

010000- GENERAL DESIGN REQUIREMENTS

I. DESIGN

- A. Materials contained in the Fairfax County Guidelines for Architect and Engineers (Guidelines) are provided for information and guidance to preferred practices, and shall not be construed as waiving or granting exceptions to any element of federal, state or local building codes, ordinances, and regulatory requirements as applicable to the specific project. Any conflict between these Guidelines and the governing local, state, or federal codes shall be brought to the immediate attention of the Building Design & Construction Division (BDCD), Fairfax County Department of Public Works and Environmental Services (DPWES).
- B. The Architect/Engineer (A/E) is responsible to assure that the most current version of referenced design standards in the Guidelines is used for the project. The Owner does not guarantee that Exhibits and Appendices are the most current versions.
- C. Any variance from these Guidelines must be submitted in writing to the BDCD Project Manager prior to 100% design submission.
- D. The project plans and specifications shall reflect the information and requirements of these Guidelines as applicable to each project and shall provide the following information:
 - 1. Fairfax County project number, contract number, quality control signoff block, and bid authorization signature block on the cover sheet for all plan review submittal phases (see Exhibit 010000-A).
 - 2. Building address and key map.
 - 3. Site area (acres) and building square footage.
 - 4. Soil boring logs and locations.
 - 5. U-values for walls, roof/ceiling, door and window.
 - 6. Design roof and floor loads, soil bearing value and structural material strengths.
 - 7. Doors, windows, finish schedules; lighting fixture, equipment and signage schedules.
 - 8. Site plan drawings shall be at a common scale and be oriented the same direction on all sheets.
 - 9. Building Plans for all disciplines shall be at a common scale and oriented the same direction and include a true North arrow on all sheets.
 - 10. The standard industry convention for referencing note and details shall be used on the construction documents.
- E. The A/E shall complete a Quality Control (QC) sign-off block on the cover sheet for plan submittals. The QC block shall include the number of QC hours spent by

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each discipline and be signed off by the responsible person reviewing each discipline. The QC block is to be included on the cover sheet for all submittals except for the bid set and the permit set and conforming set if issued.



- F. The cover sheet of the bid set drawings and the cover sheet of the bid set specifications shall be sealed, original signed and dated by an Architect or Engineer registered in the State of Virginia.
- G. Drawing Standards
1. All civil, architectural, structural, electrical, mechanical, and plumbing floor plans (including reflected ceiling plans), as a minimum, shall be prepared using the most current version of AutoCAD (CAD) to assure improved functionality when using a Building Information Modeling (BIM) program.
 2. Use of BIM and Revit program is acceptable but not required at this time. When using BIM, the A/E shall coordinate with the BDCD Project Manager for advance approval if a program other than Revit will be used.
 3. Quality Control of plans shall include overlaying CAD floor plans to check for conflicts. AutoCAD layering convention shall conform to AIA and AutoDesk standards.
 4. AutoCAD drawings shall be formatted as follows:
 - a. Zoomed to Extents
 - b. UCS set to World
 - c. Free of all extraneous lines or entities
 - d. Purged of all unused layers and blocks
 - e. Lines and polylines shall not be duplicated or contain unnecessary verticals
 - f. X-refs attached at 0,0,0
 - g. All entities placed on their correct/standard layer, with no entities on layer 0.
 - h. Units set to Architectural feet and inches.
 - i. All entities drawn with color and line type by layer
 5. Revit Files shall be formatted when submitting a BIM Model:
 - a. Ensure all files from different disciplines are on the same coordinate.
 - b. Ensure work from different disciplines are linked in and not imported in.
 - c. Units set to Architectural feet and inches.
 - d. Purge all unused families.
 - e. Delete all design options.

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6. A/E shall include County's General Notes, sheets 1 and 2 on all projects with site work. Request ACAD version from BDCD Project Manager.
 7. A/E shall incorporate County's ADA Standard Details drawing sheet on all projects as applicable as part of the construction document set on A/E's standard drawing border, and this sheet shall be signed and sealed. This sheet does not represent the entirety of the current ADA Standard, and additional project specific ADA information may have to be provided. Any revisions to these furnished details shall be approved by the BDCD Project Manager. Request ACAD version from BDCD Project Manager.
- H. Specifications shall follow CSI, 50-division format; and be specific regarding the codes to be met. Sections of specifications that are performance based must be clearly identified as such. Owner must approve use of performance specifications.
- I. Project specifications shall require that operations and maintenance (O+M) manuals include a complete paint schedule for the entire building; manufacturer and color information for plastic laminates, floor tiles, stains and varnishes, ceiling tiles, ceramic tiles; and all hardware model numbers. Brand names and specific information required for future ordering from manufacturer must be provided. These requirements are to be coordinated with County General Conditions and Division 010000 Specifications for O+M manuals and as-built documents. The Contractor must be required to provide as-built information to meet these requirements.
- J. The A/E shall coordinate with the BDCD Project Manager for allowances to be included in the specifications General Conditions, to include items and work scope required for unforeseen conditions. The allowance items, quantities and the associated costs are subject to Owner's verification and approval. The common allowances may include the following:
- Unsuitable soil undercut
 - Rock excavation
 - Additional signage
 - Contaminated soil removal
 - Partnering
 - Aggregate material (VDOT 21A or 21B)
 - Utilities
 - Geotextile fabric
 - Additional fire marshal requirements
- K. Requirements of these Guidelines must be coordinated with the County's Fire Station Design Manual, Police Station Design Manual and the Library Design

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Manual for applicable projects. All conflicts shall be brought to the attention of the BDCD Project Manager for resolution.

- L. The A/E is responsible for submitting and tracking project plans through the County building and site plan review process; Land Development Services (LDS), in a timely and diligent manner, and for making all required corrections, inserts, re-submissions, etc. Designers shall follow the latest edition of the Engineers & Surveyors Institute (ESI) Site Plan Peer Review checklist in the preparation of site plans.
- M. The A/E must carefully review the County's Special Conditions Sections A thru E and Division 1- General Requirements and coordinate all design specifications with these County requirements. Any conflicts or proposed modifications impacting standard County specifications shall be brought to the attention of the BDCD Project Manager.
- N. All applicable requirements of the Fairfax County Special Inspections Program must be reflected in the project specifications. The structural engineer must comply with all requirements of the Special Inspections Program including stamping shop drawings as reviewed or approved, as required.
- O. For buildings that are classified as critical structures under the Fairfax County Special Inspections Program <https://www.fairfaxcounty.gov/landdevelopment/special-inspections-program> ,the A/E will hire a testing agency as a sub-consultant on their prime contract to perform all critical structure required inspections in the building. The Contractor shall still be responsible for all required testing and inspections not falling under the County's Special Inspection Program. If the building is not classified as a critical structure, the Contractor shall have all required inspections performed in the building. The project specifications must reflect these inspection and testing requirements for the contractor.
- P. The A/E shall coordinate with the Owner to determine if the facility or any portions of the facility are to be designated as an "Essential Facility" as defined in IBC 1604.5 as Risk Category IV, and incorporate requirements for such facilities into the project plans and specifications.
- Q. For non-essential facilities, AE shall review with the Project Manager if an emergency generator or a hook-up for a rollup generator is required.
- R. In buildings with fixed shelving and stacks, such shelving and stack floor areas, shall be deducted from the net square foot floor area calculations, as approved by code.



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S. Fairfax County Office Space Standards

The Fairfax County Office Space Standards were developed as a space planning tool for the allocation of space within the Government Center Complex. The "Style" categories "A", "B", and "C" represent private (drywall) offices. Categories "E" through "G" are systems furniture workstations. Square footage figures are intended for planning purposes. Actual sizes of offices or workstations may vary due to the building floor plate, column placement, or standard workstation component dimensions.

Space Category	Title	Square Footage
Group A	Director	240 SF
Group B	Director & Assistant Director	180 SF
Group C	Director, Assist. Director, & Branch Chief	120 SF
Group E	Professional & Technical Staff	64 SF
Group F	Technical & Clerical Staff	48 SF
Group G	Temporary & Shared Workstations	30 SF

T. Public Art

The Owner may desire or require Public Art for the project and will take the lead to generate a Call for Arts during the project design or construction.

The Public Art, though generally located outside, may be in an interior location in which case the A/E shall coordinate the location, lighting, display requirements or other logistics. When located outside, Public Art shall be visually and physically accessible to the public. The site location, and construction information, including foundation that may be necessary, if available, shall be included in the permit documents. Alternatively, a separate permit can be obtained if details of the Public Art are not available however, the site plan must take into account a proposed location and coordinate with utilities, landscaping, lighting and other site features to avoid conflicts for the future Public Art installation.

U. Practices for Commercial Trash and Recyclables Handling


1. Refer to Fairfax County Public Facilities Manual (PFM) Section 10-0300 for Solid Waste and Recycling system requirements, and PFM Plate 28-10 for site layout requirements for a two dumpster trash and recycling containers area. Any variations from these requirements shall be coordinated with the BDCD Project Manager and DPWES Division of Solid Waste Collection and Recycling.
2. Collection containers described by Section 109.1-5-6 of the *Code of the County of Fairfax* shall not obstruct access to sanitary sewer manholes. A

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clear zone is required for a distance of 3 feet around the rim of any sanitary sewer manhole cover to provide access to the sanitary line in the event of an emergency and an area for erection of equipment for safe entry into the manhole.

3. The recycling collection system within the building shall include central collection containers for office paper in copier/printer rooms and other major generation areas.
 4. If recycling carts are emptied directly into a dumpster or compactor, the receiving equipment shall be clearly marked to identify it as a recycling unit; "Recyclable Paper and Cardboard Only, No Trash".
 5. Recycling containers shall be different and readily distinguished from those used for refuse.
 6. Trash and recycling rooms shall meet current code requirements for separation from the rest of the building or protected by automatic sprinklers.
 7. Fairfax County places purple bins at various parking lot locations throughout the county for the public to dispose of glass bottles for recycling. Coordinate with the BDCD Project Manager to determine if this will be required for the project and obtain details if needed.
- V. Specifications shall require that the Contractor provide written, biweekly updates to the Owner/Architect detailing the status of all trade inspections including building, mechanical, electrical, plumbing, Fire Marshal, and Health Department, as applicable. Contractor's written updates shall specifically identify all items of work, which have been rejected or otherwise not approved by inspectors.
- W. Specifications shall require contractor to submit detailed coordination drawings for all central mechanical, electrical and equipment rooms or areas of congestion to confirm that all equipment will fit with the required clearances. Trades to be included but not limited to shall be Mechanical, Fire Protection, Electrical, Plumbing and Telecom. A/E shall make CAD files available to contractor for required coordination drawings.
- X. All projects shall comply with the current version of Fairfax County's Operational Energy Strategy, which is available on the County's website. Requirements for facilities with an occupied area greater than 10,000 square feet include but are not limited to the following (refer to the policy for current requirements). Projects of smaller size shall strive to meet the same requirements where practical (review with Project Manager).

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- a. All new construction and major renovations beginning planning and design in or after 2021 meet Net Zero Energy (NZE) standards unless the Board of Supervisors is advised prior to the 30% design phase as to why the project cannot meet the NZE standard.
- b. The minimum required certification is LEED® Gold plus 50% more efficient (based on energy consumption) than baseline. Baseline is ASHRAE 90.1 2016 edition or as used per latest LEED version.
- c. Where appropriate, design for LEED Platinum.
- d. All new facility construction and renovations shall use electric equipment and appliances, unless no alternative can be identified.
- e. For new construction, design and build net-zero energy (NZE) structures that incorporate best practice energy-efficient design, with use of electricity-based space and water heating, and on-site renewable electricity generation.
- f. Install solar photovoltaic systems at county facilities, using power purchase agreements or county capital funds as appropriate for the size and setting of each site. Direct on-site use of renewable energy systems is a key component of net zero energy construction. Review specific project requirements with the Project Manager at start of Schematic Design.
-  g. Install necessary charging infrastructure to support Electric Vehicles (EV's) and other alternative-fueled vehicles as directed by County Project Manager. It is not required to include EV charging in building energy calculations for Net Zero. **If EV Charging Stations are provided, at least one space shall be 11'x 20' and compliant with the recommendations provided by the US Access Board, including but not limited to providing "Accessible EV Charging - Use Last" sign at the intended parking spot. Basis of Design is ChargePoint ® CP6000 Series, Power Select set at 40-amp input current. Refer to ChargePoint's website for design guide. Provide sub-metering as required in section 260000 Electrical.**
- Y. The A/E shall incorporate all LEED Prerequisite requirements and submit list of proposed systems and methods to obtain enough credits to achieve required LEED status to the BDCD Project Manager for review with the County's Environmental and Energy Coordination Committee. A/E shall prepare and submit a LCCA when there are options to achieve points by static measures, such as improved building envelopes, versus complex mechanical equipment or systems. Maintenance costs (refer to 230000 – HVAC for table of costs) shall be included. The A/E shall clearly identify all products in the specifications that contain post-industrial recycled content materials, and all regionally manufactured materials as defined by USGBC LEED® criteria. Selection of products to meet

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these guidelines shall be coordinated with the Owner prior to final specifications. Project drawings to include the county's infrastructure requirements for photovoltaic panel installation after substantial completion. Note: Use the Fairfax County exterior smoking area policy which is stricter than the LEED requirement. Fairfax County policy states the following: If an exterior smoking area is to be provided for a County facility, County policy requires that it be located 50 feet from all public and all accessible entrances and 15 feet from all other entrances.

- Z. All site retaining walls, freestanding monumental site signs, and bus shelters and public art must be identified on the building permit application; otherwise, a separate building permit is required. The A/E is responsible to obtain all permits. As applicable, the pre-approved bus shelter model and plan control number must be shown on plans. A state building permit is also required for all bus shelters with any part located within the VDOT right-of-way.
- AA. Where site and/or rooftop mechanical equipment is unavoidable and visible to the public, the A/E is responsible to provide appropriate screening into the design and shall clearly represent aesthetic impact in all renderings.
- BB. The A/E shall verify and obtain the most current version of the "Code Reference Package for Architects, Engineers, Designers and Installers" from the Fire Prevention Division of The Fairfax County Fire and Rescue Department (FRD), and all requirements of the Code Reference Package shall be reflected in the plans and specifications. A copy is available from the Fire Prevention Division's website at:
<https://www.fairfaxcounty.gov/fire-ems/fire-marshal/code-reference-packages>
- CC. Provide storage space identified as "FMD Storage" sized to house attic stock for the building. Ideally, locate FMD storage space within or adjacent to the mechanical room.
- DD. Accessible Design

The most recent ADAAG requirements are to be used. Additional items noted in this section are based on lessons learned and past practices in county projects that the A/E is encouraged to meet to provide a greater accessibility beyond the minimum ADAAG requirements for the facility. In addition, the A/E shall coordinate closely with DPWES to strategize and determine a plan for how to most effectively allocate the 20% ADA required funding commitment for renovation projects. The building's design shall:

All design and construction shall comply with the most current Americans with Disabilities Act Accessibility Guidelines (ADAAG), as issued by the Department of Justice under Title II Regulations for scoping and technical requirements, and

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the most current ICC/ANSI 117.1, whichever is more stringent. Accessible design concepts based on lessons learned referenced within this document, must be complied with as may be applicable with each project.

1. Provide for equal access and use by everyone.
2. Provide for the usability of the design features in more than one prescribed way.
3. Make it easy to understand the purpose of each design feature and how to use it.
4. Provide all essential information in a variety of modes.
5. Eliminate, isolate or shield any design feature that could prove hazardous or inconvenience any user.
6. Employ design features that require little or no physical force to use them.
7. Provide an adequate amount of space in all program areas that is appropriately arranged to enable anyone to use them.
8. Provide seating, such as benches, seat walls, etc., along path of travel for those who cannot stand or walk long distances without resting.
9. Provide for accessible counters and sinks in break rooms and kitchenettes and locate them in a central or easily reached area of a room. Provide “dummy” cabinet doors in kitchenettes as may be applicable to conceal the sink pipes for ADA.
10. Provide for easy maneuvering and passage by mobility devices such as wheelchairs, when selecting furniture and furnishings in all spaces, especially conference and meeting rooms
11. Provide adjustable desks, chairs, and podiums for conference and training rooms as applicable.
12. Provide fully automatic (sensor operated) or push-button activated automatic door (s) at the main public entrance.

EE. A/E shall review project design and shall advise BDCD Project Manager if there are any potential concerns of Radon impact.

FF. **Delegated Design:**

- a. A/E to provide a list of delegated design items during the Design Development phase for BDCD Project Manager’s approval.
- b. Clearly state on the drawings and specifications the items that are to be delegated design by the contractor.

II. PRODUCTS

- A. The A/E shall coordinate with the BDCD project manager to identify any products or manufacturers that may need to be specified which are proprietary or limited to less than three acceptable manufacturers as No Substitution/No Equal

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Products. Justification for No Substitution/No Equal Products must be provided in advance.

- B. Any specified material, equipment or system which will be a No Substitution/No Equal Product, must be approved in writing by DPWES, prior to advertisement for bids. BDCD will obtain a letter from the “No Substitution/No Equal Products” vendor prior to advertisement of bids, stating the value of the subject work, and that the same pricing will be provided to all the contractors.
- C. The A/E is responsible for verifying that the manufacturer and product numbers for all materials and products included in the specifications are current at the time of bid. This shall include verification of all material and product designations included in these Guidelines.
- D. No Asbestos Containing Materials (ACM) are permitted to be specified, or otherwise approved, for use on any County project, unless the County specifically provides advance written approval.