DEPARTMENT OF GENERAL SERVICES
BUREAU OF CAPITAL OUTLAY MANAGEMENT
Serving Government. Serving Virginians.

BCOM Newsletter

Issue # 27

March 2017

In this Issue:

New DGS Web Site Coming Soon

A new Department of General Services website, encompassing all DGS business units will go live in April. An overview of the new BCOM website will be provided in the April BCOM Newsletter. The new DGS and BCOM websites will still be accessible by the URLs: https://dgs.virginia.gov and https://bcom.dgs.virginia.gov

The new DGS website will also feature a completely updated Forms Center which will make the process of locating and downloading forms much easier. The new Forms Center will continue to be directly accessible by the URL: https://forms.dgs.virginia.gov

CPSM Forms Update

During March, several CPSM forms were revised. For a list of the revised forms, please download the CPSM Forms Master List (DGS-30-000). Please note that while the latest forms are available on the existing Forms Center and will be available on the new Forms Center, the download instructions contained within the CPSM Forms Master List (DGS-30-000) have been re-written specifically for the new Forms Center. Most users are familiar with the download process from the existing Forms Center, but if assistance is needed in downloading forms, please contact: capout@dgs.virginia.gov

Position Opening

Electrical Review Engineer

Position # EE025

The Bureau of Capital Outlay Management seeks a qualified licensed engineer to perform tasks related to Electrical Engineering review of building plans and specifications. The successful applicant holds:

1) a bachelor's degree in engineering with emphasis in electrical engineering
2) a professional engineering license in Virginia
3) a valid driver's license.

In addition the applicant shall have knowledge and experience in the application of the Virginia Uniform State Building Code, the National Electric Code, the Virginia Energy Conservation Code, and other applicable state regulations.

Submit application through: http://jobs.virginia.gov

Accessible Transfer Shower Compartments

An accessible transfer type shower compartment is designed to allow transfer from a wheelchair onto the shower seat. To avoid costly rework during construction, accessible transfer shower compartments should be detailed clearly and accurately, incorporating all applicable requirements from Chapter 6 of the 2010 *ADA Standards for Accessible Design (ASAD)*.

A downloadable, searchable PDF of the *2010 ASAD* is available at the following website:

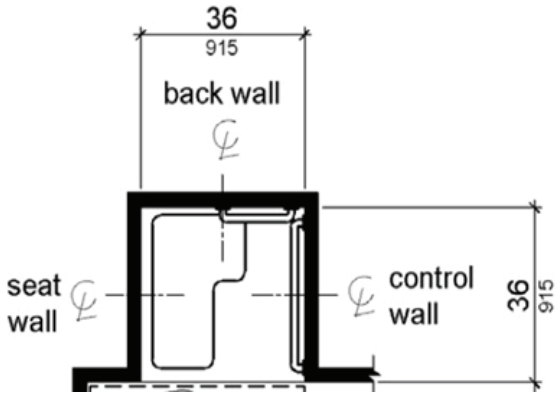
https://www.ada.gov/regs2010/2010ADAStandards/2010ADAStandards.pdf

In addition to specific dimensional requirements for the shower compartment, there are specific clear floor space requirements that must be met adjacent to the shower compartment for proper alignment between the wheelchair and the shower seat. Shower controls must be located in such a way as to allow access to the controls prior to entering the shower. Grab bars and shower seats have specific requirements, and shower thresholds must be accessible.

Below are some words of caution for avoiding accessible transfer shower compartment deficiencies that are often discovered during inspections:

Shower Compartment Dimensional Requirements: *The shower compartment shall have a clear inside dimension of 36 inches in width and 36 inches in depth, measured at the center point of opposing sides. ASAD 608.2.1.*

- Do not make the accessible transfer shower larger than 36"x36" just because there is extra room.
- Do not make the accessible transfer shower smaller than 36"x36" because you forgot to take into account the thickness of the ceramic tile in your dimensions.
- Do not assume that a prefabricated shower unit with an accessibility symbol meets the requirements of ASAD. Carefully review the prefabricated shower unit shop drawings for compliance with ASAD, and choose another unit if the submitted one does not comply.



Transfer Type Shower Compartment

Clear Floor Space Dimensional Requirements: *Provide a clear floor space of 48"x36" adjacent to the open face of the shower compartment. The intent is for the wheel chair seat and the shower seat to align, so that the individual can transfer from seat to seat. ASAD 608.2.1.*

- Do not construct a protruding end wall that extends beyond the shower compartment on the "seat side" of the transfer shower compartment. A protruding end wall creates a gap between the wheelchair seat and the shower seat, making it difficult to transfer. The face of the end wall and face of the shower compartment should be flush.
- Do not locate protruding bathroom accessories (such as surface mounted paper towel dispensers or waste receptacles) on walls where they would compromise the 48"x36" clear floor space.

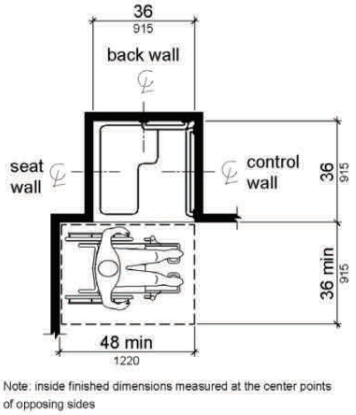


Figure 608.2.1
Transfer Type Shower Compartment Size and Clearance

Shower Controls: *Install the controls, faucets, and shower spray unit on the side wall opposite the seat, 38"-48" above the shower floor and located between the centerline of the seat and 15" towards the shower opening on the control wall. The intent is to allow use of the controls, faucets, and shower spray prior to entering the shower. ASAD 608.5.1.*

- Do not locate the adjustable height slide bar to which the shower spray is attached on the far side of the control wall. Locate the slide bar within the space between the centerline of the control wall and 15" towards the shower opening.
- Do not locate the controls or slide bar where they interfere with the grab bar. Per the exception to ASAD 609.3, the space between the grab bars and shower controls, shower fittings and other grab bars above shall be 1-1/2" minimum.

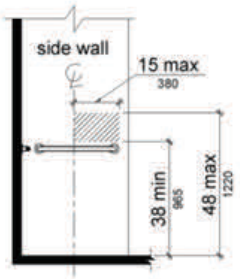


Figure 608.5.1
Transfer Type Shower Compartment Control Location

Shower Seat: *A folding or non-folding seat is required in transfer type shower compartments. Install the shower seat so that it extends from the back wall to within 3" of the compartment entry. The top of the seat shall be 17"-19" above the finished floor. Dimensions of seats and seat locations relative to the compartment are detailed in ASAD 610.3.*

- Do not locate the shower seat further from the shower compartment walls or from the compartment entry than the ASAD requirements.
- Do not plan to install the shower seat in the future. Per CPSM 4.2.2.7, accessible facilities shall be provided at the completion of construction. Adaptable facilities do not meet the requirements of this section.

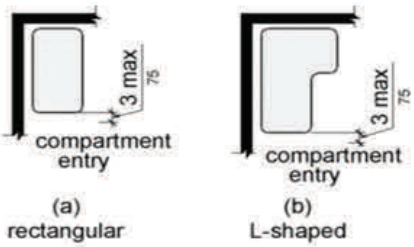


Figure 610.3
Extent of Seat

Grab Bars: *Provide grab bars across the control wall and back wall to a point 18" from the control wall. Grab bars shall be installed 33" minimum to 36" maximum AFF measured to the top of the gripping surface. ASAD 608.3.3.*

- Do not dimension the centerline of the grab at 36" AFF. 36" AFF is the maximum dimension from the finished floor to the top of the gripping surface.
- Do not install grab bars at different heights. Ensure they are installed at the same height.

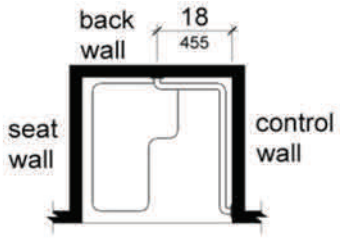
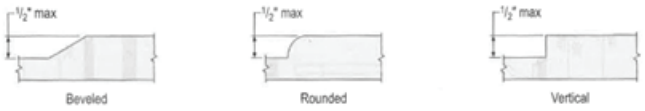


Figure 608.3.1
Grab Bars for Transfer Type Showers

Thresholds: *Thresholds at transfer shower compartments shall be ½" high maximum, and beveled, rounded, or vertical. ASAD 608.7.*

- Do not provide a threshold that exceeds ½" in height (Note: there is an exception to this requirement for some existing facilities.)
- Do not install the shower compartment sloped in such a way that the water drains out the front of the compartment onto the floor instead of flowing towards the shower drain.



Transfer Type Shower Compartment Thresholds

With accurate dimensioning, complete detailing, careful constructing, and inspections by the project inspector and architect to verify compliance, accessible transfer shower compartments can be constructed to meet the ASAD accessibility standards. ❑

Fire-rated Duct Wrap Assemblies

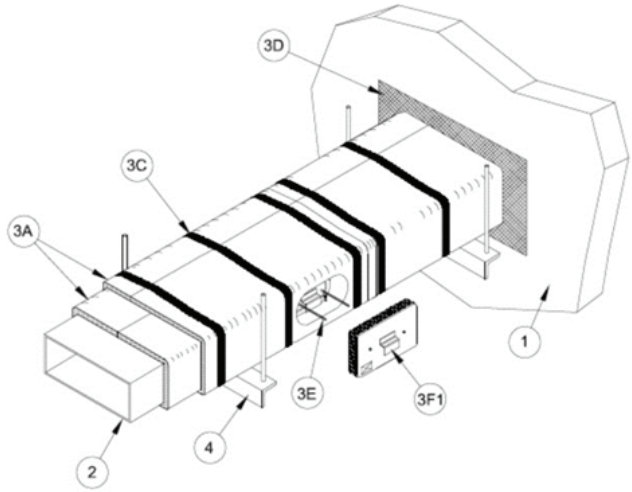
Fire-rated duct wrap (FRDW) assemblies offer a myriad of applications for various ductwork design circumstances in building construction. When installed correctly, FRDW is uniquely qualified to offer code compliant solutions to a multitude of situations present in the early design and sometimes during construction. Relevant 2012 Virginia Uniform Statewide Building Code (VUSBC) Sections, include:

- VCC 713 - Shaft Enclosures,
- VCC 909 - Smoke Control Systems,
- VMC 506 - Commercial Kitchen Hood Ventilation Ducts and Exhaust Equipment; and
- VMC 510 - Hazardous Exhaust systems.

This article examines the applications of the three types of duct systems where FRDW is utilized on projects reviewed and inspected by BCOM. The relevant ductwork systems include:

- Chemical Fume Hood Exhaust Ducts;
- Ventilation Air Ducts; and
- Kitchen Grease Hood Exhaust Ducts.

There are several manufacturers of FRDW assemblies. Some common manufacturers of FRDW assemblies include: Morgan Thermal Ceramics; Unifrax; and 3M™ fire barrier duct wrap. The most important factor in beginning the process of a successful application of the selected product is the design listing. Although the manufacturer publishes installation instructions, these instructions may be incomplete. Moreover, the design listing details pertinent information for firestop systems, through penetrations, duct construction standards, and duct support systems that may not be included in the manufacturer's installation instructions. The material information and instructions in the design listing become the mandatory requirements of the selected FRDW assembly. As illustrated in Figure 1 below, the FRDW is a complete system and each item addressed in the design listing is required for a compliant system.



Legend	
Item	**Description**
1	Wall Assembly
2	Steel Grease Duct
3	Fire Resistive System
3A	Batts and Blankets
3B	Collars (Not Shown)
3C	Steel Banding Straps
3D	Firestop System
3E	Duct Access Door - Hood and Duct Assemblies#(Optional)
3F1	Insulated Duct Access Door Assembly (Optional, Not Shown)
4	Hanger System

Figure 1 - Typical Fire–Rated Duct Wrap on a Kitchen Grease Hood Exhaust Duct

A listing agency is an organization acceptable to the building official that evaluates products, materials, and equipment found suitable for a specific code complaint purpose. Each listing agency tests and evaluates the submitted product for its performance and ability to comply with the building code. The listing agency publishes the acceptable products in design details that must be followed during construction for a proper installation of the product. The more relevant listing agencies and their trademarks (Figure 2) are:

- Intertek Warnock Hersey Mark;
- ICC Evaluation Services; and
- Underwriters Laboratories.

Figure 2 – Trademarks for Relevant Listing Agencies

Listing agencies publish complete FRDW assemblies known as the design listing. The design listing is a complete installation instruction and includes requirements to ensure a code compliant solution. All design and field discussions regarding the installation and acceptance of the FRDW assembly shall be based on the listed assembly selected. Once chosen, the selected design listing shall be maintained throughout the construction process. The contractor is not permitted to use different listings for a single FRDW assembly installation. The contractor shall become familiar with the design listing before begriming the installation. The A/E should not approve the product submittal without the product's current design listing. These listed assemblies are given design numbers. Some examples of relevant FRDW design listings include:

⇒ CHEMICAL FUME EXHAUST DUCT PROTECTION - Intertek Design No. 3MU/FRD 120-10 3M Fire Barrier™ Duct Wrap 15A or 3M Fire Barrier™ Duct Wrap 615+

⇒ VENTILATION DUCT PROTECTION: Intertek Design No. UNI/FRD 120-01 Unifrax I LLC, FyreWrap® Duct Insulations

⇒ GREASE DUCT ASSEMBLIES, UL Online Certifications Directory, Assembly No. G-18 THERMAL CERAMICS INC — FireMaster Fast Wrap XL, FireMaster Fast Wrap+

⇒ GREASE DUCT ASSEMBLIES, ICC-ES Report number ESR-1255; 3M Fire Barrier™ Duct Wrap 615+

The most familiar application of the FRDW is found on the kitchen hood grease duct, but there are many other mechanical ductwork systems where FRDW assemblies are employed. The more relevant utilizations of FRDW assemblies include:

- Laboratory hazardous exhaust ductwork routed in plenums and through floors;
- Mechanical smoke control systems both supply and exhaust air duct where fire and smoke dampers are not permitted ;
- Stair pressurization systems that are located outside of the stair enclosure;
- Clothes dryer vent duct to achieve zero clearance to combustibles; and
- Fire separation for ductwork routed through fire rated spaces and plenums.

The key factors in the installation of the FRDW assembly begin with the proper selection of the ductwork required by the VUSBC. Once the type of ductwork system is selected and approved then the application of the fire rated wrap is specified. Some of the most relevant key factors in the coordination between the design, contract drawings and final installation include:

- Ductwork fabrication, material type, and duct gage ;
- Fire barrier wrap joint and overlapping technique;
- Support angles and hanger rod sizes , spacing and attachment;
- Banding and/or pinning of the fire blanket; and
- Through penetration of walls, floor and roofs.

The following is a list of some frequently asked questions and answers; with the underlying caveat that each answer is based on a particular design listing as the basis of design because different listings have different requirements for the same product:

1. **What type of duct supports and hanger rods are allowed?**
    - Only those angles and rods identified within the design listing instructions. Unistrut, Cooper B, Ductmate, Kindorf® products, which are not listed, shall not be substituted for steel angle. The spacing of the hangers shall be as listed. Attachment to the building shall be in compliance with the design listing or otherwise approved by BCOM. Using SMACNA guidelines for the support of this FRDW assembly is prohibited unless otherwise noted in the design listing.

2. **Is it permitted to utilize the FRDW support system for other trades?**
    - No. The hangers and angles for the FDRW support system shall be separate and independent of all other building trades.

3. **Are different duct materials and gage permitted as a substitute from the requirements of the design listing where these materials suitable to the Virginia Mechanical Code (VMC)?**
    - The requirements of the design listing for type of sheetmetal material, minimum gage of material, maximum size of the duct, and the type of joints for the duct shall be followed. The duct construction may not be less than the minimum requirements of the VMC. In some case, the same duct system is increased to a higher grade of construction in the location where the duct is wrapped.

4. **What technique or method of blanket layering and joints are acceptable?**
    - Typically there are 3 methods of layering the FRDW, they are: the butt joint, telescoping, and checkerboard. Each method is acceptable. For two layer system, however, the first layer may be required to have a butt joint fitting without layering. Starting with one method and switching to another method on the same duct is not prohibited but discouraged.

5. **Where is pinning and banding preferred?**
    - The closer the blanket is to the duct the more effective the wrap. The FRDW should not sag or be unnecessarily compressed. The design listing restricts the size of the duct for this reason. It also will provide a range of duct sizes that are allowed to be banded; pinned and banned; and pinned only. If this information is not on in the design listing it is sometimes in the manufacturer's written installation instructions.

In conclusion, FRDW assemblies are utilized to meet the requirements of the VUSBC for fire separation of ducts serving various mechanical systems. It takes a concentrated effort of the design team, building official, and contractor to successfully install a complete FRDW assembly. ❑