

39th Annual WCBC Refresher

February 17, 2010

Preview of the Proposed New Wisconsin Commercial Building Codes

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What's the Session About?

- **What's on the horizon for the Wisconsin Commercial Building Code [WCBC] and S & B**
- **Preview of the proposed new Wisconsin Commercial Building Codes**

***Contractor
Registration
Update***

Cont. Registration - History

- ❑ Contractor “Registration”
- ❑ Public Hearings were held on January 21, 2009
- ❑ Emergency rules in effect March 2, 2009
- ❑ Final Rules effective October 1, 2009

Carbon Monoxide

Detectors/Alarms

Carbon Monoxide Detectors

- **History**

- **Emergency Rules issued on 9/3/2008 as a result of Legislation**
- **Normal Rules followed 6/1/2009**
- **Modifications to be within fire package as a result of public hearing comments (PH 12/18/09)**

CO Det. Req's. – Helpful Tool

<http://commerce.wi.gov/SBdocs/SB-FireProtecCarbMono0908.pdf>

Carbon monoxide poisoning endangers lives.

Local municipal building officials are the best source of information concerning carbon monoxide alarms in new construction.

In the future, fire department inspectors will be checking the installation of CO alarms during annual fire safety inspections.

The Department of Commerce is an equal opportunity service provider and employer. If you need assistance to access services or need materials in an alternate format, please contact the department at 608-266-3151 or TDD Relay dial 711 in Wisconsin, 800-947-3159 outside.

Statutory Installation Requirements in 2007 Wisconsin Act 205

(2) **INSTALLATION REQUIREMENTS.** (a) Except as provided in par. (b), the owner of a residential building shall install a carbon monoxide detector in all of the following places not later than the date specified under par. (c):

1. In the basement of the building if the basement has a fuel-burning appliance.
2. Within 15 feet of each sleeping area of a unit that has a fuel-burning appliance.
3. Within 15 feet of each sleeping area of a unit that is immediately adjacent to a unit that has a fuel-burning appliance.
4. In each room that has a fuel-burning appliance and that is not used as a sleeping area. A carbon monoxide detector shall be installed under this subdivision not more than 75 feet from the fuel-burning appliance.
5. In each hallway leading from a unit that has a fuel-burning appliance, in a location that is within 75 feet from the unit, except that, if there is no electrical outlet within this distance, the owner shall place the carbon monoxide detector at the closest available electrical outlet in the hallway.
6. If a unit is not part of a multifamily building, the owner of the residential building need not install more than one carbon monoxide detector in the unit.

Find this carbon monoxide brochure online: <http://commerce.wi.gov/SB/SB-PubCarbMonoBroch1008.pdf>

S&B also has a "Making Wisconsin Nights Safer" smoke detector brochure online: <http://commerce.wi.gov/SBdocs/SB-SmokeAlarmBroch8262.pdf>

http://commerce.wi.gov/2009PHCarbonMono0908.pdf
Safety and Buildings Division
commerce.wi.gov
Department of Commerce

Carbon monoxide is dangerous!

Carbon monoxide (CO) is a colorless, odorless gas produced by incompletely burning fuel containing carbon. Carbon monoxide poisoning can cause brain damage and death. You can't see it, smell it, or taste it, but carbon monoxide can kill. CO can be formed, for example, by open flames, or fuel-burning space heaters, water heaters, furnaces, boilers, and clothes dryers.

- Carbon monoxide is the leading cause of accidental poisoning deaths in the United States. The federal Centers for Disease Control estimates CO poisoning annually claims nearly 500 lives, and causes more than 15,000 visits to hospital emergency rooms.
- Carbon monoxide is produced by common household fuel-burning appliances. When not properly vented, carbon monoxide from these appliances can build up in a room or building, displacing oxygen.
- Early symptoms of carbon monoxide poisoning such as headaches, nausea, and fatigue, are often mistaken for something other than CO because the deadly gas goes undetected as it builds up in a building. Prolonged exposure can lead to brain damage and death.

What is a carbon monoxide alarm?

A carbon monoxide alarm is a device that will detect the presence of carbon monoxide (CO) and create a noise which gives people in the area a chance to safely leave the building. CO alarms by themselves are not smoke detectors and vice versa. However, there are combination smoke/CO alarms. CO alarms are usually plugged into wall electrical outlet or wired directly into a building's electrical system.

What are the new requirements in Wisconsin for carbon monoxide alarms?

The new regulations were issued as emergency rules by the state Department of Commerce, Safety and Buildings Division, as required by April 2008 legislation titled "2007 Wisconsin Act 205".

See the emergency rules for current technical aspects of alarm locations, etc. <http://commerce.wi.gov/SBdocs/SB-CodeDev2162Emerg0908.pdf>

Requirements for new tourist rooming houses (cabins under the scope of Wisconsin's Uniform Dwelling Code, Comm 21.095) as of October 1, 2008:

- Installation of carbon monoxide alarms where any type of fuel burning appliances are installed.
- The carbon monoxide alarms must be continuously powered by the building's electrical service with battery backup.

Requirements for new commercial - residential buildings: as of October 1, 2008 (Commercial Building Code, Comm 62.1200):

- Installation of carbon monoxide alarms where any type of fuel burning appliances are installed.
- The carbon monoxide alarms must be continuously powered by the building's electrical service with battery backup.

Requirement for commercial - residential buildings existing on October 1, 2008, or receiving plan approval prior to October 1, 2008 (Act 205 itself, not the emergency rules, puts in place these requirements for existing tourist rooming houses):

- Installation of carbon monoxide alarms by April 1, 2010.
- No mandatory type of power sources for the carbon monoxide alarms, thereby allowing batteries, electrical outlet plug-ins, or wiring directly to the building's electrical service.
- Omission of carbon monoxide alarms is allowed provided there are no attached garages and all of the fuel burning appliances are of sealed combustion type either under warranty or annually inspected for carbon monoxide emissions.

Design, Build, and Maintain Safety!

***Energy Use
and
Green Codes***

Energy Legislation & WCBC

- **Current Legislation – SB 450**
 - **Voluntary/Alternative Green Code**
 - **Staying current with IECC**
 - **DOA to use the “Voluntary Code” for many State owned buildings.**

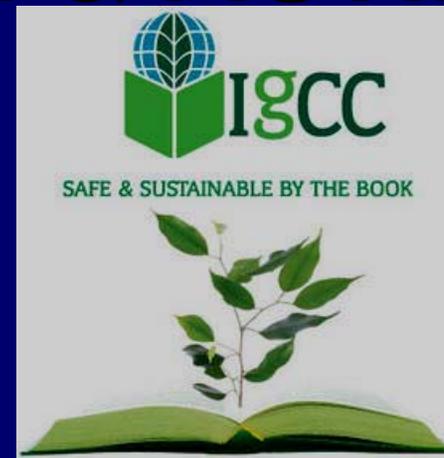
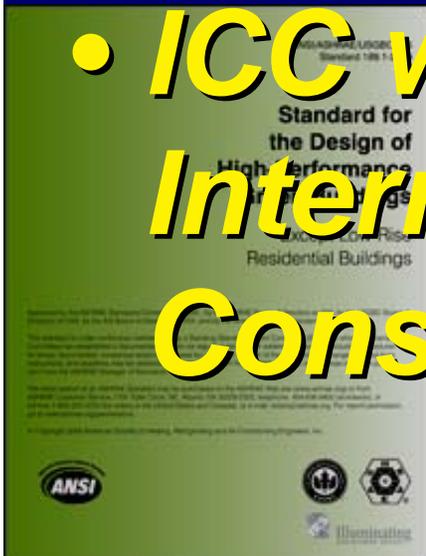
Energy/WCBC – SB 450 (cont)

- **Voluntary/Alternative Green Code**
 - **ICC & ASHRAE already have Green Codes available for use or are well along in the development process**



Energy/WCBC – SB 450 (cont)

- **ASHRAE with USGBC & IES, *Standard 189.1-2009, Standard for the Design of High-Performance Green Buildings***
- **ICC with CBSC, AIA & ASTM, *International Green Construction Code***



Updating the WCB

WI Comm. Bldg. Code - Future

- Most recent joint meeting of CBCC & MDCC on Thursday 1/21/2010
- Updated Specialty Advisory Council Timeline

•Existing Bldgs [IEBC]	•Means of Egress
•Structural	•Fire Safety
•Fire Prot. Systems	•General
•Energy [IECC]	•HVAC [IMC & IFGC]

**WCBC SPECIALTY SUBJECT
[ICC Codes - 2009 Editions]
Advisory Council Meetings**

Date	IEBC	Egress	Struct.	Fire Prot. Systems	Fire Safety	General	Energy (IECC)	HVAC (IMC & IFGC)
Feb 2009								
Mar 2009								
April 2009		X (4/29)		X (4/21)		X (4/16)		
May 2009					X (5/28)			
June 2009		X (6/24)						
July 2009				X (7/21)		X (7/28)		
Aug 2009	X (8/18)		X (8/5)		X (8/26)		X (8/11)	X
Sept 2009			X (9/16)					X (9/24)
Oct 2009	X (10/27)		X (10/30)(X (10/6 & 10/28)	
Nov 2009		UMB (11/19)		UMB (11/19)		UMB (11/19)		X (11/12)
Dec 2009								X (12/17)
Jan 2010	UMB (1/21)		UMB (1/21)		UMB (1/21)			
Feb 2010								
Mar 2010							UMB	UMB
April 2010								
May 2010	PUBLIC HEARINGS							
June 2010								
July 2010								
Aug 2010	Must be submitted to Legislature before Sept 1, 2010							

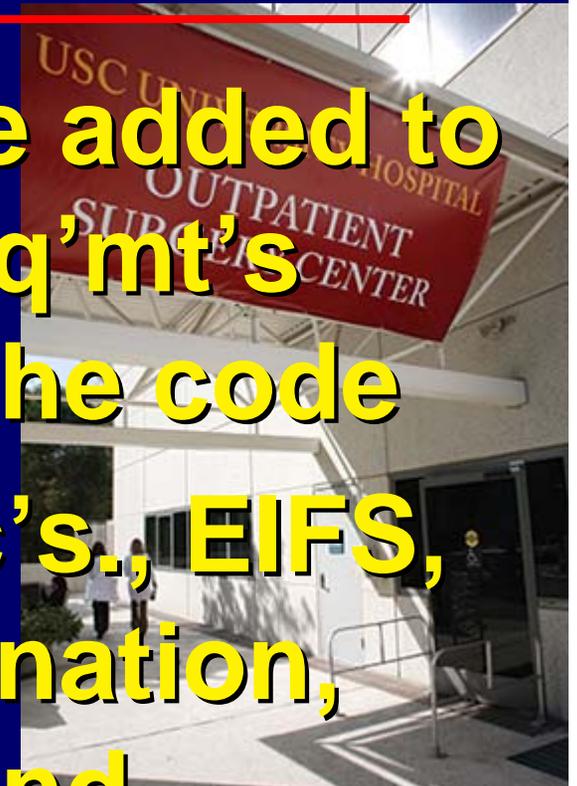
Significant Changes - 2009

- For this presentation, the focus will be on those changes that are newly added provisions.
- Segments broken down by WCBC Chapter & the related model code
- Within each segment, start with the model code changes and finish with Wisconsinisms.

The IBC

IBC Significant Changes

- A few definitions were added to correspond to new req't's sprinkled throughout the code
- Amb. Health Care Fac's., EIFS, Labeled, Mfg's Designation, Mark, Storm Shelter and Vehicular Gate



IBC Changes (cont)

- **Chapter 3 includes a few definitions and provisions that relate to uses more heavily regulated elsewhere in the code**
- **Clinic-Outpatient, Live/Work Units, Nursing Homes, Hospitals And Mental Hospitals, Detox. Facilities, EIFS, Labeled, Mfg's Designation, Mark, Storm Shelter & Vehicular Gate**

IBC Significant Changes

- s. 422 Adds Provisions for Amb. Health Care Fac's.
- s. 423 Adds Storm Shelter provisions & ref. to ICC 500
- S. 509.9 Clarifies that one can have multiple bldg's. above or below the horiz. sep'n of ss. 509.2, 509.3 & 509.8



IBC Changes (cont.)

- **ss. 708.14.2.2 and 708.14.2.7 thru 708.14.2.10 Adds Provisos for elev. hoistway pressuriz'n incl. Rational Analysis, I.D.ing, Ctrl. Diag's, & Sys. Response Time.**
- **s. 716.5.6 Adds rqmt's for HVAC duct or grille open'gs in exterior walls.**



IBC Changes (cont.)

- **s. 913.2.1 Adds Provisos for the protection [fire-res. Rating or distance] of rooms housing fire pumps**
- **ss. 1008.1.9.6, 1008.1.9.8 & 1008.1.9.9 add new locking provisions (I-2, Electromag. Fail Safe & I-3)**



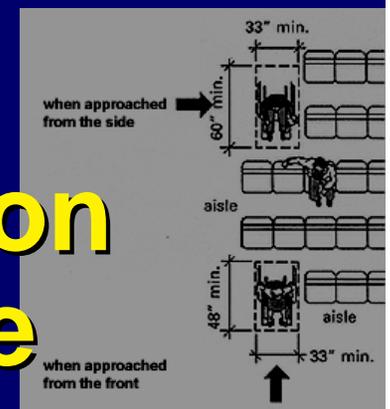
IBC Changes (cont.)

- s. 1009.14 Adds Provisos for a stairway to access a penthouse if maint. is req'd from rooftop
- ss. 1012.3, 1012.3.1 & 1012.3.2 adds provisions for Type I & Type II handrails.



IBC Changes (cont.)

- s. 1013.1.1 is added to include requirements for glazing used as a guard.
- s. 1103.2.13 adds provisions to clarify usability for live/work units evaluated separately
- s. 1108.2.3 req's a companion seat at ea. wheelchair space

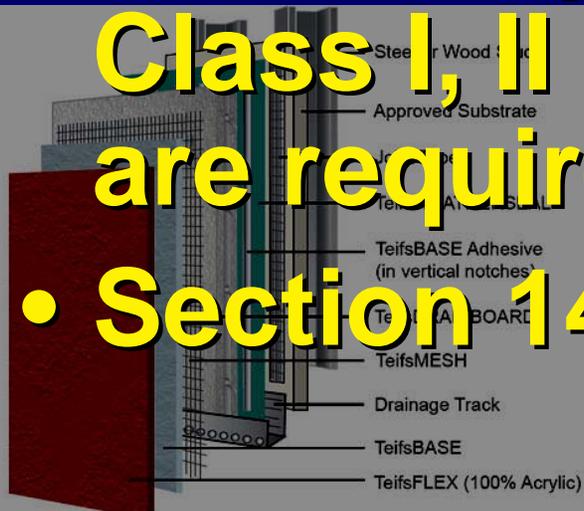


IBC Changes (cont.)

- s. 1109.2.3 requires a lav. with enhanced reach ranges in toilet rooms having 6 or more lav's
- s. 1405.3 (1405.3.1 – 1405.3.2) includes provisions for where

Class I, II & III vapor retarders are required

- **Section 1408 added for EIFS**



IBC Changes (cont.)

- s. 1503.4.1 & 1503.4.2 add more reqmt's for secondary drainage and scuppers
- s. 1507.16 adds provisos for roof gardens & landscaping
- s. 1509.2.2 clarifies that penthouses do not add area, stories and are not fire area



IBC Changes (cont.)

- s. 1609.1.2.2 adds clarified impact standards for garage door openings
- s. 1609.6 adds a simplified analytical wind load method from ASCE 7
- Fig. 1611.1 provides intensity for computing rain load on roofs



IBC Changes (cont.)

- **s. 1614.1 – 1614.4 Adds reqmt's and definitions for:**
 - **Struct. Integrity of high-rise bldgs of Occy Cat. III or IV**
 - **Concrete frame & steel frame structures**
 - **Structural integrity & reqmt's for bearing wall structures**



IBC Changes (cont.)

- **s. 1810.3.1.2 provides guidance on the design of composite elements**
- **s. 1810.3.1.5 provides guidance on the design of helical piles**
- **s. 1810.3.9.2 specifies when cast-in-place conc. elements must be reinforced**

IBC Changes (cont.)

- s. 1810.4.11 provides guidance on the installation of helical piles
- s. 1904.2 describes exposure categories that are used to assign exp. classes in ACI 318
- s. 1908.10 provides direction on determin'g conc. breakout strength of anchors



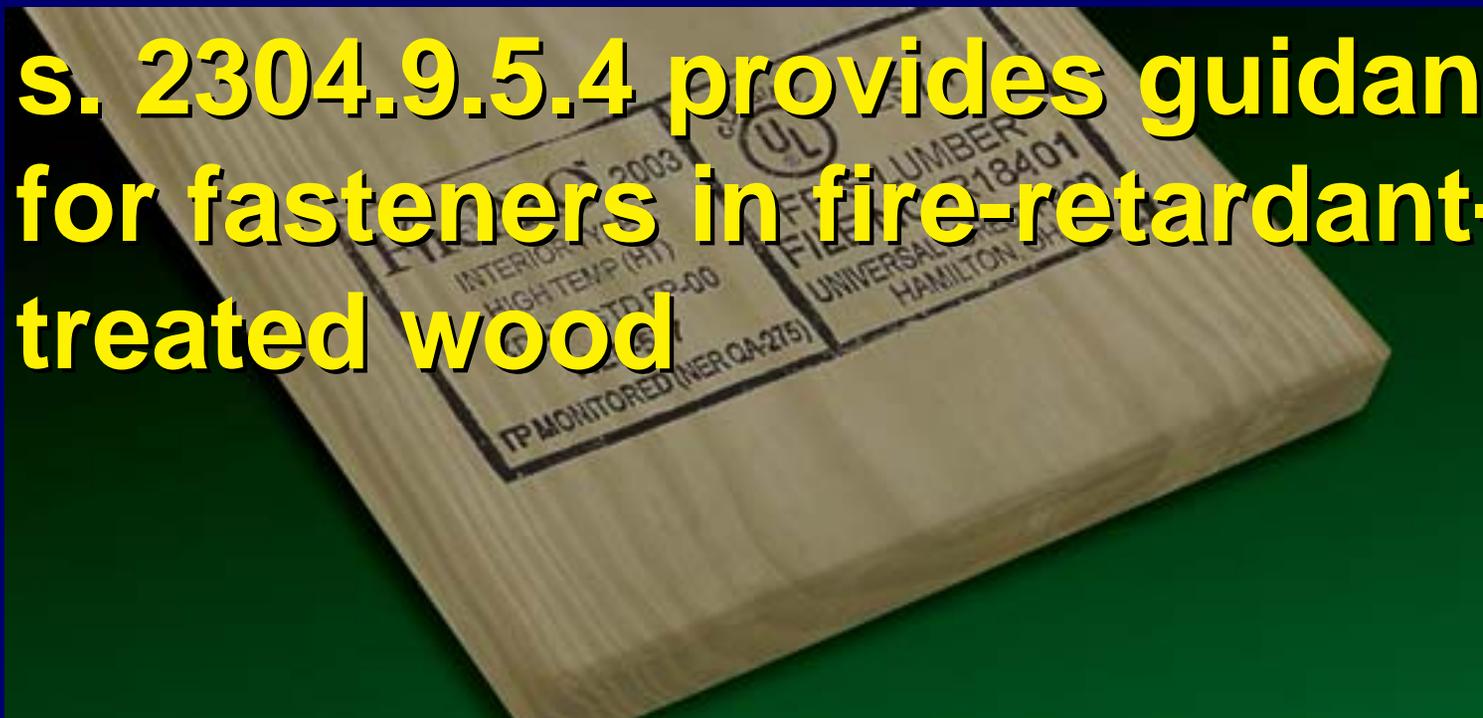
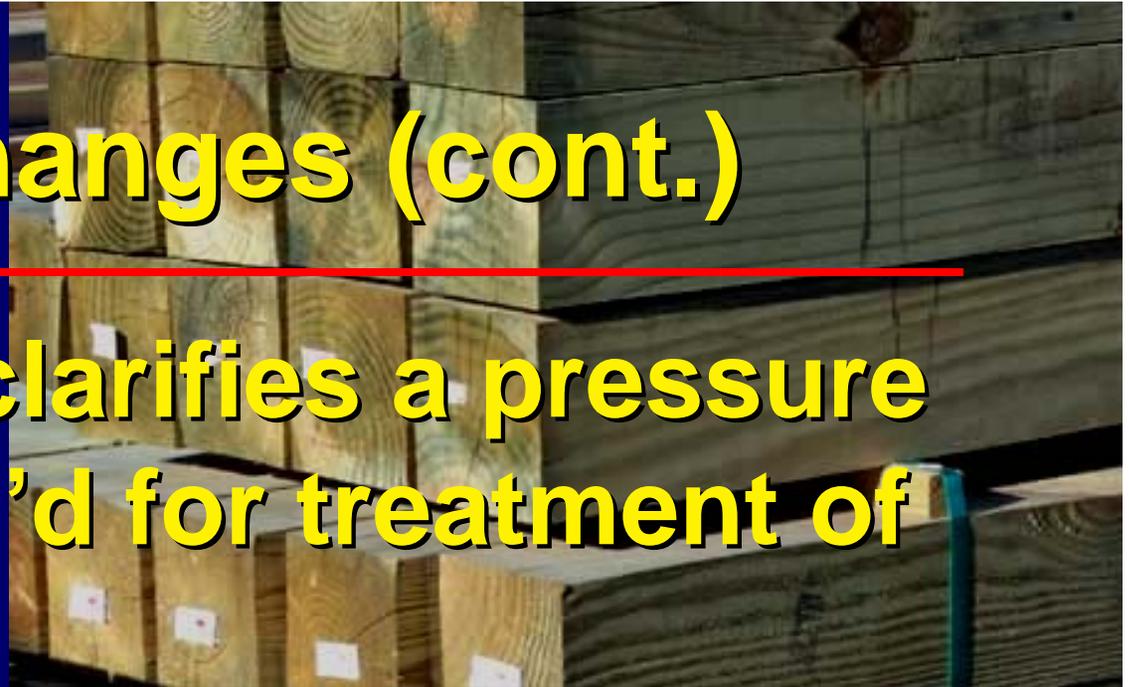
IBC Changes (cont.)

- s. 2209.2.2 provides a referenced standard for noncomposite steel floor decks
- s. 2209.2.3 provides a referenced standard for steel roof decks
- s. 2210.5 provides a referenced standard for cold-formed steel floors & roofs



IBC Changes (cont.)

- s. 2303.2.1 clarifies a pressure process req'd for treatment of wood
- s. 2304.9.5.4 provides guidance for fasteners in fire-retardant-treated wood



IBC Changes (cont.)

- **s. 2406.2 provides impact test requirements for glazing in hazardous locations incl. new Table 2406.2(2)**
- **ss. 2612 & 2613 added to regulate Fiber Reinforced Polymer & Fiberglass Reinf'd Polymer and Reflective Plastic Core Insul'n**

IBC Changes (cont.)

- s. 3008 added to recognize occupant evacuation elevators as alternative exit to 3rd stair in high-rises over 420' in height

- s. 3110 added to better regulate Automatic Vehicular Gates



IBC Proposed Wisconsinisms

- Will modify occupancy provisions of Ch 3 [ss. 308.1, 308.2 & IMC Ch 4] to clarify how licensed health care uses of other State agencies correlate to the WCBC (i.e. informational notes, etc.)

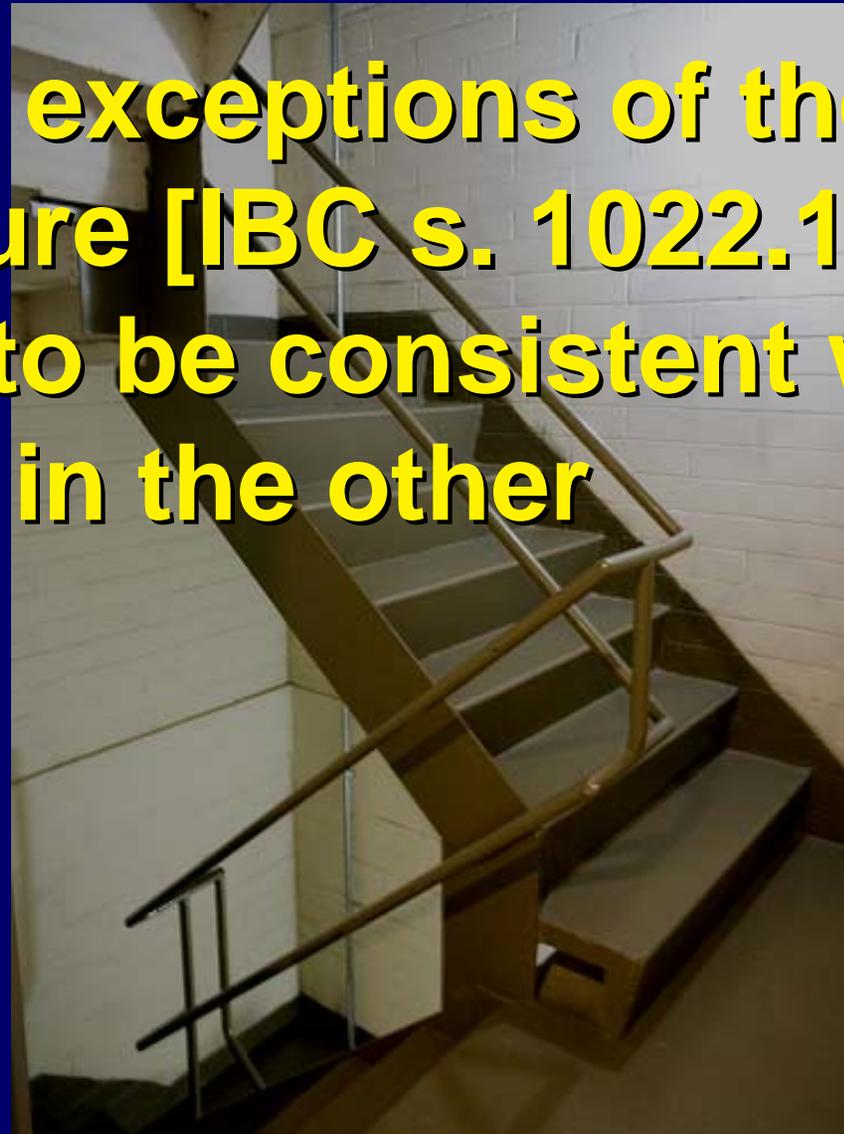


IBC Wisconsinisms (cont)

- Will modify to make firewalls or division walls in [IBC s. 1014] townhouses less restrictive yet still keeping the townhouse exempt from sprinkler protection

IBC Wisconsinisms (cont)

- Modify new exceptions of the exit enclosure [IBC s. 1022.1] provisions to be consistent with terms used in the other exceptions



IBC Wisconsinisms (cont)

- Will add language to allow controls in tubs and showers within reach from outside the tub or shower; allow the controls to be on the back wall for roll-in, 60-inch showers [IBC s. 1109.1]

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IBC Wisconsinisms (cont)

- **Modify Ch 11 [IBC s. 1110.1] so that the required international symbol signage is not needed for assigned parking serving a residential apartment building**



IBC Wisconsinisms (cont)

- Add a rule [IBC Ch 29] prohibit'g the installation of drinking fountains, water coolers and bottled water dispensers in public restrooms
- Will add back in “Stretcher Size” elevators (3500#) in more buildings [IBC Ch 30]



THE IECG

IECC Significant Changes

- **s. 303.1.4 Provides ref. to specific standards for R-Value insulation product ratings**
- **s. 402.4.2 adds detail on tightness of buildings (air barriers)**

- **s. 402.4.3 requires woodburning fireplaces to have gasketed doors and comb. Air from outside**



IECC Changes (cont)

- **s. 403.8 adds provisions for control of snow/ice-melting systs**
- **s. 403.9 adds provisos for control of pool pumps and heaters**
- **s. 502.1.2 adds U-factor and R-value alternatives for comm. use insul'n & fenestration reqmt's**

IECC Changes (cont)

- **s. 502.5.1 adds more specific reqmt's on daylighting control schemes**
- **S. 503.2.5.1 adds provisos for a demand controlled ventilation strategy for some spaces >500 SF**

IECC Changes (cont)

- s. 503.2.10 adds new reqmt's for HVAC syst's (fan motor energy use, etc.)
- s. 503.2.11 requires heating of outside spaces to be radiant type and provided with effic'y controls

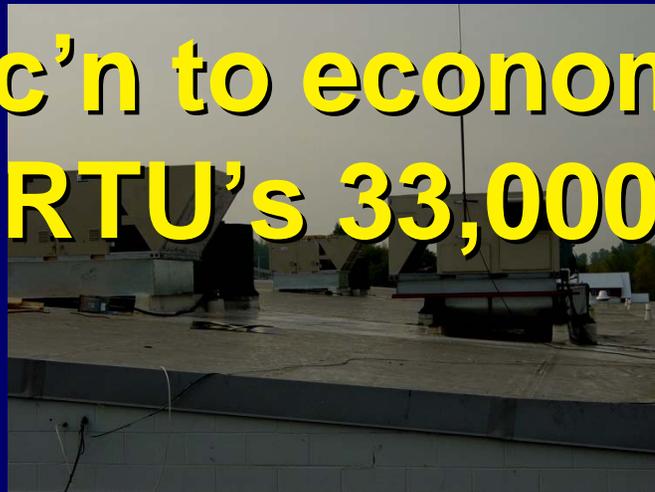


IECC Proposed Wisconsinisms

- **May augment the provisions associated with the definition of conditioned space used throughout the IECC**

IECC Wisconsinisms (cont)

- Add an exc'n so no motorized damper is needed in a duct serving a commercial kitchen Type I hood [Grease reduction type hood - 503.2.4.4 & 502.4.5]
- Add an exc'n to economizers for packaged RTU's 33,000 BTU/hr and larger



IECC Wisconsinisms (cont)

- Will add modification to clarify [s. 504.3.3.2.2] the economizer for hydronic heat pump systems is not required for a closed circuit cooling tower (aka fluid cooler)



THE IMC

IMC Significant Changes

- **s 504.6.3 added to require transition ducts listed/labeled to UL2158A**
- **T-504.6.4.1 added for duct fitting equiv. lengths to correspond to increase in clothes dryer duct length from 25 to 35 ft.**

IMC Changes (cont)

- s. 504.6.7 adds protect'n against dryer exhaust duct penetrations by nails/screws
- s. 504.8 adds prescriptive reqmt's for clothes dryers being exhausted through common shafts in multistory app's



Dangerous Lint Lined Dryer Duct

IMC Changes (cont)

- s. 505.2 adds that make-up air to be provided for domestic kitchen exh. Hoods >400 cfm and tied in to operation of hood
- 506.4.2 adds location reqmt's for Type II hood terminations



IMC Changes (cont)

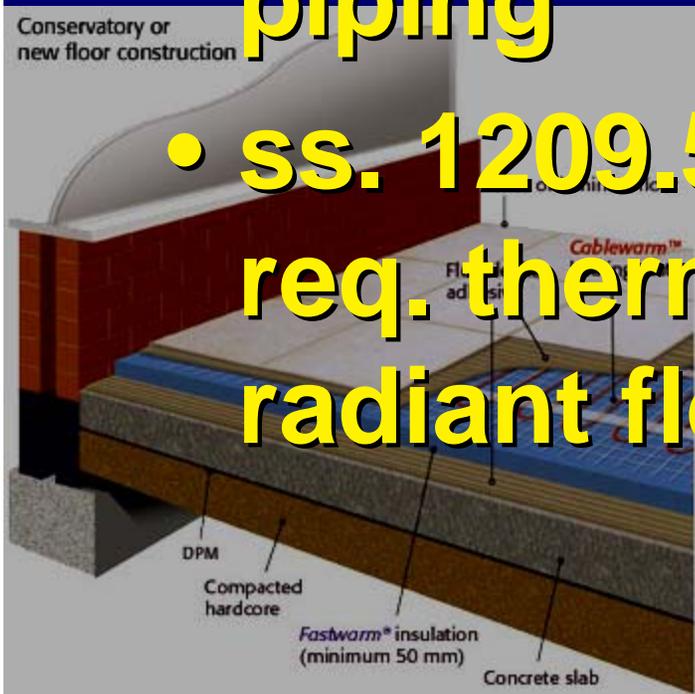
- **ss. 927.1 & 927.2 added to provide ref'd standards for heat recovery ventilators**
- **s. 1101.10 added to require lock'g access ports to outside refrig'n systems**
- **s. 1201.3 adds ASME B31.9 as an alternative to ss. 1202 & 1203**



IMC Changes (cont)

- ss. 1203.16, 1203.17, 1203.18 & 1203.19 added to reg. new materials accepted for hydronic piping

- ss. 1209.5 - 1209.5.4 added to req. thermal insul'n below radiant floor heating syst's



IMC Proposed Wisconsinisms

- **Adding provisions to make Table Comm 64.0403 an alternative to Table 403 instead of a substitute**

THE IFAG

IFGC Significant Changes

- **s. 305.3.1 allows appliances to not be elevated when in a properly isolated separate room**
- **ss. 305.9, 305.10 & 305.11 adds expanded provisions for appliances in parking struct's, rep. garages & hangars**

IFGC Changes (cont)

- s. 305.12 adds reqm't to assure piping installations will not put strain on connections
- s. 310.1.1 adds bond'g/grnd'g provisos specific to Corrugated Stainless Steel Tubing (CSST)
- s. 404.4 prohibits gas piping from entering/exit'g bldg below grade



IFGC Changes (cont)

- s. 404.8 adds provision requir'g LP-Gas piping to be electrically isolated (dielectric fitt'g) where the underground piping enters the building
- s. 409.6 adds reqm't for emerg'y shutoff (master) upstream of table top type gas outlets in labs



IFGC Changes (cont)

- **s. 503.4.1.1 adds reqm't specific to the installation of plastic pipe vent'g Cat. III or IV appliances**
- **s. 503.6.13 adds prohibition on screws/rivets penetrating the inner wall of dbl-wall gas vents except at connection to appliance or a single wall connector**

IFGC Changes (cont)

- **s. 503.10.4.1 adds restrictions where multiple appliances connect to a single vent/flue**
- **s. 503.16 req's sealing of vents penetrating exterior walls**
- **S. 614.6.3 req's clothes dryer exhaust ducts to be protected from penet'n by nails/screws**

IFGC Changes (cont)

- **s. 616.2 prohibit rigid gas connections to equipmn't powered by internal combustion engines**
- **s. 623.7 specifies min vertical clearances between cooktops and materials or cabinets above**

IFGC Proposed Wisconsinisms

- **NONE**

The IEBG

IEBC Significant Changes

- **s. 101.5.4 adds reqmt's that in given situations some existing bldg's will have to be evaluated for seismic adequacy**
 - **Allows alternative procedures found in ASCE 31 or ASCE 41 [ASCE 41 is a standardized version of *FEMA 356 Prestandard & Commentary for the Seismic Rehabilitation of Buildings*]**

IEBC Changes (cont)

- **s. 605.1.9 added reqm't that visible alarms are req'd when >20 R-2 units are being altered, & the number is to be based on the number being altered**
- **s. 606.2.1 indicates when (Seis Des Cat E, F & G) wall anchorage must be added at the roof line as reroofing occurs**

IEBC Changes (cont)

- s. 706.4 adds reqm't that Class A units and visible alarms are req'd when >20 R-2 units are being added into a building, and the number of each is to be based on the number of units being “added”



IEBC Changes (cont)

- **s. 706.5 adds similar reqm't to that of s. 706.4, but when 4 or more I-1, I-2, R-1, R-2, R-3 or R-4 units are being added, the Class B provisos of IBC s. 1107 & visible alarm alarm provisos of IBC s. 907 will apply, but only to the units being added**

IEBC Changes (cont)

- **s. 912.8.1 clarifies that when undergoing a partial change of occupancy, accessibility will be driven by the alteration provisos found in ss. 605 or 706**

IEBC Proposed Wisconsinisms

- Proposing to add a reqm't that existing smoke detectors in Residential occupancies be replaced by “wired” smoke detectors if not alternatively provided with 10-year lithium battery



IEBC Wisconsinisms (cont)

- Proposing to add references to the reroofing provisions that are currently only found in IBC Section 1510



Questions ???

