Land Use and Environmental Service Agency
(Code Enforcement)

NC Mechanical Code

1st Qtr. 2020 Code Answers in brown (Jan-Mar) 2nd Qtr. 2020 Code Answers in green (Apr- Jun)
3rd Quarter 2020 Code Answers in blue (Jul-Sep) 4th Quarter 2020 Code Answers in red (Oct-Dec)

Table of Contents

1103.1 - Question: I am designing an HVAC system for a client. The equipment they want to use will utilize either R448a or R449a refrigerant. Neither is listed in Table 1103.1. Can they be used?

Answer: Yes, North Carolina is on a 6 year code cycle and that puts the current code behind the Current ASHRAE 34. In 2014 there was an amendment to add R448a and R449a to ASHRAE. We will accept the refrigerants in compliance with ASHRAE 34.
The limit for R448a is 24 lb/1000 cubic feet
The limit for R449a is 23 lb/1000 cubic feet.

Policy - Question: I was turned down in plan review for using the 2018 NC Energy Code prescriptive method. I was told it did not comply with what the architect submitted, which was a comcheck. Can you explain?

Answer: If the architect is using comcheck, then they must be using either ASHRAE or 2015 IECC. This is because a 2018 NC comcheck was not provided. If

the architect chooses ASHRAE, then the entire project must be under ASHRAE. The same is true for 2015 IECC.

Policy - Question: Can a garage door be used for makeup air?

Answer: No, the intent of the code is for makeup air to be supplied when the building's exhaust systems are operating. The use of garage door is dependent on a person opening it. Most exhaust systems in a garage are there for the welfare of the occupants. If the door is not opened, the exhaust will not operate properly.

NEC - Question: I installed a couple of condenser units at a new house. After the installation the Homeowner/GC installed an inground pool and now my condensing units are about 5 feet from the pools edge. Will I have to move them?

Answer: Yes, but this requirement is in the Electrical Code and not the Mechanical Code. The NEC defines an "Outlet" as a point on the wiring system at which current is taken to supply utilization equipment. Article 680.22 "D" requires "Other Outlets" to be a minimum of 10 feet from the inside walls of the pool.

Energy Code - Question: If you do a change out, single family, are you required to install a programmable thermostat or can you keep the old one? We have many customers who want to keep the old thermostats.

Answer: Section N1103.1.1 NCRC requires a programmable thermostat for new installations. The section does not address existing installations. This question was asked to NCDOI. They referenced Section M1202.2 NCRC, which states if it was lawfully installed, then you can continue to use it. They stated if the existing thermostat was compatible with the new system, then it could be continued to be

NC Mechanical Code

1st Qtr. 2020 Code Answers in brown (Jan-Mar) 2nd Qtr. 2020 Code Answers in green (Apr- Jun)
3rd Quarter 2020 Code Answers in blue (Jul-Sep) 4th Quarter 2020 Code Answers in red (Oct-Dec)

used. If the thermostat was not compatible and has to be changed, then a programmable one must be used as the replacement.

M1503.1 NCRC - Question: Can the corrugated metal flex duct be used on a down draft range for a remodel in a single family dwelling?

Answer: No, section M1503 requires the duct to have a smooth interior surface. The section also requires the duct material to be galvanized steel, stainless steel or copper. Most of these corrugated metal flex ducts are made from aluminum. The only way this installation could be approved, is if the manufacturer's installation instructions specifically allowed the use of this type of duct. This would be part of the listing.

Energy Code - Question: What is the minimum insulation thickness for refrigerant lines inside the building, within the thermal envelope?

Answer: Section C403.2.10 NCECC requires insulation on refrigerant lines to be a minimum of 1.5 inch thickness. Exception #6 of that section, states the suction line piping located in conditioned space is not required to insulated other than to necessary to prevent condensation. The last sentence of the definition of "Conditioned Space" in the NCECC states, "Spaces within the building thermal envelope are considered conditioned space." The only insulation required for suction refrigerant lines inside the thermal envelope is to prevent condensation.

Policy - Question: Are boots required to be installed to pass the rough in inspection?

Answer: The purpose of the Rough In inspection is see what will be covered up at final. If the boots are in a crawlspace and they can be inspected at final, they would not be required to be installed at rough. If they are in a upper story floor

system, or where they will be covered by drywall at final, then they would need to be installed. Boots are required to be sealed to the subfloor and drywall. This can be verified from a visual inspection without the floor register or if a blower door test is performed and passes, that would demonstrate the envelope is tight.

Other - Question: Can I use Fire Resistant Plywood (FRT), behind a Type I hood? On the other side of the wall from the hood?

Answer: Limited combustibles are not directly defined in the building codes. Captiveaire installation instructions state "limited combustibles per NFPA 96", so we have to go there for the definition. NFPA 96 has Table A.3.3.34, which is in the appendix, it defines noncombustible, limited combustible and combustible construction. Under "Wall Assemblies", it lists Plywood on metal studs as a combustible assembly. The general note 2 at the bottom, not footnote 2, states the categories do not change by use of fire retardant treated wood products, it would still need 18 inches of clearance.
To answer the question, FRT plywood installed on the back of the wall, behind the hood, would be prohibited within 18 inches. We spoke with Avery Grant at Captiveaire and he confirmed we are reading this NFPA 96 table correctly.

Other - Question: Can a grease duct be constructed from galvanized steel?

Answer: We can find nothing that would prohibit the use of galvanized steel for the construction of a grease duct. NFPA 96 lists galvanized as an acceptable material. It would need to be a minimum of 16 gauge as required by code. Extreme caution would be needed welding galvanized.

NC Mechanical Code

1st Qtr. 2020 Code Answers in brown (Jan-Mar) 2nd Qtr. 2020 Code Answers in green (Apr- Jun)
3rd Quarter 2020 Code Answers in blue (Jul-Sep) 4th Quarter 2020 Code Answers in red (Oct-Dec)

Energy Code - Question: Is ductwork required to be insulated in an above ceiling area, that is not being used as a plenum, if it is within the thermal envelope?

Answer: No, Section C403.2.9 NCECC requires a minimum R-6 insulation for ductwork that is located in unconditioned spaces inside the building. These spaces would be areas like a crawlspace or an attic. The NCECC by definition considers spaces with in the thermal envelope as conditioned space

Other - Question: Are plans required for change of use where the layout and equipment are staying the same?

Answer: Yes, even if nothing is changing, we would still need plans to verify the space is code compliant for the new occupancy. For example we would need to verify plumbing fixtures, ventilation, allowable building size and area, etc; for the new occupancy. Then the inspections would just confirm what is out there matches the plans.

Policy - Question: My supervisor told me we are not performing pressure test inspections for Piedmont Gas any longer for structures that set empty with no gas service. A pressure test needs a permit, we normally issue permits for pressure tests, why would we not issue a permit for a pressure test?

Answer: Yes, a pressure test is part of the construction process and does need a permit. These utility request are just requesting a permit and no work is being done. The existing system was already approved and nothing has changed. If they find a repair has to be done; then they would need to pull a permit for the repair and a pressure test would be part of that process.

Other - Question: What are acceptable materials for exhaust ducts serving a pool room?

NC Mechanical Code

1st Qtr. 2020 Code Answers in brown (Jan-Mar) 2nd Qtr. 2020 Code Answers in green (Apr- Jun)
3rd Quarter 2020 Code Answers in blue (Jul-Sep) 4th Quarter 2020 Code Answers in red (Oct-Dec)

Answer: The concern here is being exposed to corrosives. The NCMC does not specify a special material for pool room exhaust ducts. In searching the what is accepted in the industry, both galvanized and stainless are acceptable.

Energy Code - Question: Got another consistency question on energy supplementary heat energy code section 503.2.4.1.1. Does the unit need a lockout thermostat if there is a defrost built in?

Answer: The intent is to lock out the electric heaters, except during the defrost cycle, when the outside temperature is warm enough to provide enough heat. During the defrost cycle the heatpump is running backwards to clear the ice off the condenser coil, so it is basically running in air conditioner mode. You would need the electric heaters during defrost to keep heating the building. You would still need a lock out thermostat.

Other - Question: Does Code Enforcement accept he Hilti details, labeled as Engineered Judgement, for protection of a dryer duct in a rated assembly?

Answer: No, the detail in question only has the penetration of the dryer duct caulked at the membrane. NCDOI has issued an interpretation that shows the dryer duct must be wrapped inside the assembly. Another option is to box the rating around the dryer duct, so it does not penetrate the assembly. The wrap is there to protect the framing from a fire in the dryer duct. The Hilti detail does not provide this protection

407.2.6 NCBC - Question: I have an I-2 senior living center and want to have a community area that will be part of the corridor. Are we allowed to place a domestic range in this area for the occupants to use? I heard this was allowed were it wasn't before.

NC Mechanical Code

1st Qtr. 2020 Code Answers in brown (Jan-Mar) 2nd Qtr. 2020 Code Answers in green (Apr- Jun)
3rd Quarter 2020 Code Answers in blue (Jul-Sep) 4th Quarter 2020 Code Answers in red (Oct-Dec)

Answer: Section 407.2.6 NCBC didn't exist in the 2012 codes. It was added in the 2018 and does reference to Section 505 NCMC. There is a big difference between the 2012 and 2018 versions of Section 505 NCMC.
Exception #1 in 2012 was open to all occupancies, but Section 407.2.6 NCBC didn't exist. In 2018 Exception #1 is still there, but it has excluded I-1 and I-2 occupancies, and now we have Section 407.2.6 NCBC. These sections were coordinated to work together.
Section 505 NCMC will require a domestic range hood in I-1 or I-2 to be exhausted. There are additional requirements in 407.2.6 NCBC to allow cooking facilities to be installed in I-2. All of these requirements must be met.

Other - Question: Is it permissible to route refrigerant or condensate line in a residential elevator shaft? (single family)

Answer: We cannot find any code that prohibits routing refrigerant or condensate lines in a elevator shaft (not really a shaft as it is not rated) in a single family home. If the manufacturer of the elevator doesn't prohibit it, then we see no reason it would not be allowed.

Energy Code C403.2.13 - Question: I want to install some heaters on our restaurant patio to blow warm air, so the people can be more comfortable out there. Would this be allowed?

Answer: Per the NCECC section C403.2.13, heating outside the building shall be a radiant system. In addition these systems shall be controlled by an occupancy sensing device or a timer switch (timer cannot have a override on switch).
C403.2.13 Heating outside a building. Systems installed to provide heat outside a building shall be radiant systems. Such heating systems shall be controlled by an occupancy sensing device or a timer switch, so that the system is automatically deenergized when no occupants are present.

NC Mechanical Code

1st Qtr. 2020 Code Answers in brown (Jan-Mar) 2nd Qtr. 2020 Code Answers in green (Apr- Jun)
3rd Quarter 2020 Code Answers in blue (Jul-Sep) 4th Quarter 2020 Code Answers in red (Oct-Dec)

Definitions - Question: Can a source capture system for a repair garage be a passive system such as a hose to the outside?

Answer: No, per the definition of the source capture system it must be a mechanical exhaust system

SOURCE CAPTURE SYSTEM. A mechanical exhaust system designed and constructed to capture air contaminants at their source and to exhaust such contaminants to the outdoor atmosphere.

304.3 - Question: I installed a furnace in a room that opens to the garage. The room had a weather sealed door and a closer. I was turned down because the ignition source was not elevated 18 inches above the garage floor. Is this right, it is in a separate room.

Answer: Section 304.3 requires all ignition sources to be elevated 18 inches above the garage floor. It also states a room that is accessed only from the garage is considered part of the garage. There are no exceptions for weather sealed doors or closers. Any installations in the room, would need to meet the same requirements as if installed in the garage.

304.3 Elevation of ignition source. Equipment and appliances having an ignition source and located in hazardous locations and public garages, private garages, repair garages, automotive motor fuel-dispensing facilities and parking garages shall be elevated such that the source of ignition is not less than 18 inches (457 mm) above the floor surface on which the equipment or appliance rests. For the purpose of this section, rooms or spaces that are not part of the living space of a dwelling unit and that communicate directly with a private garage through openings shall be considered to be part of the private garage.

306.3 - Question: If a furnace and a water heater are installed in an attic. Could they be installed opposite each other and share the required 30 x 30 service space?

NC Mechanical Code

1st Qtr. 2020 Code Answers in brown (Jan-Mar) 2nd Qtr. 2020 Code Answers in green (Apr- Jun)
3rd Quarter 2020 Code Answers in blue (Jul-Sep) 4th Quarter 2020 Code Answers in red (Oct-Dec)

Answer: Yes, we can find nothing that would prohibit this installation. All clearances from the manufacturer would need to be met for both appliances. The 30 x 30 service space would be available to either appliance.

307.2.3.1 - Question: Can a float switch be installed in the drain line for an RTU instead of in the drain pan?

Answer: No, Section 307.2.3.1 NCMC prohibits devices installed in the drain line. 307.2.3.1 Water-level monitoring devices. On downflow units and all other coils that do not have a secondary drain or provisions to install a secondary or auxiliary drain pan, a water-level monitoring device shall be installed inside the primary drain pan. This device shall shut off the equipment served in the event that the primary drain becomes restricted. Devices installed in the drain line shall not be permitted.

307.2.3.2 - Question: Can styrofoam blocks be used to support HVAC equipment in the pan?

Answer: Section 307.2.3.2 states the supports shall be water resistant and approved. Styrofoam packing could not be accepted for supports, but the high density blocks manufactured for that purpose could be accepted.
In one- and two- family dwellings: The clearance from the airhandler/furnace would need to be verified. The equipment would need to have zero clearance on the side in contact with the block.
In commercial applications: The clearance from the airhandler/furnace would need to be verified. The equipment would need to have zero clearance on the side in contact with the block. Blocks to be installed in plenums would need to be plenum rated. The foam blocks would need to have a flame spread index of not more than 75 and a smoke developed index of not more than 450 per 2603.3 NCBC.

NC Mechanical Code

1st Qtr. 2020 Code Answers in brown (Jan-Mar) 2nd Qtr. 2020 Code Answers in green (Apr- Jun)
3rd Quarter 2020 Code Answers in blue (Jul-Sep) 4th Quarter 2020 Code Answers in red (Oct-Dec)

307.2.3 - Question: Am I required to pipe the overflow of a coil to the auxiliary drain pan on an upflow furnace?

Answer: Yes, but only if the auxiliary drain pan has a drain. Section 307.2.3 #1 is an option to install an auxiliary drain pan with a drain. The drain must be run to conspicuous point of disposal to alert occupants in the event of a stoppage of the primary drain. If 307.2.3 #1 is used, then 307.2.3 #1a requires the overflow of the coil above the furnace to be piped to the auxiliary drain pan. This is because the unit can continue to run and water would be flowing through the furnace to the auxiliary drain pan. If 307.2.3 #3 is used, which is an auxiliary pan with a float switch, then the piping between the coil and auxiliary pan is not required. This is because once enough water fills the pan, the unit shuts down.

403.3 - Question: I was turned down in plan review for the ventilation of the procedure room in an oral surgeon's office. It was stated the procedure room ventilation must be per ASHRAE 170. I thought ASHRAE 170 was for I-2 occupancies. Does it apply to my project?

Answer: Yes, ASHRAE 170 does apply to I-2, but it also applies to ambulatory facilities as well. By definition in the NC Building Code an ambulatory care facility is less than 24 hour care for people who are incapable of self-preservation. Any procedure room where the patient is under an anesthesia and cannot respond, would be an ambulatory care facility and would need to meet the ventilation requirements of ASHRAE 170.

NCBC

AMBULATORY CARE FACILITY. Buildings or portions thereof used to provide medical, surgical, psychiatric, nursing or similar care on a less than 24-hour basis to persons who are rendered incapable of self-preservation by the services provided.

NC Mechanical Code

1st Qtr. 2020 Code Answers in brown (Jan-Mar) 2nd Qtr. 2020 Code Answers in green (Apr- Jun)
3rd Quarter 2020 Code Answers in blue (Jul-Sep) 4th Quarter 2020 Code Answers in red (Oct-Dec)

NCMC

407.1 General. Mechanical ventilation for ambulatory care facilities and Group I-2 occupancies shall be designed and installed in accordance with this code and ASHRAE 170.

501.3.1 - Question: What is the correct termination clearances for exhaust from a parking garage?

Answer: Parking garage exhaust is defined as environmental air. Section 501.3.1 #3 NCMC states environmental air exhaust requires 3 feet from property lines; 3 feet from operable openings into buildings for all occupancies other than Group U, and 10 feet from mechanical air intakes. Environmental air is not considered hazardous or noxious.

501.3.1 - Question: Would pool room exhaust be considered environmental air and only require a termination clearance of 3 feet?

Answer: Section 501.3.1, basically breaks exhaust in to 3 categories, each with a different termination clearance. One exhaust type is flammable vapors (this would not be pool room exhaust). Another type is environmental air. Environmental air is defined as domestic kitchen exhaust, bathroom exhaust and domestic clothes dryer exhaust (pool rooms exhaust would not fit into this type). The last one is other product conveying outlets which has a termination clearance of 10 feet from property lines, openings into the building and adjoining grade (pool room exhaust fits this type of exhaust).
ENVIRONMENTAL AIR. Air that is conveyed to or from occupied areas through ducts which are not part of the heating or air-conditioning system, such as ventilation for human usage, domestic kitchen range exhaust, bathroom exhaust, domestic clothes dryer exhaust and parking garage exhaust.

502.18 - Question: Can a smoking lounge use natural ventilation?

NC Mechanical Code

1st Qtr. 2020 Code Answers in brown (Jan-Mar) 2nd Qtr. 2020 Code Answers in green (Apr- Jun)
3rd Quarter 2020 Code Answers in blue (Jul-Sep) 4th Quarter 2020 Code Answers in red (Oct-Dec)

Answer: No, Section 401.2 NCMC requires all spaces to be ventilated with Natural Ventilation or Mechanical Ventilation. This is a general requirement in the code. Section 502.18 NCMC gives a specific requirement for Smoking Lounges, requiring them to be exhausted in accordance with the ventilation rate from Chapter 4. A specific requirement takes precedence over a general requirement.
502.18 Specific rooms. Specific rooms, including bathrooms, locker rooms, smoking lounges and toilet rooms, shall be exhausted in accordance with the ventilation requirements of Chapter 4.

505.1 - Question: I have a project in plan review for an I-2 senior living center. I am being told I must exhaust the domestic range hoods in the living units. We have always used recirculating hoods on these projects. Are the hoods required to be exhausted?

Answer: Yes, Section 505.1 NCMC requires domestic range hoods to discharge to the outdoors. Exception #1 does allow recirculating hoods, but it excludes Group I-1 and I-2 occupancies. This exclusion requires all domestic hoods in an I-1 or I-2 to be exhausted to the outdoors.

506.3.2.5 - Question: While performing a light test on a grease duct, the ladder the contractor provided was not tall enough to properly test the entire duct. The contractor stated they can't get a taller ladder to finish the test. How should this be handled?

Answer: Section 506.3.2.5 NCMC states the permit holder is responsible for providing all necessary equipment to perform the duct leakage test. We would not be able to pass the inspection until it is complete.

506.3.2.5 - Question: Can a contractor perform the required light test on a grease duct or have an engineer certify it?

NC Mechanical Code

1st Qtr. 2020 Code Answers in brown (Jan-Mar) 2nd Qtr. 2020 Code Answers in green (Apr- Jun)
3rd Quarter 2020 Code Answers in blue (Jul-Sep) 4th Quarter 2020 Code Answers in red (Oct-Dec)

Answer: No, section 506.3.2.5 NCMC is required to be performed in the presence of the code official. This section is different from the Hood Performance Test section, that does allow an engineer to certify the test; at the discretion of the code official.

507.2.6 - Question: Why is FRP behind the wall still counted as a combustible behind a Type I hood?

Answer: Per NCDOI (Dan Dittman), they interpret it the same way we do. Combustibles must be 18 inches from the hood, the sheetrock and wall construction does not reduce the clearance requirements. The only way to reduce the 18 inches is to use Table 308.6 NCMC or have a reduced clearance hood.
507.2.6 Clearances for Type I hood. A Type I hood shall be installed with a clearance to combustibles of not less than 18 inches (457 mm).

507.2.6 - Question: Why is PVC in the wall still counted as a combustible behind a Type I hood?

Answer: Per NCDOI (Dan Dittman), they interpret it the same way we do. Combustibles must be 18 inches from the hood, the sheetrock and wall construction does not reduce the clearance requirements. The only way to reduce the 18 inches is to use Table 308.6 NCMC or have a reduced clearance hood.
507.2.6 Clearances for Type I hood. A Type I hood shall be installed with a clearance to combustibles of not less than 18 inches (457 mm).

507.3 - Question: The 2018 NCMC does not have exceptions for Type II hoods. Does this mean atleast a Type II hood is required for appliances such as electric counter top oven or a under counter dishwasher?

NC Mechanical Code

1st Qtr. 2020 Code Answers in brown (Jan-Mar) 2nd Qtr. 2020 Code Answers in green (Apr- Jun)
3rd Quarter 2020 Code Answers in blue (Jul-Sep) 4th Quarter 2020 Code Answers in red (Oct-Dec)

Answer: No, Section 507.3 NCMC may not have exceptions listed, but it does state, a hood is not required where the heat and moisture loads are incorporated into the HVAC system design. If the appliance does not produce grease or smoke, they can incorporate the heat and moisture in the HVAC system design.
If an appliance is shown to pass the EPA 202 test or is listed to UL710B, the hood requirements would defer to the listing of the appliance.

602.2.1 - Question: Can plenum rated split pipe insulation be used to enclose a plastic pipe in a plenum?

Answer: No, the insulation does meet the fire and smoke rate, but there is nothing to keep it on the pipe during an event. The small amount of adhesive at the split will not hold during a fire. The commentary supports this. It should be a plenum wrap design and tested for this purpose or have some sort of metal bands or metal jacket on the insulation. The code allows for non-plenum rated materials to be enclosed by plenum rated materials, but the enclosing materials should stay in place during an event.
We also reached out to NCDOI and they agree with this interpretation.

602.2 - Question: Can wood be used in a plenum if it meets the 25 flame spread and 50 smoke development?

Answer: Yes, section 602.2 NCMC was updated in the 2018 version and allows materials within a plenum with not more than a 25/50 in accordance with ASTM E84 or UL723. This will usually be Fire Retardant Treated wood. It should be noted that materials can pass the ASTM E84 test with a higher smoke development index than 50. These materials would not be allowed within a plenum.

NC Mechanical Code

1st Qtr. 2020 Code Answers in brown (Jan-Mar) 2nd Qtr. 2020 Code Answers in green (Apr- Jun)
3rd Quarter 2020 Code Answers in blue (Jul-Sep) 4th Quarter 2020 Code Answers in red (Oct-Dec)

603.12 - Question: I have a project where the ductwork is not required to be insulated, because it is within the thermal envelope. The area where the duct is to be installed is within the thermal envelope, but above a hard ceiling. The inspector is concerned about condensation since it is not insulated. Do I have to insulate the duct?

Answer: With the definition change by NC in the 2018 NCECC. If it is in side the building thermal envelope, it is considered conditioned space and no insulation is required. However, the mechanical code, Section 603.12, will still require provisions to be taken to prevent the formation of condensation on the exterior of new ductwork. The space you are describing is in the thermal envelope, but it doesn't sound like it is well ventilated to the rest of the building. This space could be slow to changes in temperature and humidity. This is something that has to be evaluated in the design process.

603.1 - Question: Can the makeup air duct in a dwelling be constructed of something other than metal?

Answer: Yes, Section 601.1 NCMC and M1601.1 NCRC both state ducts used for ventilation shall be constructed per the referenced sections. Duct materials allowed by code include metal, ductboard, flexible UL181, etc.

603.14 - Question: Can a duct in a sealed crawlspace be closer than 4 inches to the ground?

Answer: No, Section 603.14 NCMC and M1601.4.8 NCRC, require the duct to be no closer than 4 inches to the earth. While the crawlspace is sealed, there is no exception in the code for a reduction of the 4 inches.

603.7 - Question: Can fire dampers be used in a residential garage supplied with air from outside the area where cars are parked?

NC Mechanical Code

1st Qtr. 2020 Code Answers in brown (Jan-Mar) 2nd Qtr. 2020 Code Answers in green (Apr- Jun)
3rd Quarter 2020 Code Answers in blue (Jul-Sep) 4th Quarter 2020 Code Answers in red (Oct-Dec)

Answer: No, Section 603.7 prohibits the openings into the garage. The separation of the garage is one issue the other is the transfer of CO or other fumes from the garage to the living space, which a fire damper cannot offer protection.
603.7 Rigid duct penetrations. Duct system penetrations of walls, floors, ceilings and roofs and air transfer openings in such building components shall be protected as required by Section 607. Ducts in a private garage and ducts penetrating the walls or ceilings separating a dwelling unit from a private garage shall be continuous and constructed of a minimum 26 gage [0.0187 inch (0.4712 mm)] galvanized sheet metal or other approved noncombustible material and shall not have openings into the garage. Fire and smoke dampers are not required in such ducts passing through the wall or ceiling separating a dwelling unit from a private garage except where required by Chapter 7 of the International Building Code.

606.2.1 - Question: Should the fresh air duct connect to the return side before or after the duct detector?

Answer: Section 606.2.1 NCMC requires the detector to be upstream of any filters, exhaust air connections, outdoor air connections. This is so the fresh air will not dilute the return air and interfere with the air being sampled by the duct detector. Upstream would be the opposite direction the air stream is flowing.

606.3 - Question: Are access doors required for the sample tubes on a duct detector?

Answer: Only if the manufacturer requires it. Access is required to the duct detector itself which is usually installed outside the duct. The sample tube diverts a small amount of air to the duct detector. There are duct detectors that are installed inside the duct work, these would require an access door.
606.3 Installation. Smoke detectors required by this section shall be installed in accordance with NFPA 72. The required smoke detectors shall be installed to

NC Mechanical Code

1st Qtr. 2020 Code Answers in brown (Jan-Mar) 2nd Qtr. 2020 Code Answers in green (Apr- Jun)
3rd Quarter 2020 Code Answers in blue (Jul-Sep) 4th Quarter 2020 Code Answers in red (Oct-Dec)

monitor the entire airflow conveyed by the system including return air and exhaust or relief air. Access shall be provided to smoke detectors for inspection and maintenance.

NC Fuel Gas

1st Qtr. 2020 Code Answers in brown (Jan-Mar) 2nd Qtr. 2020 Code Answers in green (Apr- Jun)
3rd Quarter 2020 Code Answers in blue (Jul-Sep) 4th Quarter 2020 Code Answers in red (Oct-Dec)

Table of Contents

403.10.2 - Question: Can a swaging tool be used for tubing joints on a gas line? I heard they removed the word "or" from the commercial code, which changed the meaning of the section.

Answer: Yes, there has been some confusion with section 403.10.2. The section gives you 3 options:

1. approved gas fittings
2. brazed
3. press-connect fittings

The confusion comes with the first option, approved gas fittings. This is referring to flare fittings or a listed fitting for joining tubing, not a solder coupling (that would be under option 2). Looking at the code section, it uses the "or" statement, any of the 3 options will work. Swaging is a common practice in the industry. The requirement for swaging is the cup depth would be equal to or greater than the OD of the tubing.

The corresponding section the Residential code has an additional "or" in the paragraph. This goes back to the 2009 NCFGC, where the only options were fittings or brazed. When press-connect fittings were added in the 2012 NCFGC, the "or" was replaced with a comma and the "or" was moved to between brazed

NC Fuel Gas

1st Qtr. 2020 Code Answers in brown (Jan-Mar) 2nd Qtr. 2020 Code Answers in green (Apr- Jun)
3rd Quarter 2020 Code Answers in blue (Jul-Sep) 4th Quarter 2020 Code Answers in red (Oct-Dec)

and press-connect fittings. The code language has not changed, and swage connections are acceptable.

403.10.2 Tubing joints. Tubing joints shall be made with approved gas tubing fittings, brazed with a material having a melting point in excess of 1,000°F (538°C) or made with press-connect fittings complying with ANSI LC-4. Brazing alloys shall not contain more than 0.05-percent phosphorus.

404.5 - Question: Are access panels required for gas piping located in a wall?

Answer: An access panel would only be required if the fittings in the wall are not approved for installation in a concealed location.

1. Threaded elbows, tees and couplings.
2. Brazed fittings.
3. Welded fittings.
4. Fittings listed to ANSI LC-1/CSA 6.26 or ANSI LC-4.

Fittings other than the above listed would require access.

409.5 - Question: Can the shut off for a gas light on a porch be located in the crawl space or attic?

Answer: Section 409.5 requires that a shutoff valve be supplied for each appliance in the same room within 6 feet of the appliance and requires that the valves have access.

Section 9.6.5.3 of NFPA 58-2018 allows manifolds to be located within 50 feet of the appliance served and requires that the valves be readily accessible and permanently identified as to what appliance they serve. This would be an alternate method to the code if you use it.

To be readily accessible the manifold and valves should be within 3 feet of the point of entry into the crawlspace or attic, similar to what we do with a water heater in a closet.

NC Fuel Gas

1st Qtr. 2020 Code Answers in brown (Jan-Mar) 2nd Qtr. 2020 Code Answers in green (Apr- Jun)
3rd Quarter 2020 Code Answers in blue (Jul-Sep) 4th Quarter 2020 Code Answers in red (Oct-Dec)

501.14 - Question: Are Category IV vents required to be atleast 10 feet from the property line?

Answer: The design, sizing and installation of vents for Category IV appliances shall be in accordance with the appliance manufacturer's installation instructions. The code does not have a requirement for 10 foot separation from property lines. If the installation instructions does not prohibit the installation it would be allowed. The code does require a 10 foot separation to openings in an adjacent building in Section 503.8. This requirement does not address property lines, just the distance to another building; which could be across a property line.

501.14 Category II, III and IV appliance venting systems. The design, sizing and installation of vents for Category II, III and IV appliances shall be in accordance with the appliance manufacturer's instructions.

503.8 Venting system termination location. The location of venting system terminations shall comply with the following:

5. Vent systems for Category IV appliances that terminate through an outside wall of a building and discharge flue gases perpendicular to the adjacent wall shall be located not less than 10 feet (3048 mm) horizontally from an operable opening in an adjacent building. This requirement shall not apply to vent terminals that are 2 feet (607 mm) or more above or 25 feet (7620 mm) or more below operable openings.

Exception: If manufacturer's installation instructions allow closer clearances, those instructions can be followed.

Policy - Question: A. What are the clearance requirements from the building for a fire pit with gas log lighter in a single family residence?

B. What is the clearance if it is located on the deck?

C. What is the Mechanical or Plumbing inspector responsible to inspect in a fire pit with a gas log lighter?

NC Fuel Gas

1st Qtr. 2020 Code Answers in brown (Jan-Mar) 2nd Qtr. 2020 Code Answers in green (Apr- Jun)
3rd Quarter 2020 Code Answers in blue (Jul-Sep) 4th Quarter 2020 Code Answers in red (Oct-Dec)

Answer: (A) If the fire pit is less than 10 feet away from the residence or (B) if it is located on an attached deck a chimney shall be provided over the pit per the Building Code or the fire pit shall be listed for such installation.
(C) If the fire pit is more than 10 feet away from a residence or attached deck the inspector is responsible to inspect only the gas line and cut off. They are not responsible for checking listing and labeling of a decorative appliance.

Other - Question: I was told I need a permit for a like for like change out of a pool heater. I thought pool heaters were exempt from permitting if the change out was like for like?

Answer: There is no exemption for pool heaters. There are general statutes that exempt water heaters if like for like, but these don't apply to pool heaters.

Manufacture Instructions - Question: Can a 2 psi regulator be installed in a ceiling space with an access panel?

Answer: Yes, we can find nothing in the code to prohibit the installation. The manufacturer's installation instructions could not prohibit the installation. The access panel would need to be located and large enough to access and remove the regulator.