



Plan Review Requirements Plumbing/Gas

Department of Planning & Development Review, Bureau of Permits and Inspections
900 East Broad Street, Room 108
Richmond, Virginia 23219
Office: (804) 646-4169

<https://www.rva.gov/planning-development-review/permits-and-inspections>

2021 Code Cycle

January 18, 2024*

All plumbing and gas projects require plans except for single family or two-family dwellings. Where permitted by this handout a master plumber (or gas fitter for gas systems) may prepare the plans provided the plans are of the same quality and detail as normally provided by an engineer. This checklist is to be used by the design professional to ensure the plans will meet the minimum standards required by the City of Richmond.

All project documents under a commercial plumbing/gas permit application shall be in PDF format and are required to be submitted through the City's OneDrive.

<https://www.rva.gov/planning-development-review/one-drive>

The requirements herein may not be required for all submissions. Please contact the Bureau of Permits and Inspections if you are unsure of which requirements are necessary for your project.

Applicable Codes:

The designer shall comply fully with the following codes and specify on the plans which edition the plans have been designed under.

Virginia Construction Code (VCC)-2021	ICC/ANSI A117.1 Accessibility Standards- 2017
Virginia Energy Conservation Code (VECC)-2021	Virginia Plumbing Code (VPC)- 2021
Virginia Fuel Gas Code (VFGC)- 2021	Virginia Mechanical Code (VMC)- 2021
Virginia Existing Building Code (VEBC)- 2021	NFPA 58/ Liquefied Petroleum Gas Code- 2011

Section A: General Requirements for Plumbing and Gas Projects:

01	<p>The following items are required for all plumbing/gas plans submitted in PDF format:</p> <ul style="list-style-type: none"> • All plans shall be bound into one PDF file. For post-permit revisions, submit only the modified plans along with a clarification letter. • All plans to be “to scale”, the same size and be neat and legible. Provide graphical scales on each plan that has scaled floorplan(s). Minimum plan size shall be 11” x 17”. • All plans shall be signed (sealed for engineered plans) and dated by the Professional Engineer or Master Plumber/Gas Fitter who designed the plans. • All plans shall have a blank space that is 3.5” x 2” located near the bottom-right corner, for the City of Richmond’s approval stamp. Do not create a box for the stamp, the City will determine where to put the stamp. • The plans shall contain only the scope of work required for this permit only. • Within the scope of work, all rooms/areas (including hallways, closets, and other non-living areas) shall be labeled with their use (include dwelling unit number as well). • For projects with more than one plan, a plan legend shall be shown on the first plumbing/gas plan sheet. • Each plan must have a complete title block. (See example below) • Provide a legend for all symbols and abbreviations/acronyms (include room name abbreviations and any abbreviations of devices in the panel schedules, one-line, etc.), preferably on the first plumbing/gas plan sheet. • All text on the plans shall be at least 0.125” in height. Photometrics text shall be at least 0.1” in height.
02	All submissions shall include the following contact information for the engineer of record and contractor: Name of contact, address of contact, phone number of contact, and email address of contact.
03	If there is any work on the exterior of the building or on the site, a site plan clearly showing the property lines is required. This plan must be sealed by the Professional Engineer or Master Tradesman. (See section B1)
04	Show all of the engineering details required in this checklist on the plans. Providing this information in the specifications only is not sufficient.
05	Plans that have other City stamps on them will not be accepted. Make sure you submit a clean set of plans with no other City stamps on them.
06	New work shall be differentiated from that which exists. The plans shall make it clear what is new and what is existing.
07	Indicate occupancy load, use group (if this is a change of use please indicate) and building construction type on the plans.

Project Information/Must Appear On the Front Plan

Building Code Year:	Plumbing Code Year:	Construction Type:
Use Group:	Change of Use?	Occupancy Load:
Project in a Flood Plain?	BFE per NGVD1929?	DFE?
Is the IEBC being used?	Level:	

Title Block/Show on Each Page

Project Name:	Project Address:
Designer’s Name:	License #
Email:	Page #

Plan Review Procedure:

Plans will be reviewed in the order they are received.

Plans that require additional information or that have code deficiencies will have a plan review comments sheet emailed to the listed applicant.

It is the applicant’s responsibility to get the plans back within 30 days. Failure to do so may result in the permit being denied.

An email will be sent to the applicant once the plans are approved and the permit is issued. This will be available at that time on the permit portal.

Revised Plans:

Upload revised plans directly to the permit portal. **You will need to email the plan reviewer to notify that you have done this as they will not be automatically notified.** For instructions on uploading to the portal visit rva.gov or contact the reviewer.

Revised plans are required to be the same size as the original plans.

Provide clouds around areas of change with numbered revision triangles.

Provide revision triangles with a number, description and date.

Provide a complete list of all plumbing and gas drawings, include all revisions and dates.

Do not skip revisions, submit all revisions for review that affect the permit.

The following information is required on plans per 2021 VCC/VPC/VFGC 109.3

01	Public/Private Sewers and Water Services: <ul style="list-style-type: none"> All water and sewer lines on private property are assumed to be privately owned and will fall under the plumbing code. If any portion of the above is intended to be publicly owned, you must show which portions will be publicly owned or in a utility easement with the easement boundaries shown. A letter from the Department of Public Utilities must confirm which portions they will be taking as public water or sewer and this letter must be attached to the plans.
02	Floor Plans/Fire Assemblies: <ul style="list-style-type: none"> Label all fire rated assemblies, fire walls, fire separation walls as to their rating in hours on all plumbing and gas plans. Provide UL listed fire-stopping details as found in the latest edition of the UL Fire Resistance Directory for the type of through penetration used. If no rated assemblies are on the project put a note on the plans to that effect. If no rated assemblies will be penetrated state “NO RATED ASSEMBLIES IN THIS SCOPE OF WORK”. Make the indications of rated assemblies easy to pick out from the rest of the plans using darkened lines or hatched lines that show up well.
03	Flood Plain: <p>Show the Design Flood Elevation on the title sheet. Design Flood Elevation is the NGVD29 Base Flood Elevation plus 12 inches. Show floor elevations using the same datum as the flood elevations on each floor plan.</p>
04	Elevator Pits: <ul style="list-style-type: none"> Show the indirect termination location of the drain. Show the piping material and fire-stopping detail. Include the information for any oil interceptor or oil minders.

05	Waste and Vent Riser Diagram-Isometric: <ul style="list-style-type: none"> Show all pipe sizes and label all connected loads, fixtures, drains, waste and vent lines.
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	<ul style="list-style-type: none"> • Show traps and all required cleanouts. • Show any on site waste treatment. (oil separator, grease interceptors, acid waste tanks, etc.) • State the type of pipe to be used. (PVC, cast iron, etc.) • The entirety of new systems and pertinent portions of existing systems must be shown. Flat two dimensional risers are preferred. Do not show typical risers for various parts of the building. All risers must be connected as they will be installed. Risers that do not show adequate detail and do not clearly demonstrate how the entire system will come together will not be approved.
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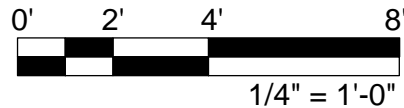
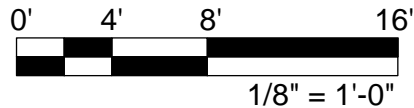
06	<p>Supply Risers-Isometric:</p> <p>Show all supply piping. Show the type of pipe. (copper, CPVC, PEX, etc.) Show sizes for all piping. Identify all connected devices and fixtures. Show all backflow prevention devices.</p> <p>The entirety of new systems and pertinent portions of existing systems must be shown. Flat two dimensional risers are preferred. Do not show typical risers for various parts of the building. All risers must be connected as they will be installed. Risers that do not show adequate detail and do not clearly demonstrate how the entire system will come together will not be approved.</p> <p>Show the connection point to the existing system. Show any required thermal expansion devices. Show the water heater, if new, and where the drains for the T&P relief valve and drain pan discharge. Show incoming water supply pressure and sizing calculations.</p>
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07	<p>Gas Risers-Isometric:</p> <p>Show all pipe sizes and types of pipe. Show the type of gas (Natural or Propane) Show lengths of all pipe including vertical runs. Show all loads in BTUs Show gas pressure (low, two or five pound) on the customer’s side of the gas meter. Show the locations of all shutoff valves and pressure regulators. Show the type of pressure regulators to be used and the venting of the pressure regulators.</p> <p>Do not show typical risers for various parts of the building. All risers must be connected as they will be installed.</p> <p>If connecting to an existing system, the entire system (pipe sizes, footages, and the total BTU load) must be shown. For propane systems, show the location of LP tanks and pipe sizes from the tank to the building and the location of all regulators.</p> <p>For propane systems, show the layout including dimensions to windows, openings into the building, sources of combustion and property lines.</p> <p>If there are rated assemblies being penetrated, show all rated assemblies on a floor plan and provide UL approved fire-stopping details. If there are no rated assemblies being penetrated state “NO RATED ASSEMBLIES IN THE SCOPE OF THIS WORK”.</p>
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08	<p>Storm Drainage:</p> <p>Show the location of roof drains. Include emergency roof drains or scuppers. Show the area served by each roof drain. (Richmond’s 100 year, 1 hour rainfall rate is 3.3” per hour) Indicate the piping material and the standard to be used. Indicate the slope of the piping. Show all connected loads on the floor plan.</p> <p>All site storm work plans (on private property) will need to be reviewed and inspected by the Department of Water Resources.</p>
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09	<p>Floor Plans:</p> <ul style="list-style-type: none"> • Show fixture locations. • Show grease interceptor locations and sizing calculations. • Show piping layouts for waste vent and water piping. • Show locations of waste and vent stacks in the walls. • Indicate any locations where non-metallic pipe will be installed in a plenum or return air ceiling. • Make sure all spaces and rooms are labeled as to their use. • Provide a plumbing fixture schedule. • The elevation of the finished floors in comparison to the upstream manhole may be required if it is not obvious that backwater valves will not be required.
10	<p>ADA Accessible Facilities:</p> <ul style="list-style-type: none"> • Show dimensions on all accessible rooms. Show the dimensions for lavatories, tubs, showers, water closets and sinks. Show the dimensions off walls, in front of water closets and between fixtures. • Indicate which fixtures are accessible. • Indicate mounting height for lavatories, water fountains and wall mounted water closets. • Show locations and lengths of horizontal and vertical grab bars at water closets. • Show the door swing of toilet compartments and restroom doors. • Show the required clear floor space at accessible fixtures.
11	<p>Site Plans/Domestic Water and Sanitary Sewer:</p> <p>Show the outlines of buildings.</p> <p>Show water service lines. (pipe sizes and type of pipe and standards)</p> <p>Show the locations of all thrust blocks.</p> <p>Show the size of the water meter.</p> <p>Show the depth of the water service pipe.</p> <p>Show sanitary sewer lines. (pipe sizes and type of pipe and standards)</p> <p>Show the location of all cleanouts.</p> <p>Show the percentage of slope and drainage fixture unit calculations for each section of the sanitary sewer.</p> <p>Show any manhole locations and how the piping will connect to the manholes.</p> <p>Show all outdoor backflow prevention devices.</p> <p>Show any streets and alleys and property lines.</p> <p>Show the locations and sizes of any external grease interceptors or oil separators and the sizing calculations.</p>
12	<p>Site Work/Domestic Water:</p> <p>Show all of the calculations used to size the water service and distribution system. This should include the following:</p> <p>The pressure at the water main in the street.</p> <p>The pressure drop through the water meter.</p> <p>The pressure drop through backflow prevention devices.</p> <p>The pressure drop due to static head.</p> <p>The pressure drop due to pipe friction.</p> <p>Provide the flow in gallons per minute.</p> <p>Provide the water pressure at the entrance in gallons per minute.</p> <p>Provide the difference in elevation between the water service and the highest point of the pipe in the building.</p> <p>Provide the distance from the street main to the building and to the farthest fixture.</p> <p>Provide the total water supply fixture units from the VPC Appendix E</p> <p>Provide the size, type and standards of the pipes.</p> <p>Provide the maximum pressure required at the farthest fixture.</p>

Example Graphical Scale



External Links

Department of Planning and Development Review—Forms and Applications:

<https://www.rva.gov/planning-development-review/forms>

City of Richmond GIS Flood Plain Map:

<http://cor.maps.arcgis.com/home/webmap/viewer.html?webmap=d039492bec5346c8a75de1b6340da1c8>

City of Richmond GIS Parcel Mapper:

<http://cor.maps.arcgis.com/apps/webappviewer/index.html?id=c3ed34c0fb38441fb95cd2d2d6a22d48/>

Virginia Construction Codes (2018 Edition – Virginia amendments only):

<https://dhcd.virginia.gov/sites/default/files/Docx/building-codes-regulations/archive-codes/2018/2018-virginia-construction-code.pdf>

Permit/Plan/Inspection Status:

http://energov.richmondgov.com/EnerGov_Prod/CitizenAccess/Site/Public/Main

City of Richmond's OneDrive:

<https://www.rva.gov/planning-development-review/one-drive>

Permit and Inspection Forms:

<https://www.rva.gov/planning-development-review/forms>

Contacts

Department of Water Resources contact:

alishia.wilson@rva.gov 804-646-7586

For assistance with permit intake and scheduling inspections:

pdrpermitsandinspections@rva.gov 804-646-1628

Department of Public Utilities:

dpucustserv@rva.gov 804-646-8544

Plumbing/Gas Plan Review:

thomas.walker@rva.gov 804-646-6966

Department of Public Utilities Cross Connection:

lawrence.williams@rva.gov 804-646-8510

Post-Permit Revised Construction Documents:

[The “revision date” should be based on the revision date located on the plan(s). All plans in the set shall have the same revision date]. For Post-Permit documents, do not use the “Plan Number” in the file name, only the “Permit Number” (see below for a list of file descriptions that the City accepts):

<file description>-<Street Address> - <permit number>-Rev <revision date>.pdf

Example file names:

Plans-6112 Three Chopt Road - PLBC-021780-2017-Rev 6-1-2017.pdf

Clarification Letter-6112 Three Chopt Road - PLBC-021780-2017-Rev 6-1-2017.pdf
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City accepted “file descriptions”.

Checklist

Clarification Letter (*Note: This letter is to clarify any modification to plans that the City did not comment on*)

Engineer Letter

Permit Application

Plan Intake Sheet

Plans

Response Letter (*Note: This letter shall contain responses to all City comments*)

Submittal Data

Section A-1

Resubmission Requirements

The following items are required for resubmission of plans.

Revised Plans - Due to Plan Review Comments	
01	<p>Provide a complete set of electronic (PDF) electrical Construction Documents. Plans shall be in one PDF file and shall not have any City stamps from any discipline within the City of Richmond or any other markings that are not original to the plans. Unless required by the plan reviewer, a checklist is not be required for re-submission. All submitted documents shall follow the naming convention in Section A-1.</p> <p>For plans being resubmitted due to comments for a “post-permit” revision, provide only the plans that were submitted for that post-permit revision (for example if only three plans were submitted in the post-permit revision, then resubmit those three plans). All documents required for resubmission based on plan review comments shall be submitted through the City’s online portal (the documents shall be uploaded under the plan number on the plan review comments. <u>Make sure email your plan reviewer once you have uploaded ANY document on the portal</u>):</p> <p>https://energov.richmondgov.com/energov_prod/selfservice#/home</p>
02	Revised plans are required to be the same size as original plans.
03	Provide a response letter, in PDF format with a file name based on Section A-1 , stating the resolution for each comment item. All comments shall be addressed in the response letter. Failure to provide this information will delay the permit being issued. Provide a detail response for each comment item. Responses of “Will Comply”, “Okay”, “Noted”, “Will Verify”, “This has been complied with”, and other responses that do not provide a detailed response will not be acceptable responses. Responses such as those noted, will be sent back for proper responses.
04	Provide clouds around response letter modifications only (do not cloud an entire area, since the modification might not affect that entire area, unless it’s a new plan, in that case cloud the plan number) with numbered revision triangles and remove clouds from previously issued revision(s).
05	Provide revision triangles with number, description and date.
06	All documents not listed above that are required for resubmission shall be in PDF format.
Revised Plans - For Revisions After Permit is Approved (Post-Permit Revision)	
07	<p>Provide a complete set (modified plans/documents only) of electronic (PDF) plumbing/gas Construction Documents for each dated revision. Plans shall be in one PDF file and not have any City stamps from any discipline within the City of Richmond or any other markings that are not original to the plans. A complete set of the plumbing/gas plans is not required for changes after the permit has been issued. Submit only the plans that were modified based on the clarification letter. For re-submitting post-permit plans based on plan review comments, see items in the “Revised Plans – Due to Plan Review Comments” above. Unless required by the plan reviewer, a checklist is not be required for resubmission. All submitted documents shall follow the naming convention in Section A-1. All documents shall be submitted through the City’s OneDrive. Make sure to submit a “Plan Intake Sheet” located on the last page of this document (Annex D) with the required documents.</p> <p>https://www.rva.gov/planning-development-review/one-drive</p>
08	Revised plans are required to be the same size as original plans, do not submit sketches.
09	Provide a clarification letter for each dated revision, in PDF format with a file name based on Section A-1 , stating all modifications per each plan. The clarification letter shall include the plan number and a detailed description of each modifications. Cloud each modification separately. Failure to provide this information will delay the permit being issued.
10	Provide clouds around modifications only (do not cloud an entire area, since the modification might not affect that entire area, unless it’s a new plan, in that case cloud the plan number) with numbered revision triangles and remove clouds from previously approved revision(s).
11	When a plan reviewer submits comments based on the post-permit plans, make sure NOT to add a new revision number and date. Keep all clouds and triangles based on the original post-permit number and date. If required to add a new revision number, KEEP the same date of the original post-permit submission.
12	Do not skip revisions, submit all revisions for review that affect the permit when they are issued; do not wait until 2 or 3 revisions have been made to submit for review.
13	There is a fee for revisions after the permit has been issued. For projects that are greater than \$500,000, there will be a one-time fee at the first revision. No other fees will be required for other revisions. For projects under \$500,000, a revision fee of 10% of the original permit application fee will be charged for all revisions after permit has been approved.
14	All documents not listed above that are required for resubmission shall be in PDF format.

Section B-1

Individual Responsible for Signing Plans (Code of Virginia §54.1-402)

Use Group	Description	Over Three Stories-new building or work under \$10,000.	Over 3 stories- new building or remodeling over \$10,000						
A1A	Theater With Stage	(2)	Sealed						
A1B	Theater - No Stage	(2)	Sealed						
A2A	Night Club	(2)	Sealed						
A2B	Restaurant	(2)	Sealed						
A3B	Museum/Art Gallery	(2)	Sealed						
A3C	Library, Exhibits	(2)	Sealed						
A3D	Passenger Terminal	(2)	Sealed						
A3E	Recreation Center	(2)	Sealed						
A3F	Lecture Hall	(2)	Sealed						
A3G	Restaurant Fast Food	(2)	Sealed						
A3H	Church	(2)	Sealed						
A3M	Misc. Assembly	(2)	Sealed						
A4A	Recreation Center	(2)	Sealed						
A5	Grandstand, Stadium	(2)	Sealed						
B1	Business: Auto Dealership	(2)	Sealed						
B2	Business: Doctor's Office	(1)	Sealed						
B3	Business: Bank	(2)	Sealed						
B4	Business: Car Wash	(1)	Sealed						
B5	Business; Fire Station	(2)	Sealed						
B6	Business: Funeral home	(1)	Sealed						
B7	Business: Laundry	(1)	Sealed						
B8	Business: Medical offices	(1)	Sealed						
B9	Business: Offices	(2)	Sealed						
B10	Business: Miscellaneous	(2)	Sealed						
E1	Education: School 1 to 12	(2)	Sealed						
E2	Daycare over 2 ½ years	(2)	Sealed						
F1	Factory Moderate Hazard	(2)	Sealed						
F2	Factory Low Hazard	(2)	Sealed						
H1,2,3,4,5	High Hazard	(2)	Sealed						
I1	Group Home 6 or More	(2)	Sealed						
I2A	Institutional Incapacitated	(2)	Sealed						
I2B	Day Nursery	(2)	Sealed						
I3	Institutional Restrained	(2)	Sealed						
I4B	Child Care 5 or More Under 2.5 Years	(2)	Sealed						
M1	Retail: Convenience Store	(1)	Sealed						
M2	Retail: Department Store	(1)	Sealed						
M3	Retail: Supermarket	(1)	Sealed						
M4	Retail: Store	(1)	Sealed						
M5	Retail: Service Station	(1)	Sealed						
R1H	Hotel	(1)	Sealed						
R1M	Motel	(1)	Sealed						
R2A	Dormitories	(1)	Sealed						
R2B	Multi-family - 3 or more units	(1)							
R3A	1 or 2 Family over 3 stories								
R4A	Assisted Living	(2)	Sealed						
R5	1 or 2 Family dwelling								
S1	Storage Moderate Hazard	(1)	Sealed						
S2	Storage - Low Hazard	(1)	Sealed						
U	Temporary, Miscellaneous	(2)	Sealed						

Gas plans are required for all commercial gas piping installations regardless of value.

Sealed- Professional Engineer's Seal Required.

- (1) Plans must be of the same quality and detail as those prepared by an engineer but can be done by the contractor's master plumber.
- (2) Sealed plans are normally required but may be waived on a case by case basis- the designer must be a master plumber or gas fitter and must demonstrate his knowledge of all codes involved and not just the plumbing code.



FILLED IN BY APPLICANT – All boxes in this section must be completed if applicable

Date:	Plan # –	Permit # –
Address:		

Your Name:	Email Address:
Phone Number:	Contractor Name:
Revision Description:	

Has the permit been issued	Yes	No	
For revised plans, are the changes clouded	Yes	No	Cost increase to job (if any) - \$
Revised due to plan review comments	Yes	No	Are the plans signed/sealed (if applicable)
	Yes	No	Revised due to design Changes: Yes No

FOR OFFICE USE ONLY

Date Received:	Date Reviewed:	10% Revision fee required:	Yes	No
Original Permit Fee - \$	Original Cost of Work - \$	New Cost of Work - \$		
Comments:				

Revision Resubmittal – Plan Intake Sheet
 Department of Planning and Development Review
 Bureau of Permits and Inspections
 900 East Broad Street, Room 108
 Richmond, Virginia 23219
 Phone (804) 646-4169