGS.

(5) BUILDINGS OWNED BY THE FEDERAL GOVERNMENT.

(6) ALL UNITS SUBJECT TO THE ACT OF MAY 11, 1972 (P.L.286, NO.70), KNOWN AS THE "INDUSTRIALIZED HOUSING ACT."

(7) ALL UNITS SUBJECT TO TITLE VI (PUBLIC LAW 93-383), REFERRED TO AS THE FEDERAL MOBILE HOME CONSTRUCTION AND SAFETY STANDARDS ACT OF 1974.

(8) BUILDINGS WHICH ARE CONSTRUCTED PRIMARILY OF TREE LOGS AND ONLY INCIDENTALLY OF OTHER MATERIALS.

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Section 224. Steam and hot water heating [piping] systems.

(a) Combustion heating equipment.--All gas and oil-fired comfort heating equipment shall show a minimum combustion

efficiency of 75% at maximum rated output. Combustion efficiency shall be determined in accordance with ASHRAE 90.

[(a)] (b) Piping insulation.--All piping serving as part of a heating or cooling system installed to serve buildings and within buildings shall be thermally insulated as shown in Table 10.

Table 10

Minimum Pipe Insulation

Piping system types	Fluid temperature range, F.	Insulation thickness in inches for pipe sizes					
		Runouts up to 2"	1" and less	1 1/4-2	2 1/2-4	5&6	8" and larger
Heating systems							
Steam & hot water							
High pressure/temp	306-450	1 1/2	1 1/2	2	2 1/2	3 1/2	3 1/2
Med. pressure/temp	251-305	1 1/2	1 1/2	2	2 1/2	3	3
Low pressure/temp	201-250	1	1	1 1/2	1 1/2	2	2
Low temperature	120-200	1/2	3/4	1	1	1	1 1/2
Steam condensate (for feed water)	Any	1	1	1	1 1/2	1 1/2	2
Cooling systems							

Chilled water, Refrigerant, or brine	40-55	1/2	1/2	3/4	1	1	1
	Below 40	1	1	1 1/2	1 1/2	1 1/2	1 1/2

Insulation thicknesses are based on insulation having thermal resistances in the range of 4.0 to 4.6 per inch of thickness on a flat surface at a mean temperature of 75 degrees F. Minimum insulation thickness shall be increased for materials having R values less than 4.0 or may be reduced for materials having R values greater than 4.6 per inch of thickness as follows:

[(b)] (c) High thermal resistance.--For materials with thermal resistance greater than R=4.6, the minimum insulation thickness may be reduced as follows:

$$\frac{4.6 \times \text{Table 10 Thickness}}{\text{Actual R}} = \text{New Minimum Thickness}$$

[(c)] (d) Low thermal resistance.--For materials with thermal resistance less than R=4.0 the minimum insulation thickness shall be increased as follows:

$$\frac{4.0 \times \text{Table 10 Thickness}}{\text{Actual R}} = \text{New Minimum Thickness}$$

Piping insulation, except when needed to prevent condensation, is not required in any of the following cases:

(1) Piping installed within heating, ventilating and air conditioning equipment.

(2) Piping at temperatures between 55 degrees F. and 120 degrees F.

(3) When the heat loss or heat gain of the piping, without insulation, does not increase the energy requirements of the building.

(4) Piping installed in basements or cellars in one and

two-family dwellings.

[(d)] (e) Vapor barriers.--Where required to prevent condensation, insulation with vapor barriers shall be installed in addition to insulation required above.

Section 2. This act shall take effect July 1, 1981.