



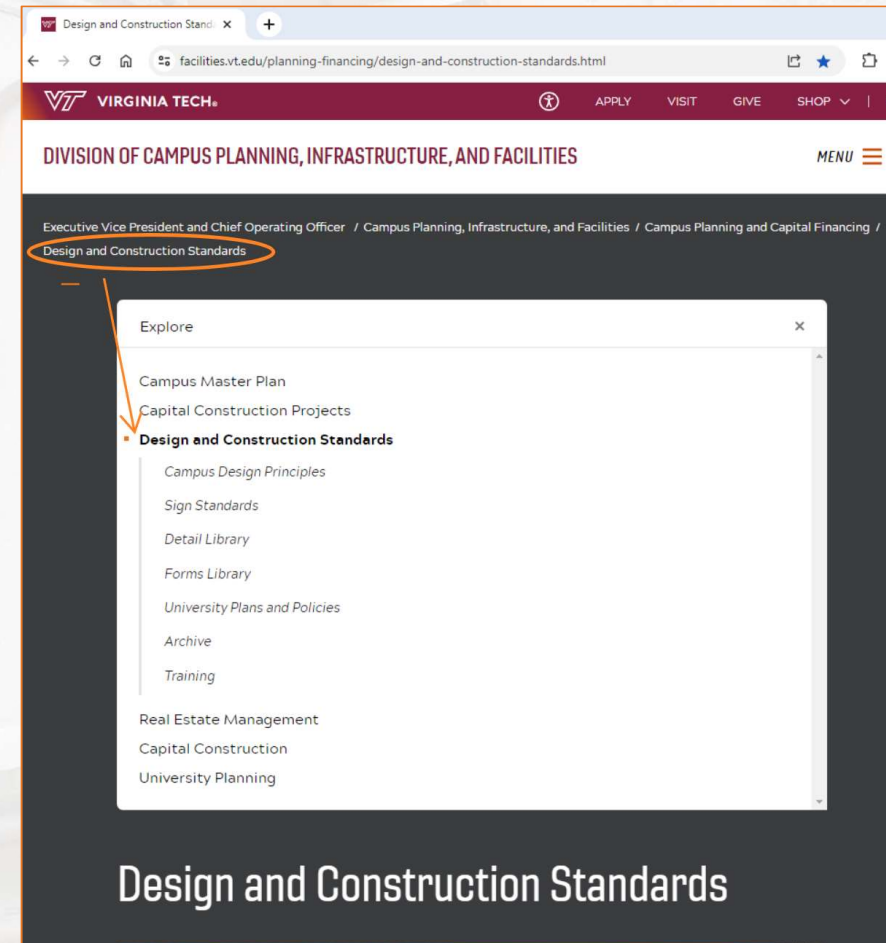
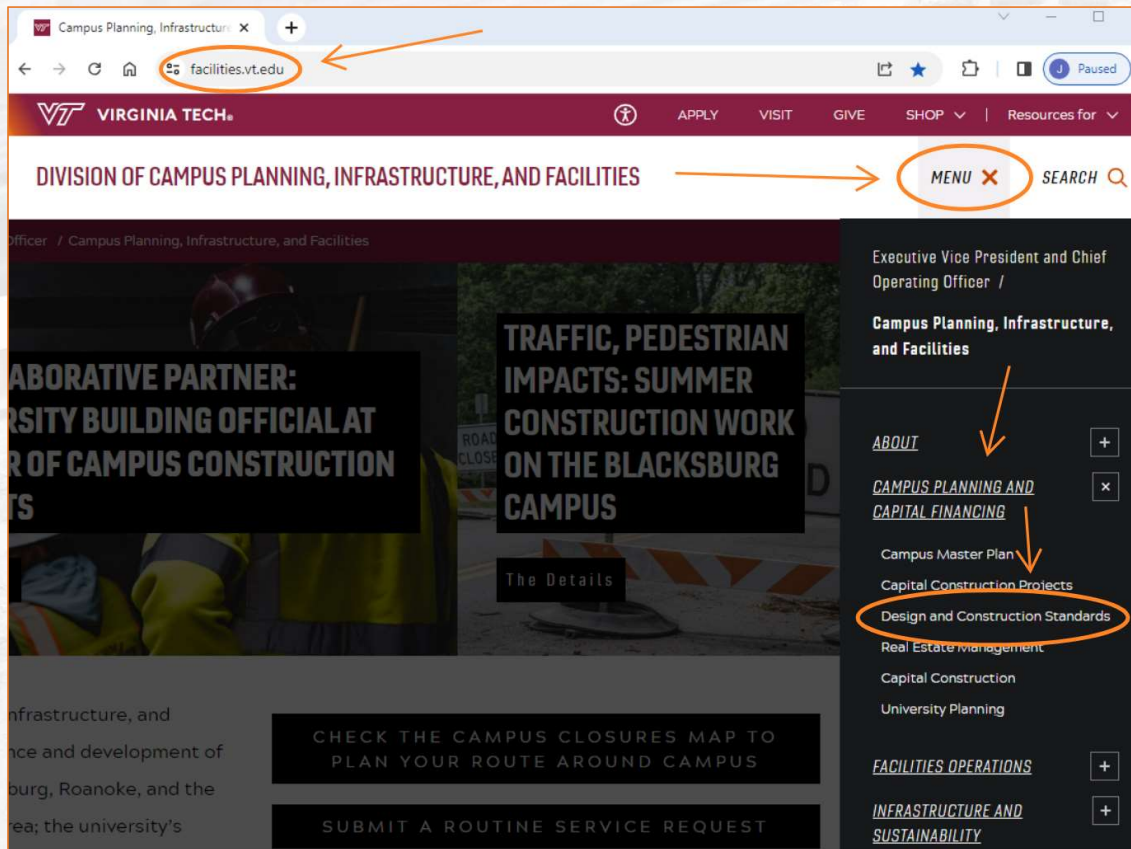
2023 DESIGN AND CONSTRUCTION STANDARDS MANUAL

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- DCSM -

INTRODUCTION

1 - GENERAL REQUIREMENTS

2 - DOCUMENT AND DRAWING REQUIREMENTS

3 - SAFETY AND SECURITY

4 - SITE DEVELOPMENT

5 - BUILDING

6 - BUILDING SERVICES

7 - CONSTRUCTION ACTIVITY

8 - INSPECTIONS AND OCCUPANCY

- ASSOCIATED DOCUMENTS -

APPENDICES

CHECKLISTS

DETAILS

➤ INTRODUCTION

- The DCSM that is current at the time of contract approval is the DCSM that must be used for construction documents.

➤ GENERAL REQUIREMENTS

- Updated the Lactation Rooms section (1.7.3.5.2)
 - Minimum room size
 - Ventilation and lighting requirements
 - Requirements for furnishings and supplies
 - Preferences and suggestions for an optimal design
 - Dimmer switch for lighting
 - Windowless doors
 - Keypad access
 - Decor, furnishings, and supplies



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VIRGINIA TECH

- DCSM -

INTRODUCTION

1 - GENERAL REQUIREMENTS

2 - DOCUMENT AND DRAWING REQUIREMENTS

3 - SAFETY AND SECURITY

4 - SITE DEVELOPMENT

5 - BUILDING

6 - BUILDING SERVICES

7 - CONSTRUCTION ACTIVITY

8 - INSPECTIONS AND OCCUPANCY

- ASSOCIATED DOCUMENTS -

APPENDICES

CHECKLISTS

DETAILS

➤ DOCUMENT AND DRAWING REQUIREMENTS

- Updated the Room Numbering section (2.3.1)
- Added the Delegated Design section (2.6.1.3)
- Added the HVAC Systems Design section (2.6.6)
- Added an Electrical section (2.7.5.13)
 - Electrical Coordination Analyses Review
 - In-Building Emergency Communications Systems

➤ SAFETY AND SECURITY

- Updated the Laboratory Emergency Safety Appliances section (3.9)
- Updated the Fire Alarm Systems section (3.10.7)
- Miscellaneous additions:
 - Shielded outdoor light fixtures
 - Guardrails and swing gates for mezzanines



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VIRGINIA TECH

- DCSM -

INTRODUCTION

1 - GENERAL REQUIREMENTS

2 - DOCUMENT AND DRAWING REQUIREMENTS

3 - SAFETY AND SECURITY

4 - SITE DEVELOPMENT

5 - BUILDING

6 - BUILDING SERVICES

7 - CONSTRUCTION ACTIVITY

8 - INSPECTIONS AND OCCUPANCY

- ASSOCIATED DOCUMENTS -

APPENDICES

CHECKLISTS

DETAILS

► SITE DEVELOPMENT

► GIS and Surveying section (4.1)

- Surveying Phases (2022, 4.1.1) removed
- Subsurface Utility Location additions
 - Notifications
 - Vertical accuracy and data collection

► Landscaping section (4.2)

- USDA plant hardiness map
- CPIF responsibilities
- Slope maintenance in design

► Planting section (4.3)

- Identify and protect seeded areas
- Mechanical loosening removed



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- DCSM -

INTRODUCTION

1 - GENERAL REQUIREMENTS

2 - DOCUMENT AND DRAWING REQUIREMENTS

3 - SAFETY AND SECURITY

4 - SITE DEVELOPMENT

5 - BUILDING

6 - BUILDING SERVICES

7 - CONSTRUCTION ACTIVITY

8 - INSPECTIONS AND OCCUPANCY

- ASSOCIATED DOCUMENTS -

APPENDICES

CHECKLISTS

DETAILS

► SITE DEVELOPMENT

► Tree Planting and Care section (4.4)

- Maximum planting stock size
- Restrictions outside the planting season
- Vandalism section (2022, 4.4.6.5) removed
- Destruction of Trees (4.4.7.6) added

► Utilities section (4.8)

- Buried copper pipe update
- Two parallel backflow preventers
- Gate valve updates

► BUILDING

- Daily inspections by the UBO during Hokie Stone installation
- Locations for emergency lighting
- Updated the Laboratory Design section (5.18)



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VIRGINIA TECH

- DCSM -

INTRODUCTION

1 - GENERAL REQUIREMENTS

2 - DOCUMENT AND DRAWING REQUIREMENTS

3 - SAFETY AND SECURITY

4 - SITE DEVELOPMENT

5 - BUILDING

6 - BUILDING SERVICES

7 - CONSTRUCTION ACTIVITY

8 - INSPECTIONS AND OCCUPANCY

- ASSOCIATED DOCUMENTS -

APPENDICES

CHECKLISTS

DETAILS

➤ BUILDING SERVICES

➤ Heating, Ventilation, and Air Conditioning section (6.7) rework

➤ Goals:

- Identify obsolete points - remove or update
- Add sections missing from the standards
- Organize as needed for clarity or usefulness

➤ New sections:

- | | |
|--------------------------|----------------------------------|
| ➤ Hangers and Supports | ➤ Air-Cooled Chillers |
| ➤ Hydronic Piping | ➤ Process Cooling Systems |
| ➤ Plenum Fan Arrays | ➤ Computer Room Air Conditioning |
| ➤ Boilers | ➤ Ductless Mini-Split System |
| ➤ Heat Exchangers | ➤ Refrigerant Coils |
| ➤ Packaged Rooftop Units | ➤ Finned-Tube Heaters |
| ➤ Cooling Towers | ➤ Filtration |



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VIRGINIA TECH

- DCSM -

INTRODUCTION

1 - GENERAL REQUIREMENTS

2 - DOCUMENT AND DRAWING REQUIREMENTS

3 - SAFETY AND SECURITY

4 - SITE DEVELOPMENT

5 - BUILDING

6 - BUILDING SERVICES

7 - CONSTRUCTION ACTIVITY

8 - INSPECTIONS AND OCCUPANCY

- ASSOCIATED DOCUMENTS -

APPENDICES

CHECKLISTS

DETAILS

▶ HVAC section (6.7) rework

- ▶ Access and location marking for equipment
- ▶ Locking handles for valves
 - ▶ Major system components
 - ▶ Isolation valves of main utilities
- ▶ Isolation valves for all branch lines
- ▶ HPBVs for building service entrance piping
- ▶ Inspection for heat tracing before adding insulation
- ▶ Insulation improvements
- ▶ Cooling coil condensate drain pan overflow switches and alarm
- ▶ Size and location of duct access door
- ▶ Water-cooled chillers
- ▶ Ventilation system sizing



DIVISION OF CAMPUS PLANNING,
INFRASTRUCTURE, AND FACILITIES
VIRGINIA TECH

- DCSM -

INTRODUCTION

1 - GENERAL REQUIREMENTS

2 - DOCUMENT AND DRAWING REQUIREMENTS

3 - SAFETY AND SECURITY

4 - SITE DEVELOPMENT

5 - BUILDING

6 - BUILDING SERVICES

7 - CONSTRUCTION ACTIVITY

8 - INSPECTIONS AND OCCUPANCY

➤ HVAC section (6.7) rework

- Most of 2022 section 6.7.1, Common Work Results for HVAC → 2023 section 2.6.6, HVAC Systems Design
- All of 2022 section 6.7.2, Selective Demolition for HVAC → 2023 section 8.4, Start-Up/Acceptance of Mechanical and Electrical Systems

- ASSOCIATED DOCUMENTS -

APPENDICES

CHECKLISTS

DETAILS



DIVISION OF CAMPUS PLANNING,
INFRASTRUCTURE, AND FACILITIES
VIRGINIA TECH

- DCSM -

INTRODUCTION

1 - GENERAL REQUIREMENTS

2 - DOCUMENT AND DRAWING REQUIREMENTS

3 - SAFETY AND SECURITY

4 - SITE DEVELOPMENT

5 - BUILDING

6 - BUILDING SERVICES

7 - CONSTRUCTION ACTIVITY

8 - INSPECTIONS AND OCCUPANCY

- ASSOCIATED DOCUMENTS -

APPENDICES

CHECKLISTS

DETAILS

➤ CONSTRUCTION ACTIVITY

- Plan for protecting critical root zones of trees during project work
 - Preliminary design phase
 - Root pruning or tree preservation plan

➤ INSPECTIONS AND OCCUPANCY

- Clean air handling equipment at project completion

➤ APPENDICES

- Appendix E - Interior Signage Standards Manual



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- DCSM -

INTRODUCTION

1 - GENERAL REQUIREMENTS

2 - DOCUMENT AND DRAWING REQUIREMENTS

3 - SAFETY AND SECURITY

4 - SITE DEVELOPMENT

5 - BUILDING

6 - BUILDING SERVICES

7 - CONSTRUCTION ACTIVITY

8 - INSPECTIONS AND OCCUPANCY

- ASSOCIATED DOCUMENTS -

APPENDICES

CHECKLISTS

DETAILS

➤ CHECKLISTS

➤ Narrative – changes to Electrical and Electronic Systems

➤ Drawing – changes to several checklists in each design phase

Checklist Name	Sch. Narr.	Sch. Draw.	Prelim. Narr.	Prelim. Draw.	Work. Draw.
Title Sheets and Building Code Data		X		X	X
Site and Civil Plan		X		X	X
Landscape Architectural		X		X	X
Electrical and Electronic Systems	X		X	X	X
Architectural				X	X
Fire Systems				X	X
Utilities					X
Mechanical					X



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INFRASTRUCTURE, AND FACILITIES
VIRGINIA TECH

- DCSM -

INTRODUCTION

1 - GENERAL REQUIREMENTS

2 - DOCUMENT AND DRAWING REQUIREMENTS

3 - SAFETY AND SECURITY

4 - SITE DEVELOPMENT

5 - BUILDING

6 - BUILDING SERVICES

7 - CONSTRUCTION ACTIVITY

8 - INSPECTIONS AND OCCUPANCY

- ASSOCIATED DOCUMENTS -

APPENDICES

CHECKLISTS

DETAILS

➤ CHECKLISTS

➤ Additions from the Virginia CPSM 2022 Rev-0

Addition		Checklists
Public safety wireless communications statement	➤	Schematic, preliminary, and working drawings
Floodplain boundaries and associated information	➤	Preliminary and working drawings
In-building emergency communications infrastructure	➤	Schematic and preliminary narratives; preliminary and working drawings
Electrical coordination analyses	➤	Schematic and preliminary narratives; working drawings



DIVISION OF CAMPUS PLANNING,
INFRASTRUCTURE, AND FACILITIES
VIRGINIA TECH

- DCSM -

INTRODUCTION

- 1 - GENERAL REQUIREMENTS
- 2 - DOCUMENT AND DRAWING REQUIREMENTS
- 3 - SAFETY AND SECURITY
- 4 - SITE DEVELOPMENT
- 5 - BUILDING
- 6 - BUILDING SERVICES
- 7 - CONSTRUCTION ACTIVITY
- 8 - INSPECTIONS AND OCCUPANCY

- ASSOCIATED DOCUMENTS -

APPENDICES

CHECKLISTS

DETAILS

► DETAILS

HVAC Details:

- Building Connection Detail for Campus Utility Chilled Water
- Glycol Feed System
- Steam Reducing Station
- Steam Flash Tank Details (2) - Horizontal and Vertical
- Steam Condensate Receiver Detail
- Steam Relief Valve with Drip Pan Elbow
- AHU Steam Coil with Integral Face and Bypass Damper (3)
 - Single Vertical
 - Double Vertical
 - Double Horizontal

Additional:

- Concrete walk detail is fiber-reinforced concrete
- Modified exterior sign detail for agricultural buildings



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- DCSM -

INTRODUCTION

1 - GENERAL REQUIREMENTS

2 - DOCUMENT AND DRAWING REQUIREMENTS

3 - SAFETY AND SECURITY

4 - SITE DEVELOPMENT

5 - BUILDING

6 - BUILDING SERVICES

7 - CONSTRUCTION ACTIVITY

8 - INSPECTIONS AND OCCUPANCY

- ASSOCIATED DOCUMENTS -

APPENDICES

CHECKLISTS

DETAILS

- ▶ Use the Summary of Changes for more information about the updates for the 2023 DCSM



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DCSM 2022 to 2023 Update

Design and Construction Standards Manual Summary of Changes

- ▶ Ordered by the DCSM chapters and the associated documents
- ▶ Changes listed by section numbers from 2023 DCSM
- ▶ References to the 2022 DCSM are in parentheses

- 5.7.1, #3: Added requirements for doors in laboratory spaces.
- 5.7.1, #4-5 (2022, 5.7.1, #3-4): Moved points.

- 6.7.20.2 (2022, 6.7.1, #26.c.iv and 6.7.22, #3): Added Refrigerant Equipment section.



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- DCSM -

INTRODUCTION

1 - GENERAL REQUIREMENTS

2 - DOCUMENT AND DRAWING REQUIREMENTS

3 - SAFETY AND SECURITY

4 - SITE DEVELOPMENT

5 - BUILDING

6 - BUILDING SERVICES

7 - CONSTRUCTION ACTIVITY

8 - INSPECTIONS AND OCCUPANCY

- ASSOCIATED DOCUMENTS -

APPENDICES

CHECKLISTS

DETAILS



DIVISION OF CAMPUS PLANNING,
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DCSM 2022 to 2023 Update

Design and Construction Standards Manual Summary of Changes

- 2.6.6, #11 (2022, 6.7.27.1): Added requirements to mark fire damper access points and to provide access doors in hard ceilings.
- 2.6.6, #12 (2022, 6.7.1, #6 and #6.a): Removed statement about the central chilled water utility and building HVAC infrastructure.
- 2.6.6, #13 (2022, 6.7.1, #24.h): Added requirement for an alarm signal to be sent to the BAS.
- 2.6.6, #14 (2022, 6.7.18, #6): Removed the basis of design statement.
- 2.6.6, #15 (2022, 6.7.4): Added requirement to provide guides and anchors to direct expansion.
- 2.6.6, #16 (2022, 6.7.37, #11): Added requirements to accommodate housekeeping pads and rails and to show elevations on drawings.
- 2.6.6, #17 (2022, 6.7.1, #23): Removed the examples of heat pipe and heat wheel.
- 2.6.6, #18: Added requirement to coordinate access space needs and to indicate access space on drawings. **New for 2023**



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- DCSM -

INTRODUCTION

1 - GENERAL REQUIREMENTS

2 - DOCUMENT AND DRAWING REQUIREMENTS

3 - SAFETY AND SECURITY

4 - SITE DEVELOPMENT

5 - BUILDING

6 - BUILDING SERVICES

7 - CONSTRUCTION ACTIVITY

8 - INSPECTIONS AND OCCUPANCY

- ASSOCIATED DOCUMENTS -

APPENDICES

CHECKLISTS

DETAILS

CHECKLISTS

SCHEMATIC PHASE

- Schematic Drawings:
 - Title Sheets and Building Code Data:
 - Added requirement to provide the applicable version of the DCSM.
 - Added requirement to provide a statement documenting the use of public safety wireless communications by local emergency public safety personnel.
 - Removed requirement for A/E to provide the University-approved delegated design list.
 - Site and Civil Plan: Added requirements.
 - Confirm a site walk with the A/E, Campus Landscape Architect, University Arborist, and VT Grounds and for confirmation that site conditions have been addressed in the plans.
 - Identify all trees that will remain, show the tree protection fencing for the trees, and confirm that no construction work will be performed within the tree protection fencing.
 - Landscape Architectural: Added the requirement to show the tree protection fencing on the site demolition plan.
- Schematic Basis of Design Narratives:
 - All narrative checklists were combined into one checklist. Categories from the checklists are divided into sections on the combined checklist.
 - Electrical and Electronic Systems: NEW checklist section.
 - Provide description of electrical coordination analyses process, installation, and testing requirements.
 - Document requirement of in-building emergency communications system.



Proposed Timeline for the 2024 DCSM

- ▶ **Now through February 16, 2024:** Submit changes for the DCSM and related documents
 - ▶ Updates for sections, details, checklists, or forms
 - ▶ Issues arising from design waiver submittals and Capital Construction monthly meetings
 - ▶ Applicable items from Virginia CPSM updates
- ▶ **March 2024:** First review of the draft 2024 DCSM and related documents
- ▶ **April 22-May 10, 2024:** Second review period
- ▶ **June 2024:** Management review for approval
- ▶ **July 1, 2024:** Goal signature date for the 2024 DCSM

Contact designstandards@vt.edu to provide comments or updates for 2024.



Thank you for attending!

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