# Vancouver Coastal Health
# DESIGN GUIDELINES
# Complex Residential Care Developments


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# PREFACE

In accordance with regional population health requirements and Community Care directional planning, Vancouver Coastal Health (VCH) has developed the following Design Guidelines for Complex Residential Care Developments (Guidelines). This document synthesizes information from the *1992 Multilevel Care Design Guidelines* and the subsequent *1994 Multilevel Guideline Review,* both produced by the Ministry of Health. The guidelines also incorporate current thinking regarding shifting resident acuities and demographics trends within the region. The Design Guidelines form part of the VCH overall direction and commitment to continuously improve Residential Care services for seniors with complex care requirements and young adults living with disabilities.

The purpose of the Guidelines is to provide a common reference tool for designing Residential Care environments and for assessing proposals and plans for new/renovated Residential Care facilities (referred to throughout the document as “Complex Residential Care”).

The intended audience of the Guidelines includes, but is not limited to: architects, mechanical engineers, electrical engineers, code consultants, residential care operators, project managers, developers, funding agencies and other parties involved in the development of Complex Residential Care facilities.

The scope of the guidelines is to identify and describe essential environmental design elements for Complex Residential Care facilities. The Guidelines are not intended to address every design element leading to the successful completion of a building design, but rather to stipulate minimum requirements for new Complex Residential Care buildings and renovation projects within VCH. Additional research will be required by the design and care provider teams to provide appropriate environments and care outcomes for residents.

The Guidelines have been developed primarily for seniors’ Complex Residential Care developments. The philosophy and physical requirements will be similar for young adults with disabilities but will need to incorporate design features described, as well as other features to accommodate the varying environmental, physical, social, recreation needs of a younger population.

At the time of writing, an integrated physical program or design approach for Campus of Care projects has not yet been developed under this version of the Guidelines. Any approach that includes Complex Residential Care services as a component, will comply with these Guidelines.

## Acknowledgements

The Guidelines have been reviewed and amended with current input on best practices provided by the VCH Design Standards Working Group and other experts in the field of care for seniors.

Many individuals and organizations have contributed their experience, expertise, ideas and passion for the care of our elderly and young adults with disabilities populations throughout the revision process. VCH wishes to acknowledge the following contributors:

- Facilities Development and Construction, Vancouver Coastal Health
- Community Care Network Integration Council, Vancouver Coastal Health
- Complex Residential Care Working Group, Vancouver Coastal Health
- Design Standards Working Group, Vancouver Coastal Health and Providence Healthcare – clinical, operations, licensing, architectural representation
- Community Care Facilities Licensing, Vancouver Coastal Health
- Capital Regional District, Victoria
- Fraser Health Authority
- Vancouver Island Health Authority
- Interior Health Authority
- Northern Health Capital Planning
- Architectural Institute of British Columbia, Health Care Facilities Committee
- Home and Community Care, Ministry of Health
- Capital Services, Ministry of Health

## Consultants

- Busby & Associates Consulting – Program/Strategy Consulting
- Resource Planning Group Inc. (RPG) – Functional Program Consulting
- Cannon Design – Architectural Consulting and Diagrams
- Stantec Consulting – Plumbing and Electrical Sections
- Quadra Pacific Consultants – Heating and Ventilation Sections
- Gage-Babcock & Associates Ltd. – Code Consulting
- BTY Group – Quantity Surveyors

# 1.0 INTRODUCTION

## 1.1 Intent and Overview

The Guidelines are based on the principle that design features of Complex Residential Care facilities directly impact operational flows and ultimately resident care outcomes and quality of life for the residents.

The Guidelines represent the minimum building requirements for Complex Residential Care environments. The Guidelines are intended to be simple, brief, and flexible enough to allow for a variety of "best practice" building solutions that have a positive impact on service delivery and care outcomes.

Users of the Guidelines must review the body architectural and care-related research on special designs for specific resident populations, such as number of resident rooms in a house, impeded egress, contained use, and location of ceiling lifts for example.

The document provides a list of the primary codes (building and other), legislation and regulations as references for designers and proponents of Complex Residential Care facilities. The list is not exhaustive and requires research and review of other jurisdictional (federal, provincial, municipal), best practice and legal precedents prior to proposing a design solution. The National Building Code, the British Columbia Building Code and other legal or jurisdictional requirements take precedence and may supplant Guideline requirements.

Recommended minimum area requirements are provided in the document where possible. It is important to note that the Design Guidelines area requirements are often greater than those found in the *Community Care and Assisted Living Act (CCALA)* and subsequent *Adult Care Regulations*.

## 1.2 Vision, Values and Philosophy of Care

The vision for future VCH Complex Residential Care is one of caring environments that nurture holistic well-being of clients, support relationships and community, and encourage the growth and development of both residents and staff.

The set of values, which would be the philosophy of care includes:

- Respect for the individual
- Autonomy for decision making
- Quality of life
- Choice in a caring environment

- Partnership with families and caregivers

## 1.3 Definition of Complex Residential Care Facilities

Complex Residential Care facilities provide 24-hour professional nursing care and supervision in a protective, supportive environment for clients with significant health issues who have complex care needs and require a secure housing/care environment to live safely and with dignity.

Residential care services include:
- An assisted meal service;
- Medication supervision;
- Personal assistance with daily activities such as bathing, dressing or grooming; and
- A planned program of social and recreational activities.

## 1.4 Service/Care Profile

Residents have complex care needs, which may include heavy physical care or/or complex health care (medical and/or behavioural), and are not able to live outside a residential care setting within available home and community support services.

The complex care populations are anticipated to have the following characteristics:

- Clinically complex; often with multiple chronic conditions, and/or
- Cognitively impaired and unable to direct their own care, and
- The frail elderly (aged 80 to 100+ years)
- Young adults with varying disabilities who will need to be located in age appropriate environments, and are unable to direct their own care

They could also have a combination of characteristics for the resident to require 24-hour supervision and continuous professional care that could include the following:

- Difficulty in expressing needs or unable to express needs
- Unable to adapt to visual or hearing losses
- Require a varying amount of assistance with dressing, washing, grooming and bathing
- Be depressed or agitated
- Have impaired comprehension and have a short retention span
- Demonstrate varying degrees of difficulty in orientation to time, place and persons
- May have one or more severe behavioural problems which make the person unacceptable in the usual residential resources

Care requirements are not categorically discreet. Effort should be made to assess and possibly aggregate resident care and service delivery requirements in the proposed design.

In addition to these characteristics, it is expected future populations will generally be better informed about their health status and disease processes; more knowledgeable about the health care system; and more culturally and ethnically diverse.

## 1.5 Program Objectives

Research indicates that placing elderly or disabled persons in an institution where they become passive recipients of care, often results in rapid mental and physical deterioration which may jeopardize quality of life.

Environments that facilitate mobility and offer a variety of opportunities to engage in self-directed activities of daily living, as well as socializing and recreating, provide the necessary stimulation and pleasure that may slow, arrest, or even reverse deterioration.

The Guidelines provide appropriate physical space to increase the likelihood the built environments have the flexibility to support the individual's remaining abilities, compensate for lost abilities, and optimize participation in daily life.

Each care facility is considered a unique project with its own community and site. Careful attention to prevailing weather conditions, street access, desirable or undesirable views, topography, and other site conditions are essential for optimal quality of life and care outcomes.

## 1.6 Occupancy

Under the British Columbia Building Code, the occupancy is deemed to be "B2 Occupancy". Where egress control measures are in place, provisions for B1 Occupancy will have to be met in addition.

Please refer to the BC Building Code requirements for further information.

# 2.0 DESIGN – GUIDING PRINCIPLES

## 2.1 Guiding Principles

Guiding principles have been established to assist designers to design buildings that reduce resident isolation, helplessness, and boredom; and which supports a philosophy wherein the physical environment facilitates optimal care and social outcomes.

The design of Complex Residential Care facilities shall incorporate, but not be limited to the following guiding principles:

- Design a homelike environment for residents; respecting that it will likely be the resident's home for the remainder of their lives
- Employ a resident "house" concept consisting of smaller groupings of resident rooms co-located with living, dining, and kitchen areas
- Employ a "neighbourhood" concept, which involves co-location of support services between or amongst houses
- Encourage resident interaction and privacy by providing adequate space for larger social and leisure activities as well as quiet rooms and private spaces
- Encourage autonomy and independence by incorporating design features that facilitate activities of daily living
- Provide amenities for the cooking of meals using fresh ingredients on site
- Facilitate accessibility in and around the building by designing meaningful destinations, short corridors, and safe indoor and outdoor space for healthy wandering and exploration
- Enhance accessibility for residents, caregivers and visitors by providing clear spatial organization and "way-finding" cues
- Preserve privacy, dignity, safety and security by understanding the relationship between private spaces for residents and common spaces
- Provide adequate space for supplies and equipment to promote worker safety and ease of care delivery

- Locate facilities in areas close to community services and transportation routes, and otherwise welcomes/encourages integration with the outside community

- Use energy efficient design principles that respect the principles of sustainability, including harmonizing environmental, social and economic factors. LEED standards are encouraged, however certification is not a requirement.

## 2.2 Application of Guidelines

The Guidelines apply to all new or substantially renovated facilities. VCH supports house sizes of 12 to 16 beds, with a preference for fewer beds and a smaller numbers of houses per neighbourhood.

The design team is encouraged to obtain as much information to understand the evolving physical and mental requirements of the intended resident population(s) and to adapt the Guidelines for the group.

The Guidelines do not include a staffing or operational model. Staffing models will need to be developed on a project-by-project basis, and integrated with the configuration of the facility to meet VCH care requirements. Staffing flows will also consider and reflect individual site characteristics and influence design layout.

## 2.3 The House Concept

The house concept supports a homelike environment within the Complex Residential Care setting for single-storey or multi-storey buildings.

The intent of the house concept is to create relatively autonomous living, dining (and possibly kitchen) spaces that function independently for smaller groups of residents. These areas replicate the atmosphere of a large family home and also provide the opportunity to co-locate small numbers of residents with similar care needs together to optimize care delivery.

In addition to reducing the institutional feel and appearance of a facility, the house concept also reduces resident confusion and anxiety that stems from noise and other stimuli resulting from congregating many people in one area.

## 2.4 The Neighbourhood Concept

A neighbourhood is formed when two or more houses are combined for staffing and spatial efficiencies to share functions such as activity areas, personal laundry, care stations, and clean and soiled utility rooms.

## 2.5 Campus of Care Model

VCH supports a campus of care model that offers a range of housing and care options in one location to support aging in place and minimize number of transitions for seniors. The model consists of assisted living and complex care with other health services.

Space allowances for the resident House and Neighbourhood support spaces are designated as the minimum space requirement to form the standard living units.

Facility support areas would be adjusted to reduce duplication of service areas that are closely located on one site. Support services such as the central kitchen, laundry, service facilities, and potentially multi-purpose rooms could be shared to bring economical savings to the facilities.

## 2.6 Accessibility

The environment should facilitate resident mobility and accessibility. Since many residents have physical, visual, perceptual or cognitive impairments, design features shall facilitate easy access to common and personal areas. Each design shall incorporate wheelchair and mobility aid access, contiguous floor levels, and allow for adequate turning spaces in all interior living areas and external wandering paths and grounds.

## 2.7 Clarity of Spatial Organization and Way-finding

The design shall reinforce awareness of location and direction by providing frequent sight lines to the outside and distant views for orientation with surroundings.

Reception points shall be obvious with destinations clearly visible from place to place. Circulation patterns should be simple and direct and avoid complex circulation patterns.

Corridor lengths shall be as short as possible and the proximity of resident rooms close to amenities to encourage independent travel.

## 2.8 Resident Privacy

Visual and acoustic privacy for residents is important and shall be designed into all personal care spaces. There must be no direct view of the resident's bathroom or the bathing facilities from the corridor. It is important to be aware of the journey the resident will make for personal services (such as bathing or physiotherapy) and ensure private areas and public areas are discreetly separated.

## 2.9 Safety and Security

Staff work areas shall be integrated with resident amenity areas to facilitate observation and interaction as part of routine activities with specific regard to access points to the house and outside.

Specialized areas for certain populations within the facility may need to be securable. It is important discussions occur with health authority staff prior to embarking on designing these spaces.

Perimeter security is required to prevent vulnerable residents from leaving the facility, but simultaneously allow access by family and other visitors. Restricted access is also required to prevent intruders from entering and posing a risk to residents, staff, and visitors.

## 2.10 Community Interaction

Provide inviting spaces both indoors and outdoors to encourage the community at large to visit and participate in activities at the facility.

## 2.11 Independence and Choice

Provide access from resident rooms to amenity spaces, a variety of seating spaces, natural daylight sources and features that encourage normal activities of life.

## 2.12 Different Population Groups

It is important to design for flexibility in resident groupings and changes in resident acuity. A variety of groupings dedicated to residents with similar care and/or socialization needs such as dementia, complex medical conditions and chronic behaviours may be considered depending on the needs of the community and care model. Close consultation with health authority staff is required prior to embarking on a "care-specific" design solution.

## 2.13 Positive Meaningful Stimuli (Sensory and Cognition)

Each house should provide positive meaningful stimuli to residents, examples include: outdoor views, views of activities and functions, and fresh food aromas that stimulate the appetite.

Where possible, designs should avoid negative stimuli such as distracting noises, glare, and too many unfamiliar faces. Ensure that service and delivery staff functions and flows are not designed to create unnecessary circulation and disruption throughout the house.

Designers need to recognize the importance of navigation throughout the house/neighbourhood, and the requirement for resident travel to be free from obstacles in the form of people or objects.

## 2.14 Walking/Destinations

Wandering, pacing, and gait impairment are common among people with a cognitive impairment. The physical design of the building and grounds shall minimize impediments to ambulation, while promoting independence and optimal functioning.

Walking difficulties and depth perception can result in an increased likelihood of falls, and efforts shall be made to design environments that prevent or avoid the potential for falls.

Wandering and pacing can occur at night as well as during the day. Consideration should be given to design solutions that avoid disturbing other residents during quieter times.

# 3.0 SITE DESIGN CONSIDERATIONS

## 3.1 General Site Selection Criteria

A care facility should be located in an area that meets the needs of the community. The physical attributes of the site and its proximity to community services are important elements in the evaluation and selection of an appropriate site. It is preferable to situate a facility with residential, community and other health related services and resources.

The preferred arrangement is a single-storey building solution with ample outdoor space for residents at grade. This may result in a larger site requirement, which in urban areas may not always be available or cost effective.

Multi-storey facilities also require usable outdoor space for healthy wandering and resident quality of life. The size of the site will vary with the building solution chosen and the availability of land.

Campus of care configurations, which can co-locate residential care with assisted and/or supported living units and/or other services, will be considered. Discussions and approval of health authority staff is required if this option is being considered.

The design team should give every consideration to respect the local site and climatic conditions when designing the building and incorporate green design principles wherever possible.

## 3.2 Site Location Factors

### *3.2.1 Positive location factors:*

- Close to residential areas within the community
- Close to public transportation to facilitate transportation for staff and encourage visits by family, friends and volunteers
- Provide “active observable interest”, i.e. such as schools and parks that enhance the vistas
- Provide easy access to medical services such as doctors, dentists, and therapists
- Close to shopping, senior centres and other appropriate resources
- Safe for pedestrian travel

### *3.2.2 Negative location factors:*

- Locating the facility on a site that makes accessing community activities and public transportation difficult shall be avoided.

## 3.3 Site Topography

Provide a level grade immediately around the building to permit residents to directly access outdoor spaces, and promote mobility for those with mobility aids (wheelchairs and walkers), and limit the risk of falling. Curbs and curb stops are considered a hazard in an evacuation situation.

Design the outdoor deck, terrace and courtyard spaces to provide acceptable outdoor access solutions for multi-storey buildings.

## 3.4 Parking

Safe access from parking to the building entry shall be provided, with flat surfaces free from running water, ice build-up in winter, and have well-marked cross walks. Avoid ramps at the visitor entrance if possible. BC Building Access Guidelines should be followed if a ramp is unavoidable due to site conditions.

Parking space requirements shall adhere to local/municipal zoning requirements. Requirements may vary if the facility is co-located with other community care resources such as Assisted Living within a Campus of Care arrangement.

Parking should be situated close to the main entrance to provide visible access and to control entry through unauthorized routes. Parking stalls may also be placed adjacent to each house.

Several drop-off stalls should be provided at or near the main entrance. Two or more designated parking stalls for handicapped parking and doctors should be considered. Staff and visitor parking should be separate from these spaces.

Trees and plants should be incorporated into parking areas to provide shade cooling.

Where possible, parking areas should be capable of expanding to accommodate future changes to the building, increases in occupancy or extensions.

## 3.5 Emergency Preparedness Kiosk

Some jurisdictions may require the provision of an outside accessible shed or locker for the storage of supplies during an emergency.

# 4.0 THE RESIDENTS' "HOUSE"

## 4.1 Overview

The resident "house" design responds to the special needs of the complex care resident population and sub-groupings and shall have the attributes as described in this section.

The general objective of the house concept is to provide residents with a supportive care environment; in a familiar homelike setting; which encourages independence, interaction, and familiarity of surroundings; avoids larger crowded spaces; and reduces obstructions and other mobility impediments.

Houses should be built with the fewest resident bedrooms possible and feasible within staffing parameters (12 and 16 residents).

The major components of the house design include:

- Private resident bedrooms with ensuite bathroom and shower
- Common spaces for resident activities of daily living and dining
- Support spaces within and adjacent to the house
- A multi-purpose space outside the house for larger gatherings

The house contains the primary spaces for activities of daily living including large and small lounges, an activity area, a dining area, and a resident kitchen/servery.

A small laundry room in each resident house should be available for resident personal laundry.

Communal bathing facilities will be provided for residents. Where ensuite showers are provided in resident bedrooms, fewer bathing facilities will be required.

Direct access will be provided to suitable outdoor areas, gardens, terraces and/or solariums.

Walking areas will be provided that lead to meaningful destinations and avoid narrow and/or dead-end spaces where confusion can result in resident frustration and anxiety.

A non-institutional approach to delivery of equipment and supplies to resident house will be provided. Service areas will be located between houses so that service routes and staff access routes do not need to pass through one house to reach another service area or house.

## 4.2 Common Spaces for Residents

### *4.2.1 Introduction*

Group activities have several therapeutic functions. Participation in the activities of daily living like eating, talking, exercise, watching TV, and crafts in common areas allows residents to meet some of their social needs through interaction with other residents and staff. Activities help stimulate residents and maintain mental and physical dexterity, which frequently improves their physical and emotional well-being.

Each house will contain the following areas: lounges, dining area, kitchen/servery area, a quiet room, and direct access to suitable outdoor areas. To provide flexibility and efficiencies in staffing, some of these areas can be located adjacent to, or combined with the same areas in an adjoining house or neighbourhood.

Activity areas shall be located for ease of accessibility, as some residents will require assistance and/or mechanical aids to reach these areas.

### *4.2.2 Service Flow Function*

During functional programming and design, the design team will need to develop solutions around the provision of services to and from the resident houses such as food, laundry, medications and care.

Work flow for the preparation and delivery of food to the houses; removal of dishes/food items to the main kitchen; clean/soiled linen transportation to and from the houses; separation of soiled linen from the house kitchen and dining area; operation of elevators during peak times; and care provision within the houses are critical elements of facility operations. Consider providing separate circulation for materials and service goods where possible.

Where possible, input from staff and families shall be requested and factored into the proposed building solution.

### *4.2.3 Walking and Wandering Spaces, Routes and Loops*

Each house should have walking and wandering routes and activity spaces that are interesting and stimulating. Houses shall provide multiple routes for residents to travel in safe and familiar surroundings both indoors and outdoors.

Wandering routes shall be meaningful and integrated to create an internal walking route from "normal" circulation that links destination

areas of the house (e.g., dining, activities and lounge). This approach provides points of interest along the route and a sense of meaningful journey and arrival. It also encourages rest stops rather than the purposeless endless walking.

The preferred approach is a route or a loop, in which the resident does not come to a dead end. This avoids or prevents resident confusion and frustration. Where a loop is not possible, a generous turn around space should be designed. Corridors that end at destinations such as a lounge or activity areas are imaginative ways of facilitating resident access and travel. Flow should be purposeful and designed as a route to be traveled.

Outdoors, the wandering route can be integrated with landscaping and seating areas. Boundaries, defined by plants or building configuration must be unobtrusive and be effective as fences. Fences hidden by plants should also be considered. Special painting effects such as camouflage or murals can be used to guide residents away from exits and dead-end hallways.

### *4.2.4 House Entry - "Front Door"*

This section applies to freestanding cottages and other single-storey structures.

To reinforce the concept of the "house as home" for residents and their visitors, it is important each house has its own distinct entry. This entry replicates the entry to one's own home and is readily identifiable for most residents. The house entry should be a warm, inviting space and contain space for the storage of coats and outdoor clothing for visitors. The house entry acts as a place of arrival where the residents can greet visitors and families who visit. It is the visible gateway from the rest of the facility to the house and as such should have a form and character that readily distinguishes it from other houses on the same level of the building.

### *4.2.5 "Front Porch" Concept*

This section can apply to both single and multi-storey dwellings, but is more applicable to multi-storey.

Consideration should be given to using part of the common areas of the house to create a "front porch" space for the house. From the "front porch" residents can observe other activity spaces throughout the neighbourhood or facility.

These areas can be for gathering to watch people coming and going, and facilitate socialization. With grade access to enclosed outdoor spaces, this function may typically occur next to the external entry to the house.

### *4.2.6 Lounge – Residents' "Living Room"*

The lounge is the main activity space for social interaction, daytime activities and programs within the house. This space can be adjacent to the dining space to create one large open living/dining area or separated into a distinct room to provide "away space", which is quieter and offers more privacy for residents and their visitors.

The lounge (living room) space should provide seating both on couches and at tables and provision should be made for the manoeuvrability of wheelchairs within the space. The lounge may also be an access point to the house garden (outdoor space). Providing a small lounge by a cluster of resident bedrooms may encourage smaller social gatherings within the house.

The lounge location should be central and designed to incorporate with the dining area if the combined space is to be used for larger social functions.

The space allocated for lounges and the activity area may be divided into multiple rooms, if required, to suit specific resident programs or activities. Part of the area will be used for entertainment and part for quiet activities. The space allocation for lounges will not be sufficient to translate into more than one lounge, so care must be taken to design effectively as possible.

Provision should be made for smaller seating areas away from the main lounge area.

Residents resting in a lounge should be able to view inside and outside activities.

The types of programs offered in the lounge may include physical exercise, music therapy, and different forms of entertainment, hobbies and activities.

Fireplaces, gas or electric, offer warmth and enjoyment and are a preferred addition. Appropriate precautions are required to prevent injuries as glass fronted fireplaces can present a scalding hazard.

An entertainment centre with a TV should be available and located in a lounge area that does not interfere with quieter activities.

Total floor areas per house to be provided as follows:

| | |
|---|---|
| *Proximity:* | Adjacent to resident bedrooms |
| *Lounge area:* | 1.5 $m^2$ per resident (minimum to meet *CCALA* Regulations) |

### *4.2.7 Activity Rooms*

The activity room or space can be fully or partially located within the house or its space allocation can be combined with other houses to create a larger space.

The activity spaces can be either added to the living/dining area to create a larger multi-functional space or separate alternate spaces may be created to add interest and variety possibly taking advantage of differing vistas for the house. Rooms may therefore be referred to as lounge/activity or dining/activity.

Activity areas should have tables and chairs that are appropriate for residents to use for when doing crafts and other activities.

Convenient storage in the house for all program-related equipment/items is essential. Seasonal storage items can kept in lockable cupboards or the main storage room.

| | |
|---|---|
| *Proximity:* | Adjacent to living/dining areas or combined with other houses |
| *Activity area:* | 1.0 $m^2$ per resident (minimum to meet *CCALA* Regulations) |

### *4.2.8 Dining*

The dining space is the main eating area for the residents. The dining space should be large enough to accommodate all residents of the house, allow for wheelchair manoeuvrability, and be situated adjacent to the kitchen/servery. The space should function like a dining room would function “at home”.

Access to the house garden from the dining area is preferable. The dining area should maximize the availability of natural light and act as an intermediary space between the house entry and the resident bedrooms.

In order to manage the practical challenges of large geriatric chairs, wheelchairs and walkers, flexible and innovative ways of creating smaller dining groups in each house should be considered. The need for eating assistance may require space for staff to sit next to residents during mealtimes.

The dining space may be used as an activity or social space outside of mealtimes, but is not to function as the sole activity space for the house.

Allow for sufficient supplies storage for combined activity and dining area(s).

Washrooms will be located in proximity to the dining/living area for the use of visitors and residents. Washrooms shall be well ventilated and should not be visible from the dining area.

Provide a space allocation of three square meters per resident in the dining room to accommodate seating, wheelchairs or walkers, portable oxygen units and other devices that require additional space.

| | |
|---|---|
| *Proximity:* | Kitchen, activity, and outdoor garden |
| *Area:* | 3.0 $m^2$ per Resident (Note: *CCALC* Regulations minimum 2.0 $m^2$ per resident, however resident chairs will require more space to manoeuvre than the minimum requirement) |

## 4.3 House Kitchen and Servery

### *4.3.1 Resident Kitchen*

The resident kitchen and servery adjoins the dining area and is next to the lounge (living room) of the house.

The kitchen area will be a central gathering space for residents and will play a primary role in activities of daily living. The kitchen concept is designed to accommodate and manoeuvre wheelchairs throughout the space. Provision should be made for preparation of minor meals and serving of meals prepared in the main kitchen and transferred house.

The kitchen should be well lit and maximize the opportunity for resident participation while at the same time provide good visibility for supervision and control of the kitchen area.

The kitchen should have appropriate appliances to complete some meals as determined by the care model. Care must be taken to select appropriate grade appliances for use by care staff and residents.

Commercial grade appliances are not generally required in the house however, the dishwasher is required to be a commercial grade and temperature-boosted.

Oven controls should be designed for wheelchair access, with a cook top with securable front mounted controls. There should be a microwave oven and/or wall oven, range hood, and a refrigerator with a large capacity for refreshments and a freezer compartment.

Safety is of paramount importance. A lockout switch to control the operation of the cook top and oven range should be provided in a location accessible to staff only.

Kitchen facilities will need to comply with all requirements regarding safe food handling practices. The kitchen will contain a double bowl sink, and a separate hand wash sink and accessories.

Allowance should be made for some handicapped accessible counter space to allow those in wheelchairs to participate in the preparation of meals. Locate the microwave at counter height for residents in wheelchairs.

Millwork should have rounded corners to prevent injuries. Countertops will be designed with open areas under range, sink, and work area for wheelchair access. All surfaces should have scratch resistant finishes including lower cupboards and drawers.

Storage cabinets will be designed to make optimal use of space. Locking devices may need to be installed on cupboards in houses where residents are cognitively impaired.

If kitchen and dining areas are combined with activity space, allowances must be made for storage of materials and supplies.

*Proximity:* Dining room, living room, washroom

### *4.3.2 Kitchen Servery*

The kitchen servery is intended as a support space for the house kitchen and should be a pleasant non-institutional environment. The servery is not required to be a separate room but is a holding area for food delivered from the main service kitchen and is also used for storage of kitchen related equipment, and sundries.

Food is delivered from the main service kitchen into the kitchen servery for final preparation and serving to the residents. Allowance should be made within the servery to accommodate a portable bulk food cart and other foodservice/serving equipment.

The area for hot carts will be easily accessible and function for staff and resident safety. Electrical outlets will be easy reach of the location determined most suitable for the cart.

The garbage container and recycling container should be separated from food storage.

*Proximity:* Resident kitchen, dining room

## 4.4 House Care/Work Station

The house care/work station should be both unobtrusive and provide staff with the ability to visually supervise all common areas of the house, including: dining/activity lounge areas, corridors to bedrooms and outside patio and garden areas.

The intent is to have all care activities located within the house. The house care/work station will have computer access to care records (e.g., resident records, charts, care plans). Documents could be stored in a lockable cupboard next to the kitchen. Monitoring and wireless capability should be designed into this critical functional area. Medications may be stored in this space or in a nearby location.

## 4.5 Quiet Meeting Room

The quiet meeting room is where residents can meet with family and care staff. It can also function as an extra place in the house to relax in a quiet environment away from the resident's bedroom.

## 4.6 Corridors as Living Space

Corridors that are being used as walking routes and loops during daytime hours, should have a ventilation air changes equal to that of an activity area, refer to Table 3 in Section 10 – HVAC, for ventilation requirements.

The design of corridors should promote a homelike environment and reduce the institutional feel often associated with long and/or wide corridors. Provide places for residents to stop and sit down in corridors to allow residents to rest and prevent falls. These could be designed as alcoves with seating and benches.

Corridors in houses and the main facility are required to be a minimum of 2400 mm wide.

Corridor lengths should be used to promote a home-like environment to encourage resident circulation and allow for efficient staffing flows.

Design and articulation of corridors should provide adequate space for clean and soiled item storage. Spatial requirements should also allow for storage of cleaning equipment and carts, where a specific room is not designated for this use.

## 4.7 Handrails

There are options for providing handrails. Typical facility corridors create frequent interruptions in handrails for door openings that results in discontinuity of support and with residents usually relying on walking assist devices.

Consideration should be given to providing handrails in the corridors and how residents will use the handrails. If providing, handrails should be located on both sides of corridors and mounted on solid blocking between the handrail and the wall, at a recommended height of 840 mm. If not providing handrails, consider including reinforcement within the corridor wall assembly in the event that handrails are needed in future.

## 4.8 Washrooms in the House

A washroom, designated for residents use, should be located centrally within the house close to the resident activity and dining areas, but not visible from these areas. The washroom layout should provide access for caregiver assistance.

A public washroom designated for visitor use should be located in the public waiting area.

## 4.9 Personal Laundry

A laundry room for residents' personal laundry should be provided within each house, or shared between houses within the neighbourhood. The laundry room will have a residential style washer and dryer, laundry sink, hand washing sink and accessories, and an area for folding clothes. This is an activity of daily living that could involve resident participation and should be located close to the main activity areas for the house.

Providing personal laundry in each house greatly reduces the risk of losing personal laundry items, reduces the associated time spent in tracking down lost items.

## 4.10 Exit Control from House

Control of exit doors is essential. These may be electrically locked doors provided they are tied into the fire alarm system for automatic release opening. Building Code requirements should be confirmed.

The design of the house itself should maximize staff's ability to observe most areas of the house, particularly to entry/exit points, including the outdoors.

Overall security and separation of the house is an important factor in creating peace of mind for residents, staff and family members. Each house should have the capability for exit control (when required), from the house to the rest of the facility, and to outdoor areas. Residents should not be able to access service areas.

Exit control requires approval under the Building Code. Security measures such as door buzzers, video monitoring cameras, and others should be selected to provide optimal security in the least intrusive manner, i.e. without alarms.

For the safety and enjoyment of the residents, a flexible exit control system should allow access from the house to a secure outdoor area. The outside area must be observable, be securely contained at the perimeter, and include some sheltered walking and sitting space.

The capability for exit control is needed if every house is to have the flexibility to care for residents with "severe behaviour challenges".

## 4.11 Outdoor Areas

Outdoor areas should be directly accessible from each house. Residents shall have the opportunity to exercise, relax, garden, and interact with others in the outside area. The outdoor areas shall offer a safe environment with adequate shade and sheltered seating, and must be directly accessible from the interior activity area.

Resident houses should be given priority to ground floor locations over administrative space.

The outdoor areas should be usable year round. Shelter from rain, prevailing wind and sun must be provided in at least part of the outdoor area. In multi-storied facilities, the outdoor areas can take the form of a courtyard, deck, terrace or solarium.

### *4.11.1 Walking Paths*

The outdoor area should include a clear continuous walking path. The path will be designed to connect different areas of the garden for residents to have a sense of meaningful journey with destinations, seating, and defined landmarks strategically placed to assist in orientation.

Defining the path edgeways with contrasting materials or colours can assist resident travel along the pathway.

The outdoor walking path should be a continuation of the indoor walking route or loop with clear views of outdoor areas from the indoor common areas.

The walking path should have a hard surface, suitable for use by residents with gait impairments and others using walkers, wheelchairs and other mobility aides. The surface should be low-glare, non-slip and avoid defects that will interfere with movement. The path should be a smooth surface without vertical interruption, such as steps.

Consideration should be given to materials other than concrete that can provide a softer landing surface in the event of resident falls. Locate pathways away from resident bedroom windows to preserve privacy.

The location of the outdoor walking path should provide staff in common areas within the house with a reasonable vantage point to observe residents. The location of the outdoor area should not obstruct interesting views from the interior.

Sloped walkways must not exceed a gradient of 1 in 20 referenced in the BC Building Access Handbook. Long sloped walkways should be divided into shorter sloped sections with flat areas 1500 mm long to allow for rest points and to minimize the potential for run-away wheelchairs that can occur over long slopes. The sides of sloped walkways should be well marked and protected to prevent residents from falling off the edges.

### *4.11.2 Safety and Security*

Outdoor areas should be designed for safety and to prevent elopement and illegal entry. To secure the outdoor area, suitable non-climbable barriers to a height of at between 1800mm and 2400mm should deter those at risk of elopement.

Generally, fencing should not obstruct views to outdoor areas and activities.

Outside areas may need to have the capacity to separate or integrate functional groupings of residents when necessary due to site restrictions.

### *4.11.3 Plants and Greenery*

Plant material should be selected to provide colour and fragrance for most of the year. Raised planters or other methods of bringing the planting close to residents in wheelchairs are preferred, as is innovating ways to increase resident participation in gardening activities. All plants are required to be non-toxic.

### *4.11.4 Smoking*

Indoor smoking rooms are not permitted. Outdoor smoking areas must be sufficiently distant from resident windows and building ventilation intakes to ensure that second-hand smoke does not filter into the facility or resident bedrooms. Additional ventilation support for the exterior smoking areas may be required.

### *4.11.5 Outdoor Area Spatial Requirements*

Space requirements for controlled garden environments will differ widely depending on building configuration, site restrictions, and anticipated activities of residents. A minimum of 1.5 $m^2$/resident of hard surfaced patio area are to be provided with seating for 25% of the residents the outdoor space serves.

| | |
|---|---|
| *Proximity:* | Houses and other areas |
| *Area:* | 1.5 $m^2$ per Resident (minimum to meet CCALA Regulations, a that reasonable portion must be covered) |

## 4.12 Resident Bedrooms

### *4.12.1 Single Occupancy Bedroom*

Bedrooms should be designed for 95 % “single-occupancy”. *CCALA* Adult Care Regulations stipulate the number of “double occupancy” bedrooms allowable (up to 5 % of the bedrooms).

### *4.12.2 Double Occupancy Bedroom*

A double occupancy bedroom must provide a clothes closet or armoire for each person. Location of the double occupancy bedroom on an outside corner with the washroom in the centre can provide more privacy. The same clearances and space provisions as single occupancy bedrooms apply.

### *4.12.3 Interconnecting Bedrooms Option*

Consideration will be given to double occupancy bedrooms made by interconnecting two single bedrooms. Lockable interconnecting doors between two single bedrooms will allow the flexibility for a couple or two roommates to share the two rooms as a suite. In some cases roommates will want to place both beds in one room and use the other as a sitting room.

The connecting door should be split solid core pocket doors with a clear width of 1200mm and provide good visibility into the adjoining room to facilitate communication between occupants.

### *4.12.4 Bed Location*

The desired bed location should be determined early in design. Consider the proposed bed location with respect to the following: placement of the nurse call system, resident lift system, reading lights, switches, medical gases, and other room controls. Locate the bed-head bumper rails to protect the wall against damage from bed movement.

Beds should be positioned to ensure resident privacy, with no visibility from the corridor. Simultaneously, visual access should be provided from the bed to the ensuite bathroom (toilet), as it may reduce incidence of incontinence for some residents.

### *4.12.5 Ensuite Bathroom Location*

The preferred ensuite bathroom location provides privacy for the resident when the door to the resident bedroom is opened and is visible from the bed. Locating the ensuite along the wall between the resident bedroom and the corridor also maximizes natural light in the resident bedroom.

### *4.12.6 Clearances*

Without moving adjacent beds or furniture (except chairs) it should be possible to move a bed in or out of a resident bedroom. A minimum 1200 mm wide passage for such movement should be considered for all bedrooms.

At least 1500 mm clear space is required for care; to assist people into wheelchairs; and for person lifting devices and stretchers. Furnishings or equipment should not obstruct the space.

Consideration should be given to bariatric residents who may require larger clearances.

### *4.12.7 Resident Lifting Devices/Ceiling Lifts*

Resident lifting devices, or ceiling lift tracks, are to be installed in the resident bedrooms as required under WCB Regulations and OH & S recommendations. Ceiling lift motors can be purchased and provided on an as-needed basis.

The type of ceiling lift, such as an X-Y gantry system or a recessed single-track system should be considered in the layout and dimensions of the resident bedroom. (Note that VCH requires an X-Y gantry system.)

It is important to be aware that the ceiling track may continue from the bedroom to the bathroom, with a possible change of ceiling heights between the bathroom and the bedroom. *All bathrooms shall have a door.*

Consider the location of sprinkler heads and lighting fixtures. The location of wall-mounted cupboards may impede the reasonable movement of residents in lifts, and should be considered in the design.

Some ceiling lift configurations may also affect floor to ceiling height of the building and/or other structural requirements.

### *4.12.8 Doors*

Door openings into bedrooms from corridors shall have a clear minimum width of 1220 mm to allow for the movement of beds. Door openings could be designed with two opening leaves (900 mm and 300 mm) a minimum opening width of 865 mm is required for normal usage. Regulations require that the bedroom have a door that can be locked from the inside at the request of the resident.

The resident ensuite bathroom door shall have a clear opening not less than 1220 mm. Consideration should be given for bariatric equipment which requires a larger door swing and clearances.

Sliding doors on the ensuite bathroom can be a design solution as there is no swing to interfere with bedroom space. The bathroom door can be a split pocket door with a minimum width of 1000 mm with 900mm clear. Door openings need to be reinforced to prevent damage.

Regulations require a bathroom door and a lock that can be opened from the outside in case of an emergency.

### *4.12.9 Views*

Resident windows should have sills at a suitable height to facilitate views from the bed, and a view of the outside environment (not just the sky) in a sitting position from a chair.

The views from interconnected rooms shall be the same as views from two single bedrooms. Resident need for visual access to the outdoors takes precedence and priority over architectural aesthetics.

### *4.12.10 Windows*

An operable window will be provided. The opening location and size needs to be safe for cognitively impaired residents and operable by the physically frail residents. Window openings must be strong enough to withstand abuse and prevent egress.

Windowsills should be low enough to permit a view of the outdoors, and downward from a low bed or wheelchair position.

Window shading and coverings should be considered an integral part of the building heating, ventilation, and air conditioning system design.

Window coverings should be installed with quick-release fastenings to minimize hazards. Draw cords are prohibited.

### *4.12.11 Resident Bedrooms Spatial Requirements*

| | |
|---|---|
| *Proximity:* | Group resident bedrooms in ”houses” |
| *Area:* | Approximately 23$m^2$ per bedroom including the ensuite bathroom and shower. Area will change if shower not included. |

## 4.13 Furniture

### *4.13.1 Bed Sizes and Equipment*

The space allowance for resident beds is minimally 2200mm x 1000mm. Bed frames should be constructed to allow for clamping on self-help devices such as a trapeze and side rails. Consider space for a floor to ceiling mounted side pole.

Bariatric beds will be larger and may require a larger door-frame. Check equipment sizes and door sizes to match space needs for bariatric residents.

Many beds have electrically operated controls and require a sufficient number of electrical outlets at or near the head of the bed. At least one outlet will need to be on the emergency backup power system to operate the bed. Other equipment needs such as an oxygen concentrator should be considered in the provision of electrical outlets.

### *4.13.2 Resident Clothes Closet/Armoire*

Each bedroom requires an individual built-in clothes closet or armoire. Consider designing the wardrobe with two sections, a small-unlocked

section for same-day use clothing and a larger lockable section for general clothing.

Positioning of the closet or armoire is essential to maximizing circulation space within the bedroom. The armoire is required to be secured to the wall to prevent being pulled over.

Provide a minimum floor space of 0.5 square meters.

### *4.13.3 Resident Furniture and Personalization*

It is essential to design features that provide an opportunity for residents to personalize their bedroom.

Provide space for a freestanding bureau for each resident's personal belongings. Provide an area for an armchair, night table, telephone, TV, and computer.

Storage space for a washbasin and bedpan should be incorporated the resident bathroom and not in the bedroom.

### *4.13.4 Resident Bedroom Identification*

Minimally, a resident nameplate and picture should be located outside of each resident bedroom.

"Memory boxes" with a lockable glass millwork case and shelves, and other approaches can be also used to display objects and photos that provide memory cues for residents.

### *4.13.5 Communications*

Each bedroom will be wired and readied for a nurse call system, telephone, cable television, and Internet access (where different from telephone and cable wiring).

### *4.13.6 Medical Gases*

Providing medical gases is not a requirement of the Design Guidelines. Oxygen and suction can be satisfactorily administered from portable equipment including concentrators and tanks. When not in use by residents the equipment should be stored in rooms approved for the purpose.

Providing medical gases may be convenient in some Complex Residential Care facilities if the site is adjacent to a Medical Care Facility,

such as a Hospital. During the design process, health authority staff will be consulted regarding this facility feature.

## 4.14 Resident Ensuite Bathroom

### *4.14.1 Bathroom Layout*

The ensuite bathroom must be designed for wheelchair accessibility, resident lift manoeuvring, and staff assistance with toileting and showering. The layout should provide a safe, warm environment designed to prevent and protect against slips and falls.

An ensuite bathroom will have a mid-high height toilet accessible from three sides to enable staff access and lifting, 600mm to 800mm optimal clearance on each side. A wheelchair turning radius of 1800 mm will be provided in each bathroom.

The location and visibility of the toilet from the resident's bed are important for the cueing. Locate the bathroom door directly in front of the toilet. Consider providing a contrasting background to increase visibility of the toilet.

The bathroom will provide a vanity, washbasin, and hand-held shower conveniently configured for use by both independent residents and those that require staff assistance.

All ensuite bathrooms shall be fitted with grab bars, securely mounted, on both sides of the toilet and shower to support residents with various physical abilities.

Clothing hooks shall be securely mounted on walls for items such as bathrobes and towels. Hooks will be mounted low enough on the wall to ensure residents in wheelchairs and those with restricted arm movement can easily retrieve items. Clothing hooks can present a hazard and to residents and should not have jagged or sharp edges.

An emergency pull cord connected to the nurse call system will be located in every bathroom to enable a resident to summon help. The cord shall be positioned for easy access and reach from the toilet and shower where provided.

### *4.14.2 Toilet*

The familiar tank-back toilet is recommended over a flush-valve toilet. Where tank-back toilets are used, the tank lid must be tightly secured.

A floor-mounted toilet is preferred over a wall-mounted toilet on a cost basis, and as resident familiarity and subsequently cueing may be factors. Wall mounted toilets provide for easier cleaning, and may be considered.

Where flush valve fixtures are used, provide a backrest mounted in front of the flush valve to support the resident. This should not interfere with the proper functioning of a hinged toilet seat.

Toilets should be mid-high, 400mm height is recommended to meet accessibility requirements for shorter residents. Seats should be elongated, and all toilets should have a cover. Toilets for resident use shall conform to accessibility requirements for handicapped persons.

Toilet risers are acceptable when required. Any seat used to adjust toilet height must be fixed tightly enough to ensure safety ease of cleaning.

Low-flow toilets are recommended wherever possible.

### *4.14.3 Vanity and Washbasin*

A vanity and washbasin shall be provided for the personal use of each resident and for hand washing/infection control for healthcare staff. Each basin should be equipped with “temperature limiting” handicapped faucets and accessories. Adult Care Regulations require hot water temperature supplied to bathtubs, showers and hand basins not exceed 49° Celsius.

The washbasin shall be installed in a vanity that is wheelchair accessible. The recommended washbasin mounted height is 840mm with 770mm clearance for wheelchair access under the front rail. Each washbasin will be equipped with 100mm blade handles. The vanity will be ideally located in the corner of bathroom, be unobtrusive, yet easy to access by the resident. Millwork corners are required to be rounded.

Insulate exposed hot water supply and waste pipes under the vanity to prevent burns to the residents in wheelchairs.

A grab bar could be mounted to the front of the sink counter for additional support.

Provide shelf space adjacent to each washbasin for resident personal use. Provide a paper towel dispenser, soap dispenser, protective glove dispenser and waste container. Take care to coordinate the location of wall-mounted dispensers so as not to interfere with lifting equipment.

### *4.14.4 Shower*

Some care models include incorporating an ensuite shower in the resident bathroom to provide privacy and assist with incontinence issues for the resident. In such a model, the resident bathroom should be equipped with wheelchair accessible shower with wall-mounted grab bars on two sides and shower curtain. Room finishes need to be impervious to water and easily cleanable. Provide blocking for grab bar installation at all locations in the bathroom.

The floor of the ensuite bathroom will slope to a drain and be non-slip, non-glare, and made of material impervious to water. The floor area that slopes to the drain should be well marked to reduce risk of resident falls. Ceramic floor tile is not permitted.

Controls for the shower should automatically maintain water temperature. Provide a low-pressure telephone type hand shower spray with 3m length hose. Locate a concealed water control (usually under the vanity) to control water supply to the shower to avoid misuse by the residents.

Ensuite showers are recommended in palliative and respite bedrooms.

### *4.14.5 Grab Bars and Towel Rails*

Grab bars will be installed on both sides of the toilet, either fixed and/or swing-away types. All grab bars will be installed in accordance with BC Building Access Handbook requirements. Grab bars should be a minimum of 30 mm diameter with a non-slip textured finish for use by residents who have arthritic hands.

All towel bars are to be designed and reinforced for use as grab bars and securely mounted to walls and floors. Wall framing in the ensuite bathroom should include backing secured at different levels to enable reinforced installation of grab bars and rails. As with basin installations, grab-bars will require heavyweight fixings and suitably reinforced wall framing.

### *4.14.6 Medicine Cabinet and Mirror*

Provide a medicine cabinet for each resident adjacent to the wash hand basin. Provide a mirror positioned so that the resident can see him or herself behind each washbasin. Each shall be installed at a suitable height for residents in a wheelchair and/or standing.

## 4.15 Bathing Areas

### *4.15.1 Basic Concept*

Provide one bathing area per house or neighbourhood, or one bathing area for 24 – 36 residents, or as determined by the care/bathing program.

The bathing area will contain at least one assisted bathing tub, a stretcher shower, a toilet, a wheelchair accessible washbasin, and a dressing table.

### *4.15.2 Bathing Privacy*

To preserve the privacy and dignity of the resident, the bathing area must be designed to prevent the resident being exposed to the public activity areas of the facility.

Licensing may not support the design concept if residents need to be transported through public areas to get to/from the bathing room. Portable lifts are not to be used as a means of transferring residents from their bedrooms to the bathing room.

To maintain privacy the bathing area is intended to accommodate only one bather and necessary staff at one time.

### *4.15.3 Bathing Residential Appearance*

The bathing area should be designed to be as home-like be as pleasurable experience as possible, and provide sufficient room for staff to assist the bather. The use of familiar “home bathroom” details can help the cognitively-impaired resident recognize the purpose of the bathing room and help overcome the discomfort and fear produced by the unfamiliar appearance of an assisted bathing tub.

Care should be taken to provide non-institutional lighting, with illumination levels that are safe, desirable and maintain a home-like ambience. A fluorescent lighting fixture directly over the bathtub is not permitted.

### *4.15.4 Wheelchair Accessible Shower*

It is expected that ensuite showers will be used to clean incontinent residents in the privacy of their own bedrooms; however, a wheelchair shower in the bathing room may be the preferred bathing mode for some residents.

The shower in the bathing room should be designed to facilitate residents in “shower chairs” and “stretcher lifts”, with the necessary space to safely and efficiently manoeuvre.

Controls should be placed outside of the shower area and should automatically regulate water temperature to prevent scalding. A low-pressure hand-held shower spray will be incorporated into the design.

A working space on one side of the shower stall is required, which can be separated from the shower by a half wall. Grab bars must be provided. The shower may also have a pull-down hinged seat.

The floor surface is required to be non-slip and non-glare.

### *4.15.5 Ceiling Lifts in Bathing*

The bathing room will be equipped with a ceiling lift to facilitate the transfer of residents as required.

### *4.15.6 Assisted-Bathing Tub*

Consider providing more than one type of assisted bathtub in the bathing rooms. One of the tubs shall be suitable for recumbent bathing. Grab bars must be provided.

### *4.15.7 Mixing Valves*

A non-scald mixing valve of the pressure-activated type is to be incorporated in shower, bathtub facilities, and washbasins to a maximum water temperature of 49°Celsius.

### *4.15.8 Toilet and Washbasin*

Provide a wheelchair accessible toilet complete with grab bars. This can be (a) screened from bathing area, (b) in a separate adjacent room with a wheelchair accessible shower, or (c) have the assisted bathing tub plus washbasin and toilet in the same room.

Provide a wheelchair accessible washbasin, with insulated hot water pipes, waste pipes, and grab bars.

### *4.15.9 Comfort Level*

Provide a ceiling heat radiation device over the resident drying space and consider additional ways of helping a resident to stay warm in the bathing area. Curtains that pull around the tub can be used to control drafts and increase the feeling of privacy appropriate to this intimate activity.

Towel warming cabinets can be used to warm towels for the end of the bath. Curtain materials and towel cabinets should be selected to give a home-like rather than an institutional appearance.

*Proximity:* Bathing adjacent to resident bedrooms

## 4.16 Support Spaces Within the House

### *4.16.1 Linen Storage*

Each house will contain a linen alcove or cupboard where linen carts can be stored. Shelf space for extra pillows and blankets is also required.

Provide space for the following equipment:
- Blanket warming cabinet
- Clean linen cart

### *4.16.2 Soiled Linen/Utility Room*

Provide a soiled utility room for each house, or pair of houses, which functions as a holding area for soiled linen, used equipment, and waste. The soiled linen/utility room will include an area to wash off soiled sheets and storage for soiled linens in covered containers.

Ventilation is very important to remove odours. Any areas or alcoves with soiled linen carts are to be ventilated.

The soiled linen/utility room will include the following fixtures, or as required:

- Counter top with single bowl sink and elbow controlled mixing faucet
- Shelves under and over counter
- Paper towel dispenser and soap dispenser
- Flushing rim sink
- Wall hung bedpan flusher sanitizer
- Janitors' curb sink

Provide space for the following equipment:

- Soiled linen hampers
- Housekeeping/utility cart
- Garbage container (or cart)
- In addition to the above, one room shall contain a utensil washer-sanitizer.
- Portable urinals and bed pans

*Proximity:* Locate for easy access by two houses
*Area:* 6.0 $m^2$

### *4.16.3 Care Equipment Storage*

Provide a care equipment storage room for each house. This room is intended for ready storage of care equipment that is needed for daily use in the houses as opposed to the longer-term bulk storage room provided for the entire care facility.

Where site spatial constraints exist, application may be made to the health authority to have a care equipment storage room for more than one house. Consider that equipment is bulky and can require a large area of floor space.

### *4.16.4 Janitor Room/Closet*

Provide a janitor room/closet in each house. These spaces should also be in close proximity to kitchen services area and laundry, but should not be accessible by the residents.

### *4.16.5 Staff Washroom*

Provide a staff only washroom in each house with toilet, washbasin, soap dispenser and paper towel dispenser. Include a small locker for staff to access their personal items without having to leave the house.

## 4.17 Support Spaces Outside the House

### *4.17.1 Resident Common Areas*

Some resident common areas will serve the entire care facility (e.g. multi-purpose room, activity room, hairdressing salon, spa, etc). Consider locating these particular common areas in conjunction with physiotherapy in a central location giving residents somewhere to go for an outing outside their house but still inside the care facility. Other features may include a banking counter, tuck shop, and retail crafts displays.

### *4.17.2 Facility Multi-Purpose Room or Area*

A large multi-purpose room is recommended to serve the entire facility. The multi-purpose room or area could be used for larger-scale events and activities, including: celebrations, staff training, family events, and community events where appropriate. The multi-purpose area would also

allow for residents to congregate and socialize outside of their respective houses and should be large enough to accommodate 75% of the residents.

The multi-purpose room should be centrally located with easy access from the various houses. The room should have a common outdoor space. Imaginative design opportunities are available to have the room function for a variety of uses and have appropriate electrical, Internet and televising capabilities. A kitchen servery should be provided adjacent to this room to provide refreshments to visitors, staff and residents.

The space for this room should be based on 1.4 square meters X 50% of total number of residents in a care facility, and may be increased by transferring some activity room allocations from the individual houses activity rooms. This large multi-purpose space should be fitted with curtains or movable partition to provide smaller spaces when required.

A handicapped accessible washroom should be located close to this common area.

*Proximity:* Central location
*Area:* 1.4 $m^2$ x 50% of number of residents

### *4.17.3 Care Station*

The Care Station will be the main location within the facility for staff to carry out health care planning, and monitoring of building security and nurse call systems. The Care Station should be easily accessible and recognizable for families and residents and have the ability to maintain confidentiality and privacy.

One Care Station may serve a neighbourhood. Multiple Care Stations may be required if the facility is designed as a multi-storey building or if the facility extensive on a single level, encompassing multiple neighbourhoods. In a multi-storied facility it is expected there would be a Care Station on each floor, or as required.

The Care Station is not envisioned as a traditional nursing care centre or nursing station. It is not intended that this room be staffed at all times, but rather that it be used on an as-needed basis.

The Care Station should have the capacity to maintain health records (paper or electronic), and will have the monitoring systems including nurse call, close circuit TV, wandering monitoring, and fire alarm panels.

The space will be a meeting, reporting and conferencing area for care staff when they are not in the individual houses. The space will generally contain a working desk, a conference table and some staff purse lockers.

The Care Station may also be used for night reception and security control. For evening operation, motion sensor and intrusion alarms can be a useful tool for security in multi-storied buildings.

The centralized medicine preparation storage for each floor's houses can also occur within or adjacent to this space.

### *4.17.4 Medication Rooms*

Provide a medication room within easy access from the Care Station(s), fitted with counter space that includes a sink, storage cupboards and space for a small refrigerator for some medicines.

Medications are to be stored in a separate and locked area that is not used for any other purpose. Provide a lockable medication storage cabinet to include a separate locked compartment for narcotics and controlled drugs.

Depending upon the nursing procedure and storage requirements for medication administration, the room will be required to accommodate one medication cart per house. Medication carts should not obstruct the work areas in the room.

Provide a medicine cabinet with adjustable shelves to suit the dosage system. Provide cupboards and/or wall racks.

If facilities will be using the automated unit dosage system, the space requirements will be different than those required for the unit dosage system. Automated dosage systems require a locked cabinet in each resident's room.

### *4.17.5 House Medication Distribution*

The house medication distribution can be a space from where medications can be distributed. Depending on the delivery service, this space can take the form of a lockable cupboard with wall space for individual blister packs for each resident, or a small lockable alcove for a medicine cart, or a lockable one person closet with a writing area and wall space for medicines storage.

This space should be located near the kitchen/living area for each house and be near a hand wash sink.

### *4.17.6 Clean Utility*

The clean utility room is for storage of house supply of clean linens, blankets, pillows, incontinent products and small medical equipment.

There does not need to be a water supply unless there is need for additional hand washing.

### *4.17.7 Examination/Treatment Room*

Provide a room for medical examinations, podiatry, audiologist testing, massage therapy, minor surgical and dental procedures and other services with the following fixtures:

- Work counter with above-counter storage cupboards, and space under the counter for mobile carts, trash container, and other supplies.
- Counter sink with elbow operated controls, gooseneck faucet, soap or detergent dispenser, paper towel dispenser, and waste container.

Provide space for the following equipment:

- Examination table
- Portable reclining adjustable dental chair
- Small surgical lamp that may be pedestal type
- Mobile utility table
- Wall mounted clock with second hand

Consideration should be given to identifying space for specific portable testing services/devices to bring the service to the resident versus the resident to the service. Portable testing services/devices could be accommodated temporarily in the examination/treatment room.

### *4.17.8 Exercise/Occupational/Physiotherapy Room*

The importance of exercise and walking for people all ages has been clinically proven to increase body and mind functions. Provide an exercise/occupational/physiotherapy area suitably designed to function for physical activities and located to serve residents. A desirable location is adjacent to the multi-purpose room, away from the residential areas.

Storage will be required for equipment that will be brought out and put away depending on the activity.

Provide with the following fixtures:

- Counter sink, gooseneck faucet, soap or detergent dispenser, paper towel dispenser and waste container
- Work counter approximately 600 x 1500 mm long with storage cupboards under and shelves over

Provide space for the following equipment:

- Collapsible and stackable table and chairs
- Physiotherapy equipment
- Parallel bars
- Three-step stairs with handrails
- Exercise equipment as required: weights, treadmill, mats

### *4.17.9 Hairdressing Room/Salon*

The hairdressing room/salon is a popular destination and should be centrally located with a waiting area that promotes interaction between residents. A waiting area will be designed for residents arriving early for their appointment as well as those in varying stages of being served. The size of the waiting area will vary by the size of the facility.

The hairdressing room/salon should have a good layout for hair washing, drying and styling with all the necessary equipment to provide hairdressing services. The space should include a vanity, a shampoo basin at a suitable height for accessibility, and ergonomically designed chairs and mirrors. There should be a closet/cabinet to store clean towels and hairdressing supplies.

Provide an exhaust air system to remove odours from hair processing chemicals and a hand wash sink for infection control.

*Proximity:* The salon could be located next to the main facility activity rooms such as the exercise room, tuck shop, and multi-purpose room.

### *4.17.10 Gift/Tuck Shop*

A small gift shop should be provided near the multi-purpose room to accommodate the display of merchandise as well as provide for storage of merchandise and mobile cart.

It is anticipated this service will be used by many residents and visitors and should be located in a higher traffic area.

### *4.17.11 Volunteers' Room*

The Volunteers' Room will be a place where volunteers can store personal belongings as well as receive information regarding activities within the facility.

# 5.0 RECEPTION AND ADMINISTRATION SPACES

## 5.1 Main Entrance

The main entrance should be a welcoming space, which invites, orientates and readily identifies key strategic areas of the facility. The area should be located near the general activity/multi-purpose room versus resident houses in order to maintain separation between the more public areas from the private areas.

The main entrance should be located and designed as to be recognizable to visitors and should not be so remote that residents cannot journey to the front entry and waiting area from the houses.

A canopy should protect the main entrance of the building and be large enough to shelter persons in wheelchairs to/from vehicle transport. The canopy should extend a reasonable distance to the edge of the sidewalk.

The main entrance shall provide a vestibule to prevent drafts at the front entry and an accessible door opening push plate device for easy access to the building.

## 5.2 Access

Access should be simple, easy, and level for people in wheelchairs. Impediments to access should be minor and few; avoiding curbs, steps, steep ramps, and thresholds. Unduly heavy or difficult to operate doors, cramped vestibules, and rough or slippery floor surfaces are to be avoided.

## 5.3 Entry Options

The design approach for the entrance to the building and individual houses will vary for single versus multi-storied buildings.

In single story buildings, the ideal solution is to have individual house entries as the “front door”, usually through the outdoor garden space. The administrative entry to the facility would be primarily for staff (administrative, care, hospitality, other) and other support services.

In multi-storied facilities, the main entrance would be designed for arrivals, with a separate service entrance.

## 5.4 Reception and Waiting Areas

Reception will play a strong role in the identity of a facility, and should be located adjacent to the main entrance as a place to greet and orient visitors. A waiting area will be provided for visitors and residents.

A security monitoring system may be required at the reception area, subject to a review of “best placement”.

In the case of a multi-storied facility, the waiting area could be combined with the activity/multi-purpose room. A small waiting area will be required adjacent to the administrative office for administration purposes. In the case of a single story building, a small waiting area should be located near the administrative entrance.

## 5.5 Elevators

Elevators are required for buildings with more than one level. Elevator dimensions will be large enough to accommodate a stretcher, attending care staff and other large equipment simultaneously.

## 5.6 Visitor/Resident Washrooms

Two handicapped accessible visitor/resident washrooms shall be provided near the front entry.

## 5.7 Administrative Offices

The administration area is primarily comprised of office and meeting spaces for the administrative personnel. Administrative office requirements will vary depending on the size and complexity of the facility/organization.

Careful analysis and projections of administrative functions should be undertaken to determine appropriate space requirements for offices, support, and storage areas.

Some offices can be shared or located with therapy spaces (such as exercise/occupational/physiotherapy) where appropriate. Provide a confidential meeting room for family consultations. An open-plan office space is acceptable in order to maximize the administrative space.

## 5.8 Conference/Meeting Room

An appropriately sized and equipped conference/meeting room is required. It is anticipated this room may provide space for other functions such as training, presentations, meetings, and special seminars.

## 5.9 Photocopy/Supplies Room

The photocopy/supplies room will contain the primary photocopier, printer, and fax machine as well as provide adequate space for the storage of stationary supplies. Locate the room adjacent to or near the administration area.

# 6.0 SUPPORT SERVICES SPACES

## 6.1 Food Services

A full service main kitchen is required for each facility to provide fresh food service to the resident houses. Provide adequate and appropriate space for the bulk food storage, day storage, refrigerated storage, frozen storage, food production, pot-washing/sanitation, meal preparation, equipment storage and a small office for the dietitian.

Food preparation and washing areas should be clearly separated preferably with separate entrances. Locate the dietitian office with visual access to the kitchen and close access and intercom connection to the receiving area.

Detailed design parameters for the main food services kitchen will depend on the number of people being served, foodservice workflow and facility operational factors.

It is anticipated food will be prepared in the main kitchen and transported to the kitchen/servery areas located in each resident house. Some food preparation may occur within the resident house kitchen/servery. This model anticipates that preparation of minor meals and snacks, plating and serving will be undertaken in the individual house kitchens to promote the engagement of residents in activities of daily living.

Dish and cutlery cleaning could take place in the resident house dishwasher. Special attention should be paid to food handling and hygiene requirements.

Provide natural daylight where possible. Floors are to be non-slip and wall finishes are to be easy to clean. Avoid ceramic tile flooring finishes.

| | |
|---|---|
| *Proximity:* | Centrally located within the facility next to receiving. |

## 6.2 Utility Storage

Allowance should be made for storage spaces in close proximity to the facility loading dock/service entrance.

Decentralized storage shall also be provided in each house or neighbourhood, and within the administration area. Storage rooms will accommodate a variety of dry good storage as well as larger equipment items such as beds and wheelchairs.

## 6.3 Wheelchair Storage/Cleaning/Battery Charging

Provision should be made for the storage of motorized wheelchairs, with adequate space and facilities for cleaning and washing wheelchairs. Provide extra electrical outlets for motorized wheelchair battery charging.

## 6.4 Bulk Storage

Bulk storage should be accommodated adjacent to the receiving area and/or distributed throughout the facility, depending on the needs of each area and operations of the facility.

## 6.5 Waste Disposal/Recycling Area

A holding room for waste disposal/recycling should be provided adjacent to the loading dock/receiving area. This area will accommodate refuse as well as provide sufficient temporary holding space for recycled items and boxes.

## 6.6 Maintenance Area

A general maintenance shop should be provided within the service area of the facility, and located in close proximity to the receiving area. It is preferable to have this area accessible from the exterior of the building and away from residents' houses.

Landscaping/outdoor maintenance equipment storage may be required depending on whether a facility provides this service directly or purchases the service from an outside provider.

## 6.7 Central Linen – Clean and Soiled

Provide two separate holding areas for clean linens and one for soiled laundry (primarily sheets and towels). These areas should be located in close proximity to the receiving area and service elevators.

The room should be sized for appropriate laundry equipment required to meet the needs of the size of the facility.

The area should be well ventilated and provide good exhaust and sound separation from residential areas.

## 6.8 Staff Locker Room/Staff Canteen/Staff Room

Provide a staff locker room sized appropriately for number of staff. The locker room should include lockers, shower facilities, and a washroom(s).

Provide a small staff canteen and break room that accommodates tables and chairs, a kitchenette, as well as comfortable furniture and non-institutional lighting.

The kitchenette should be sized appropriately for number of staff, and have a sink and a full size refrigerator. Provide electrical outlets for small appliances such as a toaster oven, microwave, kettle, and coffee maker.

## 6.9 Receiving Area

Provide a receiving area located immediately adjacent to the loading dock for short-term storage and receiving of all goods such as general stores, materiel, and linens if not laundry not on site. Locate near the maintenance work area.

Doors from the receiving area should open directly onto the loading dock and also into the main service corridor.

# 7.0 FINISHES

## 7.1 Finishes and Colours

All finishes and colours in the facility shall be selected to give comfort and meaning to the care environment. Emphasis will be placed on landmarks and other features that make it easier for residents and visitors to find their way.

Consider using finishes and colours in each house to help distinguish houses to aid with “way-finding”.

Selection of colours and finishes should consider residents with visual impairments. For example, it is essential there is sufficient contrast between a doorframe and a door. The same applies to door handles, cabinet pulls and other items residents use or interact with on a daily basis.

Adequate contrast of finishes and colours is extremely important in bathing areas.

Low contrast and non-contrast features decrease the likelihood some residents will recognize these as entry/exit points and disguised areas that are designated “staff only”. For example, a door and doorframe should have the same finish and colour as the wall. Locking or handle mechanism should be unobtrusive.

Residents with visual impairment have perceptual difficulty with reflective finishes. Therefore, all flooring surfaces should be low glare, easily maintainable, absorb sound, and cushion falls. To avoid glare, bright lights should not be used.

Avoid the use of red, black, or very dark coloured hard flooring as scuff marks and small debris are more visible.

## 7.2 Flooring

Avoid using materials that make walking difficult for residents with a gait disturbance or which may impede the movement of residents in wheelchairs.

Minimize changes in floor finishes, junctions between floor finishes and abrupt changes in colour. Edges between different types of flooring can create a tripping hazard and impede movement of wheelchairs and walkers.

Strong patterns can also be difficult for residents with perceptual problems and gait disturbance, and should be avoided.

Designs shall always consider the resident population and their levels of ability. Finishes and materials (floor and otherwise) shall be selected to avoid and prevent the likelihood and results of resident falls. Finishes shall be selected that reduce or minimize resident confusion and anxiety.

## 7.3 Carpeting

Carpets can absorb sound, remove glare, cushion falls and contribute to a homelike environment. Although carpeting, in general, is not recommended, some carpet materials and applications are designed for hospital and residential care facility use.

Carpet could be considered as a floor material for the entry and other common areas of the facility, with the exception of those areas where frequent cleaning is required or water resistance is important. While generally not recommended as a standard floor material for resident rooms, carpeting may be considered for some resident rooms.

Carpet should not be used in the dining area, resident kitchen or bathing areas, storage areas, physiotherapy/exercise room, hairdressing room/salon, or the exam/treatment room.

Avoid residential grade carpet. Carpet is to be low VOC, rubber-backed, durable and be easy to maintain. Direct glue-down with low VOC adhesive installation is recommended.

## 7.4 Hard Surface Flooring

Hard surface flooring is preferred throughout residential care environments to provide a smooth accessible surface that promotes mobility.

Institutional grade, heat-welded seamed flooring, with cove base, and with a no-wax, non-glare finish, provides a warm finish and is appropriate for areas where water resistance and frequent cleaning are required. Hard surface flooring is appropriate for general flooring purposes including dining rooms, kitchens, hallways, resident rooms and service rooms.

Select hard surface flooring that does not require a polished finish to reduce glare. Maintain flooring in accordance with manufacturer’s recommendations for cleaning and sealing.

## 7.5 Ceramic Tile

Ceramic tiles are generally not accepted in areas subject to high humidity and moisture, such as resident bathrooms and bathing rooms.

# 8.0 MISCELLANEOUS EQUIPMENT

## 8.1 Introduction

The equipment described is not a complete list of all equipment needed for a residential care facility.

## 8.2 Waste Systems

Provide adequate space to fit waste bins (garbage cans) where they are necessary. Small waste bins generally require more frequent monitoring and emptying and could increase housekeeping costs.

Pop-up waste systems are not recommended as they require more cleaning and are more susceptible to breakage/malfunction.

## 8.3 Toilet Paper Dispensers

Toilet paper dispensers with a secondary roll are recommended.

## 8.4 Paper Towel Dispensers

Paper towel dispensers should use “single-fold” types of paper towels. Larger dispensers that hold more paper towels are preferred to minimize monitoring and replenishment frequencies.

## 8.5 Appliances

The house kitchen appliances, washers and dryers, are to be heavy-duty residential appliances, with the exception of the dishwasher, which is required to be temperature-boosted commercial grade. Accessible appliances should have front mounted controls.

The main kitchen equipment and appliances are to be commercial grade.

Smaller appliances such a toasters, coffee makers and kettles shall be high quality durable equipment designed for heavy use.

# 9.0 HEATING, VENTILATION AND AIR CONDITIONING

## 9.1 General

The intent is to provide a fully operating HVAC system appropriate for a residential care environment. The design should meet the principles as outlined in Section 2.0 Design – Guiding Principles, to provide a comfortable and safe environment for elderly frail residents and young disabled adults.

## 9.2 Codes and Standards

For buildings located in the City of Vancouver, mechanical systems shall be designed and installed to meet the requirements of the current Vancouver Building By-Law. For buildings located outside the City of Vancouver, the mechanical systems shall be designed and installed to meet the requirements of the current British Columbia Building Code.

All buildings, regardless of location, shall comply with the current "Model National Energy Code of Canada for Buildings" or with the energy efficient design requirements of ANSI/ASHRAE 90.1 Standard "Energy Efficient Design of New Buildings Except Low-Rise Residential Buildings".

The following Codes and Standards shall be adhered to, where applicable, in the design and installation of the mechanical systems:

- Vancouver Building By-Law
- British Columbia Building Code
- Model National Energy Code of Canada for Buildings
- ANSI/ASHRAE 90.1 Standard "Energy Efficient Design of New Buildings Except Low-Rise Residential Buildings, applicable version for jurisdiction having authority
- CAN/CSA-B149.1-05 Standard "Natural Gas and Propane Installation Code"
- Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulations
- CAN/CSA-Z317.2 Standard "Special Requirements for HVAC Systems in Health Care Facilities"
- CAN/CSA-Z318.1 Standard "Commissioning of HVAC Systems in Health Care Facilities"
- CAN/CSA-Z318.2 Standard "Commissioning of Control Systems in Health Care Facilities"
- ANSI/ASHRAE 62 Standard "Ventilation for Acceptable Indoor Air Quality"
- ASHRAE Handbooks
- SMACNA Manuals

- NFPA Standards
- Workers' Compensation Board Regulations
- Provincial and Municipal Directives
- Design Conditions

Building HVAC systems shall be designed based on Climatic Information for Building Design as per Appendix C of British Columbia Building Code.

Design outdoor air temperature for winter shall be temperature in January that is not lower for more than 1% of total hours in January.

Design outdoor air wet and dry bulb temperatures for summer shall be temperatures in July that are not exceeded for more than 2.5% of total hours in July.

A safety factor of 10% shall be added to winter design calculations. A safety factor of 5% shall be added to summer design calculations. The HVAC systems should be designed, zoned and controlled to maintain the following indoor air temperatures:

**TABLE 2: Ambient Temperature Requirements**

| SPACE | Minimum | Maximum |
|---|---|---|
| **Rooms** | **Winter Indoor Temperature** | **Summer Indoor Temperature** |
| **Common Areas** | Minimum 22° | Maximum 24°C |
| **Resident Suites** | Minimum 24°C | Maximum 27°C |
| **Bathing Rooms** | Minimum 25°C | Maximum 27°C |
| **Kitchen / Laundry** | Minimum 22°C | Maximum 27°C |

## 9.3 Heating Systems

Heating system should be selected to provide a stable comfortable environment for the residential. Care is required in selecting the appropriate heating elements for residents with severe dementia and physical requirements to ensure safety and prevent confusion for the resident.

Hydronic hot water heating is considered beneficial in the operating of a residential care facility whereas electric baseboards are not recommended for this type of facility.

Either hydronic radiant ceiling panels or radiant floor heating is recommended to heat resident bedrooms. Any wall mounted heating elements used shall be selected to avoid any scalding hazard to residents.

Each resident bedroom shall be provided with individual temperature control of the heating system.

Heating of the common areas shall be achieved through hydronic heating, forced air heating or a combination of the two.

The boiler plant shall include minimum of two boilers, each capable of providing at least two thirds of the design heating loads. Boilers shall be at least minimum mid-efficiency. If, alternate systems like geothermal heat pump system are being considered, a payback cost recovery and life cycle cost analysis may be required.

In the event of a power failure there must be adequate amount of heating equipment on emergency power to maintain the building's temperature level.

## 9.4 Humidification

Where required, humidification shall be via an evaporative system or a steam injection system. If steam is used for humidification from a central steam plant, then a steam-to-steam convert or dedicated boilers with no chemical treatment are recommended.

Humidifier system shall be fully modulating and interlocked with the air handling supply fans. Relative humidity discharge high limit controls shall be provide to override the operating control.

## 9.5 Ventilation Systems

All areas within the building shall be ventilated to ensure an air exchange adequate to control contaminant levels, odours, temperature and humidity. The ventilation system shall be generally designed to provide air movement from clean to less clean areas.

Resident suites shall be provided with a continuously operating central ventilation supply system ducted to each suite. The ventilation supply system shall be sized to provide minimum of two (2) outdoor air changes per hour for each suite. The ventilation supply system for the resident suites shall be provided with means of mechanical cooling during the summer season. Consideration should be given to increasing amount of ventilation air supplied to the resident suites facing west and south to account for additional cooling requirements during the summer season.

Ensuite bathrooms in the resident suites shall be provided with a continuously operating central exhaust system. The exhaust system shall be sized to provide minimum ten (10) air changes per each bathroom and not less than amount of ventilation supply air to the suite.

Careful consideration shall be given to the design of the air distribution systems to avoid short-circuiting of air flow between the supply and exhaust systems, drafts and noise.

Utilizing heat recovery between the central ventilation supply and exhaust systems serving the resident suites is highly recommended.

Partial re-circulation of air supplied to the common areas is acceptable, provided that the air handling systems serving these areas are capable of supplying sufficient amount of outdoor air to satisfy ventilation requirements.

The use of the ceiling space as a return plenum is not allowed for any part of the building due to infection control concerns.

Refer to Table 3 in this section, for additional requirements of ventilation systems.

## 9.6 Air Filtration

The ventilation systems serving residential area shall be equipped with filter sections having a minimum MERV 8 filter rating or greater. Air filters shall be located within the ventilation system to avoid getting wet from humidifiers, cooling coils, and other source of moisture.

## 9.7 Cooling Systems

The design of the HVAC systems should be integrated with the architectural design to co-ordinate use of external and internal shading devices and selection of exterior glazing in order to reduce cooling requirements of the building.

All interior common areas including the dining rooms, lounges and activity areas and all administration areas shall be fully air-conditioned. The air-conditioning systems shall be zoned to provide adequate thermostatic controls.

Resident bedrooms and common areas located along the perimeter wall with operable window shall be provided with partial air-conditioning by providing mechanical cooling. Consideration should be given to increasing the amount of ventilation air supplied to the resident bedrooms

facing west and south to account for additional cooling requirements during the summer season.

The main kitchen and central laundry areas shall be provided with air-conditioning to maintain 27°C indoor temperature during the summer season.

## 9.8 Energy Conservation

The HVAC systems shall be designed to meet the applicable version requirements of the "Model National Energy Code of Canada for Buildings" or ANSI/ASHRAE 90.1 Standard "Energy Efficient Design of New Buildings Except Low-Rise Residential Buildings".

## 9.9 Controls System

The controls system shall allow energy conserving building management strategies.

The central components of the HVAC systems, such as the boiler plant, cooling plant, main air handling units, central exhaust systems, etc. shall be controlled by the Direct Digital Controls (DDC) system.

The DDC system shall be provided with an easy to operate interface and operating software and shall allow a remote access for servicing and remote operation purposes.

The DDC system shall allow energy conserving building management strategies such as night set-back controls for common and administration areas, use of free cooling, and automatic reset of heating water temperatures based on outdoor air conditions, for example.

## 9.10 Balancing and Commissioning

All air and water systems shall be balanced by a qualified independent Balancing Agency. All HVAC systems shall be commissioned by a qualified independent Commissioning Agency. The balancing and commissioning reports shall be included in the Operating and Maintenance Manuals.

Where applicable, the commissioning process shall comply with CAN/CSA-Z318.1 Standard "Commissioning of HVAC Systems in Health Care Facilities" and CAN/CSA-Z318.2 Standard "Commissioning of Control Systems in Health Care Facilities"

## TABLE 3: Ventilation Requirements

| Area | Min. O/Air Changes per Hour | CFM per Person | Min. Total Air Changes per Hour | Relative Pressurization | Min. Exhaust Air Change per Hour | Comments |
|---|---|---|---|---|---|---|
| Administration Areas | | 20 | 6 | Equal | | Air conditioned |
| Conference Room | | 20 | 10 | Negative | Yes | Air conditioned; locally operated exhaust system |
| Dining Room | | 15 | 6 | Equal | | Air conditioned |
| Lounge, Activity Areas | | 20 | 6 | Equal | | Air conditioned |
| Resident Suites | 2 | | Note 1 | Equal | 10 | Partially air conditioned |
| Resident Bathroom | | | | Negative | 10 | |
| Corridor | 1 | | 3 | Equal | | |
| Walking Loop Corridor | | 20 | 6 | Equal | | Air conditioned, note 4 |
| Soiled Utility Room | | | | Negative | 10 | |
| Sterile Storage | 1 | | 4 | Equal | | |
| General Storage | | | | Negative | 2 | |
| Commercial Kitchen | 85% of kitchen exhaust | | | Negative | As required by cooking equipment | Partially air conditioned - Note 2 |
| Laundry Room | 3 | | 10 | Negative | | Partially air conditioned - Note 3 |
| Soiled Linen Room | | | | Negative | 10 | |
| Clean Linen Room | 2 | | 10 | Positive | | |

**Note 1:**
Consideration should be given to increasing amount of ventilation air supplied to the resident suites facing west and south to account for additional cooling requirements during the summer months.

**Note 2:**
Ventilation system for the commercial kitchen shall be designed and installed to meet requirements of the NFPA-96 Standard “Ventilation Control and Fire Protection of Commercial Cooking Operations”.

**Note 3:**
Ventilation of the laundry room shall be designed to meet make-up air and exhaust requirements of the commercial dryers.

**Note 4:**
If walking loops are located on every residential floor, then the number of residents using the loop should be based on beds per floor. During night set back the air changes should go down to 1 AC per hour.

# 10.0 PLUMBING

## 10.1 Codes and Standards

The following codes and standards shall be adhered to in the fabrication, installation and selection of equipment with regard to all Plumbing services:

- British Columbia Plumbing Code
- Vancouver Building By-Law
- Provincial Boiler Inspection Department
- The Provincial Gas Inspection Regulations
- CSA Standards

## 10.2 Site Services

Method and location of connection to main services for the facility requirements shall be decided following site allocation and evaluation. Services shall include sanitary sewer, storm and footing drainage, domestic cold water, fire lines and natural gas, where necessary.

## 10.3 Sanitary Sewer System

A complete sanitary system including all wastes, drains, and vents from plumbing fixtures shall be provided.

Kitchen wastes shall be intercepted by grease trapping prior to discharge to the sanitary sewer. Hair dressing sinks shall include a hair interceptor.

All sanitary waste piping will be mechanical joint cast iron for long-term reliability and low maintenance. Cleanouts will be located exposed in utility areas or concealed behind access panels where appearance to the residents and/or the public is a concern.

## 10.4 Storm Sewer System

Full provision shall be made for storm drainage from rainwater leaders and footing drains.

All new storm rainwater leaders will be mechanical joint cast iron insulated to prevent condensation concerns on all finished architectural ceilings and walls.

## 10.5 Domestic Cold Water

A full domestic service shall be provided within the building, with connection to various items of equipment in kitchen, boiler room, hot water supply and refrigeration machinery, for example.

An analysis of water supply shall be arranged to determine the necessity or otherwise of water treatment.

All domestic cold, hot and hot water recirculation piping will be Type 'K' copper for long-term reliability and low maintenance. Pipe sizing will be based on a maximum velocity of 5 feet per second for cold water and 4 feet per second for hot water supply and hot water recirculation piping to minimize the effects of corrosion in the aggressive Lower Mainland raw water supply.

For ease of future maintenance, isolation valves will be provided on all branch connections to plumbing fixture groups. Ninety (90) degree closing lever ball valves will be used for all smaller diameter domestic water piping with full lug pattern stainless steel disc butterfly valves to be used for pipe diameters 100mm [4"] and larger.

Access panels for maintenance to concealed plumbing valves and equipment will be located in maintenance areas wherever possible. Otherwise, access panels with stainless steel finish will be coordinated with architectural ceilings in common corridor areas with respect to finish for visual appearance and size for ease of serviceability. In washroom areas, access panels will be mounted below counters or in non-feature walls to minimize the visual effect of the architectural concepts.

Provide a plan of all the access panels and shut off valves for maintenance staff.

## 10.6 Domestic Hot Water

A full domestic hot water piping system with means of recirculation or heat tracing of the supply pipe shall be provided. All required and necessary connections shall be made to items of equipment as supplied by others.

Temperature of hot water supplied to the bathtubs, showers and washbasins used by the residents must not exceed 49º C [120.2º F]. Non-scald mixing valve (pressure activated type) shall be incorporated in both shower and both facilities.

Hot water supply to servery kitchens is to be delivered at 60º C [140º F]. Some kitchen equipment (i.e. dishwashers) will require the water to be boosted to 82º C [180º F].

## 10.7 Natural Gas Service

Dependent upon availability and analysis of fuel costs, this service may be required for (a) prime fuel to boilers, (b) domestic water heaters, and (c) kitchen requirements. Interruptible service with a suitable back-up system shall be used, where applicable.

Failing availability of this service, a propane supply may be required in lieu of item (c) and also boiler ignition.

Automatic Seismic actuated shutoff valve to be provided at incoming source.

## 10.8 Fire Protection

All floor spaces shall be fully sprinklered to National Fire Protection Association (NFPA) #13 - Standard for the Installation of Sprinkler Systems and where required (NFPA) #14 – Standard for the Installation of Standpipe, Private Hydrant and Hose Systems.

Each facility shall be sprinklered. The sprinkler system shall meet the requirements of the current British Columbia Building Code and all Municipal by-laws.

## 10.9 Plumbing Fixtures

Plumbing fixtures shall be selected in accordance with various recommendations within these guidelines. They shall be of such design and adaptability so as to provide ease of use by aged and infirm residents as described in these Guidelines.

## 10.10 Toilets

Toilets should be mid-high height (400mm height recommended to meet accessibility requirements) to accommodate shorter residents, and should have elongated seats and be able to accommodate a commode seat. Toilets for resident use shall conform to accessible requirement for handicapped designation. A contrasting colour (wood grain or black, closed front with cover) for the toilet seat can be of assistance to residents whose vision is impaired.

## 10.11 Washbasins

Washbasins, whether in a vanity of wall hung, shall be installed to ensure that accessibility requirements are met. Sharp corners are to be avoided. The washbasin, equipped with 100 mm blade handles, shall be mounted at 840 mm height with 770 mm clearance for wheelchair accessibility. P-Traps shall be offset and insulated with specific pre-formed insulation. Provide an open grid strainer drain. To control bacteria growth, overflows should not be included.

## 10.12 Showers

Showers shall accommodate wheelchairs where required. A mixing valve (pressure balance) and slide bar hand shower system shall be included. The slide bar shall be of a type that can double as a grab bar and be firmly anchored to perform that function. Provide additional spring valves to prevent cross-flow in an accessible location, upstream of the supplies into the mixing valve.

## 10.13 Piping Materials

Piping materials shall be selected with due regard to longevity, economy and their proposed usage.

## 10.14 Medical Gases

Generally, medical gas systems are not required. Medical gases will be provided through the use of portable containers or pumps.

Where medical gases are deemed necessary by the health authority, a small piped oxygen system could be provided in bedrooms grouped near the Care Station. Other piped medical gases are not generally required.

Medical gas piping and system installation will conform in all respects to Canadian Standards Association (CSA) CAN/CSA-Z305.1-92 Non-flammable Medical Gas Piping Systems. All medical gas piping will be factory degreased Type L hard temper copper tubing with brazed joints and tested prior to occupancy by an independent medical gas-testing agency retained directly by owner.

Medical gas control (valve box and alarm) shall be provided up-stream of the outlet(s). The control shall be located in close proximity to a staff area. Medical gas will be supplied from DISS wall outlet(s).

## 10.15 Energy Conservation

All main distribution domestic water piping will be insulated for prevention of condensation on cold water lines and for prevention of heat loss on domestic hot water supply and hot water recirculation piping.

# 11.0 ELECTRICAL SERVICES

## 11.1 Codes and Standards

The design and construction/installation requirements for electrical services shall be in accordance with the latest editions of national, provincial and municipal codes and bylaws. All equipment and/or materials selected shall be CSA approved. With any project, compliance with the most restrictive codes and standards is required.

- British Columbia Building Code
- Vancouver Building By-Law
- Canadian Electrical Code, Part 1-C22.1, as adopted for use in B.C.
- CSA Z32, Electrical Safety and Essential Electrical Systems in Health Care Facilities
- CAN/CSA-C282 Emergency Electrical Power Supply for Buildings
- IES RP28-98 Recommended Practice for Lighting and the Visual Environment for Senior Living
- C22.2 No 125, Electromedical Equipment
- CAN/CSA-C22.2 No. 60601 series of Standards, Medical Electrical Equipment
- CAN/ULC-S524, Standard for the Installation of Fire Alarm Systems
- UL 1069 Hospital Signaling and Nurse Call Equipment
- Model National Energy Code of Canada for Buildings – 1997
- City of Vancouver Energy Bylaw which adopts ASHRAE/IESNA Standard 90.1-2001

## 11.2 Power Supply

Transformer sizing and system design should take into account load requirements, service continuity, future expansion, flexibility of operation, and safety of maintenance personnel.

The utility may provide transformation to the utilization voltage depending on the size of the facility and reliability of the utility service. Each facility should establish that the utility would have immediate access to spare transformers or other critical components for replacement or repairs.

## 11.3 Secondary Distribution

A 600 volt or 120/208 volts distribution system should be utilized. Building interior lighting shall operate at 120 volts. Lighting for large parking lots can be 347 volt.

Panel boards (this does not apply to standby power panels) of 120/208 volts should be located within the same area as the circuits they feed but located out of view of residents and in service rooms if possible. Panel

boards should be sized in ampacity and circuit capacity to provide 25 percent spare capacity. Every effort shall be made to provide a system power factor of at least 90 percent. Capacitors for large motors may be installed at the motor control centres.

Stub spare conduits into ceiling space from each panel board, and terminate in suitable junction boxes. All switchgear is to be of drip proof construction when electrical room is to be sprinklered. Switchgear connected to the standby power system is to be colour coded.

## 11.4 Standby Power

On-site generator will be provided, preferably contained in a separate room within the facility. Sound-attenuated and weather-protected outdoor units may be considered if a viable interior option is not available.

A common remote alarm should be located at the care station and/or the main fire alarm annunciator, and a comprehensive local annunciator complying with CAN/CSA Z32 and CAN/CSA C282M shall be provided.

Labels for equipment connected to standby power system should be colour coded, such as red with white lettering.

Where Vital and Delayed Vital branches are provided, Delayed Vital labels should be colour coded, such as blue with white lettering.

The fuel supply shall be as per CAN/CSA Z32 with provisions to store a supply of fuel on site to allow the facility to operate for at least 72 hours in the event of an emergency.

The minimum loads, which should be connected to the standby system, are as detailed in CAN/CSA Z32. Emergency power should also be provided to smaller cooking/warming equipment such as coffee maker, toaster, microwave, for example; and some heating in lounge or activity areas.

Emergency power should be provided to at least one plug in each resident room to operate the electric bed and to plug in equipment such as oxygen concentrators.

Consideration shall also be made to have separate Vital and Delayed Vital branches to ensure mechanical or elective loads do not compromise the Vital loads. The combination of Vital, Delayed Vital, and Conditional branches on a single branch should only be considered where it can be shown that this would not compromise the Vital Loads.

Note that smoke control fans would be classified as Vital and some mechanical systems are classified as Conditional. Conditional loads

should be able to be connected to essential power by typical maintenance personnel using such devices as interlocked tie breakers and selective breaker or switch operation. An alternative would be to have Conditional loads connected to the Delayed Vital branch where Delayed Vital is separate from Vital.

## 11.5 Wiring Methods

The use of wireway systems or conduits for all power and lighting systems, in any type of construction, is preferred. Relaxation of this requirement may be given for power wiring horizontally in wood frame stud walls within resident rooms or other locations where changes are not anticipated in the long term. The use of non-metallic sheathed cable should not be considered even for combustible, wood frame construction due to the difficulty of complying with CEC C22.1 Section 24 and CAN/CSA Z32 requirements and intent.

All building wire and cable are to be copper conductors. Special consideration may be given for the use of aluminium conductors under certain conditions such as for larger feeds to kitchen or mechanical equipment. Aluminium conductors are not permitted in resident rooms or areas associated with resident care.

Conduits and wireways are to be installed with exposure in attic spaces or above suspended ceilings and in crawlspaces.

Flexible conduit/armoured cable is to be used for connections to equipment subject to vibration and may be used for final connections to recessed light fixtures in accessible ceilings and as noted above where changes are not anticipated in the long term.

The use of ISO-BX may be required for certain areas including for some light fixtures in resident care areas.

## 11.6 Communications

Each resident room shall be wired for telephone, cable television and Internet access. Structured cabling shall be installed to central communication rooms, sized to permit dual servicing where more than one service type is provided. Cable television shall be provided in public areas.

## 11.7 Wiring Devices

### *11.7.1 Receptacles*

Hospital grade non-locking receptacles (I5A & 20A) shall be used in all resident care areas and specification grade may be used in non-resident care areas, e.g., administration and maintenance. Receptacles connected to the standby power system are to be red in colour.

Consideration may be given to using tamper proof receptacles within certain resident care areas to enhance resident safety.

Noise transmission through common walls shall be minimized by installation of acoustic insulation between back to back or closely spaced outlets. Outlets shall not be installed back-to-back between resident rooms to prevent noise transmission through walls.

Receptacles in corridors for housekeeping purposes shall be CSA 5-20RA style, located for cleaning equipment cords can reach all the areas of the corridor and not block a doorway.

Outdoor receptacles are to be protected by ground fault breakers, or are to be of a ground fault circuit interrupter type.

Where required, due to geographical location, a minimum number of receptacles for outdoor parking block heaters should be provided.

Resident bed heads should have a minimum of 2 duplex receptacles. One receptacle will be required for motorized beds. One receptacle in each resident room should be connected to emergency power for medical oxygen provided by oxygen concentrators and for the electrically operated beds.

Ground Fault Circuit Interrupter type receptacles shall be provided adjacent to vanity units in resident rooms and in resident ensuite bathrooms. A receptacle shall be provided for each resident bed area for a television and a computer.

Residential care facilities will be generally be classified as Health Care Facilities; the use of Arc Fault Circuit Interrupters is not anticipated to be required.

### *11.7.2 Switches*

Lighting switches are to be specification grade. Generally, illuminated type toggle switches are not acceptable, except to control resident room night lighting. The switch to operate the resident's reading light and/or night-light should be accessible for the resident from the bed location as well as the entry to the room.

## 11.8 Cover Plates

Provide cover plates for all outlets. These are to be brushed stainless steel or high impact nylon.

## 11.9 Clocks

Battery operated clocks are facility provided equipment and not included in construction. Master clock systems are not deemed necessary or recommended.

## 11.10 Lighting

Every effort should be made to create a homelike environment and avoid an "institutional" look with well-lit spaces. The intent of this guideline is to highlight specific and special requirements in this type of facility and encourage creative appropriate lighting systems to meet the needs of both residents and staff. (See IESNA RP-28-98, Lighting and the Visual Environment for Senior Living.)

Provide even lighting in corridors, that does create shadows on floor surfaces that could be mistaken for “edges” or “holes” by the resident and create a tripping hazard.

Generally, fluorescent lighting is to be utilized throughout the building and H.I.D.[1] sources for any site lighting (white-light metal-halide lamps are recommended). General illumination and night lighting in corridors should be provided from fluorescent sources units that combine functions. Control should be by three-position or multiple switching at locations adjacent to the Care Station.

Lighting systems should be capable of offering a range of different lighting levels to make use of available daylight and a variety of space usages. Safety, efficiency and low maintenance must also be considered.

Illumination levels should be higher than I.E.S.[2] Lighting Handbook recommended minimums in resident areas such as ensuite bathrooms, activity, dining and recreation. This level may be achieved with reading lamps in some areas. At the same time, every effort should be made to reduce glare and the brightness ratio between different areas.

Incandescent lamps should generally be kept to a minimum as supplementary lighting and on dimmer switches in areas where frequency and duration of use are low or limited to a small number of fixtures.

[1] High Intensity Discharge
[2] Illuminating Engineering Society

Supplementary dimmed incandescent lighting is recommended in the Quiet Rooms.

Fluorescent lamps should be specified as the standard size and type. Consideration should be given to high-frequency electronic ballasts to maximize efficiency and reduce flicker.

All fixtures are to be the high power factor type to reduce the likelihood of power factor correction capacitors being required (thus avoiding inherent cost and complications).

## 11.11 Resident Rooms Lighting

Lighting for the resident bedroom will need to provide both adequate light for reading and for provision of care, while providing a comfortable home environment for the resident. Given the geometry of resident rooms, finishes, and accessories, there will be several lighting solutions. These Guidelines identify considerations and techniques to assist designers in making choices. (see IES RP-28-98)

A wall mounted over-the-bed fixture with a moveable or adjustable arm, similar to those used in hotel rooms, may be provided for the resident's use as a reading light. The resident should control these locally; with an insulated pull cord for ease of use. These fixtures usually provide a more homelike atmosphere.

Care should be taken to select ambient lighting for general examination and provision of care. Although fluorescent fixtures arranged in valences or incorporated in over-the-bed fixtures should provide adequate ambient lighting, neither provides a homelike atmosphere. Matt finishes in conjunction with indirect lighting is especially effective in reducing glare, but requires sufficient ceiling height.

Care should be taken to coordinate fixtures with the configurations and supports for the ceiling lifts. Durable, low maintenance sources, which can be cleaned and re-lamped easily should be considered. A single switch controlling general lighting from the room entry will be satisfactory.

A night-light should be provided to assist the resident and staff. These lights should illuminate the area between the bed and bathroom entry areas primarily, and be directed to avoid glare to the resident. These fixtures may be wall mounted or integrated with another fixture.

Lighting should also be provided for vanities and bathrooms, and controlled from local switches.

A heat lamp shall be provided and equipped with a timer switch in bathing and shower rooms over the resident drying space.

Ambient lighting shall provide sufficient illumination for general examination purposes. Downlight fixtures do not usually provide uniform lighting over the entire bed, nor does ambient lighting and therefore these should not be relied on for detailed examinations. Portable examining lights may be used for detailed examinations. Refer to the latest edition of Illuminating Engineering Society of North America for recommended lighting levels.

## 11.12 Emergency Lighting:

Emergency lighting is to be provided in compliance with all applicable codes. Normally emergency lighting should be provided from emergency power circuits. Some areas should also be equipped with battery packs (i.e. generator room, care station).

Note that minimum illuminance for emergency egress lighting in corridors and stairs may not be adequate for elderly residents. (see IES RP-28-98).

## 11.13 Nurse Call System

While nurse call systems detract from a homelike environment, the reality of family expectations and staffing levels will make a reliable nurse call system a necessity. The likely location of caregivers in the care model should be considered in the design of the system and the location of its annunciation devices.

The nurse call systems shall be CSA listed on a complete system basis and approved as Electro-medical Equipment.

The preferred system is one that has the ability to operate effectively in a silent manner that is not audible to the residents to minimize agitation.

Flexibility to integrate with wireless two-way voice communication between staff is desirable (where possible, subject to resident and caregiver input). It is possible that considerable time can be saved with the implementation of wireless phones and two-way voice communication technologies. Care should be taken as some residents might be confused by a disembodied voice from a wall speaker.

Behavioural pattern recognition systems that can alert caregivers to abnormal resident behaviour is available and should be considered where caregivers feel it would enhance patient safety. The system should not generate too many false alarms and be easy to reprogram as residents' behaviour changes.

Wireless nurse call systems (other than for staff notification: pager, wireless phones) are an option. The following guidelines should be considered:

- Wireless patient devices shall be supervised for low battery level
- If the patient device is designed to be mobile, it shall be supervised to ensure that it is within range and is functional
- Mobile patients with wireless devices shall be tracked using RF or IR technologies to assist in locating the patient if assistance is required.

The basic nurse-call and related components shall be installed as follows:

- Each bed shall have its own call-cord station
- Emergency stations with the pull cord in ensuite bathrooms shall be close enough to be pulled by a resident using the toilet and the shower (if provided), and reach to the floor
- Staff stations shall be located in staff work areas, e g, bathing, treatment, lounge, dining spaces, unless reliable wireless devices are provided for the staff and can replace this function
- Duty stations in some staff work areas and in some corridors, unless reliable wireless devices are provided for the staff and can replace this function
- Rooms with nurse call devices, except staff work rooms, will have corridor dome lights located outside the rooms and be clearly visible unless reliable wireless devices are provided for the staff and can replace this function
- Corridor intersections will have zoned directional dome lights unless reliable wireless devices are provided for the staff and can replace this function
- Ensuite bathroom devices will not have a separate dome light
- Staff emergency stations should not be provided in resident rooms
- Tone stations should be provided near the end of a corridor unless reliable wireless devices are provided for the staff and can replace this function
- The floor control station is to be located at the care station unless staff is expected to be exclusively mobile and notification is provided by other reliable means. It should be noted that there will need to be a notification system to communicate troubles in the system to maintenance staff once operational.

## 11.14 Fire Alarm System

The fire alarm system shall be installed and comply with B.C. Building Code and/or Vancouver Building By-Law (as applicable) and the Standards for the Installation of Fire Alarm Systems.

Addressable systems are required to facilitate full compliance with annual inspection requirements and resident room annunciation requirements.

Systems are to be separate and stand-alone with dedicated hardware and software.

The annunciation of individual resident room smoke detectors may be through a separate annunciator located at the associated care station or the nurse call system master station.

Egress control release shall be as per Building Code or equivalency requirements.

Resident room doors should not have door closers/holder unless required by the Building Code.

Fire alarm pull stations should be of the guarded type (to deter accidental operation and vandalism); chimes are recommended rather than bells.

Generally Complex Residential Care facilities will be classified as Health Care Facilities and as such, in-suite silencing, smoke alarms, and circuit isolation modules may not be required.

## 11.15 Telephone & Data Wiring

The system outlet locations should be closely coordinated with the owner with regard to their requirements.

Provide for a wheelchair accessible payphone outlet in convenient waiting areas.

Provision for telephone outlets shall be made at all bed locations. It is possible that residents will elect to use third party Voice Over Internet Protocol (VOIP) gateways, so flexibility should be allowed for this option. Facility telephones may be a separate, facility owned system.

Include back boxes, cover plates and conduits of suitable size.

Provide access and interface to other communication systems such as pocket pagers and wireless handsets. These and other technological options should be evaluated and chosen based on responsiveness of care and other factors leading to quality of care outcomes.

## 11.16 Television

Outlets should be provided for each bed (on the opposite wall to the bed), in lounge/activity areas, and in team conference and/or break room.

Include back boxes, cover plates, conduits of suitable size complete with pull cords and closet space for possible sub-distribution equipment. Coordinate the design with the cable company.

## 11.17 Voice Paging System

Voice paging systems are generally not recommended in complex residential care facilities as they do not provide a home-like environment for the residents.

## 11.18 Closed Circuit Television (CCTV)

A closed circuit television system may be required and should be limited to one main entrance door monitored from one strategic location. Smaller video intercom type systems may be acceptable in some facilities.

## 11.19 Security Systems

Security systems can be utilized but should emphasize egress control rather than monitoring. Perimeter alarming shall also be utilized.

There are several types of systems to prevent resident elopement available, but the total function and reliability of these systems requires careful examination. The design of the physical space should maximize resident autonomy and staff supervision of residents, and reduce the requirement for electronic type controls. Compliance with Building Code regulations is required.

A door alarm system shall be provided at street level exit doors to indicate unauthorized opening of the doors. This alarm shall register at the care station and be able to be deactivated during daytime working hours. Each door should have individual bypass control. This system may be interfaced with the nurse call system.

Buzzers may be provided at the activated door. This system should have simple disarming controls located near the entrance used by staff.

Egress control systems need to be carefully designed in compliance with Building Code requirements.

The use of “mag-locks” should be discouraged, as they are difficult to implement in a Building Code compliant manner (regarding indiscriminate usage). The electrical contract should include, at a minimum, “roughing-in” provision around exit doors to provide for future wiring of Building Code compliant egress control systems.

## 11.20 Intercom System

General intercom requirements should be handled through the telephone or nurse call system. A comprehensive stand-alone system is not recommended and any system considered should be a stand-alone master-slave station type (from the front door to the care station).

The exterior entry door and vestibule may need an intercom station to the reception and the care station.

## 11.21 Existing Facilities

Buildings undergoing upgrading and additions are to be reviewed on a case-by-case basis regarding incorporating the requirements stipulated in these Guidelines. Discussions, coordination and cooperation with health authority and other jurisdictions staff are required prior to and during re-development.

# 12.0 BUILDING CODE CONSIDERATIONS

## 12.1 Applicable Building Codes

Buildings located in the City of Vancouver shall be designed to meet the requirements of the current Vancouver Building By-Law (VBBL) and the Vancouver Fire By-Law. Buildings located outside of the City of Vancouver shall be designed to meet the requirements of the current B.C. Building Code (BCBC) and the B. C. Fire Code. Building Code references listed in this report apply to the 1998 BCBC and 1999 VBBL unless otherwise stated.

## 12.2 Fire Safety Plan

Fire safety for residents in a Complex Residential Care building is predicated on the ability of staff to carry out, at all times, essential life safety functions in accordance with the fire safety plan. Details for a plan are contained in the B. C. Fire Code. The Fire Department in the (project's) municipality will review the fire safety plan prior to occupancy of the building. It is advised to get this feedback as early as possible in the design process.

Many factors may affect the ability of staff to carry out fire safety and life saving functions, including resident mobility and other physical/mental limitations.

If a resident area in a building contains staffing limitations or other limiting factors which would increase the time normally required to evacuate residents or to undertake other life safety measures, then consideration should be given to providing additional fire protection measures to ensure resident safety requirements are met.

## 12.3 Impeded Egress Zones

Access to exits by residents of many of the Complex Residential Care facilities is governed by egress control systems. As defined by the VBBL and BCBC, these buildings must have impeded egress zones.

Article 1.1.3.2 of both codes contain the following definition: Impeded Egress Zone means a supervised area in which occupants have free movement but require the release, by security personnel, of security doors at the boundary, before they are able to leave the area; but does not contain a contained use area.

Article 3.4.6.15 restricts the use of electromagnetic locks to doors that will open after 15 seconds of pressure being applied to the door opening hardware. This requirement does not generally apply to impeded egress zones.

Article 3.2.2.19 requires impeded egress zones conform to Articles 3.2.2.36, or 3.2.2.37, which in turn requires non-combustible construction and sprinklers.

For considerations related to staff management of residents, the fire safety plan and extra building requirements related to these matters please refer to section 13.2 of this section.

Some municipalities have accepted equivalencies related to one or two storey sprinklered combustible buildings with controlled egress at the perimeter. This potential alternative is discussed in section 12.7 below.

## 12.4 Three Storey Buildings or Lower

A three storey Complex Residential Care building would be designated a "B-2 occupancy", but if egress control measures are in place, Article 3.2.2.19 requires it comply with Article 3.2.2.37 (B-1 occupancy) as follows:

- Maximum Area: 12,000 m² if 2 storeys, 8,000 m² if 3 storeys
- Fire Protection: Sprinklers required
- Construction: Non-combustible
- Floors: Fire separations having a 1 hour fire resistance rating
- Mezzanines: 1-hour fire resistance rating
- Roofs: Not rated

Emergency power to CAN/CSA-Z32.99

## 12.5 Four Storey Buildings or Higher

A four storey Complex Residential Care building would be designated a "B-2 occupancy", but if egress control measures are in place, Article 3.2.2.19 requires it comply with Article 3.2.2.36 (B-1 Occupancy) as follows:

- Maximum Area: Any area
- Fire Protection: Sprinklers required
- Construction: Non-combustible
- Floors: Fire separations having a 2 hour fire resistance rating
- Mezzanines: 1 hour fire resistance rating
- Roofs: Not rated

## 12.6 Measures for High Buildings

Article 3.2.6.1 states that a building containing a group B major occupancy above the third storey, or more than 18 metres above grade must be designed as a “high-rise” building, with the additional following requirements:

- 2 hour emergency power
- Protection of electrical conductors to 3.2.6.5.(6) and 3.2.6.9
- Limits to smoke movement below grade as per 3.2.6.2
- Venting to aid fire fighting as per 3.2.6.6
- Fire Fighter’s Elevator complying with 3.2.6.4. and 3.2.6.5
- Emergency recall for all elevators
- Central Alarm & Control meeting 3.2.6.7
- Voice communication system

## 12.7 Two Storey Combustible Buildings

Some municipalities have accepted equivalencies that permit the construction of Complex Residential Care facilities in sprinklered one or two storey combustible buildings. Acceptance of any equivalency by a municipality cannot be guaranteed, but this option provides the potential of a cost effective alternative to non-combustible construction. Any design team contemplating an equivalency of this type should submit it early in the design process for review by the jurisdictional authority.

## 12.8 Elevators

At least one of the elevators should meet 3.2.6.5.2 for size of platform.

## 12.9 Requirements for Resident Bedrooms

Floors containing resident sleeping rooms are required to meet Article 3.3.3.5 as follows:

- Floor areas are to be subdivided into not less than two fire compartments, each not more than 1,000 m²
- Fire separations between fire compartments must have a fire resistance rating of 1 hour
- Doors and other closures in the 1 hour fire separations must be weather-stripped or otherwise designed to retard the passage of smoke
- Walls between sleeping rooms and adjacent rooms shall be constructed as unrated fire separations

- Corridors serving sleeping rooms shall have walls constructed as unrated fire separations
- Doors to sleeping rooms are permitted to be equipped with roller latches, and shall be not less than 1,050 mm wide
- Sentences 3.1.8.11(2)(c) & (d) allows closers to be omitted on doors to sleeping rooms
- Grilles are not permitted in sleeping room doors opening into the corridor
- Grilles are permitted between sleeping rooms and ensuite toilet or shower rooms
- Corridors serving bedrooms must be 2400 mm wide
- Corridors shall have no dead end portion
- Paired doors shall swing in opposite directions with the right hand door swinging in the direction of travel, and doors shall be not less than 1,000 mm wide
- Some municipalities have interpreted the corridor separation requirements in such a way that they have deemed it necessary to separate spaces like nursing stations and lounges from the corridor with unrated fire separations. The design team could investigate equivalent measures to the perceived requirement for fire separations in these cases.

## 12.10 Accessibility

The building must be accessible to persons with disabilities in accordance with Section 3.8, general accessibility provisions as required by Article 3.8.2.3 and specific occupancy provisions of article 3.8.2.26, including the following:

- Access form the street to at least one main entrance conforming to Article 3.8.3.5
- Where off street parking is provided for persons with disabilities, access from the parking area to an entrance conforming to Article 3.8.3.5 which serves the parking area, unless the entrance is located so as to conveniently serve both the parking area and the street
- An automatic door opener is to be provided at the main entrance
- Access to all areas where work functions can reasonably be expected to be performed by persons with disabilities
- Accessible washrooms conforming to 3.8.2.3.(2)
- Doors shall conform the requirements of sentences 3.3.1.12 (10), (11), (12) and (13)

## 12.11 Miscellaneous Fire Separation

Fire separations for service rooms and shafts will be as follows.

- Exit shafts shall conform to Article 3.4.4.1.

- Elevator shafts shall conform to Article 3.5.3.1.
- Service shafts shall conform to article 3.6.3.1.
- Sentence 3.6.2.1.requires that a service room containing a fuel fires appliance shall be separated from the remainder of the building by a fire separation having a fire resistance rating of 2 hours. (Roof top equipment is exempted from this requirement).
- Electrical equipment required by the electrical safety act to be in vaults shall conform to article 3.6.2.8.
- Electrical rooms not required to be in vaults require a 1 hour fire separation.
- Service rooms not containing fuel fired appliances, boilers, or electrical equipment do not require a fire separation.
- Rooms for combustible storage require a 1 hour fire separation. Soiled linen storage has been included in this designation by some municipalities.
- Janitor closets require an unrated fire separation.
- Laundry rooms require a 1 hour fire separation.

# APPENDIX 1 – REFERENCE CODES

The following documents and information are provided as a reference to the design team. The consultants should always confirm these, and other references not listed, for current editions and application for the specific project conditions.

- National Building Code
- British Columbia Building Code
- British Columbia Fire Code
- City of Vancouver Building By-Law
- British Columbia Building Code – Building Access Handbook
- Adult Care Regulations of the *Community Care and Assisted Living Act* http://www.qp.gov.bc.ca/statreg/reg/C/CommuCareAssisted/536_80.htm
- College of Pharmacists of British Columbia – Bylaw 7 Residential Care Facilities and Homes
- *Worker's Compensation Act* requirements
- Contaminated Site legislation
- Ministry of Finance and Corporate Relations "Green Buildings Guidelines"
- NFPA Bulletin 13
- NFPA Bulletin 14
- NFPA Bulletin 80
- NFPA Bulletin 96
- Canadian Standards Association (CSA)
- Model National Energy Code of Canada for Buildings
- ANSI/ASHRAE 90.1 Standard "Energy Efficient Design of New Buildings Except Low-Rise Residential Buildings”
- CAN/CSA-B149.1-05 Standard "Natural Gas and Propane Installation Code"
- Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulations
- CAN/CSA-Z305.1-92 Nonflammable Medical Gas Piping System
- CAN/CSA-Z317.2 Standard "Special Requirements for HVAC Systems in Health Care Facilities"
- CAN/CSA-Z317.13-03 “Infection Control During Construction or Renovation of Health Care Facilities
- CAN/CSA-Z318.1 Standard "Commissioning of HVAC Systems in Health Care Facilities"
- CAN/CSA-Z318.2 Standard "Commissioning of Control Systems in Health Care Facilities"
- ANSI/ASHRAE 62 Standard "Ventilation for Acceptable Indoor Air Quality"
- Canadian Electrical Code, Part 1-C22.1, as adopted for use in B.C.
- CSA Z32, Electrical Safety and Essential Electrical Systems in Health Care Facilities
- CAN/CSA-C282 Emergency Electrical Power Supply for Buildings

- IES RP28-98 Recommended Practice for Lighting and the Visual Environment for Senior Living
- C22.2 No 125, Electromedical Equipment
- CAN/CSA-C22.2 No. 60601 series of Standards, Medical Electrical Equipment
- CAN/ULC-S524, Standard for the Installation of Fire Alarm Systems
- ASHRAE Handbooks
- SMACNA Manuals
- NFPA Standards
- Provincial and Municipal Directives

# APPENDIX 2 – PROGRAM AREA MATRIX

| | 12 Beds/House | | | 14 Beds/House | | | 16 Beds/House | | | 18 Beds/House | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | # Units | UNIT m² | CGSM AREA m2 | # Units | UNIT m² | CGSM AREA m2 | # Units | UNIT m² | CGSM AREA m2 | # Units | UNIT m² | CGSM AREA m2 |
| | 60, 72, 84, 96, 108, 120, 132, 144 | | | 84, 112, 130, 158 | | | 64, 80, 96, 112, 128, 144 | | | 72, 108, 144 | | |
| Resident Bedrooms (including Ensuite Bath) | | | | | | | | | | | | |
| 1-bed | 12 | 23 | 276 | 14 | 23 | 322 | 16 | 23 | 368 | 18 | 23 | 414 |
| Lounge/Living Area | 12 | 1.5 | 18 | 14 | 1.5 | 21 | 16 | 1.5 | 24 | 18 | 1.5 | 27 |
| Activity Lounge | 12 | 1 | 12 | 14 | 1 | 14 | 16 | 1 | 16 | 18 | 1 | 18 |
| Dining Room | 12 | 2 | 24 | 14 | 2 | 28 | 16 | 2 | 32 | 18 | 2 | 36 |
| Kitchen/servery | 1 | 14 | 14 | 1 | 14 | 14 | 1 | 14 | 14 | 1 | 14 | 14 |
| Chart Area (Care Centre) | 1 | 2 | 2 | 1 | 2 | 2 | 1 | 2 | 2 | 1 | 2 | 2 |
| Quiet meeting room | 1 | 8 | 8 | 1 | 8 | 8 | 1 | 8 | 8 | 1 | 8 | 8 |
| Resident Washroom | 1 | 5 | 5 | 1 | 5 | 5 | 1 | 5 | 5 | 1 | 5 | 5 |
| Resident Laundry | 1 | 5 | 5 | 1 | 5 | 5 | 1 | 5 | 5 | 1 | 5 | 5 |
| Linen Supply (Closet) | 1 | 2 | 2 | 1 | 2 | 2 | 1 | 2 | 2 | 1 | 2 | 2 |
| Medication Cupboard | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Janitor Broom Closet | 1 | 0.5 | 0.5 | 1 | 0.5 | 0.5 | 1 | 0.5 | 0.5 | 1 | 0.5 | 0.5 |
| Staff Washroom | 1 | 3 | 3 | 1 | 3 | 3 | 1 | 3 | 3 | 1 | 3 | 3 |
| Soiled Utility | 1 | 6 | 6 | 1 | 6 | 6 | 1 | 6 | 6 | 1 | 6 | 6 |
| Care Equipment Storage | 1 | 4 | 4 | 1 | 4 | 4 | 1 | 4 | 4 | 1 | 4 | 4 |
| House Entry | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| Subtotal | | | 380.5 | | | 435.5 | | | 490.5 | | | 545.5 |

| "UNIT" is based on 12 bed house model | UNIT m² | 60 # Units | 60 AREA m² | 72 # Units | 72 AREA m² | 84 # Units | 84 AREA m² | 96 # Units | 96 AREA m² | 108 # Units | 108 AREA m² | 120 # Units | 120 AREA m² | 132 # Units | 132 AREA m² | 144 # Units | 144 AREA m² |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| The House | | | | | | | | | | | | | | | | | |
| Resident House | 380.5 | 5 | 1902.5 | 6 | 2283 | 7 | 2663.5 | 8 | 3044 | 9 | 3424.5 | 10 | 3805 | 11 | 4185.5 | 12 | 4566 |
| Support Spaces | | | | | | | | | | | | | | | | | |
| Multipurpose Room (1.4m2 x 50% of Residents) | 1.4 | 1 | 42 | 1 | 50.4 | 1 | 58.8 | 1 | 67.2 | 1 | 75.6 | 1 | 84 | 1 | 92.4 | 1 | 100.8 |
| Care Station | 10 | 1 | 10 | 1 | 10 | 1 | 10 | 2 | 20 | 2 | 40 | 2 | 80 | 2 | 160 | 2 | 320 |
| Examination /Treatment Room/ First Aid | 12 | 1 | 12 | 1 | 12 | 1 | 12 | 1 | 12 | 1 | 12 | 1 | 12 | 1 | 12 | 1 | 12 |
| Exercise/OT/PT Room (Therapy) | 15 | 1 | 15 | 1 | 15 | 1 | 15 | 1 | 15 | 1 | 15 | 2 | 30 | 2 | 30 | 2 | 30 |
| Hairdressing Salon | 10 | 1 | 10 | 1 | 10 | 1 | 10 | 1 | 10 | 1 | 10 | 2 | 20 | 2 | 20 | 2 | 20 |
| Resident Bathing | 15 | 2 | 30 | 2 | 30 | 2 | 30 | 3 | 45 | 3 | 45 | 4 | 60 | 4 | 60 | 4 | 60 |
| Housekeeping | 10 | 1 | 10 | 1 | 10 | 2 | 20 | 2 | 20 | 2 | 20 | 3 | 30 | 3 | 30 | 3 | 30 |
| Gift/Tuck Shop | 10 | 1 | 10 | 1 | 10 | 1 | 10 | 1 | 10 | 1 | 10 | 1 | 10 | 1 | 10 | 1 | 10 |
| Volunteer Room | 10 | 1 | 10 | 1 | 10 | 1 | 10 | 1 | 10 | 1 | 10 | 1 | 10 | 1 | 10 | 1 | 10 |
| Storage / wheelchair battery | 25 | 1 | 25 | 1 | 25 | 2 | 50 | 2 | 50 | 2 | 50 | 3 | 75 | 3 | 75 | 3 | 75 |
| Subtotal (CGSM) | | | 174 | | 182.4 | | 225.8 | | 259.2 | | 287.6 | | 411 | | 499.4 | | 667.8 |
| Administration | | | | | | | | | | | | | | | | | |
| Reception | 8 | 1 | 8 | 1 | 8 | 1 | 8 | 1 | 8 | 1 | 8 | 1 | 8 | 1 | 8 | 1 | 8 |
| Administrator | 13 | 1 | 13 | 1 | 13 | 1 | 13 | 1 | 13 | 1 | 13 | 1 | 13 | 1 | 13 | 1 | 13 |
| Coordinators | 9 | 2 | 18 | 2 | 18 | 2 | 18 | 3 | 27 | 3 | 27 | 3 | 27 | 4 | 36 | 4 | 36 |
| General Office | 18 | 1 | 18 | 1 | 18 | 1 | 18 | 1 | 18 | 1 | 18 | 2 | 36 | 2 | 36 | 2 | 36 |
| Team Conference Room | 30 | 1 | 30 | 1 | 30 | 1 | 30 | 1 | 30 | 1 | 30 | 1.5 | 45 | 1.5 | 45 | 1.5 | 45 |
| Public Washrooms | 4 | 2 | 8 | 2 | 8 | 2 | 8 | 2 | 8 | 2 | 8 | 2 | 8 | 2 | 8 | 2 | 8 |
| Subtotal (CGSM) | | | 95 | | 95 | | 95 | | 104 | | 104 | | 137 | | 146 | | 146 |
| Food Service | | | | | | | | | | | | | | | | | |
| Day Storage | 100 | 0.5 | 50 | 0.5 | 50 | 0.5 | 50 | 1 | 100 | 1 | 100 | 1 | 100 | 1 | 100 | 1 | 100 |
| Refrigerated Storage | | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| Frozen Storage | | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| Food Production | | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| Potwash, Sanitation | | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| Meal Preparation Area | | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| Office | | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| Miscellaneous | | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| Subtotal (CGSM) | | | 50 | | 50 | | 50 | | 100 | | 100 | | 100 | | 100 | | 100 |
| Service Facilities | | | | | | | | | | | | | | | | | |
| Receiving Area | 6 | 1 | 6 | 1 | 6 | 1 | 6 | 1 | 6 | 1 | 6 | 1 | 6 | 1 | 6 | 1 | 6 |
| Waste Disposal | 6 | 1 | 6 | 1 | 6 | 1 | 6 | 1 | 6 | 2 | 12 | 2 | 12 | 2 | 12 | 2 | 12 |
| Staff Lounge | 2.5 | 5 | 12.5 | 6 | 15 | 7 | 17.5 | 8 | 20 | 9 | 22.5 | 10 | 25 | 11 | 27.5 | 12 | 30 |
| Staff Lockers | 3 | 5 | 15 | 6 | 18 | 7 | 21 | 8 | 24 | 9 | 27 | 10 | 30 | 11 | 33 | 12 | 36 |
| Subtotal (CGSM) | | | 39.5 | | 45 | | 50.5 | | 56 | | 67.5 | | 73 | | 78.5 | | 84 |
| Service Areas | | | | | | | | | | | | | | | | | |
| Maintenance: as required | 20 | 1 | 20 | 1 | 20 | 1 | 20 | 1 | 20 | 2 | 40 | 2 | 40 | 2 | 40 | 2 | 40 |
| Subtotal (CGSM) | | | 20 | | 20 | | 20 | | 20 | | 40 | | 40 | | 40 | | 40 |
| Subtotal (CGSM) | | | 2,281.0 | | 2,675.4 | | 3,104.8 | | 3,583.2 | | 4,023.6 | | 4,566.0 | | 5,049.4 | | 5,603.8 |
| DGSM (1.3 Gross Factor) | | | 2,965.3 | | 3,478.0 | - | 4,036.2 | - | 4,658.2 | - | 5,230.7 | - | 5,935.8 | - | 6,564.2 | - | 7,284.9 |
| BGSM (1.2 Gross Factor) | | | 3,558.4 | | 4,173.6 | | 4,843.5 | | 5,589.8 | | 6,276.8 | | 7,123.0 | | 7,877.1 | | 8,741.9 |
| Area per Bed | | | 59.3 | | 58.0 | | 57.7 | | 58.2 | | 58.1 | | 59.4 | | 59.7 | | 60.7 |

# APPENDIX 3 – DESIGN PRINCIPAL CONCEPT DIAGRAMS

Several graphic representations of design principle concept diagrams have been included in this section.

These designs may be of assistance to architects embarking on designing Complex Residential Care facilities however are not intended to suggest recommended design solutions.

Individual site characteristics, configurations, building heights other constraints and permissions will affect some of these design principals for specific projects.

Drawings include:

- Typical Residential House Model
- House Diagram
- Room and Bathroom Layout (Option 1)
- Room and Bathroom Layout (Option 2)
- Diagram #22 House Entry
- Diagram #23 Front Porch
- Diagram #26 Dining
- Diagram #27 Millwork Requirements
- Diagram #28 Kitchen
- Diagram #28 Kitchen (view 2)
- Diagram #29 Kitchen Care Work Station
- Diagram #30 Resident Laundry
- Diagram #31 Corridor Widths
- Diagram #32 Handrails and Wall Guards
- Diagram #35 Room Layout
- Diagram #36 View Cone (view 1)
- Diagram #36 View Cone (view 2)
- Diagram #36 View Cone (view 3)
- Diagram #37 Window Openings
- Diagram #38 Bathroom Layout
- Diagram #40 Bathing Room
- Diagram #41 Chart Area and Linen Storage
- Diagram #46 Activity Lounge
- Diagram #47 Servery
- Figure 13 Connection to the Community
- Figure 14 Campus of Care
- Figure 15 Usable Outdoor Space – Multistorey Concept
- Figure 18 Common / Private / Support Spaces
- Figure 19 Common Spaces
- Figure 20 Connection Between Interior and Exterior