MECHANICAL PROBLEM CODES

DESCRIPTION	COMMENTS
CORRIDOR AS A RETURN PATH	Corridors shall not serve as supply, return, exhaust, relief or ventilation air ducts. (Ref. VMC 601.2)
EXIT ENCLOSURES AND PASSAGEWAY	Please notre that Duct or pipe penetrations through rated walls or ceilings of exit enclosures or exit passageways are not permitted except for reqd, exit doors, if the duct or pipe serves or communicates with other spaces in the structure. (IBC, 1023.4 and 1023.5)
GUARDS ON ELEVATED SURFACES	Please ensure that Guards shall be provided where appliances, equipment, fans or other components that require service and roof hatch openings are located within 10 feet of a roof edge or open side of a walking surface and such edge is located more than 30 inches above the floor, roof or grade below. The guard shall extend not less than 30 inches beyond each end of such appliances,equipment,fans,components that require service and roof hatch openings and the top of the guard shall not be less than 42 inches above the elevated surface adjacent to the guard. The guard shall be constructed so as to prevent the passage of a 21 inch sphere and shall comply with the loading requirements for guards specified in the Codes.(IBC, 1013.5 and VMC,304.11)
UL DESIGN # FOR FLOOR/CEILING	Please provide a U.L listing design number, prescriptive design per VCC section 721, or calculations in accordane with section 722 for the fire rated floor/ceiling (roof/ceiling) assembly. (Ref. IBC 703.2, 703.3)
FIRESTOP SYSTEM	Please provide an approved through-penetration firestop system for all duct penetrations through rated assemblies which are located within the cavity of a wall. (Ref. VMC 607.6.2.1(2), IBC 714.4.1.2)
COMBUSTION AIR DAMPER	Operation of Combustion air duct damper should comply with VMC 701.2. (Ref. VMC 701.2)
FIRE DAMPER AT RATED ASSEMBLY	Please provide fire dampers where air distribution system penetrates assemblies that are required to be rated. Ductwork located within a rated floor/ceiling or roof/ceiling assembly shall conform to all the requirements of the listed assembly. (Ref. VMC 607.5)
EQUIPMENT SHUTDOWN	Where ceiling radiation dampers are listed as static dampers, the HVAC equipment shall be effectively shut down to stop the airflow prior to the damper closing using one of the following methods: 1. A duct detector installed in the return duct. 2. An area smoke detector interlocked with the HVAC equipment. 3. A listed heat sensor installed in the return duct. (Ref. VMC 607.6.2.2)
RADIATION DMPRS AT FLOOR OP'G	Please provide ceiling radiation dampers where the air distribution system penetrates the ceiling of a floor/ceiling or roof/ceiling assembly which is required to be fire resistant rated. The ceiling radiation dampers shall be listed and labeled. Ductwork located within a rated floor/ceiling and roof/ceiling assembly shall conform to the requirements of the listed assembly. (Ref. VMC 607.6)
SMKE DMPRS AT SMOKE BARRIERS	Please provide smoke dampers where the air distribution system penetrates smoke barriers. The smoke damper shall be listed and labeled. (Ref. VMC 607.5)
SMKE DMPRS AT AIR TRANSFR OP'G	Please provide smoke dampers at air transfer openings in required smoke partitions. The smoke damper shall be listed and labeled. A smoke detector shall activate the smoke damper. (Ref. VMC 607.5.4)
ENERGY EFF. CALCS PER ASHRAE	Please provide energy efficiency design calculations and information in compliance with ANSI/ASHRAE/IESNA 90.1-2013 or 2015 VECC (Ref. VUSBC 109.3 and VECC C401.2)
DEMAND CONTROL VENTILATION	Please provide Demand controlled ventilation for space(s) larger than 500 square feet and with an average occupant load of 25 people per 1000 square feet of floor area as established in Table 403.3 of the VMC and served by one or more of the following: an air-side economizer, an automatic modulating control of the outdoor air damper, or a design outdoor airflow greater than 3000 CFM. (Ref. VECC C403.2.6.1)
PROVIDE AN ECONOMIZER	Please provide either an air or water economizer for each cooling system based on Table C403.3(1) criteria. Please clarify if any exceptions apply. (Ref. VECC C403.3.1)
ERV CROSS-LEAKAGE	Please state the amount of cross-leakage between air streams for ERV systems, (not to exceed 10% of air flow). (Ref. VMC 514.4)
PROVIDE ERV SYSTEM	Please provide an energy recovery ventilation system where the supply airflow rate of a fan system exceeds the values specified in VECC Table C403.2.6 Clarify if any exceptions apply. (Ref. VECC 403.2.7)
LOAD CALCULATIONS	Please provide heating and cooling load calculations for all new HVAC equipment. (Ref. VMC 312.1)
PROVIDE R NO. ON ARCH. PLANS	Please provide the R-value of all building insulation components on the architectural plans. (Ref. VECC C402, ANSI/ASHRAE/IESNA 90.1 2013)
PROVIDE WEATHER SEAL	Please provide details on the drawings that show weather seals will be used on cargo doors and loading dock doors to restrict infiltration when vehicles are parked in the doorway. Weather seals are also required under building envelope trade-off option under ASHRAE 90.1(2013) (5.4.3.3). (Ref. VECC C402.4.6)
R NO. FOR SLAB-ON-GRADE	Please ensure that the architectural or structural drawings shall note the minimum R-value and installed dimensions for the perimeter slab-on-grade floor insulation. Ref.(ANSI/ASHRAE/IESNA 90.1-2013)
MED GAS STORAGE DOORS LOUVERS	Please ensure that doors to medical gas storage areas must be equipped with 2 louvers which provide a minimum of 72 square inches of open area each. One opening shall be be within one foot of the floor and the other shall be within one foot of the ceiling. Door louvers must be dampered such that the 1 hour rating is maintained. Ref.(NFPA 99C 5.3.3.3.6.4 and VMC 607.5.2)
GREASE DUCT ENCLOSURE	Please provide complete and clear details on the plans showing an approved fire rated grease duct enclosure serving a grease duct for a Type I hood that penetrates a ceiling, wall, floor or any concealed space. The enclosure must start at the penetration and continue to the termination point outside. (Ref. VMC 506.3.11)
FIRE SUPRESSION INTERCONNECTIO	Please provide details on the plans showing the required automatic fire suppression system complying with the IBC and the IFC. (Ref. VMC 509.1).
KITCHEN HOOD DETAILS	Please provide detailed drawings for kitchen exhaust hood showing compliance with all subsections of VMC Section 507. Hood details must coordinate with mechanical plans. Factory built hood information must include: - Hood Type, model name and number, and equipment schedule. -Exhaust and make up air CFM -Type and surface area of grease filters. -Test information showing compliance to UL710 or UL710B. - Hood dimensions and gauge. (Ref. VMC 507.1)
IN-LINE EXHAUST FAN	Please provide details for in-line exhaust fan to show compliance with requirements of VMC 506.5.1.2. (Ref. VMC 506.5.1.2)
INTERLOCK MAKE-UP AIR	Please show on plans a means to interlock the Mechanical makeup air system with the kitchen exhaust system. The mechanical makeup air system shall be automatically controlled to start and operate simultaneously with the exhaust system. (Ref. VMC 508.1)
PROVIDE MAKE-UP AIR	Please provide and/or show makeup air that is approximately equal to the amount being exhausted by the commercial kitchen hood exhaust system. The temperature differential between makeup air and the air in the conditioned space shall not exceed 10F (6C) except where the added heating and cooling loads of the makeup air do not exceed the capacity of the HVAC system. (Ref. VMC 508.1 and 508.1.1)
POLLUTION CONTROL UNIT	Pollution control units shall comply with all requirements of VMC 506.5.6. Provide details to show compliance on plan.(Ref. VMC 506.5.6)

HEAT SENSOR INTERCONNECTION	Please verify on the plans the means to automatically activate the commercial kitchen grease exhaust fan wherever cooking operations occur. (Ref. VMC 507.1.1)
GREASE DUCT SLOPE	Please provide on the plan the required slope and direction of slope for horizontal sections of the grease duct. Indicate the locations of required cleanouts. (Ref. VMC 506.3.7 and 506.3.8)
PROVIDE TYPE II HOOD	Please provide a Type II kitchen hood at or above all commercial food appliances or dishwashing appliances that produce heat, steam, or products of combustion, but do not produce grease or smoke. (Ref. VMC 507.2.2)
PROVIDE TYPE I HOOD	Please provide a Type I commercial kitchen hood at or above all commercial food heat processing appliances that produce grease vapors or smoke. (Ref. VMC 507.2.1)
EVAL/UL RPT TO UL710 FOR HOOD	Please provide a UL or VMC Evaluation report for the factory built grease hood demonstrating compliance with UL Standard 710 or 710B. (Ref. VUSBC 109.3 and VMC 507.1)
GREASE DUCT AIR VELOCITY	Please ensure tyhat type 1 hood grease duct systems must provide a minimum air velocity of 500 feet per minute. (Ref. VMC 506.3.4)
SEAL OR MASTER/CLASS A	The mechanical drawings shall bear the seal and signature of the registered design professional in the Commonwealth of Virginia. (Virginia Administrative Code, Title 18, Section 10-20-760, section B). Additonal information is available at https://www.fairfaxcounty.gov/landdevelopment/signed-and-sealed-drawings
CODE MODIFICATION REQUEST REQ.	Because the proposed design may not specifically comply with the letter of the code, a written code modification request may be submitted for review by the Building official for approval or denial. Please use the following link to complete the code modification request form: https://www.fairfaxcounty.gov/landdevelopment/sites/landdevelopment/files/assets/documents/forms/code_modification_request.pdf
MINIMUM DRAWING SIZE	The minimum size drawing for a commercial plan submission is 21"x 30". The minimum scale is 1/8"=1'. (Ref. VMC 109.3)
IDENTIFY AND LABEL ALL ROOMS	Please identify and label all rooms and room uses on the plans. (Ref.VMC 109.3)
INFORMATION LACKING	Please submit a complete set of plans showing all aspects of the scope of work. It appears that the plans submitted have not clearly shown the information necessary to complete a full review. (Ref. VMC 109.3)
NOT A MECHANICAL FAST TRACK	Please note, the plans do not comply with the criteria for the Fast Track Program. The mechanical review will be conducted through the standard submission procedures. (Ref. VPC 109.1, 109.3, and 109.4)
NOT A MECHANICAL WALK-THRU	These plans do not fall under the criteria required for a mechanical walk through submission. A mechanical review will be conducted, in turn, through the standard submission procedures.
COMPLETE HVAC PLANS	Please provide two (2) complete sets of mechanical (HVAC) plans showing the following components of the air distribution system: (1) Airflow (CFM) at each diffuser and register. (2)Sizes of all diffusers, registers, and grilles. (3) Sizes of all sections of ductwork. (4)Total supply airflow capacity (CFM) of HVAC equipment. (5) Total amount of outside air (CFM) introduced into the HVAC equipment. (6)Total heating capacity of the equipment (include both the input and output ratings). (7)Total and sensible cooling capacity of the equipment. (8) All vent sizes and details of venting, including the termination points outside. (9) Show all control devices, sensors, and related accessories. (10) All exhaust fans schedule and duct sizes and details of routing, including the termination points outside.
PLENUM FIRE AREA	Plenums shall be limited to one fire area. Plenum enclosure construction should comply with VMC 602.2. (Ref. VMC 602.1)
AC OVERSIZED	It appears that the Air conditioning unit specified on drawings is oversized per the load calculations provided in accordance with ASHRAE/ACCA Standard 183. Please provide the manufacturers specifications for the next available smaller unit size. (Ref.VMC 109.3 and VMC 312.1)
AC UNDERSIZED	It appears that the Air conditioning unit specified on drawings is undersized per the load calculations provided in accordance with ASHRAE/ACCA Standard 183. Please provide the manufacturers specifications for the next available larger unit size. (Ref. VMC 109.3 and VMC 312.1)
SUBMITTED COPIES ONLY	All submitted certifications are copies of an original. Provide the original certification for county retention.(Ref. VMC 109.3)
DUCT SIZES INSUFFICIENT	Duct sizes and/or quantities are insufficient for the following rooms:
HEATING OVERSIZED	It appears that the Heating system unit specified on drawings is oversized per the load calculations provided in accordance with ASHRAE/ACCA Standard 183. Please provide the manufacturers specifications for the next available smaller unit size. (Ref. VMC 109.3 and VMC 312.1)
HEATING UNDERSIZED	It appears that the Heating system specified on drawings is undersized per the load calculations provided in accordance with ASHRAE/ACCA Standard 183. Please provide the manufacturers specifications for the next available larger unit size. (Ref. VMC 109.3 and VMC 312.1)
REFRIGERANT TYPE/LBS	Please provide refrigerant type and total amount per system. Provide refrigerant volume calculation for the variable refrigerant flow (VRF) systems in order to determine the maximum permissible quantity of refrigerant in the system for non-communicating spaces.(Ref. VMC 1104.4.1)) For guidance on compliance options refer to Technical Bulletin on Variable Refrigerant Flow Systems published by Fairfax County. Go to fairfaxcounty.gov and search on "vrf."
RETURN AIR PROHIBITED LOCATION	Return air for forced-air heating and cooling systems shall not be taken from any of the following locations: A kitchen, closet, bathroom, toilet room, garage, boiler room, furnace room, or unconditioned attic. Please verify if any exceptions apply. (Ref. VMC 601.5(7))
SIGNATURE OF LICENSED PROFESSI	The heat loss/gain certification form must be signed by the architect/engineer, owner, or master tradesman responsible for the design of this system. Attempts at locating the name or license number provided on the certification form through the DPOR web site have been unsuccessful. Please clarify and correct this. See the Code of Virginia Title 54.1-402.
COOLING TOWER INFO NEEDED	QUESTION: Does the design for this building include a cooling tower? If yes, please provide via email at _____@FAIRFAXCOUNTY.GOV the following information: 1) To what system is the cooling tower discharging into? Sanitary or storm 2) Please email me a PDF of mechanical plan showing the location(s) of the cooling tower. 3) Please email me a PDF of the plumbing riser diagram for domestic water and either the sanitary or storm referring to the cooling tower. 4) Please confirm that you have reviewed the information on www.fairfaxcounty.gov/publicworks/stormwater/cooling-towers Please note that this comment will be marked resolved as soon as I get this information.
ASHRAE 62.1 REFERENCE WRONG	Please provide outside air calculations per section 403 of the Virginia mechanical code. Outside air calculations provided per ASHRAE standard 62.1, are not acceptable as it is not a referenced standard. Only appendix A of ASHRAE 62.1 may be used to determine the system ventilation efficiency.(Ref. VMC 403 and 403.3.2.3.2)
AIR BALANCE CALCULATION	Please provide an air balance schedule for the following spaces: (Ref. VMC 109.3 and VMC 403.1, 501.4)
CFM DIFFUSERS AND GRILLS	Please indicate on the plans the design airflow (cfm) at each diffuser, register, and grill. (Ref. ICVMC 109.3 and VMC 403.1, 403.3)

SECONDARY DRAIN SYSTEM	Please provide a secondary drain system for equipment that produces condensate, where damage to the building components will occur as a result of an overflow from the equipment drain pan or stoppage in the condensate drain piping. (Ref. VMC 307.2.3)
EZ FOOTNOTE G	Please provide information to justify zone air distribution effectiveness value of 1.0. (Ref. VMC 109.3 and VMC 403.3.1.2 note g)
MAKEUP AIR	Please clarify on the plans how makeup air is provided for the exhaust system. (Ref. VMC 501.4, 504.6)
MINIMUM OUTSIDE AIR	Provide outside air into the HVAC system at a rate not less Please provide outside air into the HVAC system at a rate not less than that determined in accordance with VMC section 403. Please provide a table showing calculated OA and also ensure that resulting CFM of outside air match with HVAC equipment schedule for each unit. (Ref. VMC 109.3 and VMC 403)
PROVIDE MEANS OF RETURN AIR	Please show the means of return air from all spaces to the main HVAC equipment. (Ref. VMC 109.3 and VMC 403.1)
REMAINING SPACES	For multi zone systems, please include the entire space served by the ventilation system in the outdoor air calculations table. Provide the CFM values for the spaces in the scope of work and the remaining spaces (that may be outside the scope of work) served by the common ventilation system. (Ref. VMC 109.3 and VMC 403.3.1.1.2.3)
UNIT SA/OA	Please provide schedule showing the total supply airflow rate (CFM) of the HVAC system and the minimum amount of outside air introduced into the system. (Ref. VMC 109.3 and VMC 403.3)
DUCT, DIFFUSER, GRILL SIZES	Please show on the drawings the sizes of the HVAC system components, including all sections of ductwork, diffusers, registers and grills. (Ref. VMC 109.3)
SMOKE DETECTOR OPERATION	Please indicate on the plans the sequence of operations for the required smoke detector in the air distribution system. Sequence must comply with VMC 606.4. (Ref. VMC 606.4)
SMOKE DETECTOR	Please provide Smoke Detectors on the return air side of the system upstream of any outside air connections, exhaust air connections, decontamination equipment, or filters; for air distribution systems with a capacity greater than 2,000 CFM or where multiple air handling systems share a common supply or return and have a combined design capacity greater than 2,000 CFM. (Ref. VMC 606.2)
VENTIALTION RATE OCC. LOAD	Occupant loads and ventilation rates shall be determined from table 403.3. (Ref. VMC 403.3)
DRYER BOOSTER FAN	Dryer exhaust duct power ventilators shall be listed and labeled to UL 705 for use in dryer exhaust duct systems.(Ref. VMC 504.5)
DRYER EXHAUST IN PLENUM	Please note that the clothes dryer exhaust duct shall not extend into or through ducts and/or plenums. Please revise the drawings. (Ref. VMC 504.4)
MANUFACTURER'S DRYER EXHAUST	Please clarify that the dryer's duct length including equivalent length for fittings from the connection to the transition duct from the dryer to the outlet terminal is less than 35 feet. Otherwise, please provide manufacturer installation instruction to show the maximum length of exhaust duct. (Ref. VMC 504.8.4)
OUTLET/INLET AIR LOCATIONS	Please indicate all exhaust outlets and air intake locations on the plans. Notes may be utilized to reinforce requirements, but shall not conflict with floor plan information. (Ref. VMC 401.4, 501.3)
EXHST FOR CAR REPAIR, GARAGES	Please provide a minimum of 0.75 CFM per square foot of exhaust directly to the outdoors for repair shops, service stations, and public garages. The inlet of the exhaust shall be located in the area of heaviest concentration of contaminants. (Ref. VMC 403.3, 502.1.1)
EXHAUST FOR JANITOR'S CLOSET	Please provide an exhaust system for any enclosed room which houses a mop sink. (Ref. VMC 401.6)
NAIL SALON EXHAUST	Please provide a source capture system for all manicure and pedicure stations capable of exhausting no less than 50 CFM per station. The source capture system shall be in the immediate vicinity of the source. Systems that capture vapors and fumes, passes them through a filtering system and then recirculates the air back into the room is not permitted. (Ref. VMC 403.3 note h, VMC 502.20)
RECIRCULATION OF AIR PROHIBIT	Please provide mechanical exhaust for space(s) where recirculation of air to other space(s) is prohibited.(e.g. Toilet rooms) (Ref. VMC 403.2.1 and Table 403.3, including footnotes b and g)
SMOKE EXHAUST IN PLENUMS	Please indicate on the plans if the space above the dropped ceiling is being used as a plenum return. If this space is being used as a plenum return, the partitions surrounding the smoking lounge must extend full height to the underside of the roof deck to prevent the migration of smoke into the plenum space and causing the smoke to be recirculated into the non-smoking areas. VMC 403.2.1 Additionally, if the space above the ceiling is being used as a plenum return, an inline exhaust fan shall not be permitted. This fan will cause the exhaust duct to be under a positive pressure. (Ref.VMC 601.4)
EXHST FOR TOILET RMS	Please provide the required exhaust for toilet rooms; no less than 50/70 cfm per water closet or urinal. Exhaust shall discharge to the exterior of the building. (Ref. VMC 403.3 note e)
EXHST FOR FUMES/VAPORS	Please provide an exhaust system in areas where local sources of air-borne contaminants are generated, such as particulates, heat, odors, fumes, spray, vapors, smoke, or gases in such quantities as to be irritating or injurious to health. The exhaust shall discharge directly outside. (Ref. VMC 401.6)
EXHST FROM VEHICLES	Please provide an exhaust system (source capture system) that connects directly to the motor vehicle exhaust system (tailpipe) in motor vehicle repair areas, where stationary vehicles are operated. (Ref. VMC 502.14)