



DEPARTMENT OF
GENERAL SERVICES

BUREAU OF CAPITAL OUTLAY MANAGEMENT

Serving Government. Serving Virginians.

BCOM Newsletter

Issue # 31
July 2017

In this Issue:

- Top 10 Installation Deficiencies Found During Project Inspections

- General Mechanical Regulations
- VCCO Certifications
- CPSM Form Updates
- Resetting Your BITS Password

Top 10 Installation Deficiencies Found During Project Inspections

When BCOM's inspection teams arrive at project sites, there are a number of simple deficiencies that are found on a regular basis. These deficiencies occur in all types of construction projects, whether new buildings or small renovations.

Inspections are made based on the approved building permit drawings, the *Virginia Uniform Statewide Building Code* (VUSBC), the *ADA Standards for Accessible Design* (ASAD) and the *Construction and Professional Services Manual* (CPSM).

When the agency and their contractor can address the items in the following list, before BCOM's arrival, their project is more likely to be on track for a satisfactory inspection.

- 1. Maneuvering clearances at doors.** Doors, doorways and gates that are part of an accessible route shall comply with ASAD Section 404.2.4. The most common deficiency is when the required 18 inch minimum horizontal dimension on the pull side of a door from any adjacent object, wall, etc. is not provided.
- 2. Installation of bathroom hardware such as coat hooks, grab bars, mirrors and toilet paper dispensers.** The installation of these items shall comply with ASAD Chapter 6. The most common deficiencies are coat hooks installed exceeding the 48" maximum height limit, and toilet paper dispensers not installed between 7" and 9" to the centerline, from the front lip of the water closet.
- 3. Installation of handrails.** Installation of handrails shall comply with *Virginia Construction Code* (VCC) Section 1012 and ASAD Section 405. The most common deficiency is incorrect or missing handrail extensions at the top and bottom of stairs and ramps.
- 4. Risers and treads at stairways.** Configuration of risers and treads at stairways shall comply with VCC Section 1009.7 and ASAD Section 504. The most common deficiency is the dimensional uniformity. The tolerance between the largest and smallest riser height or between the largest and smallest tread depth shall not exceed 3/8" in any flight of stairs.

5. **Dining surfaces and work surfaces.** The installation of these items shall comply with ASAD Section 902. The most common deficiency is the height of the surface. The tops of dining surfaces and work surfaces shall be 28 inches minimum and 34 inches maximum above the finish floor or ground.
6. **Ramp slopes.** Ramps that are part of an accessible route and means of egress shall comply with VCC Section 1010 and ASAD Section 405. The most common deficiency is ramps having a running slope steeper than one unit vertical in 12 units horizontal (8% slope).
7. **Means of egress illumination.** Means of egress illumination shall comply with VCC Section 1006. The most common deficiency is the omission of means of egress lighting from rooms and spaces that require two or more exits. It is commonly found that such rooms/spaces have "emergency lighting" (lighting during loss of building power) but no means of egress lighting because the lighting is controlled by a switch and can be turned off during non-emergency conditions.
8. **Posting of occupant load.** VCC Section 1004.3 *Posting of occupant load* is required for every room or space that has an Assembly occupancy and an occupant load of 50 or more. The most common deficiency is that the sign is missing or is not posted in a conspicuous place, near the main exit or exit access doorway from the room or space.
9. **Safety glazing.** Individual glazed areas, including glass mirrors, in hazardous locations (as defined by VCC Section 2406.4) are required to comply with VCC Section 2406 *Safety Glazing*. The most common deficiency is the non-identification of safety glazing which is required by VCC Section 2406.3, *Identification of Safety Glazing*.
10. **Fire Resistance Assembly Markings.** VCC Section 703.7 requires where there is a concealed floor, floor-ceiling, or attic space, the fire walls, fire barriers, fire partitions, smoke barriers or any other wall required to have protected openings or penetrations shall be designated above ceilings and on the inside of all ceiling access doors that provide access to such fire rated assemblies by signage having letters no smaller than 1 inch in height, placed at horizontal intervals of no more than 8 feet. The most common deficiency is the mismarking of these rated assemblies (i.e. marking a fire barrier as a fire wall or fire partition). □



General Mechanical Regulations

There are many general regulations written in the *Virginia Mechanical Code* (VMC). However elementary the provision, the work must be designed and constructed in compliance with these requirements. Quality state projects depend upon getting the basics correct. Listed below are some of the general mechanical regulations that BCOM regularly comments upon during design reviews and inspections.

Energy Utilization

Heating, ventilating and air-conditioning systems of all structures shall be designed and installed for efficient utilization of energy in accordance with the *Virginia Energy Conservation Code* (VECC).

Buildings must comply with the VECC unless they have a peak design rate of energy usage less than 1.0 watt a square foot or the building does not contain conditioned (heated or cooled) space. If the building is a low energy consumption building the only calculation that is required to be submitted is the one that indicates the peak energy usage. Typical examples are sheds and salt domes.

Vibration Isolation

Where vibration isolation of equipment and appliances is employed, an *approved* means of supplemental restraint shall be used to accomplish the support and restraint.

Flexible connections may not provide any of the support for the piping / ductwork in which they are installed. Provide support as defined in VMC Section 305 and SMACNA.

Equipment and Appliance Location

Protection from damage:

Appliances shall not be installed in a location where subject to mechanical damage unless protected by *approved* barriers.

Damage from occupants, equipment such as lawn mowers, or vehicles can cause potentially hazardous conditions. Shield equipment using bollards or other protective construction.

Elevator Shafts

Mechanical systems shall not be located in an elevator shaft.

Penetrations into a shaft for purposes other than that which requires the shaft are not permitted. ASME A17.1 also prohibits heating / cooling equipment from being located in elevator shafts.



Boiler and Furnace Rooms

Boiler rooms and furnace rooms shall be protected as required by the *Virginia Construction Code* (VCC).

VCC Table 509 *Incidental Uses* requires furnace rooms where any piece of equipment is over 400,000 Btuh input and rooms with boilers over 15 psi and 10 boiler horsepower to be separated from the remainder of the building with a 1 hour fire barriers or be provided with an automatic sprinkler system. Many times furnace rooms / boiler rooms that do not require separation are designed and constructed with fire barriers. This is a cost and maintenance issue. Consult with the Owner prior to providing fire barriers that are not required.

Guards

Guards shall be provided on roofs where roof hatches and appliances, equipment, fans or other components that require service within 10 feet of a roof edge. Guards shall be 42 inches high and be constructed so as to prevent the passage of a 21-inch-diameter sphere and shall comply with the loading requirements for guards specified in VCC 1607.8.

Guards are required for appliances that require service and shall extend 30 inches beyond each side of the appliance. Equipment which does not require service, such as gravity ventilators, do not require guards. OSHA tie off points are not an alternate to the permanent guards that are required by the code.



Piping Support

Interval of support:

Piping shall be supported at distances not exceeding the spacing specified in Table 305.4, or in accordance with MSS SP-69.

This is one of the most common deficiencies during mechanical inspections. Pipe supports must be from the building structure and may not be supported from the work of another discipline.



Access and Service Space

Appliances shall be accessible for inspection, service, repair, and replacement.

The issue here is usually the difference between accessible and readily accessible. "Readily accessible" is when the appliance is able to be reached without requiring the removal or movement of any panel, door, or similar. "Accessible" is when a door or panel must be opened to perform service.

Equipment on Roofs

Where equipment and appliances requiring access are located on a roof 16 feet or higher permanent access (inside stairs or outside built-in ladder) must be provided. If equipment located on a roof is elevated above the roof, and is not 16 feet or more above the roof, no platform is required. Access to the equipment may be from a portable means.

Where appliances are located on roofs sloped greater than 3 in 12 they require a level platform with guards a minimum of 30 inches greater than the equipment on each side requiring access.

Electrical Requirements

An electrical outlet within 25 feet shall be provided for all appliances.

Wind Resistance

Equipment is becoming lighter every day. Many times appliances such as mini splits or VRF condensing units installed on roofs require attachment to the roof structure to resist the wind pressures.

Condensate Disposal

There are typically two issues with condensate disposal. The drain line will not have the appropriate air gap when tying into sanitary drains and, although not a code issue, insulation of the condensate line through humid spaces. The line will typically be at a temperature of 45 to 55 degrees F and will condense the moisture from ambient air. If dripping is an issue, insulate.

Although not a complete list, this article addresses some of the more common items often discovered during the review and inspection of projects. Specific questions on these types of issues can be addressed to any BCOM mechanical review engineer. □



VCCO Certifications

Congratulations to the following individuals who recently passed the VCCO Certification Exam:

- **Hugh Elwood**, Department of General Services
- **Davena Andress**, Virginia Commonwealth University
- **Katherine Mottley**, Virginia Commonwealth University
- **Bob Blackwell**, Virginia Tech



Virginia Construction Contracting Officers are state and local government employees who have completed the necessary training and successfully passed a multi-part examination focused on state procurement law, policy and procedures. VCCOs perform several key functions in delivering projects including the procurement of professional services; the receipt, opening and review of bids; and in some cases the approval of CO-8 forms for recommending the award of construction contracts.

For more information on CPSM and VCCO seminars, visit the [Seminars](#) page on the Bureau of Capital Outlay Management's website. ☐

CPSM Form Updates

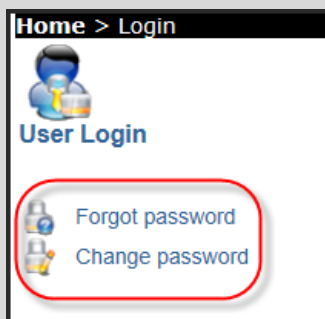
The following CPSM forms were recently revised and are available for download:

- **CO-11a, [A/E Contract Change Order](#)** (DGS-30-1006)

Please download the [Capital Outlay Forms Master List](#) (DGS-30-000) for a complete listing of the latest version of each CPSM form. All current forms may be downloaded from the [DGS Forms Center](#).



If a prior version of a form is required, please contact capout@dgs.virginia.gov. ☐



If additional assistance is required, please email bits@dgs.virginia.gov

Resetting Your BITS Password

BITS users can easily reset their own passwords.

If you know your current BITS password, click the [Change password](#) link on the BITS Login page and you will be immediately directed to a password reset page.

If you have either forgotten your BITS password OR your BITS password has expired, then click on the [Forgot password](#) link. You will be directed to a BITS screen to key in your BITS username (e.g., jsmith425). You will then be sent an email message with further instructions. The purpose of the email message is allow BITS to first authenticate that it is you making the request. ☐