*This article reviews four recently built care facilities and analyses their designs based on the **Best Practices Design Guideline**. Five basic principles are utilized to organize the analysis. The main thesis is that long-term care design manuals may have limitations that have resulted in facility designs that fall short of providing an optimum environment for delivering care.*

By Bill Benbow

Are facility design standards short-changing LTC residents?

This article is an analysis of three recently built nursing homes in Ontario, and one in BC. The author uses the *Best Practices Design Guideline* (BPDG) as a template for this comparison.

The BPDG is a model based on design practices employed in Australia, United States, Europe and British Columbia. Utilization of the following five principles of this guideline is suggested as a methodology for analysing the design of long-term care facilities, not just in Ontario, but across the country:

1. Privacy
2. Small homelike units
3. Accessibility (room size, amenity space)
4. Bathing
5. Functionality

In the late 1990s Ontario, as well as other provinces, undertook to close the gap between demand and supply in its stock of nursing home beds. Ontario planned for (and is close to achieving) 20,000 new beds and 16,000 upgraded ones.

Ontario's facility design manual

These beds were built to the 1998/99 design guideline of the Ontario Ministry of Health: *"Long-term Care Facility Design Manual"* (LTCFDM), May, 1999; and an updated version from May, 2004: *"Long-term Care Facility Design Manual: Clarifications, Safety and Security Issues and Good Design Practices."* This manual has driven the design of recent nursing home facilities in Ontario. A brief discussion is in order to highlight features of the *LTC Facility Design Manual*. These features will then be discussed in relation to the principles of the *Best Practices Design Guideline* (BPDG).

1. Privacy: A critical element of the LTCFDM is that it is premised on an operating funding formula based on the following two distinct rates:
(1) 40% must be charged a basic (standard) or lower rate; and.
(2) 60% of the residents a preferred or higher rate.

Generally, this funding formula has been applied by attaching the rate to the type of accommodation supplied, i.e., shared or private. There appears to be a misconception that the number of private rooms must follow the funding formula. What is mandated is the rates to be charged, not the actual accommodation provided.

A greater proportion of privates could be provided - but with rates charged based on income testing or wait-listing for the less expensive rate.

Unfortunately, the funding formula actually drives the actual design of facilities in that most new facilities have followed the 40/60 split of shared to private accommodation.

The Best Practices Design Guideline (BPDG) calls for 100% private accommodation because, as experience has clearly demonstrated, complex care residents, particularly those with a dementia, do better in private accommodation.

2. Small homelike units: The LTCFDM mandated that facilities be divided into resident housing areas of no more than 32 residents. Each house must include bedrooms, washrooms, bath and shower rooms, dining area, lounge area, program/activity space, staff work space and storage space for that area. Unfortunately most new facilities have followed this maximum size as a template, even though smaller house units were an option. This appears to be driven by economics, with larger houses requiring fewer assisted bathing rooms, utility

rooms, serveries, and nursing stations.

Providers competing for beds have been able to deliver larger housing units at a lower capital cost.

Consequently, most new Ontario complex care facilities far exceed the BPDG recommendation of a maximum of 18 residents in a home. Again, experience has shown that, through creative designing, it is possible to share some of these amenities between housing units, thereby economically creating smaller resident house units. Smaller house units work better for complex care residents, especially those with special needs, i.e., a dementia.

3. Accessibility: Wheelchair manoeuvrability is primarily a function of room size, door widths, corridor widths and level access. Areas need to afford a minimum five-foot turning circle for wheelchairs. Space allocation for resident rooms is calculated on usable space, exclusive of the vestibule, built-ins, and ensuites.

The LTCFDM has three models for resident bedrooms:

1 - 12.1 sq. metres (130 sq. feet) for privates;

2 - 12.1 sq. metres (130 sq. feet) for semi-privates; and

3 - 21.4 sq. metres (230 sq. feet.) for doubles.

This may be sufficient for standard wheelchairs, but will be tight for scooters and larger wheelchairs.

The BPDG recommends a wider 6-foot turning circle in order to accommodate for larger wheelchairs and scooters, and a minimum of 16.3 sq. metres (175 sq. feet) in usable area for resident rooms.

The *LTC Facility Design Manual* calls for combined lounge/activity space to be a minimum of 2.5 sq. metres. per resident. This space allocation is tight for the growing proportion of walkers, geri-chairs, and wheelchairs in complex care facilities.

The BPDG calls for a minimum of 4 sq. metres per resident for lounge/activity space in each house.

The LTCFDM requires that dining space in the house be a minimum of 2.8 sq. metres per resident. Initially, only 80% of this space had to be in the house. The 2004 "clarification" recommended that 100% of the allocation be within the house in order to accommodate the growing proportion of residents in wheel chairs.

The BPDG recommends a minimum dining area of 3 sq. metres per resident in each housing area.

4. Bathing: In the LTCFDM there is no mention of showers in ensuites. This is a considerable oversight given the broad acceptance of this feature in Australia, America, Europe and British Columbia, as well as other provinces.

The BPDG recommends that all resident room ensuites have showers. This is critical for incontinence and infection control, as well as resident privacy and comfort. By using a European style shower, the whole ensuite is utilized as the shower area, and little if any increase in area is required.

5. Functionality: Key elements to review for efficiency and effectiveness (or functionality) are the overall layout of houses in terms of grouping of core services and amenities, location of bathing rooms, short corridors and privacy zones.

Four facilities reviewed

Four recently built complex care facilities in the London area of Southwest Ontario and Sooke, BC, are reviewed:

Dearness Home, London, ON (2005); Longworth (Westmount) London, ON (2003); Highview, London, ON (2003); and Ayre Manor, Sooke, BC, (2008).

Dearness Home

This replacement facility, owned by the municipality of London, was completed in the summer of 2005. The architect was MMMC Inc. of Brantford and Kitchener. This firm has been involved in designing approximately 2000 new long-term care beds in recent years, so has a vast amount of experience.

The Dearness Home is a five story urban building. The main floor has a lobby, reception, courtyard cafe, tuck shop, worship centre, volunteer centre, commercial kitchen, laundry, storage and staff spaces. There is also an Adult Day Care. Administration and the hair salon are on the second floor.

This facility's 243 beds are divided into nine houses of 27 beds each, slightly less than the Ontario maximum of 32. The main floor has one residential house at ground level, while the four higher floors have two houses each.

Again, these houses are Y shaped. In this case, the stems of the two Ys on each residential floor are back-to-back to form a central amenity core for each house. The actual resident rooms are thus in a V configuration with utility, exam, storage and bathing rooms in the centre of the V. The stem of the Y has a large activity room, dining, and a small den, as well as a c communication centre for the care staff. The dining rooms are back-to-back and share a servery. Each home on the upper levels has a secured balcony off the dining room.

Privacy: The Dearness Home approximately follows the Ontario funding model and has 56% privates and 44% of residents in shared accommodation (doubles). Shared ensuites are problematic for seniors who have problems with continence.

Small house units: Though still large by the BPDG, the houses, at 27 beds, are actually smaller than the maximum Ontario guideline of 32 beds. Some sub-grouping can occur in the three amenity areas in the core: the dining, den, and activity spaces. Further, there is a very small sitting area at the end of each residential wing (each of the V arms). To some degree, the two wings of the V divide the home into subgroups of 10 and 17.

Accessibility: Staff estimate that about 60% of residents are currently using wheelchairs. Doors to resident rooms are extra wide, 1120mm (44 inches), for good wheelchair accessibility. There may be a short-fall, however, in the 600mm requirement adjacent to the latch door jam.

Resident rooms have ceiling-mounted lifts that extend from the bed right into the ensuite. A nicely designed split door

accommodates the ceiling track.

The resident rooms are good-sized, averaging 13 sq. metres. This exceeds the LTCFDM minimum of 12.1 sq. metres and is ample for wheelchair manoeuvring. Resident rooms have vinyl flooring, while the corridors are carpeted.

The amenity areas are well sized for wheelchairs, with the dining room averaging 3.57 sq. metres to 4.54 sq. metres per resident, and the activity area providing 1.9 sq. metres per resident. In addition there is a den/lounge in each house.

Bathing: Each 27-bed house has an assisted bathing tub room and a wheelchair accessible shower room, each with their own washroom. Again, Ontario does not support showers in the ensuites; thus, clean-up of incontinent residents is difficult in these resident rooms.

Functionality: The Y layout is quite good, with resident rooms grouped in a V of two wings that includes the bathing areas, and the stem of the Y that contains the daytime amenities. This location of bathing rooms in the core of the resident rooms provides short distances and supports residents' privacy. The V is really an inverted A, with the cross corridor forming a good walking loop - which works well for wandering residents with Alzheimer's disease and other dementias.

Nursing work areas are close to the core. The servery is well laid out to serve both dining areas of the two houses on the residential floors. Each house has a small kitchen as part of the servery area. A separate service corridor provides dedicated access to the servery and housekeeping.

There is some duplication of areas such as the exam rooms, meds and charting areas which could be shared on each floor. The houses are self-sufficient with egress and exit controls. This allows for four of the houses to be currently used for dedicated dementia units.

There is a sizeable outdoor courtyard for all of the residents on grade, and a secure garden area for the residents with a dementia. There is also a small balcony off the dining area on the upper floors.

The Dearness Home is an attractive facility with ample support and amenity areas. The resident rooms and ensuites are good sized. The overhead lifts are very prudent, as is the vinyl floor in resident rooms. The Dearness Home is commendable in breaking the 32-bed mold for the size of resident homes and for a design that facilitates sub-grouping within the house.

Longworth (Westmount)

This privately-owned 161-bed facility, built in 2003, is an attractive, two story building in a new subdivision of London. It is part of a 'campus of care' that includes a seniors' retirement home. The architectural firm of Sedun & Kanerva (Toronto) designed the complex closely following the LTCFDM.

The building is built around two courtyards. Ample support areas surround the smaller courtyard on the main floor. The entrance is quite large, with a water feature in the middle. As well as reception, barber/beauty salon and tuck shop, there is a café/family dining area, and a 101 sq. metre auditorium along the side of the courtyard.

A distinctive chapel is featured near the main entrance. This main floor also houses the administration area, facility kitchen, laundry, staff areas, mechanical, electrical, storage, volunteer office, family stay-over suite, and a 36 sq. metre therapy room. There are five residential houses of 32 beds each. On each floor, two housing areas are U-shaped around a large courtyard; i.e., 64 beds and amenity areas on each floor are spread along an extensive rectangle-shaped corridor. There are no specialized care housing areas.

Privacy: Longworth follows the 60/40 funding template of the LTCFDM, with 96 singles and 64 residents in basic (double) accommodation; i.e., there are only 60% privates.

Small house units: Again, Longworth follows the LTCFDM maximum of 32 beds per house. Each of the five houses is self sufficient in dining, lounge, activity, and bathing. In addition they each have a multi-program space. With four distinct daytime amenity areas, there is a good variety of areas for sub-grouping of residents. Nevertheless, the size of the houses is considerably greater than the BPDG recommended maximum of 18 residents per Home.

Accessibility: Individual private rooms are slightly larger than the minimum set by the LTCFDM of 12.1 sq. metres (130 sq. ft.), and have 12.73 sq. metres (137.5 sq. ft.) of useable space, exclusive of ensuite, vestibule and built-in closet.

Each room is designed for wheelchair manoeuvrability, with a five-foot diameter turning circle beside the bed. However, only 335mm is provided to the side of the entrance door for persons in wheelchairs to swing the door inwards.

The layout of the basic (double) rooms is long and narrow, with a limited view of outdoors for the resident furthest from the window. However, there is 237.5 sq. ft. of usable space, which exceeds the LTCFDM requirement of 230 sq. ft.

The ensuites are also designed for wheelchair accessibility with a five-foot turning circle. The toilet location allows wheelchair access from the front and one side which is standard in Ontario. The BPDG recommends access from the front and two sides.

The ensuite doorways (with swing-type doors) are angled, which increases the entrance area. However, swing-type doors can be awkward for residents in wheelchairs.

Space allowance for amenity areas is generous. The dining works out to 2.8 sq. metres per resident, which is what the LTCFDM requires, and just a shade under the 3 sq. metres recommended by the BPDG. The lounge/activity/multi-program areas are 3.5 sq. metres per resident, which is considerably higher than the LTCFDM of 2.5 sq. metres.

Bathing: Each of the five 32-bed housing areas has a bathing area located in the heart of the bedroom zones. Each bathing

area consists of an assisted bathing room, a wheelchair shower room and a wash room/grooming room. Again, as with most Ontario facilities, there are no showers in the ensuites.

Functionality: A nice feature of the Longworth layout is that the dining rooms are back-to-back and can utilize one servery accessible by a service corridor. However, for the frail elderly, the extensive corridor length may be a tiresome undertaking; and staff may find the layout inefficient as well.

Residents on the opposite side of the rectangle are distant from the main amenity spaces; i.e., dining may be a major outing from the far end for residents with mobility problems.

The location of the care centre may also pose problems being distant from the core areas of dining, lounge, and activity. Location of the bathing close to the care centre is handy. Both, however, would be better if closer to the daytime amenities.

A significant positive to this design would be the option to close off the daytime amenity area at night; in this case the care centre is ideally located for night-time supervision.

The layout of the ensuites is particularly useful for dementia residents and those with incontinence. The bed placement is such that it affords an immediate view through the doorway of the washroom to the toilet, which cues residents upon awakening. A night light illuminates the toilet at night.

The angled doorways facilitate visibility into the ensuites. These design features have dramatically reduced the use of incontinent products relative to other facilities, a design feature that nicely demonstrates the positive effect that design can have upon residents' wellbeing.

Highview

Highview Residences, London, Ontario, is the most remarkable facility I have visited in Ontario, and one of the most excellent designs I have come across. The architect is Cornerstone Architecture Inc. of London, Ontario, a firm that is quite active and innovative in the long term care field. Highview is a privately funded one storey home built in 2003 comprised of two twelve resident cottages within one building which provides secure residential care for individuals with early to mid stage Alzheimer Disease with a focus on providing a home-like environment. Residents are required to be mobile.

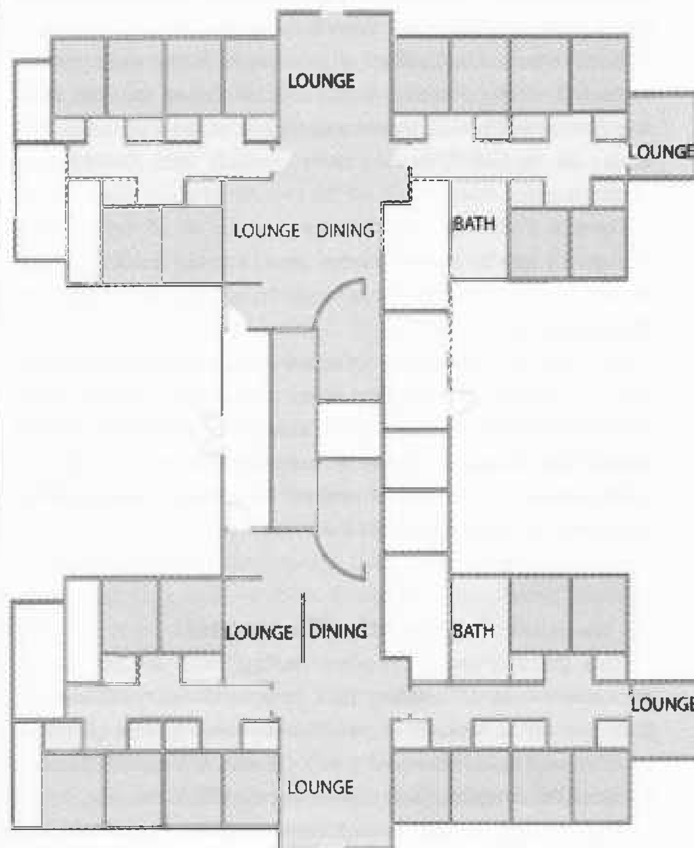
The facility meets all the criteria for an excellent dementia residence. Although this facility was not designed for the higher levels of medically frail and immobile complex care residents, at 13.75 square metres of exclusive space, resident rooms are wheelchair accessible, and exceed the Ontario LTCFDM.

Much of the functional program and design is based on Dr. Uriel Cohen's concepts. Each cottage is T shaped and when linked form an H shaped building. Each cottage is self-contained in dining, lounge, activity, bathing, laundry and kitchen. Each functions as a distinct home. All of the resident rooms are private. This is most suitable for dementia residents. Each cottage has 12 residents, is very home like, and self-contained. This is an ideal size for caring for dementia residents. The ensuites all have showers, however, the attractive glass block wall between the toilet and shower prevent wheelchair access from the side and impedes rotation. Nevertheless, the design works excellently for the mobile residents that it was designed for.

There are plenty of amenity areas, including the dining, family room, lounge, and sunrooms, providing 12 square metres per resident plus a porch. In addition to showers in each resident suite, there is a beautiful spa for those residents who do want a tub bath. Bright windows look out upon the garden from the spa which includes a grooming/hair salon. This is well located within the bedroom zone. The small scale of the cottages, 12 residents, and the private rooms all make for a very functional Home. The core amenities further divide each Home into two wings of 6 resident rooms. The corridors are thus quite short for both staff and residents. At the end of each wing is a screened sun room/porch as a destination and turn around area which affords lovely outdoor views.

The heart of each house is the fully functional kitchen where all meals are actually prepared. The two kitchens are joined through the pantry so that one chef can service both. Each home also has a laundry/utility room. The link between the cottages includes offices and a staff area. The overall effect is very homelike. This design could be easily modified to better accommodate wheelchairs by modestly increasing the room areas and widths, providing 44 inch doors, and modifying the ensuites for better toilet access. This would allow residents to age in place as they lose mobility.

Highview meets all of the BPDG criteria, with the exception of some limits to resident room and ensuite accessibility. The generous amenity areas offset this shortfall and provide a very spacious, light, and homelike living space. Highview demonstrates that best practice design is economically feasible in Ontario.



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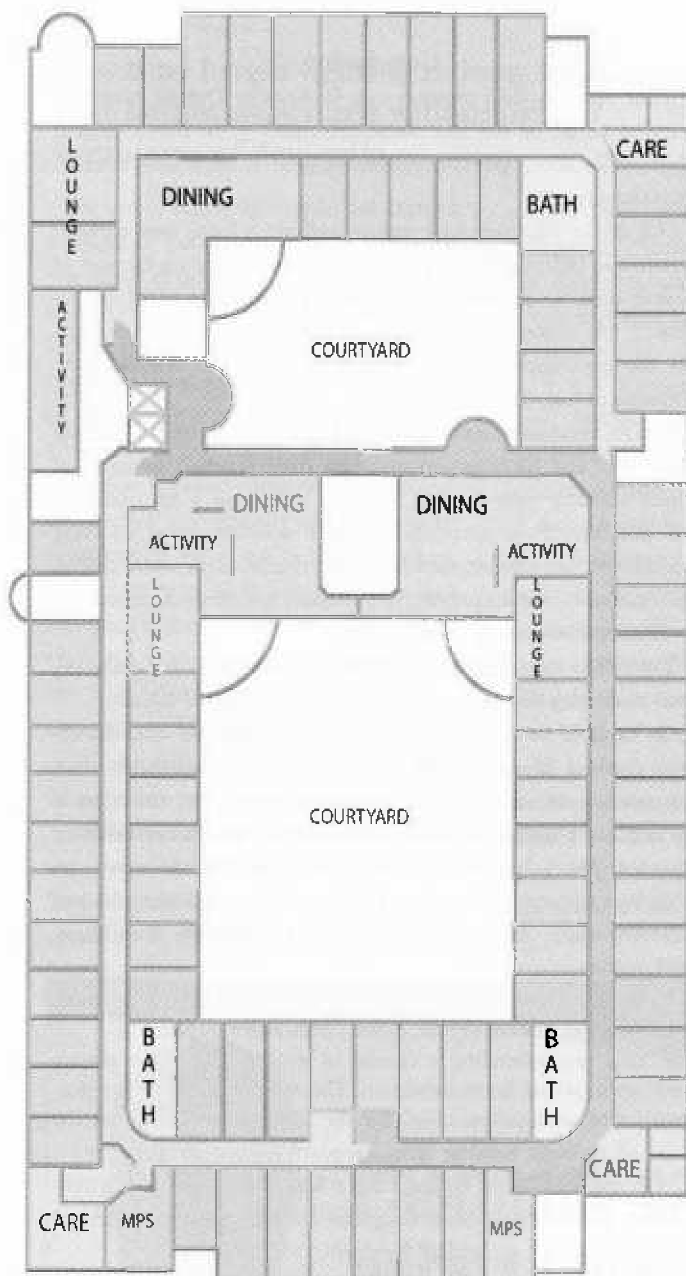

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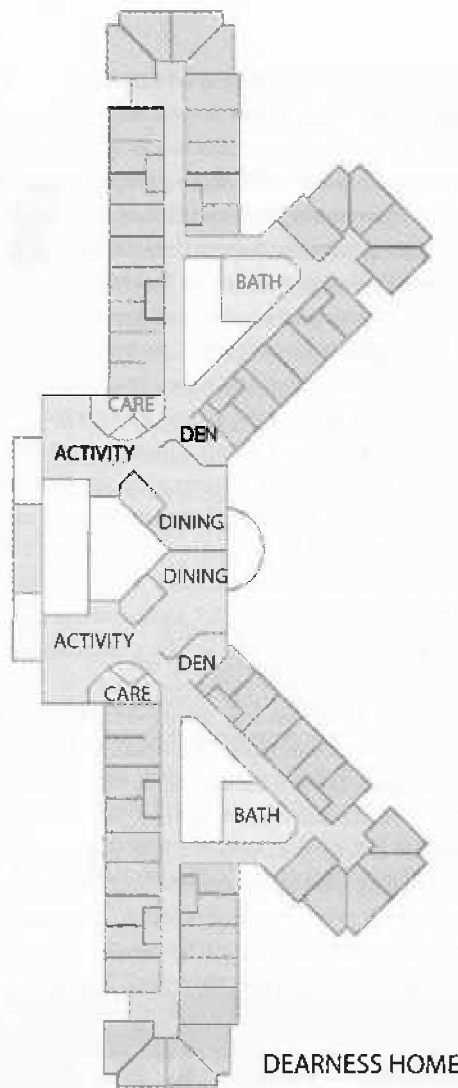
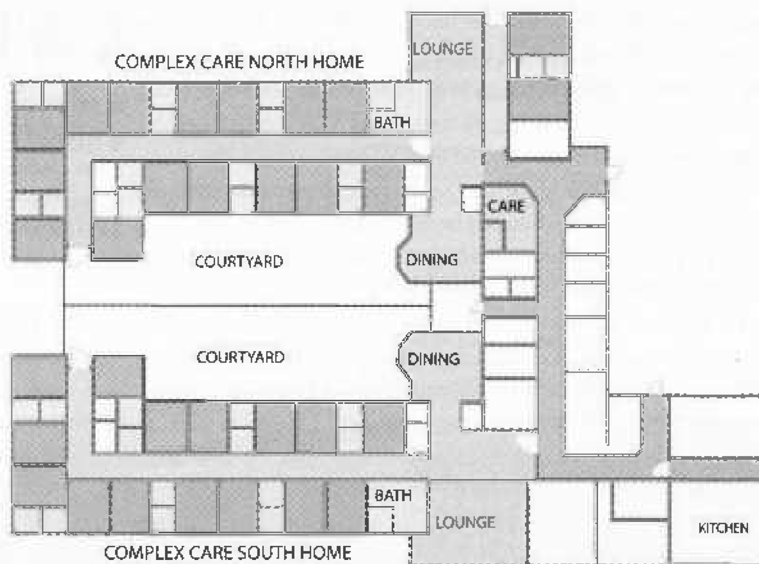


DEARNESS HOME

AYRE MANOR, SOOKE, BC



Ayre Manor

Built in 2008, Ayre Manor is a 57 unit facility comprised of 25 Assisted Living apartments and 32 Complex Care suites forming a community of care with 18 existing independent living cottages. It has been developed by the Sooke Elderly Citizens' Housing Society with financing arranged through the assistance of BC Housing.

The new facility is designed by Jensen Group Architects, one of BC's most experienced architectural firms in the Long Term Care field. The single story Complex Care building is divided into two Homes of 15 private resident rooms, each with their own ensuite. The two Homes are laid out around a courtyard. In addition there are two (2) respite/hospice beds adjacent to one of the Homes. The Homes are U shaped with amenity areas grouped near the entrance to each Home, and the resident bedrooms forming an L shape privacy zone. The courtyard is divided so that residents can loop through their own portion of the courtyard. Each resident room is fully wheelchair accessible with 18.3 square metres of exclusive space. This is achieved by pairing or stacking the ensuites between rooms so that there is no wasted panhandle space.

Ceiling lift tracks continue from over the bed right into the ensuite, each of which includes a European style shower. The ensuite doorway has a privacy curtain rather than a door, since ensuite doors are cumbersome for wheelchair users and often left open. Each home is fully self contained with good sized dining, lounge/activity, and assisted bathing rooms. Exit controls facilitate special grouping such as one home dedicated to dementia and one to frail elderly. The bathing room in each Home is located at the beginning of the resident room area so that privacy is preserved. With only 15 rooms per Home the corridor lengths are manageable in this semi-courtyard layout. The amenity areas are right-sized so that there is no sense of crowding, with a total of 7.8 square metres provided each resident. The corridors are quite accessible at 2438 mm (8 feet) with a special feature: acrovyn wall protection. The two dining rooms share a servery which is accessed from a service corridor. The dining rooms look out upon the Courtyard, while the Lounge/activity areas have views of the surroundings. Major staff support areas such as the Care Station are outside of the Homes so that paper work and confidential phone calls can be undertaken privately. The Support Wing includes Offices, Hair Salon, Exam/Treatment room, Central Storage, Soiled Utility, Housekeeping, Commercial Laundry, commercial Kitchen, storage and Staff Room.

One concern is that at the far end of each Home, two suites are around a corner of the U shaped layout, and out of the predominant line of sight, so may pose a problem for staff. CCTV cameras are installed at this corridor angle in each Home and can be monitored at the Central Care Station. The corridor dead ends unless the door is open for courtyard access, so again this could pose a problem for some, particularly those who perseverate when they wander. However, the Homes are small enough, with just 15 residents each, so that staff coverage should not be a problem. The two respite/hospice rooms are adjacent to the North Home and close to the Central Care Station to facilitate monitoring. Overall, this facility is an excellent model of the BPDG in practice.

Conclusion

Four recently-built complex care facilities in Ontario were reviewed based on the five basic principles of the *Best Practices Design Guideline*: privacy, small home units, accessibility, bathing, and functionality.

All of the facilities have merits and are a huge leap forward relative to older facilities. However, setting the cap on the size of house units at 32 beds in the 1998 Ontario LTCFDM has allowed the majority of facilities to opt for building house units to the maximum size for immediate economic benefit at the expense of long-term efficiencies.

Also, misconceptions stemming from the funding formula for preferred and basic accommodation have resulted in most of these recently built Ontario facilities providing a maximum of 60 percent private accommodation. In addition, most of these facilities do not provide showers in the ensuites, with repercussions for incontinence management, perineal care and infection control - as well as resident comfort and privacy.

The BPDG methodology is offered as a framework for analysing and evaluating design layouts for facilities across the country.

In fairness to those who developed the *Ontario LTC Facilities Designs Manual*, it must be said that the standards were intended to be used as a minimum guide, and that the Manual is seen as a living document, with part of an always evolving process. Many facilities have built to more than the minimum standard, particularly in terms of the size of the resident rooms and amenity space. An excellent example is Highview Residences of London.

In Ontario, and elsewhere, there is still disagreement over the optimum number of private rooms, with some experts in the field recommending a choice be available for both private and semi-private accommodation. The rational for the high proportion of semi-privates, and for the 32-bed upper limit on the size of resident housing areas, appears to be economic.

Operating budgets, staffing, and a high proportion of privately owned facilities have been suggested as concerns that influenced the selection of minimum standards.

More recently, the question of showers is being considered. Again, it is a matter of economics: i.e., staffing and the cost of installation and maintenance.

Hopefully, this analysis will stimulate the on-going evolution of facility design manuals, and will encourage fresh looks at facility design across the country.

About the author

Bill Benbow is a partner of Benbow and Baird Consulting Services, Victoria, British Columbia. Author contact information:
E-mail: <bpbenbow@hotmail.com>. Phone/Fax: (250) 478-7217.

Note: The author is willing to share his Best Practice Design Guideline, and welcomes feedback regarding facility design across the country.