

Analysis of Changes to the 2007 Florida Building Code, Mechanical

Detailed side-by-side comparison

This *Analysis of Changes to the 2007 Florida Codes* is intended to provide a comprehensive comparison of the provisions in the *2004 Florida Building Code, Mechanical* (FBCM) and the *2007 Florida Building Code, Mechanical*. The *2003 International Mechanical Code* was the base code for the 2004 FBCM. The *2006 International Mechanical Code* is the base code for the 2007 FBCM. As a result of changing the base code, specific provisions have changed significantly in addition to other technical changes. This *Analysis* will serve a useful tool to facilitate the transition to the new code.

This *Analysis* is arranged so that comparable provisions in the two codes can be easily located. The left two columns contain section numbers and a brief description of the topic of the requirements from the 2004 FBCM. The next two columns contain section numbers and a brief description of the topic of the corresponding requirements in the 2007 FBCM. The far right column contains an analysis or comment on the differences between the provisions. For many entries, the basis for the change is also addressed.

This *Analysis* is not intended to replace or interpret the provisions contained in either the 2004 FBCM or the 2007 FBCM. This information simply points out the differences. The *Analysis* is not designed to be used without the aide of the representative code books, as all the details pertaining to a specific section may or may not be provided. However, this *Analysis* will provide an easy means for identifying significant differences in the two codes, as well as enabling the user to locate issue specific provisions in the 2007 FBCM by means of a numbered section cross reference.

This *Analysis* provides a cross-reference for the majority of the sections that changed in the 2007 FBCM. In some cases, sections were grouped together due to substantial differences. This grouping enables the context of the differences to be more easily identified.

Chapter 2: Definitions				
2004 FBCM		2007 FBCM		Analysis
Section	Requirement	Section	Requirement	
202	Approved	202	Approved	Revised definition to change the term "approved" to "acceptable" to avoid using the defining term in the definition itself.
202	-	202	Environmental Air	Added new definition to describe a term utilized in Ch. 5.
202	Extra-Heavy-Duty Cooking Appliance	202	Extra-Heavy-Duty Cooking Appliance	Revised definition for clarification by changing "as the primary" to "all or part of the heat source." This change also provides consistency with ASHRAE standards.
202	Design Flood Elevation	202	-	Deleted definition.
202	-		Sleeping Unit	New definition of sleeping unit added.

Chapter 3: General Regulations				
2004 FBCM		2007 FBCM		Analysis
Section	Requirement	Section	Requirement	
301.13	Wind resistance	301.12	Wind resistance	Revised section to remove reference to use of design or application of Section 301.13.1 for determination of wind pressures.
301.13.1	Ground mounted units	-	-	Prescriptive requirements for attaching ground mounted units to supports for resistance to wind have been delete.
302.3.4	Engineered wood products	302.3.4	Engineered wood products	New language permitting cuts, notches and bored holes in engineered products where permitted by the manufacturer's recommendations.
304.4	Hydrogen-generating and refueling operations	304.4	Hydrogen-generating and refueling operations	Revised section to avoid limitation of the number of hydrogen-fueled vehicles to a certain number but to have the limitation based on structure size in combination with the number of vehicles being refueled.
304.4.1	Natural ventilation	304.4.1	Natural ventilation	Revised section to require a limit of 850 square feet for indoor refueling and a limit of output capacity of hydrogen generating appliances.
304.4.1.1	Two openings	304.4.1.1	Two openings	Revised section to clarify size and location of required openings to improve interpretation and enforcement.
304.4.2	Mechanical ventilation	304.4.2	Mechanical ventilation	Revised section to add information for equipment and appliances with ignition source to have the location of the ignition below the mechanical ventilation outlet.
304.5	Public garages	304.5	Public garages	Revised exception in this section to update the NFPA reference standard from 88B-97 to 30A.
304.10	Guards	304.10	Guards	Section revised to include roof hatch openings within the scope of when guards are required.
306.4	Appliances under floors	306.4	Appliances under floors	Added Exception 2 which permits the passageway to be unlimited in length where the passageway is unobstructed and not less than 6 feet high and 22 inches wide for it's entire length.
306.4.1	Electrical requirements	306.4.1	Electrical requirements	"Light fixture" changed to "luminaire."
306.5	Equipment and appliances on roofs or elevated structures	306.5	Equipment and appliances on roofs or elevated structures	Added reference to 1522.3 for minimum clearances below roof-mounted mechanical units.
306.6	Sloped roofs	306.5.1	Sloped roofs	Relocated section and revised requirements to include equipment, fans, or other components requiring service within the scope of this section. Also added requirements for guards, regarding extension allowance and construction requirements.
-	-	306.5.2	Electrical requirements	Added new section to provide electrical requirements under sloped roofs, similar to other sections for clarification.

307.2.3	Auxiliary and secondary drain systems	307.2.3	Auxiliary and secondary drain systems	Revised section to add "or fuel-fired appliance" to this section's requirements. Revised Item 2 to permit the use of water-level detection device as an alternative to a separate drain line. Revised Item 3 to require the water-level detection device to conform to UL 508.
-	-	307.2.3.1	Water-level monitoring devices	Permits the use of a water-level monitoring device on down-flow units and all other coils that do not have a secondary drain and do not have a means to install an auxiliary drain pan.
Chapter 4: Ventilation				
2004 FBCM		2007 FBCM		Analysis
Section	Requirement	Section	Requirement	
401.4	Exits	601.3	Exits	Section relocated to Section 601.3.
401.5	Opening location	401.4	Opening location	Revised section to add Exception 2, which removes exhaust outlet information from 511.2 (because it falls outside of scope for that section) and adds it to this section for more appropriate location.
401.5.1	Intake openings	401.4.1	Intake openings	Editorial revisions for clarity. New language added stating that the exhaust from a bathroom or kitchen in a residential dwelling is not considered to be hazardous or noxious.
403.2	Outdoor air required	403.2	Outdoor air required	New exception permits a reduction in the required rate of outdoor air in accordance with an engineered systems. Additional limitations apply.
403.2.1	Recirculation of air	403.2.1	Recirculation of air	New language in Item 2 puts limits on the permitted amount of recirculated air. Item 3 clarified that scope of this Item is applicable to Note h in Table 403.3.
Table 403.3	Required outdoor ventilation air	Table 403.3	Required outdoor ventilation air	Note d revised to remove the exception for a mechanical ventilation system in garages having a floor area not exceeding 850 square feet. Revised table to add footnote h to accommodate the use of energy recovery ventilation. Also added footnote reference within table where applicable.

Chapter 5: Exhaust Systems				
2004 FBCM		2007 FBCM		Analysis
Section	Requirement	Section	Requirement	
501.2	Outdoor exhaust discharge	501.2	Exhaust discharge	New language requiring the discharge of air from mechanical exhaust systems to be discharged at point not less than the distance specified in new Section 501.2.1.
-	-	501.2.1	Location of exhaust outlets	New section requiring specific termination points for exhaust outlet based upon the type of exhaust.
502.4	Stationary lead-acid battery systems	502.4	Stationary storage battery systems	Scope of section revised to refer to the FFPC for regulation of stationary storage battery system. Added exception: Lithium-ion batteries do not require ventilation.
502.4.1	Hydrogen limit in rooms	502.4.1	Hydrogen limit in rooms	Scope of section revised to include flooded lead acid, flooded nickel cadmium and VRLA batteries.
502.5	Valve-regulated lead-acid batteries in cabinets	502.5	Valve-regulated lead-acid batteries in cabinets	Scope of section revised to apply to VRLA batteries installed in cabinets.
502.5.1	Hydrogen limit in rooms	-	-	Section deleted. Provisions covered in Section 502.4.
502.5.2	Ventilation rate in rooms	-	-	Section deleted. Provisions covered in Section 502.4.
502.5.3	Hydrogen limit in cabinets	502.5.1	Hydrogen limit in cabinets	Relocated section - no change in content.
502.5.4	Ventilation rate in cabinets	502.5.2	Ventilation rate in cabinets	Relocated section - no change in content.
502.7.3.2	Recirculation	502.7.3.2	Recirculation	Item 1.5 has been reworded for clarity and apply to 100 percent of the air volume specified in Section 510.
502.7.3.6	Termination point	-	-	Deleted section. Information no longer applicable to this section.
502.8.1.1	System requirements	502.8.1.1	System requirements	Item 4 revised to include "other approved type" in addition to the break-glass switch. Item 5 revised to require that for fumes or vapors lighter than air, the exhaust is required to be taken from a point within 12 inches of the highest point in the room. Item 7 revised to clarify exhaust ventilation can not be recirculated to occupied areas. Air contaminated with explosive or flammable vapors, fumes or dusts; flammable, highly toxic or toxic gases; or radioactive materials are not permitted to be recirculated.
502.8.4	Indoor dispensing and use - point sources	502.8.4	Indoor dispensing and use - point sources	Revised section language to add "gasses" for inclusion with vapors and fumes regarding flammability.
502.10.1	Hazardous production materials (HPM)	502.10.1	Hazardous production materials (HPM)	

502.16.1	Design	502.16.1	Design	Section revised to add wider range of gases being used in addition to natural gas.
-	-	502.19	Indoor firing ranges	Added section to address firing ranges and provide design guidance with ventilation reference for OSHA 29 CFR 1910.1025 where applicable.
505.1	Domestic systems	505.1	Domestic systems	Revised section to specifically refer to sheet metal ducts to avoid confusion regarding possible use of flex duct.
506.3.2	Joints, seams and penetrations of grease ducts	506.3.2	Joints, seams and penetrations of grease ducts	Exception 3 revised to require factory-built commercial kitchen grease ducts to be listed and labeled in accordance with UL 1978.
-	-	506.3.2.5	Grease duct test	New section requiring a leakage test of the grease duct prior to use or concealment.
506.3.4	Air velocity	506.3.4	Air velocity	Revised section to provide a minimum (1,500) and a maximum (2,500) feet per minute for air velocity.
506.3.10	Duct enclosure	506.3.10	Duct enclosure	Exception 1 revised to require evaluation in accordance with ASTM E 236 for the specified conditions. Requires exposed ductwrap systems to be protected where subject to physical damage. New Exception 2 added providing an additional exception to the shaft enclosure provisions in accordance with the requirements specified.
506.3.12.3	Termination location	506.3.12.3	Termination location	Revised section to add "adjacent buildings" to description of locations. Also revised exception to add "parts of the same or contiguous building" - for added clarity to the location description.
506.5.5	Termination location of exhaust equipment	506.5.5	Termination location of exhaust equipment	Revised reference standard from "506.3.12.3" to "506.3.12."
507.1	General	507.1	General	Revised section to provide requirement of commercial hood system to operate during cooking.
-	-	507.2.1.1	Operation	Added new section requiring that Type I hoods be designed to automatically activate the exhaust fan during cooking operation.
507.2.2	Type II hoods	507.2.2	Type II hoods	Revised section to add products of combustion to scope of where Type II hoods are required. New Exception 3 provided for a single light-duty electric convection, bread, retherm or microwave oven. New Exception 4 provides a list of specific appliances (toasters, popcorn poppers, etc.) that do not require a Type II hood.

507.2.4	Solid fuel	507.2.4	Extra-heavy-duty	Revised title from "solid fuel" to "extra-heavy-duty" which utilizes the correct term for this section. Also added information regarding type I hoods for other appliances.
507.12	Canopy size and location	507.12	Canopy size and location	Section revised to specifically include canopy-type Type I and II commercial hoods within scope of section. Revision eliminates reference to "cooking surface" to avoid confusion of applications such as surfaces over dishwashers which are not used for cooking.
507.13	Capacity of hoods	507.13	Capacity of hoods	Revised section to remove "extra-heavy-duty" from combinations of appliances listed since it isn't applicable to the requirements of this section.
-	-	507.13.5	Dishwashing appliances	Added new section to accommodate air flow information currently missing on dishwasher appliance installations.
507.16.1	Capture and containment test	507.16.1	Capture and containment test	Revised section to add requirements such that the test is performed under actual conditions.
510.1	General	510.1	General	Revised section to add definition of laboratory for the purpose of laboratory ventilation systems to clarify scope for this section.
510.2	Where required	510.2	Where required	Exception to this section added for laboratories with further restrictions specified.
510.4	Independent system	510.4	Independent system	Exception provided for laboratories meeting the 7 listed criteria.
-	-	510.6.1	Fire dampers	Added new section reinstating language previously removed but still referred to and is still pertinent.
510.7	Suppression required	510.7	Suppression required	Revised section to add new Exception 3 that states in laboratory hoods and exhaust systems, automatic fire protection systems are not required.
511.1.1	Collectors and separators	511.1.1	Collectors and separators	Revised section to remove the term "cyclone" as a description of separator. Revision also adds types of systems for clarification. New Exception 2 added permitting collectors in independent exhaust systems handling combustible ducts to be installed indoors.
511.1.3	Conveying systems exhaust discharge	511.1.3	Conveying systems exhaust discharge	Revised section to add statement for exhaust system that discharge can be recirculated if compliance with section is met.
511.2	Exhaust outlets	511.2	Exhaust outlets	Relocated Item 3 to Section 401.4
513.1	Scope and purpose	513.1	Scope and purpose	Scope of section revised to specifically apply to high-rise buildings.

513.4.6	Duration of operation	513.4.6	Duration of operation	Section revised to require continued operation of smoke control of smoke control system not less than 1.5 times the calculated egress time, in addition to the existing time of 20 minutes.
513.8	Exhaust method	513.8	Exhaust method	Revised section to add reference to NFPA 92B.
513.8.1	Exhaust rate	513.8.1	Exhaust rate	Revised height of accumulated smoke layer from 10 feet to 6 feet.
513.8.2	Axisymmetric plumes	-	-	Sections deleted.
513.8.3	Balcony spill plumes	-	-	
513.8.4	Window plumes	-	-	
513.9	Design fire	513.9	Design fire	Section revised to require the design fire to be based on a rational analysis.
513.9.2	Design fire fuel	513.9.2	Design fire fuel	Section revised to simply require that the determination of the design fire to include consideration of the type of fuel, fuel spacing and configuration.
513.20	Underground building smoke exhaust system	-	-	Sections deleted.
513.20.1	Exhaust capability	-	-	
513.20.2	Operation			
513.20.3	Alarm required	-	-	
Table 515.2B	Crypt Pressure relief pipe	Table 515.2B	Crypt pressure relief fittings	Revised title from "Crypt Pressure Relief Pipe" to "Crypt Pressure Relief Fittings."
515.3	Pressure relief vent	515.3	Pressure relief vent	For family mausoleum units, where all crypts are bordering an exterior wall, pressure relief ventilation is to be provided from the crypt to the outside of the mausoleum through the exterior wall or roof.
515.4	Termination	515.4	Termination	For family mausoleum units, where all crypts are bordering an exterior wall, pressure relief ventilation is to be provided from the crypt to the outside of the mausoleum through the exterior wall or roof.

Chapter 6: Duct Systems				
2004 FBCM		2007 FBCM		Analysis
Section	Requirement	Section	Requirement	
601.2	Air movement in egress elements	601.2	Air movement in egress elements	Revised language in section to remove term "exit access" for consistency.
-	-	602.2.1.6	Semiconductor fabrication areas	New section essentially providing an exception for Group H, Division 5 fabrication areas within limitations specified.
603.14	Weather protection	603.16	Weather protection	Revised section to remove ambiguous term "adequately."
603.17	Registers, grilles and diffusers	603.17	Registers, grilles and diffusers	"Branch" dampers changed to "Volume" dampers. New language requiring volume dampers or other means of supply air to be provided with access.
-	-	603.17.2	Prohibited locations	New section limiting the location of diffusers, registers, and grilles in toilet and bathing room floors.
604.3	Coverings and linings	604.3	Coverings and linings	Requires the use of the preparation and mounting procedures of ASTM 2231 when conducting the ASTM E 84 test for flame spread index and smoke development.
606.1	Controls required	606.1	Controls required	New language requiring duct smoke detectors to comply with UL 268A and other smoke detectors to comply with UL 268.
607.1	General	607.1	General	Revised section to remove "fire-resistance-rated" since scope of section addresses assemblies beyond this type.
607.1.1	Ducts and air transfer openings without dampers	607.1.1	Ducts without dampers	Revised title and section to remove "air transfer openings" due to incongruity in the provisions for the penetration of fire-resistance-rated walls and horizontal assemblies by ducts and air transfer openings.
607.2	Installation	607.2	Installation	Editorial revision to remove term "radiation" for continuity of word usage throughout this chapter.
607.3.2.1	Smoke damper actuation methods	607.3.2.1	Smoke damper actuation methods	Revised Item 4 to add wall "or ceiling" since on occasion, smoke dampers may be installed in ceiling area.
607.4	Access and identification	607.4	Access and identification	Revised required labeling in this section to add, "Fire/smoke damper" to ensure proper labeling of access doors.
607.5	Where required	607.5	Where required	Revised reference sections from "this section" to "Sections 607.5.1 through 607.5.5."
607.5.1	Fire walls	607.5.1	Fire walls	Revised term "approved" to state "listed" regarding fire dampers.
607.5.2	Fire barriers	607.5.2	Fire barriers	Revised term "approved" to state "listed" regarding fire dampers. New language clarifies that ducts and air transfer openings are not permitted to penetrate exit enclosures or exit passageways except as permitted in the FBCB.

607.5.3	Fire partitions	607.5.3	Fire partitions	Revised title and section scope to add "air transfer openings." New Exception 2 added permitting penetrations of fire partitions without a fire damper provided the partitions are tenant partitions in covered mall buildings where the walls are not required to extend to the underside of the floor or roof deck above.
607.5.5	Shaft enclosures	-	-	Provisions moved to more appropriate location in Section 607.5.2 since shaft enclosure walls are required to be fire barriers.
607.5.5.1	Penetrations of shaft enclosures	607.5.5	Shaft enclosures	Relocated section and revised title. Changed "approved" fire and smoke dampers to "listed" fire and smoke dampers. Revisions provide clarity and consistency with other changes regarding shaft enclosures as fire barriers.
607.6	Horizontal assemblies	607.6	Horizontal assemblies	Language revised to permit compliance with Sections 716.6.1 through 716.6.3 FBCB or with Section 607.6.1 through 607.6.3 in the FBCM.
607.6.1	Through penetrations	607.6.1	Through penetrations	Revised scope to include individual specific requirements for ducts and specific requirements for air transfer openings. New language that permits the duct to be protected in accordance with Section 712.4 of the FBCB in lieu of a shaft enclosure, within the scope of this section. New language refers to Exception 7 of Section 702.2 in the FBCB for air transfer openings.
607.6.2	Membrane penetrations	607.6.2	Membrane penetrations	Revised entire section to totally reorganize existing requirements from a paragraph format to an itemized (adds items 1-3) list of protection methods. Reorganization also added new section 607.6.2.1 to accommodate information regarding ceiling radiation dampers.
-	-	607.6.2.1	Ceiling radiation dampers	
607.6.3	Nonfire-resistance-rated assemblies	607.6.3	Nonfire-resistance-rated assemblies	Revised title to add "floor" to better provide intent of section. Revised entire section to totally reorganize existing requirements from a paragraph format to an itemized (adds items 1-3) list of protection methods.

Chapter 7: Combustion Air				
2004 FBCM		2007 FBCM		Analysis
Section	Requirement	Section	Requirement	
702.3	Air from adjacent spaces	702.3	Air from adjacent spaces	Revised section to make editorial change in effort to replace "inside" with "indoor" (and outside with outdoor) throughout the code. Similar changes made elsewhere in Chapter 7.
Chapter 8: Chimneys and Vents				
2004 FBCM		2007 FBCM		Analysis
Section	Requirement	Section	Requirement	
804.3.5	Vertical terminations	804.3.5	Vertical terminations	Revised section to clarify method of measurement by adding the term "horizontally" to Item 2.
805.2	Solid fuel appliances	805.2	Solid fuel appliances	<p>Revised section to add requirement for marking of factory-built chimneys to be marked appropriately for distinction between Type HT and non-Type HT chimneys.</p> <p>Existing exception deleted. New Exception 1 requires chimneys for use with open combustion chamber fireplaces to comply with UL 103 and to be marked "Residential Type and Building Heating Appliance Chimney."</p> <p>Exception 2 addresses chimneys for use with open combustion chamber appliances installed in buildings other than dwelling units.</p>
Chapter 9: Specific Appliances, Fireplaces and Solid Fuel Burning Equipment				
2004 FBCM		2007 FBCM		Analysis
Section	Requirement	Section	Requirement	
904.1	General	904.1	General	Revised section to add reference to ASTM E 1509.
912.1	Support	912.1	Support	Revised section to remove vague and unenforceable terms "safely and adequately" from this section.
924	Stationary fuel cell power plants	924	Stationary fuel cell power systems	Editorial revision in title to replace "plants" with "systems" to maintain consistency with ANSI standards.
924.1	General	924.1	General	Revised section to replace "plants" with "systems" and include reference to ANSI CSA America FC 1 standard. Revised output designation of "1,000 kW" to "10 MW."
-	-	931	Gaseous hydrogen systems	New section requiring the installation of gaseous hydrogen systems to be in accordance with applicable requirements of the FBCM, FFPC, FBCFG, and FBCB.

Chapter 10: Boilers, Water Heaters and Pressure Vessels				
2004 FBCM		2007 FBCM		Analysis
Section	Requirement	Section	Requirement	
1002.2.2	Scald protection	1002.2.2	Temperature limitation	Revised title of section for better description of scope. Also revised term "tempering valve" to match ASSE reference standard to "temperature actuated mixing valve."
1004.1	Standards	1004.1	Standards	Revised section to remove reference to Sections II V and IX due to error as they do not pertain to the design and construction of boilers.
Chapter 11: Refrigeration				
2004 FBCM		2007 FBCM		Analysis
Section	Requirement	Section	Requirement	
1105.5	Fuel-burning appliances	1105.5	Fuel-burning appliances	Revised to add, "fuel-burning appliances and equipment" to the scope for clarity. Deleted exception for matches, lighters, halide leak detectors and similar devices.
-	-	1105.9	Emergency pressure control system	New section requiring an emergency pressure control system for refrigeration systems containing more than 6.6 pounds of flammable, toxic or highly toxic refrigerant or ammonia.
1106.3	Ammonia room ventilation	1106.3	Ammonia room ventilation	Revised section to add reference to 1105.6.4 and the emergency ventilation rate.
1106.5.1	Refrigeration system	1106.5.1	Refrigeration system	Added exception stating that the cutoff switch is not required for machinery rooms where only nonflammable refrigerants are used, electrical equipment and appliances, other than compressors.
Chapter 12: Hydronic Piping				
2004 FBCM		2007 FBCM		Analysis
Section	Requirement	Section	Requirement	
1203.3.7	Grooved and shouldered joints	1203.3.7	Grooved and shouldered joints	Revised title and section content to add the term "mechanical" for proper piping term. Revised to add reference to ASTM F 1476 standard. Removed the term approval since it implies that the mechanical joints require an approval above the section requirements.
1204.1	Insulation characteristics	1204.1	Insulation characteristics	Revised section to add additional ASTM E 2231 standard to address specimen preparation procedures.
1206.9.1	Flood hazard	1206.9.1	Flood hazard	New section requiring piping located in a flood hazard area to be capable of resisting hydrostatic and hydrodynamic loads and stresses during flooding.

Chapter 13: Fuel Oil Piping and Storage				
2004 FBCM		2007 FBCM		Analysis
Section	Requirement	Section	Requirement	
-	-	1301.5	Tanks abandoned or removed	Added new section to address possible dangers that occur with abandoned tanks, such as accidentally delivery. Section requires compliance of removal per the Florida Fire Prevention Code.