DEPARTMENT OF GENERAL SERVICES
BUREAU OF CAPITAL OUTLAY MANAGEMENT
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BCOM Newsletter

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In this Issue:

Designing to Comply with the Virginia Rehabilitation Code

Determining the scope of work required for renovation projects to satisfy the building code is often difficult. Whether the work consists of a small alteration or a complete building renovation, it is often challenging to determine just how much of the existing building requires upgrade to comply with the code.

History: The *Virginia Rehabilitation Code*, originally introduced in 2005, was established as a regulation to encourage use and improvement of existing buildings, protecting the public health, safety and welfare without increasing construction costs unnecessarily. The goal was to ensure that all new construction complied with the current building code, and that existing building conditions were maintained to their current level of compliance and safety or improved, as determined necessary, based on the scope of work and unique existing conditions for the specific project.

The 2003 VUSBC edition, effective November 16, 2005, introduced Part II, the *Virginia Rehabilitation Code* (VRC). At that time, the VRC was an **alternative** to implement renovation work in lieu of applying Part I, the *Virginia Construction Code* (VCC). However, beginning with the 2012 edition of the VUSBC, effective July 14, 2014, use of Part II, the *Virginia Rehabilitation Code* (VRC) became the **mandatory** regulation for rehabilitation, reconstruction, alteration, repair, and change of occupancy in buildings except in Group R-5; see *Virginia Construction Code* Section 103.

The 2012 *Virginia Uniform Statewide Building Code* (VUSBC) is divided into three stand-alone parts:

- **Part I, Virginia Construction Code (VCC):** Contains regulations specific to the construction of new buildings and structures.
- **Part II, Virginia Rehabilitation Code (VRC):** Contains regulations specific to the rehabilitation of existing buildings, including alterations, additions and change of occupancy in existing buildings and structures.
- **Part III, Virginia Maintenance Code (VMC):** Contains regulations for the maintenance of existing structures.

The *Virginia Rehabilitation Code* provides options and flexibility to obtain code compliance. In the early planning stages, it is important for the agency and designer to evaluate and determine which *one* of the three available compliance methods is most appropriate for the project. BCOM design submittals must

clearly identify the method selected, so the reviewers will understand the design intent.

The three compliance options are contained in **VRC** Chapter 3.

- **Option 1, VRC 301.1.1 - Prescriptive Compliance Method**: VRC Chapter 4 is applied. This chapter addresses specific minimum requirements for construction related to additions, alterations, repairs, fire escapes, glass replacement, change of occupancy (restricted), historic buildings, moved structures, and handicapped accessibility.
- **Option 2, VRC 301.1.2 - Work Area Compliance Method**: VRC Chapters 5 through 13 are applied. Code requirements are based on the scale and scope of work, using a proportional approach. A "classification of work" is established using VRC Chapter 5 that breaks down the level of work into various classifications, including: Repairs, Alteration Level 1, Alteration Level 2, Alteration Level 3, Change of Occupancy, Additions, Historic Buildings, and Relocated Buildings. Detailed requirements are given in Chapters 6 through 13.
- **Option 3, VRC 301.1.3 - Performance Compliance Method**: VRC Chapter 14 is applied. Existing buildings are evaluated on a numerical scoring system involving 19 safety parameters in three categories: fire safety, life safety and general safety. The provisions are not permitted to be applied to buildings with occupancies H or I. If the score is below the minimum acceptable level, the agency and designer need to determine the improvements needed to raise the score to an acceptable level.

On the Cover or Title Sheet of Drawings for rehabilitation projects, identify the applicable code and method of compliance. Suggested format:

Applicable Code:

Virginia Uniform Statewide Building Code, 2012 edition effective July 14, 2014

- **Part II - Virginia Rehabilitation Code (VRC), 2012 edition**
  (applies to all building additions, renovation, alteration, repair or change of occupancy)

VRC - Compliance Method: (*identify one*)

- **Prescriptive Compliance Method** (301.1.1) - using VRC Chapter 4.
- **Work Area Compliance Method** (301.1.2) - using VRC Chapters 5-13.
  (If this method is selected, also indicate the "*Classification of Work*" according to VRC Chapter 5.)
- **Performance Compliance Method** (301.1.3) - using VRC Chapter 14.

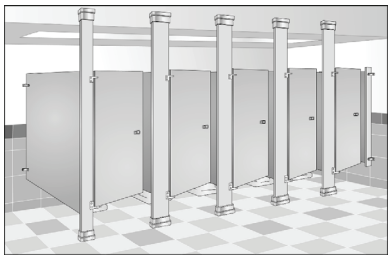
Summary: With all the flexibility allowed by the building code for rehabilitation work, it is important for designers to clearly and properly identify, on the project submittals, the selected code compliance method. This will facilitate the review process and move the submittals through BCOM faster. ❑

Plumbing Fixture Count Calculation and Code Application

The **VUSBC (VCC 1201.1)** requires plumbing fixtures in all occupied buildings and structures. Designers must consider questions such as:

- How many plumbing fixtures are required?
- Where can they be located?
- When are assisted-use (family) toilet rooms and bathing rooms required?
- How are assisted-use toilet and bathing rooms counted in the total fixture count?
- When are separate toilet rooms required?

The various scenarios for plumbing fixture counts are seemingly endless. Over the years, agencies have submitted various proposals on plumbing fixture calculation topics such as:



- Simultaneous and non-simultaneous occupant loads
- Two separate design occupant loads (one for fixtures and one for life safety)
- Private toilet rooms versus public toilet rooms
- Visitors and tenants in residential housing
- Gang or group-styled bathing rooms in R-1 occupancies
- Plumbing fixtures serving multiple buildings both attached and detached
- Utilization of existing fixtures and counts with the advent of the Virginia Rehabilitation Code.

Before discussing the resolution of these scenarios, let's first review some core definitions and building code fundamentals:

Definitions

Access. Access to plumbing fixtures shall be from within the building or from the exterior of the building. Plumbing fixtures shall be located in the building they serve. See **Location**.

Assisted-use (family) toilet room. This ASAD handicapped accessible room includes only 1 water closet and 1 lavatory each with the exception of 1 additional urinal is permitted.

Assisted-use (family) bathing room. This ASAD handicapped accessible room includes 1 water closet, 1 lavatory, and 1 shower or bathtub.

Location. The location of toilet rooms shall be not more than 1 story above or below the space required to be provided with plumbing fixtures. The distance of travel shall be no more than 500 feet. Location and access are two different code terms.

Plumbing fixtures. The minimum number of required plumbing fixtures includes water closets, lavatories, drinking fountains, service sinks, and bathtubs or showers for all buildings. In addition, emergency eyewash/ shower stations are required in factory and storage occupancies. Kitchen sinks and clothes washer connections are considered required plumbing fixtures for apartments and one- and two- family dwelling unit.

Private. Private toilet rooms are those located beyond public access.

Public. Public toilet rooms are required for customers, visitors, employees, guests, and tenants of the Commonwealth of Virginia. All public toilet rooms shall be accessible to the occupants at all times the building is open.

Separate facilities. Separate male and female toilet rooms are required for customers, visitors, employees and tenants where the design occupant load is greater than 15 occupants, except in mercantile occupancies where the occupant load does not exceed 100 occupants.

Simultaneous. Occupant loads are based on the use of the spaces acting simultaneously. In other words, all spaces in the building are occupied simultaneously. For examples, a lobby is occupied at the same time as the auditorium, a gymnasium is occupied at the same time as the fitness room or offices, and student apartments are occupied at the same time as an enclosed courtyard.

Type of Occupancies. As determined by the building code official, the type of occupancy can be prescribed to either an entire building or on a space-by-space of a building.

Code Fundamentals

Assisted-use toilet room: Several key factors to the application of the assisted-use toilet room include:

This room is required where an aggregate of 6 or more male and female water closets is required in assembly and mercantile occupancy types.

This room shall be located not more than 1 story above or below the space required to be provided with public toilet rooms. This location is at each floor where an assembly or mercantile occupancy type is identified. This requirement location causes multiple assisted-use toilet rooms in buildings 4-stories or greater with assembly occupancies on each level.

Only the plumbing fixtures within the required assisted-use toilet room or rooms are permitted to be included in the plumbing fixture count.

If permitted to be included in the count, the required assisted-use toilet room or rooms can be counted toward either the male or female counts.

Assisted-use (family) bathing room: This room is required in recreational facilities where separate sex facilities are provided irrespective of the overall plumbing fixture count. The plumbing fixtures located within the assisted-use (family) bathing room shall be included in the count toward the number of provided fixtures for either male or female, but not both.

Design Occupant Load (VCC 1004.1): The plumbing fixture count is based on the design occupant load. BCOM accepts and approves only one design occupant load for a building. The design occupant load shall be approved before plumbing fixtures are calculated.

Plumbing fixture calculations: Unless prior approval is granted, divide the design occupant load equally between male and female occupants before applying the ratios. All partial fractions are permitted to be carried to the totals before rounding up. Always round up. The plumbing fixture ratios are shown in VPC Table 403.1.

Plumbing fixture locations: Public accessibility shall be provided to all plumbing fixture locations. For example, a 4 -story building cannot locate all plumbing fixtures on the first floor and claim compliance. Plumbing fixtures shall be provided in the number and in the location of the spaces they serve. Calculating the plumbing fixture count on a per floor basis provides the assurance necessary to ensure the location of the fixtures meets the intent of the code.

Private: Private toilet rooms are not required, but when provided, these rooms shall be accessible. Moreover, these rooms shall not be included in the provided number of plumbing fixtures. Only public toilet rooms shall be considered in the provided number of plumbing fixtures.

VPC Table 403.1 Minimum Number of Required Plumbing Fixtures: Read all foot notes at the bottom of the Table. Important adjustments to the Table are included in the footnotes.

Resolutions

VPC 403.1.1 mandates the procedure for calculating the minimum number of required plumbing fixtures for new construction. There are numerous examples of plumbing fixture calculation in the IPC *Commentary* and the BCOM mechanical reviewer can further assist the agency representatives in the calculation. More notable scenarios, which have proven to be stubborn in the past, have been resolved. These plumbing fixture count applications include but are not limited to:

- Visitor toilet rooms serving study rooms and areas of assembly in residential housing projects.
- The use of group shower rooms in building occupancy type R1/R2.
- Private toilet rooms being included in the count of provided fixtures.
- Unequal number of fixtures on the floors they serve.
- Providing emergency eyewash/shower stations at required locations.
- The locations of the required assisted-use toilet rooms on several floors of a multiple story building.

The plumbing fixture calculation for alterations and renovation work performed under the Virginia Rehabilitation Code is mostly straightforward:

- Where the occupant load on a per floor basis is not increased by more than 20 percent, the number of existing plumbing fixtures is permitted to stand.
- Handicapped accessible plumbing fixtures (due to program changes) shall be provided for Alterations Levels 1 through 3 and Change of Occupancy work area compliance. ❑

BCOM Position Opening - Mechanical Review Engineer (EE006)

The Bureau of Capital Outlay Management seeks a qualified licensed Engineer to perform all tasks related to Mechanical Engineering Review of building plans and specifications. The successful applicant has: 1) a bachelor's degree in Engineering with emphasis in Mechanical Engineering, 2) a Professional Engineering license in Virginia, and 3) a valid driver's license. In addition the applicant has knowledge and experience in the application of the Virginia Uniform State Building Code, Virginia Mechanical Code, Virginia Plumbing Code, Virginia Fuel Gas Code, Virginia Energy Conservation Code, Americans with Disabilities Act, and state regulations.

Required attributes are: 1) substantial knowledge and experience in responsible charge (preferably with an A/E professional practice) for the design of HVAC and plumbing systems for new and renovated buildings for a variety of facility types and sizes, including engineering analyses, problem solving, contract document preparation, and inspection of construction in progress, 2) the ability to work independently under general supervision to prioritize and schedule normal workload and special deadlines; to communicate effectively orally and in writing in preparation of oral and written reports to management and clients, and to use good interpersonal skills and personal discipline to conduct interactions with work associates and clients in a professional, fair, and cooperative manner; and 3) the ability to use word processing, and agency specific software.

Selected candidates must pass a finger-print based criminal background check.

Apply through the Commonwealth of Virginia's recruitment website: http://jobs.virginia.gov

Pool Process Stages & Terminology

The Pool Process was established to develop project budgets incrementally through several stages of increasing accuracy so when projects are aggregated in a Construction Pool, Treasury can sell the right amount of bonds at the right time.

The first stage in the Pool Process is the Capital Budget Request. Capital Budget Requests, or CBRs, are generally considered accurate to within 15%. This is because they usually represent an agency's desire for a capital project before an architect becomes involved in the project. BCOM reviews CBRs in the Commonwealth's Performance Budgeting (PB) system and recommends an amount for the project to the Department of Planning and Budget (DPB). This is referred to as the **PB Recommended Amount**.

The second stage in the Pool Process is typically when a project is included in a Detailed Planning Pool. BCOM will notify agencies that a project is included in a Detailed Planning pool by sending a **CBR Verification Report.** The CBR Verification Report will include a **Cost Target** generated by BCOM as well as an amount of funds authorized to develop the design through Detailed Planning, which consists of the Schematic and Preliminary Phases. This is often similar to the **PB Recommended Amount**.

The third stage in the Pool Process is when a project is included in a Construction Pool. At this point, the **PB Recommended Amount**, Schematic Cost Report, or Funding Report typically becomes the basis for the **Budget Development Number** (BDN). The BDN is usually based on the most advanced stage of BCOM Cost Review completed when the Construction Pool was formed (CBR Review, Schematic Cost Review, or Preliminary Cost Review). The BDN, proper, is established by DPB and represents the general fund-supported resources included in a Construction Pool for a capital project. The **CBR Verification Report** at this stage will also include cost information for the overall project and any requirements for other funding that makeup the complete budget.

If an agency goes through Detailed Planning and receives a Funding Report prior to that project's inclusion in a Construction Pool, the agency shall upload the Funding Report in PB when requesting inclusion in a future Construction Pool.

The fourth and final stage is when the Director of General Services authorizes funding for the project. That amount is considered the **Authorized Amount**, or AA. This is communicated to the agency at the end of Detailed Planning in a Funding Report. In addition to informing the agency of the Authorized Amount, the Funding Report will include information on the overall budget, other non-pool funding requirements, and instructions on completing a CO-2. In accordance with the provisions of the Chapter 1 Act, which govern all Pools, the AA (i.e., the general fund-supported resources for the project as determined during the detailed planning phase) may not be increased by more than five percent. In the event that the agency receives bids that would increase the budget over five percent, the agency has the following options:

1. Conduct additional value engineering (VE) of the project
2. Reduce "Extent"
3. Reduce "Scope" within the legislative intent.
4. Request a reduction in Scope beyond the legislative intent.
5. Infuse additional agency funds
6. Request a supplemental appropriation from the General Assembly

Additional pool process resources are available on the BCOM website's Pool Funding page.

Cost Review Mission Statement
Cost Review Handout for Predesign Meetings
Cost Articles in the BCOM Newsletter
Substantiating Costs
Pool Process
Appeals Process
Life of a Typical Capital Project through the Pool Process
Cost Review Milestones
Pool Process Memo (4/3/12)
BCOM Cost Reviewer Agency Assignments (1/21/12)