A. Building Goals:

Campus Projects, Capital Projects and Operations and Maintenance are entrusted with providing UMCP buildings which incorporate a high degree of:

1. Functional Efficiency
2. Innovative and Appropriate, Design
3. Contextual Harmony with the Site and Neighborhood
4. Appropriately Selected Materials and Systems
5. Health and Safety Characteristics
6. Accessibility for the Disabled
7. Life Cycle Value

These Architectural and Engineering Design Standards have been compiled to establish general and, in some cases, specific design policies as a guide for designing new facilities, as well as altering or renovating existing structures. **ANY DEVIATION FROM THESE STANDARDS MUST BE SUBMITTED TO, AND APPROVED IN WRITING BY CAMPUS PROJECTS, CAPITAL PROJECTS AND/OR OPERATIONS & MAINTENANCE ON THE FORM (ATTACHMENT #4) FOLLOWING THIS SECTION.**

These Design Standards supplement the job specific Facility Program. Should the requirements of these Design Standards conflict with other information or requirements of the project and/or site conditions, the Designer will be responsible for obtaining resolution with FM and for proceeding in accordance with a written waiver from Facilities Management.

B. Design Principles:

UMCP buildings, new and renovated, must provide the functional, aesthetic, environmental, and safety needs of the using-agency "client" and the requirements of governing authorities, with a reasonable balance between initial cost and life-cycle value. UMCP is dedicated to improving the quality of its campus and buildings through planning, architectural, and engineering services which must:

1. Ensure the highest degree of professionalism from the Design Team to develop and implement innovative and functional design concepts, in harmony with the site environment, and appropriate to the project needs.
2. Assure that design concepts for repair, alterations, and renovations are executed with the same professional consideration as that for new facilities.

3. Implement reliable procedures for controlling project estimates, construction costs, life-cycle factors, and time schedules.

4. Establish thorough quality-control coordination during all phases of the design process.

5. Respond to governing codes and standards ensuring environmental health and safety.

C. Sustainability:

The University of Maryland College Park (UMCP) recognizes its responsibility to design and build facilities for College Park and Client Institutions that: 1) meet the programmatic needs of our clients; 2) enhance the architectural character of the Campus; and, 3) promote a commitment to environmental stewardship by adhering to the principles of sustainability in both new construction and building renovation projects.

The University of Maryland is a member of the U.S. Green Building Council (USGBC) and recognizes the USGBC LEED rating system as the most widely accepted standard for evaluating sustainability in the built environment. The following Campus and State initiatives serve as the framework for the University's sustainable design practices:

- The Facilities Master Plan was adopted in 2002 and the Environmental Stewardship Guidelines was adopted in 2005.

- May, 2007 – President Mote, University of Maryland, signed the American College and University Presidents Climate Commitment which pledges to take significant steps to reduce greenhouse gas emissions from campus operations and move toward the goal of climate neutrality (zero net greenhouse gas emissions).

- October, 2007 – The University of Maryland, College Park Facilities Council agreed that new buildings and full building renovations at College Park be constructed with the goal of being eligible for LEED certification at the Silver level as prescribed by the U.S. Green Building Council.

- April, 2008 – Governor Martin O'Malley signed into Maryland Law, the High Performance Buildings Act. It requires specified buildings (to include higher education buildings) constructed or renovated with state funds, to be high performance buildings.

- May, 2008 – President Mote adopted the new University Strategic Plan. The Plan states that the University should become a model for environmental stewardship and sustainability “holding new construction and renovation to stringent LEED standards”.

As a result of these initiatives, LEED ‘Silver’ has been established as the minimum rating
for Capital projects achieving USGBC LEED certification. Each project should strive to attain the maximum number of credits possible within the constraints of the project program and budget. Even if a project is not going for USGBC certification, the design shall incorporate, to the maximum extent possible, sustainable design features consistent with the USGBC LEED rating system.

The design team shall work collectively throughout design development to identify the best combination of LEED rating points which will achieve the project’s sustainability goals. For each project, the design team shall work in an integrated fashion to evaluate the pros and cons of implementing LEED rating points and to consider the impact they have on each of the design disciplines.

The following is a list of LEED System credits which shall be considered mandatory for all projects required to be LEED Silver (or greater) certified. The credits are based on LEED – NC Version 2.2 and should be applied to the most current version of the USGBC LEED rating system. Noted points shall be considered minimum.

Sustainable Sites
- Light Pollution Reduction – 1 point

Water Efficiency
- Water Use Reduction – 2 points

Energy and Atmosphere
- Optimize Energy Performance – 4 points

Materials and Resources
- Construction Waste Management – 2 points

Indoor Environmental Quality
- Low Volatile Organic Compounds (VOC) Emitting Materials – 2 points

Maryland forests are typically not certified by the Forest Stewardship Council (FSC). Therefore, FSC approved lumber must be shipped to the State, often from long distances, contrary to sustainable practices. Therefore, the use of the Certified Wood credit is prohibited in attaining a LEED certification. The use of the Regional Materials credit, part of which may be satisfied through the use of Maryland lumber products, is encouraged.

All projects which are required to be LEED certified shall be registered and certified using the University of Maryland’s U.S. Green Building Council membership. The University’s Project Manager will facilitate this effort.
Construction and Demolition Waste Recycling Companies
Washington, D.C. Metropolitan Area
(Note: This information is provided for reference only and should not be considered all inclusive or current or an endorsement of the companies listed.)

General Construction and Demolition Materials Recyclers:

1. “Tidewater Fibre Corp” construction and demolition waste company. Website: www.ticrecycling.com Address: 12206 Old Stage Rd, Chester, VA 23836. Phone: (804) 706-5877.
2. “Broad Run Recycling Center” construction and demolition waste company. Website: www.IDStrash.com Address: 9120 Developers Drive, Manassas, VA 20109. Phone: (703) 503-9300.
3. The Construction Waste Management Database contains information on companies that haul, collect and process recyclable debris from construction projects. Created in 2002 by GSA’s Environmental Strategies and Safety Division to promote responsible waste disposal, the Database is a free online service for those seeking companies that recycle construction debris in their area. http://wbdg.org/tools/cwm.php
4. “Baltimore Scrap Corp” recycling center for construction and demolition debris. Website: www.baltimorescrap.com Address: 3100 Weedon Street Baltimore, MD 21226 (Corner of Frankfurst Ave. and Vera St, Curtis Bay, MD). Phone: (410)355-4455.
9. “Stone Tech” recycling center for construction and demolition debris. Address: P.O. Box 1420, Salisbury, MD 21802. Phone: (410) 742-2851.

General Salvaged Building Material Centers:

2. “Tri-State Reuse Centre” Address: 225 West Main St, Hancock, MD 21750. Phone: (301) 678-6160.
3. “Ahoora, Inc.” Address: P.O. Box 826 Merrifield, VA 22116. Phone: (703)438-0957.
6. “Caravati’s Architectural Antiques” Website: [www.caravatis.com](http://www.caravatis.com) Address: 104 E 2nd Street, Richmond, VA 23224. Phone: (804) 232-4175.
7. “Cmc” Address: 4509 Pouncey Tract Road, Glen Allen, VA 23059. Phone: (804) 369-2120.
9. “Governors Antiques and Architectural Supply” Address: 8000 Antique Lane, Mechanicsville, VA 23116. Phone: (804) 746-1030.
10. “Hamilton Salvage Building Materials” Address: 3201 Dwina Road, Coeburn, VA 24230. Phone: (276) 762-5140.
11. “Imperial Building Supply” Address: 856 W 45th Street, Norfolk, VA 23508. Phone: (757) 489-4254.
13. “Pryor’s Hauling Company” Address: 4509 Pouncey Tract Road, Glen Allen, VA 23059. Phone: (804) 360-2120.

**Non-Profit Salvaged Material Centers:**
2. “The Loading Dock: A Building Materials Reuse Center” non-profit. Website: [www.loadingdock.org](http://www.loadingdock.org) Address: 2 N. Kresson St, Baltimore, MD 21216. Phone: (410) 728-DOCK.
4. “Community Forklift” accepts donated building materials. Website: [http://www.communityforklift.com](http://www.communityforklift.com) Address: Sustainable Community Initiatives, 4671 Tanglewood Drive, Edmonston, MD 20781. Phone: (202) 544-0069

**Salvaged Wood Center:**
Carpet Recycling:
1. “Shaw Contract” for recycling used carpet from any manufacturer. Phone: (877) 502-SHAW.
2. “Invista Reclamation Program” for recycling used carpet from any manufacturer. Website: http://antron.invista.com/content/sustainability/ant08_04_01.shtml

Acoustical Ceiling Panel Recycling:

Gypsum Recycling:
1. “Gypsum Agri-cycle” for processing drywall waste that is generated from new construction sites. Website: www.gypsumagricycle.com/
REQUEST FOR DEVIATION FORM
DESIGN CRITERIA / FACILITY STANDARDS

In accordance with Division 1, General Requirements and Guidelines to the A/E, 1.01 Building Goals, Design Principles and Sustainability, I request the following deviation from the Design Criteria / Facility Standards Manual.

DEVIATION DESCRIPTION:

____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________

JUSTIFICATION: (To include value engineering analysis)

____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________

REQUESTED BY: _______________________________________________________
TITLE: ________________________________________________________________
FIRM: ________________________________________________________________
DATE: _________________________________________________________________

PROJECT REPRESENTATIVE APPROVAL:

PROJECT MANAGER: ______________________________________________________
DEPARTMENT: __________________________________________________________
DATE: _________________________________________________________________

DIRECTOR APPROVAL:

A Request for Deviation must be approved by the Director, Campus Projects or Director, Capital Projects (College Park Projects) or Designee (Client Institutions), as appropriate. In addition, the Director, Operations & Maintenance, shall review and approve proposed changes that affect building operational performance. In the event that approval is denied, the applicant may request reconsideration from the Associate Vice President for Facilities Management.

DIRECTOR/DESIGNEE: _____________________________________________________
ASSOCIATE VICE PRESIDENT: ___________________________________________
1.02 BUILDING SERVICES AND PREVENTIVE MAINTENANCE REQUIREMENTS

The spaces identified in this section shall not be used as access to other spaces.

A. Housekeeping Zone Closets:

1. Provide a minimum of one (1) 4'-6" x 8'-0" housekeeping closet with double doors on each floor of a building (see attached floor plan for layout of closet and the Table identifying number of closets required). The following shall be standard equipment in each housekeeping closet:
   a. 36" X 36" floor mounted pre-cast mop-ceptor.
   b. 36" shelf above mop-ceptor.
   c. Mop strip above mop-ceptor.
   d. Mop-ceptor faucet shall have threaded spout with pail hook and 6 foot hose with racket.
   e. One electrical outlet.
   f. One light fixture switched to door opening.
   g. Trap primer and accessories.

2. Floors and walls (to at least 4'-0" high above finished floor) shall be covered with hard, waterproof surfaces, preferably ceramic tile.

3. One additional closet shall be provided that is large enough to house an automatic scrubber (48" x 60" x 48" high) in buildings of 40,000 GSF or larger. For units that do not utilize sealed batteries, the electrical lighting, fans, wiring, etc., shall comply with the requirements of the National Electrical Code for "Classified Locations". The exhaust fans shall operate 24 hours per day.

4. Only equipment identified in this section shall be located in custodial closets. Installation of HVAC, electrical, telephone or plumbing equipment is not acceptable.

5. A set of double doors is required for each housekeeping closet. Each door (minimum 30" each) shall swing out into the corridor.
B. Housekeeping Central Storage Room:

1. A 200 GSF storage room (minimum) located adjacent to a loading dock or service entry is required in buildings of 40,000 GSF or larger.

C. Housekeeper's Room:

1. Provide one 100 GSF room per building (minimum), located adjacent to housekeeping central storage room.

2. The size of this room increases in increments of 15 GSF for each additional 20,000 GSF of building.

D. Preventive Maintenance Shop:

1. Provide one 100 GSF room per building (minimum), located adjacent to primary mechanical room(s) and loading dock or service entry.

E. Preventive Maintenance Storage:

1. If a building is 40,000 GSF or larger, a 200 GSF room (minimum) separate from, but adjacent to, the maintenance shop, is required. The size of this room increases in increments of 20 square feet per each additional 20,000 GSF of building.
1.02 BUILDING SERVICES AND PREVENTIVE MAINTENANCE REQUIREMENTS

Legend

11. Dimensions: 8' long, 4 1/2' deep.

12. Shelving 10" deep, with bracket supports.

13. Fluorescent fixture with switch mounted occupancy control that utilizes 180 degree field of view.

14. Two 30" doors, with vents and lockable.

15. Utility floor sink, (note: off-center) with stainless steel lip cover.

16. Bibb faucet with support hanger.

17. 4 foot length of hose.

18. Tool holder.

19. Walls ceramic to 4' min., painted enamel (including ceiling) above 4'.

20. Location for custodial cart or waste hamper.

21. Location for 2-bucket (or 3-bucket) mopping outfit.

22. Location for floor machine or vacuum.

23. Floor--hard, water-proof surface, preferably ceramic tile.

SCALE: 1/2"
## 1.02 BUILDING SERVICES AND PREVENTIVE MAINTENANCE REQUIREMENTS

<table>
<thead>
<tr>
<th>Building Size (GFS)</th>
<th>Zone Closets #</th>
<th>SF @ 4' X 8.5'</th>
<th>Central Storage</th>
<th>Housekeeper Room</th>
<th>Shop</th>
<th>Storage</th>
<th>Total GSF</th>
<th>Pct of GSF</th>
</tr>
</thead>
<tbody>
<tr>
<td>20,000</td>
<td>1</td>
<td>36</td>
<td>None Req</td>
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<tr>
<td>40,000</td>
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<td>72</td>
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<td>115</td>
<td>100</td>
<td>200</td>
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<td>340</td>
<td>220</td>
<td>100</td>
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<tr>
<td>200,000</td>
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<td>360</td>
<td>360</td>
<td>235</td>
<td>100</td>
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<tr>
<td>220,000</td>
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<td>396</td>
<td>380</td>
<td>250</td>
<td>100</td>
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<tr>
<td>240,000</td>
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<td>432</td>
<td>400</td>
<td>265</td>
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<tr>
<td>260,000</td>
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<td>468</td>
<td>420</td>
<td>280</td>
<td>100</td>
<td>420</td>
<td>1,688</td>
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<tr>
<td>280,000</td>
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<td>504</td>
<td>440</td>
<td>295</td>
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<td>440</td>
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<tr>
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<td>540</td>
<td>460</td>
<td>310</td>
<td>100</td>
<td>460</td>
<td>1,870</td>
<td>0.62%</td>
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</tbody>
</table>

Zone Closets are the basic work and supply room for individual housekeepers and should be located adjacent to restrooms. Housekeeping Central Storage is the storage room for the building and should be convenient to both the service entry, loading dock and the elevator. Housekeeper Room is the lunch, meeting and office facility. It should be adjacent to the Central Storage Room. Maintenance Shop is the basic work area for the building maintenance. It should be located adjacent to the service entry and main mechanical space. Maintenance Storage Room is the supply storage area for maintenance and should be located adjacent to the Shop and Service entry.
All design shall comply with accepted engineering practices in compliance with the following codes unless specific approval is obtained for variance. When a specific project warrants variance the request is to be submitted in writing to DAEC early in the design stage.

Although the following list contains major codes and standards which currently apply to construction for the University, it is not to be considered all inclusive. All other standards, codes and regulations imposed by the Department of General Services or the University which may be initiated subsequent to the program submittal must be adhered to. All references utilized are to be the most current editions, approved or adopted by the State and local agencies, including all applicable revisions or appendices.

In addition, all designs shall comply with Governor's Executive Order .01.01.1992.11 Building Performance Standards for State Buildings which outlines the following: "All State agencies shall utilize and apply the building performance standards set forth in the State's Model Performance Code at COMAR .05.02.01 and the State Fire Prevention Code at COMAR 12.03.01 promulgated pursuant to Article 38A, § 3 of the annotated Code of Maryland, as amended for all construction, alteration, remodeling, and renovation of all buildings that are owned, leased, operated, or controlled by the State." In summary, the Model Performance Code includes the BOCA Building Mechanical (ICC International), and Energy Conservation Codes; and the State Fire Prevention Code includes NFPA 101 and the BOCA Fire Prevention Code.

A. The International Building Code 2000
C. The B.O.C.A. Energy Conservation Code
D. Standards of the National Fire Protection Association
E. National Electrical Code
F. Maryland Occupational Safety & Health Administration
G. State of Maryland Fire Prevention Code
I. Maryland Building Code for the Disabled
J. State of Maryland's Department of General Services, Procedures for Implementation of Energy Conservation
K. Washington Suburban Sanitary Commission (WSSC) Plumbing and Gas Fitting Regulations
M. The Institute of Electrical and Electronics Engineers, Inc.
O. 29 CFR S1910 & S1926
P. Maryland Department of Transportation, Maryland State Highway Administration - Standard Specifications for Construction and Materials
Q. Maryland Department of the Environment (MDE)
R. Manual on Uniform Traffic Control Devices (MUTCD)
A. EH&S CODES, REGULATION, AND STANDARDS:

Consistent with the Governor's Executive Order 01.01.1996.03 - Regulatory Standards and Accountability, the design shall comply with the latest approved edition of applicable Federal, State, and local codes, regulations, and standards involving Environmental Health and Safety (EH&S) in the delivery of University facilities.

1. GENERAL

This section sets forth governmental regulations and fundamental building codes which are included and incorporated herein by reference and made a part of the University's "Design Criteria/Facilities Standards (DCFS) Manual." Requirements include;

a) Adherence during design to conditions set forth in applicable codes, regulations, and standards.

b) Securing notices, permits, licenses, inspections, releases, and similar documentation, as well as payments, statements, and similar requirements associated with compliance with codes, regulations, and standards in the design of campus facilities.

c) Discernment of EH&S standards of care and best management practices, outlined herein which will assist in considering areas of EH&S compliance. Provisions shall be included in programmatic and design documents to address regulatory issues with reference to applicable standards as well as the "General Duty Clause" of the Occupational Safety and Health Act of 1970. Further, designs shall envision EH&S provisions which avoid contractual or tort liabilities (e.g., professional error or omission).

2. CODES AND REGULATION

Except to the extent that more explicit or definitive requirements are written directly into the DCFS Manual, all applicable codes, regulations, and standards have the same force and effect (and are made a part of the Manual
by reference) as if copied directly into the DCFS Manual, or as if published copies are bound herewith.

3. REGULATORY REQUIREMENTS

Compliance with the following regulatory standards is mandated by Federal or State law.

a) FEDERAL DEPARTMENT OF LABOR (DOL)/OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REGULATIONS.

1. Occupational Safety and Health Act of 1970
2. Title 29 CFR Part 1910 General Industry Standards
3. Title 29 CFR Part 1926 Construction Industry Standards

b) MARYLAND DEPARTMENT OF HEALTH AND MENTAL HYGIENE (DHMH/DIVISION OF LABOR AND INDUSTRY (DOLI)/MARYLAND OCCUPATIONAL SAFETY AND HEALTH (MOSH) REGULATIONS.

1. Annotated Code of Maryland, Title 5 Occupational Safety and Health
2. Code of Maryland Regulations, COMAR Title 09, Subtitle 12
   a. COMAR 09.12.20 - .24 Maryland OSH Act, General
   b. COMAR 09.12.31 MOSH Incorporation by Reference of Federal Standards
   c. COMAR 09.12.33 Access to Information About Hazardous and Toxic Substances
   d. COMAR 09.12.35 Confined Spaces
   e. COMAR 09.12.36 Field Sanitation
f. COMAR 09.12.38 GIS for Personnel Platforms Suspended from Cranes, Derricks, and Hoists

c. FEDERAL ENVIRONMENTAL PROTECTION AGENCY (EPA)

1. Title 40 CFR Part 61, Subpart M - Asbestos NESHAPs

2. Title 40 CFR Parts 260 through 265 and 268 - Resource Conservation and Recovery Act (RCRA)
   a. Part 260 Hazardous Waste Mgmt Systems: General
   b. Part 261 Identification and Listing of Hazardous Waste
   c. Part 262 Generators of Hazardous Waste
   d. Part 263 - Transportation of Hazardous Waste
   e. Part 264 - Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
   f. Part 265 - Interim Storage Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
   g. Part 268 - Land Disposal Restrictions

3. Title 40 CFR Part 112 - Oil Pollution Prevention

d. MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE)

1. Code of Maryland Regulations, COMAR Title 26
   a. COMAR 26.02.07 Procedures for Abating Lead Containing Substances form Buildings
1.04 ENVIRONMENTAL HEALTH & SAFETY (EH&S) IN FACILITY DESIGN (12-2-02)

b. COMAR 26.10.02 - .11 Oil Pollution and Tank Management

2. COMAR Title 26, Subtitle 11 - Toxic Air Pollutants
   a. COMAR 26.11.02 Air Quality Permits, Approvals, and Registration
   b. COMAR 26.11.06 General Emissions Standards, Prohibitions, and Restrictions.
   c. COMAR 26.11.21 Control of Asbestos

3. COMAR 26, Subtitle 13 Hazardous Waste Regulations

4. COMAR 26.16.01 Accreditation and Training for Lead Paint Abatement Services

e. FEDERAL DEPARTMENT OF TRANSPORTATION (DOT)
   1. Hazardous Substances Title 49 CFR Parts 171 - 177

4. MANDATORY CODES

Governor's Executive Order 01.01.1992.11 - Building Performance standards for State Buildings, mandates adherence to the following codes in University facilities;


b) ICC International Mechanical Code (Latest Edition)

c) WSSC Plumbing Code (Latest Edition), in College Park

d) Local/State/ICC Plumbing Code (Latest Edition), for other campuses
5. CONTRACTUAL PROVISIONS FOR RELIABLE EH&S DESIGN

The following industry standards of care shall be incorporated into programmatic or design documents where such standards have application to the work.

a) Environmental Site Assessment

ASTM E 1527-93 - Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process

b) General Building Ventilation

ASHRAE 62-1989 - Ventilation for Acceptable Indoor Air Quality

ASHRAE 55-1981 - Thermal Environmental Conditions for Human Occupancy

ASHRAE Handbooks - HVAC Applications

(Latest Editions) - Refrigeration
- Fundamentals
- Systems and Fundamentals Equipment

c) Specialized Ventilation


d) General Laboratory Ventilation

ANSI/AIHA Z9.5 - American National Standard for Laboratory
Ventilation (1993)

e) Spray Finishing Booths/Rooms

f) Eyewash/Safety Shower Stations

g) Laboratory Design For Biosafety
Biosafety Labs - DC/NIH 3rd Edition Biosafety in Microbiological and Biomedical Laboratories (Current Edition)

NIH Guidelines - Guidelines for Research Involving Recombinant DNA Molecules (Current Edition)

- Primary Containment for Biohazards: Selection, Installation, Use of Biological Safety Cabinets (Current Edition)

BL3 Commissioning - USDA, Agricultural Research Service (ARS), Construction Project Design Standard, ARS Manual 242.1 (8/91)

D. Best Management Practice In EH&S

During project development, the Project Team shall
identify potential sources of pollution or other damage to the environment that may occur during facilities construction. When a potential source of environmental degradation is identified, suitable provisions shall be included in technical specifications to eliminate or minimize damage. Additionally, the following environmental policies affecting facilities development must be adhered to;

1. INSTITUTIONAL STANDARDS OF CARE IN EH&S

The following risk management programs at UMCP shall be consulted in relation to applicable EH&S design and construction issues. Many of these documents are available for review at the University's Department of Environmental Safety (DES) Website. http://www.inform.umd.edu:8080/CampusInfo/Departments/EnvirSafety

a) DEPARTMENT OF ENVIRONMENTAL SAFETY (DES)

1) Asbestos Management Plan
2) Biosafety Manual
3) Chemical Hygiene Plan
4) Confined space Entry Plan
5) Hazardous Waste Management Manual
6) Laboratory Safety Guide
7) Lead-Based Paint Management Plan
8) Lockout/Tagout Program

b. DEPARTMENT OF AEC - SAFETY ANALYSIS UNIT

1) Specifications for Industrial Hygiene Services
2) Hazardous Waste Management Requirements on construction
2. PROHIBITED BUILDING MATERIALS

The use of the following materials is prohibited on all University Projects;

a) Products containing asbestos

b) Interior products containing urea/formaldehyde

c) Products containing polychlorinated biphenols (PCBs)

d) Solder or flux containing greater than two-tenths of one percent (0.2%) lead and domestic pipe or fittings containing greater than eight percent (8%) lead

e) Paint containing greater than six-one hundredths of one percent (0.06%) Lead by weight

Due to concerns for Indoor Environmental quality, the application of fibrous absorptive materials (e.g., ductliners) to ductwork interiors is strongly discouraged as a means to control noise. Duct liners shall be limited to the minimum application required to achieve programmatic noise criteria and shall be surface cleanable. Alternative technologies are preferred over the use of fibrous absorptive materials in the airstream of ductwork. Serviceable sound attenuation devices are preferred over the wholesale use of interior ductliners.

3. CONTROL OF AIRBORNE HEALTH HAZARDS

Construction operations which may result in the diffusion of dust and other particulates, toxic gases or other harmful substances in quantities hazardous to health shall be safeguarded by means of temporary local exhaust ventilation or other protective measures to ensure the safety of the public. Where applicable, physically isolate adjacent occupied areas with temporary partitions,
mechanical system isolation, or other practical engineering controls.

Prior to building commissioning, indoor air shall be purged with outdoor air. Exhaust airborne particulates and wet pollutant emitters to the building exterior in a manner which precludes those health effects commonly associated with exposure to construction-related pollutants. Air purging shall be phased prior to furniture installations to avoid absorption of airborne pollutants and formation of a sink for remission of construction-related pollutants.

4. LEAD-BASED PAINT DURING BUILDING ALTERATIONS

Pre-1980 buildings scheduled for alterations which impact painted surfaces shall be surveyed for lead content consistent with regulatory requirements and the University's specifications for Industrial Hygiene services. In facilities used as residential facilities or child care centers, lead-based paint must be abated to the satisfaction of Maryland Department of the Environment (MDE). Approved encapsulation products allowed for use in the abatement of lead-painted surfaces are available from MDE.

5. ASBESTOS IN EXISTING BUILDINGS

Pre-1985 buildings scheduled for alterations which impact building materials shall be surveyed and assessed for asbestos conditions consistent with regulatory requirements and the University's specifications for Industrial Hygiene services. Where damage or disturbance is anticipated during construction, appropriate corrective action must be designed into the project. Where feasible, designs which avoid or minimize disturbance through in-place management techniques are preferred over wholesale removal.

EPA-accredited Asbestos Project Designers shall use National Institute of Building Sciences (NIBS)
Model Guide Specifications for Asbestos Abatement and Management in Buildings (Latest Edition) as the baseline minimum design performance standard. Project Designer minimum qualifications shall include:

- $1,000,000 Professional Errors and Omissions (E&O) Insurance
- Three (3) Years of Experience Designing Asbestos Abatement Projects
- Four (4) year degree in industrial hygiene, engineering, or physical / natural science

Project Designers shall consult with University representatives regarding campus specific criteria including (but not limited to) the following issue areas:

- Preferred Means and Methods of Abatement
- Preferred Means and Methods of Project Monitoring
- Processing Submittals and Record keeping
- Back Charges, Percent Payments, and Withholding Provisions
- Specific Institutional Notifications
- Work Initiation Conference Issues
- Pollution Liability Insurance
- Professional Errors and Omissions Insurance
- Qualifications of Abatement Contractor
- Qualifications of Subcontract Consultants and Laboratories
- Training and Qualifications of Staff
- Hazardous Waste Management requirements
- Notifications of Completion (OSHA and MDE mandates)

When approved during A/E negotiations, asbestos conditions may be managed through coordination of other trades under separate contract (e.g., On-Call Abatement Service Contact). Notwithstanding, all necessary coordination notes shall remain the responsibility of the A/E.
6. RADON MITIGATION

a) New Construction: Where the potential for radon release is identified through geotechnical studies, measures consistent with the ICC International Mechanical Code (IMC) 401.9 shall be proposed to mitigate indoor radon concentrations below levels which create a health hazard.

b) Alterations: Existing buildings scheduled for slab or structural wall alterations shall be measured for radon levels, where directed by University representatives. The University will provide previous radon readings where available. Radon levels exceeding those which require mitigation shall be managed consistent with IMC.

7. GUIDANCE DOCUMENTS

Following are some select guidance documents related to noteworthy EH&S issues in facilities development.

a) Occupational Safety and Health Administration

1. Stairways and Ladders, OSHA Document 3124 (93)

2. Lead in Construction, OSHA Document 3142 (93)

3. Fall Protection in Construction, OSHA 3146 (95)

b) Environmental Protection Agency

1. Office Equipment - Design, Indoor Air Emissions, and Pollution Prevention Opportunities

2. Proposed Model Standards and Techniques for control of radon in New Buildings


c. Maryland Occupational Safety and Health (MOSH)

1. MOSH Guides for Evaluating Indoor Air Quality (7/89)

d. Maryland Department of the Environment

1. Renovating Old Paint Safely: 8 Keys to Maryland's Lead Abatement Regulations

2. Lead Paint Hazard Fact Sheets 1-7 (6/92), 8 (1/94)

3. MDE Approved Encapsulation Products

e. National Institute of Building Sciences

1. Model Guide Specs for Asbestos Abatement


f. American Conference of Governmental Industrial Hygienists

1. Threshold Limit Values (TLVs) for Chemical Substances and Physical Agents and Biological Exposure Indices (BEIs), Latest Edition

2. Guidelines for the Assessment of Bioaerosols in the Indoor Environment (1990)
g. American Industrial Hygiene Association
   1. Industrial Hygiene Audit: manual for Practice (94)

h. American Society for Testing and Materials
   1. Provisional Standard for Environmental Regulatory Compliance Audits, PS 11

i. National Safety Council

j. National Air Duct Cleaners Association (NADCA)
   1. Mechanical Cleaning of Non-porous Air Conveyance System Components, Standard 1992-01
### 1.05 List of Acronyms and Abbreviations

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACI</td>
<td>American Concrete Institute</td>
</tr>
<tr>
<td>ADA</td>
<td>Americans With Disabilities Act</td>
</tr>
<tr>
<td>A/E</td>
<td>Architect/Engineer</td>
</tr>
<tr>
<td>ADSB</td>
<td>Architectural Design Standards Board</td>
</tr>
<tr>
<td>AIA</td>
<td>American Institute of Architects</td>
</tr>
<tr>
<td>AISC</td>
<td>American Institute of Steel Construction</td>
</tr>
<tr>
<td>ANSI</td>
<td>American National Standards Institute</td>
</tr>
<tr>
<td>APA</td>
<td>American Planning Association</td>
</tr>
<tr>
<td>APPA</td>
<td>Association of Physical Plant Administrators</td>
</tr>
<tr>
<td>ASTM</td>
<td>American Society for Testing Materials</td>
</tr>
<tr>
<td>ARB</td>
<td>Architectural review Board</td>
</tr>
<tr>
<td>ASLA</td>
<td>American Society of Landscape Architects</td>
</tr>
<tr>
<td>BER</td>
<td>Budget Expenditure Request</td>
</tr>
<tr>
<td>BOCA</td>
<td>Building Officials and Code Administrators</td>
</tr>
<tr>
<td>BOD</td>
<td>Beneficial Occupancy Date</td>
</tr>
<tr>
<td>BPW</td>
<td>Board of Public Works (State Board: Governor, Comptroller, &amp; Treasurer)</td>
</tr>
<tr>
<td>BSU</td>
<td>Bowie State University</td>
</tr>
<tr>
<td>CA</td>
<td>Capital appropriation (type of State Funding)</td>
</tr>
<tr>
<td>CBFR</td>
<td>Capital Bond Fund Requisition</td>
</tr>
<tr>
<td>CCMS</td>
<td>Central Control and Monitoring System</td>
</tr>
<tr>
<td>CDT</td>
<td>Contractor's Design Team</td>
</tr>
<tr>
<td>CE</td>
<td>Civil Engineer</td>
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</table>
### 1.05 List of Acronyms and Abbreviations

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>CEW</td>
<td>Cost Estimate Worksheet</td>
</tr>
<tr>
<td>CFR</td>
<td>Capital Fund Requisition</td>
</tr>
<tr>
<td>CIC</td>
<td>Computer Implementation Committee</td>
</tr>
<tr>
<td>CIP</td>
<td>Capital Improvement Projects</td>
</tr>
<tr>
<td>CM</td>
<td>Construction Manager Management (a unit of DAEC)</td>
</tr>
<tr>
<td>CO</td>
<td>Change Order</td>
</tr>
<tr>
<td>COB</td>
<td>Close Of Business</td>
</tr>
<tr>
<td>COP</td>
<td>Certificate of Participation</td>
</tr>
<tr>
<td>CPM</td>
<td>Critical Path Method</td>
</tr>
<tr>
<td>CPTL</td>
<td>Complete Project Tracking Log</td>
</tr>
<tr>
<td>COMAR</td>
<td>Code Of Maryland Annotated Regulations</td>
</tr>
<tr>
<td>CQC</td>
<td>Construction Quality Control</td>
</tr>
<tr>
<td>CR</td>
<td>Capital Renewal (also called Facilities Renewal)</td>
</tr>
<tr>
<td>CS</td>
<td>Construction Supervisor</td>
</tr>
<tr>
<td>CSI</td>
<td>Construction Specifications Institute</td>
</tr>
<tr>
<td>CVRP</td>
<td>Contractor and Vendor Request For Payment</td>
</tr>
<tr>
<td>DAEC</td>
<td>Department of Architecture, Engineering and Construction (formerly E&amp;A, DEAS)</td>
</tr>
<tr>
<td>DBFP</td>
<td>Department of Budget and Fiscal Planning</td>
</tr>
<tr>
<td>DCBS</td>
<td>Department of Communication &amp; Business Services</td>
</tr>
<tr>
<td>DD</td>
<td>Design Development (Phase of A/E Services)</td>
</tr>
<tr>
<td>DEAS</td>
<td>Department of Engineering &amp; Architectural Services (see DAEC)</td>
</tr>
<tr>
<td>DES</td>
<td>Department of Environmental Safety</td>
</tr>
</tbody>
</table>
1.05 LIST OF ACRONYMS AND ABBREVIATIONS

DGS  Department of General Services (State)
DIM  Design Initiation Meeting
D-LOG Project No., Work request No.
DM  Deferred Maintenance
DM/P&D Design Manager/Programming & Design (A unit of DAEC)
DNR  Department of Natural Resources
DPP  Department of Physical Plant (UMCP)
DPS  Department of Procurement and Supply
DTR  Design Technical Review
E  Equipment
E&A  Engineering and Architecture (see DEAS)
EE  Electrical Engineer
EPA  (aka USEPA) Environmental Protection Agency (US)
ES  Environmental Safety
F&A  Finance and Administration (a unit of DAEC)
FAS  Financial Accounting System
FC  Finance Committee (UMCP)
FEI  Federal Employee ID#
FF&E  Furniture, Fixtures, and Equipment
FPWG Facilities Planning Working Group (UMCP Sub-Committee of Finance Committee)
FRP  Facilities Renewal Program
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSD</td>
<td>Full Size Detail</td>
</tr>
<tr>
<td>FSU</td>
<td>Frostburg State University</td>
</tr>
<tr>
<td>FY</td>
<td>Fiscal Year</td>
</tr>
<tr>
<td>GC</td>
<td>General Contractor</td>
</tr>
<tr>
<td>GCL</td>
<td>General Construction Loan (Type of State Funds)</td>
</tr>
<tr>
<td>GFE</td>
<td>Government-Furnished Equipment</td>
</tr>
<tr>
<td>GFM</td>
<td>Government-Furnished Material</td>
</tr>
<tr>
<td>GPSSB</td>
<td>General Professional Services Selection Board</td>
</tr>
<tr>
<td>GSF</td>
<td>Gross Square Footage</td>
</tr>
<tr>
<td>HEGIS</td>
<td>Higher Education General Information Survey</td>
</tr>
<tr>
<td>ICA</td>
<td>Intercollegiate Athletics (UMCP)</td>
</tr>
<tr>
<td>ICBO</td>
<td>International Conference of Building Officials</td>
</tr>
<tr>
<td>ID</td>
<td>Interior Design</td>
</tr>
<tr>
<td>IDC</td>
<td>Indefinite Delivery Contract</td>
</tr>
<tr>
<td>ID&amp;E</td>
<td>Interior Design and Equipment (a unit of DAEC)</td>
</tr>
<tr>
<td>IFB</td>
<td>Invitation For Bid</td>
</tr>
<tr>
<td>IFCP</td>
<td>Institution Funded Construction Program</td>
</tr>
<tr>
<td>IS</td>
<td>Information Services</td>
</tr>
<tr>
<td>JV</td>
<td>Journal Voucher</td>
</tr>
<tr>
<td>LASP</td>
<td>Landscape Architecture and Site Planning (a unit of DAEC)</td>
</tr>
<tr>
<td>LRFPC</td>
<td>Long Range Facilities Planning Commission</td>
</tr>
<tr>
<td>MARC</td>
<td>Maryland Annual Request Ceiling</td>
</tr>
</tbody>
</table>
### 1.05 LIST OF ACRONYMS AND ABBREVIATIONS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>MBI</td>
<td>Maryland Biotechnology Institute</td>
</tr>
<tr>
<td>MDE</td>
<td>Maryland Department of Environment (State)</td>
</tr>
<tr>
<td>MG</td>
<td>Mechanical Engineer</td>
</tr>
<tr>
<td>MDNR</td>
<td>Maryland Department of Natural Resources (State)</td>
</tr>
<tr>
<td>MFRI</td>
<td>Maryland Fire and Rescue Institute</td>
</tr>
<tr>
<td>MHEC</td>
<td>Maryland Higher Education Commission</td>
</tr>
<tr>
<td>MOM</td>
<td>Minutes Of Meeting</td>
</tr>
<tr>
<td>NASF</td>
<td>Net Assignable Square Footage</td>
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<tr>
<td>NCP</td>
<td>Non-Capital Project</td>
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<tr>
<td>NEC</td>
<td>National Electric Code</td>
</tr>
<tr>
<td>NFPA</td>
<td>National Fire Protection Association</td>
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<tr>
<td>NIC</td>
<td>Not-in-contract</td>
</tr>
<tr>
<td>NPC</td>
<td>Notification of Project Completion</td>
</tr>
<tr>
<td>NTP</td>
<td>Notice To Proceed</td>
</tr>
<tr>
<td>NTS</td>
<td>Not To Scale</td>
</tr>
<tr>
<td>OAPP</td>
<td>Office of the Associate Provost for Planning</td>
</tr>
<tr>
<td>ORPB</td>
<td>Office of Resource Planning and Budget</td>
</tr>
<tr>
<td>OSHA</td>
<td>Occupational Safety and Health Act</td>
</tr>
<tr>
<td>PA</td>
<td>Planning Appropriation</td>
</tr>
<tr>
<td>PC</td>
<td>Project Coordinator</td>
</tr>
<tr>
<td>PCB</td>
<td>Poly-Chlorinated- Biophenyis</td>
</tr>
<tr>
<td>PCM</td>
<td>Production Control Manager</td>
</tr>
<tr>
<td>PCO</td>
<td>Project Close-Out</td>
</tr>
<tr>
<td>Acronym</td>
<td>Definition</td>
</tr>
<tr>
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<tr>
<td>PCS</td>
<td>Procurement for Contractual Service</td>
</tr>
<tr>
<td>PCU</td>
<td>Production Control Unit</td>
</tr>
<tr>
<td>PD</td>
<td>Preliminary Design (Phase of A/E Services)</td>
</tr>
<tr>
<td>PM</td>
<td>Project Manager, Project Management (a unit of DAEC)</td>
</tr>
<tr>
<td>PO</td>
<td>Project Order</td>
</tr>
<tr>
<td>P&amp;O</td>
<td>Programming &amp; Design (a unit of DAEC)</td>
</tr>
<tr>
<td>P&amp;S</td>
<td>Procurement and Supply</td>
</tr>
<tr>
<td>RAE</td>
<td>Reference Administrative Service</td>
</tr>
<tr>
<td>RDPWR</td>
<td>Request for Determination of Prevailing Wage Rates</td>
</tr>
<tr>
<td>RFA/ORS</td>
<td>Request for Alternation/Other Reimbursable Expenses</td>
</tr>
<tr>
<td>RFE</td>
<td>Request For Estimate</td>
</tr>
<tr>
<td>FRI</td>
<td>Request For Information</td>
</tr>
<tr>
<td>RFP</td>
<td>Request For Purchase, Request For Proposal</td>
</tr>
<tr>
<td>RFS</td>
<td>Request For Services</td>
</tr>
<tr>
<td>SCD</td>
<td>Substantial Completion Date</td>
</tr>
<tr>
<td>SCUB</td>
<td>Satellite Central Utilities Building</td>
</tr>
<tr>
<td>SD</td>
<td>Schematic Design (Phase of A/E Services)</td>
</tr>
<tr>
<td>SDC</td>
<td>System Development Charges (WSSC)</td>
</tr>
<tr>
<td>SFCP</td>
<td>System Funded Construction Program</td>
</tr>
<tr>
<td>SRC</td>
<td>Survey Research Center</td>
</tr>
<tr>
<td>SSD</td>
<td>Small Scale Drawing</td>
</tr>
<tr>
<td>SSU</td>
<td>Salisbury State University</td>
</tr>
<tr>
<td>Acronym</td>
<td>Abbreviation</td>
</tr>
<tr>
<td>---------</td>
<td>--------------</td>
</tr>
<tr>
<td>T&amp;M</td>
<td>Time and Material</td>
</tr>
<tr>
<td>TBD</td>
<td>To Be Determined</td>
</tr>
<tr>
<td>TMS</td>
<td>The Masonry Society</td>
</tr>
<tr>
<td>UMAB</td>
<td>University of Maryland at Baltimore</td>
</tr>
<tr>
<td>UBC</td>
<td>Uniform Building Code</td>
</tr>
<tr>
<td>UMAES</td>
<td>University of Maryland Agricultural Experiment Station</td>
</tr>
<tr>
<td>UMES</td>
<td>University of Maryland Eastern Shore</td>
</tr>
<tr>
<td>UMBC</td>
<td>University of Mayland Baltimore Campus</td>
</tr>
<tr>
<td>UMCEES</td>
<td>University of Maryland Center for Environmental and Estuarine Studies</td>
</tr>
<tr>
<td>UMCP</td>
<td>University of Maryland College Park</td>
</tr>
<tr>
<td>UMSA</td>
<td>University of Maryland System Administration</td>
</tr>
<tr>
<td>UMUC</td>
<td>University of Maryland University College</td>
</tr>
<tr>
<td>UON</td>
<td>Unless Otherwise Noted</td>
</tr>
<tr>
<td>UPB</td>
<td>Unit Price Book</td>
</tr>
<tr>
<td>VCAF</td>
<td>Vice Chancellor for Administration and Finance</td>
</tr>
<tr>
<td>VPA</td>
<td>Vice President for Administration</td>
</tr>
<tr>
<td>V.I.F.</td>
<td>Verify In Field</td>
</tr>
<tr>
<td>WAC</td>
<td>Work Acceptance Conference</td>
</tr>
<tr>
<td>WCC</td>
<td>Work Control Center</td>
</tr>
<tr>
<td>WIC</td>
<td>Work Input Control, Work Initiation Conference</td>
</tr>
<tr>
<td>WO</td>
<td>Work Order</td>
</tr>
</tbody>
</table>
### 1.05 LIST OF ACRONYMS AND ABBREVIATIONS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WOCS</td>
<td>Work Order Contracting System</td>
</tr>
<tr>
<td>WRA</td>
<td>Water Resource Administration</td>
</tr>
<tr>
<td>WRN</td>
<td>Work Request Number (D-LOG)</td>
</tr>
<tr>
<td>WSSC</td>
<td>Washington Suburban Sanitary Commission</td>
</tr>
</tbody>
</table>
1.06 MAINTENANCE OPERATION REQUIREMENTS

A. Adequate space is required in and around each building for the following maintenance and operation functions:

1. Elevator Shafts
2. Elevator Mechanical Rooms
3. Duct and Service Shafts
4. (Building) Equipment and Boiler Rooms
5. Telecommunication Closets for Switching Equipment
6. Electrical Closets
7. Housekeeping Closets
8. Maintenance Storerooms
9. Maintenance Shop
10. Loading Dock
11. Service Parking Spaces (minimum of 3-5) near Building Entrances
12. Dumpster/Dumpster Pad adjacent to Building Loading Dock

B. Parking for Service Vehicles shall be provided as follows:

1. Space for buildings with 25,000 GSF or less.
2. 1 additional space for each additional 50,000 GSF. Maximum of 5 spaces.

C. All interior spaces shall be identified by name and number.

D. All maintenance spaces shall have (as a minimum) concrete floors which have been painted and covered with an epoxy sealer to achieve a non-slip finish.

E. Floor drains are required in building equipment and boiler rooms. Floors in these rooms shall be sloped to the floor drains. Interior floor drains shall drain to the sanitary sewer system. Areaway drains shall drain to the storm system.

Coordination with DAEC is required to determine the ultimate discharge location (i.e. sanitary vs. storm sewer) for floor drains in rooms where hazardous materials or other liquids are stored.

F. Electrical equipment shall be installed on housekeeping
pads.

G. Mechanical and electrical rooms should be accessible from the exterior of the building via 8’ exterior double doors and directly accessible from hallways for ease of access by DPP personnel. Entrances through other rooms are not acceptable.
During the life span of a typical campus building many minor and major alterations are necessary as the requirements of the University change. The capability to accommodate alterations must be incorporated into the building from the outset. Structural systems should be designed to provide some leeway for increase in load concentrations in the future. They should also be designed to facilitate future alterations, e.g., the cutting of openings for new vertical elements, such as piping, conduit, and ductwork.

A. Codes and Standards

The codes and standards listed here are intended as guidelines only. The list is not meant to restrict the Consultant from using additional guides or standards.

1. American Concrete Institute: Building Code Requirements for Reinforced Concrete and Commentary (ACI 318 and ACT 318R).

2. American Concrete Institute: ACI Manual on Concrete Practice.

3. American Concrete Institute: Building Code Requirements for Masonry Structures (ACI 530) and Appendix A: Special Provisions for Seismic Design and Specifications for Masonry Structures (ACI 530.1).


B. Loads

1. Floor and Roof Loading

The Consultant shall provide, as a minimum, a uniformly distributed live load of 100 pound per square foot in all areas of the building, unless otherwise noted in the Facility Program. Roofs shall be constructed for a minimum of 30 pounds per square foot. In areas requiring special attention to floor loading, e.g., library stacks, heavy equipment and machinery, etc., the Consultant shall investigate the specific support requirements of these areas and design for these spaces accordingly. In no event shall the design live load be less than what is required by the applicable codes.

Do not use live load reductions for horizontal framing members and columns, or load-bearing walls supporting the top floor or roof.

2. Wind and Snow Load
For the purpose of code, wind, and snow load determination, UMCP buildings are designated as "standard occupancy" structures with corresponding Importance Factor I and Ip equal to 1.0.

C. Structural Systems

1. Steel Framing Systems
   a. Unshored composite steel beams deflect under the weight of concrete slabs at the time of placement. In order to achieve a level floor, additional concrete may need to be poured. Where unshored construction is used, the additional dead load caused by the increased concrete thickness should be accounted for in the structural design and specification.

   b. Shored composite steel beams do not deflect under concrete placement, resulting in less cost of material for concrete and steel. These savings may offset the costs of shoring. Once the shoring is removed, the floor deflects. This type of construction results in a floor that is less level than an unshored system.

   c. Cambered composite beams and girders may produce the most level floors. A camber should be considered for beams longer than 25 feet. The camber should equal the deflection calculated for the combined dead load of wet concrete, steel deck and steel beams. Superimposed dead and live loads should be excluded from the calculation.

2. Concrete Framing Systems
   a. Cast-In-Place Systems that have fewer limitations in cutting openings during future alterations are preferred over other systems.

   b. Precast floor framing systems should not be used for office buildings unless the design can be demonstrated to adapt well to future changes.
in locations of heavy partitions or equipment. Precast systems may be considered for low-rise structures such as parking garages, industrial buildings, and storage and maintenance facilities.

c. Pre-tensioning and Post-tensioning as with precast floor framing, should not be used unless the design can be demonstrated to not impede future flexibility. Post-tensioned beams may be used where code allows in beams.

D. Stability and Serviceability Criteria

1. Progressive Collapse

The design structure must not be subject to progressive collapse, as defined in the BOCA National Building Code. The failure of a beam or slab should not result in failure of the structural system below or in adjacent bays. In case of column failure, the damage should be limited to the bays supported by that column.

2. Vibration of Floor Systems

Transient vibration induced by passing traffic or footfall should be minimized.

3. Corrosion Protection

a. Structures in salt environments must have a positive means of corrosion protection. Structures requiring protection include concrete foundations exposed to saline groundwater, parking decks, bridges, and pavements where de-icing salts are used, and structures exposed to salt-laden air.

b. Steel. Structural steel exposed to the elements must have a protective coating on all
steel surfaces. Small, isolated structural steel elements may have hot dipped, galvanized zinc coating or coal tar epoxy paint. Larger exposed steel structures, such as parking, should use a two-coat system consisting of an organic zinc rich urethane or epoxy primer, shop applied over blast cleaned surfaces followed by a field applied finish coat.

c. Concrete. Make provisions for crack control and employ the following methods, alone or in combination, according to the severity of the condition:

1. Epoxy coated reinforcing bars.
2. Concrete surface sealers.
4. Microsilica concrete used in lieu of additives.

D. Concrete Elements in Parking Structures. Protect the concrete in parking structures or below building levels by using corrosion inhibiting additives, epoxy coated reinforcing bars, and a concrete surface sealer. Epoxy coated reinforcing bars should be used for the top bars of the concrete beam and slab construction and the stirrups of beams and spandrel beams. They should not be used for the bottom bars in beams nor for the reinforcement of columns and walls.

4. Construction Tolerances

Concrete Floor Slab Finish Tolerances should be measured in accordance with ASTM E1155 and should comply with ACI 117: Standard Specification for Tolerances for Concrete Construction and Materials.

5. Protection of Adjoining Property

a. Protective measures, including those required
by local code, must be taken to avoid the effect of the structure on adjoining buildings both during and after construction.

b. Sheeting, Shoring, and Underpinning, protecting the banks of the excavation or adjoining buildings must be made the full responsibility of the construction contractor.

c. Footings should not project beyond property lines.

E. Attachment of Nonstructural Elements

All nonstructural elements, components, and equipment located within a building or on the site must be anchored to withstand gravity and wind loads.

1. Exterior Cladding

a. Exterior cladding must have connections and joints that permit relative movement between stories. Connections should have sufficient ductility and rotation capacity to preclude the possibility of brittle failure in connection welds or fracture in concrete. Inserts in concrete should be attached to, or hooked around, reinforcing steel.

b. Slotted or oversized holes at cladding connections should be used to permit movement parallel to the plane of the building skin.

c. Window frames should be positively anchored to resist lateral loads. Clearance and flexible mountings should be provided to permit thermal movement and minimize glass breakage in storms and earthquakes.
2. Partitions
   a. Nonstructural, rigid partitions must be supported by the structure in such a way that they cannot inadvertently become load-carrying elements.
   
   b. Masonry walls should be isolated from the structure of the floor above by a gap and be restrained by continuous or intermittent steel angles at the top of the wall on both sides or by steel straps extending into the grout of the wall. Masonry walls should be isolated from concrete columns by flexible joints.
   
   c. In full height walls, the top of a steel stud should be separated from the track to allow for vertical deflection of the slab.
   
   d. Building expansion joints must be carried through crossing partitions.

3. Ceiling Systems

   Suspended Grid Systems must not support light fixtures that are not supported independently. Suspended ceilings, including air diffusers, light fixtures and speakers, must be braced as required. Suspended ceilings must be isolated from walls which extend above the ceiling to the building structure.

4. Monolithic Ceiling. Gypsum board ceiling should be fastened with large head nails or screws. Building expansion joints must be carried through all monolithic ceilings.

F. Furnishings and Equipment

1. Fixed Casework and Equipment

   Fixed casework and built-in equipment, such as storage racks and built-in bookcases 5 feet or more in height, should be anchored to floor and walls. Where cabinets or shelving are hung from walls, their weight must be included in the partition
2. Mechanical and Electrical Equipment

Equipment Anchorage. Mechanical, electrical, and plumbing equipment listed below should be anchored to prevent overturning or sliding due to lateral forces. For lateral loads due to wind, the provisions of the BOCA National Building Code should be followed.

- Air-handling Units
- Battery Racks
- Boilers
- Chillers
- Control Panels
- Cooling Towers
- Emergency Generators
- Heat Exchangers
- Motors
- Panelboards
- Pumps
- Switchgear
- Tanks
- Transformers
- Uninterruptible Power Supplies
- Vessels

G. Alterations in Existing Buildings and Historic Structures

Alteration requires ingenuity and imagination. It is inherently unsuited to rigid set of rules. Each case is unique. It is recognized that total compliance with standards may not be possible in every case. Where serious difficulties arise, creative solutions that achieve the intent of the standard are encouraged and should be presented for the review and approval of DAEC.
A. When required by the Program for new or renovated construction projects or when requested by the Users thru the Project Manager, the A/E shall provide all appropriate security devices, possibly including special locks, card readers, palm reader devices, motion detectors, cameras, alarms, lights, etc. for the building, laboratories, rooms or areas designated to require security. It is the A/E’s responsibility to determine the scope of security required for all major renovations or new construction of research facilities based on the University’s Research Facility Security Policy and meetings with Environmental Safety and Building Security System. Copies of this Policy are available from the Department of Environmental Safety. A copy of this policy is appended below.

B. The Project Manager and User representative should attend all Partnering sessions and design initiation meetings with the A/E.

UNIVERSITY OF MARYLAND, COLLEGE PARK
RESEARCH FACILITY SECURITY POLICY

I. Purpose
This is a statement of official University of Maryland policy to define the security systems that will be installed in new research facilities, and to recommend security system upgrades in existing research buildings. First among the University’s stated priorities is solidifying research activity at the University to establish the University as a premier national research university. The University cannot and will not be able to achieve its goal if it is not able to provide minimal security assurances to its own faculty and other researchers, private and public research sponsors, government agencies and corporations. This document is intended to demonstrate that the University takes seriously the security needs and interests of its researchers, understands the different risks involved in the wide variety of research conducted on the University campus, and is committed to taking reasonable measures to help assure the safety, well-being and security of research facilities, data and personnel.

II. Scope
This policy describes a security performance standard for construction of new and renovation of existing research facilities. Minimum security requirements for all research facilities and additional requirements for areas with hazardous materials are addressed. This policy does not address measures necessary to protect expensive equipment, proprietary information, or a product. As a performance standard, this policy does not specify products or compliance details.
III. Responsibilities
A. The Department of Environmental Safety (DES) shall:
   1. Review and update policy annually.
   2. Participate in pre-program meetings.
B. Architecture, Engineering and Construction (AEC) shall:
   1. Ensure that the recommendations in the Policy are incorporated in the
      construction of all new research facilities.
   2. Include DES, Building Security Systems, and users in pre-program
      meetings.
   3. Provide training in use of security systems as part of commissioning
      process.
   4. Incorporate reference to Policy into the intrusion detection paragraph of
   5. Involve representatives from DES and Building Security in review if there
      are changes in users or Program affecting the design of the research
      facility.
C. The users of the facility shall:
   1. Accurately identify functional use of space during planning meetings.
   2. Train personnel to use security measures responsibly.
   3. Monitor appropriate use of security systems.
D. The Building Security Systems Office shall:
   1. Determine the specific type and brand of hardware that corresponds with
      recommendations in this policy.
   2. Participate in pre-program meetings.

IV. Policy
   1. New Construction
      A. All new research facilities will incorporate the following basic facility design
         features.
         1. Segregate public access areas from research areas.
            a. Locate general access areas (classrooms and conference
               rooms) on lower floors.
            b. Locate research laboratories on upper floors, except for
               laboratories that may use explosive materials.
         2. Perimeter security
            a. Electric locks on all exterior doors.
            b. Card readers on all exterior access doors.
            c. Security of ground level windows will be achieved by use of
               either
               i. Window grills, or
               ii. Electronically protected glass in operable windows.
d. Exterior lighting to provide appropriate illumination.
e. Alarms on roof maintenance doors
   i. Automatically activated at night, deactivated during daytime.
   ii. Connected to University Police and audible at site.

3. Elevator/stairwell security
   a. Stairwell doors to public access areas on lower floors will not have locks.
   b. Card readers and electric locks on stairwell doors to research areas. Under conditions specified by the State Fire Prevention Code, some stairwell doors must unlock and allow access from the stairwell to the floor when the fire alarm is activated.
   c. Card readers in elevators to research areas.

B. All new high risk research facilities (i.e., research facilities that house animals, containment laboratories or greenhouses; store select agents or acute toxins; or involve the use of radiation hazards will:
   1. Incorporate the basic facility design features set forth in Part I.A., plus
   2. Incorporate additional security features, on a case-by-case basis, that are identified during planning meetings as necessary by the users, AEC, Building Security Systems, and DES; for example:
      a. Perimeter and elevator/stairwell security: Alarm wired to University Police or installation of camera monitors.
      b. Doors to individual research laboratories: electric lock and card reader on laboratory doors or pre-wiring of some general laboratory doors for installation of card readers at later date if needed.

V. Existing Buildings
   A. In conjunction with scheduled renovation, all existing research facilities will be upgraded to incorporate the basic facility design features set forth in Part I.A.
   B. Prior to renovation users, AEC, Building Security Systems, and DES will meet to determine, based on the projected use of the building, whether additional security features are needed.
   C. It is recommended that there be an automatic safety review of renovation plans by appropriate departments, including DES and Building Security System.

VI. Information
    The Department of Environmental Safety and the Building Security Systems Office will provide guidance for implementation of this policy.
I. Policy Statement

The A/E shall provide required space and utilities for vending machines in new buildings and major renovation projects based on the design guidelines in this section. After completion of the schematic design, the AEC project manager (PM) will request the Department of Business Services (DBS) and the building occupants to meet to jointly finalize vending requirements based on the floor layouts in the schematic design and the design guidelines in this section. The PM will then provide the final requirements to the A/E to incorporate into future design phases.

II. Background

The university’s vending program provides snack foods and beverages in convenient locations throughout the campus community. Vending machines are located in existing buildings and must be planned for in new buildings and major renovations. Pepsi-Cola and Blind Industries & Services of Maryland (BISM) are the current vendors and they provide a variety of products. Some locations offer cold food and a microwave in addition to the candy, chips, pastries, and cold beverages found in the majority of locations. The vending machines are owned and operated by the vendors. The university is responsible to provide adequate space and utilities for the machines.

III. Requirements

A. Location

Vending machines should be located in convenient yet unobtrusive locations in the building. Typically, they will be located in alcoves off the lobby or main hallways. They should be located proximate to ramps, elevators and/or the loading dock to facilitate product delivery and servicing of the machines. Also, their location must be in compliance with all environmental health and safety rules and guidelines. For example, they must be located such that they do not impede the adequate and safe means to exit the building during emergencies, nor impede access for emergency personnel (corridors and other means of egress must be free of obstructions and items may not block exit doors or restrict the width of any portion of a corridor to less than 44 inches). Lastly, the university requires recycling of materials including bottles (glass and plastic) and cans (aluminum and metal), and recycling collection areas are provided in campus buildings. Vending machines should be located proximate to recycling collection areas so that used cans and bottles can be recycled conveniently.
B. Space and Utility Needs

The space needs for vending is based on the number of vending machines required. The number of vending machines required is based on the number of occupants in the building, with some adjustments made due to other factors. The Department of Business Services will meet with the building occupants after completion of schematic design and make final decisions on number, type and distribution of vending machines based on these guidelines and factors and the schematic layout of the building. Following are the guidelines and factors:

<table>
<thead>
<tr>
<th># Occupants</th>
<th># Snack Machines</th>
<th># Beverage Machines</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>200</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>300</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>400</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

Other factors:

- If there are 100 or more occupants per floor in a large building, consideration may be given to place one snack and one beverage vendor per floor.
- For buildings with classrooms, the maximum number of students in the classrooms at any one time should be added to the occupant totals to determine number of vending machines.
- Buildings with little reduction in occupancy levels before and/or after the normal core hours of occupancy may require more vending machines than in the guidelines.
- Buildings that are occupied 24 hours per day (e.g., research labs) may require more vending machines than in the guidelines.
- Buildings with a large number of outside visitors or transient people may require more vending machines than in the guidelines. These machines should be located in the high traffic areas.
- Occupants in a building may request specialized vending machines (e.g. coffee, cold food or frozen vendor) depending on their needs.
For large buildings with multi-levels, two beverage vendors and one snack vendor on the main entry level and one beverage and one snack on each floor is recommended.

In order to plan for vending placements, machine size, safety, utility and recycling needs must be considered. Following are requirements for each machine type:

### Blind Industries & Services of Maryland Snack Machines:

<table>
<thead>
<tr>
<th>Machine Type</th>
<th>Dimensions</th>
<th>Electric</th>
<th>Dedicated Circuit</th>
<th>Water Supply</th>
<th>Recycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior Glass front snack</td>
<td>72&quot;H 35&quot;D 39&quot;W</td>
<td>120V/ 3 A</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Junior Glass front snack</td>
<td>72&quot;H 35&quot;D 34 7/8&quot; W</td>
<td>120V/ 3 A</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Coffee/hot beverage</td>
<td>72&quot;H 31&quot;D 38&quot;W</td>
<td>120/ 16 A</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Cold food/Sandwich</td>
<td>72&quot;H 33&quot;D 30&quot;W</td>
<td>220V/ 20 A</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Frozen food/ice cream</td>
<td>72&quot;H 32 1/4&quot;D 41&quot;W</td>
<td>120V/ 20 A</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Microwave &amp; coin changer</td>
<td>72&quot;H 36&quot;D 33 1/2&quot; W</td>
<td>120V/ 15 A</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

### Pepsi Machines:

<table>
<thead>
<tr>
<th>Machine Type</th>
<th>Dimensions</th>
<th>Electric</th>
<th>Dedicated Circuit</th>
<th>Water Supply</th>
<th>Recycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machine holding 11.5 oz and 12 oz cans.</td>
<td>32&quot;W 26&quot;D 72&quot;H</td>
<td>120V/11 A</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Machine holding 20 oz bottles</td>
<td>37&quot;W 33&quot;D 72&quot;H</td>
<td>120V/11 A</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Machine holding 11.5 oz and 12 oz cans</td>
<td>40&quot;W 31&quot;D 79&quot;H</td>
<td>120V/11 A</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Machine holding 20 oz bottles</td>
<td>40&quot;W 35&quot;D 79&quot;H</td>
<td>120V/11 A</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Other utility considerations:

1. Extension cords may not be used. Electrical power cords for vending machines are normally 6 to 9 feet in length.
2. Certain vending machines may generate enough heat to require special ventilation or cooling. In conjunction with the Department of Business Services, the A/E must identify the location of such machines and provide adequate ventilation and cooling.
3. It may be desirable to provide floor drains in areas that will contain several beverage vending machines. In conjunction with the Department of Business Services, the A/E must identify such locations and provide the floor drains.
1 OVERVIEW

1.1 INTRODUCTION

A. This document establishes requirements for the preparation and submission of electronic documents for UM design and construction projects. Questions concerning CAD Standards should be submitted to the University of Maryland Project Manager (UM PM) assigned to the project.

B. Any proposed modification or deviation from this standard must be approved in writing by the UM AutoCAD Systems Manager.

C. Architectural and/or Engineering (A/E) firms may use any method of drawing production but all submitted files must meet these requirements. The A/E is also responsible for ensuring that their sub-consultants meet these requirements.

D. Template drawings, formatted in accordance with these requirements, are available for use by the A/E.

E. The University will review and approve the CAD data submitted by the A/E (see Section 4 for the UM checklist used for this review.) All discrepancies found during this review must be corrected in the next submission. Any discrepancies remaining in the 100% submittals must be corrected and resubmitted within 30 days.

F. Costs for re-printing, re-assembly, or project delays due to the A/E’s failure to follow these requirements may affect the A/E’s fees or reimbursements. The A/E is encouraged to raise any questions or concerns with the UM PM well in advance of submittal deadlines.

1.2 ACCESS TO UNIVERSITY CAD FILES

A. The A/E with written approval from a UM PM, may request copies of existing UM CAD files and/or hard copy drawings from FM Archives. Available CAD files include floor plans, site plans including survey monuments, and topographical contours. Such files are provided only for the convenience of the recipient. The information in these files has been gathered from a variety of sources and may or may not conform to the current requirements specified herein. UM makes no representation as to the completeness or accuracy of the information. The A/E will be required to sign an agreement accepting these terms in order to use UM files. See Electronic File Use Agreement for Digital Data, Attachment.

B. CAD files submitted to UM by the A/E must be accurate and must conform to these CAD requirements even if using information provided by UM which is inaccurate or does not conform to these requirements.

C. FM Archives will not research and/or compile the necessary drawings needed for a specific project. It is the responsibility of the UM PM or A/E to coordinate and select the appropriate information and request copies from FM Archives. UM will not provide CAD files or hard copies of documents to any design sub-consultants.
1.3 FILE FORMAT

A. All submitted files must be fully compatible with the version of AutoCAD currently being used by UM. This information will be available from the UM PM responsible for the project.

B. If a program other than AutoCAD is used for drawing production, it is the A/E's responsibility to ensure complete AutoCAD compatibility and data integrity. An A/E using programs other than AutoCAD are encouraged to send translated files for testing prior to submission deadlines.

C. DXF files are not acceptable.

D. Drawings must open in AutoCAD without errors, AEC objects, font substitution or missing linetype files.

2 GENERAL DRAWING REQUIREMENTS

2.1 BEST PRACTICES

A. With rare exceptions, all object properties should be assigned by layer, not by object.

B. All building elements should be drawn to actual, not nominal dimensions.

C. Co-terminus lines drawn on the same layer shall be drawn or joined as a single entity.

D. No redundant (overlapping) line work is allowed.

E. Inserted images should be used only if absolutely necessary. Company logos should be inserted as blocks or drawing elements rather than as images.

F. Units shall be set to architectural inches, with a precision no smaller than 1/32". Civil engineering drawing units shall be decimal feet with a precision no smaller than .00.

2.2 SITE PLANS/SURVEYS

A. Site drawings will be developed in Maryland State Plane coordinates (NAD 83) with a minimum of three survey monuments shown on each site sheet. The drawings will be maintained in the project coordinate system and rotated, if necessary, in paper space viewports.

2.3 DRAFTING CONVERSIONS

A. All drafting conventions must comply with the CSI Uniform Drawing System of the National CAD Standard.

2.4 MODEL/PAPER SPACE

A. All building, site and construction detail elements shall be drawn in model space at full scale.

B. Text, notes, schedules, dimensions and diagrams may be drawn as preferred by the A/E but must be easily legible when plotted.
C. All paper space tabs must be assigned a page setup defining the paper size to match the intended plotted sheet size and plotter set to "none."

2.5 LAYERS

A. All layering shall follow National CAD Standard format (current version).
B. Revision clouds and triangles shall be on a separate layer.
C. Other than block elements, no objects shall be drawn on Layer 0.
D. No objects shall be drawn on the Defpoints layer, including viewports.

2.6 TITLE BLOCKS

A. Template drawings are available from UM and include title blocks for all approved sheet sizes. These title blocks must be used, even if other templates features are not used.
B. All information represented as attributes in all sheet blocks must be entered correctly.
C. An A/E working for the Department of Campus Projects (rather than Capital Projects) is required to use the 36 x 22 sheet unless alternate size as approved by UM PM.

2.7 LINETYPE

A. Dashed lines shall be drawn with dashed linetypes never as multiple line segments.
B. Linetype scale must be set so that each linetype is clearly discernible when plotted.
C. Use of AutoCAD standard linetypes is strongly preferred. If custom or complex linetypes are necessary, a .LIN file and associated .SHX and .SHP files must be provided with each submittal.

2.8 TEXT

A. The AutoCAD Standard text style shall not be redefined.
B. Only AutoCAD standard SHX fonts, Microsoft standard TTF fonts, Archstyle.shx or Architext.shx may be used.

2.9 DIMENSIONS

A. The AutoCAD Standard dimension style shall not be redefined.
B. Dimension text must accurately reflect actual dimension, no manual input of dimension text is allowed for new construction. Manual input of non-dimensional text (e.g. EQ, VIF) is allowed.
C. It is always preferable to redraw inaccurate drawings to accurate dimensions. However, if minor inaccuracies are found in UM provided CAD files, dimensions for such areas can be manually inputted. The A/E will be solely responsible for the accuracy of all such dimensions and associated work.
D. Dimensions shall never be exploded.
E. When dimension text cannot fit within dimension lines, leaders must be part of dimension style, not drawn as separate objects.

2.10 BLOCKS

A. With the exception of details inserted as blocks, all block elements must be drawn on Layer 0.

B. Nested blocks are not allowed.

2.11 HATCHING

A. Hatching should be used as appropriate. Excessive hatching should be avoided but multiple lines, points, symbols, etc. used in place of hatching will not be allowed.

B. Hatches are to be associative and should never be exploded.

C. Hatches, polylines with width, and/or solids used to represent poche must have defining boundary lines which are on a separate layer.

2.12 PLOTTING

A. All drawing sheets must be formatted to plot from paper space at a scale of 1:1.

B. All drawings for a project, including those from sub consultants shall be plotted with a single plot style table.

C. The A/E is strongly encouraged to use the CTB file provided with the template drawings.

3 SUBMITTALS

3.1 PRIOR TO ALL SUBMITTALS

A. Each plotted sheet shall be saved as a separate file.

B. File names must include UM project number or QC number and sheet number, e.g.: QC-1000_A101

C. All files are to be thoroughly purged. Purging to include 0 length lines, empty text objects, empty blocks and regapps.

D. All files to be audited.

E. All files to be zoomed to drawing extents in model space. No objects shall be located outside of hard copy drawing limits.

F. All files to be zoomed to drawing extents in paper space. No objects shall be located outside of hard copy drawing limits.

G. All viewports are to be locked.

H. All layer visibility set to match plotted hard copy.

I. All files to be saved so that drawing opens to display intended plot view.
J. A/E may use any xref method during production. However, files delivered to UM must have all xrefs bound using the bind/bind method.

3.2 SUBMISSIONS

A. The content of electronic files shall match the delivered hard copy set.

B. Electronic files shall be submitted simultaneously with hard copy submissions.

C. All CAD submittals shall be saved to disk and include all files required to create plots matching the hard copy submission including plot style tables. E-transmit can ensure this is done properly.

D. Default plotter to be set to “none.”

E. All files shall be submitted on disk to the UM PM. A/E is responsible for delivering files from all sub-consultants. Disk label to include:

   UM Building Name and Number
   UM Project Name
   UM Project Number
   Date
   Submission Phase
   Disk Set Number (e.g. 1 of 3)
   List of all drawing files ordered by sheet number and drawing title, e.g.:
   QC-1000_CS001 Cover Sheet
   QC-1000_AS101 Site Plan
   QC-1000_A101 First Floor Plan

F. All CAD submittals shall be accompanied by a letter of transmittal in electronic and hard copy format. This transmittal shall be addressed to the appropriate UM PM with a cc to the AutoCAD Systems Manager and Document Control Manager

G. Letter of transmittal shall include:

   UM Building Name and Number
   UM Project Number
   UM Project name
   Date
   Submission Phase
   List of all drawing files ordered by sheet number and drawing title, e.g:
   QC-1000_CS001 Cover Sheet
   QC-1000_AS101 Site Plan
   QC-1000_A101 First Floor Plan

H. List of all other files found on disk.

I. Matrix of all used layers including: descriptions of each layer, color, linetype, lineweight.

3.3 AS-BUILTS

A. The consultant will provide a field survey as built CAD drawing of the total work site including all topographic features and contour drawing with one (1) foot contour intervals and appropriate “spot” elevations. This survey will include all utility
structures and text notations of all surface features such as trees, walks, curbs and other significant topographic elements.

3.4 SUBMISSION REQUIREMENTS BY PHASE

<table>
<thead>
<tr>
<th>Phase</th>
<th>Files Required For Submission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schematic Design</td>
<td>•</td>
</tr>
<tr>
<td>Design Development</td>
<td>• Architectural/Civil/Structural drawings</td>
</tr>
<tr>
<td>50%</td>
<td>• MEP drawings</td>
</tr>
<tr>
<td>95%</td>
<td>•</td>
</tr>
<tr>
<td>100%</td>
<td>• All disciplines</td>
</tr>
<tr>
<td>As-Built</td>
<td>• All disciplines</td>
</tr>
</tbody>
</table>
4 CAD Review Checklist

FILE FORMAT
☐ File format is .dwg and opens without errors, proxy objects, or missing linetypes, xrefs etc.

BEST PRACTICES
☐ Object properties assigned by layer
☐ No extraneous linework

SITE DRAWINGS
☐ Uses Maryland State Plane coordinates (NAD 83)
☐ Three survey monuments shown on each site sheet

MODEL/PAPER SPACE
☐ All model elements drawn at full scale
☐ All text legible
☐ Page set up indicates intended plot size

LAYERS
☐ Layering per National Cad Standard format
☐ Revision clouds/ triangles on separate layer
☐ No objects on Layer 0 or defpoints

TITLE BLOCKS
☐ Uses standard sheet sizes and title blocks (36 x 22 for CAMP)

LINETYPES
☐ Dashed lines drawn with dashed linetypes and display accurately in Paper Space

TEXT
☐ Only standard ACAD, Microsoft or Archstyle.shx, Architext.shx fonts used

DIMENSIONS
☐ No exploded dimension
☐ No manual input of dimension

HATCHING
☐ Hatching is associative
☐ Poche has boundary lines on separate layer

PLOTTING
☐ Plot from paper space at 1:1
☐ All dwgs use single plot style table

SUBMITTALS
☐ Each sheet saved as file
☐ File names are correct
☐ Drawings purged with no 0 length lines, empty text objects, empty blocks and regapps
☐ All Xrefs bound using bind/bind
☐ Layer visibility matches hard copy.
☐ No objects outside hard copy drawing limits

Disk includes:
☐ UM Building Name and Number
☐ UM Project Name and Number
☐ Date and Submission Phase
☐ Set Number (e.g. 1 of 3)
☐ Text file listing all files contained on disk
Electronic File Agreement

This Agreement is entered into this_____ day of ____________________________ 201____, by the University of Maryland through its Facilities Management Dept. (UM FM) and __________________________________________________________________________ (Consultant).

UM FM and Consultant agree as follows:

1. Consultant will use digital information for reference only and agrees not to disseminate or disclose said information for other purposes.

2. Consultant will take necessary and reasonable steps to prevent this information from being disclosed to unauthorized persons.

3. Consultant understands and agrees that UM FM makes no representation and extends no warranty to it or to anyone else as to the accuracy or completeness of the information contained in digital data but rather provides said data in an “as is” condition. Consultant agrees and does hereby waive any and all claims under any theory of law or damages or injuries against University of Maryland that may arise from the furnishing by UM FM of said data to Consultant.

Consent to the above terms as indicated by signature below:

Agree to on behalf of:
University of Maryland
Facilities Management Department

Provided by: __________________________________________________________________________

Authorized by: _______________________________________________________________________  
Date: ________________________________________________________________________________

Description of Data:
____________________________________________________________________________________
____________________________________________________________________________________
____________________________________________________________________________________

Consultant: __________________________________________________________________________

Signature: ___________________________________________________________________________

Date: _______________________________________________________________________________  
Company: ___________________________________________________________________________

Project No.: _________________________________________________________________________