**Energy Excerpts from the changes to chapters Comm 61 - 65**

SECTION 1. Comm 63.0003 (3) (c) 1. and 2. are repealed and recreated to read:

**Comm 63.0003 (3)** (c) 1. a. When an alteration of an interior lighting system increases the connected interior lighting load of the building, the entire interior lighting system is required to comply with ss. Comm 63.1044 to 63.1049.

b. Where an alteration of a building area includes replacement of more than 50 percent of the existing lighting fixtures in the altered area, the portion of the lighting system in the altered area is required to comply with ss. Comm 63.1044 to 63.1049.

2. a. When an alteration of an exterior lighting system increases the connected exterior lighting load of the building, the entire exterior lighting system is required to comply with ss. Comm 63.1041 to 63.1043.

b. Where an alteration of an exterior building surface includes replacement of more than 50 percent of the existing lighting fixtures on the altered surface, the portion of the lighting system on the altered surface is required to comply with ss. Comm 63.1041 to 63.1043.

SECTION 2. Comm 63.0202 (2) is repealed and recreated to read:

**Comm 63.0202 (2)** Substitute the following definitions for the corresponding definitions listed in IECC section 202:

(a) "Approved" has the meaning given in s. Comm 62.0202 (2) (a).

(b) "Multifamily dwelling" has the meaning given in s. Comm 61.04 (4).

SECTION 3. Comm 63.0402 is renumbered Comm 63.0402 (2).

SECTION 4. Comm 63.0402 (1) and (2) (title) are created to read:

**Comm 63.0402 (1)** ENERGY ANALYSIS. This is a department informational note to be used under IECC section 402.1:

**Note:** The federal Department of Energy has developed RES*check*™, a computer program that may be used in demonstrating compliance for a residential building which has no more than 3 stories and has 3 or more dwelling units. The RES*check* program may be downloaded at http://www.energycodes.gov/. When using the program, the applicable code must be defined as the "2000 IECC." The use of the "Wisconsin" option will apply requirements associated with a 1 or 2 family dwelling, which are more restrictive than those associated with low-rise multifamily buildings.

**(2)** (title) APPROVED CALCULATION TOOL.

SECTION 5. Comm 63.0502 (3) is repealed and recreated to read:

**Comm 63.0502 (3)** COMPLIANCE BY PRESCRIPTIVE SPECIFICATION ON AN INDIVIDUAL COMPONENT BASIS. (a) *General.* Substitute the following wording for the requirements in IECC section 502.2.4: For Type A-2 residential buildings with a window area less than or equal to 20 percent, 25 percent, or 30 percent of the gross exterior wall area, the thermal resistance of insulation applied to the opaque building envelope components shall be greater than or equal to the minimum *R*-values, and the thermal transmittance of all fenestration assemblies shall be less than or equal to the maximum U–factors shown in IECC Tables 502.2.4(7), 502.2.4(8), or 502.2.4(9), as applicable. IECC sections 502.2.4.1 to 502.2.4.17 shall apply to the use of these tables.

(b) *Floors.* Substitute the following wording for the requirements in IECC section 502.2.4.8: Floor R–values shall apply to floors over unconditioned spaces and floors over outside air.

SECTION 6. Comm 63.0503 (2) (title), (a), and (b) are amended to read:

**Comm 63.0503 (2)** (title) DISTRIBUTION~~,~~ SYSTEM, CONSTRUCTION AND INSULATION. (a) *Hydronic piping insulation*. Substitute the following wording for the requirements and the exceptions in IECC ~~section~~ sections 503.3.3.1 and 503.3.3.2 and IECC Table 503.3.3.1: All system piping shall be thermally insulated in accordance with s. Comm 63.1029 (1) and (2).

(b) *Duct and plenum insulation.* Substitute the following wording for the requirements and the exceptions in IECC section 503.3.3.3~~.~~ and IECC Table 503.3.3.3: Duct and plenum insulation shall be provided in accordance with s. Comm 63.0803 (2) (f).

SECTION 7. Comm 63.0505 is repealed and recreated to read:

**Comm 63.0505 Lighting power budget**. Substitute the following informational note for the requirements and the exception in IECC section 505.2:

**Note:** See ss. Comm 63.1040 to 63.1053 for requirements for lighting systems.

SECTION 8. Comm 63.0605 is created to read:

**Comm 63.0605 Electrical power and lighting. (1)** ELECTRICAL ENERGY CONSUMPTION. This is a department rule in addition to the requirements in IECC chapter 6: In residential buildings having individual dwelling units, provisions shall be made to determine the electrical energy consumed by each tenant by separately metering individual dwelling units.

**(2)** LIGHTING POWER BUDGET. This is a department informational note to be used under IECC chapter 6:

**Note:** See ss. Comm 63.1040 to 63.1053 for requirements for lighting systems.

SECTION 9. Comm 63.0803 (2) (g) is created to read:

**Comm 63.0803 (2)** (g) *Piping insulation.* Substitute the following wording for the requirements in IECC section 803.2.9: All piping serving as part of a heating or cooling system shall be thermally insulated in accordance with s. Comm 63.1029 (1) and (2).

SECTION 10. Comm 63.0806 is created to read:

**Comm 63.0806 Lighting power for the Standard design.** Substitute the following wording for the requirements in IECC section 806.4.7: The lighting power for the Standard design shall be the maximum allowed in accordance with s. Comm 63.0805. Where the occupancy of the building is not known, the lighting power density shall be 1.5 watts per square foot.

SECTION 11. Comm 63.1015 (5) (a) and (6) (a) are amended to read:

**Comm 63.1015 (5)** (a) The U–values for the building roofs, walls and ceilings next to unconditioned spaces, and floors over unconditioned spaces shall be less than or equal to those listed in the appropriate ACP table given in Figures 63.1015–1 to ~~63.1019–4~~ 63.1015–4.

**(6)** (a) Unheated slab-on-grade floors shall have insulation around the perimeter of the floor with the thermal resistance ($R_u$) of the insulation as listed in the appropriate ACP table given in Figures ~~63.1019–1~~ 63.1015–1 to ~~63.1019–4~~ 63.1015–4.

SECTION 12. Comm Tables 63.1019–1 and 63.1019–2 are renumbered Comm Tables 63.1019–2 and 63.1019–3.

SECTION 13. Comm Figures 63.1019–1 and 63.1019–2 are renumbered Comm Table 63.1019–1 and Figure 63.1019–1.

SECTION 14. Comm 63.1019 (3) (a) (intro.) and 1. b. are amended to read:

**Comm 63.1019 (3)** (a) (intro.) *Thermal transmittance of opaque elements.* The thermal transmittance of opaque elements of assemblies shall be determined using a series path procedure with correction for the presence of parallel paths within an element of the envelope assembly such as wall cavities with parallel paths through insulation and studs. An acceptable procedure shall be used, as specified in ~~Figure~~ Table 63.1019–1. Figure ~~63.1019–2~~ 63.1019–1 illustrates a typical roof assembly.

1. b. Using the thermal resistance of those roof and wall assemblies listed in Tables ~~63.1019–1~~ 63.1019–2 and ~~63.1019–2~~ 63.1019–3 shall be corrected using the following parallel path correction factor procedure:

Considering the total resistance of the series path:

$$U_i = 1/R_t$$

$$R_t = R_i + R_e$$

where:

$R_t$ = The total resistance of the envelope assembly.

$R_i$ = The resistance of the series elements (for i = 1 to n) excluding the parallel path element(s)

$R_e$ = The equivalent resistance of the element containing the parallel path, the value of $R_e$ is:

$R_e$ = R–value of insulation x $F_c$

The Parallel Path Correction Factors ($F_c$) may be obtained from tests conducted using procedures listed in s. Comm 63.1018. Parallel Path Correction Factors for some envelope assemblies are listed in Tables ~~63.1019–1~~ 63.1019–2 and ~~63.1019–2~~ 63.1019–3.

SECTION 15. Comm 63.1026 (2) (b) is amended to read:

**Comm 63.1026 (2)** (b) *Zone controls for comfort heating.* Where used to control comfort heating, zone thermostatic controls shall be capable of being set locally or remotely by adjustment or selection of sensors down to ~~50ºF~~ 55ºF or lower.

SECTION 16. Comm Table 63.1029 is repealed and recreated to read:

**Table 63.1029**
**Plumbing and HVAC Piping Minimum Insulation (R–value)**

| | Insulation Conductivity[a] | | Nominal Pipe Diameter | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Fluid Design Operating Temp. Range, °F** | **Conductivity Range Btu·in./-(h·ft²·°F)** | **Mean Rating Temp. °F** | **Runouts[b] up to 2 inches** | **1 inch and less** | **1-1/4 to 2 inches** | **2-1/2 to 4 inches** | **5 & 6 inches** | **8 inches & up** |
| **Heating systems (Steam, Steam Condensate, and Hot Water)** | | | | | | | | |
| Above 350 | 0.32-0.34 | 250 | R-4.4 | R-4.4 | R-7.4 | R-8.8 | R-10.3 | R-10.3 |
| 251-350 | 0.29-0.31 | 200 | R-4.8 | R-4.8 | R-8.1 | R-8.1 | R-11.3 | R-11.3 |
| 201-250 | 0.27-0.30 | 150 | R-3.3 | R-3.3 | R-5.0 | R-6.7 | R-6.7 | R-11.7 |
| 141-200 | 0.25-0.29 | 125 | R-1.8 | R-1.8 | R-5.2 | R-5.2 | R-5.2 | R-5.2 |
| 105-140 | 0.24-0.28 | 100 | R-1.8 | R-1.8 | R-3.6 | R-3.6 | R-3.6 | R-5.4 |
| **Domestic and Service Hot Water systems[c]** | | | | | | | | |
| 105 and greater | 0.24-0.28 | 100 | R-1.8 | R-3.6 | R-3.6 | R-5.4 | R-5.4 | R-5.4 |
| **Cooling systems (Chilled water, brine, and refrigerant)[d]** | | | | | | | | |
| 40-55 | 0.23-0.27 | 75 | R-1.9 | R-1.9 | R-2.8 | R-3.7 | R-3.7 | R-3.7 |
| Below 40 | 0.23-0.27 | 75 | R-3.7 | R-3.7 | R-5.6 | R-5.6 | R-5.6 | R-5.6 |

[a] For insulation outside the state conductivity range, the minimum thickness (T) shall be determined as follows: $T=PR\left[(1+t/PR)^{K/k}-1\right]$, where T = minimum insulation thickness for material with conductivity K, in.; PR = actual outside radius of pipe, in.; t = insulation thickness, in.; K = conductivity of alternate material at mean rating temperature indicated for the applicable fluid temperature; and k = the lower value of the conductivity range listed for the applicable fluid temperature.

[b] Runouts to individual terminal units not exceeding 12 ft. in length.

[c] Applies to recirculating sections of service or domestic hot water systems and first 8 ft. from storage tank for nonrecirculating systems.

[d] The required minimum thickness does not consider water vapor transmission and condensation.

SECTION 17. Comm 63.1050 (6) is amended to read:

**Comm 63.1050 (6)** EXTERIOR LIGHTING CONTROLS. Except in lighting in parking garages, tunnels, and large covered areas that require illumination during daylight hours, exterior lighting shall be controlled by a directional photocell or astronomical time switch that automatically turns off the exterior lighting when daylight is available. Time switches shall be ~~equipped with back–up provisions to keep~~ capable of maintaining the correct time during a power outage ~~of~~ lasting up to 10 hours ~~or more~~.