

INTRODUCED BY: HAROLD J. PETERMAN  
DATE INTRODUCED: AUGUST 12, 1997  
PUBLIC HEARING DATE: OCTOBER 28, 1997  
PUBLIC HEARING TIME: 7:15 P.M.  
ADOPTION DATE: October 28, 1997  
EFFECTIVE DATE: October 28, 1997

ORDINANCE NO. 97-22

AN ORDINANCE TO AMEND THE KENT COUNTY BUILDING CODE SUPPLEMENT TO THE CABO ONE AND TWO FAMILY DWELLING CODE/1992 ADOPTED MAY 10, 1994 TO PROVIDE FOR A KENT COUNTY BUILDING CODE SUPPLEMENT TO THE CABO ONE AND TWO FAMILY DWELLING CODE/1995.

THE LEVY COURT OF KENT COUNTY DELAWARE HEREBY ORDAINS:

Section 1. Kent County hereby adopts a new CABO One and Two Family Dwelling Code for Kent County entitled, "CABO (Council of American Building Officials) One and Two Family Dwelling Code/1995", as well as the "Kent County Building Code Supplement to the CABO One and Two Family Dwelling Code/1995" - copies of which are attached hereto as Exhibit A and incorporated herein.

Section 2. This ordinance is adopted pursuant to the powers conferred upon the Levy Court of Kent County, Delaware, in the Delaware Code, Title 9, Section 4414.

Section 3. If any section, paragraph, sentence, clause, or phrase of this Ordinance shall be declared invalid for any reason whatsoever, such decision shall not affect the remaining portions of this Ordinance which shall continue in full force and effect; and to this end, the provisions of this Ordinance are hereby declared as severable.

ADOPTED BY LEVY COURT  
OF KENT COUNTY, DELAWARE

  
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PRESIDENT, KENT COUNTY LEVY COURT

ATTEST:   
\_\_\_\_\_  
CLERK OF THE PEACE

#### SYNOPSIS

This Ordinance amends the Kent County Building Code Supplement to the CABO One and Two Family Dwelling Code/1992 by deleting reference to the CABO One and Two Family Dwelling Code/1992 and adopting the CABO One and Two Family Dwelling Code/1995 with changes provided in its supplement.

**Kent County Supplement to the  
CABO One and Two Family Dwelling Code  
1995 Edition**

The CABO One and Two Family Dwelling Code - 1995 Edition is to be adopted to ensure building code compliance for those buildings classified in the R-4 Use Group. It is to be adopted in its entirety with the following exceptions. (Any additions or revisions to the original text are underlined.)

**CHAPTER 1  
GENERAL ADMINISTRATION**

Delete in its entirety - Refer to BOCA Chapter 1, Administration

**CHAPTER 2  
DEFINITIONS**

Adopt without changes or additions.

**CHAPTER 3  
BUILDING PLANNING**

**Table 301.2a  
CLIMATIC AND GEOGRAPHIC  
DESIGN CRITERIA**

Insert: Roof Snow Load (lbs per sq. ft).....	<u>15</u>
Wind Pressure (lbs per sq ft).....	<u>16.4</u>
Seismic Condition by Zone.....	<u>0</u>
Subject to Damage from:	
Weathering.....	<u>Severe</u>
Frost Line Depth.....	<u>24"</u>
Subject to Damage from:	
Termite.....	<u>Yes</u>
Decay.....	<u>Yes</u>
Winter Design Temp. for Heating Facilities.....	<u>15</u>
Radon Resistant Const. Req.....	<u>No</u>

**SECTION 314  
STAIRWAYS**

Replace Section as follows:

**314.2 Treads and Risers.** The maximum riser height shall be 8 1/4 inches and the minimum tread depth shall be 2 inches. The riser height shall be measured vertically between leading edges of the adjacent treads. The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. The walking surface of treads and landings of a stairway shall be sloped no steeper than one unit vertical in 48 units horizontal (2 percent slope). The greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm). The greatest tread depth within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm).

**SECTION 315  
HANDRAILS AND GUARDRAILS**

Replace Section as follows:

**315.2 Handrail grip size.** The handgrip portion of the handrails shall not be more than 3 1/2 inches in cross-sectional dimension, or the shape shall provide an equivalent gripping surface. The handgrip portion of handrails shall have a smooth surface with no sharp corners.



## CHAPTER 4 FOUNDATIONS

### SECTION R-303 FOOTINGS

X **403.1 General.** All exterior walls shall be supported on continuous solid masonry or concrete footings, wood foundations, or other approved structural systems which shall be of sufficient design to support safely the loads imposed as determined from the character of the soil and, except where erected on solid rock or otherwise protected from frost, shall extend to 24" below the final grade. Minimum sizes for concrete footings shall be as specified in table 403.1 and Figure 403.1a. Footings for wood foundations shall be in accordance with the details set forth in Section 404.2, Figure 403.1b and 403.1c.

**403.1.1 Slope.** The top surface of the footings shall be level. The bottom surface of the footings may have a slope not exceeding one unit in ten units horizontal (10-percent slope). Footings shall be stepped where it is necessary to change the elevation of the top surface of the footings or where the bottom surface of the footing will exceed one unit vertical in ten units horizontal (10-percent slope).

**403.2 Footings for wood foundations.** Footings for wood foundations shall be in accordance with figure 403.1b and 403.1c. Gravel shall be washed and well graded. The maximum size stone shall not exceed 3/4 inch (19 mm). Gravel shall be free from organic, clayey or silty soils. Sand shall be coarse, not smaller than 1/16 inch (1.6 mm) and shall be free from organic, clayey or silty soils. Crushed stone shall have a maximum size of 1/2 inch (12.7 mm).

**403.3 Insulated footings.** For heated

buildings with slab-on-grade foundations, footings are not required to extend below the frost line where protected from frost by insulating in accordance with Figure 403.3a and Table 403.3. Materials used below grade for the purpose of insulating foundations against frost shall be labeled as complying with ASTM C 578.

**406.3.5 Final Grading.** Final grading shall provide a downward slope away from the house along all foundation walls. The final grade away from foundation walls shall fall a minimum of 6 inches (153 mm) within the first 10 feet (3048 mm).

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## CHAPTER 5 FLOORS

### SECTION 502 FLOOR FRAMING

**502.7 Holes.** Holes drilled or bored in joists shall not be within 2 inches (51mm) of the top or bottom of joists, and their diameter shall not exceed one-third of the depth of the joist.

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## CHAPTER 6 WALL CONSTRUCTION

### SECTION 607 GROUTED MASONRY

**607.1.4 Grout placement.** Grout shall be a plastic mix suitable for pumping without segregation of the constituents and shall be mixed thoroughly. Grout shall be placed by pumping or by an approved alternate method and shall be placed before any initial set occurs and in no case shall more than one and one-



half hours after water has been added. Grouting shall be done in a continuous pour, in lifts not exceeding 44 inches (1117 mm). It shall be consolidated by puddling or mechanical vibrating during placing and reconsolidated after excess moisture has been absorbed but before plasticity is lost.

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**CHAPTER 7  
WALL COVERING**

Adopt without changes or additions.

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**CHAPTER 8  
ROOF-CEILING  
CONSTRUCTION**

Adopt without changes or additions.

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**CHAPTER 9  
ROOF COVERINGS**

**SECTION 910  
REROOFING**

**910.3 Recovering vs. replacement:** New roof covering shall not be installed without first removing existing roof coverings when any of the following conditions occur.

1. When the existing roof or roof covering is water soaked or has deteriorated to the point of being unacceptable as a base for additional roofing.
2. When the existing roof covering is wood shake, slate, clay or cement tile; except when the new roof covering is installed in accordance with approved industry standards.
3. When the existing roof has two or more layers of any type of roof covering.

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**CHAPTER 10  
CHIMNEYS AND FIREPLACES**

Adopt without changes or additions.

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**CHAPTER 11  
MECHANICAL  
ADMINISTRATION**

Adopt without changes or additions.

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**CHAPTER 12  
MECHANICAL DEFINITIONS**

Adopt without changes or additions.

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**CHAPTER 13  
GENERAL MECHANICAL  
SYSTEM REQUIREMENTS**

Replace section as follows

**SECTION 1307  
APPLIANCE INSTALLATION**

**1307.2 Anchorage of Appliances.** Appliances designed to be fixed in position shall be fastened in place. ~~In Seismic Zones 3 and 4 (see Seismic Risk Map in Figure 301.2b); water heaters having nonrigid connections and over 4 feet (1219 mm) in height from the base to the top of the tank case shall be anchored or strapped to the building to resist horizontal displacement due to earthquake motion.~~

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**CHAPTER 14  
HEATING AND COOLING  
EQUIPMENT**

Adopt without changes or additions.

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**CHAPTER 15  
ELECTRICAL RESISTANCE  
HEATING**

Adopt without changes or additions.

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**CHAPTER 16  
VENTER FLOOR, WALL AND  
ROOM HEATERS**

Adopt without changes or additions.

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**CHAPTER 17  
VENTILATION AIR SUPPLY**

Adopt without changes or additions.

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**CHAPTER 18  
EXHAUST SYSTEMS**

Adopt without changes or additions.

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**CHAPTER 19  
DUCT SYSTEMS**

Adopt without changes or additions.

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**CHAPTER 20  
COMBUSTION AIR**

Adopt without changes or additions.

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**CHAPTER 21  
CHIMNEYS AND VENTS**

Adopt without changes or additions.

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**CHAPTER 22  
SPECIAL FUEL BURNING  
EQUIPMENT**

Adopt without changes or additions.

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**CHAPTER 23  
BOILERS AND WATER  
HEATERS**

Adopt without changes or additions.

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**CHAPTER 24  
REFRIGERATION**

Adopt without changes or additions.

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**CHAPTER 25  
HYDRONIC PIPING**

Adopt without changes or additions.

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**CHAPTER 26  
FUEL GAS PIPING**

Adopt without changes or additions.

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**CHAPTER 27  
SPECIAL PIPING AND  
STORAGE SYSTEMS**

Adopt without changes or additions.

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**CHAPTER 28  
SOLAR SYSTEMS**

Adopt without changes or additions.

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**CHAPTERS 29-38**

- **PLUMBING ADMINISTRATION**
- **PLUMBING DEFINITIONS**
- **GENERAL PLUMBING REQUIREMENTS**
- **PLUMBING FIXTURES**
- **WATER HEATERS**
- **WATER SUPPLY AND DISTRIBUTION**
- **SANITARY DRAINAGE**
- **VENTS**
- **TRAPS**
- **PRIVATE SEWAGE DISPOSAL**

Delete all in entirety, replace Sections as follows:

**CHAPTER 29**

**PLUMBING SYSTEMS**

**SECTION 2901.0 GENERAL**

2901.1 Scope: The design and installation of plumbing systems, including sanitary and drainage, sanitary facilities, water supplies and sewage disposal in buildings, shall comply with the requirements of this chapter and to the current editions of the applicable codes enforced by the State of Delaware Department of Health and Social Services, Division of Public Health and the State of Delaware Department of Natural Resources and Environmental Control.

**SECTION 2902.0 PERMITS AND CERTIFICATES OF APPROVAL**

2902.1 Plumbing permit: Plumbing work requiring a permit, as determined by the Plumbing Code of the State of Delaware shall not be commenced until a permit has been obtained from the Division of Public Health.

2902.2 Well permit: Before a permit may be issued for construction, placement or occupancy the property owner, or an authorized representative, must obtain the necessary permit for the withdrawal of groundwater from the Department of Natural Resources and Environmental control.

2902.3 Septic permit: Before a permit may be issued for construction, placement or occupancy the property owner, or an authorized representative, must obtain the necessary permit for the underground discharge of wastewater from the Department of Natural Resources and Environmental Control.



**SECTION 2903.0 INSPECTIONS AND TESTS**

**2903.1 During Installation:** During the installation of plumbing systems, including sanitary drainage, sanitary facilities, water supplies and sewage disposal systems the appropriate inspection agencies shall be contacted to perform the necessary inspections to insure code compliance.

**2903.2 Concealing work:** Work in connection with any installation of plumbing systems, including sanitary drainage, sanitary facilities, water supplies and sewage disposal systems shall not be covered or concealed until such work has been inspected and permission to conceal such work has been approved.

**2903.3 Final inspection:** On completion of such work a final inspection and approval shall be performed prior to the building final inspection and issuance of a Certificate of Occupancy.

**CHAPTERS 39-46**

- **GENERAL REQUIREMENTS**
- **ELECTRICAL DEFINITIONS**
- **SERVICES**
- **BRANCH CIRCUIT AND FEEDER REQUIREMENTS**
- **WIRING METHODS**
- **POWER AND LIGHTING DISTRIBUTION**
- **DEVICES AND LIGHTING FIXTURES**
- **APPLIANCE INSTALLATION**

Delete Chapters 39-46 in entirety; replace as follows:

**CHAPTER 39  
ELECTRIC WIRING, EQUIPMENT  
AND SYSTEMS**

**SECTION 3901.0 GENERAL**

**3901.1 Scope:** The provisions of this chapter shall control the design and construction of all new installations of electrical conductors, equipment and systems in buildings or structures; and all alterations to existing wiring systems therein to insure safety. All such installations shall conform to the provisions of the current editions of NFPA 70A utilized by third party inspection agencies approved by the State of Delaware.

**SECTION 3902.0 INSPECTIONS AND TESTS**

**3902.1 During installation:** During the installation of electric systems and equipment, third party inspection agencies approved by the State of Delaware shall make inspections to insure compliance with this chapter.

**3902.2 Concealing work:** Work in connection with an electric system shall not be covered or concealed until such work has been inspected and permission to conceal such work has been approved.

**3902.3 Final inspection:** On completion of the work a final inspection and approval shall be performed prior to the building final inspection and issuance of a Certificate of Occupancy.



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**CHAPTER 47  
STANDARDS**

Adopt without changes or additions.

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**APPENDIX A  
MANUFACTURED HOUSING  
USED AS DWELLINGS**

Refer to the:  
**Kent County Manufactured Home  
Installation Code**

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**APPENDIX B  
ENGINEERED PROCEDURE  
FOR SIZING PLUMBING VENTS**

Retain as reference material

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**APPENDIX C  
DETAILED PROCEDURE FOR  
SIZING THE BUILDING WATER  
SUPPLY SYSTEM**

Retain as reference material

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**APPENDIX D  
SWIMMING POOLS, SPAS AND  
HOT TUBS**

~~Adopt without changes or additions.~~

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**APPENDIX E  
ENERGY CONSERVATION**

Adopt without changes or additions.

**APPENDIX F  
RADON CONTROL METHODS**

Delate in its entirety

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**CABO ELECTRICAL  
PROVISIONS/NEC CROSS-  
REFERENCE**

Retain as reference material

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The following tables have been prepared for the most common species of lumber available locally - SPF #2.

If the lumber species being used is a species other than SPF #2, please consult Table 502.3.1c for the appropriate values.

### DESIGN VALUES FOR DIMENSIONAL LUMBER - VISUAL GRADING

SPRUCE - PINE - FIR					
Grade	Size	Normal Duration	Snow Loading	7-Day Loading	Modulus of Elasticity "E"
No. 1/No. 2	2" x 4"	1,510	1,735	1,885	1,400,000
No. 1/No. 2	2" x 6"	1,310	1,505	1,635	1,400,000
No. 1/No. 2	2" x 8"	1,210	1,390	1,510	1,400,000
No. 1/No. 2	2" x 10"	1,105	1,275	1,385	1,400,000
No. 1/No. 2	2" x 10"	1,005	1,155	1,260	1,400,000



## FLOOR JOISTS

<b>ALLOWABLE SPANS FOR FLOOR JOISTS</b>				
<b>40 lbs per sq.ft.</b>				
<b>(All rooms except those used for sleeping areas and attic floors)</b>				
	<b>2" x 6"</b>	<b>2" x 8"</b>	<b>2" x 10"</b>	<b>2" x 12"</b>
<b>12.0" o.c.</b>	10'-3"	13'-6"	17'-3"	20'-6"
<b>13.7" o.c.</b>	9'-10"	12'-11"	16'-6"	19'-1"
<b>16.0" o.c.</b>	9'-4"	12'-3"	15'-3"	17'-7"
<b>19.2" o.c.</b>	8'-9"	11'-3"	14'-0"	16'-0"
<b>24.0" o.c.</b>	8'-2"	10'-2"	12'-3"	14'-4"
<b>32.0" o.c.</b>	7'-5"	8'-9"	10'-9"	12'-7"

<b>ALLOWABLE SPANS FOR FLOOR JOISTS</b>				
<b>30 lbs per sq.ft.</b>				
<b>(All rooms used for sleeping areas and attic floors)</b>				
	<b>2" x 6"</b>	<b>2" x 8"</b>	<b>2" x 10"</b>	<b>2" x 12"</b>
<b>12.0" o.c.</b>	11'-3"	14'-11"	19'-0"	22'-6"
<b>13.7" o.c.</b>	10'-10"	14'-3"	18'-2"	21'-0"
<b>16.0" o.c.</b>	10'-3"	13'-6"	16'-10"	19'-11"
<b>19.2" o.c.</b>	9'-8"	12'-9"	15'-5"	17'-8"
<b>24.0" o.c.</b>	8'-11"	11'-6"	13'-11"	15'-10"
<b>32.0" o.c.</b>	8'-2"	9'-11"	11'-10"	13'-10"



## CEILING JOISTS

<b>ALLOWABLE SPANS FOR CEILING JOISTS</b> 10 lbs per sq.ft. live load (No attic storage and roof slope not steeper than 3 in 12) (Gypsum Ceiling)				
	2" x 4"	2" x 6"	2" x 8"	2" x 10"
12.0" o.c.	11'-10"	18'-8"	24'-7"	31'-4"
13.7" o.c.	11'-4"	17'-10"	23'-6"	30'-0"
16.0" o.c.	10'-9"	16'-11"	22'-4"	27'-9"
19.2" o.c.	10'-2"	15'-11"	21'-0"	25'-5"
24.0" o.c.	9'-5"	14'-9"	18'-6"	23'-8"
<b>ALLOWABLE SPANS FOR CEILING JOISTS</b> 20 lbs per sq.ft. live load (Limited attic storage where development of future rooms is not possible) (Gypsum Ceiling)				
	2" x 4"	2" x 6"	2" x 8"	2" x 10"
12.0" o.c.	9'-5"	14'-9"	18'-6"	22'-3"
13.7" o.c.	9'-0"	13'-10"	17'-2"	21'-3"
16.0" o.c.	8'-7"	12'-9"	15'-10"	19'-6"
19.2" o.c.	7'-10"	11'-8"	14'-5"	17'-8"
24.0" o.c.	7'-1"	10'-6"	12'-10"	15'-8"
<b>ALLOWABLE SPANS FOR CEILING JOISTS</b> 30 lbs per sq.ft. live load (Attic storage) (Gypsum Ceiling)				
	2" x 6"	2" x 8"	2" x 10"	2" x 12"
12.0" o.c.	11'-3"	14'-11"	19'-0"	22'-6"
13.7" o.c.	10'-10"	14'-3"	18'-2"	21'-0"
16.0" o.c.	10'-3"	13'-6"	16'-10"	19'-11"
19.2" o.c.	9'-8"	12'-9"	15'-5"	17'-8"
24.0" o.c.	8'-11"	11'-6"	13'-11"	15'-10"



## **RAFTERS**

<b>ALLOWABLE SPANS FOR LOW SLOPE RAFTERS</b>				
<b>Slopes 3 in 12 or less - 20 lbs per sq.ft. live load</b>				
<b>(No finished ceiling)</b>				
	2" x 6"	2" x 8"	2" x 10"	2" x 12"
12.0" o.c.	14'-9"	19'-6"	24'-10"	29'-1"
13.7" o.c.	13'-10"	18'-11"	23'-3"	27'-2"
16.0" o.c.	13'-3"	17'-6"	21'-6"	25'-2"
19.2" o.c.	12'-7"	16'-7"	19'-8"	23'-0"
24.0" o.c.	11'-7"	14'-10"	17'-7"	20'-6"
<b>ALLOWABLE SPANS FOR HIGH SLOPE RAFTERS</b>				
<b>Slope over 3 in 12 - 20 lbs per sq.ft. live load</b>				
<b>(Light roof covering)</b>				
	2" x 4"	2" x 6"	2" x 8"	2" x 10"
12.0" o.c.	10'-3"	16'-2"	21'-4"	26'-2"
13.7" o.c.	9'-7"	15'-1"	19'-11"	24'-6"
16.0" o.c.	9'-3"	14'-6"	19'-1"	22'-8"
19.2" o.c.	8'-8"	13'-8"	17'-5"	20'-9"
24.0" o.c.	8'-0"	12'-3"	15'-7"	18'-6"
<b>ALLOWABLE SPANS FOR HIGH SLOPE RAFTERS</b>				
<b>Slope over 3 in 12 - 20 lbs per sq.ft. live load</b>				
<b>(Heavy roof covering)</b>				
	2" x 4"	2" x 6"	2" x 8"	2" x 10"
12.0" o.c.	10'-3"	15'-2"	19'-5"	23'-0"
13.7" o.c.	9'-7"	14'-2"	18'-2"	21'-6"
16.0" o.c.	8'-10"	13'-2"	16'-9"	19'-11"
19.2" o.c.	8'-1"	12'-0"	15'-4"	18'-2"
24.0" o.c.	7'-3"	10'-9"	13'-8"	16'-3"

