Mechanical Plan Review Record

2015 Virginia Mechanical Code (VMC)

Building Division/Building Plan Review Department
Fairfax County Land Development Services
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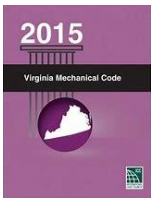

This plan review record shall be completed by the certified peer reviewer and submitted with the construction documents for Fairfax County Expedited Building Plan Review Program. This can also be used as a guide/ checklist by architects and engineers for construction-ready plans and for permit application.

Instructions. Complete the project-related information below. For each technical- or code-related item on the following pages, signify its compliance or applicability. The items listed in this plan review record are the most typical for most projects and do not constitute all design elements checked by peer reviewers or county staff.

Project Information

Project Name:_____

Street Address:_____

Parcel ID:_____ Permit Number:_____

Check all that apply:

☐ Tenant Layout/Tenant Improvement ☐ New Construction

☐ Other:_____

Designer Information

Name:_____

License No.:_____ Telephone:_____

Email:_____

Peer Reviewer Information (if applicable)

Name:_____

PR No.:_____ Telephone:_____

Email:_____

Code Information

Check all that apply:

☐ Virginia Construction Code (new commercial, multi-family and Group R-3 residential construction)

- ☐ New Building ☐ Addition

☐ Virginia Existing Building Code (existing commercial, multi-family and Group R-3 residential construction)

- ☐ Level 1 Alteration ☐ Repair ☐ Level 2 Alteration ☐ Change of Occupancy
- ☐ Level 3 Alteration ☐ Moved Building ☐ Historic Building ☐ Addition

A. General Building Information

Complies	N/A	
☐	☐	Building Division coversheet is provided.
☐	☐	Type of construction and listing of actual UL design numbers or prescriptive method for construction components based on required fire resistance ratings are shown.
☐	☐	The use of all rooms is shown.
☐	☐	A roof plan with all existing and new roof top equipment (HVAC units, exhaust fans, compressors, vent, etc.) is applicable to the project.
☐	☐	An equipment schedule is provided and includes all air handling equipment (fans, air conditioners, furnaces, cooling towers, indoor/outdoor units).
☐	☐	Sequence of operations for air handling equipment is included.
☐	☐	Appliances are listed and labeled for the application in which they are used unless otherwise approved in accordance with VMC Section 105.
☐	☐	Mechanical equipment is installed per VMC Section 304; associated guards are provided per VMC Section 304.11.
☐	☐	Condensate disposal complies with VMC Section 307; secondary drain system for indoor equipment complies with VMC Section 307.2.3 and County Code Section 67.1-2-1 and Fairfax County MS4 Permit.

B. Ventilation

Complies	N/A	
☐	☐	Every occupied space is ventilated by natural means or mechanical means per VMC Section 402 and 403.
☐	☐	Ventilation air intake opening is in compliance with VMC Section 401.4.
☐	☐	Recirculation air is in compliance with VMC Section 403.2.1 and Table 403.3 footnotes.
☐	☐	Minimum outdoor air requirement calculation table is provided for each zone and is in compliance with VMC Table 403.3 and Equations 4-1 through 4-8.
☐	☐	Occupant load and ventilation rate for outside air calculation is designed per VMC Table 403.3.1.1.
☐	☐	Outside air delivered to the unit is _____cfm ≥ outside air calculated_____cfm.
☐	☐	The design CFM for diffusers and grilles in each space is provided.
☐	☐	Air distribution systems or multiple air handling systems sharing a common supply or return with a shared capacity > 2,000 CFM are equipped with a smoke detector in the return, upstream of any outdoor air connection per VMC Section 606.2.1 and corresponding smoke detector controls operation complies with VMC Section 606.4.

C. Exhaust

Complies	N/A	
☐	☐	Location of exhaust outlets, dependent on location satisfies Items 1 through 5 of VMC Section 501.3.1.
☐	☐	Exhaust, makeup, supply, return and relief air is provided to maintain the pressure equalization in the space per VMC Section 501.4.
☐	☐	Enclosed parking garage is designed for 0.75 cfm per square foot of floor area per VMC Section 404.2. Air flow is not reduced below 0.05 cfm per square foot of the floor area where carbon monoxide and nitrogen dioxide detectors are installed per VMC Section 404.1.
☐	☐	Stationary storage battery system spaces are designed with continuous ventilation at a rate of not less than 1 cfm per square foot per VMC Section 502.4.2.

Complies N/A

- ☐ ☐ Storage areas of compressed medical gases in amounts exceeding the permit limits outlined in the International Fire Code, with no exterior walls are exhausted through a duct to the exterior of the building at a minimum rate of 1 cfm per square foot per VMC Section 502.9.1 within a 1-hour rated shaft enclosure.
- ☐ ☐ Repair garage/motor vehicle operation areas have source capture ventilation systems and mechanical ventilation equal to 0.75 cfm of exhaust per square foot per VMC Section 502.14.
- ☐ ☐ Manicure and pedicure stations without factory-installed exhaust inlets are provided with exhaust inlets located not more than 12 inches horizontally and vertically from the point of chemical application per VMC Section 502.20. Associated ventilation is per VMC Table 403.3.1.1.
- ☐ ☐ Toilet room exhaust discharges to the exterior of the building at a minimum rate of 50/75 cfm per water closet or urinal per VMC Section 403.3.1.1 footnote e.

Clothes dryers:

- ☐ ☐ Manufacturer's installation instructions for the exhaust system are provided.
- ☐ ☐ Details on the plans match manufacturer's details including duct size, location, and termination.
- ☐ ☐ Makeup air is provided for installations exhausting more than 200 cfm per VMC Section 504.6.
- ☐ ☐ Clothes dryers installed in closets have opening areas not less than 100 square inches or makeup air is provided.
- ☐ ☐ Dryer exhaust duct length is maximum of 35 feet or is determined by the dryer manufacture.
- ☐ ☐ Clothes dryer exhaust ducts do not extend into or through ducts or plenums.

Commercial Kitchen:

- ☐ ☐ Type II hood is installed at or above all commercial food heat processing equipment that produce fumes, steam, odor, or heat per VMC Section 507.3.
- ☐ ☐ Type I commercial kitchen hood is installed at or above all commercial food heat processing appliances that produce grease vapors or smoke.
- ☐ ☐ A UL or International Code Council Evaluation Service (ICC-ES) report for a factory-built grease hood in compliance with UL Standard 710 is provided.
- ☐ ☐ Provide exhaust and makeup air calculations for the kitchen or the entire space as applicable. Include all sources of exhaust air and makeup air.
- ☐ ☐ Commercial cooking appliances to have a Type I hood provided with an automatic fire suppression system.
- ☐ ☐ The exhaust fan serving a Type I hood has means of interlock between appliance and hood per VMC Section 507.1.1. Mechanical makeup air system Is automatically controlled to start and operate simultaneously with the exhaust system.
- ☐ ☐ Type I hood and its grease duct complies with clearance requirements of VMC Sections 507.2.6 and 506.3.6.
- ☐ ☐ Ducts serving Type I hoods comply with duct construction requirements of VMC Section 506.3.1 and enclosure requirements of VMC Section 506.3.11.
- ☐ ☐ The following is included in the factory-built hood information (check all that apply):
  - ☐ Hood type, model name and number, and equipment schedule.
  - ☐ Exhaust and makeup air CFM.
  - ☐ Type and surface area of grease filters.
  - ☐ Test information showing compliance to UL 710 or UL 710B.
  - ☐ Hood dimensions and gauge.

Complies N/A

- ☐ ☐ Duct grease accumulation and cleanout per VMC Sections 506.3.7 and 506.3.9.
- ☐ ☐ Duct slope meets the minimum requirements of VMC Section 506.3.7.
- ☐ ☐ Termination location of exhaust fan serving Type I hood complies with VMC Section 506.3.13.1, (2), (3).
- ☐ ☐ Installation of pollution control unit complies with VMC Section 506.5.6.

D. Combustion Air

Complies N/A

- ☐ ☐ Adequate means of combustion and dilution air for fuel-burning appliances in a space based on the simultaneous operation of all appliances is provided per VMC Section 701.1.

E. Ducts and Dampers

Complies N/A

- ☐ ☐ Corridors are not served as supply, return, exhaust, relief, or ventilation air ducts per VMC Section 601.2. ☐ Exceptions apply
- ☐ ☐ Return air in plenum complies with one or more condition specified in VMC Section 601.2.1.
- ☐ ☐ All ducts are properly insulated per VMC Section 604.
- ☐ ☐ Return air is not obtained from a closet, bathroom, toilet room, kitchen, garage, boiler room, furnace room or unconditioned attic per VMC Section 601.5.
- ☐ ☐ Size of the HVAC system components including ducts, diffusers, registers, and grilles are provided and in compliance with VMC Section 603.2.
- ☐ ☐ Ductwork located within rated floor/ceiling and roof/ceiling assemblies conform to listed assembly requirements.
- ☐ ☐ Ducts connecting multiple floors are provided with penetration protections per VMC Section 607.6.1 or 607.6.3.

Fire dampers:

- ☐ ☐ Fire dampers are provided where air distribution system penetrates assemblies required to be rated per VMC Section 607.5.
- ☐ ☐ Fire dampers are listed, labeled, and comply with UL 555.

Ceiling radiation dampers:

- ☐ ☐ Ceiling radiation dampers are provided where the air distribution system penetrates the ceiling of a floor/ceiling or roof/ceiling assembly which is required to be fire resistant rated per VMC Section 607.6.2.
- ☐ ☐ The ceiling radiation dampers are listed, labeled, and comply with UL 555C.
- ☐ ☐ For static type ceiling radiation damper, proper shut down method is provided per VMC Section 607.6.2.2.

Smoke dampers:

- ☐ ☐ Smoke dampers are provided where the air distribution system penetrates required smoke barriers or smoke partitions per VMC Section 607.5.4.
- ☐ ☐ The smoke damper is listed, labeled, and comply with UL 555S.
- ☐ ☐ Smoke dampers at air transfer openings in required smoke partitions are activated by a smoke detector per VMC Section 607.3.3.2.

F. Specific Appliances

Complies	N/A	
☐	☐	Factory-built fireplaces are listed and labeled in accordance with UL 127.
☐	☐	Fireplace stoves are tested in accordance with UL 737.
☐	☐	Solid fuel type room heater is tested accordance with UL 1482.
☐	☐	Oil fired unit heater is tested in accordance with UL 731.

G. Boilers, Water Heaters and Pressure Vessels

Complies	N/A	
☐	☐	Water system serving to both potable and space heating is provided with a temperature actuated mixing valve per VMC Section 1002.2.2.
☐	☐	Steam boiler is provided with pressure safety valve per VMC Section 1006.1.
☐	☐	Hot water boiler is provided with safety relief valve per VMC Section 1006.2.
☐	☐	Working clearance and top clearance is provided for boiler instillation per VMC Section 1004.3.
☐	☐	Steam and hot water boilers are protected with low-water cutoff control per VMC Section 1007.
☐	☐	An expansion tank is installed in each hot water system per VMC Section 1009.

H. Refrigeration

Complies	N/A	
☐	☐	Permissible amount of refrigeration charge calculation is provided per VMC Section 1104.4.
☐	☐	Pressure relief devices, fusible plugs and purge systems located in refrigeration machinery room is terminated outside of the structure, 15 feet above the adjoining grade level and not less than 20 feet from any window, ventilation opening or exit per VMC Section 1105.7.
☐	☐	Refrigerant piping is not installed in an enclosed public stairway, stair landing or means of egress per VMC Section 1107.2.
☐	☐	Machinery room meets the general and special requirement per VMC Sections 1105 and 1106.

I. Oil and Gas Piping

Complies	N/A	
☐	☐	Appliance is designed for use with the type of fuel to which it will be connected per VMC Section 1301.3.
☐	☐	Fill pipe terminates outside of building and 2 feet from any building opening per VMC Section 1305.6.

J. Solar System

Complies	N/A	
☐	☐	System design and installation complies with VMC Chapter 14.

K. Energy

Complies	N/A	
☐	☐	Energy compliance path is identified, and complete set of documentation is provided to establish compliance per Virginia Energy Conservation Code (VECC) Section C401.2.
☐	☐	The R-value and U-factor for building envelope components and fenestrations, respectively are noted on the architectural drawings, or envelope compliance certification is provided per VECC Section C402.
☐	☐	A vestibule is provided per VECC Section 402.5.7.
☐	☐	A heating and cooling load calculation is provided per American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)/Air Conditioning Contractors of America (ACCA) Standard 183 or approved equivalent for new HVAC units per VMC Section C403.2.1.

Complies	N/A	
☐	☐	Equipment meets the minimum efficiency requirements per VECC Section C403.2.3.
☐	☐	Demand controlled ventilation is provided for the spaces larger than 500 square feet and with an average occupant load of 25 per 1,000 square feet per VECC Section C403.2.6.1.
☐	☐	Systems include energy recovery system where required per VECC Section C403.2.7.
☐	☐	Fan-equipped cooling system has an air or water economizer per VECC Section C403.3.
☐	☐	Sequence of operation for economizer, demand control ventilation and thermostat are provided.