

Contents

Preface	xi	1.2-1.2 Multidisciplinary Project Team	
Acknowledgments	xiii	1.2-1.3 Environment of Care and Facility Function Considerations	
About the Guidelines	xxi		
Major Additions and Revisions	xxv	1.2-2 Functional Program	14
Glossary	xxix	1.2-2.1 General	
List of Acronyms	xxxv	1.2-2.2 Functional Program Content	
		1.2-3 Space Program	15
Part 1 General	1	1.2-4 Safety Risk Assessment	16
		1.2-4.1 General	
1.1 Introduction	3	1.2-4.2 Infection Control Risk Assessment	
1.1-1 General	3	1.2-4.3 Patient Handling and Movement Assessment	
1.1-1.1 Application		1.2-4.4 Fall Prevention Assessment	
1.1-1.2 Minimum Standards for New Facilities and Major Revisions		1.2-4.5 Medication Safety Assessment	
1.1-2 New Construction	3	1.2-4.6 Behavioral and Mental Health Risk Assessment	
1.1-3 Renovation	3	1.2-4.7 Patient Immobility Assessment	
1.3-3.1 General		1.2-4.8 Security Risk Assessment	
1.3-3.2 Facilities Subject to Compliance with the Guidelines		1.2-5 Environment of Care Requirements	27
1.3-3.3 Undiminished Safety		1.2-5.1 Delivery of Care Model Concepts	
1.3-3.4 Long-Range Improvement		1.2-5.2 Patient, Visitors, Physicians, and Staff Accommodation and Flow	
1.1-4 Government Regulations	5	1.2-5.3 Building Infrastructure and Systems Design	
1.1-4.1 Design Standards for Accessibility		1.2-5.4 Physical Environment Elements	
1.1-4.2 Regulations for Earthquake-Resistant Design for New Buildings		1.2-6 Planning and Design Considerations and Requirements	30
1.1-4.3 Flood Projection		1.2-6.1 Acoustic Design	
1.1-4.4 National Standards for the Protection of Patient Health Information		1.2-6.2 Sustainable Design	
1.1-4.5 Environmental Regulations		1.2-6.3 Wayfinding	
1.1-5 Building Codes and Standards	6	1.2-6.4 Design Considerations for Accommodation of Patients of Size	
1.1-5.1 Safe Environment		1.2-6.5 Emergency Preparedness and Management	
1.1-5.2 Code Compliance		1.2-7 Renovation	41
1.1-6 Equivalency Concepts	6	1.2-7.1 Phasing	
1.1-7 English/Metric Measurements	7	1.2-7.2 Isolation	
1.1-8 Codes, Standards, and Other Documents Referenced in the Guidelines	7	1.2-7.3 Maintenance of Air Quality and Utilities	
		1.2-7.4 Existing Conditions	
1.2 Planning, Design, Construction, and Commissioning	13	1.2-8 Commissioning	42
1.2-1 General	13	1.2-8.1 Commissioning Requirements	
1.2-1.1 Application		1.2-8.2 Commissioning Activities	
		1.2-8.3 Commissioning Agent	

CONTENTS

1.2-9	Record Drawings and Manuals	45	2.1-2.10	Support Areas for Families, Patients, and/or Visitors	
1.2-9.1	Drawings		2.1-3	Diagnostic and Treatment Areas	80
1.2-9.2	Equipment Manuals		2.1-3.1	Reserved	
1.2-9.3	Design Data		2.1-3.2	Examination Room or Emergency Department Treatment Room	
1.3	Site	57	2.1-3.3	Accommodations for Telemedicine Services	
1.3-1	General	57	2.1-3.4	Pre- and Post-Procedure Patient Care	
1.3-1.1	Application		2.1-4	Patient Support Facilities	86
1.3-2	Location	57	2.1-4.1	Laboratory Services	
1.3-2.1	Availability of Transportation		2.1-4.2	Pharmacy Services	
1.3-2.2	Security		2.1-4.3	Food and Nutrition Services	
1.3-2.3	Availability of Utilities		2.1-5	General Support Facilities	93
1.3-3	Site Features	57	2.1-5.1	Sterile Processing	
1.3-3.1	Signage		2.1-5.2	Linen Services	
1.3-3.2	Lighting		2.1-5.3	Materials Management	
1.3-3.3	Roads and Walkways		2.1-5.4	Waste Management	
1.3-3.4	Parking		2.1-5.5	Environmental Services	
1.3-3.5	Emergency Access		2.1-5.6	Engineering and Maintenance Services	
1.3-3.6	Landscape Design Features		2.1-5.7	Morgue Services	
1.3-3.7	Transfer Support Features		2.1-6	Public and Administrative Areas	102
1.3-4	Environmental Pollution Control	59	2.1-6.1	General	
1.4	Equipment	61	2.1-6.2	Public Areas	
1.4-1	General	61	2.1-6.3	Administrative Areas	
1.4-1.1	Application		2.1-6.4	Support Areas for Staff and Volunteers	
1.4-1.2	Equipment List		2.1-7	Design and Construction Requirements	103
1.4-1.3	Documentation Requirements		2.1-7.1	Reserved	
1.4-2	Equipment Classification	62	2.1-7.2	Architectural Details, Surfaces, and Furnishings	
1.4-3	Equipment Requirements	62	2.1-8	Building Systems	112
1.4-3.1	Major Technical Equipment		2.1-8.1	General	
1.4-3.2	Electronic Equipment		2.1-8.2	Heating, Ventilation, and Air-Conditioning Systems	
1.4-4	Space Requirements for Equipment	63	2.1-8.3	Electrical Systems	
1.4-4.1	Fixed and Building Service Equipment		2.1-8.4	Plumbing Systems	
1.4-4.2	Movable Equipment		2.1-8.5	Communications Systems	
			2.1-8.6	Electronic Safety and Security Systems	
			2.1-8.7	Special Systems	
Part 2	Hospital Facility Types	65	2.2	Specific Requirements for General Hospitals	137
2.1	Common Elements for Hospitals	67	2.2-1	General	137
2.1-1	General	67	2.2-1.1	Application	
2.1-1.1	Application		2.2-2	Patient Care Units	137
2.1-1.2	Functional Program		2.2-2.1	General	
2.1-1.3	Site		2.2-2.2	Medical/Surgical Patient Care Unit	
2.1-2	Patient Care Units and Other Patient Care Areas	67	2.2-2.3	Oncology Patient Care Unit	
2.1-2.1	General		2.2-2.4	Pediatric and Adolescent Oncology Patient Care Unit	
2.1-2.2	Patient Room		2.2-2.5	Intermediate Care Unit	
2.1-2.3	Accommodations for Care of Patients of Size		2.2-2.6	Critical Care Unit	
2.1-2.4	Special Patient Care Rooms		2.2-2.7	Pediatric Critical Care Unit	
2.1-2.5 – 2.1-2.7	Reserved		2.2-2.8	Neonatal Intensive Care Unit	
2.1-2.8	Support Areas for Patient Care Units and Other Patient Care Areas		2.2-2.9	Obstetrical Unit	
2.1-2.9	Support Areas for Staff		2.2-2.10	Nursery Unit	

2.2-2.11	Pediatric and Adolescent Patient Care Unit		2.3-3.5	Special Patient Care Areas		
2.2-2.12	Psychiatric Patient Care Unit		2.3-3.6	Imaging Services		
2.2-2.13	In-Hospital Skilled Nursing Patient Care Unit		2.3-3.7	Reserved		
2.2-2.14	Bariatric Patient Care Unit		2.3-3.8	Support Areas for the Freestanding Emergency Care Facility		
2.2-3	Diagnostic and Treatment Facilities	167	2.3-3.9	Support Areas for Staff		
	2.2-3.1	Emergency Services	2.3-3.10	Support Areas for Patients		
	2.2-3.2	Observation Unit	2.3-4	Patient Support Facilities	225	
	2.2-3.3	Surgical Services		2.3-4.1	Laboratory Services	
	2.2-3.4	Imaging Services		2.3-4.2	Pharmacy Services	
	2.2-3.5	Radiation Therapy		2.3-4.3	Food and Nutrition Services	
	2.2-3.6 – 2.2-3.7	Reserved	2.3-5	General Support Facilities	225	
	2.2-3.8	Rehabilitation Therapy		2.3-5.1	Sterile Processing	
	2.2-3.9	Respiratory Therapy		2.3-5.2	Linen Services	
	2.2-3.10	Renal Dialysis Services (Acute and Chronic)		2.3-5.3	Materials Management	
	2.2-3.11	Endoscopy Services		2.3-5.4	Waste Management	
	2.2-3.12	Cancer Treatment/Infusion Therapy		2.3-5.5	Environmental Services	
	2.2-3.13	Hyperbaric Suite		2.3-5.6	Engineering and Maintenance Services	
2.2-4	Patient Support Facilities	216	2.3-6	Public and Administrative Areas	225	
	2.2-4.1	Laboratory Services		2.3-6.1	General	
	2.2-4.2	Pharmacy Services		2.3-6.2	Public Areas	
	2.2-4.3	Food and Nutrition Services		2.3-6.3	Administrative Areas	
2.2-5	General Support Facilities	217	2.3-7	Design and Construction Requirements	227	
	2.2-5.1	Sterile Processing	2.3-8	Building Systems	227	
	2.2-5.2	Linen Services		2.4 Specific Requirements for Critical Access Hospitals	229	
	2.2-5.3	Materials Management		2.4-1	General	
	2.2-5.4	Waste Management			2.4-1.1	Application
	2.2-5.5	Environmental Services			2.4-1.2	Functional Program
	2.2-5.6	Engineering and Maintenance Services			2.4-1.3	Site
	2.2-5.7	Morgue Services	2.4-2	Patient Care Units	230	
2.2-6	Public and Administrative Areas	217		2.4-2.1	General	
2.2-7	Design and Construction Requirements	217		2.4-2.2	Critical Access Patient Care Unit	
2.2-8	Building Systems	217		2.4-2.3 – 2.4-2.13	Reserved	
	2.2-8.1	Reserved		2.4-2.14	General Psychiatric Patient Care Unit	
	2.2-8.2	Heating, Ventilation, and Air-Conditioning Systems		2.4-2.15	Child Psychiatric Unit	
	2.2-8.3	Electrical Systems		2.4-2.16	Alzheimer's and Other Dementia Unit	
	2.2-8.4	Plumbing Systems		2.4-2.17	Forensic Psychiatric Unit	
	2.2-8.5	Communications Systems		2.4-2.18	Swing Beds	
	2.2-8.6	Electronic Safety and Security Systems	2.4-3	Diagnostic and Treatment Areas	233	
	2.2-8.7	Special Systems		2.4-3.1	General	
2.3 Specific Requirements for Freestanding Emergency Care Facilities		221		2.4-3.2	Emergency Services	
2.3-1	General	221		2.4-3.3	Surgical Services	
	2.3-1.1	Application		2.4-3.4	Imaging Services	
2.3-2	Reserved	221		2.4-3.5	Telemedicine Services	
2.3-3	Diagnostic and Treatment Areas	221		2.4-3.6	Mobile/Transportable Medical Units	
	2.3-3.1	General	2.4-4	Patient Support Facilities	236	
	2.3-3.2	Reception and Triage Area		2.4-4.1	Laboratory Services	
	2.3-3.3	Communications with EMS		2.4-4.2	Pharmacy	
	2.3-3.4	Treatment Room or Area	2.4-5	General Support Facilities	237	
				2.4-5.1	Sterile Processing	

CONTENTS

2.4-5.2	Linen Services		2.5-7.2	Architectural Details, Surfaces, and Furnishings	
2.4-5.3	Materials Management		2.5-8	Building Systems	250
2.4-5.4	Waste Management		2.5-8.1	General	
2.4-5.5	Environmental Services		2.5-8.2	Reserved	
2.4-5.6	Engineering and Maintenance Services		2.5-8.3	Electrical Systems	
2.4-6	Public and Administrative Areas	237	2.5-8.4	Plumbing Systems	
2.4-7	Design and Construction Requirements	237	2.5-8.5	Communications Systems	
2.4-7.1	Reserved		2.5-8.6	Electronic Safety and Security Systems	
2.4-7.2	Architectural Details, Surfaces, and Furnishings		2.5-8.7	Special Systems	
2.4-8	Building Systems	238	2.6 Specific Requirements for Rehabilitation Hospitals		253
2.4-8.1	General		2.6-1	General	253
2.4-8.2	Heating, Ventilation, and Air-Conditioning Systems		2.6-1.1	Application	
2.4-8.3	Electrical Systems		2.6-2	Patient Care Units and Living Areas	253
2.4-8.4	Plumbing Systems		2.6-2.1	General	
2.4-8.5	Communications Systems		2.6-2.2	Rehabilitation Patient Care Unit	
2.4-8.6	Electronic Safety and Security Systems		2.6-2.3	Patient Living Areas	
2.5 Specific Requirements for Psychiatric Hospitals		239	2.6-3	Diagnostic and Treatment Locations	256
2.5-1	General	239	2.6-3.1	Rehabilitation Therapy	
2.5-1.1	Application		2.6-3.2	Optional Units	
2.5-1.2	Reserved		2.6-4	Patient Support Facilities	259
2.5-1.3	Site		2.6-4.1	Laboratory Services	
2.5-1.4	Shared Services		2.6-4.2	Pharmacy Services	
2.5-1.5	Environment of Care		2.6-4.3	Food and Nutrition Services	
2.5-2	Patient Care Units	240	2.6-5	General Support Facilities	259
2.5-2.1	General		2.6-5.1	Reserved	
2.5-2.2	General Psychiatric Patient Care Unit		2.6-5.2	Linen Services	
2.5-2.3	Child Psychiatric Patient Care Unit		2.6-5.3	Materials Management	
2.5-2.4	Alzheimer's and Other Dementia Patient Care Unit		2.6-5.4	Waste Management	
2.5-2.5	Forensic Psychiatric Patient Care Unit		2.6-5.5	Environmental Services	
2.5-3	Diagnostic and Treatment Areas	246	2.6-5.6	Engineering and Maintenance Services	
2.5-3.1	Examination Room		2.6-6	Public and Administrative Areas	259
2.5-3.2	Imaging Services		2.6-7	Design and Construction Requirements	259
2.5-3.3	Rehabilitation Therapy		2.6-8	Building Systems	259
2.5-3.4	Electroconvulsive Therapy		2.6-8.1	Reserved	
2.5-4	Patient Support Facilities	248	2.6-8.2	Heating, Ventilation, and Air-Conditioning Systems	
2.5-4.1	Laboratory Services		2.6-8.3	Electrical Systems	
2.5-4.2	Pharmacy Services		2.6-8.4	Plumbing Systems	
2.5-4.3	Food and Nutrition Services		2.6-8.5	Communications Systems	
2.5-5	General Support Facilities	248	2.6-8.6	Electronic Safety and Security Systems	
2.5-5.1	Sterile Processing		2.6-8.7	Special Systems	
2.5-5.2	Linen Services		2.7 Specific Requirements for Children's Hospitals		261
2.5-5.3	Materials Management		2.7-1	General	261
2.5-5.4	Waste Management		2.7-1.1	Application	
2.5-5.5	Environmental Services		2.7-1.2	Reserved	
2.5-5.6	Engineering and Maintenance Services		2.7-1.3	Site	
2.5-6	Public and Administrative Areas	248			
2.5-7	Design and Construction Requirements	248			
2.5-7.1	Reserved				

2.7-2	Patient Care Units	261	2.8 Specific Requirements for Mobile/Transportable Medical Units	271
2.7-2.1	General		2.8-1 General	271
2.7-2.2	Pediatric Medical/Surgical Patient Care Unit		2.8-1.1 Application	
2.7-2.3	Oncology Patient Care Unit		2.8-1.2 Reserved	
2.7-2.4 – 2.7-2.5	Reserved		2.8-1.3 Site	
2.7-2.6	Pediatric Critical Care		2.8-2 Reserved	274
2.7-2.7	Pediatric Cardiac Critical Care Unit		2.8-3 Diagnostic and Treatment Locations	274
2.7-2.8	Neonatal Intensive Care Unit		2.8-3.1 Mobile/Transportable Units	
2.7-2.9	Obstetrical Unit		2.8-3.2 Pre- and Post-Procedure Patient Care Areas	
2.7-2.10	Nursery Unit		2.8-3.3 – 2.8-3.7 Reserved	
2.7-2.11	Reserved		2.8-3.8 Support Areas for Mobile/Transportable Medical Units	
2.7-2.12	Pediatric Psychiatric Patient Care Unit		2.8-3.9 Reserved	
2.7-2.13	Reserved		2.8-3.10 Support Areas for Patients	
2.7-2.14	Pediatric Bariatric Patient Care Unit		2.8-4 Reserved	276
2.7-3	Diagnostic and Treatment Areas	267	2.8-5 Reserved	276
2.7-3.1	Emergency Services		2.8-6 Public and Administrative Areas	276
2.7-3.2	Observation Unit		2.8-6.1 General	
2.7-3.3	Surgical Services		2.8-6.2 Public Areas	
2.7-3.4	Imaging Services		2.8-7 Design and Construction Requirements	276
2.7-3.5	Radiation Therapy		2.8-7.1 Reserved	
2.7-3.6	Rehabilitation Therapy		2.8-7.2 Architectural Details and Surfaces for Unit Construction	
2.7-3.7	Respiratory Therapy		2.8-8 Building Systems	276
2.7-3.8 – 2.7-3.9	Reserved		2.8-8.1 Reserved	
2.7-3.10	Renal Dialysis		2.8-8.2 Heating, Ventilation, and Air-Conditioning Systems	
2.7-3.11	Endoscopy		2.8-8.3 Electrical Systems	
2.7-3.12	Cancer Treatment/Infusion Therapy		2.8-8.4 Plumbing Systems	
2.7-3.13	Hyperbaric Suite		2.8-8.5 Communications Systems	
2.7-4	Patient Support Facilities	269	2.8-8.6 Safety and Security Systems	
2.7-4.1	Laboratory Services		Part 3 Ventilation of Hospitals	281
2.7-4.2	Pharmacy Services		ANSI/ASHRAE/ASHE Standard 170-2017: Ventilation of Health Care Facilities	238
2.7-4.3	Food and Nutrition Services		Index	327
2.7-5	General Support Facilities	269		
2.7-5.1	Sterile Processing			
2.7-5.2	Linen Services			
2.7-5.3	Materials Management			
2.7-5.4	Waste Management			
2.7-5.5	Environmental Services			
2.7-5.6	Engineering and Maintenance Services			
2.7-6	Public and Administrative Areas	270		
2.7-6.1	General			
2.7-6.2	Public Areas			
2.7-6.3	Administrative Areas			
2.7-7	Design and Construction Requirements	270		
2.7-8	Building Systems	270		

List of Tables

Part 1

Table 1.2-1: Safety Risk Assessment (SRA) Components	46
Table 1.2-2: Infection Control Risk Assessment Design Considerations	48
Table 1.2-3: Categorization of Hospital Sites by Exterior Ambient Sound with Design Criteria for Sound Isolation of Exterior Shell in New Construction	49
Table 1.2-4: Minimum Design Room-Average Sound Absorption Coefficients	51
Table 1.2-5: Maximum Design Criteria for Noise in Interior Spaces Caused by Building Systems	52
Table 1.2-6: Design Criteria for Minimum Sound Isolation Performance Between Enclosed Rooms	53
Table 1.2-7: Design Criteria for Speech Privacy for Enclosed Rooms and Open-Plan Spaces	54
Table 1.2-8: Maximum Limits on Floor Vibration Caused by Footfalls in Hospitals	55
Appendix Table A1.2-a: Safety Risk Assessment Team Member Expertise	47
Appendix Table A1.2-b: Approximate Distance of Noise Sources for Use in Categorization of Hospitals by Exterior Ambient Sound	50

Part 2

Table 2.1-1: Electrical Receptacles for Patient Care Areas in Hospitals	129
Table 2.1-2: Locations for Nurse Call Devices in Hospitals	131
Table 2.1-3: Station Outlets for Oxygen, Vacuum (Suction), Medical Air, and Instrument Air Systems in Hospitals	133
Table 2.1-4: Hot Water Use—General Hospital	135
Table 2.2-1: Examination/Treatment, Procedure, and Operating Room Classification	218
Table 2.2-2: Classification of Room Types for Imaging Services	219
Appendix Table A2.1-a: Maximum Length of Hot Water System Pipe or Tube	136
Appendix Table A2.2-a: Sound Transmission Loss or Attenuation Through Horizontal and Vertical Barriers in NICUs	220