



DEPARTMENT OF
GENERAL SERVICES

BUREAU OF CAPITAL OUTLAY MANAGEMENT

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Responsibilities for the Inspection of Fire Rated Construction and Fire Protection Systems

Who is the appropriate party to inspect the Fire Rated Construction and Fire Protection Systems of your Agency's Construction Project?

Inspections are performed by: the Agency Inspector, the A/E of Record, Special Inspectors, BCOM, and the State Fire Marshal's Office (SFMO). Each entity has a responsibility in reviewing the construction for compliance. Only BCOM and the SFMO (to the extent delegated by BCOM) are able to review and accept the construction placed for code compliance thus permitting the fire rated construction to be completed or closed in. BCOM is the final authority for determining the compliance of the construction placed.

Applicable sections of the *Construction and Professional Services Manual* (CPSM) that define inspection responsibilities include:

- Section 4.14 – *Construction Inspection*
- Section 7.5.17 – *Inspection of Work*
- Appendix L – *Memorandum of Agreement Between Division of Engineering and Buildings and State Fire Marshal's Office*
- Appendix M – *Special Inspections*
- Appendix N – *Project Inspection*

Section 16, *Inspection*, of the CO-7, *General Conditions of the Construction Contract* also addresses inspection responsibilities. The CO-7 (aka DGS-30-054) is available for download from the [DGS Forms Center](#). The CPSM is available for viewing or download from the [CPSM page](#) on the [BCOM website](#).

SFMO Responsibilities:

The *Memorandum of Agreement Between Division of Engineering and Buildings and State Fire Marshal's Office*, defines the responsibilities and duties of the State Fire Marshal's Office for inspection and

building code enforcement duties as delegated by DEB/BCOM to the SFMO. SFMO inspection responsibilities include the life and fire safety aspects of the VUSBC related to: 1) Fire-Resistance-Rated Construction, 2) Fire Protection Systems, 3) Means of Egress, 4) Fire Department Access, and 5) Safeguards during Construction.

Per the Memorandum of Agreement, the SFMO:

- has the authority to order changes to the work placed to comply with the approved construction documents.
- does not have the authority to order changes to the approved construction documents.
- does not have the authority to provide field interpretations of the Virginia Construction Code.

Agency Project Inspector/Project Inspection Team Responsibilities:

The responsibilities and duties of the Agency Project Inspector/Project Inspection Team are to inspect the installation and workmanship of all construction placed for compliance with the 'BCOM Approved' Building Permit Documents and the 'BCOM Approved' Shop Drawings.

The Agency Inspectors:

- do not have the authority to interpret, change, or deviate from the BCOM approved documents.
- are responsible for coordinating with the SFMO to schedule the SFMO's inspection of the work in a timely manner.
- do not have the authority to review or accept the construction placed for code compliance thus permitting the fire rated construction to be completed or closed in. Only BCOM or the SFMO have the authority to authorize this. Where fire rated construction has been completed or closed in without BCOM/SFMO validation; BCOM has the authority to require destructive testing to validate the compliance of the construction in question.

Changes to the Building Permit documents are to be submitted to BCOM for review and approval in a timely manner. Changes to the BCOM approved documents that have not been reviewed or approved by BCOM may be subject to revisions to achieve compliance, which may impact approval of the Certificate of Use and Occupancy. □

Strategies for Improving the Fire Safety Construction Inspection Process

The following are strategies for improving the inspection process that have been successfully utilized on recent projects:

1. **Require a Pre-Installation Conference for Fire Resistance Rated Construction, Joints, Through Penetration Fire Stop Assemblies, Fire Protection Systems and Access Controls/Security Locking Systems.** This Conference should take place in a timely manner including as a minimum the Agency Project Inspector, the AE of Record, the General Contractor, the installing Contractor, and the State Fire Marshal's Office. The Agenda for Pre-Installation Conference would be to include the review of the requirements of the specific listed assemblies, inspection protocols, inspection scheduling, and field compliance approvals.

2. **Require a Notebook of the Approved Listed Fire Rated Design Assemblies** for the project for use at the project site during inspections.
 - a. Fire Rated Construction is to be validated based on the Listed Design Assemblies defined within the Building Permit Documents and as approved by BCOM.
 - b. Where a Listed Assembly does not exist for a specific application; an Engineering Judgment may be necessary to achieve a compliant application. These Assemblies should be defined on the approved Building Permit Documents. Where the proposed substitution or alteration of a Listed Assembly results in an Engineering Judgment; the proposed Engineering Judgment is to be submitted and approved by BCOM as a revision to the Building Permit Documents.
 - c. Where Fire Rated Gypsum Assemblies are required within the project, retaining a copy of the specific Gypsum Manufacturer's Installation Manual at the project site is strongly recommended. For example National Gypsum has what is titled 'The Purple Book – Fire-Rated Assemblies in Commercial Construction' which contains the manufacturer recommended installation instructions. The Manufacturer's Installation Manual addresses conditions not defined by the Listed Fire Rated Design Assembly such as the proper methodology for making corners, intersections with lesser rated or non-rated construction, the proper placement of core board within a fire rated shaft wall system.
3. **The Fire Protection Systems are to be validated based on the BCOM Approved Fire Protection Shop Drawings.** The General Conditions of the Construction Contract, Section 24, Submittals requires that shop drawings for fire protection, fire alarm, fire detection and security systems be submitted to, and approved by, the Building Official prior to ordering, fabricating or installing such systems. Where the contractor proceeds without BCOM approval, the contractor is proceeding at their own risk. The SFMO is responsible for inspecting the construction placed on the basis of BCOM Approved Shop Drawings. Any field reviews by the SFMO prior to BCOM Approval or direction are performed as a courtesy.
4. **Request BCOM to provide preliminary field inspections prior to wall close-in inspections and ceiling close-in inspections.** These are opportunities to review mock-ups of fire rated construction, discuss solutions to construction issues, discuss how complex construction is to be accomplished, or discuss typical construction deficiencies that have been encountered.
5. **It is the responsibility of the SFMO to validate the construction of the Fire Rated Assemblies.** It is also responsibility of the Agency Project Inspector to validate that the construction placed is compliant with the Building Permit Documents which implies the respective Listed Fire Rated Assembly. There are opportunities for the SFMO and the Agency Project Inspection Team to work in harmony to validate that the construction being placed is compliant with the Listed Assembly. The SFMO is responsible for validating and approving the construction placed is compliant with the specific fire rated assemblies.

If your Agency has a successful inspection strategy that your Agency would like to share in future BCOM News Letters, please contact Chris Raha (christopher.raha@dgs.virginia.gov). □

Consider Attending a CPSM Seminar

Agency project managers and contract administrators and their design consultants and contractors must address numerous budgetary, planning/scheduling, procurement, code compliance and other technical and regulatory issues to successfully deliver State projects. Reading and understanding the 334-page Construction & Professional Services Manual (CPSM) and its many related forms and documents is a daunting task for those new to the Commonwealth's **p**olicies, **p**rocesses and **p**rocedures. Even for those individuals with years of experience, the three **p**'s are subject to change with each new legislative session, Governor's directive, Code of Virginia change, Building Code update, Federal mandate, or other regulatory/policy change. While a CPSM seminar attendee won't necessarily leave the seminar as a budgetary, planning, purchasing, building code and legal expert, the attendee should leave with a better awareness of the key provisions of the Manual and a blueprint to successfully navigate the project delivery process.

The current CPSM Seminar addresses the following topics:

- **The Capital Budgeting Process**
- **Project Planning & Approval**
- **Architect/Engineer:**
 - Procurement Process
 - Contract Terms & Conditions
 - Design Responsibilities
 - Fees, Contracts and Payments
 - Small Business Participation
- **Technical Requirements**
- **Design Standards & Guidelines**
- **Construction Contract:**
 - General Conditions
 - Supplemental General Conditions
 - Contracts and Bonds
 - Administration and Inspection
- **Construction Procurement:**
 - Prequalification
 - Debarment & Enjoinment
 - **Processes:**
 - Competitive Sealed Bidding
 - Construction Management at Risk
 - Design Build
 - Other (PPEA, ESCO, HEMA, JOC, Prequalified Small Vendors, Small Non-Capital and Facilities Maintenance via the APSM)
- **Building Permits and Certificates of Use and Occupancy**



For more information, and to express an interest in attending an upcoming seminar, please visit the [CPSM Seminars](#) page on the BCOM website. The fee for the two-day CPSM Seminar is currently set at \$300⁰⁰. Attending the full course results in a *Certificate of Completion* that provides 14 contact hours for life, safety and professional development. □

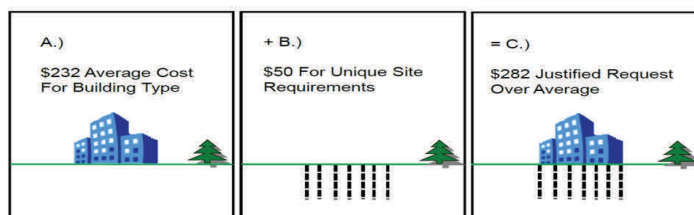
VCCO Certifications

Congratulations to **Renee Tabb** of the **Department of Veterans Services** who recently passed the VCCO Certification Exam. 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 tasks 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 & VCCO seminars, please visit the [Seminars](#) page on the Bureau of Capital Outlay Management's website. □

How BCOM Establishes Reasonable Project Costs

BCOM is tasked with establishing "reasonable costs" for projects. BCOM's estimating process is based on benchmarking to the cost of buildings that have been successfully completed across the Commonwealth as well as drawing from relevant projects from other states. This [historical data](#) is the starting point for BCOM cost reviews. BCOM maintains and utilizes a historical costs database and, when necessary, seeks out other resources to assemble a group of comparable completed projects that are similar in both size and building use/program. This grouping of "comps", with appropriate adjustments for each source project's location and escalation, provides a "baseline" cost for the subject project. However, as all projects are unique, BCOM carefully reviews the information provided from the agency, including the detailed estimates, drawings, project narrative, and the original Capital Budget Request to identify any specific/unique elements that need to be addressed in the cost analysis. The costs of each of these unique elements are then estimated using several resources including the agency's estimate, national cost standards, and information accumulated by BCOM. The discrete costs of significant specific/unique elements are used to make either additive or deductive adjustments to the averaged comparable group's costs which provided the "baseline" estimate. The resulting adjusted total amount provides BCOM's "reasonable cost" of the project. This concept is illustrated below.

Additive Example: In this example, special site conditions were identified as a element that should be given consideration for a possible adjustment to the subject project's baseline cost. To be considered for adjustment, the project specific elements should be items that are unique to that project's site or program. In other words, characteristics that you can't change. This differs from design decisions that may create unique elements, but are not necessary to achieve a structurally sound and functional building. For example deep foundations, as illustrated above, would be one of several potential design solutions to address poor soil conditions on the project site. If the agency demonstrated that this solution was a reasonable and cost effective (both first costs and life cycle costs) solution, then consideration would be given for that item in the cost review based upon the poor soil conditions (the thing that can't be changed).



Deductive Example: The comparable projects used to provide the baseline were laboratory buildings in urban locations with underground parking. The subject laboratory is being constructed on a site that has adequate space for more economical surface parking. BCOM would make a net deductive adjustment to the baseline cost to remove underground parking and add surface parking.

It is to the agency's benefit to ensure that these items are clearly identified in their cost submittals. Clearly identifying these project specific features highlights those items for the cost reviewer to ensure that these items are evaluated with respect to the comparable projects that were chosen for developing the baseline cost. □