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THE GENERAL ASSEMBLY OF PENNSYLVANIA

SENATE BILL

No. 1349 Session of 2006

INTRODUCED BY REGOLA AND D. WHITE, OCTOBER 11, 2006

REFERRED TO ENVIRONMENTAL RESOURCES AND ENERGY, OCTOBER 11, 2006

AN ACT

Reenacting and amending the former act of December 15, 1980 (P.L.1203, 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," restoring the act to the state in which it existed prior to repeal by the Pennsylvania Construction Code Act.

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

Section 1. The title, the heading of Chapter 1 and section 101 of the act of December 15, 1980 (P.L.1203, 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the establishment of a Building Energy Conservation Committee and a Board on Variances, appeals and for penalties," repealed November 10, 1999 (P.L.491, No.45), are reenacted to read:

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.

CHAPTER 1

GENERAL PROVISIONS

Section 101. Short title.

This act shall be known and may be cited as the "Building Energy Conservation Act."

Section 2. Sections 102 and 103 of the act, amended December 19, 1985 (P.L.344, No.98) and repealed November 10, 1999 (P.L.491, No.45), are reenacted and amended to read:

Section 102. Legislative findings and declaration of purpose.

(a) Findings.--The Legislature hereby determines that:

(1) Energy shortages in the domestic supply present far-reaching problems that promise to persist. These energy shortages affect the continued efficient operation of the Commonwealth's economy and social structure.

(2) It is the Commonwealth's responsibility to provide for energy conservation through regulation of design and construction standards.

(3) The Legislature intends, by this act, to respond to these shortages by devising a specific responsible energy conservation policy for building systems.

(b) Purpose.--The purpose of this act is to grant to the Department of Labor and Industry and the Department of Community [Affairs] and Economic Development and direct these departments to exercise specific authority in building construction to assure that such construction is performed using materials and techniques that will provide for energy conservation in the future operation and maintenance of said buildings.

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:

"Addition." Any addition to an existing building. The provisions of this act shall only apply to the portion of the building which is being added and not to the entire building.

"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 3.5 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.

"Construction." The erection, fabrication or renovation of a building.

"Department." The Pennsylvania Department of Labor and Industry except that for all buildings classified as Use Group R-3, herein, department means the Pennsylvania Department of Community [Affairs] and Economic Development.

"Design." Calculations and resultant drawings and specifications which are used for the construction of a building.

"Historic building." Any building determined by the State Historic Preservation Officer to meet the criteria for listing on the National Register of Historic Places but only to the extent that compliance with this act would prevent preservation of the historic or architectural integrity of the building.

"Licensed design professional." A person licensed as an architect or professional engineer pursuant to the appropriate licensure act.

"Life-cycle cost." The cost of a building including its initial cost, the cost of the energy consumed over its economic life and the cost of its operation and maintenance.

"Municipality." A city, borough, incorporated town, township or home rule municipality.

"Performance standards." Parameters within which designers of buildings shall work. The specific practices that a designer employs shall not be prescribed as long as the result is within

the parameters established by the standards.

"Public utility." A person or corporation in this Commonwealth owning or operating equipment or facilities for producing, generating, transmitting, distributing or furnishing electricity to or for the public for compensation for any purpose. The term includes such persons or corporations regulated by the Pennsylvania Public Utility Commission under Title 66 of the Pennsylvania Consolidated Statutes (relating to public utilities), but does not include any of the following:

(1) A generator or producer of electricity not engaged in distributing the electricity directly to the public for compensation.

(2) A person not otherwise a public utility who furnishes service only to himself.

(3) A bona fide cooperative association which furnishes services only to its stockholders or members on a nonprofit basis.

"Renovation." The rehabilitation of an existing building which requires more than 25% of the gross floor area or volume of the entire building to be rebuilt. Cosmetic work such as painting, wall covering, wall paneling, floor covering and suspended ceiling work shall not be included. The provisions of this act shall only apply to such portion of the building being renovated and not to the entire building.

"Utility provider." A municipal corporation in this Commonwealth owning or operating equipment or facilities for producing, generating, transmitting, distributing or furnishing electricity to or for the public within its corporate limits for compensation for any purpose, or an electric cooperative corporation created under the provisions of the act of June 21,

1937 (P.L.1969, No.389), known as the "Electric Cooperative Corporation Act," and which provides retail electric service to its members on a nonprofit basis. The term does not include:

(1) A public utility regulated by the Pennsylvania Public Utility Commission under Title 66 of the Pennsylvania Consolidated Statutes (relating to public utilities).

(2) A generator, producer or manufacturer of electricity, gas or steam not engaged in distributing such electricity, gas or steam directly to the public for compensation.

(3) A person or corporation not otherwise a public utility who or which furnishes service only to himself or itself.

(4) A generator, producer or manufacturer of gas or steam engaged in distributing such gas or steam to the public for compensation.

Section 3. Chapter 2 heading, Subchapters A, B, C and D, Subchapter E heading and sections 209, 210, 211, 212, 213, 214 215, 216, 217, 218, 219, 220, 221, 222 and 223 of the act, repealed November 10, 1999 (P.L.491, No.45), are reenacted to read:

CHAPTER 2

ENERGY CONSERVATION STANDARDS

SUBCHAPTER A

GENERAL PROVISIONS

Section 201. Provisions.

The provisions of this chapter regulate the design and construction of the exterior envelopes and selection of HVAC, service water heating, electrical distribution, and illumination systems and equipment required for the purpose of effective use

of energy and shall govern the construction of all buildings, or portions thereof, as provided herein other than a building classified as Use Group R-3 except where specifically noted otherwise. Minimum insulation requirements for buildings classified as Use Group R-3 are contained in Subchapter J, section 240.

SUBCHAPTER B
PLANS AND SPECIFICATIONS

Section 202. Submission.

(a) Plans.--Plans, specifications, computations where necessary, and any changes thereto together with the necessary certification required by section 305 shall be submitted for all buildings except those classified as Use Group R-3 to indicate conformance with this chapter and other applicable chapters of this act, except as provided in subsections (b) and (c).

(b) Standard design.--Whenever a person is constructing a building in accordance with plans, specifications and computations which he has submitted within the previous two years, such plans need not be resubmitted but such person shall indicate upon the certificate required by section 305 that they meet the standards currently in effect and identify the previously submitted plans, specifications and computations.

(c) Prescriptive standards.--When the prescriptive standards provided in the Energy Conservation Manual established by section 303 are employed in the construction of a building only such information as shall be required by the department shall be submitted. The prescriptive standards applicable to Use Group R-3 buildings are contained in section 240.

Section 203. Contents.

The plans and specifications, where required by section 202,

shall show in sufficient detail all pertinent data and features of the building and the equipment and systems as herein governed, including but not limited to: exterior envelope component materials, U values of elements, R values of insulating materials, size and type of apparatus and equipment, equipment and system controls and other pertinent data to indicate conformance with the requirements herein.

SUBCHAPTER C
DEFINITIONS RELATING TO
ENERGY CONSERVATION STANDARDS

Section 204. Definitions relating to standards.

The following words and phrases when used in this chapter shall have, unless the context clearly indicates otherwise, the meanings given to them in this section:

"Coefficient of beam utilization" (CBU). The ratio of the luminous flux (lumens) reaching a specified area directly from a floodlight or projector to the total beam luminous flux.

"Coefficient of performance" (COP) - cooling. The ratio of the rate of net heat removal to the rate of total energy input, expressed in consistent units and under designated rating conditions.

"Coefficient of performance" (COP) - heat pump, heating. The ratio of the rate of net heat output to the rate of total energy input, expressed in consistent units and under designated rating conditions.

The rate of net heat output shall be defined as the change in the total heat contents of the air entering and leaving the equipment not including supplementary heat.

Total energy input shall be determined by combining the energy inputs to all elements, except supplementary heaters, of

the heat pump, including, but not limited to, compressors, pumps, supply air fans, return air fans, outdoor air fans, cooling tower fans and the heating, ventilating and air conditioning system equipment control circuit.

"Coefficient of utilization" (CU). The ratio of the luminous flux (lumens) from a luminaire received on the work plane to the lumens emitted by the luminaire's lamps alone.

"Color rendition." General expression for the effect of a light source on the color. Appearance of objects in conscious or subconscious comparison with their color appearance under a reference light source.

"Degree day, heating." A unit, based upon temperature difference and time, used in estimating fuel consumption and specifying nominal heating load of a building in winter. For any one day, when the mean temperature is less than 65 F., there exist as many degree days as there are Fahrenheit degrees difference in temperature between the mean temperature for the day and 65 F.

"Energy efficiency ratio" (EER). The ratio of net cooling capacity in Btuh to total rate of electric input in watts under designated operating conditions.

"Equivalent sphere illumination" (ESI). The level of sphere illumination which would produce task visibility equivalent to that produced by a specific lighting environment.

"Exterior envelope." The elements of a building which enclose conditioned spaces through which thermal energy may be transferred to or from the exterior.

"Floodlighting." A lighting system designated to light an area using projector type luminaires usually capable of being pointed in any direction.

"Floor area, gross." Gross floor area shall be the floor area within the perimeter of the outside walls of the building under consideration, without deduction for hallways, stairs, closets, thickness of walls, columns or other features.

"Illumination." The density of the luminous flux incident on a surface. It is the quotient of the luminous flux by the area of the surface when the latter is uniformly illuminated.

"Light loss factor" (LLF). A factor used in calculating the level of illumination after a given period of time and under given conditions. It takes into account temperature and voltage variations, dirt accumulation on luminaire and room surfaces, lamp depreciation, maintenance procedures and atmosphere conditions.

"Luminaire." A complete lighting unit consisting of a lamp or lamps together with the parts designed to distribute the light, to position and protect the lamps and to connect the lamps to the power supply.

"Multiglazing." An arrangement whereby two or more sheets of glazing material are affixed in or on to a window frame to create one or more closed insulating air spaces. Multiglazing can be achieved by installing a preassembled sealed insulating glass unit, consisting of two or more layers of glazing materials with insulating, closed air space in between, or by affixing one or more additional glazing materials onto a single glazed window sash, creating one or more closed insulating air spaces.

"Packaged terminal air conditioner." A factory selected combination of heating and cooling components, assemblies or sections, intended to serve a room or zone.

"Power." In connection with machines, power is the time rate

of doing work. In connection with the transmission of energy of all types, power refers to the rate at which energy is transmitted; in customary units, it is measured in watts (W) or British thermal units per hour (Btuh) and in SI units is measured in watts (W).

"Reflectance." The ratio of the light reflected by a surface to the light falling upon it.

"Reheat." The application of sensible heat to supply air that has been previously cooled below the temperature of the conditioned space by either mechanical refrigeration or the introduction of outdoor air to provide cooling.

"Residential buildings." All buildings and structures or parts thereof shall be classified in the residential (R) use group in which families or households live, or in which sleeping accommodations are provided for individuals with or without dining facilities, excluding those that are classified as institutional buildings. Residential buildings shall be classified as follows:

(1) Use Group R-1 structures. This use group shall include all hotel and motel buildings, lodging houses, boarding houses and dormitory buildings arranged for the shelter and sleeping accommodation of more than 20 individuals.

(2) Use Group R-2 structures. This use group shall include all multiple-family dwellings having more than two dwelling units and not included in Use Group R-3; and shall also include all dormitories, boarding and lodging houses arranged for shelter and sleeping accommodation by more than five and not more than 20 individuals.

(3) Use Group R-3 structures. This use group shall include all buildings arranged for the use of one or two family dwelling

units including not more than five lodgers or boarders per family and all rowhouses, townhouses and garden apartment construction not exceeding three stories in height used for residential purposes whenever each unit has its own individual and self-supporting heating, ventilating and air conditioning systems.

"Resistance, thermal" (R). A measure of the ability to retard the flow of heat. The R value is the reciprocal of a heat transfer coefficient, as expressed by U. (R = 1/U).

"Thermal transmittance" (U). Overall coefficient of heat transmission or thermal transmittance (air to air) expressed in units of BTU per hour per square foot per degree F. It is the time rate of heat flow. The U value applies to combinations of different materials used in series along the heat flow path and also to single materials that comprise a building section and include cavity air spaces and surface air films on both sides.

"Thermal transmittance" (Uo). Overall (average) heat transmission or thermal transmittance of a gross area of the exterior building envelope, expressed in units of BTU per hour per square foot per degree F.

The Uo value applies to the combined effect of the time rate of heat flows through the various parallel paths, such as windows, doors and opaque construction areas, comprising the gross area of one or more exterior building components, such as walls, floor or roof/ceiling.

"Thermostat." An instrument which measures changes in temperature and controls devices for maintaining a desired temperature.

"Veiling reflections." Regular reflections superimposed upon diffuse reflections from an object that partially or totally

obscure the details to be seen by reducing the contrast. This sometimes is called "reflected glare."

"Window management." Any one or combination of acts and activities whose purpose is to take maximum advantage of the energy conserving aspects of utilizing solar energy to heat a building and/or utilize solar illumination within a building to augment energy-consuming lighting systems. Such acts and activities include, but are not limited to, building-window siting and orientation, selection of glazing materials, design of overhangs, sun screens or placement of shrubbery.

"Work plane." The plane at which work usually is done and at which the illumination is specified and measured. Unless otherwise indicated, this is assumed to be a horizontal plane 30 in. (0.76 m) above the floor.

"Zone." A space or group of spaces within a building with heating or cooling requirements sufficiently similar so that comfort conditions can be maintained throughout by a single controlling device.

SUBCHAPTER D
BUILDING ENVELOPE

Section 205. General provisions.

(a) Purpose of subchapter.--The intent of this subchapter is to provide minimum requirements for exterior envelope construction in the interest of energy conservation.

In addition to the criteria set forth in this subchapter provisions shall be made to maximize the energy conserving benefits of solar daylight and passive solar heat gain through window management. The proposed design may also take into consideration the thermal mass of the building in considering energy conservation. The administering agency shall provide the

guidelines necessary to implement these provisions.

(b) Thermal performance.--All buildings and structures that are heated or mechanically cooled shall be constructed so as to provide the required thermal performance of the various components.

The required thermal transmittance value (Uo) of any one component, such as roof/ceiling, wall or floor may be increased and the Uo value for other components decreased provided that the overall heat gain or loss for the entire building envelope does not exceed the total resulting from conformance to the required Uo values.

(c) Different requirements.--

(1) A building that is designed to be both heated and cooled shall meet the more stringent of the heating or cooling requirements of the exterior envelope as provided in this subchapter when requirements differ.

(2) A building which is not cooled whose primary purpose is storage and has an indoor design temperature of 50 degrees F. or less, the building is exempt from the requirements of this subchapter.

(d) Exterior walls.--For the purpose of this subchapter the gross area of exterior walls consists of all opaque wall areas, including foundation walls above grade, peripheral edges of floors, window areas including sash, and door areas, where such surfaces are exposed to outdoor air and enclose a heated or mechanically cooled space.

(e) Roof assembly.--For the purpose of this subchapter a roof assembly shall be considered as all components of the roof/ceiling envelope through which heat flows, thereby creating a building transmission heat loss or gain, where such assembly

is exposed to outdoor air and encloses a heated or mechanically cooled space.

The gross area of a roof assembly consists of the total interior surface of such assembly, including skylights, exposed to the heated or mechanically cooled space.

Where air ceiling plenums are employed, the roof or ceiling assembly shall:

(1) For thermal transmittance purposes not include the ceiling proper nor the plenum space as part of the assembly.

(2) For gross area purposes be based upon the interior face of the upper plenum surface.

Section 206. Criteria for residential buildings.

(a) Applicability.--The requirements herein shall apply to all buildings and structures or portions thereof of Use Groups R-1 and R-2 that are heated or mechanically cooled when not more than 3 stories or 40 feet in height.

(b) Walls.--The gross area of exterior walls above grade, including foundation walls, shall have a combined thermal transmittance value (Uo) not exceeding those specified in Table 1.

Table 1

Maximum Allowable "Uo" Values for

Gross Exterior Wall Assemblies

Annual heating degree days*	R-1 and R-2 residential
4000	0.31
5000	0.29
6000	0.27
7000	0.26

*As specified in Chapter 43 ASHRAE Handbook-Systems.

(c) Roof/ceiling.--The roof/ceiling assemblies shall have a combined thermal transmittance value (Uo) not to exceed 0.05 except that roof/ceiling assemblies in which the finished interior surface is essentially the underside of the roof deck, such as a wooden cathedral ceiling, may have a "Uo" value not to exceed 0.08. These values presume no significant thermal transmission through framing members, skylights or other interruptions in the roof envelope. If such interruptions occur, calculations must be made showing conformance to the required "Uo" values.

(d) Floors over unheated spaces.--The floor of a heated or mechanically cooled space located over an unheated space shall have a combined thermal transmittance value (Uo) not to exceed 0.08.

(e) Slab-on grade floors.--

(1) For slab-on grade floors, the perimeter of the floor shall be insulated with a material having a thermal resistance value (R) not less than those specified in Table 2.

Table 2

Minimum Allowable "R" Values of Perimeter Insulation for Slab-On Grade Floors

Annual heating degree days	Heated slab	Unheated slab
4000*	5.5	3.5
5000	6.3	4.2
6000	7.0	4.9
7000	7.8	5.5

*Table values may be interpolated.

(2) The insulation shall extend downward from the top of the slab for a minimum distance of 24 inches or downward to

the bottom of the slab then horizontally beneath the slab for a minimum total distance of 24 inches.

Section 207. Other buildings.

(a) Coverage.--The heating and cooling requirements herein shall govern all buildings and structures or portions thereof other than defined by section 206.

(b) Heating criteria for walls.--All buildings and structures that are heated shall have a combined thermal transmittance value (Uo) for the gross area of exterior walls not exceeding those specified in Table 3.

Table 3

Maximum Allowable "Uo" Values

for Gross Exterior Wall Assemblies

Annual heating degree days	3 stories or 40 ft. or less	More than 3 stories or 40 ft.
4000	0.31	0.38
5000	0.29	0.36
6000	0.27	0.33
7000	0.26	0.31

(c) Heating criteria for roof/ceiling.--All buildings and structures that are heated shall have combined thermal transmittance value (Uo) for roof/ceiling assemblies not exceeding those specified in Table 4.

Table 4

Maximum Allowable "Uo" Values

for Roof/Ceiling Assemblies

Annual heating degree days	Maximum Uo
4000*	0.092

5000	0.084
6000	0.076
7000	0.068

*Table values may be interpolated.

(d) Heating criteria for floors over unheated spaces.--The floor of a heated space located over an unheated space shall have a thermal transmittance value (Uo) not exceeding 0.08.

(e) Heating criteria for slab-on grade floors.--For slab-on grade floors, the perimeter of the floor shall be insulated with a material having a thermal resistance value (R) not less than those specified in Table 5.

The insulation shall extend downward from the top of the slab for a minimum distance of 24 inches or downward to the bottom of the slab then horizontally beneath the slab for a minimum total distance of 24 inches.

Table 5

Minimum Allowable "R" Values of Perimeter Insulation for Slab-On Grade Floors

Annual heating degree days	Heated slab	Unheated slab
4000*	5.5	3.5
5000	6.3	4.2
6000	7.0	4.9
7000	7.8	5.5

*Table values may be interpolated.

(f) Cooling criteria for walls.--All buildings and structures that are mechanically cooled shall have an overall thermal transfer value for the gross area of exterior walls not exceeding 33.5 BTU's per hour per square foot based on the following equation:

OTTV = <u>(Uw x Aw x TDEQ) + (Af x Sf x Sc) + (Uf x Af x Delta T)</u>

Ao

OTTV = Overall thermal transfer value where:

Uw = The thermal transmittance of all elements of the opaque wall area Btu/h. ft2.F (W/m2K)

Aw = Opaque wall area, ft2 (m2)

Uf = The thermal transmittance of the fenestration area Btu/h. ft2.F (W/m2K)

Af = Fenestration area, ft2 (m2)

TDEQ = Value given in the following table, F, (c):

TABLE FOR TEMPERATURE DIFFERENCE

Wall Construction-mass per unit area		TDEQ	
LB/FT2	Kg/m2	F	C
0-25	0-125	44	24.5
26-40	126-195	37	21.0
41-70	196-345	30	17.0
71 and above	346 and above	23	13.0

Weight of wall construction shall be determined from the 1972 ASHRAE Handbook of Fundamentals, Chapter 22.

Sc = Shading coefficient of the fenestration

Delta T = Temperature difference between exterior and interior design conditions, F, for which the following temperatures shall apply:

	Indoor		Outdoor
	F	C	
Winter	72	22.0	97 1/2%*
Summer	78	25.5	2 1/2%*

*Values from 1972 ASHRAE Handbook of Fundamentals, Chapter 33.

SF = Solar factor value given Btu/h.ft2 (W/m2).
(use 127 Btu/h.ft2)
AO = Gross area of exterior walls, ft2 (m2). The gross area of exterior walls consists of all opaque wall areas (including foundation walls, between floor spandrels, peripheral edges of floors, etc.), window areas (including sash), and door areas, where such surfaces are exposed to outdoor air and enclose a heated and/or mechanically cooled space (including intersticial areas between two such spaces).

Note: Where more than one type of wall and/or fenestration is used, the respective term or terms shall be expanded into sub-elements, as:
(Uw x Aw x TDEQ) + (Uw2 x Aw2 x TDEQ2), etc.

(g) Cooling criteria for roof/ceilings.--All buildings and structures that are mechanically cooled shall have a combined thermal transmittance value (Uo) for roof/ceiling assemblies the same as specified in Table 4 for heating.

Section 208. Air leakage.

(a) Application.--The requirements of this section shall apply to all buildings and structures and apply only to those locations separating outdoor ambient conditions from interior spaces that are heated or mechanically cooled and are not applicable to separation of interior spaces from each other.

(b) Standard.--Compliance with the criteria for air leakage shall be determined by ASTM E-283, Standard Method of Test for Rate of Air Leakage through Exterior Windows, Curtain Walls and Doors, at a pressure differential of 1.567 lb/ft2 which is equivalent to the effect of a 25 m.p.h. wind.

(c) Acceptance criteria.--The following criteria shall

represent the maximum allowable air leakage:

(1) The air infiltration rate for windows shall not exceed 0.5 Cfm per foot of sash crack.

(2) The air infiltration rate for sliding glass doors in residential buildings shall not exceed 0.5 Cfm per square foot of door area.

(3) The air infiltration rate for swinging doors in residential buildings shall not exceed 1.25 Cfm per square foot of door area.

(4) The air infiltration rate for swinging, revolving or sliding doors in other than residential buildings shall not exceed 11 Cfm per lineal foot of door crack.

(d) Caulking and sealants.--Exterior joints around windows and door frames, between wall cavities and window or door frames, between wall and foundation, between wall and roof, between wall panels, at penetrations or utility services through walls, floors and roofs, and all other openings in the exterior envelope shall be caulked, gasketed, weatherstripped, or otherwise sealed.

SUBCHAPTER E

WARM AIR HEATING, VENTILATING AND AIR CONDITIONING SYSTEMS AND EQUIPMENT

Section 209. General provisions.

This subchapter applies to air duct systems employing mechanical means for the movement of air used for warm air heating, ventilating, air conditioning systems, exhaust systems and combination heating and air conditioning systems, except that this subchapter shall not apply to systems for the removal of flammable vapors or residues or to systems for conveying dust, stock or refuse by means of air currents. Heating,

ventilating and air conditioning systems of all buildings and structures or portions thereof shall be designed and installed for efficient use of energy as herein provided. Special applications, such as but not limited to hospitals, laboratories, thermally sensitive equipment, computer rooms, manufacturing processes and supermarkets, are exempt from the requirements of this subchapter.

Section 210. Design requirements.

In determining design conditions for calculations under this section the following design temperatures shall apply:

(1) Outdoor design temperature shall be selected for listed locations in Chapter 33 of the ASHRAE Handbook of Fundamentals, from columns of 97 1/2% values for heating and 2 1/2% values for cooling.

(2) Indoor design temperature shall be 72 degrees F. for heating and 78 degrees F. for cooling.

(3) Indoor design relative humidity for heating shall not exceed 30%. For cooling, the actual design relative humidity within the comfort envelope as defined in ASHRAE Standard 55-74 "Thermal Environmental Conditions for Human Occupancy" shall be selected for the minimum total heating, ventilating, and air conditioning system energy use.

Section 211. Cooling with outdoor air.

(a) Fan system design.--Each fan system shall be designed to use up to and including 100% of the fan system capacity for cooling with outdoor air automatically whenever its use will result in lower usage of energy than would be required under its normal operation.

(b) Exceptions.--Cooling with outdoor air is not required under any one or more of the following conditions:

(1) Fan system capacity less than 5,000 Cfm or 134,000 Btu/Hr total cooling capacity.

(2) The quality of the outdoor air is so poor as to require extensive treatment of the air.

(3) The need for humidification or dehumidification requires the use of more energy than is conserved by outdoor air cooling.

(4) The use of outdoor air cooling may affect the operation of other systems (such as return or exhaust air fans or supermarket refrigeration) so as to increase the overall energy consumption of the building.

(5) Internal/external zone heat recovery or other energy recovery is used.

(6) When all space cooling is accomplished by a circulating liquid which transfers space heat directly or indirectly to a heat rejection device such as a cooling tower without the use of a refrigeration system.

Section 212. Mechanical ventilation.

Each mechanical ventilation system shall be equipped with a readily accessible means for either shut-off or volume reduction and shut-off when ventilation is not required.

Section 213. Simultaneous heating and cooling.

Systems that employ both heating and cooling simultaneously in order to achieve comfort conditions within a space shall be limited to those situations where more efficient methods of heating and air conditioning cannot be effectively utilized to meet system objectives. Simultaneous heating and cooling by reheating or recooling supply air or by concurrent operation or independent heating and cooling systems serving a common zone shall be restricted as specified herein.

Section 214. Recovered energy.

Recovered energy, provided the new energy expended in the recovery process is less than the amount recovered, may be used for control of temperature and humidity. New energy is defined as energy, other than recovered, utilized for the purpose of heating or cooling.

Section 215. New energy.

(a) Prevention of excess humidity.--New energy may be used, when necessary, to prevent relative humidity from rising above 60% for comfort control or to prevent condensation on terminal units or outlets.

(b) Control of temperature.--New energy may be used for control of temperature if minimized as specified in sections 216 through 220.

Section 216. Reheat systems.

Systems employing reheat and serving multiple zones, other than those employing variable air volume for temperature control, shall be provided with control that will automatically reset the system cold air supply to the highest temperature level that will satisfy the zone requiring the coolest air. Single zone reheat systems shall be controlled to sequence reheat and cooling.

Section 217. Dual duct and multizone systems.

These systems shall be provided with control that will automatically reset the cold deck air supply to the highest temperature that will satisfy the zone requiring the coolest air and the hot deck air supply to the lowest temperature that will satisfy the zone requiring the warmest air.

Section 218. Recooling systems.

Systems in which heated air is recooled directly or

indirectly, to maintain space temperature, shall be provided with control that will automatically reset the temperature to which the supply air is heated to the lowest level that will satisfy the zone requiring the warmest air.

Section 219. Multiple zones.

For systems with multiple zones, one or more zones may be chosen to represent a number of zones with similar heating or cooling characteristics. A multiple zone heating, ventilating and air conditioning system that employs reheating or recooling for control of not more than 5,000 Cfm or 20% of the total supply air of the system, whichever is less, shall be exempt from the supply air temperature reset requirements of sections 216 through 218.

Section 220. Concurrent operation.

Concurrent operation of independent heating and cooling systems serving common spaces, and requiring the use of new energy for heating or cooling shall be minimized by one or both of the following:

(1) By providing sequential temperature control of both heating and cooling capacity in each zone.

(2) By limiting the heating energy input, through automatic reset control of the heating medium temperature (or energy input rate), to only that necessary to offset heat loss due to transmission and infiltration and, where applicable, to heat the ventilation air supply to the space.

Section 221. Equipment performance requirements.

(a) Application.--The requirements of this section apply to equipment and component performance for heating, ventilating and air conditioning systems. Where equipment efficiency levels are specified, data furnished by the equipment supplier or certified

under a nationally recognized certification program or rating procedure shall be used to satisfy these requirements.

(b) Systems equipment - electrical.--Heating ventilating and air conditioning systems equipment whose energy input in the cooling mode is entirely electric shall show a coefficient of performance (COP) and energy efficiency ratio (EER) not less than the values specified in Table 6. These requirements apply to, but are not limited to, unitary cooling equipment (air and water source); packaged air conditioners; and room air conditioners. These requirements do not apply to equipment used in areas having open refrigerated food display cases. For determining coefficient of performance (COP), the rate of net heat removal shall be defined as the change in the total heat contents of the air entering and leaving the equipment (without reheat). Total energy input shall be determined by combining the energy inputs to all elements of the equipment, including but not limited to, compressors, pumps, supply-air fans, cooling tower fans and the system equipment control circuit.

Table 6

Minimum EER and COP for Electric Heating, Ventilating and Air Conditioning System Equipment

Standard rating capacity	EER	COP
Under 65,000 Btu/hr (19,050 watts)	6.1	1.8
65,000 Btu/hr (19,050 watts) and over	6.8	2.0

(c) Other system equipment.--Heat operated cooling equipment shall show a coefficient of performance (COP) in the cooling mode not less than the values specified in Table 7. These requirements apply to, but are not limited to, absorption,

engine-driven and turbine-driven equipment. The coefficient of performance (COP) is determined excluding the electrical auxiliary inputs.

Table 7

Minimum COP for Heating, Ventilating and Air Conditioning System Heat Operated Cooling Equipment

Heat source	Minimum COP
Direct fired (gas, oil)	0.40
Indirect fired (steam, hot water)	0.65

(d) System components.--Heating, ventilating and air conditioning system components whose energy input in the cooling mode is entirely electric shall show a coefficient of performance (COP) and energy efficiency ratio (EER) not less than the values specified in Table 8. For determining coefficient of performance (COP), the rate of heat removal is defined as the difference in total heat contents of the water or refrigerant entering or leaving the component. Total energy input shall be determined by combining the energy inputs to all elements and accessories of the component, including but not limited to, compressors, internal circulating pumps, condenser-air fans, evaporative-condenser cooling heater pumps, purge, and the component control circuit.

Table 8

Minimum COP for Electrically Driven Heating, Ventilating and Air Conditioning System Components

Component	Condensing means	Air		Water		Evaporation	
		EER	COP	EER	COP	EER	COP

Self-contained water chillers	Centrifugal	7.5	2.2	12.9	3.8	
	Positive displacement	7.2	2.1	10.9	3.2	
Condenserless water chillers	Positive displacement	8.9	2.6	10.9	3.2	
Compressor and condenser units 65,000 Btu/hr. (19,050 watts) and over	Positive displacement	7.8	2.3	11.3	3.3	11.3 3.3

(e) Heat pumps.--Heat pumps whose energy input is entirely electric shall show a coefficient of performance (COP), heating, not less than the values specified in Table 9.

Table 9

Minimum COP for Heat Pumps, Heating Mode

Source and outdoor temperature (degree F.)	Minimum COP
Air source--47 DB/43 WB	2.2
Air source--17 DB/15 WB	1.2
Water source--60 entering	2.2

(f) Supplementary heater.--The heat pump shall be installed with a control to prevent supplementary heater operation when the heating load can be met by the heat pump alone. Supplementary heater operation is permitted during transient periods, such as start-ups, following room thermostat setpoint advance, and during defrost. A two-stage room thermostat, which controls the supplementary heat on its second stage, shall be accepted as meeting this requirement. The cut-on temperature for the compression heating shall be higher than the cut-on

temperature for the supplementary heat, and the cut-off temperature for the compression heating shall be higher than the cut-off temperature for the supplementary heat. Supplementary heat may be derived from any source of electric resistance heating or combustion heating.

(g) 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 the ASHRAE Standard 90.

Section 222. Duct insulation.

(a) Insulation.--All duct systems, or portions thereof, exposed to nonconditioned spaces shall be insulated to provide a thermal resistance, excluding film resistance, of

$$R = \frac{ti - to}{15} \text{ (hr) (sq.ft) (F)/BTU}$$

where ti - to is the design temperature differential (absolute value) between the air in the duct and the surrounding air with the following exceptions. Duct insulation, except when needed to prevent condensation, is not required in any of the following cases:

(1) Where ti - to is 25 degrees F. or less.

(2) When the heat gain or loss of the ducts, without insulation, will not increase the energy requirements of the building.

(3) Exhaust air ducts.

(4) Supply or return air ducts installed in crawl spaces with insulated walls, basements or cellars in one and two-family dwellings.

(b) Vapor barriers.--Where required to prevent condensation,

insulation with vapor barriers shall be installed in addition to insulation required above.

Section 223. System controls.

(a) Application.--All heating, ventilating and air conditioning systems shall be provided controls as specified herein.

(b) Temperature.--Each heating, ventilating and air conditioning system shall be provided with at least one thermostat for the regulation of temperature. Each thermostat shall be capable of being set from 55 degrees F. to 75 degrees F. where used to control heating only and from 70 degrees F. to 85 degrees F. where used to control cooling only. Where used to control both heating and cooling it shall be capable of being set from 55 degrees F. to 85 degrees F. and shall be capable of operating the system heating and cooling in sequence. It shall be adjustable to provide a temperature range of up to 10 degrees F. between full heating and full cooling, except as allowed in section 220.

(c) Humidity.--If a heating, ventilating and air conditioning system is equipped with a means for adding moisture to maintain specific selected relative humidities in spaces or zones, a humidistat shall be provided. This device shall be capable of being set to prevent new energy from being used to produce space relative humidity above 30% R.H. Where a humidistat is used in a heating, ventilating and air conditioning system for controlling moisture removal to maintain specific selected relative humidities in spaces or zones, it shall be capable of being set to prevent new energy from being used to produce a space relative humidity below 60%.

(d) Temperature zoning.--

(1) In all buildings and structures of Use Group R-3, at least one thermostat for regulation of space temperature shall be provided for each separate heating, ventilating and air conditioning system. In addition, a readily accessible manual or automatic means shall be provided to partially restrict or shut-off the heating or cooling input to each zone or floor, excluding unheated or uncooled basements and garages.

(2) In all buildings and structures of Use Group R-2, each individual dwelling unit shall be considered separately and shall meet the requirements for one and two-family dwellings above.

(3) In all buildings and structures other than Use Group R-3 and in spaces other than dwelling units in Use Group R-2, at least one thermostat for regulation of space temperature shall be provided for each separate heating, ventilating and air conditioning system and for each floor of the building.

(e) Set-back and shut-off.--

(1) In all buildings and structures, or portions thereof of Use Group R-3, the thermostat, or an alternate means such as a switch or a clock, shall provide a readily accessible, manual or automatic means for reducing the energy required for heating and cooling during periods of nonuse or reduced need.

(2) In all other buildings and structures, or portions thereof each heating, ventilating and air conditioning system shall be equipped with a readily accessible means of reducing the energy used for heating, ventilating and air conditioning during periods of nonuse or alternate uses of the building spaces or zones served by the system, such as with manually

adjustable automatic timing devices, manual devices for use by operating personnel, or automatic control systems.

(3) Lowering thermostat set points to reduce energy consumption of heating systems shall not cause energy to be expended to reach the reduced setting.

Section 4. Section 224 of the act, amended July 10, 1981 (P.L.231, No.75) and repealed November 10, 1999 (P.L.491, No.45), is reenacted to read:

Section 224. Steam and hot water heating 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.

(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 tem-							
perature	120-200	1/2	3/4	1	1	1	1 1/2
Steam con-							
densate (for feed water)	Any	1	1	1	1 1/2	1 1/2	2
Cooling systems							
Chilled water,	40-55	1/2	1/2	3/4	1	1	1
Refrigerant, or brine	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:

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

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

(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.

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

Section 5. Subchapters F, G, H, I and J of Chapter 2, heading of Chapter 3 and section 301 of the act, repealed November 10, 1999 (P.L.491, No.45), are reenacted to read:

SUBCHAPTER F

PLUMBING SYSTEMS

Section 225. Purpose.

This subchapter sets forth provisions for design and equipment selection for energy conservation in service water heating systems.

Section 226. Fixtures.

(a) Lavatories.--Lavatories in restrooms of public facilities shall be equipped with self-closing outlet devices which limit the flow of hot water to a maximum of 0.5 Gpm, devices which limit the outlet temperature to a maximum of 110 degrees F. and self-closing valves which limit the quantity of

hot water to a maximum of 0.25 gallon.

(b) Showers.--Showers used for other than safety reasons shall be equipped with flow control devices to limit total flow to a maximum of 3 Gpm per shower head.

Section 227. Insulation.

(a) Piping insulation.--Piping in required return circulation systems shall be insulated so that heat loss is limited to a maximum of 25 Btuh per square foot of external pipe surface for above ground piping and a maximum of 35 Btuh per square foot of external pipe surface for underground piping. Maximum heat loss shall be determined at a temperature differential equal to the maximum water temperature minus a design ambient temperature no higher than 65 degrees F. except that conformance with table 10 for "low temperature piping system" shall be deemed as complying with this section.

(b) Tanks.--Unfired hot water storage tanks shall be insulated so that heat loss is limited to a maximum of 15 Btuh per square foot of external tank surface area. For purposes of determining this heat loss, the design ambient temperature shall be no higher than 65 degrees F.

Section 228. Equipment.

(a) Pump operation.--Circulating hot water systems shall be arranged so that the circulating pump can be conveniently turned off either automatically or manually when the hot water system is not in operation.

(b) Electric water heaters.--All automatic electric storage water heaters shall have a stand-by loss not exceeding 4 watts per square foot of tank surface area. The method of test of stand-by loss shall be as described in section 4.3.1 of ANSI C72.1 Household Automatic Electrical Storage-Type Water Heaters.

(c) Gas and oil-fired water heaters.--All gas and oil-fired automatic storage heaters shall have a recovery efficiency, ER, not less than 75% and a stand-by loss percentage S, not exceeding S=2.3+67/V where V=rated volume in gallons. The method of test of ER and S shall be as described in section 2.7 of ANSI Z21.10.3 Circulating Tank, Instantaneous and Large Automatic Storage Type Water Heaters, Approval Requirements for Gas Water Heaters.

Section 229. Controls.

(a) Temperature controls.--All hot water supply systems shall be equipped with automatic temperature controls capable of adjustments from the lowest to the highest acceptable temperature settings for the intended use.

(b) Shut down.--A separate switch shall be provided to terminate the energy supplied to electric hot water supply systems. A separate valve shall be provided to turn off the energy supplied to the main burner of all other types of hot water supply systems.

SUBCHAPTER G
ELECTRICAL SYSTEMS

Section 230. System requirements.

(a) Service voltage.--Where a choice of service voltage is available, the voltage resulting in the least energy loss shall be used.

(b) Voltage drop.--In any building, the maximum total voltage drop shall not exceed 3% in branch circuits or feeders, for a total of 5% to the farthest outlet based on steady state design load conditions.

(c) Lighting switching.--Switching shall be provided for each lighting circuit, or for portions of each circuit, so that

the partial lighting required for custodial or for effective complementary use with natural lighting may be operated selectively.

(d) Separate metering.--In all multi-family dwellings, including buildings classified as Use Group R-3, provisions shall be made to determine the electrical energy consumed by each tenant.

SUBCHAPTER H

LIGHTING

Section 231. Lighting power budget.

A lighting power budget is the upper limit of the power to be available to provide the lighting needs in accordance with a given set of criteria and given calculation procedure.

Section 232. Calculation methods.

The criteria specified below shall be utilized for computation of the lighting power budget. All calculations shall be in accordance with accepted engineering practice. When insufficient information is known about the specific use of the building space (e.g., number of occupants, space function, location of partitions), the budget shall be based on the apparent intended use of the building space.

Section 233. Building interiors.

(a) Procedure.--The allowable electric power for lighting shall be established by using the criteria and the calculation procedures specified in section 236. The value shall be based on the use for which the space within the building is intended and on efficient energy utilization.

(b) Illumination level criteria.--For the purpose of establishing a budget, levels of illumination shall be those listed in fig. 9-80 of the IES Lighting Handbook, and those

levels shall be used as follows:

(1) For task lighting, the levels of illumination listed are for specific tasks. These levels are for the task areas defined in the IES Lighting Handbook or, where not defined, at all usable portions of task surfaces. In some cases, the levels of illumination are listed for locations (e.g., auditoriums). These levels are to be considered as average levels.

(2) For general lighting, in areas surrounding task locations, the average level of general lighting, for budget purposes only, shall be one-third the level for the tasks performed in the area but in no case less than 20-foot candles. Where more than one task level occurs in a space, the general level shall be one-third the weighted average of the specific task levels.

(3) For noncritical lighting, in circulation and seating areas, where no specific visual tasks occur, the average level of illumination shall be one-third of the average general lighting in the adjacent task spaces but in no case less than ten-foot candles.

(4) For the purpose of establishing a power budget, only lamp efficacies and coefficients of utilization (CU) specified in Table 11, shall be assumed.

Section 234. Building exteriors.

(a) Basis on use.--In exterior spaces, the lighting power budget shall be based on the use of which the space is intended (for task performance, safety, or security) and on efficient energy utilization.

(b) Criteria.--The same criteria as those for interior spaces apply for illumination levels and lighting systems with

the addition of luminaires for floodlighting. For power budget purposes floodlighting shall be selected with luminaires having a greater percentage of their beam lumens restricted to the area to be lighted. Such luminaires are defined as those with at least the minimum efficiencies listed in the IES Lighting Handbook.

(c) Facade lighting.--Facade lighting for budget purposes shall be no greater than 2% of the total interior load of the building.

(d) Calculation procedure.--In establishing a lighting power budget the following procedures shall be used:

(1) For overhead lighting the procedure specified in section 236 shall be followed, but using reflectances as found.

(2) For floodlighting the beam lumen method, as shown in the IES Lighting Handbook and a coefficient of beam utilization (CBU) of 0.75 shall be used for floodlighting calculations.

Section 235. Exceptions to criteria.

(a) Spaces.--The criteria of section 233 shall not apply to the following areas when calculating the load:

(1) Portions of residential occupancies except for kitchens, bathrooms, and laundry areas and public spaces including lobbies, halls, stairways, basement areas and utility rooms.

(2) Residential type spaces similar to those stated in paragraph (1) in institutions, such as hospitals, hotels, funeral homes, churches, museums, etc.

(3) Theater auditoriums, entertainment and audiovisual presentations where the lighting is an essential technical

element for the function performed.

(b) Luminaires.--The criteria of section 234 shall not apply to the following lamps and luminaires; however, their use shall be accounted for in the calculation of task lighting loads for specific tasks. The allowable load shall be based on the luminaire wattage to achieve the levels of illumination as covered in section 233 using a point calculation method given in the IES Lighting Handbook. The excepted lamps and luminaires are as follows:

(1) Luminaires for medical and dental purposes.

(2) Luminaires for highlighting applications, such as sculpture exhibits, art exhibits, and individual items of display merchandise.

(3) Luminaires for specialized lighting applications (color matching, where electrical interference cannot be tolerated, etc.).

(c) Control of reflectances.--The criteria of Table 11 shall not apply in spaces where it is impractical to control reflectances and where a dirty atmosphere cannot be avoided. Where this condition exists, the values for reflectances and light loss factors shall be those expected to be found and shall be approved by the department. The calculation shall make a note of this deviation.

Section 236. Calculation procedure.

To establish a lighting power budget the following procedures shall be used:

(a) To determine illumination levels and areas:

(1) Determine the visual tasks that are expected to be performed in each space and the number of planned work locations where tasks will be performed. If assumptions are

made, their bases shall be indicated.

(2) Select the illumination level, in foot-candles for those expected tasks in accordance with section 233(b)(1).

(3) Calculate total task areas to be illuminated to the same level by multiplying the number of work locations by 50 square feet per work location. Use actual task area if greater than 50 square feet. If the sum of all task areas is greater than 50% of the total space area, then the task area per work location shall be reduced proportionately, so that the total task area is limited to one-half the total space area. If special task lighting or localized lighting is to be employed, use the actual task areas and point calculation procedures.

(4) Calculate the level of general lighting by multiplying the task lighting level by one-third, where there is only one task level, or by taking one-third of the sum of the products of the task levels as provided for in paragraph (2) and their areas as provided for in paragraph (3) divided by the total task areas.

(5) Calculate the level of noncritical lighting.

(b) To determine lighting system data:

(1) Determine light source and luminaire types to use.

(2) Determine lamp lumens per watt and luminaire coefficients of utilization for room and luminaire mounting height dimensions. Luminaire CUs shall be selected from the IES Lighting Handbook. In all cases, no luminaire shall have a CU for RCR = 1 of less than that given in Table 11 lamp efficacies for the appropriate space.

(c) To determine allowable wattage:

(1) Using data from subsection (b), the illumination

levels and areas determined in subsection (a), and the criteria of Table 11 on Reflectance, calculate the allowable wattages using the lumen method.

(2) Calculate the total space wattage by adding the task, general and noncritical lighting loads.

(3) Add the wattage of luminaires allowed in section 235(b).

Table 11

(a) Lamp efficacies.--The following are initial lumen output per watt input, including ballast losses:

Application	Lumens per Watt
Where moderate color rendition is appropriate	55
Where good color rendition is appropriate	40
Where high color rendition is appropriate, spaces are less than 50 square feet or where use of low wattage High Intensity Discharge (HID) lamps under 250 W or fluorescent lamps under 40 W is appropriate.	25

(b) Luminaire coefficients of utilization (CU).--Coefficients of utilization (CUs) are to be for luminaires for use in the types of spaces listed below, and those luminaires shall have a CU of no less than that listed below (for each type space) for a Room Cavity Ratio (RCR) of 1 and reflectances as in (c).

Space Use	Minimum CU (at RCR = 1)
For spaces with tasks subjected to veiling reflections, where recommended levels of illumination are listed in terms of	

equivalent sphere illumination (ESI), and where visual comfort is important. 0.55

For spaces without tasks, or with tasks not subjected to veiling reflections, but where visual comfort is important. 0.63

For spaces without tasks and where visual comfort is not a criterion. 0.70

(c) Other criteria:

(1) Reflectances. For interior spaces, the following initial cavity and surface reflectances shall be assumed:

Ceiling cavity reflectance	80%
Wall reflectance	50%
Floor cavity reflectance	20%

(2) Light loss factor. A light loss factor (LLF) of 0.70 shall be used.

SUBCHAPTER I
ALTERNATIVE SYSTEMS

Section 237. Performance alternative.

Alternative building systems and equipment design may be approved by the department when they can be shown to have energy consumption not greater than that of a similar building with similar forms of energy requirements, designed in accordance with the provisions of this act or when they can be shown to have energy consumption not greater than that which shall be established by the department with the approval of the Building Energy Conservation Committee, for the purposes of this section: Provided, however, That for all buildings classified as Use Group R-3 alternate building systems and equipment design which satisfy the criteria of this section shall not require the approval of the department but the use of such an alternate

building system or equipment design shall be indicated in the warranty provided in section 306.

Section 238. Nondepletable sources; exemption.

When such alternative systems utilize solar, geothermal, wind or other nondepletable energy sources for all or part of their energy sources, such nondepletable energy supplied to the building shall be excluded from the total energy chargeable to the proposed alternative design. Any structure that is designed and built free of any dependence on depletable energy sources shall be exempt from the provisions of section 239 and any other provisions of this act.

Section 239. Documentation.

Proposed alternative designs, submitted to the department as requests for exception to the standard design criteria, must be accompanied by an energy analysis prepared in accordance with the ASHRAE Standard 90-75.

SUBCHAPTER J

USE GROUP R-3 PRESCRIPTIVE STANDARDS

Section 240. Minimum insulation requirements for Use Group R-3.

Except as provided in section 237, Use Group R-3 buildings shall be constructed utilizing the following minimum insulation standards:

Ceilings	R - 19
Exterior Walls	R - 13
Floors Over Unheated Basements and Crawl Spaces*	R - 11

*Basements containing a furnace and/or hot water heater may be considered heated

Edge Insulation for:

Heated Slabs	R - 6.3
Unheated Slabs	R - 4.2
Windows	Multiglazing
Entrance Doors	R - 2.5
Sliding Glass Doors (if applicable)	Multiglazing
Ducts in Unheated Areas	R - 3

CHAPTER 3

APPLICATION OF STANDARDS: ESTABLISHMENT OF COMMITTEE AND PENALTIES

Section 301. Modification of standards; criteria.

(a) Recommendations to General Assembly.--The department, with the approval of the Building Energy Conservation Committee established pursuant to section 304, after one or more public hearings, may recommend to the General Assembly modifications to the energy conservation standards contained in Chapter 2 hereof. Any recommended modification to the energy conservation standards shall meet the following criteria:

(1) It shall be consistent with the latest and most effective technology.

(2) It shall not be in conflict with existing safeguards for public health and safety.

(3) It shall be economically feasible as determined by life-cycle-cost procedures.

(4) It shall be sufficiently stringent to effect a significant savings of energy resources.

(5) It shall be a performance standard for the design of buildings and systems within buildings to assure maximum practical conservation of energy.

(6) Consideration shall be given to building and energy standards promulgated by national and other State

governmental agencies, private organizations and any other available energy data.

(b) Federal performance standards.--In the event that the Federal Government promulgates performance standards that are inconsistent or more stringent than the standards detailed in this act, and the Federal Government mandates the states to enact legislation to comply with its standards, then the department, with the approval of the Building Energy Conservation Committee, may modify the energy conservation standards contained in this bill without the approval of the General Assembly, in order to comply with the Federal standards.

Section 6. Section 302 of the act, amended May 9, 1986 (P.L.181, No.55) and repealed November 10, 1999 (P.L.491, No.45), is reenacted and amended to read:

Section 302. Application of energy conservation standards.

The energy conservation standards contained herein or as promulgated by the department with the approval of the Building Energy Conservation Committee shall apply to new buildings or to renovations or additions on which actual construction and/or design has not commenced prior to their effective dates. Except for the authority of the Department of Community [Affairs] and Economic Development to promulgate rules or regulations for all units subject to the act of May 11, 1972 (P.L.286, No.70), known as the "Industrialized Housing Act," provided such standards invoked are equal to or more stringent than those contained in this act, or as mandated by Federal law, no public utility as defined in 66 Pa.C.S. § 102 (relating to definitions), department, board, agency or commission other than as provided herein, shall promulgate or adopt any mandatory building energy conservation standards, rules or regulations other than the

standards contained in Chapter 2, Subchapters D through J or promulgated under Chapter 4 of this act except as mandated by Federal law.

Section 7. Sections 303 and 304 of the act, repealed November 12, 1999 (P.L.491, No.45), are reenacted to read:

Section 303. Energy conservation manual for buildings.

(a) Production of manual.--Concurrent with the adoption of the energy conservation codes required by this act, the department in conjunction with the Governor's Energy Council shall produce an energy conservation manual for use by designers, builders, contractors of residential and nonresidential buildings, and municipalities of the Commonwealth. This manual shall contain the established standards and accepted practices. The manual shall further contain prescriptive standards which, if complied with, will result in conformance with the performance standards contained herein or as promulgated by the department and shall be written in such manner as to be easily understood by persons possessing a minimal technical background. The manual shall be furnished upon request to members of the public at a price sufficient to cover the cost of printing.

(b) Review of manual.--The manual shall be reviewed by the department and the Building Energy Conservation Committee at least annually and shall be updated as significant new energy conservation information becomes available.

(c) Educational programs.--The department in conjunction with the Governor's Energy Council shall provide seminars and other educational programs throughout the Commonwealth to provide information and counseling to builders, architects, other licensed design professionals, local building officials

and other persons affected by this act on the standards contained herein or as promulgated by the department.

Section 304. Building Energy Conservation Committee.

(a) Composition of committee.--In order to further the coordinated and effective administration of this act, there is hereby established within the Governor's Energy Council a Building Energy Conservation Committee. It shall consist of twelve members, the membership of which shall be appointed by the Governor. The committee shall consist of the following members or their designees:

(1) Two representatives of State Government.

(2) One representative of local government.

(3) One licensed professional engineer.

(4) Two building contractors, one residential and one industrial.

(5) One licensed architect.

(6) One representative of the energy supply industry.

(7) Four representatives of such other agencies and organizations or individuals as the Governor may find are necessary and proper to carry out the purposes of the committee.

(b) Powers and duties.--In addition to the powers and duties enumerated in this act, the Building Energy Conservation Committee shall:

(1) Be responsible for the regular exchange of information and plans regarding building energy conservation, for the development, review and approval of proposed and existing standards, guidelines, regulations and manuals.

(2) Elect from its members a Board on Variances.

(c) Expenses.--The members of the committee shall not

receive any compensation for their services but shall be reimbursed for their actual and necessary expenses incurred in the performance of their duties. Provided, however, when acting on matters concerning variances members of the Board on Variances shall receive $50 per day plus their actual and necessary expenses.

Section 8. Section 305 of the act, amended December 19, 1985 (P.L.344, No.98) and repealed November 10, 1999 (P.L.491, No.45), is reenacted to read:

Section 305. Certification.

(a) Applicability.--The provisions of this section shall apply to all buildings subject to this act except those classified as Use Group R-3.

(b) Compliance with act.--It shall be the duty of the licensed design professional retained in connection with the design or construction of a building to certify that, in his professional opinion and in accordance with the accepted standards of his profession, the drawings, specifications and other data will achieve compliance with the provisions of this act. If no licensed design professional is retained in connection with the design or construction of a building, then this certification shall be made by the builder or the owner, if he is the builder. All such information required in this provision to be submitted to the department must be accompanied by a filing fee of $10. The filing fee may be subject to change by the Building Energy Conservation Committee upon the recommendation of the department to the Building Energy Conservation Committee, provided, however, that advance notice of such change has appeared in the Pennsylvania Bulletin. If the building is subject to the provisions of the act of April 27,

1927 (P.L.465, No.299), referred to as the Fire and Panic Act, the certification required hereunder shall be submitted on a form with the application for plan approval under the said Fire and Panic Act.

(c) Inspection.--Each licensed design professional retained by the owner or his designee, where any of such are retained during the construction of a building, shall make periodic inspections of the building progression to observe compliance with this act: Provided, That such inspection shall not be construed as a guarantee of satisfactory performance by others or as an assumption of financial liability for unknown defects or deficiencies in the work of others.

(d) Final certification.--Each builder retained by the owner or the owner, if he is the builder, shall make a final certification of every completed building stating that such building has been constructed in compliance with the approved drawings and specifications prepared by a licensed design professional or with the provisions of this act.

Section 9. Section 306 of the act, amended December 19, 1985 (P.L.344, No.98) and repealed November 10, 1999 (P.L.491, No.45), is reenacted and amended to read:

Section 306. Use Group R-3; notice; warranty.

(a) Notice to department.--Prior to construction of any building classified as Use Group R-3, the builder shall notify the department by first class mail of his intent to begin construction. Such notice shall include a filing fee of $10 and contain the name of the owner of the building and its location. The filing fee may be subject to change by the Building Energy Conservation Committee, upon the recommendation of the department to the Building Energy Conservation Committee,

provided, however, that advance notice of such change has appeared in the Pennsylvania Bulletin.

(a.1) Restricted account.--All filing fees shall be deposited in a restricted account in the State Treasury to be known as the Building Energy Conservation Account. All fees collected for the purpose of this act shall be deposited in this account and the department shall draw from the account sufficient funds to cover the administrative and enforcement costs of operating the program. The funds in the account are hereby appropriated to the department to carry out this act and shall not lapse at the end of any fiscal year. The balance of funds remaining in any existing Building Energy Conservation Account and held by the department on the effective date of this act is hereby transferred to the special Building Energy Conservation Account established pursuant to this subsection.

(a.2) Notice to public utilities and utility providers.--

(1) Prior to construction and except as provided in paragraph (5), the builder shall also provide a copy of the notice of intent to begin construction required by subsection (a) and certified as received by the department to all public utilities or utility providers which may be requested to furnish any electric service to or for buildings classified as Use Group R-3 which are constructed after the effective date of this subsection.

(2) All public utilities and utility providers shall rely on the certified copy of the required notice in furnishing, rendering or supplying any electric service to or for a building classified as Use Group R-3, except as provided in paragraph (5), and no public utility or utility provider shall conduct any audit, inspection or examination

of the building for the purpose of determining compliance with this act. The furnishing, rendering or supplying of electric service by a public utility or utility provider to or for a building classified as Use Group R-3 shall not constitute a certification or determination by the public utility or utility provider that the building has been constructed in compliance with this act.

(3) Except as provided in paragraph (5), no public utility or utility provider shall furnish any electric service to or for any building classified as Use Group R-3 which is constructed after the effective date of this subsection unless it has first received the required copy of the notice of intent to begin construction which has been certified as received by the department.

(4) Each public utility or utility provider shall be required to retain the certified copy of the notice of intent to begin construction which is submitted to it for at least two years: Provided, however, That if a utility or utility provider uses data processing equipment to record and maintain information derived from the certified copy of the notice of intent to begin construction, such utility or utility provider shall not be required to retain the certified copy of the notice or a photocopy thereof.

(5) (i) Each public utility or utility provider shall be exempt from the provisions of paragraphs (1) through (4) when any electric service is requested for a building classified as Use Group R-3 which is located in a municipality which has elected to administer this act in accordance with sections 501 and 502 and which requires that a notice of intent to begin construction be filed

with the municipality prior to or at the time that application is made for a building permit.

(ii) Each public utility or utility provider shall be exempt from the provisions of paragraphs (1) through (4) in situations where, in the public utility's or utility provider's judgment, strict compliance may jeopardize the public health or safety or impose an undue hardship. In such event, the public utility or utility provider shall notify the department or the administering municipality, in writing, on forms prescribed by the department, of the exemption.

(6) If a builder fails to file the required notice with the department or the administering municipality within 30 days of receiving an exemption under paragraph (5), the department or the administering municipality shall serve written notice on the builder that he is in violation of this act and subject to a penalty as provided for in subsection (d).

(b) Warranty.--At the time a contract for the construction of any building classified as Use Group R-3 is entered into, the builder shall warrant to the owner in writing that the building shall be constructed in accordance with the provisions of this act. Such warranty shall be a document separate from the contract and shall be in the following form:

I, (Builder), hereby warrant to (Owner) that the premises known as (Description) shall be constructed in accordance with the provisions of the Act of December 15, 1980 (No.222), known as the "Building Energy Conservation Act."

This law provides building standards to make your home energy efficient and also provides you with legal remedies if

your home is not built according to the State standards. If you would like the State to do an energy audit of your home to determine if it conforms to State standards, you may call the Pennsylvania Department of Community [Affairs] and Economic Development at (Telephone), and they will perform an inspection of your home for a fee of $35.

Indicate if alternate building system or equipment design is being employed.

(c) If the builder is also the owner of the building at the time of construction, he shall provide the warranty required by subsection (b) at the time of its initial sale to a new owner. Such warranty shall be in substantially the same form as provided in subsection (b).

(d) Failure to provide notice.--The Department of Community [Affairs] and Economic Development, after hearing, may assess a civil penalty payable to the Commonwealth of Pennsylvania not to exceed $100 for a first offense upon any builder who fails to give the notice required by subsection (a). In determining the amount of the civil penalty for a first offense, the department shall consider the willfulness of the violation and the cost incurred by the department in discovering the violation. In the event a builder fails to give the notice required by subsection (a) on a second or subsequent occasion, the department shall assess upon the builder a civil penalty payable to the Commonwealth of Pennsylvania of $200.

(e) Failure to provide warranty.--Whenever a builder fails to provide the warranty required by subsection (b) or (c) such required warranty shall constitute an implied warranty and the owner's right to proceed under section 315(a) shall not be affected. If it is established by a preponderance of the

evidence that the builder's failure to provide the warranty was willful, then damages in twice the amount provided in section 315 may be awarded.

Section 10. Sections 307, 308, 309, 310 and 311 of the act, repealed November 10, 1999 (P.L.491, No.45), are reenacted to read:

Section 307. Variances.

(a) Requests.--Any request for a variance from the energy conservation standards contained herein shall be made to the Board on Variances of the Building Energy Conservation Committee and a decision on such request shall be made within 30 days of its filing.

(b) Criteria.--A variance shall be granted only if it is found that:

(1) compliance with the provisions of this act would result in extreme hardship to the owner; and

(2) the granting of such variance would not result in a significant increase in the energy usage of the building.

Section 308. Building permits.

Any building permit issued by the Commonwealth or any of its political subdivisions shall have printed upon its face notice that the provisions of this act must be complied with.

Section 309. Permits for use or occupancy.

Before any building or structure hereafter constructed, other than a building not subject to this act, or those classified as Use Group R-3, shall be used or opened for occupancy, the owner thereof shall notify the department of the completion of the building for the purposes of this act and submit the necessary certification therewith: Provided, however, That if a municipality elects to administer the provisions of this act

under Chapter 5 such notice and certification shall be submitted to the municipality which shall forward a copy of the notice to the department. No permit for use or occupancy shall be granted until such submission has been made. No building official of the Commonwealth or any of its political subdivisions shall issue a permit until he has received proof of such compliance. Where the certificate has been submitted to the department, presentation to the building official of the mailing receipt together with a copy of the certification required by section 305 shall establish proof of compliance for the purposes of this section. Upon such presentation any building official of the Commonwealth or any of its political subdivisions shall issue a permit for use or occupancy, provided all other criteria for such a permit have been satisfied and said building official shall notify the department that he has issued the same.

Section 310. Failure to submit certification.

Whenever the owner of any building, other than a building classified as Use Group R-3, shall fail to give the notice and submit the necessary certification in accordance with section 309 and shall nevertheless proceed with the use or occupancy of the building, the department or the municipality shall serve notice on the said owner that he is in violation of this act and order him to comply therewith.

Section 311. Inspections.

The department may perform a nondestructive inspection within two years of the date of completion of construction of any building constructed after the effective date of this act to determine compliance with the provisions of this act, provided at least 30 days notice has been given to the owner. The costs of any such inspection initiated by the department shall not be

assessed on the owner. The department may also cause such an inspection to be performed at the request of the owner of any building subject to this act. The fee for such an inspection upon request under section 306(b) for R-3 buildings is $35. The fee for inspections performed upon request for all other buildings subject to this act shall be determined by the department at such an amount as to cover the necessary costs of the inspection.

Section 11. Section 313 of the act, amended December 19, 1985 (P.L.344, No.98) and repealed November 10, 1999 (P.L.491, No.45), is reenacted to read:

Section 313. Penalties.

(a) Applicability.--The provisions of this section shall apply to all buildings subject to this act except those classified as Use Group R-3.

(b) Violations of act.--Any person who shall willfully or negligently violate any of the provisions of this act, or the rules and regulations or the orders for the enforcement of the said provisions or rules and regulations issued by duly authorized officers of the department or who shall hinder, delay or interfere with any officer charged with the enforcement of this act in the performance of his duty, shall, upon conviction thereof, be punished by a fine of $300 and costs. In the event of violation of more than one provision of this act, the violation of each provision shall be deemed a separate and distinct offense for the purposes of this section.

(c) Institution of proceedings.--Prosecutions for violations of this act or the rules and regulations of the department may be instituted by the Secretary of Labor and Industry or under his directions by an authorized representative of the

department. Upon conviction after a hearing in a court of competent jurisdiction, the sentences provided in this act shall be imposed and shall be final unless an appeal be taken in the manner prescribed by law.

(d) Disposition of fines.--All fines collected under this act shall be forwarded to the department who shall pay the same into the State Treasury for the use of the Commonwealth.

(e) False certification.--Any architect or other licensed design professional who willfully provides a false certification for any building subject to the provisions of this act shall be subject to the suspension or revocation of his license by the State Board of Examiners of Architects or other applicable State licensing board.

Section 12. Sections 314 and 315, Chapter 4, Chapter 5 heading and sections 501, 502 and 503 of the act, repealed November 10, 1999 (P.L.491, No.45), are reenacted to read:

Section 314. Enforcement.

(a) Applicability.--The provisions of this act shall apply to every building enumerated in this act, including buildings owned in whole or in part by the Commonwealth or any political subdivision thereof, and with the exception of those buildings not included in this act or those classified as Use Group R-3, shall be enforced by the Secretary of Labor and Industry, by and through his authorized representatives.

(b) Powers of officers.--For the purpose of enforcing the provisions of this act, all the officers charged with its enforcement shall have the power to enter any of the buildings enumerated in this act, and no person shall hinder or delay, or interfere with any of the said officers in the performance of his duty, nor refuse any pertinent information necessary to

determine whether the provisions of this act and the rules and regulations herein provided for, are or will be complied with.

Section 315. Civil action.

(a) Use Group R-3.--The owner of any building subject to the requirements of section 306 who is aggrieved as the result of such building not being properly designed or constructed in conformance with this act shall have a right of action for breach of warranty. Remedies may include specific performance or an award of damages in an amount not less than $300. Attorney's fees shall be recoverable in any action in which the owner prevails. Any such award shall further provide for payment of the actual costs in excess of $35 incurred by the department if it inspected the building for the owner and the owner shall remit such amount to the department.

(b) Other buildings.--The owner of any building, other than a building not included in this act or those classified as Use Group R-3, at the time of its design or construction under the provisions of this act who is aggrieved as the result of such building not being properly designed or constructed in conformance with the certificate issued under section 305 of this act shall have a right of action against any person who is required to submit such certificate.

(c) Limitation of action.--

(1) No action brought under subsection (a) shall be maintained unless brought within three years from the date of the warranty.

(2) No action brought under subsection (b) shall be maintained unless brought within three years from the date of completion of the building.

ADOPTION OF FUTURE STANDARDS

Section 401. Adoption and promulgation of standards.

The department, with the approval of the Building Energy Conservation Committee, shall, after one or more public hearings, adopt and publish energy conservation standards for all buildings covered by this act in accordance with the provisions of the act of July 31, 1968 (P.L.769, No.240), known as the "Commonwealth Documents Law." The purpose of such standards is to reduce wasteful or uneconomic consumption of energy by balancing the cost of energy procurement against the cost of energy-conserving building practices. The energy conservation standards shall meet the following criteria:

(1) They shall be consistent with the latest and most effective technology.

(2) They shall not be in conflict with existing safeguards for public health and safety.

(3) They shall be economically feasible as determined by life-cycle-cost procedures.

(4) They shall be sufficiently stringent to effect a significant savings of energy resources.

(5) They shall be a performance standard for the design of buildings and systems within buildings to assure maximum practical conservation of energy.

(6) Consideration shall be given to building and energy standards promulgated by national and other State governmental agencies, private organizations and any other available energy data.

CHAPTER 5

LOCAL ELECTION

Section 501. Election; Use Group R-3.

Any municipality of this Commonwealth may elect to administer the provisions of this act relating to Use Group R-3 buildings, as defined in section 103, except for units subject to the act of May 11, 1972 (P.L.286, No.70), known as the "Industrialized Housing Act" or those units subject to Title VI (Public Law 93-383) referred to as the Federal Mobile Home Construction and Safety Standards Act of 1974. Such election shall be made by resolution of the governing body of such municipality which shall be in substantially the following form:

The (city, borough, town, or township) of_____ hereby elects to administer the provisions of the act of December 15, 1980 (No.222), known as the "Building Energy Conservation Act" for Use Group R-3 buildings as defined therein.

Section 502. Election; cities of the first, second and second class A.

Any city of the first class, second class and second class A may elect to administer the provisions of this act for all buildings subject hereto, except for units subject to the act of May 11, 1972 (P.L.286, No.70), known as the "Industrialized Housing Act" or those units subject to Title VI (Public Law 93-383) referred to as the Federal Mobile Home Construction and Safety Standards Act of 1974. Such election shall be made by resolution of the governing body of such city which shall be in substantially the following form:

The city of_____hereby elects to administer the provisions of the act of December 15, 1980 (No.222), known as the "Building Energy Conservation Act."

Section 503. Powers of municipalities.

Any municipality electing to administer the provisions of

this act under section 501 or 502 shall exercise the same powers conferred upon the department by this act, including the power to institute proceedings for violations of the act, with the exception of those powers specified in sections 301, 303 and in Chapter 4. In addition, any such municipality may exercise such other administrative and enforcement procedures as it shall deem necessary to effect the purposes of this act including, but not limited to, prior plan approval, building permit requirements, use or occupancy permit requirements and inspections during the course of construction.

Section 13. Section 504 of the act, amended December 19, 1985 (P.L.344, No.98) and repealed November 10, 1999 (P.L.491, No.45), is reenacted to read:

Section 504. Variances.

Any municipality electing to administer the provisions of this act under section 501 or 502 shall establish a Board on Variances to make determinations on request for variance from the energy conservation standards contained herein or as promulgated by the department with the approval of the Building Energy Conservation Committee, and is authorized exclusive jurisdiction to grant such variances, section 307(a) notwithstanding. A municipality, however, need not establish a Board on Variances if it has established a zoning hearing board pursuant to the act of July 31, 1968 (P.L.805, No.247), known as the "Pennsylvania Municipalities Planning Code." If the municipality does not establish a Board on Variances, the powers and duties established by this section shall be exercised by such zoning hearing board. A variance shall only be granted if the criteria of section 307(b) have been satisfied.

Section 14. Section 505 and Chapter 6 of the act, repealed

November 10, 1999 (P.L.491, No.45), are reenacted to read:

Section 505. Disposition of fines and fees.

Any fines or fees collected under this act by any municipality electing to administer the provisions of this act under section 501 or 502 shall be retained by the municipality, section 313(d) notwithstanding.

CHAPTER 6

REPORT TO GENERAL ASSEMBLY

Section 601. Report to General Assembly.

Thirty months after the effective date of this act, the department shall report to the General Assembly the results of the inspections it has performed under this act together with a report on public compliance with this act. The report shall also document the amount of money that the department received pursuant to this act and the dispensation of these funds. In addition, within 24 months of the effective date of this act, the department shall obtain from every municipality electing to enforce the provisions of this act a report containing information similar to that required of the department under this section. The department shall include such findings in its report to the General Assembly.

Section 602. Effective date.

This act shall take effect as follows:

(1) Chapter 2 shall take effect July 1, 1981 and shall remain in full force and effect for a period of one year after which time the provisions of Chapter 2 shall have no legal effect.

(2) Section 301 shall take effect January 1, 1981 and its provisions shall remain in full force and effect for a period of 18 months after which time said provisions shall

have no legal effect.

(3) Chapter 4 shall take effect July 1, 1982.

(4) All other provisions of this act shall take effect January 1, 1981.

Section 15. The Secretary of Labor and Industry shall transmit a notice for publication in the Pennsylvania Bulletin when the secretary is satisfied that all of the following have been enacted:

(1) The addition of sections 2, 3, 3.1, 3.2, 3.6(a), (b), (c), (d), (e) and (f)(1)(ii) and (iii) and (2), 4, 4.1, 4.2, 5, 6, 7, 8, 9, 10, 11 and 12 of the act of April 27, 1927 (P.L.465, No.299), referred to as the Fire and Panic Act.

(2) The reenactment of the act of May 2, 1929 (P.L.1518, No.452), referred to as the Elevator Regulation Law.

(3) The reenactment of the act of September 1, 1965 (P.L.459, No.235), entitled, as amended, "An act requiring that certain buildings and facilities adhere to certain principles, standards and specifications to make the same accessible to and usable by persons with physical handicaps, and providing for enforcement."

(4) The reenactment of the act of July 9, 1976 (P.L.919, No.170), entitled "An act providing for the approval or disapproval of applications for a permit relating to the construction or maintenance of improvements to real estate."

(5) The reenactment of the act of December 15, 1980 (P.L.1203, No.222), known as the Building Energy Conservation Act.

(6) The reenactment of the act of December 17, 1990 (P.L.742, No.185), entitled "An act providing for restrooms

in facilities where the public congregates; and requiring that restroom facilities be provided for women on an equitable basis."

(7) The reenactment of the act of December 19, 1990 (P.L.1387, No.214), known as the Dry Cleaning Law.

(8) The repeal of the act of November 10, 1999 (P.L.491, No.45), known as the Pennsylvania Construction Code Act.

Section 16. This act shall take effect as follows:

(1) The following provisions shall take effect immediately:

(i) Section 15 of this act.

(ii) This section.

(2) The remainder of this act shall take effect upon publication of the notice under section 15 of this act.