



Marion County Growth Management Department Building Division

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BUILDING CODE GUIDELINE FOR MECHANICAL INSPECTIONS

Building Code compliance is the obligation of design professionals and/or contractors. Plan Review and Inspection Guidelines are intended to be used by design professionals and contractors to ensure that construction plans and construction projects, at a minimum, address the same code priorities that the Marion County Building Department will be looking at during plan reviews and inspections. **These Guidelines are not all inclusive.** Additional requirements in the Florida Building Code may also apply to your project. If you need assistance with a code question, please consult the Florida Building Code or contact the Marion County Building Division at (352)438-2400.

Abbreviations for Code Citations Found on Building Division Forms:

Volume

Abbreviation

Florida Building Code – Building	FBC- B
Florida Building Code – Plumbing	FBC- P
Florida Building Code – Mechanical	FBC- M
Florida Building Code - Fuel Gas	FBC- G
Florida Building Code - Existing Building	FBC- EB
Florida Building Code – Residential	FBC- R
National Electrical Code	NEC
National Fire Protection Association	NFPA
Mobile Home	FAC-15C, MH04-02

General Information for all Permits:	
A. Permit card	FBC 105.7
B. Approved site plan	FBC 106.3.5
C. Approved complete set of plans	FBC 106.3.1
D. Sanitary facilities on site	FBC 3305.1, FBC P 311.1
E. Is the site in a flood plain?	
Rough Mechanical Inspection: <i>Inspection code # 264</i> <i>Included in the Residential Inspection codes # 756, 792</i>	
A. Check the following items around the outside of the building:	
1. Roof or wall exhaust vent termination caps	FBC-R 401.6 and 501.2
2. Bathroom exhaust vent termination caps	FBC 13-606.1ABC., FBC-R 401.5, FBC-R 504.4
3. Dryer exhaust vent termination caps must be dampered with no screen	FBC-R 504.4
4. Range hood exhaust vent termination cap	FBC-R 505, 506, 507
5. A/C refrigerant copper installed at condenser location with suction piping insulated (direct connection)	FBC-R 1107 FBC-R 307.2.2
6. Sealing A/C refrigerant piping chase with moisture resistance material	FBC 1205.1.2, 2603.4, FBC-R 1107
7. Ensure proper working clearance at all electrical enclosures and panels supplying H.V.A.C. equipment	NEC 110-26
8. Exterior ducts require exterior type duct material with proper R-value (R-4.2), properly supported at least 6" above grade	FBE 13 Tab 6-10, FBC-R 603.5.6.6, 603.12, 603.14
9. Proper crawl spaces and attic ventilation	FBC-R-806,R-807, FBC 1203.2, 1209

10. Roof dry-in to protect duct material from weather	FBC-R 603.14
B. Check the following items inside the building:	
1. Air-handlers located in accessible spaces	FBC-R 306
2. Air-handler platform	FBC-R 306.3,FBC-R 602.2, 603.10
3. Supply and return-air plenums, at least 4" clearance all around for proper sealing, protect exposed ends from over-spray	FBC-R 603.1.3, 603.1.5
4. A/C refrigerant copper piping installed in concealed chases	FBC-R 1107
5. Insulation required on A/C refrigerant copper suction pipe	FBC-R 1107
6. Insulation required on any horizontal condensate piping within unconditioned areas	FBC-M-307.2.5
7. A/C chase opening must be sealed and can't terminate inside an air plenum	FBC 1205.1.2, FBC-R 603.10
8. Air-handlers in attics	FBC13-410.1.ABCD.3.5.2, FBC13-610.ABC.3.5.2, FBC-R 306.3
a. Trusses must be engineered to support the added weight	FBC-R 302.4
b. Attic access opening must be large enough to remove the equipment but in no case less than 20"x30"	FBC 1209
c. Attic access opening can not be more that 6" from the equipment service panel	FBC 13-610
d. There must be a 24" wide unobstructed passageway with solid continuous flooring to the equipment. The passageway must be elevated to allow for the correct thickness of insulation between the solid flooring of the passageway and the ceiling below	FBC-R 306.3
e. A level 30" long solid platform must extend at least 30" out from the service panel of the equipment. This solid platform must also be elevated to allow for the correct thickness of the insulation below. There must be at least 30" of vertical clearance above the solid platform	
f. A device must be installed to alert the owner or shut the unit down when the condensate drain is not working properly	FBC 13-610, 1-1403
g. An auxiliary drain pan with a separate drain line must be installed under the unit	FBC-R 307
h. A notice is posted on the electric service panel indicating to the homeowner that the air handler is located in the attic	FBC 13-610, FBC-M-306.3.2
i. A lighting outlet must be installed at or near the equipment requiring service with the lighting outlet switch at the attic access opening	FBC-R 306, NEC 210-70
j. A 120 volt receptacle outlet must be installed in the attic and within 25' of the equipment needing service	FBC-R 306.3.1, NEC 210-63
k. A minimum 5' vent termination height above a gas fired air handler must be maintained	FBC-R 802.5, FBC-G 506.6.2
C. Air-Handlers in crawl spaces	FBC-R 306, NEC 210-63 and 70
1. Access opening must be large enough to remove the equipment But in no case less than 22"x36"	
2. Access opening can not be more than 20' from the equipment	
3. A level grade or solid platform must extend at least 30" out from all sides of the equipment that will require access for servicing.	
4. There must be at least 30" of vertical clearance above the level grade or solid platform for service access.	FBC-R 306.4
5. The lighting outlet must be installed at or near the equipment requiring service with the lighting outlet switch at the attic access opening.	FBC-M-306.3.1
6. A 120 volt receptacle outlet must be installed in the crawl space and within 25' of the equipment needing service.	
D. Roof or exterior wall installation	FBC-R 306
E. Supply and return-air duct system	FBC-R 603, FBC 13-610
1. Review duct layout plan	

2.	Proper size of all supply/return ducts and duct boots	
3.	Proper assembly of all seams on fiberglass duct board with mechanical fasteners and approved sealing tape	
4.	Proper mechanical connection and sealing of all ducts with approved materials at plenums, duct joints, distribution boxes and supply/return boots. Spliced joints on flexible duct material require metal splicing collars.	FBC-R 603.1.3 Exception, FBC-R 603.4.2
5.	Proper R value of duct material (R-6 in the attic)	FBC-13 Tab 13-410.48C.2.2
6.	Proper support of all ducts without restricting air flow	
7.	Proper height of ducts to allow for ceiling insulation	
8.	Proper sealing around all supply/return boots that penetrate an insulated ceiling or wall	FBC 13-606
9.	Air return from all rooms except bathrooms, laundry rooms, kitchens and small closets. (return-air duct inlets may not be within 10' of an appliance vent)	FBC-R 918.6
10.	Proper sized air-transfer opening where necessary	FBC-R 601.4
11.	Combustible materials shall not be used in plenums unless properly protected.	FBC-R 602, 602.2.1
12.	Balanced return air, transfer ducts, 1.5X supply duct size, transfer grilles = 50in ² to 100cfm	FBC-R-1602.4, FBC-M-601.4 ex2
F. Exhaust System		
1.	Bathroom exhaust fans	FBC-M 403
2.	Properly vented to exterior of building	FBC-M 501
3.	Fan not required in residential bathrooms if a window is installed which has a 3 sq. ft. open area when opened	FBC-M 402
4.	Clothes dryer vents	
a.	Minimum 30 gauge smooth metal pipe (galvanized or corrosion resistant)	FBC-M Tab 603.3
b.	Minimum 4" diameter duct properly vented to outside air with a dampered termination cap with no screen	FBC-R 504
c.	Properly supported, no screws or obstruction in side the duct	
d.	Joints in the direction of the flow	
e.	25' maximum length (minus 5' for 90 degree & 2 1/2' for 45 degree bends) unless dryer specifications allow greater length	
f.	Provide nail protection for duct where necessary	
5.	Range Hoods	
a.	Residential	FBC-R 505
b.	Commercial	FBC-R 506 and 507
6.	All exhaust duct of approved material must be mechanically fastened and sealed where they connect to the appliances, at all joints and outside air termination locations.	FBC-R 603
7.	Exhaust ducts must be properly supported at appropriate distances to prevent duct movement.	FBC-R 603
8.	Exhaust ducts must be sized properly for the appliances they serve.	
9.	Grease hood vents	FBC-R 506
10.	Exhaust must terminate at proper locations.	FBC-R 506
G. Factory-built solid fuel burning appliances		
FBC-R Chapter 9		
1.	Wood and coal burning stoves per manufacturer's specifications	
2.	Fireplaces per manufacturer's specifications	
3.	Proper type flue pipe with proper clearances to all combustible material	
4.	Proper flue termination height above roof or through side walls	
5.	Proper draft stopping of all flue chases	
5.	Proper size and material of hearth at fireplaces (Check for ash safety strip)	
7.	Proper ventilation and combustion air for fireplaces	

8. Check need for gas permit and inspections	
Rough Gas Inspection:	<i>Inspection code # 263 Included in the Residential Inspection codes # 756, 792</i>
A. Check the following items around the outside of the building:	
1. Location of gas pipe penetration through exterior wall	FBC-G 404, FG 404.7
2. Locate pressure test gage with at least 10 P.S.I. and test Identification label	FBC-G 406
3. Underground piping must be at least 12" below grade and protected from corrosion	FBC-G 404.9
4. Flue vent location through roof or walls, termination caps and height, weatherproof flashing	FBC-G 503.6
B. Check the following items inside the building:	
1. Gas pipe installation	FBC-G 404.7 and 409
a. Review gas piping plan	FBC-G 401
b. Proper pipe material and size	FBC-G 402 and 403
c. Proper pipe support, nail protection and termination locations	FBC-G 407
d. Gas piping not allowed in the concrete slab without approval	FBC-G 404.6
e. Electrically bonding of gas piping	FBC-G 309, 310
f. Pressure test of 10 P.S.I. required on all gas piping	FBC-G 406.4
g. Sufficient combustion air in all rooms containing gas appliances	FBC-G 304
2. Flue Vents	
a. Size and type of material	FBC-G 502
b. Properly installed and supported	FBC-G 503.6 and 7
c. Mechanical connection required at all flue vent pipe joints and attachment to appliances	FBC-G 503
1) Clearances from combustible materials	FBC-G Tab 503.7.7
2) Single wall flue vent pipe in exposed areas only	FBC-G 503.7
3) Double wall (type B, BW) flue vent in attics and concealed spaces	
d. Multiple appliances served by a common vent	FBC-G Tab 504.3
1) Location of vent connector connections	
2) Size and type of vent connector	
e. Vertical height of flue vent versus horizontal run	FBC-G Chapter 5
f. Flue damper stops required on gas log fireplaces	Per Manufacturer
Wall and Vault Insulation Inspection:	<i>Inspection code # 262</i>
A. Check the following items around the outside of the building:	
1. Roof covering completed and weather-tight.	
2. All windows and doors installed, all opening in the exterior walls are sealed	FBC 13-606
3. All exterior doors are to be insulated or solid wood	FBC 13-603
4. Type of glass in windows and doors	FBC 13-601
5. R-value and support of insulation under raise floors and over crawl spaces	FBC 13-605
B. Check the following items inside the building:	
1. R-values of batt insulation material in walls and ceiling	FBC 13-602 and 604
2. Insulation must be installed in accordance with energy calculation requirements	FBC 13-600.3.ABC.2
3. All joints, cracks and holes in exterior walls including along the bottom plates of framed exterior and adjacent walls must be sealed to prevent air infiltration	FBC 13-606
4. All voids are properly insulated inside wooden window arches and behind tub/shower units	
5. Vapor barrier where required	
6. All pipes, ducts and wires elevated high enough in the attic to allow for proper thickness of insulation	
7. All provisions for blown-in ceiling insulation	FBC 13-604
a. Baffles or chutes for insulation over R-19	

b. Dams for insulation up to R-19	
c. Rulers every 6' to 10' and visible from access openings	
d. Batt insulation where vertical clearance does not allow blown-in insulation (corners of hipped roofs)	
e. Proper-sized attic access openings	FBC 1209
8. "Whole house" fan to be installed if Energy Credit is taken	FBC 13-607.1.A.3.2
Final Mechanical Inspection: <i>Inspection code # 260</i> <i>Included in the Residential Inspection codes # 774,776,792</i>	
A. Check the following items around the outside of the building:	
1. Exterior ducts	
a. Exterior type duct material	FBC 13-610
b. Proper R-value of insulated jacket	FBC 13 Tab 6-10, FBC-R 604
c. Properly supported at least 6" above the grade	FBC-R 304.9
e. Proper mechanical fastening and sealing on all seams, joints and connections	FBC-R 603
2. Proper crawl spaces and attic ventilation	FBC-R 1203
3. Roof or wall exhaust vent termination caps	FBC-R 401.6
4. Bathroom or exhaust vent termination caps	FBC-R 401.6
a. Dryer exhaust vent termination caps must have a damper and no screen	FBC-R 504
b. Range hood exhaust vent termination cap	FBC-R 505
5. H.V.A.C. Equipment	
a. Supported on approved materials	FBC-R 304
b. Equipment bases at least 2" above grade	FBC-R 304
c. Condensate drain installed correctly and trapped	FBC-R 307
d. Metal thermal collars when connecting ducts within 6" of heat strips	FBC-R 604.8
e. Data plate on equipment	FBC-R 301.6
1) Model number of equipment including B.T.U. size	
2) Minimum circuit ampacity	
3) Proper size of over-current protection device	
e. Proper sizing, installation and protection of electrical circuit conductors	NEC 310-16
g. Location and installation of equipment disconnects	NEC 110-26
h. Proper size of electrical circuit over-current protection device	Per Manufacturer
6 Location of gas pipe penetration through exterior wall	FBC-G 404
7. Confirm electrical bonding of gas piping	NEC 250-104
7. Underground piping must be at least 12" below grade and protected from corrosion	FBC-G 404
8. Flue vent locations through roof or walls, termination caps and heights, weatherproof flashing	
B. Check the following items inside the building:	
1. Air-handler located in an accessible space	
a. Proper access, working clearances around equipment and ducts/plenums	FBC-R 306
b. Equipment is adequately supported	
c. Proper connection and sealing of duct system to equipment	FBC 13-610.1ABC.3, FBC-R 707.1
d. Sealing of duct penetration through walls and ceiling if in conditioned space	
e. Proper connection and support of all piping to equipment	
f. Data plate on equipment	
1) Model number of equipment including B.T.U. size	
2) Minimum circuit ampacity	
3) Size of over-current protection device	
f. Proper sizing, installation and protection of electrical circuit conductors	NEC 310-6

h.	Location and installation of equipment disconnects	NEC 110-26
i.	Proper size of electrical circuit over-current protection device	Per Manufacturer
j.	Energy Performance Level display card (EPL Card) completely filled out, signed by the licensed builder and posted on the air-handler	FBC 13-104
k.	Florida H.V.A.C. Efficiency card accurately filled out and signed by H.V.A.C. contractor and posted on the air-handler or a Federal Trade Commission Label on each piece of the H.V.A.C. Equipment	FBC 13-104
l.	Ensure that the air-handler and condenser are matched and the H.V.A.C. Matching Equipment Certification is on site	FBC 13-607
m.	A/C chase opening must be sealed	FBC 13-404, 606 and FBC 2603.9
2.	Air-handlers in attics	
a.	Trusses must be engineered to support the added weight	
b.	Attic access opening must be large enough to remove the equipment but in no case less than 20" x 36"	
c.	Attic access opening cannot be more than 6' from the equipment service panel	FBC 13-610
d.	There must be a 24" wide unobstructed passageway with solid continuous flooring to the equipment. The passageway must be elevated to allow for the correct thickness of insulation between the solid flooring of the passageway and the ceiling below	
e.	A level 30" long solid platform must extend at least 30" out from the service panel of the equipment. The solid platform must also be elevated to allow for the correct thickness of insulation below. There must be at least 30" of vertical clearance above the solid platform	
f.	A device must be installed to alert the owner or shut the unit down when the condensation drain is not working properly	FBC 13-610
g.	An auxiliary drain pan with a separate drain line must be installed under the unit	FBC-R 307
h.	A notice is posted on the electric service panel indicating to the homeowner that the air-handler is located in the attic	FBC 13-610
i.	A lighting outlet must be installed at or near the equipment requiring service with the lighting outlet switch at the attic access opening	NEC 210-70; FBC-R 306
j.	A 120-volt receptacle outlet must be installed in the attic and within 25' of the equipment needing service	NEC 210-63
k.	A minimum 5' vent termination height above a gas fired air handler must be maintained	FBC-G 506.6.5 and FBC-R 802.6
3.	Air-handlers in crawl spaces	FBC-R 306
a.	Access opening must be large enough to remove the equipment but in no case less than 30" x 22"	
b.	Access opening cannot be more than 20' from equipment	
c.	A level grade or solid platform must extend at least 30" out from all sides of the equipment that will require access for servicing	
d.	There must be at least 30" of vertical clearance above the level grade or solid platform for service access	
e.	A lighting outlet must be installed at or near to the equipment requiring service with the lighting outlet switch at the access opening	
f.	A 120-volt receptacle outlet must be installed in the crawl space and within 25' of the equipment needing service	
g.	Support and clearance from the ground to the equipment	FBC-R 304.9
4.	Dryer exhaust vent inlet if equipped	FBC-R 504
5.	Range exhaust hood if equipped	FBC-R 505

6. Bathroom ventilation or exhaust fans	FBC-R 403
7. Height of ceiling fans	FBC R 305.1
8. Grilles on all supply and return-air openings	FBC-R 603.15
9. Cold-air return from all rooms except bathrooms, kitchens, laundry rooms and small closets	
10. Factory-built fireplace	FBC-R 903
a. Proper size of hearth and clearance from combustibles	
b. Combustion air	FBC-G 304
c. Chimney termination height	FBC-G 506.5
11. Commercial systems over 65,000 B.T.U. require a Test and Balance Report	FBC 13-410
12. Gas appliances and stub-outs located per the approved plan	
13. Required clearances for gas appliances from combustible materials	FBC-R 304
14. Pilot light on gas-fired appliances in garages must be at least 18" above the floor level	FBC-R 304 Exception C3 Technology
15. Gas appliances in garages must be provided with reasonable protection from damage from vehicles	FBC-R 303.4
16. Sufficient combustion air in all rooms containing gas appliances	FBC-R 701
17. Location of gas water heaters	FBC-G 303.3
a. Temperature and pressure relief valve	FBC-R 1006
b. Need drain for pan	FBC-P 504
c. Discharge location for T/P relief valve and drain pan	FBC-R 1006
18. Shut-off valves within 6' of all installed appliances, hard caps on all stub-outs	FBC-G 409
19. Locate regulator on high-pressure systems. Are appliances listed for higher pressure?	FBC-G 410
20. Flue vents	FBC-G 501
a. Size and type of material	FBC-G 502
b. Properly installed and supported	FBC-G 503
c. Mechanical connection required at all flue vent pipe joints and attachment to appliances	
d. Clearances from combustible materials	
1) Single wall flue vent pipe in exposed areas only and will need 6" of clearance to combustibles	FBC-G Tab 504.2
2) Double wall type (type B, BW) flue vent in attics and concealed spaces need clearances per the label listing	
e. Multiple appliances served by a common vent	FBC-G 504.3
1) Location of vent connector connections	
2) Size and type of vent connector	
f. Vertical height of flue vent versus horizontal run	FBC-G 504
g. Flue damper stops required on gas log fireplaces	Per Manufacturer
21. Blown Insulation	
a. Locate attic access opening and check for gasket seal	FBC 13-606.1.ABC.1.2.3(5)
b. Blown-in ceiling installed and insulation card posted	FBC 13-606
c. Areas around all penetration through walls and ceilings in conditioned spaces must be properly sealed	FBC 13-606
22. Solar systems	FBC-M1401, FBC-R2301
a. Insure that safety devices are not compromised/bypassed when solar systems are interconnected to other energy systems	
b. System must be capable of being drained and vented to prevent Air entrapment	FBC-M1402.5.2
c. Pressure and temperature relief devices are required on all systems and subsystems that are isolated by valves	FBC-M1402.5.1

d. Systems require approved vacuum relief valves	FBC-M1402.5.2
d. Provision is required for thermal expansion in Closed Fluid Loop systems that contain heat transfer fluid	FBC-M1402.5.4, FBC-R2301.2.6
e. Accessibility to all equipment for inspection, maintenance, repair and replacement	FBC-M1402.1
f. All materials must be installed in accordance with the manufacturer's installation instructions	FBC-M1401.4
g. Heat transfer fluids which are hazardous must comply with code	FBC-M1403
h. All collectors & thermal storage units must be listed & labeled	FBC-M1404
i. Valves shall be installed to isolate the solar collectors and the valves must be labeled with open & closed positions	FBC-R2301.2.8
j. All piping must be properly supported	FBC-P308
k. Warning labels are required on all drains where high temperature, high pressure or hazardous fluids are discharged	FBC-M1006.6
l. Back-flow protection required on all potable water supply sources	FBC-M1401.2
m. Roof and wall penetrations shall be flashed and sealed	FBC-M1402.6

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