

1.2 Planning/Predesign Process

Appendix material, shown in shaded boxes at the bottom of the page, is advisory only.

■ 1.2-1 General

1.2-1.1 Application

The provisions of this chapter shall apply to all residential health, care, and support facility projects.

*1.2-1.2 Planning Process

To meet the objectives of this chapter, residential health, care, and support organizations shall develop an interdisciplinary planning process to guide facility design.

1.2-1.3 Environment of Care and Facility Function Considerations

*1.2-1.3.1 General

Environment of care and facility function directly affect the experience of residential health, care, and support facility occupants. See sections 1.2-2 (Functional Program) and 1.2-4 (Environment of Care Requirements) for requirements.

1.2-1.3.2 Framework for Residential Health, Care, and Support Facility Design

Because the physical environment has a profound effect on human health and productivity and on the natural environment, residential health, care, and support facilities shall be designed in a framework that considers the following:

1.2-1.3.2.1 Organizational philosophy

1.2-1.3.2.2 Organizational structure

1.2-1.3.2.3 Staff roles

1.2-1.3.2.4 Staff education and training

*1.2-1.3.2.5 Resident quality of life

1.2-1.3.2.6 Operational processes and procedures

1.2-1.3.2.7 Resident safety, including provisions for infection control. See Section 1.2-3 (Resident Safety Risk Assessment) for requirements.

■ 1.2-2 Functional Program

1.2-2.1 General

support facilities influences the following:

- a. Resident and staff outcomes
- b. Resident experience of the core values for resident care: choice, dignity, privacy, meaningful engagement, individuality, and residential environment
- c. Levels of resident and staff stress
- d. Overall facility operations

A1.2-1.3.2.5 Resident quality of life. Residential health, care, and support organizations should engage residents, potential residents, and their families in project planning.

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A1.2-1.2 Planning process

- a. Project planning, design, and implementation are three separate processes. Functional programming occurs during the planning phase. The design process includes architectural programming, design, and construction documentation. Implementation is the realization of the functional program in the built environment.
- b. In the planning phase, input from a variety of interdisciplinary teams may be appropriate. Members of these teams should be selected from stakeholder groups affected by the project.

A1.2-1.3.1 How environment of care and facility function requirements are addressed in the design of residential health, care, and

1.2-2.1.1 Functional Program Requirement

1.2-2.1.1.1 The care provider shall be responsible for providing a functional program for each facility project to the project architect/engineer and the authority having jurisdiction (AHJ).

- (1) Projects that only involve activities such as equipment replacement, fire safety upgrades, or minor renovations that will not change the facility's function or character shall not require a functional program.
- (2) Findings and recommendations from the resident safety risk assessment (see Section 1.2-3) shall be addressed in the functional program.

1.2-2.1.1.2 The functional program shall include an executive summary as well as detailed information about each operation conducted in the facility that will affect the physical setting design.

1.2-2.1.1.3 The functional program or a functional program summary shall be submitted to the AHJ for review along with the plans and specifications.

1.2-2.1.2 Functional Program Purpose

1.2-2.1.2.1 The functional program shall be used to develop the physical space program that serves as the basis for the project design and construction documents.

1.2-2.1.2.2 The care provider shall retain the functional program with other design data to facilitate future alterations, additions, and program changes.

1.2-2.1.3 Nomenclature in the Functional Program

1.2-2.1.3.1 Names for spaces and departments used in the functional program shall be consistent with those

used in the *Guidelines for Design and Construction of Residential Health, Care, and Support Facilities (Guidelines for Residential Facilities)*. If acronyms are used, they shall be clearly defined.

1.2-2.1.3.2 The names and spaces indicated in the functional program shall also be consistent with those used on submitted floor plans.

1.2-2.1.4 Shared Services

1.2-2.1.4.1 Each residential health, care, or support facility shall, at minimum, contain the elements described in the applicable chapters of the *Guidelines for Residential Facilities*. However, when a project calls for sharing or purchasing services, appropriate modifications or deletions in space and parking requirements shall be permitted.

***1.2-2.1.4.2** When a residential health, care, or support facility is part of or contractually linked with another facility, sharing of services such as dietary, storage, pharmacy, linen, and laundry shall be permitted insofar as practical.

1.2-2.2 Functional Program Content

1.2-2.2.1 Owner's Project Requirements

1.2-2.2.1.1 The functional program shall describe in detail the care provider's expectations for the project, including the delivery of care model.

***1.2-2.2.1.2** The functional program shall provide the following information for the project consistent with the provider's expectations for the delivery of care model and project scope:

- *(1)** Who will be served by the project (residents, staff, families, volunteers, etc.)

future changes in the care model and the need for flexibility in the physical setting.

A1.2-2.2.1.2 (1) Evaluation of ways to incorporate intergenerational interaction and integration with the community at-large into the project should be part of the functional programming process.

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A1.2-2.1.4.2 Shared services. In some cases, all ancillary service requirements will be met by the principal facility and modifications will be necessary only in the residential facility. In other cases, programmatic concerns and requirements may dictate separate service areas.

A1.2-2.2.1.2 The information should take into account potential

- (a) If the care population includes bariatric needs, see Section 2.2-3 (Bariatric Design Criteria).
 - * (b) If the care population includes residents with dementia, mental health issues, or cognitive and developmental disabilities, see Section 2.2-4 (Design Criteria for Dementia, Mental Health, and Cognitive and Developmental Disability Facilities).
- * (2) What user activities will occur in the spaces affected or created by the project
 - (3) Why each user group is engaged in each activity
 - (4) When these activities will take place
 - (5) Where these activities will take place (inside and outside the building)
 - (6) What resources (i.e., people, equipment, supplies, processes, training) will be needed to carry out these activities
- ### 1.2-2.2.2 Functional Requirements
- #### 1.2-2.2.2.1 The project design shall accommodate the care provider's operational needs and objectives commensurate with the scope and purpose of the project.
- #### 1.2-2.2.2.2 Explanation of the functional requirements for the project shall cover, at minimum, the following:
- (1) Site
 - * (a) Building orientation
 - (b) Major points of entry
 - (c) Landscaping and garden features (hardscape and softscape)
 - (d) Pedestrian circulation
 - (e) Vehicular circulation (roads and parking)
 - (f) Wayfinding—landmarks and signage
 - (g) Art
 - (h) Outside programming
 - (i) Lighting
 - (2) Operational circulation patterns. These shall include interior and exterior circulation patterns for:
 - (a) Resident, staff, and family/visitors
 - (b) Equipment for infectious waste handling
 - (3) Space and equipment needs. The following shall be described for each space:
 - (a) Size and function
 - (b) Projected occupant load (staff; residents, including their mobility needs; and visitors)
 - (c) Projected numbers and types of community spaces
 - (d) Required adjacencies
 - (e) Technology requirements
 - (f) Acoustic requirements
 - (g) Lighting requirements
 - (h) Electrical requirements
 - (i) Heating, ventilation, and air-conditioning requirements
 - (j) Fixed and movable equipment
 - (k) Furnishings and fixtures

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A1.2-2.2.1.2 (1)(b) Residents with dementia and cognitive or mental health issues

- a. When discussing residents with dementia and cognitive or mental health issues during the functional programming process, it is important to emphasize the residents' capabilities and not focus on their deficits. Individual residents should be viewed as who they are in total, not defined by abilities they have lost.
- b. In some facilities, a significant percentage of individuals with some level of dementia may reside outside a designated dementia care unit. Specific considerations for residents with dementia, mental health issues, or cognitive and developmental disabilities should be evaluated.

A1.2-2.2.1.2 (2) Evaluation of storage requirements related to different user activities should be part of the functional programming process. At minimum, storage should be provided for the following:

- a. Resident belongings

- b. Items used in community spaces
- c. Staff belongings
- d. Supplies required for resident and staff activities

A1.2-2.2.2.2 (1)(a) Building orientation. Building orientation and related site issues that should be considered include the following:

- a. Solar aspect to maximize daylighting in interior spaces and northern and southern exposures for glazing
- b. Glare control on all exposures (includes use of light shelves, overhangs, window treatments, etc.)
- c. Direction of prevailing winds
- d. Topographical information
- e. Ground water and surface water management
- f. Sustainability issues
- g. Views and vistas

- (4) Short- and long-term planning considerations. These shall include the following:
- Flexibility and future growth
 - Impact on existing adjacent facilities
 - Effect on existing operations
 - Integration of technology and equipment
 - Changes in resident population over time, including cognitive and physical abilities
 - Provisions for end-of-life care for residents and support of families

■ 1.2-3 Resident Safety Risk Assessment (RSRA)

1.2-3.1 General

1.2-3.1.1 RSRA Requirement

***1.2-3.1.1.1** Every new or renovated residential health, care, or support facility shall be designed to facilitate safe delivery of care consistent with the level of care outlined in the functional program.

1.2-3.1.1.2 To support this goal, a resident safety risk assessment shall be developed and completed by an interdisciplinary team.

*1.2-3.1.2 RSRA Components

The RSRA shall address how the physical environment of the residential health, care, or support facility

may affect resident safety outcomes and shall include assessment of the components identified in Table 1.2-1 (Resident Safety Risk Assessment Components).

1.2-3.1.3 RSRA Timing

1.2-3.1.3.1 The resident safety risk assessment shall be initiated by the care provider during the functional programming phase of the health, care, or support facility project (i.e., before construction begins) and continue through project construction and commissioning as applicable.

***1.2-3.1.3.2** The RSRA shall be updated with additional detail as required to support a safe environment throughout the design, construction, and commissioning phases of the project.

1.2-3.1.4 RSRA Team

1.2-3.1.4.1 The care provider shall appoint an interdisciplinary team to conduct the resident safety risk assessment.

***1.2-3.1.4.2** The RSRA team shall include appropriate stakeholders for the identified project.

1.2-3.1.5 RSRA Process

The care provider shall complete a resident safety risk assessment to determine the potential risks to residents and caregivers for each space and building component that is part of the project.

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A1.2-3.1.1.1 The RSRA should be evaluated in terms of the care population, including residents' cognitive ability, to allow flexibility for individual resident quality of life.

A1.2-3.1.2 RSRA components

The resident safety risk assessment should also address how the physical environment of the residential health, care, or support facility can help maintain residents' functional capabilities.

For additional information on safety outcome categories incorporated in the RSRA component descriptions, see a literature review undertaken by the Center for Health Design (CHD): "Summary of Literature Review: Resident Safety Risk Assessment" (July 2012) on the CHD website (www.healthdesign.org). See the Facility Guidelines Institute website (www.fgiguidelines.org) for a RSRA matrix based on six categories of resident safety outcomes identified in the CHD literature review.

A1.2-3.1.3.2 Postoccupancy evaluations should be undertaken, and information from these evaluations should be included in the RSRA updates.

A1.2-3.1.4.2 RSRA team members. Project stakeholders may include the following as well as others, depending on the nature and needs of the project:

- Maintenance and environmental services staff
- Safety, security, and transportation staff
- Direct care staff
- Quality assurance staff
- Activity staff
- Management staff
- Therapy staff
- Planning and design professionals
- Residents and family members

1.2-3.1.5.1 Identify risks. For each space in the building, the RSRA shall identify the following specific categories of risk:

- (1) Infection control risk
- (2) Resident mobility and transfer risk
- (3) Resident fall risk and prevention
- (4) Resident dementia and mental health risk
- (5) Medication error risk
- (6) Security risk
- (7) Disaster risk and emergency preparedness

***1.2-3.1.5.2 Evaluate risks**

- (1) The care population profile (including cognitive abilities of residents) identified during the functional programming process shall be used as a basis for evaluating resident safety-related risks.
- (2) Identified risks should also be evaluated for the following:
 - (a) Likelihood of occurrence based on historical data, if available
 - (b) Degree of potential harm to residents

***1.2-3.1.5.3 Prepare RSRA reporting and comply with the recommendations provided.**

- (1) The RSRA team shall produce a written report that:
 - (a) Identifies known environmental risks based on RSRA components to be used in development of the functional program and in the design, construction, and commissioning of a residential health, care, or support facility:
 - (i) Infection control risk
 - (ii) Resident mobility and transfer risk
 - (iii) Resident fall risk and prevention
 - (iv) Resident dementia and mental health risk
 - (v) Medication error risk
 - (vi) Security risk
 - (vii) Disaster risk and emergency preparedness
 - (b) Specifies design features for inclusion in the project design that are intended to reduce or eliminate potential risks from adverse events.
- (2) The conclusions in the written report shall:
 - (a) Be incorporated into the functional and physical space programs.

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A1.2-3.1.5.2 Evaluation of risks

- a. Each space should be assessed for the presence of harmful, stress-inducing agents or latent conditions such as the following:
- Noise and vibration
 - Visual distraction
 - Light type, quality, and quantity, including lighting that addresses specific tasks and promotes ease of ambulation
 - Surface characteristics, including environmental sources of infection
 - Indoor air characteristics, including environmental sources of infection
 - Ergonomics, including design features that contribute to staff fatigue
 - Space requirements, including space adjacencies that do not support the care model
 - Visual disorganization of space, including lack of standardization in layout and location of spaces and equipment
 - Impediments to resident movement and ambulation, including environmental hazards that may cause residents to slip, trip, or fall
 - Impediments to staff movement and work flow, including environmental hazards that may cause staff to slip, trip, or fall
 - Communication, including design features that may hinder

communication between staff members, residents and staff, residents and family members, and staff and family members.

- b. For additional information, see the Center for Health Design report “Designing for Patient Safety: Developing Methods to Integrate Patient Safety Concerns in the Design Process” (2012), which identifies 10 environmental factors as “latent conditions that can be designed to help eliminate harm.” Such “built environment latent conditions [holes and weaknesses] that adversely impact patient safety” should be identified and eliminated during the planning, design, and construction of health care facilities. The report can be found at www.healthdesign.org/sites/default/files/chd416_ahrq-report_final.pdf.

An example of the importance of assessing risks during the planning, design, and construction phases of a project is the location of hand-washing stations. According to the CHD report, placement of these facilities in “inconvenient or inaccessible locations” could “result in poor hand-washing compliance” among physicians, nurses, and other care providers.

A1.2-3.1.5.3 When available, benchmarked resident and caregiver safety data and national industry resident and caregiver safety trends should be used as a benchmark for developing the report.

- (b) Remain an active component of all project documents
 - (i) Planning, design, equipment and furniture specifications
 - (ii) Construction documentation
 - (iii) Commissioning records
 - (iv) Postoccupancy evaluation documents
- (3) Changes to the original design plans and as-built documentation, including changes in identified risks and solutions, shall be recorded, updated, and shared among RSRA team members throughout project design, construction, and commissioning.

1.2-3.2 Infection Control Risk

*1.2-3.2.1 Infection Control Risk Assessment

For a facility project to support safe designs, finishes, surfaces, and HVAC/plumbing systems, an infection control risk assessment (ICRA) shall be part of the resident safety risk assessment.

1.2-3.2.2 Elements to Be Assessed

The care provider shall provide the results of an evaluation of infection control risk for the following elements for incorporation into the functional program:

*1.2-3.2.2.1 Design elements

- (1) Heating, ventilation, and air-conditioning (HVAC) systems
 - (a) If airborne infection isolation (AII) rooms are required, the number, location, and type shall be identified in the functional program.
 - * (b) Special HVAC needs to accommodate the services provided in or affected by the project (e.g., HVAC needs for AII rooms, pharmacies, local exhaust systems for areas where hazardous agents are present, and other special areas) shall be identified in the functional program.
 - (c) Strategies for design of HVAC systems, including those intended to reduce energy costs, shall include development of designs that minimize the risk of airborne transmission of biological agents.
- (2) Water/plumbing systems
 - * (a) The number, location, and type of hand-washing stations, hand sanitation dispensers, and emergency first-aid equipment (eyewash stations and deluge showers) needed shall be identified in the functional program.
 - * (b) Strategies for design of water systems or water conservation systems shall include development of designs that minimize the risk of

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A1.2-3.2.1 Infection control risk assessment. The ICRA is an interdisciplinary, documented process intended to identify and mitigate risks from infection that could occur as a result of design and construction activities, taking into account:

- a. The resident population at risk
- b. The nature and scope of the project
- c. The functional program of the health, care, or support facility
- d. The potential risk of transmission of various airborne and waterborne biological contaminants in the facility

A1.2-1.2-3.2.2.1 Design elements. Provision of single-resident rooms may reduce health care-associated infections (HAIs).

A1.2-3.2.2.1 (1)(b) Special HVAC needs. Airborne contamination can result when HVAC systems are improperly designed, built, or maintained. In addition to providing comfort and minimizing exposure to chemical pollution, ventilation systems are an important means of preventing infection. An HVAC system expert, whether an independent engineer or an employee of the care provider, should determine which of the following HVAC design considerations should be covered in the ICRA:

- a. Characteristics of overall system design as well as design for specific sensitive areas, including components, capacity, filtration, air changes, pressure relationships, and directional flow
- b. Ease of access for system maintenance
- c. Ease of general maintenance activities and system cleaning
- d. Selection of air distribution devices that allow for minimal or easy cleaning
- e. Location of air intakes and exhaust outlets to prevent cross-contamination
- f. Redundancy in equipment and systems
- g. Plan for system outages and maintenance (planned and unplanned)

A1.2-3.2.2.1 (2)(a) Location of hand-washing stations. Locating hand-washing stations in the sight lines of staff may reduce HAIs.

A1.2-3.2.2.1 (2)(b) Water conservation systems. Providing touch-point cleaning that uses microfiber technologies may reduce HAIs as well as chemical and water use.

waterborne transmission of *Legionella spp.* and other opportunistic pathogens.

- (3) General design requirements for architectural details, surfaces, and furnishings. See sections 2.4-2.2.8 (Hand-Washing Stations), 2.4-2.3 (Surfaces), and 2.4-2.4.2 (Casework, Millwork, and Built-Ins).

1.2-3.2.2.2 Construction process elements. The following shall be evaluated for infection control risk:

- (1) The effects of disrupting essential services to residents and staff
- * (2) The specific hazards and protection levels for each designated area
- (3) Location of residents according to their susceptibility to infection and the identification of risks to each
- (4) Impact of movement of debris, traffic flow, spill cleanup, and testing and certification of installed systems
- (5) Assessment of external and internal construction activities
- (6) Location of known hazards

1.2-3.2.3 Infection Control Risk Mitigation Recommendations (ICMRs)

The following shall be included in the RSRA report:

- ***1.2-3.2.3.1** Specific methods for avoiding transmission of airborne and waterborne biological contaminants during construction and commissioning, when HVAC

and plumbing systems and equipment (e.g., ice machines) are started/restarted

- ***1.2-3.2.3.2** Provisions for monitoring infection control risk, including:

- (1) Written procedures for emergency suspension of work
- (2) Protective measures indicating the responsibilities and limitations of each party (care provider, designer, contractor, and monitor)

1.2-3.2.3.3 Recommendations for resident placement and relocation during construction and commissioning

- ***1.2-3.2.3.4** Standards for barriers and other protective measures required to protect adjacent areas and susceptible residents from airborne contaminants

1.2-3.2.3.5 Temporary provisions or phasing for construction or modification of HVAC and water supply systems

1.2-3.2.3.6 Protection from demolition

1.2-3.2.3.7 Training for facility staff, visitors, and construction personnel

- ***1.2-3.2.3.8** Impact of potential utility outages or emergencies, including the need to protect residents during planned and unplanned utility outages

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A1.2-3.2.2.2 (2) Hazards specific to different types of essential service disruptions should be proactively determined. A plan should be developed to ensure continued provision of service in the event of planned and unplanned disruptions.

A1.2-3.2.3.1 Responsibilities for performing risk-mitigation procedures should be included in infection control risk mitigation recommendations to assure the proper actions are taken at the appropriate time.

A1.2-3.2.3.2 Monitoring efforts will be determined by the care provider and may be conducted by staff responsible for infection control, safety staff, or independent outside consultants.

A1.2-3.2.3.4 Ventilation of the construction zone

- a. Airflow into the construction zone from occupied spaces should be maintained by means of a dedicated ventilation/exhaust system for the construction area.

- b. Locations of exhaust discharge relative to existing fresh air intakes and filters, as well as the disconnection and sealing of existing air ducts, should be reviewed as required.

- c. If the existing building system or a portion thereof is used to achieve this requirement, the system should be thoroughly cleaned prior to occupancy of the construction area.

- d. Construction barriers in high-risk areas (e.g., areas serving immunocompromised residents and All rooms) should have visual display of airflow direction.

A1.2-3.2.3.8 Disaster plans for water supply and ventilation emergencies

- a. The care provider should provide a written plan for what will happen in the event of a water outage. This should include:
 - Where supplies are located
 - Who is responsible for what
 - Who is to be notified

1.2-3.2.3.9 Impact of movement of debris, traffic flow, cleanup, elevator use for construction materials and construction workers, and construction worker routes

1.2-3.2.3.10 Provision for use of bathroom and food facilities by construction workers

***1.2-3.2.3.11** Installation of clean materials (particularly ductwork, drywall, and wood/paper/fabric materials) that have not been damaged by water

***1.2-3.3 Resident Mobility and Transfer Risk**

1.2-3.3.1 Locations to Be Assessed

Resident mobility and transfer risk evaluation shall address the specific needs of all areas affected by the project where resident transfers and movement occur, including but not limited to the following:

1.2-3.3.1.1 Resident rooms and toilet rooms

1.2-3.3.1.2 Residential living and community spaces (e.g., dining and recreation areas), including associated toilet and bathing areas

1.2-3.3.1.3 Examination rooms and other diagnostic and treatment areas

1.2-3.3.1.4 Wellness centers

1.2-3.3.1.5 Outdoor areas

***1.2-3.3.2 Mobility and Mobilization Concerns**

The following shall be evaluated for all areas where resident mobility and transfers occur:

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- b. The care provider should provide a written plan for what will happen in the event of an HVAC shutdown. This should include who is responsible for what and who is to be notified.
- c. The care provider should provide a written plan for what will happen in the event of a water leak. This should include who is to be notified.

A1.2-3.2.3.11 Protection of building materials

- a. Construction materials should be kept clean and dry, as appropriate.
- b. Ductwork should be kept capped/clean during demolition and dust-generating construction.
- c. Drywall installation should not proceed until exterior protection against rain damage has been installed.

A1.2-3.3 Resident mobility and transfer risk. The evaluation of resident mobility and transfer risks is intended to proactively identify and mitigate the risk from physical environment features that contribute to resident immobility and to resident and staff injuries associated with resident mobility and transfer. Information and guidance for evaluating resident mobility and transfer risks can be found in "Patient Handling and Movement Assessments: A White Paper," prepared by the 2010 Health Guidelines Revision Committee Specialty Subgroup on Patient Movement and posted at www.fgiguilines.org/resources.

Caregivers repositioning and transferring residents cannot manually lift more than 35 pounds (15.89 kilograms) without putting themselves at risk for back injury. Assisting a resident out of bed and into and out of a chair and supporting an unsteady resident both carry additional risks. As a consequence, caregivers are at high risk for injury as a result of resident handling and moving. If caregivers are not safely equipped to perform these necessary physical tasks, residents may not receive

adequate care and may spend more time sedentary in a bed or wheelchair than is clinically advisable or desirable. Increasing evidence shows that early and frequent mobilization and movement is vital to the health of residents and integral to quality care.

Equipment is now available to facilitate necessary transfers, movement, and mobilization while significantly reducing the risk of injury to caregivers and residents from these activities. By better supporting appropriate levels of care and reducing the risk of injury to caregivers, use of such equipment and related architectural accommodations will help maintain functional capabilities and improve outcomes, thus reducing the overall cost of care.

A1.2-3.3.2 Mitigation for mobility and mobilization concerns.

The types of equipment needed in each residential unit and treatment area are determined by the characteristics of the resident population. Recommendations for mitigating mobility and transfer risks should be developed for all areas in a new construction or renovation project. These recommendations should address the locations where resident transfers and mobilization will occur and the types of resident mobility and transfer tasks relevant to the care population.

The objective of preparing these recommendations is to assure proper accommodations are provided for resident mobility and for mobilization devices based on their type, size, weight capacity, and quantity. Storage should be sized to accommodate the lift equipment, assistive devices, and resident-operated mobility devices that will actually be used.

***1.2-3.3.2.1 Specific design recommendations to support safe mobility and transfer tasks.** This shall include accommodations for charging batteries for battery-operated equipment.

***1.2-3.3.2.2 Types of resident mobility and transfer equipment**

(1) Implementation of any architectural solution that supports ambulation and incentivizes mobility and ambulation using the equipment available on-site shall be considered.

(2) Provision of any furnishings that offer usable alternatives to extended bed-stays shall be considered.

***1.2-3.3.2.3 Minimization of physical environment impediments to resident, participant, and outpatient mobility and mobilization.** Evaluation of cognitive ability of the care population shall be included in determining how impediments can be minimized for a particular facility.

***1.2-3.3.2.4 Quantity of each type of resident mobility and transfer equipment**

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A1.2-3.3.2.1 Design recommendations for safe mobility and transfer. Technology, equipment, and architectural details can be used to address evaluations of structural, electrical, mechanical, and other design considerations.

a. Resident mobility and transfer tasks for which risk can be minimized using equipment or other measures include the following:

- Vertical transfers (from/to a bed, chair, commode, toilet, or wheelchair)
- Lateral transfers (from/to a bed, stretcher, gurney, or trolley)
- Positioning/repositioning in bed (side to side, up to the head of the bed, raising or lowering head or feet)
- Repositioning in chair
- Showering/bathing
- Lifting appendages
- Transporting residents
- Assistance with resident ambulation
- Weighing residents on bed scales
- Exiting furniture or beds (e.g., bedrails, extended chair arm fronts)
- Supported ambulation extending beyond the resident room (e.g., room-to-hallway ceiling track-supported walkway system), if indicated in the functional program
- Transfers from resident chairs or other seats (e.g., adequate clearances)

To correctly identify all resident mobility and transfer tasks and impediments or hindrances to mobility in an area, care providers and other staff should be interviewed for their perceptions of which tasks carry a high risk.

b. Types of resident mobility and transfer equipment that may be used to minimize risk include:

- Sit-to-stand lifts. For a resident who requires partial assistance and possesses some weight-bearing ability, sit-to-stand lifts are used to assist in vertical transfers, toileting, dressing, and ambulation.
- Floor-based sling lifts and ceiling-mounted lifts. Both of these

lift types are used for residents who are completely or substantially unable to assist caregivers. Residents requiring these levels of care are often described as “dependent” or requiring “extensive assistance.” The utility of these lifts for this population includes—but is not limited to—vertical transfers, lateral transfers, repositioning in bed and chair, lifting appendages, and lifting residents from the floor. These lifts can also be used for assistance with ambulation rehabilitation or mobilization of residents with some weight-bearing capability.

—Resident-operated mobility devices. These are devices residents can use on their own and are intended to foster their independence.

A1.2-3.3.2.2 Identifying resident mobility and transfer equipment for a project. Direct resident care providers who are familiar with the characteristics of their unique resident populations should be included in the functional programming process to ensure appropriate equipment is identified for use in the facility. Equipment may include manual or power-assisted fixed ceiling or wall-mounted lifts, manual or power-assisted portable/floor-mounted lifts, electric height-adjustable beds, or a combination thereof.

When developing an equipment list, any existing equipment that will be used in the facility should be included. Preparation of a log is suggested to relay information on existing equipment, the percentage of time it is used, and if this is not 100 percent, the reasons for the percentage of time actually used.

A1.2-3.3.2.3 Minimizing impediments to resident, participant, and outpatient mobility and mobilization supports an active lifestyle during a resident’s long-term stay or rehabilitation recovery process.

Consideration of bariatric resident weight and size is important to assure that equipment capacities and dimensions for other accommodations are appropriate.

A1.2-3.3.2.4 The community should have sufficient lifts to meet the needs of the current resident population based on the outcome of the resident safety risk assessment.

***1.2-3.3.2.5 Weight-carrying capacities**

***1.2-3.3.2.6 Storage for mobility devices.** The need for storage accessible by staff and residents for lift systems and related equipment and for resident-operated mobility devices shall be determined by evaluating equipment use in the facility.

***1.2-3.3.2.7 Provision of clearances**

- (1) Space shall be provided for resident care and for maneuvering in and around areas where staff will use resident mobility or transfer equipment.
- (2) Resident rooms shall be sized, arranged, and furnished to maximize safe resident mobility, mobilization, weight-bearing, and ambulation potential while minimizing risk to caregivers.
- (3) Unimpeded clearances shall be provided at the front and at least one side of the resident chair. Clearances shall be equal to or greater than those required around the sides and foot of the resident bed.
- (4) Resident units shall be designed to maximize safe resident ambulation opportunities from resident rooms into and through corridors.

***1.2-3.3.2.8 Destination points for resident ambulation, transfers, and movement**

- (1) Identified destination points (e.g., resident rooms, bathrooms, community spaces) shall be evaluated for ease of door operation to assure that passage in

either direction is not hindered due to door weight or closure pressure.

- (2) Door openings shall be provided in sizes and types that allow passage of resident mobility and transfer equipment and accompanying staff.

1.2-3.3.2.9 Floor finishes, surfaces, and transitions to facilitate safe and effective use of resident mobility and transfer equipment

- (1) No raised thresholds or other raised flooring transitions shall be used.
- (2) No items with parts that all lie below a resident's field of vision shall be used (e.g., built-in planters, benches)
- (3) See Sections 2.4-2.2 (Architectural Details), 2.4-2.3 (Surfaces), and 2.4-2.4 (Furnishings) for additional requirements.

1.2-3.3.2.10 Coordination between mobility and transfer equipment and other aspects of the physical environment

- (1) Building systems. Resident mobility and transfer equipment installations shall be evaluated for conflict with plumbing, mechanical, electrical, communication, and life safety system equipment installations.
- (2) Environment of care characteristics. The effects of the installation and use of resident mobility and transfer equipment on the environment of care characteristics listed in Section 1.2-4.5 (Physical Environment Elements) shall be evaluated.

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A1.2-3.3.2.5 Lift weight capacities range from approximately 400 pounds (181.8 kg) to bariatric expanded capacity lifts of 1,000 pounds (454.5 kg) or more. Specification of lifts with a capacity of 500–600 pounds (227.3–272.7 kg) will accommodate the greatest range of residents. If bariatric admissions warrant, a minimum of one expanded-capacity/bariatric lift (preferably fixed, ceiling-mounted) per unit should be included, in addition to the lower-weight-capacity lifts.

A1.2-3.3.2.6 Space and electrical services for charging batteries should be included in storage rooms for portable, floor-based lifts and resident-operated mobility devices. Access to electrical power and control services should be provided for fixed lifts and devices. Provision of an eyewash station in these spaces should be considered depending on the types of batteries being charged. Consideration should be given to providing storage space for resident-operated mobility devices in

resident rooms or dwelling units as space in common areas may prove inadequate and inconvenient for resident accessibility.

A1.2-3.3.2.7 Maintenance of clearance zones should be included in facility policy.

A1.2-3.3.2.8 Consider access routes to destination points in the facility that will welcome residents (e.g., community and activity rooms, gift shops, dining rooms, and healing gardens). Evaluate various destinations for residents using resident mobility and transfer equipment (i.e., locations to and from which residents travel, such as between the bed, chair, and commode in the resident room or into an associated toilet room or bathroom). Such considerations will aid in recognizing appropriate equipment and designing a room and door openings to accommodate portable equipment and the residents and caregivers using it.

- *(3) Aesthetics. The effects of the installation and use of resident mobility and transfer equipment on the aesthetics of the resident care space shall be evaluated.

*1.2-3.4 Resident Fall Risk and Prevention

1.2-3.4.1 Requirement

An evaluation of resident fall risk and prevention shall address the following specific design elements:

1.2-3.4.1.1 Flooring characteristics. See Sections 2.4-2.1.2 (Characteristics and Criteria for Selecting Materials and Products) and 2.4-2.3.2 (Flooring and Wall Bases).

A1.2-3.3.2.10 (3) When fixed-lift systems are installed, care should be taken to minimize the visual impact of fixed tracks, slings, hanger bars, and motors on the aesthetics of the physical environment, especially in nursing homes and other long-term care settings where a home-like environment is essential. Use of recessed tracks is suggested. Other suggestions include enclosing lift motors in decorative cabinets and concealing or masking wall-mounted rails for traveling gantry lifts with crown molding or indirect ceiling light coves.

A1.2-3.4 Resident fall risk. Safe environments help prevent falls and mitigate injuries associated with falls. Evaluation of fall risks by an interdisciplinary team should be used to create a coordinated plan that identifies physical environment factors that contribute to resident falls and associated injuries.

A1.2-3.4.2 Resident fall risk prevention measures

a. Environmental design can effectively reduce resident fall risk through these actions:

- Increasing ambient lighting levels
- Reducing light glare
- Reducing use of physical restraints, including bedrails
- Positioning beds to prevent residents from falling out of bed
- Selecting low-height beds or chairs
- Selecting flooring with small motifs and low contrast
- Optimizing the configuration of grab bars near bathing, shower, and toilet areas
- Designing a wander garden that can reduce the frequency and severity of falls for residents with dementia
- Selecting floor surface materials with a uniform value (lightness/darkness). Abutting horizontal materials with highly contrasting values creates an optical illusion of a step or change of level, which contributes to fall risks.
- Using contrasting values between horizontal and vertical surfaces and objects. This helps older adults and the low-vision

1.2-3.4.1.2 Furniture characteristics. See Sections 2.4-2.1.2 (Characteristics and Criteria for Selecting Materials and Products) and 2.4-2.4 (Furnishings).

*1.2-3.4.2 Resident Fall Risk Prevention Measures

*1.2-3.5 Resident Dementia and Mental Health Risks

1.2-3.5.1 Requirement

Each program area shall be evaluated to identify the physical environment features accessible to residents to be addressed as a potential risk. These features shall include architectural details, hardware,

population comprehend the geometry of a space and assists with wayfinding. For example, a 30-percent contrast between floors and walls, between walls and door frames/doors, and between background and furniture/toilets reduces the possibility of walking or moving into objects, thereby increasing independence while reducing fall risk. A 50 percent contrast between a handrail and the wall allows the handrail to be found easily, encouraging use and decreasing fall risk.

Contrast in percentage should be determined by the following formula:

$$\text{Contrast} = [B1 - B2/B1] \times 100; \text{ where } B1 = \text{light reflectance value (LRV) of the lighter area and } B2 = \text{LRV of the darker area}$$

- b. Sleep disorders frequently lead to resident falls, delirium, morbidity, and mortality. Residents' nighttime awakenings and daytime sleep can be significantly reduced by the following:
- Higher lighting levels during the day
 - Exposure to bright light (avoiding glare)
 - Sunlight exposure
 - Improved acoustics to reduce unwanted noise and sounds
 - Access to outdoor nature/wander garden during the day
- c. Research has established that older adults sleep best in total darkness. To minimize resident sleep disruption, night lights should:
- Provide very low levels of illumination.
 - Be located to minimize light scatter and reflections on room surfaces.
 - Have switches the resident can turn off when not needed or desired.
 - Be red or amber in color as research shows these colors are less disruptive to sleep.

A1.2-3.5 Risks from dementia and mental health diagnoses. In its evaluation of the care population, an interdisciplinary team should identify the number of residents with dementia,

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1.2 PLANNING/PREDESIGN PROCESS

surfaces, furnishings, and plumbing, mechanical, fire protection, and electrical devices and components.

1.2-3.5.2 Resources

One of the following standards shall be used to evaluate dementia and mental health risk:

1.2-3.5.2.1 *Design Guide for the Built Environment of Behavioral Health Facilities*, distributed by the National Association of Psychiatric Health Systems

1.2-3.5.2.2 *Patient Safety Standards, Materials and Systems Guidelines*, recommended by the New York State Office of Mental Health

*1.2-3.5.3 Design Considerations

1.2-3.5.3.1 The design of care settings for residents with Alzheimer's, dementia, and cognitive or mental health diagnoses shall address the need for a safe living and care environment for those who may present unique challenges and risks as a result of their condition.

1.2-3.5.3.2 The resident environment shall be designed to protect the residents' experience of choice,

dignity, privacy, meaningful engagement, and courtesy as well as health and to address the potential risks related to resident elopement and harm to self, others, and the environment.

1.2-3.5.3.3 An evaluation of the means available to reduce the possibility of residents causing unacceptable levels of harm to themselves or others, including suicide risks, shall be completed. Simultaneous consideration of the following elements shall be part of the evaluation:

- (1) Resident profile and acuity
- (2) Staffing levels
- (3) Space visibility and supervision
- (4) Inherent danger from any individual physical environment feature

1.2-3.5.3.4 Evaluation of resident dementia and mental health risk shall address the following specific design elements:

- (1) Security systems and monitoring
- (2) Areas to be secured
- * (3) Elopement and unsafe exiting
- (4) Doors and windows to be secured

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mental health diagnoses, and cognitive and developmental disabilities who will be served in each program area and develop a detailed assessment of the level of risk for each area. This assessment should inform the development of the functional program so that facilities and details can be appropriately designed for the population served. See appendix Section A2.2-4.1 (Facilities for residents with dementia, mental health diagnoses, and cognitive or developmental disabilities) for additional information.

A1.2-3.5.3 Sample mental health residential risk assessment

a. Highest risk level

- Seclusion rooms (where resident acuity poses an increased risk)
- Resident bedrooms and toilet rooms (areas where residents spend long periods of time out of direct supervision of the staff)

b. Medium risk level

- Activity spaces, living rooms, and treatment spaces (supervised with good visibility)
- Dining rooms and recreation spaces, both indoor and outdoor
- Corridors

c. Lower risk level

- Exam rooms, private offices, and conciliation rooms (always supervised)
- Staff and support area (not accessible to residents)

A1.2-3.5.3.4 (3) Resident elopement and unsafe exiting.

Unsafe exiting is a special problem in long-term care settings, especially for residents with dementia or cognitive and mental health concerns. Residents exhibit fewer unsafe exiting behaviors in an environment that provides the following:

a. A soothing atmosphere

- Wander gardens help reduce aggressive behavior among residents with dementia and cognitive and mental health concerns.
- Provision of safe exits and transitions from residential areas to wander gardens reduces exit-seeking behavior or provides a safe outlet for such behavior.

b. Appropriate sensory stimulation

c. Positive distractions

- Nature scenes, artwork
- Plants
- Nature sounds

- * (5) Physical environment means to address resident stress and agitation

1.2-3.5.3.5 See sections 2.2-4.2 (Physical Environment Elements for Risk Reduction) and 2.5-5 (Communication Systems) for additional requirements.

*1.2-3.6 Medication Error Risk

1.2-3.6.1 Medication Safety Plan

Medication safety recommendations for a new construction or renovation project shall be included in the RSRA report.

1.2-3.6.1.1 The medication safety plan shall include the number of medication distribution locations.

1.2-3.6.1.2 See common element and facility chapters in Parts 3 through 5 for specific requirements for centralized and decentralized medication distribution and storage locations.

*1.2-3.7 Security Risk

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—Music

—Aromas

d. No opportunities for egress through windows

e. Disguised means of exit

A1.2-3.5.3.4 (5) Resident stress and agitation and aggressive behaviors may cause a resident to harm him- or herself, other residents, or staff members. The following measures have been found to reduce levels of agitation and aggression:

a. Bright light exposure

b. Increased environmental lighting

c. Heightened value contrast

d. Decreased spatial and social density (i.e., fewer residents per unit, larger space per resident)

e. Single-resident rooms

f. Positive distractions, such as:

—Visual, audio, and olfactory stimuli

—A small-scale homelike environment with features such as a residential kitchen

—Wander gardens

g. Improved acoustics to reduce unwanted noise and sounds

A1.2-3.6 Medication error risk. An assessment of medication error risk should proactively identify and plan design elements to address medication safety. Medication distribution and storage

*1.2-3.7.1 Security Plan

Security recommendations for a new construction or renovation project shall be included in the RSRA report. The security plan shall include the following:

1.2-3.7.1.1 A description of the effects of demolition and phasing on existing site functions and protection efforts

1.2-3.7.1.2 An assessment of the need for temporary security barriers such as fencing and security systems (e.g., intrusion detection and video surveillance systems)

1.2-3.7.1.3 A schedule for installation of security systems for completion during early move-in activities to allow for protection of the facility and equipment

1.2-3.7.1.4 Security considerations for project design

- *(1) Parking and exterior spaces. The design of parking and exterior spaces shall minimize the opportunity for violent and property crime, promote efficient resource management, and provide a welcoming environment.

locations, scope of project, care population needs, and design features should be identified to mitigate risk based on the nature and scope of the planned use of medication systems. See common element and facility chapters in Parts 3 through 5 for specific requirements for centralized and decentralized medication distribution and storage locations.

A1.2-3.7 Security risk. An assessment of security risk should address the unique characteristics of a facility, including specific needs related to the protection of vulnerable resident populations, security of sensitive areas, application of security and safety systems, and the infrastructure required to support these needs. The evaluation should cover external and internal security needs and security needs related to emergency management and response. More detailed information on evaluation of security can be found in *Security Design Guidelines for Health Care Facilities* published by the International Association for Healthcare Security and Safety (IAHSS).

A1.2-3.7.1 Security requirements for construction, commissioning, and move-in vary according to the complexity of the functional program and the scope of services provided.

A1.2-3.7.1.4 (1) Residential health, care, and support facility surroundings may include open space, parking facilities, and private ways and may border other businesses, residential properties, or major transportation routes.

* (2) Buildings and interior spaces

(a) Residential health, care, and support areas

- (i) Security design considerations shall address the particular risks associated with the resident care population and demographics, facility needs expressed in the functional program, and other environmental factors.
- (ii) The project design shall include a comprehensive security plan that indicates a layered approach to access control, including zones, control points, circulation routes, and required egress paths.

(b) Protected health information

- (i) The design of residential health, care, and support facilities shall address handling of all forms of confidential resident information commonly referred to as protected health information (PHI).
- (ii) The design shall address ways in which this information could be compromised and shall apply integrated physical and electronic security systems (e.g., access and audit features), as appropriate, to locations for charting, care planning and management, record storage, and waste collection/disposal as well as in data systems (e.g., electronic health records).

(c) Utility, mechanical, and infrastructure-related spaces

- (i) The design of utility, mechanical, and infrastructure-related spaces in residential health, care, and support facilities shall be based on the recognition that such spaces, along with the mechanical, electrical, plumbing, and communication systems located in them, are critical assets for residential care providers and should support uninterrupted resident care, basic building comfort, and extraordinary emergency response capabilities.
- (ii) See Chapter 2.5 (Building Systems) for additional information and requirements.

(d) Biological and chemical materials

- (i) The design of residential health, care, and support facilities shall address the unique security risks presented by the presence of hazardous materials, including biological and chemical materials.
- (ii) Facilities shall be designed and constructed to provide integrated physical security, protect the internal and external environment and the surrounding community, and assist in the audit of materials in accordance with policy, regulation, best practices, and assessed risk.

***1.2-3.8 Disaster Risk and Emergency Preparedness**

***1.2-3.8.1 Provisions for Disaster Preparedness**

c. A potential risks approach to the design should be applied to help the care provider prepare for, respond to, and recover from man-made events and natural disasters.

A1.2-3.8.1 Provisions for disaster preparedness

- a. Design for continued operation. For those facilities that must remain operational in the aftermath of a disaster, special designs are required to protect systems and essential building services such as power, water, medical systems, and, in certain areas, air conditioning systems. In addition, special consideration must be given to the likelihood of temporary loss of externally supplied power, gas, water, and communications.
- b. Wind- and earthquake-resistant design for new buildings
—Facilities should be designed to meet the requirements of American Society of Civil Engineers/Structural Engineering

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A1.2-3.7.1.4 (2) The physical design of buildings and integration of electronic security systems in the built environment are important components of the facility protection plan and the resident, family, visitor, and staff experience.

A1.2-3.8 Disaster risk and emergency preparedness.

Residential health, care, and support facilities generally are expected to be functional, safe, and secure for residents, family members, visitors, and staff while remaining prepared for natural and man-made emergencies 24 hours a day/7 days a week.

- a. An evaluation of potential risks from disasters informs the emergency preparedness plan.
- b. Design of the facility should consider emergency management practices that allow for the flexibility and resilience required to manage emergency events.

*1.2-3.8.2 Compliance Elements

1.2-3.8.2.1 In locations with recognized potential for hurricanes, tornadoes, flooding, earthquakes, or other regional disasters, the need to protect the life safety of all residential health, care, and support facility occupants and the potential need for continuing services following such a disaster shall be considered during project planning and design.

1.2-3.8.2.2 Disaster preparedness plan

- (1) A disaster preparedness plan for the new construction or renovation project shall be included in the RSRA report.
- (2) This plan shall include disaster planning risk mitigation recommendations prepared by the interdisciplinary team that address the following:
 - (a) Resident placement and relocation

- (b) Standards for barriers and other protective measures required to protect areas of refuge from identified potential disasters
- (c) See Section 1.2-3.2.1 (Infection Control Risk Assessment) for additional information and requirements.

■ 1.2-4 Environment of Care Requirements

The functional program shall describe the functional requirements and relationships among the following components and key elements of the physical environment.

*1.2-4.1 Delivery of Care Model Concepts

The delivery of care model shall be defined in the functional program.

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Institute (ASCE/SEI) 7 or building codes with substantially equivalent requirements. See Section 1.1-4.2 (Regulations for Earthquake-Resistant Design for New Buildings) for specifics.

—Seismic construction inspection. During construction, the care provider should complete the testing described in Section 11A.2 and special inspection of the seismic systems described in Section 11A.1.3 of ASCE/SEI 7.

—Roof considerations

- Roof coverings and mechanical equipment should be securely fastened or ballasted to the supporting roof construction and should provide weather protection for the building at the roof. If ballast is used, it should be designed so it is unlikely to become a projectile.
- In addition to the wind force design and construction requirements specified, particular attention should be given to the design of roofing, entryways, glazing, and flashing to minimize uplift, impact damage, and other damage that could seriously impair building function.

c. Flood protection

—In accordance with Executive Order 11988: Floodplain Management, possible flood effects should be considered when selecting and developing the site for a residential health, care, or support facility.

—Insofar as possible, new facilities should not be located on designated floodplains.

—Where locating a facility on a floodplain is unavoidable, consult the Army Corps of Engineers' regional office for the latest applicable regulations pertaining to required flood insurance and protection measures.

c. Emergency supply storage

- Required supplies. Should normal operations be disrupted, the facility should have adequate storage capacity for, or a functional program contingency plan to obtain, food, sterile supplies, medication supplies, linen, and water for sanitation.
- Storage capacity. Such storage capacity or plans should be sufficient for at least four continuous days of operation.

A1.2-3.8.2 Disaster preparedness compliance

- a. Facility evaluation. Care providers of existing facilities should evaluate their facility's ability to withstand the effects of regional natural disasters. The assessment should consider performance of structural and critical nonstructural building systems and the likelihood of loss of externally supplied power, gas, water, and communications under such conditions.
- b. Facility planning. Facility master planning should consider mitigation measures required to address conditions that may be hazardous to residents and conditions that may compromise the ability of the facility to fulfill care needs.
- c. Seismic considerations. Particular attention should be paid to seismic considerations in areas where the seismic design classification of a building would fall into Seismic Design Category C, D, E, or F as described in ASCE/SEI 7: "Minimum Design Loads for Buildings and Other Structures."

A1.2-4.1 Delivery of care model concepts. Examples of delivery of care models include resident- or person-centered care, relationship-centered care, and medical model care.

1.2-4.2 Users

The physical environment shall support the operation of the delivery of care model and the desired experience for residents, family members, visitors, and staff.

*1.2-4.3 Systems Design

The physical environment shall support organizational, technological, and building systems designed in response to the functional program, including the delivery of the care model and operational services.

*1.2-4.4 Layout/Operational Planning

The layout and design of the physical environment shall enhance operational efficiencies and the satisfaction of residents, families, and staff.

1.2-4.5 Physical Environment Elements

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A1.2-4.3 Systems design. Information technology, medical technology, and/or staff use and cross training are issues that should be addressed in relation to the environment of care components.

A1.2-4.4 Layout/operational planning. Criteria for evaluation of the layouts should be consistent with the delivery of care model to allow each optional layout and operational plan to be reviewed in context.

A1.2-4.5.1 Light. Provision of natural light should be considered wherever possible in the design of the physical environment.

- Access to natural light should be provided no farther than 50 feet from any resident activity area, visitor space, or staff work area. To the extent possible, the source of such natural light should also provide opportunities for exterior views.
- Window sill height should not exceed 3 feet (.91 meter) above the floor and should be above grade.
- Access to natural light should be available without entering private spaces (i.e., staff should not have to enter a resident room to have access to natural light). Examples of such access include windows at the ends of corridors, clerestory windows in corridors, skylights into deep areas of the building in highly traveled areas, transoms, and door sidelights.
- In residential health, care, and support occupancies, dining areas, lounges, and activity areas should be designed to include natural light.

A1.2-4.5.2 Views of and access to nature

- Siting and organization of the building should respond to and prioritize unique natural views and other natural site features.

The physical environment shall be designed in response to the functional program, including the intended delivery of care model, and shall address the key elements listed below:

*1.2-4.5.1 Light

Use and availability of natural light and illumination shall be addressed in the design of the physical environment.

*1.2-4.5.2 Views of and Access to Nature

Residential health, care, and support facilities shall provide accessible outdoor space or a suitable alternative for residents, visitors, and staff. Such spaces shall allow for visual observation by staff based on the population served.

*1.2-4.5.3 Signage and Wayfinding

- Direct physical access to the outdoors (e.g., a garden, local park, adjacent green space) and views of nature and indoor gardens/atria should be provided. When direct access is not possible, alternatives include indoor gardens with natural light (atria), roof gardens, and green roofs.
- Outdoor respite areas should be provided for direct care and support staff.
- The abilities of the care population served (e.g., level of acuity, level of physical frailty, dementia issues) should be considered in designing outdoor spaces or alternatives.
- Opportunities for both active and passive interactions with nature should be provided in outdoor space(s), including exercise and play or other types of physical activity and therapies (e.g., physical, occupational, horticultural).
- Wayfinding and/or views should be provided to encourage residents to visit and return from outdoor garden(s) and/or atria.
- Access to both sun and shade, with trees and/or built shade structures, should be provided. Shady places are particularly important for residents who are photosensitive.
- Water features. Where provided, open water features should be equipped to safely manage water quality to protect occupants from infectious or irritating aerosols. See Section 2.1-3.6.3 (Outdoor Water Features) and appendix section A2.4-2.2.13 (Decorative water features) for additional information and requirements.
- For additional information on landscape and gardens, see appendix section A2.1-3.6.1 (Landscape features).

A1.2-4.5.3 Signage and wayfinding

- Entry points to all residential health, care, and support facilities should be clearly identifiable from all major exterior circulation

***1.2-4.5.3.1** An organized approach to wayfinding/ clarity of access for the entire campus or facility shall be provided.

***1.2-4.5.3.2** The wayfinding approach shall include an integrated system with coordinated wayfinding elements.

***1.2-4.5.4 User Control of Environment**

How, by what means, and to what extent users of the

finished project (residents, participants, outpatients, staff, and visitors) are able to control their environment shall be considered in the design of the physical environment.

***1.2-4.5.5 Privacy and Confidentiality**

How the privacy and confidentiality of users of the finished project will be protected shall be considered in the design of the physical environment.

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modes (roadways, bus stops, vehicular parking).

- b. Planning for wayfinding should begin with the concept that the average visitor or staff member will be able to easily find his or her way throughout the facility.
- c. Outside wayfinding should be considered for both those walking and those driving to the facility. If public transportation is available, directions and signage to and from transportation sites should be provided.

A1.2-4.5.3.1 Organized approach to clarity of

access. During the functional programming process, input from hands-on care staff, facility managers, visitors, families, and residents should be sought regarding wayfinding. This should include evaluation of the most common and problematic scenarios to identify shortcomings in the wayfinding approach and help develop design criteria to address them.

- a. Consider use of the following in the design of a wayfinding system:
 - Universal Symbols in Health Care™, where possible
 - Unique landmarks (e.g., design elements such as color, artwork, texture, change in architecture, plants)
- b. Consider the need for the wayfinding approach to:
 - Accommodate the needs of a particular care population (e.g., the elderly, children, cognitively impaired, visually impaired, and other particularly vulnerable populations, including residents with dementia and Alzheimer's).
 - Offer varied presentations of the same information to accommodate users with different cognitive processes.
 - Accommodate users with limited English proficiency (LEP) and speakers of multiple languages.
 - Address the stress experienced by residents and families while finding their way to unfamiliar areas in the facility.
 - Address the needs of first-time users.
- c. The wayfinding plan should be integrated with relevant security plans.

A1.2-4.5.3.2 Wayfinding elements. The wayfinding approach should coordinate elements such as:

- a. Visible and easy-to-understand signs and numbers
- b. Landmarks
- c. Distinctive exterior views

- d. Distinctive changes in interior décor (surface color and texture, furnishings, and window treatments)
- e. Provision of verbal directions
- f. Paper information
- g. Electronic information

A1.2-4.5.4 User control of environment. During the functional programming process, all opportunities to provide individual control over as many elements of the environment as possible and reasonable (including but not limited to temperature, lighting, sound, and privacy) should be evaluated.

- a. Lighting in resident and staff areas should allow for individual control and provide variety in lighting types and levels.
 - Residents should have control in their dwelling unit of all lighting.
 - Residents should have control of varied lighting in resident bathrooms.
 - Staff should have control of varying lighting levels in corridors outside resident rooms, at caregiver areas, and at central caregiver areas to ensure that resident sleep is not disturbed by general lighting not under control of residents/visitors.
- b. Building systems design should incorporate individual control over the thermal environment, including zoning of mechanical systems that allow heating and cooling to achieve thermal comfort for individual residents.
- c. Noise should be minimized in the design of the physical environment and the selection of operational systems and equipment. Residents should have the ability to control their auditory environment where feasible and clinically safe. In community spaces that include televisions, audio presentations, or other types of performances, alternative listening devices should be provided for residents who need supplemental amplification.

A1.2-4.5.5 Privacy and confidentiality. The Health Insurance Portability and Accountability Act (HIPAA) requires that residents' health care information be kept private in all residential health, care, and support settings that include discussion of medical conditions.

- a. In traditional settings, public circulation and staff/resident circulation should be separated wherever possible.

***1.2-4.5.6 Safety and Security**

How the safety and security of residents, staff, and visitors will be addressed shall be considered in the overall planning of the facility. See Section 1.2-3.7 (Security Risk) for additional information and requirements.

***1.2-4.5.7 Characteristics and criteria for selection of materials and products for architectural details, surfaces, and furnishings**

1.2-4.5.7.1 The effects of materials, details, colors, textures, and patterns on residents, staff, and visitors shall be considered in the overall planning and design of the facility. See Section 2.4-2 (Architectural Details, Surfaces, and Furnishings) for specific requirements.

1.2-4.5.7.2 Maintenance and performance shall be considered when selecting these items.

***1.2-4.5.8 Cultural Responsiveness**

The culture of residents, staff, and visitors shall be considered in the overall planning of the facility.

***1.2-4.5.9 Support for Person-Centered Care**

The relationship between the physical environment and the person-centered care approach to planning, delivering, and evaluating residential health, care, and support services shall be considered during the functional programming process. See Section 1.2-5.8 (Resident Quality of Life) for core values information.

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- b. In neighborhoods/clusters and small house/household settings, public and private circulation paths should be provided and identified to support privacy for resident rooms.
- c. Private spaces should be provided for all communication concerning personal information relative to resident illness, care plans, life programming, and insurance and financial matters.
- d. In facilities with multi-occupant resident rooms, private spaces should be provided to permit residents and families to communicate privately.

A1.2-4.5.6 Safety and security

- a. The primary access points to the facility should be clearly visible from outside. A system to control and secure all access points at certain times of day and in the event of an emergency should be provided. During these times, electronic locks and monitoring cameras should be provided to permit entry by authorized persons. Exterior lighting should be provided for parking lots and all entry points to the facility. At primary access points, provision of local or remote reception or security services may enhance security.
- b. Since strict physical control of access to a residential health, care, or support facility is neither possible nor appropriate, security is enhanced through staff and resident training.
- c. Provisions should be made to allow residents to secure some personal belongings in locked drawers or cabinets. Staff should be provided with means to lock up small items (e.g., purses, wallets, phones) during work hours.
- d. The physical environment should be designed to support the overall safety and security policies and protocols of the organization.
- e. Safety and security monitoring, when provided, should respect resident privacy and dignity.
- f. Provision of safety features such as adequate lighting, non-tripping surfaces, and landscaping that does not provide locations for hiding should be considered for exterior spaces.

A1.2-4.5.7 Selecting materials and products

- a. Testing standards can verify whether a product provides specific characteristics. When selecting architectural details, surfaces, and furnishings, verification of third-party independent testing can ensure that surfaces meet necessary code requirements.
- b. In certain areas of a residential health, care, or support facility, it will not be possible to use products with all of these characteristics; the goal is to choose products with as many of these characteristics as possible.

A1.2-4.5.8 Cultural responsiveness

- a. Organizational culture is defined by the history of the organization, leadership philosophy, management style, and caregivers' backgrounds.
- b. Regional culture is defined by the physical location and demographics (including age, nationality, religion, and economics) of the communities served.
- c. Built environment design, finishes, and color palettes should respond to the geographic location of the residential health, care, or support facility, taking into account climate and light; regional responses to color; the cultural characteristics of the community served, including resident choice; and the cultural background of the staff.

A1.2-4.5.9 Support for person-centered care.

Person-centered care is an approach to the planning, delivery, and evaluation of residential health, care, and support services with the objective of providing a personalized living environment for each resident. The physical setting is designed to support the personalization of services by staff, with an emphasis on the development and maintenance of relationships and of activities that are meaningful for each resident.

- a. The person-centered care movement strives to transform health, care, and support services based on person-directed values and practices. The voices of the residents, both spoken and unspoken and

■ 1.2-5 Planning Considerations and Requirements

1.2-5.1 Lighting Planning

1.2-5.1.1 General

The planning of new and renovated residential health, care, and support facilities shall include identification of daylighting, artificial lighting, and vision and health needs during the programming phase to determine desired outcomes based on the resident care population.

1.2-5.1.2 Lighting Planning Process

The process for lighting planning for new and renovated residential health, care, and support facilities shall include the following:

1.2-5.1.2.1 Evaluation of site conditions and building orientation. See Section 1.2-2.2.2.2 (1) (Site) for requirements.

1.2-5.1.2.2 Evaluation of care population and access to daylighting

- * (1) Access to daylighting shall be included in the project. See Sections 1.2-4.5.1 (Light) and 1.2-4.5.2 (Views of and Access to Nature) for additional information.
- (2) Daylighting goals shall be established for the project.
- (3) Fenestration, types of glazing, and window treatments for exterior windows and doors shall be evaluated in relation to the use of interior spaces to assure access to daylight is provided.

1.2-5.1.2.3 Verification that artificial lighting and daylighting in a project responds to the needs of the care population described in the functional program

1.2-5.1.3 See Section 2.5-7 (Daylighting and Artificial Lighting Systems) for additional requirements.

1.2-5.2 Acoustic Planning

1.2-5.2.1 General

The planning of new and renovated residential health, care, and support facilities shall include identification of acoustic needs during the programming phase to determine desired outcomes based on the resident care population.

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- sometimes interpreted by their families, provide the primary guidance for the services, support, and care provided. Staff are trained to make the development of a positive relationship with the resident as important as the service/care task being completed.
- b. Person-centered care may require changes in organizational values and practices, management philosophy, workplace models, and staff relationships at all levels, with an emphasis on teamwork. The goal is to provide better outcomes for residents, families, and care providers.
 - c. Integral to person-centered care is the recognition that the built environment has a significant effect on quality of life. Both long- and short-term living environments should be designed to minimize institutional spaces and maximize home-like spaces. Person-centered outcomes are the result of the interaction between care practices and the built environment.
 - d. Information on person-centered care (and the larger, more encompassing term of culture change) is available at:
 - Planetree (www.planetree.org)
 - Pioneer Network (www.pioneernetwork.net). Business case information for culture change is available at www.pioneernetwork.net/Providers/CaseStudies and www.pioneernetwork.net.

- net/Data/Documents/MedicaidCongresslongreljune12007.pdf.
- Action Pact (www.actionpact.com)
- Society for the Advancement of Gerontological Environments (SAGE) (www.sagefederation.org)
- “Senior Living Sustainability Guide®” (www.withseniorsinmind.org)
- Institute for Patient- and Family-Centered Care (www.ipfcc.org/advance/supporting.html)
- The Joint Commission monograph “Advancing Effective Communication, Cultural Competence, and Patient- and Family-Centered Care: A Roadmap for Hospitals”

A1.2-5.1.2.2 (1) Access to daylighting

- a. Due to the significant health benefits of the natural environment (e.g., circadian rhythm entrainment, Vitamin D synthesis, reduced depression), access to exterior spaces with daylight should be provided for all residents, participants, and outpatients.
- b. Windows, skylights, and other sources of daylighting should be considered to minimize the need for artificial light during the daytime and to allow residents to experience the natural daylight cycle, which supports circadian rhythm entrainment.

1.2-5.2.2 The planning process for new and renovated residential health, care, and support facilities shall include:

1.2-5.2.2.1 Evaluation of building location related to exterior noise

1.2-5.2.2.2 Evaluation of interior noise sources, including the following:

- (1) Elevators and their proximity to resident rooms
- (2) HVAC fans and other MEP building systems
- (3) Noise-generating appliances, whether for private, communal, or facility use
- (4) Community and staff work spaces proximate to resident rooms

1.2-5.2.2.3 Verification of compliance with the functional program needs of the care population and staff

1.2-5.2.3 See Section 2.5-8 (Acoustic Design Systems) for additional requirements.

1.2-5.3 Thermal Conditions

1.2-5.3.1 General

The planning of new and renovated residential health, care, and support facilities shall include identification of the staff's and residents' desired outcomes and level of control of systems that contribute to thermal conditions and human comfort.

1.2-5.3.2 The planning process for new and renovated residential health, care, and support facilities shall include:

1.2-5.3.2.1 Evaluation of care population in relation to thermal conditions

1.2-5.3.2.2 Evaluation of building systems that affect thermal conditions

1.2-5.3.2.3 Evaluation of building systems that affect thermal controls in resident rooms, staff areas, and common spaces

1.2-5.3.2.4 See Section 2.5-3.1.2 (Ventilation and Space Conditioning) for additional requirements.

1.2-5.4 Indoor Air Quality Planning

1.2-5.4.1 Planning for new and renovated residential health, care, and support facilities shall include identification of all interior factors and building systems that affect indoor air quality (IAQ).

1.2-5.4.2 The planning process for new and renovated residential health, care, and support facilities shall include:

1.2-5.4.2.1 Evaluation of care population in relation to indoor air quality

1.2-5.4.2.2 Establishment of IAQ goals for the facility

1.2-5.4.3 See Section 2.2-2.4 (Indoor Environmental Quality) for additional IAQ requirements.

1.2-5.5 Planning for Sustainability

*1.2-5.5.1 Requirement

Planning for new and renovated residential health, care, and support facilities shall include establishment of sustainability goals by an integrated stakeholder team.

1.2-5.5.2 Planning for Sustainability Process

The planning process for new and renovated residential health, care, and support facilities shall include these steps:

strategies. To meet these objectives, care provider organizations should use an integrated project delivery process and develop an interdisciplinary design team to guide facility design. The intent of integrated project delivery is to improve building performance by including design and construction considerations from project inception.

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A1.2-5.5.1 Sustainability planning. A growing body of knowledge is available to help design professionals and care provider organizations that provide residential health, care, and support services understand how buildings affect human health and the environment and how negative effects can be mitigated through a variety of

*1.2-5.5.2.1 Establish sustainability goals for the facility.

1.2-5.5.2.2 See Section 2.2-2 (Sustainable Design Criteria) for additional requirements.

1.2-5.6 Bariatric Planning Considerations

1.2-5.6.1 If the functional program has determined that a facility will accommodate bariatric residents, the following shall be identified and evaluated:

1.2-5.6.1.1 Areas of the facility designated for bariatric accommodations

1.2-5.6.1.2 Paths of egress to reach areas supporting bariatric needs

1.2-5.6.2 The areas identified in Section 1.2-5.6.1 shall be programmed and planned with appropriate weight support and clearances.

1.2-5.6.3 See Section 2.2-3 (Bariatric Design Criteria) for other requirements.

1.2-5.7 Dementia, Mental Health, Cognitive, and Developmental Disability Planning

*1.2-5.7.1 See Section 1.2-2.2.1.2 (1) (Functional program) for planning requirements.

1.2-5.7.2 See Section 1.2-3.5 (Resident Dementia and Mental Health Risks) for resident safety risk assessment (RSRA) requirements.

1.2-5.8 Resident Quality of Life

The core values of person-centered care shall be considered in the design of residential health, care, and support facilities. At minimum, these shall include the following:

1.2-5.8.1 Choice

1.2-5.8.2 Dignity

1.2-5.8.3 Privacy

1.2-5.8.4 Meaningful engagement

1.2-5.8.5 Courtesy

APPENDIX

A1.2-5.5.2.1 Sustainability goals. Development of sustainability goals should include evaluation and use of one or more green building codes or rating systems.

The International Code Council (www.iccsafe.org) has developed the *International Green Construction Code (IgCC)*, which has been adopted by an increasing number of states and municipalities. The IgCC includes reference to ASHRAE 189.1: *Standard for the Design of High-Performance, Green Buildings, Except Low-Rise Residential Buildings* as a potential compliance path. Another reference is ASHRAE 189.3P: *Proposed Standard for Design, Construction and Operation of Sustainable High-Performance Health Care Facilities*.

Several green building rating systems are applicable to residential health, care, and support settings; including:

- a. "Senior Living Sustainability GuideSM" (www.withseniorsinmind.org)
- b. Green Globes[®] assessment and rating system. This Web-enabled interactive green building design tool provided by the Green Building Initiative (GBI) (www.thegbi.org) incorporates an integrated project management approach and offers third-party certification. GBI tools are available for New Construction (NC) and for Continual Improvement of Existing Buildings for Healthcare (CIEB HC). GBI has developed ANSI/GBI 01: *Green Building Assessment Protocol for Commercial Buildings* to inform use of the Green Globes NC tool.
- c. LEED[®] v4 Green Building Rating System (www.usgbc.org). Along

with this rating system, the U.S. Green Building Council (USGBC) has established a third-party certification framework for the design of sustainable buildings.

d. "Green Guide for Health CareSM" (www.gghc.org), a voluntary self-certification metric tool that specifically addresses the health care sector. These various tools establish "best practice" criteria and provide planning/design/development process guidance for site design, water and energy usage, materials, and indoor environmental quality.

A1.2-5.7.1 Planning for facilities that serve those with dementia, mental health or cognitive issues, or developmental disabilities.

Facilities for this care population should be designed to maintain dignity, respect for individuality, and privacy for residents without compromising the operational need for close observation, safety, and security. Facility design should consider resident vulnerability to stress from noise, lack of privacy, poor or inadequate lighting, poor ventilation, and other physical environment effects that may prove harmful to resident well-being.

Provision of accommodations for visits from family members and overnight stays should be considered based on the cognitive concerns of a care population to support choice and options for family caregivers and residents.

Table 1.2-1**Resident Safety Risk Assessment Components**

Risks	Section	Facility Type/Area	Project Scope
Infection control risk	1.2-3.2	Nursing home, hospice, assisted living, adult day care, outpatient diagnostic and treatment, and outpatient rehabilitation	1. New construction 2. All renovations
Resident mobility and transfer risk	1.2-3.3	All	1. New construction 2. All renovations
Resident fall risk and prevention	1.2-3.4	All	1. New construction 2. All renovations
Resident dementia and mental health risk	1.2-3.5	All, based on whether the care population includes residents with dementia or mental health issues	1. New construction 2. All renovations
Medication error risk	1.2-3.6	All facilities where medications are prescribed, transcribed, prepared, administered, monitored, or documented	1. New construction 2. All renovations
Security risk	1.2-3.7	All	1. New construction 2. All renovations
Disaster risk and emergency preparedness	1.2-3.8	All	1. New construction 2. All renovations