

A8.1.A Specific requirements for each of the special care facility types are addressed in the paragraphs noted. For basic requirements, see chapters 1 through 6. For requirements regarding swing beds see Section 7.1.E. Related sections include the following: **e**Chapter 13 for hospice care; chapter 14 for assisted living; and chapter 15 for adult day care.

A8.2.A. Clusters and Staffing Considerations

Clustering refers to several concepts wherein the design of traditional nursing home floor plans (straight halls, double- or single-loaded corridors) is reorganized to provide benefits to both residents and to the effectiveness with which people care for them.

Clustering is done to achieve better image, faster service, shorter walking/wheeling distances, and more subtle handling of linen. It can also afford more localized social areas and optional decentralized staff work areas. A functioning cluster as described here is more than an architectural form where rooms are grouped around social areas without reference to caregiving. In a functioning cluster, the following will be accomplished:

Utility placement is better distributed for morning care: Clean and soiled linen rooms are located closer to the resident rooms, minimizing staff steps and maximizing the appearance of corridors (carts are not scattered through halls).

Unit scale and appearance reinforces smaller groups of rooms seen as being grouped or related: Clusters should offer identifiable social groups for both staff and older people, thereby reducing the sense of largeness often associated with centralized facilities.

Geographically effective staffing: The staffing pattern and design reinforce each other so that nursing assistants can offer primary nursing care and relate to a given set of rooms. Their room assignments are grouped together and generally do not require unequal travel distances to basic utilities. Staff "buddying" is possible. Buddying involves sharing responsibilities such as lifting a non-weight-bearing person; or covering for someone while the buddy provides off-unit transport; or is on a break.

Staffing that works as well at night as during the day: An effective cluster design incorporates multiple staffing ratios. A unit might have 42 beds, but with clustering, could staff effectively in various ratios of licensed nurses to nurses assistants: 1:7 days (~~6~~six clusters); 1:14 or 1:21 nights (~~3~~-three or ~~2~~-two neighborhoods).

Clustering can also have some other benefits:

Cluster design can provide more efficient "gross/net area" when a variety of single and/or double rooms are "nested."

Cluster design can be useful when a project is to have a high proportion of private occupancy rooms, because it reduces distances to staff work areas or nursing stations.

Clusters provide a method of distributing nursing staff through a building, nearer to bedrooms at night, so they can be responsive to vocal calls for assistance and toileting. (Central placement of staff requires

greater skill in using traditional call systems than many residents possess.)

Cluster units of a given size may "stack" or be placed over each other, but might have different staffing for varying care levels.

If digital call systems are used (such as those allowing reprogramming of what room reports to which zone or nursing assistant's work area), then one unit might easily be changed over time, such as when client needs justify higher ratios of nursing assistants to older people. For example, a 48-bed unit might start at 1:8 staffing but also respond to 1:6 staffing needs. In some units, staffing might also be slightly uneven, such as where 60-bed units are comprised of clusters of 1:7 and 1:8 during days.

Architectural Form and Clustering: Clusters involve architectural form and may have an impact on overall building shape. The longer length of stay of nursing home residents compared with hospital clients is one factor that makes clustering rooms in more residential groups particularly appropriate. However, the visual advantages of units without long corridors has also attracted hospital planners. In both facility types, architectural clustering may help both staff and residents socially identify a space or sub-unit within a larger unit.

Though architectural clustering may involve grouping rooms, this should not ~~happen at the expense of~~ result in windowless social areas, or the incorporation of all social options in a windowless social area directly outside of the bedroom doorways.

A8.2.B1. Changes to the maximum number of residents per room may be made upon a determination by the authority having jurisdiction that such an alternate room configuration provides a preferable resident environment for residents with unusual care requirements. Single resident rooms with an individual toilet room are encouraged. In two-bed rooms, consideration should be given to creating room configurations that maximize individual resident privacy, access to windows, room controls, and equivalent space.

A8.2.B2. For purposes of planning minimum clearances around beds, unless specified otherwise by the Functional Program, the rectangular dimensions to be utilized are width: 40 inches (1.01 meters) and length: 96 inches (2.43 meters).

A8.2.B5. While ADAAG, UFAS, and ANSI accessibility standards were all developed with the intention of providing greater access for individuals with disabilities, their standards are based upon assumed stature and strength, whereby dimensional and grab bar requirements are intended to facilitate wheelchair-to-toilet transfers by individuals with sufficient upper body strength and mobility to effect such a transfer. The typical nursing home resident is unlikely to have such capabilities, thus requiring the assistance of one or more staff. Insufficient clearance at the side of the toilet can restrict staff mobility and access, and can result in injury. There are ongoing efforts aimed at educating regulators and advisory panels to the difficulties ~~encountered~~ caused by inappropriate standards required within environments serving frail and geriatric populations.

Alternative grab bar configurations should address the following scenarios:

a. When a resident is capable of independent transfer facilitated by the grab bar and side-wall location required by accessibility standards, a removable/temporary wall structure and grab bar can be installed

alongside the toilet.

b. When a resident requires partial assistance in transfer, fold-down grab bars on one or both sides of the toilet would facilitate such transfers.

A8.2.C1. Whether centralized or decentralized, staff work areas should be designed to minimize the institutional character, command-station appearance, and noise associated with traditional medical nursing stations, and should foster close, open relationships between residents and staff. Confidentiality or noisy staff conversations should be accommodated in an enclosed staff lounge and/or conference area. At least part of each staff work area should be low enough and open enough to permit easy conversations between staff and residents seated in wheelchairs.

Depending upon the type of service and care plan to be provided, direct care staff work areas need not be encumbered with all of the provisions for a supervisory administrative staff work area. In some decentralized arrangements, caregiving functions may be accommodated at a piece of residential furniture (such as a table or a desk) or at a work counter recessed into an alcove off a corridor or activity space, with or without computer and communications equipment, storage facilities, etc.

A8.2.C11. Consideration should be given to privacy when locating the entrance to the bathing room.

A8.3.A.

While the guidelines provide a minimum requirement of 20 square feet (1.85 square meters) per bed for dining space, it is likely that facilities designed to this standard will be required to serve the resident population in more than one shift. In practice, the dining room should be sized at a minimum of 28 net square feet (2.60 square meters) per resident seated at one time. It is important to provide outdoor views from dining, recreation, and living spaces.

A8.4.

Activities programs focus on the social, spiritual, and creative needs of residents and clients and provide quality, meaningful experiences for them. These programs may be facility-wide or for smaller groups.

If included in the functional program, the Aactivities department is generally responsible for coordination of activities for large groups, as well as small groups and personalized individual programs involving one resident and one therapist. These activities may be conducted in other portions of the building (i.e., dining rooms, recreation spaces, lounges, etc.), but dedicated spaces are preferred for efficient operation of quality programs. Large space requirements (e.g., libraries, chapels, auditoriums, and conference, classroom, and/or training spaces) are incumbent-dependent upon the programming decisions of the sponsors as reflected in the functional program for the facility.

A8.4.B1. If required by the functional program, include space for files, records, computers, and administrative activities; a storage space for supplies and equipment; and a quiet space for residents to maximize conversations. This quiet space may be incorporated within space for administrative activities.

Note: Hearing loss in the elderly is well documented. Quiet space is very important to enable conversation.

A8.6.

Consideration should be given to the special ventilation and exhaust requirements of these areas.

A8.7

Since subacute care comprises programs in various settings, the design of such units/facilities should focus on two major components:

a. The unit/facility should comply with all applicable nursing home requirements contained in this chapter, to the extent that they do not conflict with the clinical program.

b. The facility/unit should comply with the requirements dictated by the functional program required by Section 1.1.F ~~of these Guidelines~~.

A8.8.A.

The latest edition of the Life Safety Code recognizes the need to lock doors in Alzheimer's units. Consideration should be given to making locks on wardrobes, closets, or cupboards inconspicuous.

A8.8.B.

Outdoor spaces may include gardens on grade or on roof decks, or solarium, porches, balconies, etc. Lounge space may be a winterized sun room, a designated lounge space separate from the dining room, or a day room, where other residents may be sitting. Secure, accessible outdoor space can provide a calming change in environment and also a convenient place for agitated residents to walk.

A8.8.C.

Major characteristics of persons with Alzheimer's and other dementias are lack of attention span and an inability to orient themselves within space. The environment should provide attention-grabbing landmarks and wayfinding cues and information to aid in navigation from point to point. Sensory cuing that is used in other long-term care resident areas should be incorporated for persons with dementia. Dementia program activities may include memory stimulation, music therapy, art therapy, horticultural therapy, etc. Space for dining and activities in dedicated dementia units may be provided within the unit, or directly accessible to the residents of the unit, per the minimum standards described elsewhere in Chapter 8. Consideration should be given to:

a. Landmarks. Design elements that provide clear reference points in the environment; (e.g. i.e., a room, a large three-dimensional object, large picture, or other wall-mounted artifact).

b. Signs. When appropriate, large characters and redundant word/picture combinations should be used on signs.

c. Environmental design challenge. Residents with mental impairment often find it difficult to sit for long periods of time or to sit at all without becoming restless. Although it is not a universal trait, it is so common and requires so much staff time that environmental solutions should be explored in all areas, to give cognitively impaired people interesting places and things on which to focus their attention.

A8.14.

Hot surfaces are intended to include those surfaces to which residents have normal access that exceed

110°F (43°C). This requirement does not ~~intend to include~~ extend to medical or therapeutic equipment.

A8.14.A5. Where local requirements permit, wire-free, fire-rated safety glazing should be used to enhance the home-like residential appearance preferred by residents and visitors.

A8.14.A7. Consideration should be given to increasing clearances for arthritic residents.

While ADAAG, UFAS, and ANSI accessibility standards were all developed with the intention of providing greater access for individuals with disabilities, their standards are based upon assumed stature and strength, whereby dimensional and grab bar requirements are intended to facilitate wheelchair-to-toilet transfers by individuals with sufficient upper body strength and mobility to effect such a transfer. The typical nursing home resident is unlikely to have such capabilities, thus requiring the assistance of one or more staff. Insufficient clearance at the side of the toilet can restrict staff mobility and access, and can result in injury. There are ongoing efforts aimed at educating regulators and advisory panels to the difficulties ~~encountered~~ caused by inappropriate standards required within environments serving frail and geriatric populations.

Alternative grab bar configurations should address the following scenarios:

a. When a resident is capable of independent transfer facilitated by the grab bar and side-wall location required by accessibility standards, a removable/temporary wall structure and grab bar can be installed alongside the toilet.

b. When a resident requires partial assistance in transfer, fold-down grab bars on one or both sides of the toilet would facilitate such transfers.

A8.14.A8. Consideration should be given to increasing clearances for arthritic residents and for mounting handrails lower than required by ADA, to enable frail residents to lean on the handrails for support when ambulating.

A8.30.B2. Handrail projections of up to 3.5 inches (88.9 millimeters) should not be construed as diminishing the clear inside dimensions.

A8.31.D1. ASHRAE Standard 55 recommends 30 to 60 percent relative humidity for comfort. In cold or arid climates, achieving relative humidities as high as 30 percent may not be practical. Where central ventilation systems are not utilized, these humidity requirements may not be achievable. Additional data are needed to establish a consensus on the cost/benefit of maintaining humidity within the recommended range.

If duct humidifiers are located upstream of the final filters, they should be ~~located~~ at least 15 feet (4.56 meters) upstream of the final filters. Ductwork with duct-mounted humidifiers located downstream of the final filters should have a means of water removal. An adjustable high-limit humidistat should be located downstream of the humidifier to reduce the potential ~~of~~ for condensation inside the duct. All duct takeoffs should be sufficiently downstream of the humidifier to ensure complete moisture absorption. Steam humidifiers should be used. Reservoir-type water spray or evaporative pan humidifiers should not be used.

~~Exhaust hoods handling grease-laden vapors in food preparation centers should comply with NFPA 96. All hoods over cooking ranges should be equipped with grease filters, fire extinguishing systems, and heat-actuated fan controls. Cleanout openings should be provided every 20 feet (6.10 meters) and at changes in direction in the horizontal exhaust duct systems serving these hoods. (Horizontal runs of ducts serving range hoods should be kept to a minimum.)~~

A8.31.D8. It is recommended that when practical, ventilation requirements be met by a central air-handling system with filtration and humidification provisions. This system may be designed for ventilation only, with heating and cooling accomplished by non-central air-handling equipment (e.g., fan coil units, heat pumps, etc.). These non-central units should be equipped with permanent, cleanable or replaceable filters with a minimum efficiency of 68 percent weight arrestance. For ventilation purposes, these units may be used as recirculating units only.

A8.31.E3c. There are several ways to treat domestic water systems to kill *Legionella* and opportunistic waterborne pathogens. Complete removal of these organisms is not feasible, but methods to reduce the amount include hyperchlorination (free chlorine, chlorine dioxide, monochloramine), elevated hot water temperature, ozone injection, silver/copper ions, and ultraviolet light. Each of these options has advantages and disadvantages. While increasing the hot water supply temperature to 140°F (60°C) is typically considered the easiest option, the risk of scalding, especially to youth and the elderly, is significant. See CDC, ASHRAE, and ASPE documentation for additional information.

A8.32.A4a. The reader should refer to ~~the *IES Lighting Handbook and Lighting for Health Care Facilities* for additional information~~ ANSI/IESNA RP-28-01, *Lighting and the Visual Environment for Senior Living*, for additional information.

A8.32.A4.b. Excessive differences in lighting levels should be avoided in transition areas between parking lots, building entrances and lobbies or corridors, in transition zones between driveways and parking garages, etc. As the eye ages, pupils become smaller and less elastic, making visual adaptation to dark spaces slower. Upon entering a space with a considerably lower lighting level, elderly residents may need to stop or move to one side until their eyes adapt to excessive lighting changes. Elderly pedestrians may need several minutes to adjust to significant changes in brightness when entering a building from a sunlit walkway or terrace.

Consideration should be given to increasing both indoor and outdoor illumination levels in such transition spaces to avoid excessive differences between electric lighting levels and natural daytime and nighttime illumination levels. In addition, it is very helpful for pedestrians to have conveniently located places to wait, giving them time to adjust their eyes to different lighting environments. Seating areas off busy lobbies or corridors can minimize the potential for accidents by giving them the ~~extra~~ time they need.

Care should be taken to minimize extremes of brightness within spaces and in transitions between spaces. Excessive brightness contrast from windows or lighting systems can disorient residents.

Research has established that older adults sleep best in total darkness. Therefore, to minimize resident sleep disruption, night lights should: (1) provide very low levels of illumination; (2) be so located as to minimize light scatter and reflections on room surfaces; and (3) be switched off when not needed. However, even when properly specified, located and operated, night lights often disturb resident sleep.

Therefore, many providers prefer to have staff wear portable light sources instead of using night lights that were installed primarily to satisfy a code requirement.

Lighting that creates glare and colors that do not differentiate between horizontal and vertical planes, or between objects and their backgrounds (such as handrails or light switches from walls, hardware from doors, faucets from sinks, or control knobs from appliances) should be avoided, unless therapeutic benefits can be demonstrated. (For example, it has been demonstrated that deliberately camouflaged door hardware may help control wandering and elopements by some cognitively impaired residents in Alzheimer's care facilities.)

A8.32.A4.c. Care should be taken to avoid injury from lighting fixtures. Light sources that may burn residents or ignite bed linen by direct contact should be covered or protected.

~~Determination of average illuminance~~ Ambient light levels are determined on a horizontal plane ~~from general lighting only~~ above the floor. The use of this method in the types of areas described should result in values of average illuminance within 10 percent of the values that would be obtained by dividing the area into 2-foot (0.6-meter) squares, taking a reading in each square, and averaging.

The measuring instrument should be positioned so that when readings are taken, the surface of the light-sensitive cell is in a horizontal plane and 30 inches (760 millimeters) above the floor. This can be facilitated by means of a small portable stand of wood or other material that will support the cell at the correct height and in the proper plane. Daylight may be excluded during illuminance measurements. Readings can be taken at night or with shades, blinds, or other opaque covering on the fenestration.