Design for Senior Living

NOTES

The Aging Population
In 2010, 13% of the population of the United States was 65 years old or older. It expected that, by the year 2015, this amount will increase to 14.5%. By 2030, the number of people 65 years and older will grow to 19.7% of the population. The number of people 85 years and older will grow from 2% of the United States population in 2010 to 2.8% in 2030.

The huge increase in these figures is due largely because of the Baby Boomers (those born between 1946-1964) who crossed into this category in the year 2011. By the year 2030, all of the Baby Boomers will have moved into the ranks of the older population.
Between 2010 and 2050, the United States is projected to experience rapid growth in its older population. By 2050, the number of Americans aged 65 and older is projected to be 88.5 million, more than double its projected population of 40.2 million in 2010.

Dependency Ratios is another method of viewing the future trending population. These ratios are an indicator of the potential burden on those in the working-age population.
The total dependency ratio is projected to increase from 67 to 85 between the years 2010 and 2050, the result of a large increase in the old-age dependency ratio. The old-age dependency ratio anticipates a rapid increase between 2010 and 2030, from 22 to 35, as all the Baby Boomers move into the 65 years and over category. After 2030, the old-age dependency ratio continues to increase slightly to 37 by 2050.

Another aspect of the aging population is that of gender. Female life expectancy has long exceeded male life expectancy. The result is that women outnumber men in the older age groups. This trend is expected to continue over the next four

decades, although the gap will narrow eventually, due to the increasing life expectancy of men.

The United States Census Bureau data released in September 2007 showed that 7.4 of those individuals 75 years and older lived in nursing homes in 2006. This figure actually declined from the previous years, with 8.1% of this age group living in nursing homes in the year 2000.

Among the reasons for the decline are that the upper-income white population has other options, including moving into high end assisted living facilities or their well-off Baby Boomer children taking care of them. However, in light of the Great Recession beginning in December of 2007, Baby Boomers may not be able to continue this caretaking, considering the fact that

Boomers, among others, were quite hit hard in the economic crash. The decline in nursing home occupancy is also attributable to an increase in long term care policy ownership, which enables the elderly to remain in their homes with assistance for longer periods of time.

All these statistics point to great concerns about the number of elderly who will need care as they age and the type of living arrangements in which they will receive this care.

The average cost of care in a skilled nursing facility is almost $70,000 a year, with some facilities as high as $100,000 in urban areas. A vast majority may be paid for by Medicare and Medicaid program, as the average nursing home resident runs out of money within six months. In light of this and the fact that many seniors will not be able to afford assisted living facilities and do wish to stay home, community services will need to provide services, as well.

Nursing homes, assisted living facilities, group homes, elder foster care facilities, aging in place in existing or cluster housing, are options to consider. These options will be enhanced over time, as well, in order to meet future needs. Additionally, Alzheimer's and Dementia facilities and hospices are among types of housing for the advanced elderly suffering from varying types and degrees of memory loss.

There is no question that future models will develop to meet the growing challenge of living arrangements for both the current and the aging generations, which is now

more burdensome as a result of the economic recession, the effects of which will most likely last for years to come.

Long term care services and design interventions to age in place in order to avoid institutionalization will be among the many future solutions.

The State of the Art :The United States

In the United States, the prevalent concept of housing for the elderly is what is known as Continuing Care Retirement Communities, aka "CCRC's". These communities include:

1. Independent Living
2. Assisted Living
3. Skilled Nursing Care

   CCRC's integrate all three types of facilities, moving residents from independent living to assisted living when their activities of daily living, known as ADL skills, become impaired to the point where intervention is required. When medical care is required continually, then the resident is moved to the skilled nursing facility.

Typically, CCRC's have required an entry fee, plus monthly maintenance fees, in exchange for a living unit, meals, and health care coverage, up to the nursing home level. In recent years some communities have begun to offer their services on a month to month rental basis, with health care coverage being paid for at the time of need rather than on the basis of the coverage afforded by the traditional entry fee or "life care" endowment.

The types of Continuing Care Retirement Communities can be quite diverse, with facilities ranging from high-rise buildings to smaller, cottage-style buildings, as well as duplexes, townhouses, or clusters. At times, a single family house can be converted to a CCRC, although these would be quite small. CCRC's are located in rural, urban and suburban areas. Some may have extremely large campuses, while others are situated in urban areas with limited property and garden areas.

Some facilities have a small bed count, with as little as a few beds, to others which may house up to 1000 residents. Floor plans in a CCRC are varied from, as well, from a studio apartment to a one or two bedroom unit. Some facilities even provide for large three bedroom units, and larger. Most often, the units will have a small kitchenette for the resident's convenience.

Communities offer different services and programs, but will usually have a common dining room, an activity room, an exercise area which may be incorporated into the activity room, outdoor recreation and garden areas, and some may have swimming pools.

An essential part of any of these communities is the provision of nursing services for the residents if they require it. Contracts must meet certain guidelines established by each state to protect the consumer before they can be sold to the public. The services offered in each community and what the individual has to pay for them varies considerably from community to community. Nursing costs, for example, may only be covered for a short period of time or not at all in a certain community, but in another they may be covered for a year or more without extra charge. The costs of entrance fees to these types of communities can be as little as $10,000 and as much as $500,000. Some communities allow one to purchase an apartment in the community that can be left to heirs, but most only provide one with living accommodations as long as he/she resides in the community.

In addition to the entrance fee, there will usually be a monthly maintenance fee, which varies depending on the size of the unit and the community. These monthly fees can start at $2,000.00 a month. In the last decade or so, the U.S. has seen a tremendous increase in growth in almost every state. However, this sector serves less and less low-income residents since they do not typically accept Medicaid.

Those with assets and resources can afford to remain at an assisted living facility, while those who do not will often reside in substandard skilled nursing facilities which do accept government resources.

Furthermore, either due to state mandated or provider driven, many residents are forced out of their assisted living accommodations when they need more assistance financially. This limits their opportunity to age in place in their ALF.

In Europe, this does not occur. There is a distinct separation between housing and healthcare facilities. Rehabilitation, emergency assistance, and 24 hour skilled nursing care are available at home, with fewer Europeans residing in healthcare facilities.

Other options which may be utilized are those which consist of what is known as "aging in place". A variety of models that can be designed to allow an individual to age in place would include: Community-based homes
1. Foster homes
2. Supervised apartments
3. Private homes (resident's own home)
4. Shelters
5. Housing with live-in roommates
6. Host homes whereby the residents becomes part of the family (surrogate families)
7. Boarding houses
8. Shared homes
9. 10. Semi-supervised apartments (do not have live-in managers)
10. 11. Subsidized support programs

These options can support individuals of all ages and of all financial means. Ideally, a team of professionals, which would include a social worker, an occupational therapist, an architect, an interior designer, and a general contractor, can evaluate the individual and help to determine what type of housing would work and provide design intervention to allow the support of the individual. Staying in one's own home is, for the most part, the option of choice. Making changes to new living accommodation can be stressful and, if unwanted, can greatly affect emotional and physical health.

The State of the Art : Japan

Making modifications in the personal dwelling can greatly impact care and one's peace of mind. These improvements maximize mobility and independence within one's home, as well as can improve auditory, tactile, and visual senses.

Housing for the older population is varied throughout the world. In Japan, the current percentage of the population over 65 years old is 16%, with 50% of all healthcare dollars spent on this population.

Japan has been experiencing the aging of its society at an unprecedented rate…a rate which no other country in the world has experienced. Japan is under watch by all nations to see how it responds to the grave issues of an aged society.

Because the Japanese have traditionally held a strong sense of family, they have believed for centuries that the family should look after a family member. However, the burden of care giving has become so serious to many families that the situation has been called "care giving hell".   In those situations, the LTCI, Long-Term Care System, assists in releasing the families of the burden of caregiver, while maintaining the individual in the home and providing the necessary services as they are needed and as they develop and change.

The government provides preferential interest rates on universally designed homes that prevent institutionalization. Elders in Japan live longer lives with more disabilities and require more care, thus creating a demand for residential long-term choices which offer independence, personal growth, and support for activities, security, privacy and dignity.

The State of the Art : Sweden & Denmark

Sweden has the world's largest proportion of citizens over 65 years of age and of people over 80 years of age. For the most part, the older people of Sweden are in relatively good health and lead quite active lives. Almost 94% of these individuals still reside in their own homes. As per the Swedish Institute, Sweden invests almost 2.8% of its gross domestic product providing public care services for the elderly.

Sweden and Denmark have moved many health services to residential environments.
Sweden has been reducing the number of nursing home beds by approximately 900

per year. Existing nursing facilities are perceived as sub-acute facilities where only the most severely impaired patients are cared for. Throughout Europe, much of the care for the elderly is delivered in "sheltered -care" homes, which are typically much smaller than the assisted living facilities in the United States.

In Sweden, five to six individuals may live in their own small apartment grouped around a large living area and kitchen. Each apartment will have a bedroom and small kitchen. Couples will frequently have two bedrooms, which offers the possibility to hire live-in assistance when the need arises. Various mechanisms have been put in place, such as passive systems
to summon help if a toilet has not been flushed, or if the refrigerator door has been left open. Also, motorized windows sense rain and close automatically, and toilets have integrated rinse and dry features. Sinks also tilt forward to ease hair washing from a seated position.

In Denmark, which is considered the most advanced country in Europe in terms of social policies for the elderly, services are brought to people in their independent living units until they
can no longer stay in them. At that time, every attempt is made to find housing within the immediate neighborhood. Intergenerational housing is preferred, which integrates children and the elderly while maintaining privacy for the seniors.

The State of the Art : Holland

The Humanitas Bergweg Project, an assisted living facility in Rotterdam, Holland, was completed in 1996. The idea was to create a housing and service system that supported older people in a typical apartment unit. The original concept was an "Apartment for Life," which morphed into a multi-generational community of accessible housing complexes with apartments for up to 250 residents. The residents' ages ranged from 55 to 96 years of age. Some people were healthy and others were not. There were also about 25 younger individuals with development disabilities.

The intention of this project was to allow people to age in place and not be moved along the continuum of care, from independent to assisted living to skilled nursing facilities. The concept was truly "lifetime care without moving".

Children are able to stay overnight in the elder's apartment and develop long term friendships within the community. The project remains a tremendous success, changing the course of some individuals' lives, where they would have had to live in semi-private public rooms in nursing homes. At Humanitas Bergweg, the residents have had enriched lives, living well in 750 square feet units which are wheelchair accessible. Even those who are bedridden are able to live at Bergweg, where they can be bathed on a gurney in the privacy of their own bathroom.The apartments are constructed over an ambulatory healthcare facility. The facility offers skilled nursing services to approximately one-third of the population, assistance in the apartments to another one-third, and the remaining individuals live independently.

In essence, all medical and living services are offered at Bergweg, where no one goes without care. Each apartment overlooks an atrium whose glass roof provides year round protection from the elements, as well as natural light. The atrium, located on the second floor, has a stream which runs through it. There is plenty of natural foliage which contributes to the healing environment. Furthermore, Bergweg offers 20,000 square feet of shopping for anyone to use, dining, and healthcare services to the entire community, creating a truly integrated complex.

Humanitas Apartments for Life projects are becoming increasingly well known in Australia, as well as in other countries. Apartments for Life complexes may also include an ATM, a fitness centre, hairdresser, beauty salon, a physiotherapist, gardens, fish ponds, aviaries, an animal park, a reminiscence museum with everyday objects, pictures, sounds and scents from the last century to provide fun for young and old and especially for people with dementia, art and craft studios, and a multi-faith prayer/meditation center.

The State of the Art : England

Darwin Court in London, England is another lifetime care without moving complex, which also mixes people of diverse socio-economic levels, caters to a range of age groups, offers a diversity in services, and employs an innovative model of aging in place. It was London's first development devoted to the housing, employment, training, health and leisure needs of people of over 50 years of age. It has been recognized by the UK Housing Federation as one of the three

leading complexes in the United Kingdom which provides independent living for older people.

The Darwin Court development comprises 76 apartments known as "Lifetime Homes" on the first floor and above. Forty of these units are designated for supported housing for older individuals who require formal nursing care, while the remainder are for general needs. Apartments range in size, with 39 two-bedroom units that are wheelchair accessible.

Ten have accessible showers, as well. The apartments are designed to be easily adapted to meet the changing needs of the residents. Accessible showers can be installed when required, as well as the modification of kitchens to be wheelchair accessible. Some units are rented unfurnished, allowing individuals to bring all of their own belongings.

The facility provides a combination of living space, workspace, and shared facilities, including a community center, social care and health and fitness services. There is a community pool, an IT suite, and a multi-purpose room/dance studio for meetings and social events. The building also incorporates a communal roof terrace and balconies, and tenants are able to have pets live with them in their apartments, which is a unique and wonderful asset, as pets do provide comfort, friendship, and nurturing.

Extra Care Charitable Trust's ExtraCare Housing model is another life-long facility located in the United Kingdom and has been identified. It is a hybrid of residential aged care and independent housing. Older people can rent or purchase apartments that offer integrated services. Extra Care Charitable Trust's ExtraCare Housing model is another life-long facility located in the United Kingdom. It is a hybrid of residential aged care and independent housing. Older people can rent or purchase apartments that offer integrated services. ExtraCare currently has 30 villages and schemes completed or in progress throughout the United Kingdom. Each facility has up to 327 one and two bedroom apartments or bungalows. Villages include extensive social and leisure facilities, health and fitness centers, shops, restaurants, libraries, and arts and crafts studios.

The State of the Art : Hong Kong

As a final example, Cheerful Court in Hong Kong comprises 333 units in a mixed-use residential 24 storey high rise building, designed to accommodate aging in place. There are 254 one-bedroom units and 79 studios, incorporating specialized software and hardware elements to cover social services, as well as healthcare services.

Cheerful Court has many of the same features as the Dutch Apartments For Life buildings , with many of the buildings' facilities intended to be used by the community at large, including the restaurant, the ground floor, the shopping mall, the rehabilitation center, and the spa. Cheerful Court also houses a beauty salon, a library, community halls and meeting rooms, and an herbal medicine center. Landscaped gardens and sky terraces are provided and intended to be used by anyone who wishes.

The building has no corridors, with the elevator and stair cores separated into three clusters to optimize resident and staff participation and serviceability.

Built in response to an increased demand in Hong Kong for housing for older people who could age in place, the built environment is intended to provide strong linkages to the community for the integration of day services. There is an emphasis on retaining mobility and physical activity, with one floor housing the fitness room, swimming pool and hydrotherapy. Complete with Tai Chi and a putting green, Cheerful Court is a totally integrated facility of life time care living.

Innovative Communities in the United States: Silver Sage, Colorado:

Silver Sage Village , located in Boulder, Colorado, is deemed to be one of the most innovative communities for senior housing in the United States. It is considered a "cohousing" community, which means that it is a small-scale neighborhood that seeks to provide a balance between personal privacy and high levels of community engagement. Built on a one-acre site, Silver Sage consists of sixteen duplexes and attached homes, a community center and a common green with internal sidewalks and landscaping. Homes are clustered around a common green which creates a pedestrian-oriented neighborhood that encourages frequent interaction with neighbors.

Each home is entirely self-sufficient, complete with a kitchen, living area, bedrooms and baths, as well as outside decks, porches or sitting areas.

The Common House at Silver Sage is a 5,000 square foot space which was designed with residents input. It is owned by residents of the community, intending to be a comfortable extension of members' homes. Included in the Common House is a gourmet kitchen, dining room, living room, private guest room, crafts room, exercise room and a main floor for meditation and yoga.

Silver Sage has been identified as a leading community because of the following features:

- Mix of people from diverse socio economic levels
- Caters to a range of age groups
- Offers a diversity in service types
- Employs community engagement in the development process
- Designed to Age in Place
- Offers housing options for a particular population group
- Has undertaken conversions and/or changes of use of existing facilities
- Uses mixed financial funding bases
- Has demonstrable Environmentally Sustainable Design features
- Cohousing developments are designed, planned, and managed with a high degree of resident participation. Most major decisions are arrived at through a consensus decision-making process and residents often prepare common meals together in the kitchen of the Common House. These meals appeal to those with busy lives and most residents choose to participate.

  The service model of Silver Sage is built on the belief that holistic health and wellness significantly contribute to quality of life. Residents of Silver Sage aim to promote wellness within the community in areas including exercise groups designed to encourage participation at a variety of activity levels, fitness rooms and walking and hiking excursions.

The community combines the privacy of one's owning his/her own home with the luxury of a shared community center, with the follow vision and values:

- To nourish body and soul with good food, good health, and good company.
- To live mindfully in community, encouraging wisdom, compassion and interpersonal growth.
- To experience stylish, thoughtfully designed interior living.
- To share inviting outdoor spaces such as gardens, courtyards, decks, patios and views of the Flatirons.
- To enjoy North Boulder's urban options, including hiking and biking, cafes and public transportation.

Community members have discussed different ways that home health care providers might work with the community, with options including a Danish model where a professional caregiver works from the Common House and begins with serving the needs of one resident and over time ends up serving the needs of four to five residents simultaneously. Caregivers can also be accommodated in the larger homes at Silver Sage which are built using a suite **design.**

The village envisions that eventually they will become their own agent for home health care. Noting the skills of community members, the idea is that a resident could one day fill the role of the caregiver, keeping it 'in the family'. With cost reduction in mind, the village would also like to acquire its own group plan for long-term care insurance.

More Innovative Communities in the United States:

The Burbank Senior Artists Colony, with partial funding from the City of Burbank's Redevelopment Agency, opened in April 2005 as an "intentional community" centered on the creative life. The project's goal is to provide affordable senior housing which promotes lifelong learning and artistic expression. For people 55 years of age and older, there are the 141 units, 30% are dedicated to affordable housing, and residents are given opportunities to work in a number of creative groups, such as the Artist's Colony independent film company, theatre group, fine arts collective and internal cable TV station.

The project is a four and five storey structure with semi-subterranean parking for 113 cars and consists of 113 one –bedroom units, 80 two-bedroom units. Features include a performance theater with a stage and upright piano, resident resource

center, creative art studios, business center, conference center, heated swimming pool with a sun deck and outdoor courtyards with fireplace and fountain features.

Moldaw Family Residences in California is the senior living community at Taube Koret Campus for Jewish Life in Palo Alto. Opened in 2009, its intention was to foster opportunities for older adults to engage with people of all ages, as they participate in activities on the campus. The concept is for all residents to "remain enthusiastically active" and to create a place where "everyone can learn, study, and grow".

The Ashbury Methodist Village in Maryland was founded in 1926 and has a strong focus on wellbeing in later life. The campus consists of 74 villas, more than 700 apartments, 133 assisted living suites, and 285 licensed nursing care accommodations on 130 acres. The goal is to keep residents independent for as long as possible, but when extra support is needed, there is an accredited assisted living program available. Each floor is built on a neighborhood concept with dining and activity space, with suites ranging from 400 to 600 square feet.

Designing for the Aging Population : The Need for Beauty:

The design on of any environment must consider the aesthetic impression, as well as elements and features which foster optimal functioning and response within and to that environment. In designing senior living facilities, the interior design must aptly address these issues from many perspectives and with a keen sensibility.

There is no doubt that the first impression of a facility, whether it is an independent living facility, an ALF, a skilled nursing home, or an innovative cohousing project as discussed in the previous slides, is of paramount importance.

Humans have a visceral response to the beauty or "prettiness" of a physical space, whether it is an outdoor space or an interior space.

Residents and their families will base many decisions about the facility on its aesthetics, including the quality of care provided. It is for these reasons that the interior designer must be acutely aware of the importance of the aesthetics, as well as all aspects of the physical structure, and their effects on one's overall perception and opinion of the facility.

Most individuals looking for a home for their parents or family members will respond to a facilities curb appeal, initially. Upon entering the facility, they will then focus on the physical impression. If that is satisfying at first glance, they will typically proceed to inquire of the care, treatment, activities, cost structure of the unit, and other pertinent information relating to their loved one's life at the facility.

It is important also that the physical impression be carried throughout the facility, far beyond the lobby and reception areas. If it is not, then most individuals will not remain impressed with a facility, even if the care and treatment is considered to of a high quality. In short, the first impression must be the true impression and be consistent in all physical areas, and in all aspects of care and treatment.

The subject of beauty and the reasons people need beauty in their lives is very intriguing. Generally speaking, most individuals will agree on landscapes which are beautiful. The same holds true for physical beauty, whether it is a physical place or another person or even an animal. Studies shed some light on the subject and help us, as designers, understand why the beauty of facilities is so compelling….and even more so when it comes to design for senior living.

Beauty is what attracts us to someone or to something. Mating for all species requires an attraction, and beauty, among odor and other elements, creates the attraction. Survival of all species depends ultimately on attraction. Seeing beauty brings us pleasure, and makes us, as well as other species of life, happy.

Interior Designers create beauty, as well as design spaces which address other key aspects of the human response to the built environment.

Beauty, as it relates to the design of living facilities for seniors as they age, can certainly impact one's perceived happiness and overall satisfaction, among other key elements. Beauty alone

will not create satisfaction if other elements of an environment are missing, but it does play a significant role in enabling one to be engaged and stay within one's environment.

Seniors who suffer cognitive impairment, however, have difficulty visualizing what they cannot physically see. Cognitive mapping is not easy for these individuals and, therefore, placing key elements of their environments, while not attractive, in view at all times, may be a necessity which designers must keep in mind.

Designing for the Aging Population : The Need for "Home"

Another key component of overall perceived satisfaction with one's living arrangements and, therefore, with one's life, is that of feeling at "home".

Ronald L. Reed, Katharine Leigh and Kenneth Tremblay, Jr. in a study of three assisted living facilities in northern Colorado, entitled "Designing Assisted Living Facilities to Foster a Sense of Home", discuss at great length the concept of creating "home" in senior care facilities. Questions regarding what items and elements help to create a feeling of "home", as well as what "homelike" actually embodies are studied. Through the research conducted, they learned that "home-like" embodies many things: such as:

- Ideals of family
- Familiarity
- Choice
- Independence
- Memories

These results demonstrate the importance of making appropriate environmental selections in the design of senior living environments. The findings of this study showed that homelike qualities included carpet, paint, fabric drapery, upholstered furniture, incandescent lighting, fabric floral patterns, wood doors, photographs, and light color palettes. Quantitative data uncovered four major themes as indicators for the selection of favorite items and individual concepts of home:

- Personal Memories
- Socialization
- Physical Environment
- Autonomy

It is important that the physical characteristics of the space invite environmental connections between the resident's previous home and the new environment. Also,

from several studies conducted in the mid-1990's, it was discovered that many residents, when offered more autonomy and choice, had a decrease in health complications than those in facilities where choices were less frequent.

Psychological Factors & Design for Senior Living:

The designer must first be aware of the various psychological factors which influence the senior resident's reaction to and engagement with his/her environment.

Among the psychological factors are:

- Loss
- Depression
- Sense of Control
- Fear of Abandonment
- Sensory Deprivation
- Independence
- Dementia
- Attempting to "Go Home"
- Fear of Falling
- Fear of Becoming Fatally Ill

Loss:
The elderly experience loss in many ways, including the death of loved ones, removal from the family home, sensory deficits, failing health, loss of mobility and/or independence. Feelings of loss can be amplified if one reaches an advanced age and witnesses the death or demise of most of his/her friends and family members. There is often a feeling that they are the only one left, and this perception heightens one's feelings of isolation, especially if he/she insists on remaining in the family home. Family intervention is often needed in order to facilitate a move to a congregate facility.

Depression:

The overwhelming changes of life can make anyone depressed at times. As these changes become more extensive, effecting one's independence, health, living situation   and financial concerns, depression will worsen, as well. Being depressed hurts. It is stressful and debilitating, which, in turn, furthers the depressive condition. Stress will worsen existing physical conditions and illnesses, and can cause others. It can exacerbate wandering behavior and inhibit memory recall. The elderly are extremely vulnerable to stressors, and a major goal of environmental design is to minimize additional stressors for residents.

Sense of Control:

We seek to have control over our lives and our environments.   Being in control helps to alleviate stress and nurture independence. Ensuring that a sense of control is intact is another key psychological factor to bear in mind when designing facilities for senior   living.

Predictability and routine also affect one's feeling that he/she is in control of "things". The ability to make decisions and have choices, no matter how small or large these may be, also plays into one's sense of control. We, as designers, must design an environment which fosters a resident's feelings of independence, choice, and a sense of control. Studies have indicated that taking a sense of control away from someone has a debilitating affect on them, physically and emotionally.

Fear of Abandonment, Loneliness, and Isolation:

There is no question that, depending on one's mindset, moving from one's loved home to a senior living environment can evoke a multitude of emotions, all of which add to one's stress levels. Fear of being "left" by one's family, and losing or not being near close friends can enhance feelings of isolations, loneliness, and abandonment. Making new friends can seem daunting. While some individuals do look forward to the social experiences of living with others, more frequently it is a difficult process to go through. The environment must speak to these issues, and provide comfort, engagement, fun, excitement, and ultimately, joy.

Boredom and Sensory Deprivation:

There is nothing worse than being bored or not stimulated . Sensory deprivation is actually used as a form of punishment and torture. Residents in senior facilities can feel that they are being punished and abused in an environment which lacks stimulation. The lack of stimulation and sensory deprivation can cause confusion, hallucinations, and depression. It is unhealthy, both physically and psychologically. Designers need to create environments for this population which are stimulating, encourage socialization, are fun and interesting from a multi-sensory perspective.

Independence:

Regardless of age, many seniors continue to value their independence. If they need   help, they will let their caretakers know. The environmental design can facilitate independence, with creative insight into how the space is perceived and the careful design and selection of materials.

Those with dementia, which is a group of symptoms that includes memory loss, confusion, impaired judgment and reduced capacity to reason, may result in behavior changes, which hinder one's ADL skills (Activities for Daily Living).

Alzheimer's disease is a serious progressive and degenerative. Wandering behavior can be prevalent with continued attempts to "go home", thus returning to a previous state of comfort and stability. Again, interior design can effectively manipulate the environment to control this behavior and direct it towards more positive activities.

Pre-Occupation with Falling: Fear of Falling:

A major concern of elders, and rightfully so, is a fear of falling. Many people have had   friends and family fall in their later years, and, as a result of the fall, they have hurt themselves badly. Typically, a fall will result in a broken hip, an injury that can not only incapacitate an older person, but may result in death due to complications.

Balance problems are typically the reason for a deep concern of falling. Designers must be cognizant of diminishing these concerns, rather than enhancing these issues because of inappropriate selections materials, such as carpet or the lack of sufficient handrails in certain areas.

Carpet that is heavily patterned has too much visual activity and may not be the best choice. A less visual active carpet may be preferred and more easily navigated.

Handrails that resemble chair rail are available, providing both the necessary aesthetic, as well as the ability to stabilize oneself while walking, thus diminishing the fear of falling.

Certain design principles have been established as guidelines in the

design of senior housing, including independent living and assisted living facilities, as well as skilled nursing homes, depending on thelevel and extent of care needed by the resident.

Pynoos and Regnier listed the following criteria for consideration when designing housing for older adults.

- **Privacy:**

- Privacy allows for each individual to seek seclusion and separation as needed. Residents may desire to be left alone or to be alone at times and not involved in social activities. Others enjoy watching people. While it may appear that they are by themselves, they are actually socializing in their own way, from a distance, rather than in the midst of the activity. An environment which respects one's need for privacy is paramount, as this will facilitate socialization on one's "own terms".

- **Social Interaction:**

  The environment should provide residents with the opportunity to develop friendships and engage in recreational activities, when the resident desires.

- **Orientation and Way Finding:**

Clear way finding in any environment is critical, especially as one ages, in order to limit confusion, disorientation, and fear. The ability to navigate one's environment will promote independence , comfort, and level of satisfaction. Color can be utilized as an environmental cue in effective and creative ways, subtly influencing one's ability to get around without the worry of getting lost and not finding their way "home", to their individual apartment.

- **Control, Choice, and Autonomy:**

  It is imperative that residents are given a choice over their activities, their private unit or apartment, their meals, and other aspects of their environment. Freedom and independence are key cherished values to residents, and the design of the interior can encourage the retention of autonomy for as long as possible through the use of:

- Universally designed door & cabinet hardware

- Safety and accessibility features

- Bathroom support bars, shower seats, hand-held shower heads, universally designed plumbing fixtures

- Intermittent seating and resting points throughout corridors

- Concise signage with repetitive cues to assist way finding

- **Safety and Security:**

  With advanced aged, comes an awareness of one's vulnerability. Suspicions about other people and their motivation grows. One's knowledge of their inability to defend themselves also mounts, as one grows older. Accessibility and easy of mobility and functioning within one's environment, both in the public areas and within one's own apartment, are extremely important. Environments which address these issues will be comforting and calming to the resident, allowing her/him to enjoy their surroundings more easily and more fully.

- **Stimulation and Challenge:**

  The environment can be engaging through the use of color, visual pattern and texture, and spatial variety. All senses should be stimulated including olfactory. Fragrant flowers in therapeutic gardens can bring joy to residents' lives. Gardening itself is a therapeutic activity, and one which can be engaged in alone or with others.

- **Familiarity:**

  Using references from one's past helps to generate memories of people, places, and things that are familiar. Artwork and accessories can help facilitate this process, adding familiarity while providing memory stimulation and enjoyment.

- **Aesthetics, Appearance, and Personalization:**

The environment must be pleasing to the eye with a home-like appearance. It is important to avoid an institutional appearance. Uniformity in furnishings is counter to the concept of individuality and creating a homelike feeling. The more the resident is able to bring from his/her previous home, the more the resident will relate to it as "home" and be happier living there.

- **Adaptability:**

  Ensuring that the environment will accommodate changes that occur in a resident's physical and mental state is a key element, also. Moving into a senior living facility can be traumatic, with concerns as to one's ability to maintain his/her status and not have to move again.

Significant Design Elements for Senior Living:

Lighting : Lighting is one of the most significant aspects of the designed environment for all of us, especially the elderly. Indoor illumination plays a vital role in regulating biochemical processes, including cardiovascular regulation and immunological competency.

Adequate illumination is vital for feelings of safety within the environment, as well. The ability to see clearly as one navigates throughout one's spaces is vital.   Proper illumination can decrease the risk of falling and increase visual performance, and mobility.

Therefore, enhanced lighting should be located where falls are most common, such as a the tops of stairs, at changes in flooring, next to the resident's bed and on the way to the bathroom. Additional lighting should also be located in the resident corridors. Also, wall lighting at the entrance of each apartment, to light the entire door area and door lock, should also be utilized.

There are several visual changes that happen as one ages. One of the most common is that the pupil of the eye becomes rigid and loses the ability to constrict and dilate easily, creating a need for higher light levels. This can result in sensitivity to glare.

Other changes include the thickening of the lens and various diseases which can effect the clarity of vision. The elderly require 3.5 times the contrast to see as well as a twenty to thirty year old person.

 Other problems affecting visual comfort are due to windows and light fixtures that lack adequate shielding. Low brightness fixtures are extremely important in senior facilities. A minimum visual comfort probability, VCP, rating of 70 or better generally assures comfort with respect to shielding and should be employed.

Most issues relating to proper lighting in senior living facilities can be addressed in several ways:

- Careful evaluation of the quantity and type of fixtures specified

- Hidden light sources to reduce glare

- Use of up-lighting and lighter tones on upper walls and ceilings to maximize light reflectance

- Avoiding high gloss surfaces to minimize glare and risk of falls

- Avoiding the use of dark colors on window walls to reduce glare

- Use sheer draperies or sunshades to diffuse glare while allowing natural light to come inside

- Use under cabinet lighting to illuminate both work surfaces and flooring, especially at night

Significant Design Elements for Senior Living:

Color:

From a physics standpoint, color is a wavelength of light that an object either generates or reflects. We humans perceive visible light in the wavelength region from approximately 380 nanometers, the violet color, to 780 nanometers, which is the color we perceive as red. Color, simply put, is the visible portion of light energy that we are able to see. Color, however, goes beyond its physics and, as a major component of any environment, can be viewed as a tool to be utilized in a preventive and interactive capacity when designing senior living facilities. It is well recognized that color elicits an emotional response by all animals, humans included. Color symbolism demonstrates colors as able to evoke feelings of sadness, anger, love, passion, authority, stability, sweetness, sympathy, and feelings of home. While color can be very personal, studies indicate that there are universal associations to color which all humans have, regardless of race, age, gender, or age.

Studies about the physiological and psychological responses to color continue to point to the power of color in our lives. There is no question that color arouses our emotions, stimulates our desires, and has always been a symbolic element in all aspects of our lives. Ancient healers associated color with mysticism and magic, and realized the palliative aspects of color, as well. According to Frank Mahnke in ***Color -Communication in Architectural Space***, 2007, "color is much more than an aesthetic statement: it is part of a life-giving and life-preserving process. 'Simply put, color speaks to us emotionally …it is a language where no words are necessary'."

The research on color and its effects on human emotions, psychology, and physiology are fascinating and extensive, and may shed some light on the use of color in the built environment for reasons others than aesthetics.

Studies conducted over the years have illustrated the biological importance of color , as well as its arousal value. These studies have noted the importance of color and its effects on motor skills, one's sense of balance, and neurological functioning, among others. For instance, in some studies conducted in the 1970's, people with seizure disorders and others with certain neurological diseases lost their equilibrium or were more apt to serious seizures when wearing red.

In continued studies over the past few decades, it was noted that a large variety of differential motor reactions were displayed by patients under the respective effects of red and green lights. Movements executed with the same intention were performed much more exactly in green rather than in red light. Handwriting, for example, was closer to normal with green ink than with red.

Investigators have noted that color seems to effect blood pressure and respiration, which increased during one's exposure to red light, yet decreased when exposed to blue illumination. Red light has been said to reduce the pain of arthritis, rheumatoid and other variations.

The literature is complete with color studies attempting to clarify, verify and substantiate the biologic responses to color. The controversy continues in color research as to whether there are, in fact, biologic responses to color. Some doubt that the visible spectrum, which is color, elicits anything more than an emotional response based on past experience, cultural conditioning, or association with trends and the color that is favored at the moment.

However, anecdotal evidence has demonstrated that color can effect one's mood, one's perception of enjoyment of a space, and one's ability to concentrate. Color can also set or create a mood and influence the level of social interaction and the activities within the environment. In designing senior facilities, it is necessary that the designer make color selections which are not based on personal preference, but rather on the color studies

available and the evidence which has been accumulated over the last several decades on this subject.

Color : Guidelines for Use

- Use color contrast as appropriate to emphasize or diminish areas or objects as intended. The elderly need higher contrast and more saturated color. Pastel tones may not always be visible.

- Be aware of the laws of perception with regard to color, such as simultaneous contrast and afterimages. Looking at a specific color produces an afterimage of its complementary color.

- Take into consideration the symbolic associations with color, including cultural taboos, biases and various nationalities of the resident population, which may be relevant in selecting colors.

- Consider regional variations with regard to color preferences. A facility located in Florida would most likely have a lighter and "sunnier" color palette, than a facility in the north, where darker colors may be preferred. Consider the research of color associations and intensities as it relates to the aging population, as well.

- Use color psychology to stimulate appetites. Often, the elderly lose their desire for food or for eating the amounts they used to eat when younger. Their calorie requirements are not the same, which accounts for this decrease in appetite. The designer can subtly influence this with vibrant and "appetizing" colors in the dining hall. Rich mango colors, greens, and reds and yellows will make food appear more appetizing.

- Neutral tones in resident living spaces allow for personalization while providing color through accessories, accent walls, flooring details, tile, window treatments and bedding, and the like.

- Consider the effect of lighting on color as follows:

- Daylight is the most balanced type of white light because sunlight reflects each hue in the spectrum equally.
  The CRI, called the Color Rendering Index, is a measurement of how well

colors are rendered by artificial light sources measured against natural sunlight, which has a CRI of 100.

- High CRI lamps provide illumination that affects the color of objects in the same way that natural light does. Full-spectrum light sources have CRI's of over 90, cool white is about 68, warm white is 56, and some others are below 50.

  Other considerations in illumination are that daylight changes throughout the course of the day, changing the angle of the natural light, which, in turn, changes its quality and, ultimately, the way it is perceived.

- Color temperature, also known as Kelvin, was devised to describe the color of light emitted by a natural source and refers to the temperature in degrees Kelvin. This is the temperature at which a black body would have to be heated to match the perceived color of the light source.

- Color temperature applies only to natural sources of light, such as the sun, sky, and incandescent metal sources. When referring to light sources such as fluorescent and mercury, the proper term is correlated color temperature. Daylight fluorescent is 6500 degrees Kelvin and will cast a cooler, bluer light. Full spectrum artificial light can simulate natural day light for interior spaces with no or limited fenestration.

  Studies have demonstrated that light with a higher level of illumination intensity and which deviated from natural light, produced stress-level amounts of ATCH and cortisol, which is a stress hormone.

- Use color to signal hazards and warn of danger.

- Red and Yellows seem to foster socialization and to stimulate the environment.
- Greens and blues appear to be calming and foster the ability to concentrate better.
- Warm colors seem to make time go by faster. In a cool environment, time feels as though it has slowed down.

- To prepare one for the color of a room they are about to enter, the entry should be painted a complementary color.
- A light object appears larger against a dark background, and a dark object appears smaller against a light background.
- A window wall and frame should be light in color so as not to contrast too much with daylight sky. High contrast can result in headaches and eyestrain.
- The wall opposite a window should generally be kept light, or it will absorb much of the daylight.

Designing for the Aging Population : Apartment Layouts in Assisted Living Facilities

The layout of the private residences within assisted living facilities is variable, with a multitude of facilities offering one or two bedroom units. Most are available with kitchenettes, while others do not offer in-resident cooking capability, and the resident must utilize the dining facilities, although this is not typical. All bathrooms must be ADA accessible, as well as the kitchenettes, if offered in the unit. Closets are to be designed with appropriate reach and according to ADA guidelines. Also, a resident may be wheelchair bound or depend on the use of a walker, so accessibility and ergonomics are essential considerations.

It would be best if each bedroom had enough space for a lounge chair or, at a minimum, a small chair for one to sit on when putting on shoes and perform other ADL's from a seated position.

Kitchenettes must also be designed to offer easy access for cooking at the cook top and at the oven.

Furnishings:

Furniture is selected not only to create a beautiful, comfortable, homelike environment, but also to support the physical changes that accompany the aging process.

The designer should analyze all aspects of the furniture specified for both the public and private areas, including the resident's bedroom.

Facilities may provide all or some of the furniture, or they may have a set amount of rooms that are available furnished. For resident rooms, a headboard that has a residential feeling is all-too important. Nightstands should be selected with both height and reach in mind.

It is essential that the resident not strain when reaching for a glass of water and medication on the nightstand. If their reach is either too low or too far, the resident may fall out of bed. Having the nightstand higher is better, although a nightstand that is too high can pose a problem, too. Keeping ergonomics in mind will guide the designer to make appropriate furniture selections.

Homelike furniture is important, and many manufacturers design bedroom and living room furniture which have a residential ambiance, while maintaining the features and durability required for a high use facility and the elderly.

Lounge seating should have seat heights of 20" with lower arms for ease of mobility into and out of the chair or loveseat. Cushions need to be firm, and the seat depth should be shorter than a residential sofa, since it is difficult for the elderly to get out of a deep and very soft seat.

Loveseats in lieu of three- seat sofas are preferred, since residents may enjoy private conversations with friends. Also, since residents may not want to sit with people they don't know, a sofa will typically waste a the middle seat. The residents may need to use the arm to "push off" from a seated position, as well. Therefore, a loveseat which accommodates two people will give each person an arm to push off from.

Additionally, cushions can be upholstered with fabrics such as Crypton, Nanotex or those with moisture barriers on the underside, such as Gortex, to prevent spills or urine from penetrating the foam.
These finishes can be applied to a variety of types of fabrics, including velvet, jacquard, woven, ultrasuede, chenille, and even leather, eliminating

the need to use vinyl fabrics or laminating fabrics as was necessary decades ago. All fabrics should be considered for their clean-ability, stain resistance, anti-microbial factors, and moisture resistant capabilities. Field replacement cushion covers, typically with Velcro, will make for easy reupholstering. Many manufacturers of healthcare seating offer this type of cushion cover option.

Furniture for senior living is available in a variety of styles, from contemporary to traditional, making the transition from home easier. In dining rooms, the chairs should have arms for supporting the resident as they maneuver both into and out of the seat. Also, they should be light enough for a resident to easily move, while being solid enough for sturdiness. Casters on the two front legs assist in making the chair easy to move. Seat heights should be at minimum 19", with a height of 20" preferred.

Dining tables should have rounded edges to prevent injuries and be sturdy, as one may lean on them for support while getting into the chair. A wood or vinyl bull nose edge can be specified for safety. For café areas, parlor bases can be specified, but always consider the correct proportions of the table top and the base size for stability. Typically, seating for two or four residents will allow for conversations. When laying out dining tables, designers need to be cognizant of visual and auditory clarity during conversations.

Designing for the Aging Population: Flooring

One of the most important elements in the interior design of senior living facilities is the floor plane. Many seniors have balance issues, and, therefore, suffer from a pronounced fear of falling. Also, many residents use assistive devices for ambulation, such as a cane or a walker. Some may be wheelchair bound, as well. Therefore, a smooth and easily navigated floor plane is imperative to not only ease the residents' minds, but also to ensure that their maximum safety is ensured.

The following guidelines may be utilized with regard to the design and specification of flooring materials:

• Area rugs should be recessed if the facility is new construction. Area rugs which are set on top of the main flooring pose a tripping hazard.

- The flooring should be as uniform as possible, with pattern along the outside border. If inside the border, the pattern should not have too much movement, which can make one feel uneasy or trigger vertigo. Patterns with considerable movement, such as swirls, stripes, or abstractions that are visually active, may be disconcerting to the resident and cause vertigo.

- Wood flooring provides a home-like ambiance. A wood looking vinyl, either in plank form or as sheet goods, is a good choice to obtain both the design intent, the durability, the clean-ability, as well as for ease of mobility. Acrylic impregnated natural wood flooring offers additional protection against scratches and moisture or urine penetration.

- Wood flooring provides a home-like ambiance. A wood looking vinyl, either in plank form or as sheeting, is a good choice to use to achieve the design intent and ensure durability, clean-ability, as ease of mobility.

  Acrylic impregnated natural wood flooring offers additional protection against scratches and moisture or urine penetration than wood flooring that is not treated with acrylic.

- Ceramic or porcelain tile are appropriate in large size format, if possible, as too many grout lines can make for difficulty in navigation with canes, walkers, or in a wheelchair. However, tile, especially porcelain, is durable and easy to clean. On the other hand, in northern locations, it can be cold both in ambiance and to the touch. Wood, on the other hand, is comfortable under foot in cold climates.

- Vinyl sheeting is another option available in patterns other than wood tone. Some of the new textures simulate subtlety patterned or tweed carpet and can offer a residential ambience with the benefits of a commercial vinyl flooring.

- Carpet is a warm surface that can be reminiscent of "home". Broadloom carpet that is low pile, loop, or a combination of cut and loop, is suitable in corridors, public areas, and in private residences within the senior living facility.

- Solid colors, or patterns that are subtle and do not have too much movement are appropriate.

- Borders along the corridor walls can help in way finding and navigation, particularly for individuals suffering from dementia or Alzheimers. Border help to keep individuals centered in their path.

- Color cueing the environment can be helpful as a mechanism of recognition in a facility that is extremely uniform, has multiple floors, or a floor plan that has many twists and turns.

- Borders of a different color for each floor serve the purpose of providing vibrancy to the interior, as well as with way finding and memory jogging.

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Designing for the Aging Population : Bathroom Design

- **Grab bars**:

  Grab bars are essential in bathrooms for seniors. People with reduced strength may prefer grab bars on both sides of the toilet. Grab bars, sinks, and towel bars

  must withstand tremendous force (250 lb./sq. st.). All grab bars and towel bars should be installed with blocking in the walls for this reason. Beautiful grab bars in a variety of lovely finishes are available from many manufacturers and do not have an institutional look. This helps in making the residents' units appear more residential and appealing.

  Individuals in wheelchairs or who use walkers require one side clear for the approach to the toilet. Generally, to accommodate most needs, grab bars should be behind the toilet and on both sides of the toilet. Grab bars may be mounted with any desired method, as long as they have a gripping surface.

They should be mounted at the required heights and not obstruct the required clear floor area.

Back Wall:

A 36" minimum length grab bar, mounted 33"-36" above the finish floor, is required behind the water closet. The grab bar must extend at least 12" from the centerline of the water closet toward the side wall and at least 24" from the centerline of the water closet toward the open side.

A 42" minimum length grab bar is required on the side wall, spaced a maximum of 12" from the back wall and extending a minimum of 54" from the back wall at a height of 33"-36". The toilet paper dispenser shall be mounted below the grab bar at a minimum height of 19". The height of the toilet seat shall be 17"-19" above the finished floor.

Toilets:

Toilet should be elongated with a height to meet the ADA requirement of 16 ½" to 18". The toilet seat should not spring to return to a lifted position, but remain up independently when raised. The clearance below a wall-mounted toilet provides extra floor space for wheelchair footrests. The flush valve lever should be on the wheelchair approach side. The toilet should be easy to flush with a trip lever. A top flush mechanism may be difficult to reach from a wheelchair position, or the elderly may not have the necessary hand strength required to flush the toilet.

The flush mechanism should require no more than 5 pounds of force to operate. ADA height toilet design has improved greatly and offers a residential ambiance, while meeting the requirements of "aging in place" and comfort.

Bathtubs:

Bathtubs in senior facilities can be challenging for the user. Walk-in or roll-in showers are preferred. However, if tubs are installed, then ADA compliant tubs are available. In general, the guidelines state that there should be a clear floor space in front of the bathtub. The size of this area depends on

the location of the seat and the approach to the seat. Also, the ADA Accessibility Guidelines state the measurements required for the seat. The seat width must be 15 inches by the full width of the bathtub. The guidelines also state that a seat, either an in-tub or one located at the head of the bathtub must be provided. These seats must mount securely and must not slip when used.

If the seat is located in the bathtub and the approach is parallel to the bathtub, the clear floor space is to be a minimum of 30" wide by 60" long beside the bathtub.

If the seat is located in the bathtub and the approach to the seat is perpendicular to the bathtub, the clear floor space required is a minimum of 48" wide and 60" long.

If the seat is located at the head of the tub instead of in the tub while being parallel to the bathtub, the clear floor space required is a minimum of 30" wide by 75" long located alongside the bathtub.

There is a good variety of accessible bathtubs with a door for ease of entry and use.
An outward-opening door allows low, easy access to the bath. Support and stability are provided by a slip-resistant seat and strong, convenient handles. Most walk- in baths are versatile enough to be installed in nearly any space, yet they provide twice the bathing depth of a traditional bathtub, allowing the individual to immerse his/her body in water and relax.
Some bath tubs have an optional shower canopy for those who want a safer bathtub and shower. The optional shower may be available with an adjustable shower head that can easily be moved to the ideal height for each bather.
Also, there are those baths that are available with a hydrotherapy system, allowing the bather to transform their traditional bath-time into a luxurious hydrotherapy session that soothes away aches and pains while lowering blood pressure and reducing stress.
Easy, low-level entry
Wide door access for safer entry

Integral safety handle
Contoured, slip-resistant seat and backrest
Compact footprint of only 3 square feet
Corner or back-to-wall option
Left or right-hand door opening
Temperature-controlled hot water
Leak-free design
Hydrotherapy option

Lever faucets should always be specified for ease of use. As one ages, finger dexterity may become limited. A lever style handle can also be operated with one's fist, if necessary. Bathrooms are be designed with a 5 foot turning radius, should the resident be in a wheelchair, permanently or at times. Mirrors can be tilted to provide a full view from a wheelchair, as well. Furthermore, the sink vanity can be designed for wheelchair access, yet still provide a desirable aesthetic which does not have an institutional appearance.

Designing for the Aging Population: Therapeutic Gardens:

It is a well documented fact that human beings, regardless of age, love nature. We enjoy viewing nature, watching nature, and relaxing in nature. Many people enjoy gardening as a therapeutic hobby, too. The move to incorporate nature into healthcare environments began well over a decade ago, and many studies substantiate the therapeutic aspects of nature for its restorative and healing effects. The move to incorporate nature into healthcare environments began well over a decade ago, and many studies substantiate the therapeutic aspects of nature for its restorative and healing effects.

The Effects and Benefits of Healing Gardens are:
- One can get lost in one's thoughts, day dream, and partake in therapeutic visualization easily in a beautiful setting
- One is able to enjoy nature, including wildlife: birds, insects, flowers, the weather, and the foliage.
- One can do moderate exercise such as walking, stretching, tai chi, or yoga and other activities.
- One can enjoy visits with friends and family in lovely settings
- One can be involved in creating the garden and the act of nurturing. Thereby, through nurturance, one is nurtured.

A professionally designed outdoor space can enhance the experience of the resident and that of one's family and friends. The facility may call in the services of a landscape architect and occupational therapist, with whom the interior design can collaborate and provide input, as well. The landscape architect will conduct a site analysis, taking into consideration the site's history, an analysis of the existing conditions, natural features, circulation, climate, and other factors, as necessary.

Designing for the Aging Population : Specialized Environments

Within the continuum of care, more skilled environments are available as one's need for assistance in daily living activities is required. Part II of ***Design for Senior Living*** will address these types of environments more thoroughly. Briefly, these environments would include skilled nursing facilities, dementia and Alzheimer's homes, and specialized environments such as Snoezelen Therapy rooms, which evolved out of Europe and provide secure spaces for individuals to explore, relax, and engage with their environments in unique ways.

Designing for the Aging Population: Future Trends

Overall, senior living communities with 300 or more units are leading the way with regards to current and future planning in several arenas, such as programs, services, amenities, and environmental issues. Smaller senior living communities are lagging behind in their future planning models.

Senior living providers indicate they will continue to expand partnerships to meet the expectations of the next generation of older adults. These partnerships may include other Continuing Care Retirement Communities, colleges/universities, for-profit ventures, Naturally Occurring Retirement Communities, active adult communities, and state and local government agencies. Partnerships with innovative developers will also give rise to new concepts and models for senior living, both independent and congregate. Among the future endeavors and trends are:

- Environmentally Aware Senior Living Communities, which includes obtaining LEED certification
- Building "small house" models for residents in long-term care settings. Small houses are self-contained buildings for small numbers of residents, organized in a way to maximize normal living environments and routines, resident autonomy, a sense of community, and a high quality of life.

- Integrating and expanding wellness programs into senior living design including wellness/healing gardens, health spas, therapy pools, putting greens, and indoor aquatic centers.
- Providing web-based education and lifelong learning programs for residents.
- Providing home health and adult day care services to older adults in their homes through programs such as the "Beacon Hill" model. Beacon Hill Village is a member-driven organization for Boston residents 50 and over, and provides programs and services so members can lead vibrant, active and healthy lives, while living in their own homes and neighborhoods. Benefits include access to discounted providers who can help manage one's household and serve one's driving needs.
- Incorporating "smart home" technology and wireless connectivity into senior living residences.
- Bringing home health care, tele-health technology, geriatric assessment services, and non-medical home care services into senior living communities to promote quality of life as one "ages in place."

Designing for the Aging Population : Conclusion

Designing for senior living is a specialty which focuses on the built environment that can provide a sense of welcome, belonging, independence and security to the elderly population. This approach is fundamental to quality of life. The design intent is to create a sense of "home" within a greater setting, regardless of the size of the facility.

"Home" is no longer that place where one raised their children, played with their grandchildren when they were born, and created neighborhood friendships. All that history will now be transferred to a new setting, which will become "home" for the resident.

In order for the facility to become a real *home* to its residents, the following amenities should be considered, such as:

- Indoor and outdoor activity spaces and gardens
- Private areas where residents may gather with friends and family, as well as other residents, outside of their own apartments
- Community areas where residents can socialize, play games, participate in activities and enjoy TV or movies
- Easy access to the internet, a fax machine and a postal station

- On-site destinations, such as a soda fountain or sidewalk café, where a resident may entertain guests
- Beauty salon and barbershop services
- Fitness center with exercise equipment specifically designed for seniors
- The designer must consider the emotional needs of the resident, as well as the resident's family, as moving into a senior living community can be emotionally challenging .

The well designed built environment can help alleviate many fears through careful planning and concern for security, which includes safety from intruders, safe evacuation routes in the event of fire or natural disaster, and the security of their personal information. Furthermore, design must honor and value residents through the recognition of individuality with the use of display cabinets used to highlight a resident's talents or achievements, framed photographs of residents displayed on tables or in bookcases, memory box cabinets to display personal mementos - especially appropriate in memory care units, and Life Stories Displays which showcase collections of memorabilia, collectively honoring the residents' generation.

Finally, designing for senior living allows the designer to contribute to each resident's quality of life, providing a new and positive experience to those who are leaving their homes of many years and moving on to a new life.

That new life can deeply be impacted by design, allowing one to transition more easily and completely to a new environment …happily, safely, and beautifully.