



# **INTRODUCTION**

## **Design Guidelines And Specifications**

TABLE OF CONTENTS	Pages
Introduction Design Guidelines and Specifications	I-1 to I-14
Civil, Structural & Architectural Design Guidelines	A/S/C-1 to A/S/C-22
Mechanical Design Guidelines	M -1 to M -22
Plumbing Design Guidelines	P-1 to P-22
Electrical Design Guidelines	E-1 to E-22
Fire Suppression Design Guidelines	FP-1 to FP-22
Civil, Structural & Architectural Outline Specifications	A-1 to A-55
Mechanical Outline Specifications	M-1 to A-55
Plumbing Outline Specifications	P-1 to A-55
Electrical Outline Specifications	E-1 to A-55
Fire Suppression Outline Specifications	F-1 to A-55
Long Form Master Specifications	LF-1 to LF-1
Strategic Service Units Supplementary Specifications	SSU-1 to SSU-45

## MERCY HEALTH SYSTEM

The Sisters of Mercy Health System (Mercy) guidelines for construction systems and component performance, preferences and selection methods are presented to advance the promulgation of advanced practices and quality design processes. Mercy endeavors to promote high quality design parameters through the publication of these Mercy Guidelines and Specifications.

This series of documents was developed by the Capital Management Division of the Planning, Design and Construction Department with a basic content to provide:

1. Carefully developed preferences for construction components such as products, materials and systems.
2. Aesthetic and performance quality control criteria including evaluation and testing procedures.
3. Minimum performance criteria for specific materials and equipment.

These Standards further provide:

1. Specification guide documents.
2. Preferred means and methods procedures for construction.

Mercy is committed by statute and resolve to entrust the responsibility for design and document preparation to the design professionals of record. The "means, methods, techniques, and procedures" remain the contractor's responsibility unless otherwise required by the design professionals.

## NOTICE

This manual encompasses Mercy's building and construction standards and is intended to assist architects, engineers, interior designers, and other design professionals in developing programs, drawings, specifications, and construction documents for construction of projects within the Mercy Strategic Service Units (SSU's).

This manual is not intended and should not be used as a master specification. While it is expected that the materials in this manual will be of assistance to design professionals in programming and developing drawings, project manuals, and related contract documents, no portion of this manual may be reproduced in specifications intended to become a part of construction documents without the prior written permission of the Planning, Design and Construction Department of Capital Management Division of Mercy Health Systems, with specific reference to this requirement.

The Mercy Guidelines are the "contract design document" with the consultants(s), who are expected to adhere to them as appropriate to the project, and who will revise their specifications and design strategies accordingly. They may be used by continuing service or "standing-order" Contractors in the absence of other construction documents with the understanding that SMHS takes no responsibility or liability for their use.

## WHAT IS INCLUDED

This manual includes minimum performance criteria for specific materials and equipment. Where specific manufacturers have been designated by Mercy, names of manufacturers and identifying product information have been included. This manual also includes installation and testing procedures.

This manual is intended to provide an overview and checklist of fundamental items deemed to be of importance to Mercy's interests -- rather than attempting to be an exhaustive coverage of the planning, design and construction process, or to attempt to address all issues uniquely relevant to a particular project or structure.

## UPDATING FOR REGULATORY COMPLIANCE

This manual is updated as may be noted on particular pages. Revisions from the previous editions are indicated by sidebars. Since the requirements of applicable ordinances, codes, statutes, and regulations are subject to change, it is the responsibility of the design professional to determine independently that construction documents developed using this manual complies with all applicable ordinances, codes, statutes, and regulations. If in the opinion of a design professional working on a specific matter, a requirement of this manual is inconsistent with or violates a requirement of an applicable ordinance, code, statute, or regulation, then the design professional should comply with the applicable ordinance, code, statute, or regulation and should also advise Mercy in writing of the apparent inconsistency and the reasons that this manual may not be followed.

## UPDATING PRODUCT REQUIREMENTS

The products identified in various portions of this manual represent the minimum requirements of Mercy as of the appropriate date. Since changes in materials, specifications, or designs occur regularly in the construction industry, the design professional is cautioned to verify the availability and suitability of particular products listed in this manual prior to specifying these products. Base data with respect to products specified in this manual are on file with the Department of Planning, Design and Construction in the System Office of Mercy.

## SITE AND PROJECT-SPECIFIC MATTERS

Nothing in this manual contemplates particular conditions that may be present with respect to a specific site or project. Each design professional must assume full responsibility and liability to determine whether specific site and project requirements have been included within the overall design. The inclusion of minimum criteria in this manual does not constitute an endorsement of those criteria for any specific site or project. Each design professional remains liable to the extent provided by law for all design decisions made with respect to an individual site or project, and neither the existence of this manual, the review of work product by representatives of Mercy, or the approval of work product by Mercy shall constitute a waiver or disclaimer of liability of the design professional for design negligence or otherwise. No person shall base any

contract, tort, or other legal or equitable claim against Mercy, or any of its officers, agents, employees, or contractors, on the existence, use, or reliance on this manual.

Except as noted above, where minimum standards are addressed in this manual, they must be included in applicable contract documents unless otherwise authorized by Mercy.

Specific deviations from these standards that are incorporated into the project manual should be highlighted, or otherwise distinguished from the normal text, to facilitate the most efficient review by Mercy personnel.

These standards include design criteria, guidelines and acceptable products. Mercy assumes tacit agreement with these standards for use by the Consultant/Contractor, and will not accept liability for their use, since the Consultant/Contractor has a right to disagree with them or request a waiver, which shall be done in writing. Mercy will then take any of three actions:

1. Issue a waiver.
2. Issue a waiver and change the Standards.
3. Request that the Consultant/Contractor abide by these standards. The Consultant/Contractor may submit a letter wishing to be released from responsibility on the matter for which a waiver was requested and denied.

If the consulting/contracting firm disregards the standards, they will be held accountable for the cost to achieve compliance, and may be grounds to stop the work, dismiss the consulting/contracting firm, or terminating the project agreement.

Before proceeding with design, the Consultant is strongly encouraged to review their questions, doubts, optional designs, and similar features with Mercy Planning, Design, and Construction in order to avoid duplication of work. The Mercy Regional Project Manager will arrange a meeting for this purpose.

## CONTENT AND COMPONENT SELECTION

1. Mercy Standards encompass the preferred construction products, materials, and systems (Construction Components) to assist Architects, Engineers, and Consultants (Design Professionals) in the development of programs, plans, specifications, and construction documents for construction projects within Mercy.
2. Construction component selection is accomplished through prequalification guidelines including performance characteristics, code/regulatory compliance, maintenance control and inventory standardization (spare parts).
3. Listing of preferences in the Standards is not intended to limit creative solutions. Requests for substitutions or variances will be entertained, subject to the Mercy prequalification guidelines.
4. When Construction Components are limited in the Standards to a single manufacturer, it is not intended to exclude all other alternatives for all projects. The Standards are intended to integrate preferences and quality selections primarily into new projects. Historic Renovations or Remodeling projects may

- have unique requirements that are not covered in the Standards. Design Professionals are encouraged to consult with the assigned Project Manager or Mercy Facilities Management staff. All new buildings should have at least one gender neutral restroom that is fully accessible unless impractical for the specific facility.
5. Consultant is to require a full size job site mock-up of each complete wall system proposed for new buildings showing actual materials and joining methods. Refer to Division I Section 01300 for specific mock-up requirements.

#### DESIGN PROFESSIONAL RESPONSIBILITIES

1. It is the responsibility of the Design Professional to determine independently that all construction documents developed using these Standards complies with all applicable ordinances, codes, statutes, and regulations.
2. If a requirement listed in the Standards appears to be in conflict with an applicable ordinance, code, statute, or regulation, the Design Professional should comply with applicable ordinance, code, statute or regulation, and should advise Mercy in writing of the apparent conflict and the reasons why the Standards cannot be followed.
3. Where the Standards preferences are also covered by applicable ordinance, code, statute, or regulation, the most stringent requirement shall be included in the Contract Documents.
4. The Construction Components listed in the Standards are continuously subject to changes in design, materials, manufacturers, availability and performance characteristic. It is the Design Professional's responsibility to verify availability and suitability of these components prior to specifying for a specific project.
5. The Design Professional is responsible for the specific material selection when construction component preferences are not listed in the Guidelines.
6. Each Design Professional remains liable to the extent provided by law for all design decisions made with respect to an individual site or project, and neither the existence of these Guidelines, the compliance with the requirements of these Standards, the review of work product by representatives of Mercy, or the approval of work product by Mercy shall constitute a waiver or disclaimer of liability of the Design Professional for negligence or otherwise. No person shall base any contract, tort, or other legal or equitable claim against Mercy, or any of its officers, agents, employees, or contractors, on the existence, use, or reliance on these Standards.

#### BIDDING. CONTRACTING REOUIREMENTS

As a Not-For-Profit entity, the procurement and construction activities of Mercy are subject to statutes and regulations which do not necessarily apply to the private sector.

## DIVISION 1 - GENERAL REOUIREMENTS

Although the content relates to the Mercy General Requirements documents, Division 1 is not all- inclusive. The Design Professional shall work with Mercy to modify Division 1 as required for their specific projects including the multiple consultant specifications coordination, content and format.

## SUSTAINABLE BUILDING DESIGN

Mercy Standards include endorsement and full support of designs that embrace the concept of "green building design", "sustainability", and "good design" as in the ASHRAE Green Guide, 2003 edition, and the U.S. Green Building Council. It is Mercy policy to support and encourage sustainable design/good stewardship building design and energy/ resource conservation. Each Mercy project team is expected to review LEED requirements and determine the viability to register the project with the U.S. Green Building Council (USGBC) for LEED certification independent of Mercy's ongoing focus on energy and resource conservation, healthy and productive working environments, maximum use of recycled products, and optimal costs of production. Projects pursuing green building design must respond to the following LEED prerequisites (prerequisites do not offer LEED points but are required):

- † Erosion and Sedimentation Control
- † Fundamental Commissioning
- † Minimum Energy Performance
- † CFC Reduction
- † Storage and Collection of Recyclables
- † Minimum IAQ Performance
- † Environmental Tobacco Smoke Control

LEED categories and their associated points include (69 possible points);

- Sustainable Sites 14
- Water Efficiency 5
- Energy and Atmosphere 17
- Materials and Resources 13
- Indoor Environment. Quality 15
- Innovation and Design 5

LEED points (69 elective points) and certification levels

26-32 Certified

33-38 Silver

39-51 Gold

52-69 Platinum

The consultant will identify LEED specific credits for each section of the Mercy Standards. Compliance with these Standards should align the project with silver rating or

above subject to USGBC review and approval. Projects that intend to seek LEED certification should include appropriate language during the development of their project to highlight elements that will address sustainable design. As used in this context, sustainable design shall mean a state or process which integrates the environment, the economy, and the social system into a system that can be maintained in a healthy state indefinitely.

The AIA ARCOM MasterSpec® has been acquired and is franchised for use by Mercy in developing its standards. The consultant is encouraged to use this master specification document for Mercy projects including the provisions for LEED Certification to the extent applicable. The 50 division format of Masterformat 2004 is the standard for organizing all Project Manuals, available at [www.csinet.org](http://www.csinet.org). The National CAD Standard (CAD layer guidelines, Uniform Drawing System, Plotting Guidelines and Attributes) is the basis for drawing conventions unless otherwise stipulated and is available at [www.csinet.org](http://www.csinet.org).

## APPENDICES

Appendices have been included in the standards to address specific areas of concern that may not fit into individual sections. It is the consultant's responsibility to review and include all appropriate appendices during the project development and design. All increased costs incurred by Mercy as a result of the consultant's failure to incorporate a section or appendix of these standards will be subject to the reimbursement of Mercy by the responsible consultant.

## GENERAL DISCIPLINE GUIDELINES – GENERAL CONDITIONS

1. Conflicts between the requirements in listed reference documents will be resolved by Sisters of Mercy Project Manager, the Regional Director, or their designated representative.
2. Temporary Facilities and Temporary Controls
  - a. Odor Control: Comply with NFPA 241. When working on the campus of an existing facility that includes acute care patients, surgical procedures, endoscopic procedures, or continued operations for Mercy coworkers, an odor control plan is required for construction and installation operations. The odor control plan shall address all materials, installation accessories, equipment, and operational aspects of construction as necessary to prevent the uncontrolled passage of odors into the existing facilities to remain in operation. Odor control plans may include carbon filters, temporary air intake shut down, non-office hours of operations for business facilities, low- or no- solvent materials, temporary pressurization, ventilation, compartmentation, etc. Odor generating items to consider include, without limitation, the following:
    - 1) Adhesive solvents for roofing, insulation, carpet, vinyl composition tile, wallcovering, and similar finishes
    - 2) Diesel and gasoline combustion engine fumes
    - 3) Trash
    - 4) Sanitary waste
    - 5) Cigarette smoke
    - 6) Primers, paint, stains, lacquers, sealers, paint thinners, paint cleaning solvents
    - 7) Sealant and sealant cleaning solvents
    - 8) Cleaning agents
    - 9) Oil and other lubrication liquids for machinery
    - 10) Concrete form release, curing and sealing agents
    - 11) Dampproofing and waterproofing
    - 12) Water repellents
    - 13) Welding fumes
    - 14) Formaldehyde off gassing from particleboard and insulation
    - 15) Window cleaning solvents
    - 16) Construction adhesive
  - b. Noise Control: Comply with NFPA 241. When working on the campus of an existing facility that includes acute care patients, surgical procedures, endoscopic procedures, or continued operations for Mercy coworkers, a noise control plan is required for construction and installation operations. The noise control plan shall address all operations as necessary to prevent objectionable noise levels from occurring within areas to remain occupied during construction. The noise control plan shall consider the use of acoustical barriers, limited hours of noisy operations, prescheduling of noisy operations, and reduced noise generating tools,

personnel training, personal ear protection devices, and similar items that control objectionable noise generation.

### 3. Procedural General Requirements Quality Requirements

a. Codes: In the absence of more stringent code requirements by the Authorities Having Jurisdiction, the following codes shall apply to all Mercy Projects:

- 1) International Building Code, latest edition
- 2) International Energy Conservation Code, latest edition
- 3) International Plumbing Code, latest edition
- 4) National Electrical Code, latest edition
- 5) ASME/ANSI A17.1 Elevator Code, latest edition
- 6) ICC/ANSI A117.1 Accessibility Code, latest edition
- 7) NFPA 101 Life Safety Code and NFPA 99 Health Care Facilities for I-2 occupancies, edition as required by the Joint Commission on Accreditation of Healthcare Organizations

### 4. Permits, Insurance, and Bonds

a. Permits

- 1) Refer to the General Conditions of the Contract for Construction for general requirements.
- 2) The General Contractor is required to secure and pay for all permits unless previously procured by the Owner or other agent, or as otherwise agreed in the Agreement Between the Owner and Contractor.
- 3) Permits that should be considered for the project include, without limitation, the following:
  - (a) Building
  - (b) Temporary Erosion Control
  - (c) Surface Water Management
  - (d) Elevator
  - (e) Plumbing
  - (f) Electrical
  - (g) Demolition
  - (h) Traffic Control
  - (i) Environmental mitigation
  - (j) Fire Sprinkler System
  - (k) Fire Alarm System
- 4) Possible agencies to contact include: Fire marshal, Plans examiner, Department of Natural Resources, Regional EPA, Private Party code review and enforcement agencies, Department of Transportation.
- 5) Permits shall be made available and posted at the jobsite.

## GENERAL DISCIPLINE GUIDELINES - CIVIL

1. The following information is provided as a general guideline in establishing civil engineering design requirements.
2. Subsurface Investigations
  - a. The Owner will be responsible for providing record location information of the Owner's underground utility lines and structures.
  - b. The Owner will assist with location of, but will not be responsible for location of, underground facilities owned by public utility, Municipal Corporation, or other persons.
3. Soils Investigations
  - a. If investigative soils analysis is required during project design, Owner will retain a soils engineer.
  - b. The soils engineer, in consultation with the Owner and consultant, will determine number, sizes, depth, and proposed location of borings and/or pits. In general, there will be one boring for every 2,000 square feet of building footprint, with a minimum of four soil borings. To the extent possible, borings should be located near the location of proposed footings/piers.
  - c. Boring information will be shown, with dimensions, on a plot plan to be submitted in two (2) copies by the consultant to the Owner at least five (5) working days prior to proposed sampling.
  - d. The plot plan will show:
    - (1) A graphic scale, north arrow, and location of existing buildings and trees
    - (2) Above and below ground service/utility lines (both utility company and Owner-owned lines)
    - (3) Pavement areas and established benchmark(s) with elevation(s) noted
    - (4) Existing site features, not specifically mentioned, impacting boring or pit locations.
    - (5) The soils/geotechnical report will be included as an informational item of the bidding documents in the general requirements, Division 1.

## GENERAL DISCIPLINE GUIDELINES – ARCHITECTURAL

1. General: The following information is provided as a guide in establishing architectural requirements and should not be construed to limit the consultant from proposing more value effective alternatives.
2. Facilities will be designed per the latest edition of the Americans with Disabilities Act Architectural Guidelines (ADAAG).
  - (1) In all new construction, all public entrances to the building will be accessible to persons with disabilities. The main entrance will be provided with one door, or set of doors, that is power operated. If an entrance to the building other than the main entrance is located closer to the parking designated for persons with disabilities, that entrance will also be power operated. These items should be regarded as a minimum requirement. The design team should evaluate the need for after hour's use of the facility which may require accessible entries. If the expected users of the building include a larger than normal percentage of persons with disabilities, other entrances to the building will also be power operated.
  - (2) In existing structures, a minimum of one entrance will be accessible to persons with disabilities. That entrance will be power operated (ANSI A156.19 Low Energy type). The accessible entrance will be both the main entrance and the entrance closest to parking designated for persons with disabilities (May be the same entrance). In existing structures, any design for construction in the vicinity of an entrance should evaluate the possibility of making that entrance accessible. Whenever it is physically and economically feasible, all entrances should be made accessible.
  - (3) Power operated sliding door entrances are preferred to bifold entrances which are in turn preferred to swinging entrances for their speed of use and safety. Sensors will be included to prevent premature door closing operation when pedestrians are located in the door opening. Sensors will be included as necessary to prevent impact to person(s) standing to the side of the sliding door(s).
  - (4) Entrance vestibules shall be provided to control air infiltration, insects, dirt and debris. Automatic sensors for sliding doors will open both sets of vestibule doors at the same time if the doors are not at least ten to twelve feet apart. Ideally, at least 20 feet of separation between sets of vestibule will be provided.
  - (5) Revolving entrance doors when used shall provide power operation and wheelchair accessibility. Revolving entrance doors may be used in conjunction with a vestibule with the use of sliding exterior doors and revolving interior vestibule door where maximum infiltration control is appropriate.

3. A building, addition, or renovation will meet the requirements of the applicable Federal, State, and Local Building Codes. Facilities with Building Code Occupancy Type I-2 shall comply with NFPA 101 Life Safety Code -- edition as required by the Joint Commission on Accreditation of Healthcare Occupancies.
4. The consultant will plan access for service and maintenance of equipment. Minimize rooftop equipment and roof penetrations by consolidating equipment in mechanical penthouses.
5. NO smoking is permitted anywhere at any time on the Owner's property.
6. Fire Protection
  - a. Facilities will be constructed of fire resistant materials.
  - b. Floors and floor/wall assemblies will at least equal the requirements of the designated User Group, as defined in the latest edition of International Building Code and by the NFPA 101 Life Safety Code.

## GENERAL DISCIPLINE GUIDELINES - STRUCTURAL

1. General: The following information is provided as a guide for designing structural support systems.
  - a. Note all load criteria for all structural systems on the drawings. All load criteria will be in accordance with the latest edition of the International Building Code, ASCE 7.
  - b. Wind Design: Every building and structure will be designed and constructed to resist prescribed wind effects. Wind will be assumed to come from any horizontal direction. Wind effects will be analyzed in at least two mutually perpendicular horizontal planes.
  - c. Seismic Design: Every building and structure will be designed and constructed to resist prescribed seismic effects. Coordinate with Architect for required specifications for elevator, suspended ceiling, freestanding equipment and similar components that refer to the definition of Seismic Design Class.
  - d. Include Seismic Design Class with structural load information on the Drawings.
  - e. Separate additions from existing structures with an expansion joint.
  - f. Do not transfer vertical loads through horizontal expansion joints.

END OF INTRODUCTION