

UMB A/E DESIGN STANDARDS – TABLE OF CONTENTS

Amended 9-19-2022, See Chapters 3 MD, 3 ED, 4EF and 5 AP

SECTION 1: GOVERNANCE and POLICY

1.	SCOPE	GP - 1
2.	ORGANIZATION OF THE UNIVERSITY CAMPUS	GP - 1
3.	PURPOSE OF DESIGN STANDARDS DOCUMENT	GP - 1
4.	INSTITUTIONAL REQUIREMENTS FOR DESIGN AND CONSTRUCTION	GP - 2
5.	BUILDING CODES AND REVIEW AGENCIES	GP - 4
6.	UNIVERSITY FACILITIES MASTER PLAN AND DESIGN GUIDELINES	GP - 4
7.	UNIVERSITY INFRASTRUCTURE MASTER PLAN.....	GP - 5
8.	DIVISION OF FACILITIES MANAGEMENT “GREEN BUILDING” POLICY	GP -11
9.	ARCHIVE DOCUMENTATION AND UNIVERSITY CAD STANDARDS.....	GP -14
10.	INFORMATION FURNISHED TO CONSULTANTS AND VENDORS	GP -15
11.	DESIGN AND CONSTRUCTION CONTRACT ADMINISTRATION.....	GP -16
12.	IMPLEMENTATION OF THE DESIGN STANDARDS.....	GP -17

SECTION 2: GENERAL DESIGN STANDARDS

1.	SCOPE	GS - 1
2.	LIST OF BUILDING CODES AND REVIEW AGENCIES	GS - 1
3.	INCORPORATION OF UNIVERSITY CONTRACTS FOR CONSTRUCTION.....	GS - 6
4.	DIVISION 1 OF THE TECHNICAL SPECIFICATIONS	GS - 7
5.	PROGRAM SPACE USE AND BUILDING SERVICE SPACES.....	GS -10
6.	SPACE PLANNING.....	GS -12
7.	EXTERIOR BUILDING DESIGN AND SITE IMPROVEMENTS.....	GS -12
8.	INTERIOR DESIGN	GS -15
9.	ACCOUSTICAL STANDARDS	GS -15
10.	HAZARDOUS MATERIALS	GS -16
11.	SUSTAINABLE, “GREEN” DESIGN	GS -16
13.	COORDINATION OF DRAWING INFORMATION	GS -18
14.	CONSTRUCTION PROJECT SIGN	GS -18
15.	UNIVERSITY CAMPUS DISPLAY MODEL	GS -18

SECTION 3: DISCIPLINE SPECIFIC DESIGN STANDARDS

SECTION 3 AD: ARCHITECTURAL DIVISION

PART I: GENERAL DESIGN REQUIREMENTS

1.	SCOPE	AD I - 1
2.	UNIVERSITY MASTER PLAN	AD I - 1
3.	DESIGN SUBMISSIONS	AD I - 1
4.	CODES AND REGULATIONS.....	AD I - 2
5.	COORDINATION	AD I - 2
6.	ECONOMICAL DESIGN	AD I - 2
7.	GENERAL DESIGN CONSIDERATIONS.....	AD I - 2
8.	SPECIFICATIONS AND SUBSTITUTIONS.....	AD I - 5
9.	ACCESSIBILITY	AD I - 6
10.	BUILDING OPERATION	AD I - 7
11.	DEMOLITION.....	AD I - 7
12.	MECHANICAL AND ELECTRICAL EQUIPMENT ROOM LAYOUTS.....	AD I - 8
13.	VIBRATION AND NOISE CONTROL.....	AD I - 9
14.	COMMISSIONING	AD I - 9
15.	UNIVERSITY FURNISHED EQUIPMENT	AD I - 10

UMB A/E DESIGN STANDARDS – TABLE OF CONTENTS

PART II: SITE DESIGN

1.	SCOPE	AD II - 1
2.	UMB OVERVIEW	AD II - 1
3.	PROJECT SITE AREAS	AD II - 2
4.	BALTIMORE CITY RIGHTS – OF – WAY AND UMB - OWNED STREETS	AD II - 7
5.	UNIVERSITY CENTER ENVIRONMENTAL DESIGN MANUAL	AD II - 9
6.	UTILITY SYSTEMS.....	AD II -13

PART III: STRUCTURAL DESIGN

1.	SCOPE	AD III - 1
2.	AMERICAN STEEL.....	AD III - 1
3.	CODES AND STANDARDS	AD III - 1
4.	STRUCTURAL DESIGN	AD III - 1
5.	STRUCTURAL CAPACITY AND NOTATION.....	AD III - 2
6.	FOUNDATIONS	AD III - 4
7.	FLOOR SLABS	AD III - 5
8.	PARKING STRUCTURES AND OTHER WET AREA LOCATIONS	AD III - 6
9.	EXISTING STRUCTURES.....	AD III - 8
10.	STRUCTURAL STEEL FRAMING.....	AD III - 8
11.	COLD FORMED METAL FRAMING	AD III - 9
12.	METAL FRABRICATION	AD III - 9
13.	MISCELLANEOUS METALS	AD III -10
14.	DESIGN COORDINATION	AD III -10
15.	CONSTRUCTION DOCUMENTS	AD III -10

PART IV: PRECAST CONCRETE, AND UNIT MASONRY DESIGN

1.	SCOPE	AD IV - 1
2.	PRECAST CONCRETE.....	AD IV - 1
3.	UNIT MASONRY.....	AD IV - 1

PART V: BUILDING ENVELOPE DESIGN

1.	SCOPE	AD V - 1
2.	UMB OVERVIEW	AD V - 1
3.	GUARANTEE AND WARRANTY	AD V - 1
4.	THERMAL AND MOISTURE PROTECTION.....	AD V - 1
5.	EXTERIOR FINISH AND INSULATION SYSTEM (EFIS).....	AD V - 4
6.	ROOFING SYSTEM	AD V - 4
7.	EXTERIOR DOORS AND WINDOWS.....	AD V - 7
8.	EXTERIOR ARCHITECTURAL WOODWORK.....	AD V - 8

PART VI: INTERIOR, FINISH ACCESSORY, AND SPECIALITY DESIGN

1.	SCOPE	AD VI - 1
2.	UMB OVERVIEW	AD VI - 1
3.	WOOD, PLASTICS AND CASEWORK	AD VI - 1
4.	INTERIOR DOORS, HARDWARE AND SECURITY.....	AD VI - 5
5.	GYPSUM WALL BOARD ASSEMBLIES	AD VI - 9
6.	RESILIENT FLOORING	AD VI -10
7.	CERAMIC TILE	AD VI -11
8.	CARPET	AD VI -14
9.	PAINTING	AD VI -14
10.	ACOUSTICAL CEILING PANELS	AD VI -16

UMB A/E DESIGN STANDARDS – TABLE OF CONTENTS

11.	WINDOW TREATMENT	AD VI -16
12.	TOILET ROOMS AND ACCESSORIES	AD VI -19
13.	SPECIALITIES	AD VI -22
14.	FIRE STOPS AND SMOKE SEALS	AD VI -23

PART VII: RESEARCH LABORATORY DESIGN

1.	SCOPE	AD VII - 1
2.	UMB OVERVIEW	AD VII - 1
3.	CODES AND STANDARDS	AD VII - 1
4.	GENERAL REQUIREMENTS	AD VII - 1
5.	CAMPUS LABORATORIES	AD VII - 2
6.	GENERAL LABORATORY REQUIREMENTS	AD VII - 2
7.	SPECIAL LABORATORY REQUIREMENTS	AD VII - 4
8.	LOW FLOW CHEMICAL FUME HOODS AND BIOLOGICAL SAFETY CABINETS.....	AD VII - <u>8</u>
9.	CONTROLLED ENVIRONMENTAL ROOMS	AD VII - <u>9</u>

PART VIII: CONVEYING SYSTEMS DESIGN

1.	SCOPE	AD VIII - 1
2.	UMB OVERVIEW	AD VIII - 1
3.	CODES AND STANDARDS	AD VIII - 1
4.	ELEVATOR TRAFFIC ANALYSIS STUDY.....	AD VIII - 1
5.	ELEVATOR HOISTWAY.....	AD VIII - 2
6.	ELEVATOR PIT	AD VIII - 2
7.	ELEVATOR EQUIPMENT REQUIREMENTS	AD VIII - 3
8.	ELEVATOR CAB.....	AD VIII - 4
9.	ELEVATOR MACHINE ROOM.....	AD VIII - 5
10.	SPECIFICATION REQUIREMENTS	AD VIII - 7

PART IX: UNIVERSITY SIGNAGE DESIGN

1.	SCOPE	AD IX - 1
2.	UNIVERSITY SIGNAGE STANDARDS.....	AD IX - 1
3.	EXTERIOR SIGNAGE AND WAYFINDING	AD IX - 2
4.	INTERIOR SIGNAGE DESIGN STANDARDS	AD IX - 3
5.	INTERIOR SIGNAGE REQUIREMENTS (CURRENT STANDARD)	AD IX - 4
6.	INTERIOR SIGNAGE (PRE 2004 STANDARD)	AD IX - 11
7.	MONUMENTAL INSCRIPTIONS - EXTERIOR	AD IX - 11
6.	SIGN LAYOUT DESIGN	AD IX - 12

CHAPTER 3 MD: MECHANICAL DIVISION - [Amended 9-19-2022, See underlined text](#)

PART 1: GENERAL DESIGN REQUIREMENTS

1.	SCOPE	MD I - 1
2.	DESIGN SUBMISSIONS	MD I - 1
3.	CODES, STANDARDS AND REGULATIONS.....	MD I - 1
4.	COORDINATION	MD I - 3
5.	ECONOMICAL DESIGN	MD I - 3
6.	GENERAL DESIGN CONSIDERATIONS.....	MD I - 4
7.	SPECIFICATIONS, SUBSTITUTIONS AND DETAILS	MD I - 6
8.	ACCESSIBILITY	MD I - 7
9.	BUILDING OPERATION.....	MD I - 9

UMB A/E DESIGN STANDARDS – TABLE OF CONTENTS

10.	REDUNDANCY.....	MD I - 9
11.	ROTATING EQUIPMENT	MD I - 10
12.	DEMOLITION.....	MD I - 10
13.	MECHANICAL ROOM LAYOUT.....	MD I - 10
14.	VIBRATION AND NOISE CONTROL.....	MD I - 11
15.	EXPANSION AND CONTRACTION COMPENSATION.....	MD I - 12
16.	FIRE STOPS AND SMOKE SEALS	MD I - 12
17.	INSULATION.....	MD I - 12
18.	ELECTRIC MOTOR REQUIREMENTS	MD I - 12
19.	EMERGENCY POWER REQUIREMENTS	MD I - 13
20.	SPECIAL USE AREAS	MD I - 14
21.	COMMISSIONING	MD I - 15
22.	UNIVERSITY FURNISHED EQUIPMENT.....	MD I - 16

PART 2: PLUMBING SYSTEM DESIGN

1.	SCOPE.....	MD II - 1
2.	BUILDING DISTRIBUTION SYSTEMS	MD II - 1
3.	GENERAL DESIGN CONSIDERATIONS FOR SEWER AND WATER SYSTEMS.....	MD II - 1
4.	SANITARY SYSTEM	MD II - 2
5.	STORM WATER SYSTEM	MD II - 3
6.	WATER SUPPLY SYSTEM.....	MD II - 5
7.	NATURAL GAS SYSTEM.....	MD II - 9
8.	LABORATORY SPECIALTY GAS SYSTEMS.....	MD II - 10
9.	REVERSE OSMOSIS/DIONIZED (RO/DI) WATER SYSTEMS.....	MD II - 11
10.	LABORATORY PLUMBING DESIGN FOR NEW AND RENOVATION PROJECTS.....	MD II - 12
11.	PLUMBING FIXTURES.....	MD II - 13
12.	DRINKING WATER DISPENSERS	MD II - 14

PART 3: HEATING, VENTILATING AND AIR CONDITIONING SYSTEM DESIGN

1.	SCOPE.....	MD III - 1
2.	DESIGN CRITERIA.....	MD III - 1
3.	BUILDING DISTRIBUTION SYSTEMS	MD III - 3
4.	COOLING SYSTEMS – CHILLED AND CONDENSER WATER SYSTEMS	MD III - 4
5.	MECHANICAL COOLING	MD III - 9
6.	HEATING SYSTEMS.....	MD III - 10
7.	HUMIDIFICATION SYSTEMS	MD III - 13
8.	PIPING SYSTEMS.....	MD III - 13
9.	AIR HANDLING SYSTEMS	MD III - 15
10.	AIR DISTRIBUTION SYSTEMS	MD III - 17
11.	LABORATORY HVAC DESIGN FOR NEW AND RENOVATION PROJECTS.....	MD III - 18
12.	AIR FILTERS	MD III - 21
13.	AIR TERMINAL UNITS	MD III - 21
14.	AIR DUCT SYSTEMS.....	MD III - 22
15.	AIR DISTRIBUTION DEVICES.....	MD III - 24
16.	EXHAUST SYSTEMS	MD III - 24
17.	AUTOMATIC TEMPERATURE CONTROL.....	MD III - 26
18.	SPECIAL HVAC WASTES.....	MD III - 27

PART IV: FIRE PROTECTION SYSTEM DESIGN

1.	SCOPE.....	MD IV - 1
2.	GENERAL REQUIREMENTS.....	MD IV - 1

UMB A/E DESIGN STANDARDS – TABLE OF CONTENTS

3.	WATER SUPPLY REQUIREMENTS.....	MD IV - 4
4.	AUTOMATIC SPRINKLER PROTECTION.....	MD IV - 5
5.	SMOKE CONTROL SYSTEMS.....	MD IV - 6
6.	STAIR PRESSURIZATION SYSTEMS.....	MD IV - 6

CHAPTER 3 ED: ELECTRICAL DIVISION - [Amended 9-19-2022, See underlined text](#)

PART 1: GENERAL DESIGN REQUIREMENTS

1.	SCOPE	ED I - 1
2.	DESIGN SUBMISSIONS	ED I - 5
3.	CODES, STANDARDS AND REGULATIONS.....	ED I - 5
4.	COORDINATION	ED I - 6
5.	ECONOMICAL DESIGN	ED I - 7
6.	GENERAL DESIGN CONSIDERATIONS.....	ED I - 7
7.	SPECIFICATIONS AND SUBSTITUTIONS.....	ED I - 8
8.	ACCESSIBILITY	ED I - 9
9.	BUILDING OPERATION	ED I - 10
10.	DEMOLITION.....	ED I - 10
11.	ELECTRIC EQUIPMENT ROOM LAYOUT	ED I - 11
12.	FIRE STOPS AND SMOKE SEALS	ED I - 12
13.	ELECTRIC MOTOR REQUIREMENTS.....	ED I - 12
14.	EMERGENCY POWER REQUIREMENTS	ED I - 12
15.	COMMISSIONING	ED I - 13
16.	UNIVERSITY FURNISHED EQUIPMENT	ED I - 13

PART 2: POWER AND LIGHTING SYSTEMS DESIGN

1.	SCOPE	ED II - 1
2.	PRIMARY SERVICE.....	ED II - 1
3.	GROUNDING REQUIREMENTS.....	ED II - 1
4.	RACEWAYS, CABLE TRAYS, UNDERGROUND DUCTS, MANHOLES/HAND HOLES.....	ED II - 2
5.	WIRE AND CABLE, BUSDUCT, POWER CABLE	ED II - 4
6.	ELECTRICAL IDENTIFICATION	ED II - 5
7.	VARIABLE FREQUENCY DRIVES	ED II - 7
8.	SERVICE ENTRANCES AND SUBSTATIONS (MEDIUM VOLTAGE).....	ED II - 9
9.	SWITCHBOARDS AND SWITCHGEAR (LOW VOLTAGE).....	ED II - 10
10.	ELECTRICAL METERING.....	ED II - 11
11.	TRANSFORMERS.....	ED II - 13
12.	PANELBOARDS	ED II - 14
13.	EMERGENCY AND STANDBY ELECTRICAL POWER SYSTEM	ED II - 15
14.	INTERIOR LIGHTING.....	ED II - 18
15.	EXTERIOR LIGHTING.....	ED II - 21
16.	LABORATORY ELECTRICAL DESIGN FOR NEW AND RENOVATION PROJECTS.....	ED II - 23

PART 3: FIRE ALARM AND SECURITY SYSTEMS DESIGN

1.	SCOPE	ED III - 1
2.	FIRE ALARM SYSTEM.....	ED III - 1
3.	CCTV SYSTEM.....	ED III - 5
4.	ACCESS CONTROL AND INTRUSION DETECTION SYSTEMS.....	ED III - 6
5.	CAMPUS EMERGENCY PHONES.....	ED III -
7		

PART 4: TELECOMMUNICATIONS AND AUDIO VISUAL SYSTEMS DESIGN

UMB A/E DESIGN STANDARDS – TABLE OF CONTENTS

1.	SCOPE	ED IV - 1
2.	TELECOMMUNICATIONS.....	ED IV - 1
3.	AUDIO/VISUAL	ED IV - 1

CHAPTER 4: ELECTRONIC FILES - [Amended 9-19-2022, See underlined text](#)

CHAPTER 4 EF: CAD DIVISION

PART 1: GENERAL REQUIREMENTS

1.	SCOPE	CD I - 1
2.	UMB INTENT	CD I - 1
3.	UMB PROJECT DEFINITIONS	CD I - 1
4.	COMPLIANCE WITH THESE STANDARDS	CD I - 1
5.	ACURACY.....	CD I - 2
6.	OWNERSHIP.....	CD I - 2
7.	FILE FORMATS	CD I - 2
8.	UMB ELECTRONIC FILES	CD I - 3

PART 2: PROJECT FILE ORGANIZATION [Amended 1-19-2022, See underlined text](#)

1.	SCOPE	CD II - 1
2.	FILE TYPES.....	CD II - 1
3.	FILE NAMES.....	CD II - 2
4.	<u>DRAWING ASSEMBLY AND ORGANIZATION</u>	CD II - 12

PART 3: DELIVERABLE FILE REQUIREMENTS [Amended 9-19-2022, See underlined text i](#)

1.	SCOPE	CD III - 1
2.	PREPERATION	CD III - 1
3.	<u>DRAWING FILE FORMATS AND SUBMISSIONS</u>	CD III - 2
4.	<u>FILE TRANSMISSION</u>	CD III - 2
5.	PROJECT CLOSEOUT.....	CD III - 3

CHAPTER 4 EF: GENERAL FILE DIVISION - [Amended 9-19-2022, See underlined text](#)

PART 1: GENERAL REQUIREMENTS

1.	SCOPE	GF I - 1
2.	UMB INTENT	GF I - 1
3.	UMB PROJECT AND FILE DEFINITIONS	GF I - 1
4.	COMPLIANCE WITH THESE STANDARDS	GF I - 1
5.	ACCURACY	GF I - 2
6.	OWNERSHIP	GF I - 2

PART 2: PROJECT FILE MANAGEMENT AND ORGANIZATION

1.	SCOPE	GF II - 1
2.	FILE CONTENTS.....	GF II - 1

PART 3: DELIVERABLE FILE REQUIREMENTS [Amended 9-19-2022, See underlined text](#)

1.	SCOPE	GF III - 1
2.	PREPERATION	GF III - 1
3.	<u>FILE FORMATS AND SUBMISSIONS</u>	GF III - 1

UMB A/E DESIGN STANDARDS – TABLE OF CONTENTS

4.	<u>FILE TRANSMISSION</u>	GF III - 1
5.	<u>PROJECT CLOSEOUT</u>	GF III - 1

CHAPTER 5: APPENDICES - [Amended 9-19-2022, See underlined text](#)

1. Form: Request for Deviation From The UMB A/E Design Standards Form
2. UMB Master Specifications Table of Contents
3. UMB Standards for IT & Telecomm Infrastructure Specifications
4. UMB Mechanical CAD Detail List
5. UMB Standard PDF File Bookmarks for A/E Submissions