DEVELOPMENT OF HOSPICE ENVIRONMENTAL ASSESSMENT PROTOCOL (HEAP):

A POST OCCUPANCY EVALUATION TOOL

By

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Submitted to the graduate degree program in Architecture and the Graduate Faculty of the University of Kansas in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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Abstract

The post-occupancy evaluation (POE) of any building facility is essential for providing feedback to the architects and to the building owners for further improvement in design skills and management procedures. Since the 1990s several POE tools have been developed focusing on nursing home environments, but no POE tool has been developed for hospice environments. Generally, the nursing home POE tool has been used to assess hospice facilities, but in recent studies, a significant gap has been found in the usefulness because hospice patients are mostly bed-bound, their physical, social and spiritual demands are different, and a patient's family accommodation plays a significant role in the patient's dying experience. The need of developing a POE tool for hospice facilities is evident, and this study has focused on fulfilling that goal. To develop an indicative level of POE tool for hospice, the Professional Environmental Assessment Protocol (PEAP) was selected as a precedent model. PEAP was developed to provide a standardized method of expert evaluation of special-care units for people with dementia, and it not only assesses the physical setting but also includes some assessment of organizational and policy features of the environment. This doctoral thesis developed the Hospice Environmental Assessment Protocol (HEAP), which assesses only the physical setting and does not include assessment processes of organizational or policy features. It involved three research objectives: a) to identify the 'Therapeutic Goals (TGs)' of hospice environments; b) to develop a list of design considerations for each therapeutic goal; and c) to develop an evaluation matrix and a descriptive five-point rating scale for each goal. Qualitative research design was considered using three methods: a) a systematic literature review to identify TGs; b) the Delphi method to obtain expert opinions; and c) five case study surveys. HEAP provides a standardized method to evaluate building performance based on eleven TGs; provide continuity of self, provide access to

nature, provide privacy, facilitate social interaction, maximize safety and security, provide autonomy, regulate stimulation and support sensory therapies, provide spiritual care, provide family accommodation, provide support after death, and maximize support for staff.

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Dedicated to my loving mother

Hosneara Begum (*Hena*)

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Chapter 1: Introduction

Problem Statement

"Hospice is a special concept of care designed to provide comfort and support to patients and their families when a life-limiting illness no longer responds to cure-oriented treatments" (HFA, n.d.). Today there are approximately 6,100 hospice programs in the United States (NHPCO, 2015). In 2009, 42 percent of people enrolled in Medicare died in hospice care (CMS, 2009c). While often considered a care program, the physical environment of the hospice also has significant impact on the patient's quality of life (Cohen et al., 2001) and possibility of a good death (Tong et al., 2003). Since the beginning of the hospice movement in America in the mid-1970s, the architectural design of hospice in general has been considered similar to nursing home design (Verderber & Refuerzo, 2006). But in recent years, several studies have found different dimensions of the hospice environment to address the physical, emotional, psychosocial, and spiritual concerns of dying patients and their families (Nakashima, 2002; Silver, 2004; Evans, et al., 2006; Anderson, 2007; Rowlands & Noble, 2008; Rijbi et al., 2009; and Brereton et al., 2011).

Hospice environments should be palliative in character: calm, serene, and, sacred to accommodate the event of death, and also they need to provide support and care for the patient's family at this difficult emotional moment (Verderber & Refuerzo, 2006; Worpole, 2009; and Moorhouse, 2006). Due to the unique requirements of hospice design, a new movement of innovative palliative architecture has begun in Japan, Europe, Australia, and North America (Verderber & Refuerzo, 2006; and Worpole, 2009). In the era of an increasingly aging population and cancer patients, the growth of designing new hospice facilities and remodeling the old ones is inevitable (NHPCO, 2015; and Verderber & Refuerzo, 2006).

Regardless if the hospice is a new building or old one, the post occupancy evaluation (POE) of any building facility is essential for providing information to architects about the performance of their designs and to the building owners to achieve the best performance of their facilities (RIBA, 1991). Since the mid-80s several POE tools have been developed for use in nursing homes, such as the *Multiphasic Environmental Assessment Procedure* (MEAP) (Moos & Lemke, 1994), the *Professional Environmental Assessment Protocol* (PEAP) (Norris-Baker, et at., 1999), and *Therapeutic Environment Screening Scale for Nursing Home* (TESS-NH) (Sloane, et.al, 2002). No POE tool has been developed to use specifically in hospice facilities. Generally, hospice facilities are assessed by POE tools that have been developed for use in nursing homes. This issue has been addressed in a recent study (Swenson, 2009). The study identified the gap in usefulness of the TESS-NH in designated hospice rooms of a nursing home. The majority of the elements of TESS-NH have not mentioned hospice rooms by nursing home staff during the interviews of this study (Swenson, 2009). The need of developing a POE tool for use in hospice facilities is evident and significant to support the goal of continuous improvement, and to satisfy the explicit and implicit needs of dying patients and their families. This study was designed to develop a POE tool for hospice facilities.

According to Wolfgang Preiser, there are three levels of POEs: a) brief *indicative* studies, to uncover environmental issues; b) more detailed *investigative* POEs, which focus on the specific issues that have been uncovered; and c) *diagnostic* studies aimed at correlating environmental measures with building occupant responses (Preiser, 1995; Preiser 2002). All these levels are based on the purpose of conducting the evaluation and the availability of resources, such as budget, time, and work force (Preiser, 2002; Brooks and Viccar 2006). Since there has been no POE tool developed for the hospice environment, this study has developed an

indicative level POE tool which usually presents an overview of building performance and gives an indication of major strengths and weaknesses of a particular building's performance. This POE process is simple and short in duration, usually lasting half a day. It usually consists of a walk-through and selected interviews with knowledgeable informants, such as the facility owner or manager to record the positive and negative aspects of building performance. The evaluator may also use graphic images or photographs to substantiate observations (Preiser, 1989; and Preiser, 2002).

After a careful consideration of various POE tools for nursing home settings, this study considered the *Professional Environmental Assessment Protocol* (PEAP) as a precedent model to develop a similar tool for the hospice environment. PEAP was developed by a team of environment and aging researchers to provide a standardized method of expert evaluation of special care units (SCUs) for people with dementing illnesses such as Alzheimer's disease and related disorders (Norris-Baker et al., 1999). Although the PEAP is focused on the physical setting, the assessment is conducted within the larger context of the social, organizational, and policy environment. PEAP is based on a conceptual framework suggested by Cohen and Weisman (1991) and shown in Figure 1-1, where the physical environment is part of the entire care milieu which also includes personal, social, and organizational dimensions.

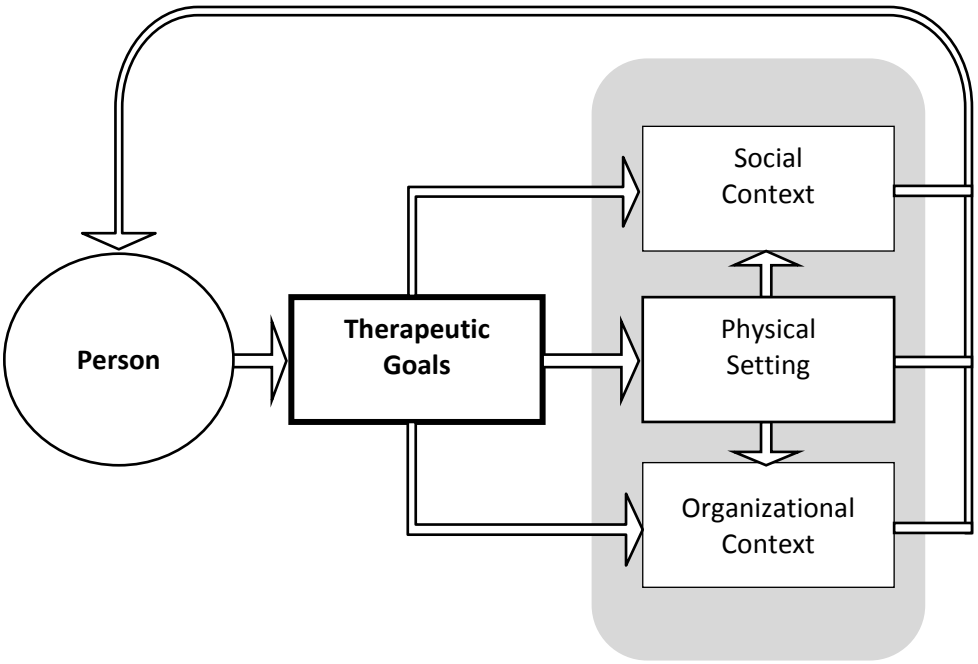


Figure 1-1. A Conceptual Framework for the organization of the person-environment system (Adapted from Figure 1.2, Cohen & Weisman, 1991).

The organizational component is conceptualized in terms of hospice policies and programs, the social component is represented by family and fellow residents, and the architectural component is defined in terms of the experiential qualities or attributes of the environment (Cohen and Weisman, 1991). The therapeutic goals serve as unifying intentions which can direct congruent decision-making in the organizational, social, and physical realms and thereby provides a useful foundation for planning and design (Cohen and Weisman, 1991). The PEAP evaluates SCU settings with respect to eight dimensions of "Therapeutic Goals (TGs)" in a dementia care setting (Cohen and Weisman, 1991): 1) maximize safety and security; 2) maximize awareness and orientation; 3) support functional abilities; 4) facilitate social contact; 5) provide privacy; 6) provide opportunities for personal control; 7) regulate and provide quality of stimulation; and 8) provide continuity of the self (Norris-Baker et al., 1999). According to Lawton et al. (2000) these eight dimensions reflect two characteristics. First, each

dimension expresses a basic or consequent major human need. Second, the dimension is a potential environmental facilitator for the satisfaction of the need.

According to Lawton et al. (2000), eight core dimensions for the design of environments for the aging with dementia include safety, orientation, functionality, stimulation, personal control, social interaction, continuity, and change. These authors suggest that these dimensions of therapeutic goals reflect two characteristics. The physical settings of hospice care along with the carefully designed organizational environment can contribute to the realization of desired therapeutic goals in these eight dimensions and have a positive effect on the lives of dying patients.

There are several reasons for selecting PEAP as a precedent model which will be discussed in the next chapter. Two major reasons are briefly discussed here. First, this study is designed to develop an indicative tool for hospice environments which requires structured interviews with the staff and walk-through evaluations. PEAP involves interviews with the staff and walk-through surveys by experienced personnel to assess and score the evaluation criteria. Also, PEAP takes approximately two hours to administer which is an appropriate inspection period required for indicative level POEs. For these reasons, PEAP has found to be a suitable match for this level evaluation. Second is the user experience. PEAP focuses on the environment as experienced, and assesses the therapeutic dimensions of the environment qualitatively (Norris-Baker et al., 1999). The hospice environment should be assessed focusing on patient experience and a qualitative understanding is appropriate for gaining an in-depth knowledge about social phenomena such as the patient's experience of death (Evans & Kowanko, 2000). Also, the patients of hospice facilities are mostly bed-bound and medicated, and most of their cognitive status may be similar to the patients of SCUs for dementia care. Since PEAP was developed

based on the dementia care patient's experience, it was found most relevant for the hospice patients as well.

As mentioned earlier and detailed in Appendix A, the PEAP evaluates SCU settings with respect to eight dimensions of the environment as experienced that have been agreed to a by a consensus among a group of experts in the care of persons with dementia (Norris-Baker et al., 1999). PEAP has two major portions. The first portion called the *PEAP Scoring Page* where the above-mentioned goals are assessed by the directors of care and by the researcher (call PEAP rater). These goals are rated on a 5-point scale: 1- unusually low support; 2-low support; 3-moderate support; 4-high support; 5-exceptionally high support. The higher score indicates a more supportive environment and a low score would indicate an absence of these design features. Field notes are also made by the rater during the walk-through observations, and information provided by the administrators and staff is used to prepare a narrative description and evaluation of the facility for each dimension. The second portion of the PEAP is the *Staff Questionnaire* that is to be completed by the head nurse of each special care unit. This section does not include a rating scale, but instead asks specific close-ended questions about each therapeutic goal. The *Scoring Page* and the *Staff Questionnaire* are similar in that they both ask respondents to evaluate their environment and provide examples of each of the therapeutic goals. The two questionnaires differ since the *Scoring Page* evaluates the environment, both quantitatively and qualitatively while the *Staff Questionnaire* uses only qualitative methods.

The identification of environmental dimensions is essential for developing a tool similar to PEAP. Though age-specific environmental dimensions have been suggested by several researchers during the 1980s to 1990s (Lawton, 1983; Cohen and Weisman, 1991; Lawton et al., 1992; Calkins, 2001), none of them focused on hospice environments or environments

specifically for dying patients. The need of categorizing environmental therapeutic dimensions for hospice is necessary to develop a post occupancy evaluation tool similar as PEAP. This study has developed the therapeutic goals of hospice environment as a first phase of research. For the second phase, a five-point descriptive rating scale similar to PEAP was developed and a set of questions for each hospice therapeutic goal was developed. These questionnaires were developed based on the design considerations for that goal. In PEAP, the questionnaire has questions related to the physical setting as well as social and organizational management issues. For this study, only the considerations relevant to the hospice physical setting were considered, not the organizational and management related questions or considerations. A design consideration checklist for each goal was developed for this protocol. The third phase developed the evaluation criteria for each goal and its design considerations to score the five-point rating scales.

Research Goals

This study focused on developing a post occupancy evaluation tool (POE) for hospice facilities using the *Professional Environmental Assessment Protocol* (PEAP) as a precedent model, titled *Hospice Environmental Assessment Protocol* (HEAP). The objectives of the research were: a) to identify the 'Therapeutic Goals' of hospice environments considering the conceptual framework developed by Cohen and Weisman (1991); b) to develop a list of design considerations for each therapeutic goal; and c) to develop an evaluation criteria and five-point descriptive rating scale for each goal.

Expected Outcomes

The study outcome is a built-environment evaluation tool for assessing the hospice environment. This tool was developed following the conceptual framework of PEAP, which is one of the most widely used environmental evaluation tools. It can be expected that HEAP will

also be as useful as PEAP in its specialized setting. As with PEAP, HEAP also provides a standardized method for the expert evaluation of hospice environments in three levels of the physical setting. *Fixed* or *structural features* include those which are permanent architectural elements, such as overall unit area and floor plan, or the presence or absence of windows ((Norris-Baker et al., 1999). *Semi-fixed features* include less permanent architectural elements, such as presence or absence of handrails and the type and condition of wall and floor surfaces ((Norris-Baker, et at., 1999). *Non-fixed features* include the presence of wall hangings, activity supplies, and others that can play a critical role in the life of a hospice setting ((Norris-Baker *et al.*, 1999).

The HEAP provides a global assessment of the quality of hospice care environments on eleven dimensions deemed to be therapeutic for dying person: 1) maximize safety and security; 2) provision of autonomy; 3) provide continuity of self; 4) provision of privacy; 5) facilitate social interaction; 6) regulate of stimulation; 7) provision of spiritual care; 8) provision of access to nature; 9) maximize support for staff; 10) provide family accommodation; and 11) provide support after death. To complete the assessment, HEAP requires an interview with the administrative staff and observations to prepare narrative descriptions and evaluations of the environmental therapeutic dimensions. The assessment involves subjective evaluations of the physical and social environment on a five-point scale for each dimension (Norris-Baker *et al*., 1999), and to assist with scoring, detailed descriptions are provided (unusually limited support, low support, moderate support, high support, and exceptionally high support). HEAP results in scores ranging from low to high; the higher score will indicate a more supportive environment for each dimension.

The final outcome of this study will be the publication and testing of the HEAP tool. After completion of this study, the future next step would be developing necessary materials (e.g. the user's manual) to train the evaluator. HEAP will also be undergoing field testing over time, as happened for PEAP.

Significance of the Study

This study developed a post occupancy evaluation tool for hospice facilities, which carries multiple significances in the practice and theory of architecture and hospice care.

Architectural Perspective. HEAP carries the same significance as any post occupancy evaluation tool does in architectural practice; which is defined by the Royal Institute of British Architects Research Steering Group as "a systematic study of buildings in use to provide architects with information about the performance of their designs and building owners and users with guidelines to achieve the best out of what they already have" (RIBA, 1991). More anthropologically it was defined by Friedmann (1978) as "an appraisal of the degree to which a designed setting satisfies and supports explicit and implicitly human needs and values of those for whom a building is designed". This hospice environmental assessment protocol will provide valuable information to support the goal of continuous improvement of any hospice facility (Zimmerman & Martin, 2001). The plausible benefits of HEAP also include: applying design skills more effectively; improving the building commissioning process; improving user requirements; improving management procedures; providing knowledge for design guides and regulatory processes; and targeting of refurbishment (Whyte & Gann, 2001).

Evidence Based Design (EBD). The study findings contribute to evidence-based design (EBD) research and practice (Diaz Moore & Geboy, 2010). The therapeutic goals of hospice environments can be used to determine the goals and objectives of an evidence based design

project. The findings can be used as relevant evidences to interpret and develop EBD concepts and hypothesis for testing. In addition, the rating scale can be used to measure the baseline performance and the post occupancy performance results.

Environmental Psychology. HEAP was developed focusing on the patient experience in the hospice environment. It also considered the family and staff experiences in the hospice environment as these impact overall the patient quality of life. The therapeutic goals and the design checklists can be used as evidence of the effectiveness or the weakness of design decisions in relation to patient and their families' behaviors in built environment of hospice. The therapeutic goals of hospice environments are domains of measurable outcomes. Also, the characteristics of physical setting to support each goal can provide hypotheses to be explored through future environmental psychology research.

Facility Management. As mentioned earlier, PEAP assesses the physical setting within an understanding of the larger setting of the social, organizational, and policy environment, and this could benefit the cyclical theme of individual organizations to create learning cycles specifically in relation to the organization's facilities management plan (Green and Moss, 1998). Although HEAP was developed to assess the physical settings only, the findings from HEAP can also be utilized for improving hospice facility management and organizational policy.

Chapter 2: Literature Review

As stated before, the research question is to develop an environmental assessment tool for hospice care facilities. Although the basic conceptual ground of this study--the conceptual framework for the organization of the person-environment system by Cohen & Weisman (1991)--was discussed in the first chapter, this thesis also needs to be grounded in the subject matter regarding end of life: the background of death and dying in this contemporary society; hospice care philosophy and the pattern of the hospice facility; the environmental psychology of hospice as a place; and lastly the significance and process of post occupancy evaluation.

The first section begins with an historical overview of various attitudes towards death with identifying the notion of "good death" in Western society, and its relationship in triggering the hospice movement. The concept and service models of hospice care will be discussed, and the comparison between hospice and palliative care will be explained to identify 'hospice as a philosophy'.

The second section will discuss 'hospice as a facility' by discussing various types of hospice care facilities, the postmodern healthcare environment and its design theories. Also, this section will identify the concept of hospice architecture as a healing space. The characteristics of the hospice environment and the empirical research findings for design will be discussed in *Chapter-4*.

In the third section, the theories of environmental psychology will be presented explaining the person, the environment, and the relation between them. In addition, 'hospice as a place' will be diagnosed using the *Ecological Framework of Place* (EFP) and it components.

The focus then shifts to *Post-Occupancy Evaluation* (POE), its definitions and categories with various levels and process. Several environmental assessment tools for care settings will be

introduced and the rational for selecting PEAP in comparison with these potential tools will be discussed. This literature review grounds this research project within relevant domains of knowledge with the aim of advancing said body of knowledge.

Hospice as a Care Philosophy

History of Death as a Concept.

> The fear of dying on a large public ward was one of the driving forces in the creation of the hospice movement, and the early adoption of the single patient room was one of its most distinctive features. (Worpole, 2009)

Where and how people will die, is a significant concern of human life and society. For thousands of years, death was perceived as a "spiritual passage" or a "religious event of taking a soul"; this has been defined as *traditional death* by Tony Walker in 1996 (p. 195). Beginning of the twentieth century, death became a "medical event" and it was "rationalized in such a way that people wanted to keep their dying and grieving private, and people were pleased to be controlled by medical professionals (doctors); this has been defined as *modern death* (Walter, 1996, p. 196).

> He died a modern death, in hospital, without his family, attended in his minutes by a nurse, months- indeed, years– after medical science has prolonged his life to a point where the terms on which it was being offered were unimpressive. (Barnes, 2008, as cited in Worpole, 2009, p.4)

Most of the "modern people" welcomed the medical experts to control over their death, "but there was a price: the exclusion of a dying person" (Walter, 1996, p. 197). A dying person who is constantly lying in a hospital bed and going through drugs and other medical procedures,

and who is "visited by family at the bureaucratically determined visiting hours, is hardly a person" (Walter, 1996, p. 197). People fear in death to lose them, their identity, which in the Western individualistic society became problematic. In response to all these issues, the "happy death movement" as Lyn Lofland (1978) calls it, has attempted to personalize death and dying (as cited in Walter, 1996). This death has been defined by Tony Walter as *postmodern death*, which *was* "revival of tradition", in which modern expertise and traditional style were combined (Walter, 1996, p. 197). The characteristics of these three types of death defined by Walker (1996) are presented in the following chart (Table 2-1):

Table 2-1: The Characteristics of three types of death (Walker, 1996).

	Traditional Death	**Modern Death**	**Postmodern Death**
Authority	Tradition	Professional expertise	Personal choice
Authority figure	Priest	Doctor	The self
Dominant discourse	Theology	Medicine	Psychology
Coping through	Prayer	Silence	Expressing feelings
The traveler	Soul	Body	Personality
Bodily context	Living with death	Death controlled	Living with dying
Social context	Community	Hospital	Family

By the end of the 1960s, an alternative philosophy of care, palliative care, emerged for the postmodern consumer to avoid the isolation and generalization of institutionalized dying by employing a team composed of physicians, nurses, social workers, therapists, and clergy, who in turn encouraged family and friends to participate in the care giving process (Verderber & Refuerzo, 2006; Walker, 1996). These determinants set the stage for the contemporary hospice movement (Verderber & Refuerzo, 2006).

Good Death in Contemporary Western Culture. The concept of a "good death" is primarily noted in the palliative care medicine and nursing literature. The *Institute of Medicine*

Report on care at the end-of-life (Field & Cassel, 1997) was one of the first documents to extensively discuss the subject. Although biophysical aging is universal, there is a great deal of cultural diversity in the way people deal with death and dying and how they cope with the physical decline and social losses (Nakashima, 2002). Several attempts have been made to investigate what is a good death in the current context of modern society and has been expressed in a variety of ways (Ryan, 2003): appropriate death (Weisman, 1988); happy death (Corless, 1994); healthy death (Smith & Maher, 1993); peaceful death (Callahan, 1993); and dying well (Byock, 1997). Some of these concepts are discussed below in brief.

A.D. Weisman (1988) described four main characteristics of appropriate death based on his clinical practice: awareness; acceptance; propriety; and timeliness. Achieving an appropriate death is a gradual process that takes time; timeliness occurs when willingness and acceptance are simultaneously felt by the dying as a "proper time". Awareness in a dying person can lead to acceptance. Propriety can mean obedience to social expectations that mobilize support for the dying persons to their wishes and have the ability to die how they choose to die. Preserving choice for the dying is advocated as it promotes their dignity, control, and autonomy.

Emanuel and Emanuel (1998) proposed a framework for a good death that is supported in the literature. The modifiable dimensions include physical symptoms, social relationships and support, hopes and expectations, psychological and cognitive symptoms, economic demands and caregiving needs, and spiritual and existential beliefs. A good death is often described as encompassing elements such as having family or significant others present, being without pain, being physically comfortable and imitating dignity through privacy and caring (Thompson & McClement, 2002).

Mak and Clinton (1999) identified elements of a good death from the perspectives of nurses and hospice patients that included comfort or relief from pain, being aware of dying, accepting the timing of one's death, preparing for departure, living with one's choice about where to die, having partnerships in decision making, and maintaining a sense of hope throughout the dying process.

Steinhauser, et al. (2000) identified six elements of a good death: 1) effective pain and symptom management; 2) clear decision making; 3) preparation for death; 4) completion (e.g., life review, time spent with significant others); 5) contributing to others; and 6) affirmation of the whole person.

Bradbury (1996) reported three types of good death: sacred good death; medical good death; and natural death. Sacred death occurs when a dying person is able to bid farewell to their loves ones in a dignified and accepting manner. The medical good death is a representation of what modern medical technology can achieve to bring physical comfort, including sedation through narcotics, also place of death, the appropriateness of treatment choice, and professionals' caring behaviors. The natural death is being pain free and minimum invasive interventions to avoid a prolonged dying process.

Leichtentritt and Rettig (2000) reported five essential components of good death: physiological, personal, interpersonal, social and cultural. Tong and colleagues (2003) identified ten domains that characterize the quality of death experience: 1) physical comfort; 2) burdens on family; 3) location and environment; 4) presence of others; 5) concerns regarding prolongation of life; 6) communication; 7) completion and emotional health; 8) spiritual care; 9) cultural concerns; and 10) individualization.

The Institute of Medicine provided a definition of a 'good' and 'bad' death based on their four-year longitudinal study on palliative care in the United States (Field & Cassel, 1997). In presenting the definition, the committee prefaced that such a concept is not fixed in meaning but is determined by people's experiences, spiritual beliefs, medical technologies, and a specific cultural and social context. According to the institution, a good death is: "One that is free from avoidable distress and suffering for patients, families, and caregivers; in general accord with patients' and families' wishes; and reasonably consistent with clinical, cultural, and ethical standards" (P.4). A 'bad' death is characterized by needless suffering, dishonoring of patient and family wishes or values, and a sense among those participating in the end-of life care process that norms of decency were offended (which could include neglect, violence, or unwanted and senseless medical treatments) (Field & Cassel, 1997).

From all these literatures, one point became highlighted that in industrialized societies where the health care system employs technology fully to affect the disease process, medical and institutional factors inevitably affect societal views on good death, and hospice care possess a great significance to ensure that process.

Hospice Movement. The term "hospice" shares the same linguistic root as hospitality, hospital, hostel, hotel, host, and hostess (Stoddard, 1978). "Hospice" derives from the Latin "Hospes", which means both guest and host, perhaps a process of mutual exchange (Robbins, 1983). In medieval times, hospice was referred to as a place of shelter and rest for pilgrims or travelers on a difficult journey (Kohut and Kohut, 1984; and Stoddard, 1978). Centuries later, example of hospice places were found in 17th century France, 18th century Germany, and Ireland. In the early 1900s a group of Irish women founded St. Joseph's Hospice with thirty beds to take care of the dying (Corr and Corr, 1983; Koff, 1980; Stoddard, 1978). Another group of Irish

laywomen established a place to care for dying people in New York City in the early 19th century. In the 1900's other hospice establishments were seen in Pennsylvania, Massachusetts, Georgia, Minnesota, and Ohio, most of which are still operating (Koff, 1980).

In the late 1940s, Dr. Cicely Saunders, the founder of the modern hospice movement, envisaged a place to provide care to the dying patients with pain control, care for the entire family, bereavement counseling, and multidisciplinary teams as major elements of this care (Koff, 1980), in which dying people could die with peace and dignity (Buckingham, 1983). The dream of Dr. Saunders to establish a religious and medical foundation to take care of dying people came true in 1967, when the first modern hospice, St. Christopher's Hospice, opened in a residential suburb of London (Corr and Corr, 1983; Seibold, 1992). St. Christopher's was planned to combine the old concept of hospitality and care with the modern skills of a hospital (Buckingham, 1983).

She disseminated her philosophy internationally in a series of tours of the United States that began in 1963. The dean of the Yale School of Nursing spent a month working with Dr. Saunders there and established the first hospice in the United States with the principles of modern hospice care in 1971 (Buckingham, 1983; Corr and Corr, 1983; Koff, 1980).

At the same time, in 1965, Swiss psychiatrist Elisabeth Kubler-Ross also began to consider the social responses to terminal illness. Her 1969 best-seller book, *On Death and Dying*, was influential on how the medical profession responded to the terminally ill in hospitals (Reed, 2004). It addressed the need to "refocus on the patient as a human being, to include him in dialogues, to learn from him the strengths and weaknesses of our hospital management of the patient" (Kubler-Ross, 1969, preface).

Kubler-Ross's work on the five stages of death (denial, anger, bargaining, depression, and acceptance) led to a field of study called "thanatology", which is the study of death and dying and how this relates specifically to the psychological and emotional effects of dying (Bushfield & DeFord, 2010, p. 5). She and proponents of palliative care fostered the death with dignity movement in the United States. Finally in 1982, Congress enacted the Medicare Hospice Benefit and it established the four "core" principles as "medical, nursing, psychosocial, and spiritual care" (Bushfield & DeFord, 2010, p. 5).

The hospice movement became successful, and it has been called a counter-culture, a social reform movement, a human rights movement, and "the greatest citizen initiated change in health care delivery in North American history" (Davidson, 2014, p. 1). The number of hospice programs nationwide continues to increase. According to the 2015 NHPCO's Facts and Figures Hospice Care in America, since the first program that opened in 1974 there were approximately 6,100 programs in 2014. This estimate includes both primary locations and satellite offices. Hospices are located in all 50 states, the District of Columbia, Puerto Rico, Guam, and the U.S. Virgin Islands.

Hospice Care Philosophy. Since the hospice movement, the palliative care philosophy has grown to embrace a multitude of programs which exist throughout the world. Around the early 1980s, hospice care began to solidify in the United States, with more hospital and home-based services. There are several ways to define the hospice philosophy, and the most significant are discussed below.

Zimmerman (1981) articulated the hospice objectives as the following: a) provision of the finest available medical care for the patient's medical problems; b) provision of appropriate understanding of the nature of the patient's situation and psychological support in dealing with

the illness and impending death; c) provision of appropriate spiritual support to the patient and family in dealing with the philosophic and religious aspects of the illness and impending death; d) provision of assistance to the patient and family in dealing with interpersonal, social, and financial problems; e) rendering of patient care in the optimal setting for the particular circumstances; f) provision of certain valuable program characteristics such as continuity, comprehensiveness, and adaptability to individual circumstances; g) provision of a setting for research into the care of the terminally ill; h) provision for ongoing education in the care of the terminally ill; i) rendering of a positive impact on the remainder of the health care system; and j) being financially feasible.

In 1990, the World Health Organization's (WHO) development of a position which asserts that palliative care:

> The active is active total care of patients whose disease is not responsive to curative treatment. Control of pain and other symptoms, and of psychological, social, and spiritual problems is paramount. The goal of palliative care is achievement of the best quality of life for patients and their families. Many aspects of palliative care are also applicable earlier in the course of the illness in conjunction with anti-cancer treatment. (WHO, 1990, p. 11)

In addition to the definition, WHO also mentioned the following six points about palliative care: a) "affirms life and regards dying as a normal process"; b) "neither hastens nor postpones death"; c) "provides relief from pain and other distressing symptoms"; d) "integrates the psychological and spiritual aspects of care"; e) "offers a support system to help patients live as actively as possible until death"; and f) "offers a support system to help the family cope during the patient's illness and in their own bereavement" (WHO, 1990, p. 11).

Today, the National Hospice and Palliative Care Organization (NHPCO) defines hospice philosophy as,

> Hospice provides support and care for persons in the last phases of an incurable disease so that they may live as fully and as comfortably as possible. Hospice recognizes that the dying process is a part of the normal process of living and focuses on enhancing the quality of remaining life. Hospice affirms life and neither hastens nor postpones death. Hospice exists in the hope and belief that through appropriate care, and the promotion of a caring community sensitive to their needs that individuals and their families may be free to attain a degree of satisfaction in preparation for death. (NHPCO, n.d.).

Hospice care dominantly believes that human beings are persons of worth regardless of their circumstances who are also capable of self-reflection and decision-making. Individuals are seen as having the ability to creatively relate within the family system in order to care about and for each other. The family system itself is viewed as interrelated, interdependent, and interacting complex organisms. It continuously influences and is influenced by the environments within which they reside (Miller & McGown, 1997). The openness of the family system makes it possible for hospice caregivers to make a difference in the quality of both the patient and family's life where learning, personal growth, and change are cornerstone concepts inherent in the philosophy of hospice care (Hall & Kirschling, 1990).

Hospice care assumes that family members are rational on helping them make decisions. The management of coalition formations and family conflict are also seen as important in hospice care. Hospice care is also guided by a philosophy of helping the family through the experience of providing end-of-life care (Hall & Kirschling, 1990). In many ways, the emphasis

on family involvement has been identified as the significant feature of hospice care (Buckingham, 1982).

Hospice vs. Palliative Care. Hospice care and palliative care are very similar when it comes to the most important issue for dying people: care. The Institute of Medicine defines palliative care as:

> Palliative care seeks to prevent, relieve, reduce or soothe the symptoms of disease or disorder without affecting a cure…. Palliative care in this broad sense is not restricted to those who are dying or those enrolled in hospice programs…. It attends closely to the emotional, spiritual, and practical needs and goals of patients and those close to them. (as cited in EPEC Project, The Robert Wood Johnson Foundation, 1999, p. P3-15)

Both hospice and palliative care offer patients to receive a combined approach where medications, day-to-day care, equipment, bereavement counseling, and symptom treatment are administered through a single program. The palliative care programs and hospice care programs differ greatly is in the care location, timing, payment, and eligibility for services. For hospice care, a person must generally be considered to be terminal or within six months of death to be eligible. On the other hand, for palliative care there are no time restrictions. Palliative care can be received by patients at any time, at any stage of illness whether it is terminal or not, and generally palliative care is offered mostly by hospitals ("*Hospice vs. Palliative Care*", 2015).

The following model (Figure 2-1) shows the relationship of hospice care and palliative care graphically: how disease-modifying therapy with curative intent declines as the illness progresses toward the end of a person's life. It narrows to nonexistence as active dying begins in the last hours of life. Palliative care as comfort-oriented symptom control and supportive care

increases over time. This care maximizes as dying concludes in death, which people experience through a hospice program. Anticipatory grief over begins before death and bereavement continues for some time after death. Patient and family receive palliative care in all three phases (EPEC Project, The Robert Wood Johnson Foundation, 1999).

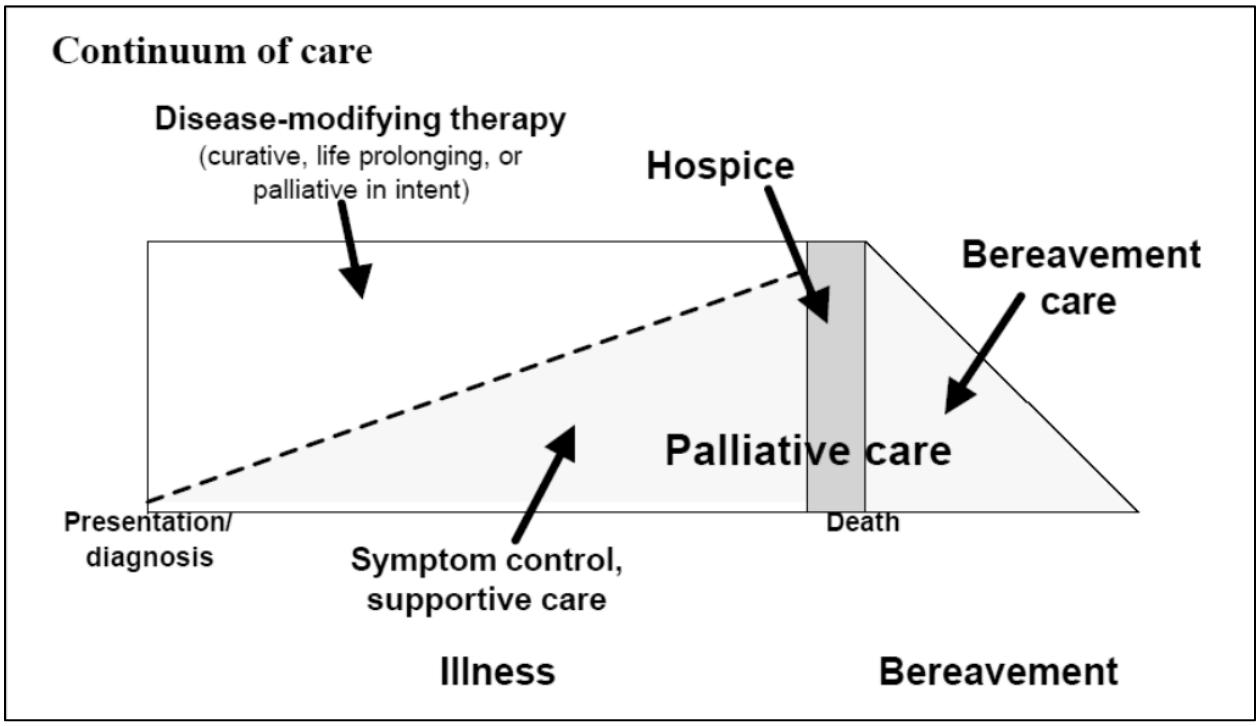


Figure 2-1. Relationship model of hospice care and palliative care (The figure is retrieved from EPEC Project, The Robert Wood Johnson Foundation, 1999, Page P3-12).

Summary. It is important to understand the historical context of the hospice movement and the hospice philosophy of care. It also recognizes the relationships between staff, volunteers, family members and the dying persons are reciprocal, shifting the emphasis away from passivity and focus on disease.

Hospice as a Care Facility

As mentioned earlier, hospice is a place to provide end-of-life care to individuals certified under the Federal hospice regulations as "terminal" (a life expectancy of six months or less) and

to their families (Government Printing Office, 2000 in Swenson, 2009, p. 9). End-of-life care is a multidisciplinary care and support (non-curative) system designed to address the physical, emotional, psycho-social, and spiritual concerns of terminal patients (Medical Dictionary, 2012), which makes the hospice care model unlike other healthcare models (Siebold, 1992). The hospice setting has dissimilarity in design themes with other healthcare settings.

Classification of Hospice Facility. The hospice care service has five basic types of models according to Verderber and Refuerzo (2006): the in-hospital hospice or palliative care units (PCUs); the home; the nursing institute with dedicated beds for hospice care; the medical-center affiliated free standing hospice; and the non-hospital affiliated autonomous hospice.

Hospice care service has three basic types based on its inhabitants: children, AIDS patients, and the elderly. Children hospice facilities are designed with children's needs which are different than those of adults, such as provision of "sleeping quarters for families" for overnight accommodation, indoor and outdoor play activity areas, creation of "multimedia sensory" stimulation room (Verderber & Refuerzo, 2006, p.24). The second type, the AIDS hospice facilities, initially were retrofitted private homes remotely located because of the stigma generated by society for these patients. These facilities were often called shelters or just relief "houses", but today there are newly constructed AIDS hospice facilities available in order to meet the needs of these patients (Verderber & Refuerzo, 2006, p. 22). The third and final type of hospice facility accommodates the elderly and other dying patients. According to the NHPCO's Facts and Figures, in 2014 approximately 84% of hospice patients were 65 years of age or older; with 41.1% being 85 or older. The pediatric and young adult population accounted for less than 1% of hospice admissions (NHPCO, 2015).

Healthcare Facility. According to the Whole Building Design Guild (2014), health care facilities encompass a wide range of types, from small and relatively simple medical clinics to large, complex, and costly teaching and research hospitals. A trend towards specialization has resulted in a growing number of health care types; hospitals, nursing homes, outpatient facilities, psychiatric facilities, rehabilitation facilities, hospices, assisted-living facilities, congregate housing, adult day-care facilities, and various specialized outpatient facilities. Thoughtful design can help to achieve welcoming, caring, comfort, and compassion, commitment to patient well-being and safety, where stress is relieved, refuge is provided, respect is reciprocated, competence is symbolized, way-finding is facilitated, and families are accommodated (Carr, 2014).

The design of health care facilities is governed by many regulations and technical requirements, and is also influenced by many less defined needs and pressures: workforce shortages, reimbursements, malpractice insurance, physician-hospital relations, capacity, care for the uninsured, patient safety, advances in technology, and patient satisfaction according to a recent *American College of Healthcare Executives* survey of hospital CEOs (Carr, 2014).

To address these issues, the *Center for Health Design* (CHD) was established in 1993 by a team of forward thinkers with a vision for creating healthcare facilities that promote healthier environments for patients and staff. This vision advocates for evidence-based design and soon became a movement (Verderber & Refuerzo, 2006; and CHD, n.d.). According to the Center for Health Design, "Evidence-Based Design is the process of basing decisions about the built environment on credible research to achieve the best possible outcomes." (CHD, n.d.). Hamilton & Watkins (2009) provided the following definition:

> "Evidence-based design is a process for the conscientious, explicit, and judicious use of current best evidence from research and practice in making critical

decisions, together with an informed client, about the design of each individual and unique project" (p. 9)

A growing body of research has developed supporting evidence-based design, and shows a direct link between the design of a hospital and the quality of patient care and patient health. A project funded by the *Robert Woods Johnson Foundation* in 2004 reviewed over 600 scientific studies that documented the impact of a range of design characteristics. This report linked the physical environment to patient and staff outcomes in four areas (Ulrich, Zimring et al., 2004, p. 3):

- Reduce staff stress and fatigue and increase effectiveness in delivering care;
- Improve patient safety;
- Reduce stress and improve outcomes; and
- Improve overall healthcare quality.

In 2008, this report was republished after reviewing more research studies and organized the findings in three areas (Ulrich et al., 2008):

- Patient safety (infection, medical errors and fall);
- Patient well-being (pain, sleep, stress, and depression, length of stay, spatial orientation, privacy, communication, social support, and overall patient satisfaction);
- Staff outcomes (injuries, stress, work effectiveness, and satisfaction).

The findings further supported the importance of improving outcomes for a range of design characteristics or interventions (Ulrich et al., 2008), including:

- Single bedroom rather than multi-bed rooms
- Effective ventilation systems

- A good acoustic environment
- Improved floor layouts and work settings
- Appropriate lighting
- Better ergonomic design
- Acuity-adaptable rooms
- Nature distraction and daylight

All these design characteristics or interventions are applicable to hospice facilities. There are few empirical research studies which focused only on hospice environments. Those research findings are discussed later in the "Systematic Literature Review" section. The concept of creating hospice architecture as a healing space is also unique in character. This concept has been well explained and documented by Stephen Verderber and Ben J. Refuerzo in their book, the *Innovation in Hospice Architecture* (2006)*,* and also by Ken Worpole in the *Modern Hospice Design* (2009).

Hospice as a Healing Space.

> In the hospice, of course, the healing can only be of the sprit, as the body is by definition in terminal decline and close to death. (Worpole, 2009, p.80).

During the 1970s, the notion of a hospice movement influenced the development of a new type of contemporary hospice setting which gives an image of society and an idea of home (Verderber & Refuerzo, 2006; Worpole, 2009). It advocates for person-nature transaction and home-like settings as an antidote to the experience of dying in a high-tech hospital (Verderber & Refuerzo, 2006; Worpole, 2009; Moorehouse, 2006). Architecturally, it derived the concept from

ancient Greek healing temples, where design paid homage to nature and drew from its healing powers (Moore & Komras, 1993).

When death is involved, matters of human reassurance and comfort surely come to the fore (Worpole, 2009). Also, hospices are free from the hospital's encumbrance of having to house a large amount of medical equipment for diagnosis and treatment solutions, so it can be designed for human inhabitation and social interaction. These scopes have been addressed by architects for the last twenty years, which led to the evolution of a new aesthetic for contemporary hospice architecture, which was explained in the book, *Innovations in Hospice Architecture,* by Verderber & Refuerzo, 2006.

Summary

> Hospice is a poetics of space as much as there is a volume and a shape of space and a spirit to a building as much as there is a schedule of works and accommodation. (Worpole, 2009, p.10).

In brief, hospice as a healing space, not only provides amenities to support the patients and their families, but also palliates their emotions (fear and anxiety) and reflects the meaning of life by creating *poetics of spaces* integrating the nature and architecture (Worpole, 2009).

This study has not considered the pediatric hospice or AIDS hospice facilities, only the general type of hospice, which accommodate patients who are mostly 65 years of age or older. So, this study has served as an exploration of this demographic and their needs. To gain the comprehensive knowledge about the individuals as an older person, the next section has discussed the theoretical background developed in the area of environmental gerontology.

Hospice as a Place

The German philosopher, Martin Heidegger, in his famous analysis of death in *Being and Time*, originally published in 1927, indicated that "death is not an event but rather an existential phenomenon." Hospice is a place of this phenomenon of death. The analysis of hospice as a place is significant because the place experience of hospice has an imperative impact on the patient "quality of life" (Cohen *et al.,* 2001) and the possibility of a "good death" as defined by Tong and his colleagues (2003). Also, a significant number of studies have examined how the physical environment can influence a patient's well-being, promote healing, and relieve pain and stress (Ulrich et al., 2008).

The Person and the Environment. To identify the connection of the dying person and the hospice environment, the theoretical perspectives on the person, the environment, and the relationship between them needs to be explored. In 2003, Moore and his colleagues published an article in the *Journal of Environmental Psychology* summarizing the theories on the relationship between older person and the environment. The following discussion is based on that article (Moore et al., 2003).

The person. Lawton (1989) conceptualized the older person as having a set of five given behavioral competences; biological health, functional health, cognition, time use, and social behavior. Here functional health is the degree to which a person may successfully complete a given set of functions; "activities of daily living" (e.g. eating, dressing), and ''independent activities of daily living'' (e.g. go shopping) (p. 472). Lawton referred cognition to such skills as problem-solving, memory, and perception. As one moves from the first (biological health) towards the fifth (social behavior) competence, they become increasingly negotiated by the social and physical environment which one was experiencing.

The Environment. Lawton identified that certain environments placed greater demands on people than others depending on the provision of sensory stimulation, privacy regulation, orientation, and other traditional environmental psychology topics of interest (Lawton, Weisman, Sloane, & Calkins, 1997 in Moore et al., 2003). Lawton identified five environments to consider in understanding person–environment relations: personal; group; suprapersonal; social; and physical. The personal environment includes significant others in the life of the individual (e.g., parents, spouses, or coworkers). The group environment reflects the influences of a collection of individuals in some structural relationship to the person. The suprapersonal environment is defined by the aggregate characteristics of those others in proximity to an individual (e.g. average age or income). The social environment means larger socio-cultural forces (such as political movements), and the physical environment is the natural or built environment. While Lawton acknowledged that the distinctions between these categories are not always clear, the heuristic value of such classification is clear for conditioning inquiry and for highlighting the inter-relationships between environments.

The reciprocity of person and environment. The conceptualizations of person and environment by Lawton must be understood in relation to the dynamic interplay between the two as embodied in Lawton's Ecological Model of Aging, the ‘‘competence-press model’’ (p. 473). "Lawton began his theorization regarding person–environment relations by building upon Kurt Lewin's (1951) famous ecological equation, $B = f(P,E)$, which suggests that behavior (B) is a function of the person (P) and the environment (E)" (as cited in Moore et al., 2003, p. 473). Thus, the relationship between a person with given behavioral competences experiencing an environment of given press could be graphically depicted as is found in Figure 2-2.

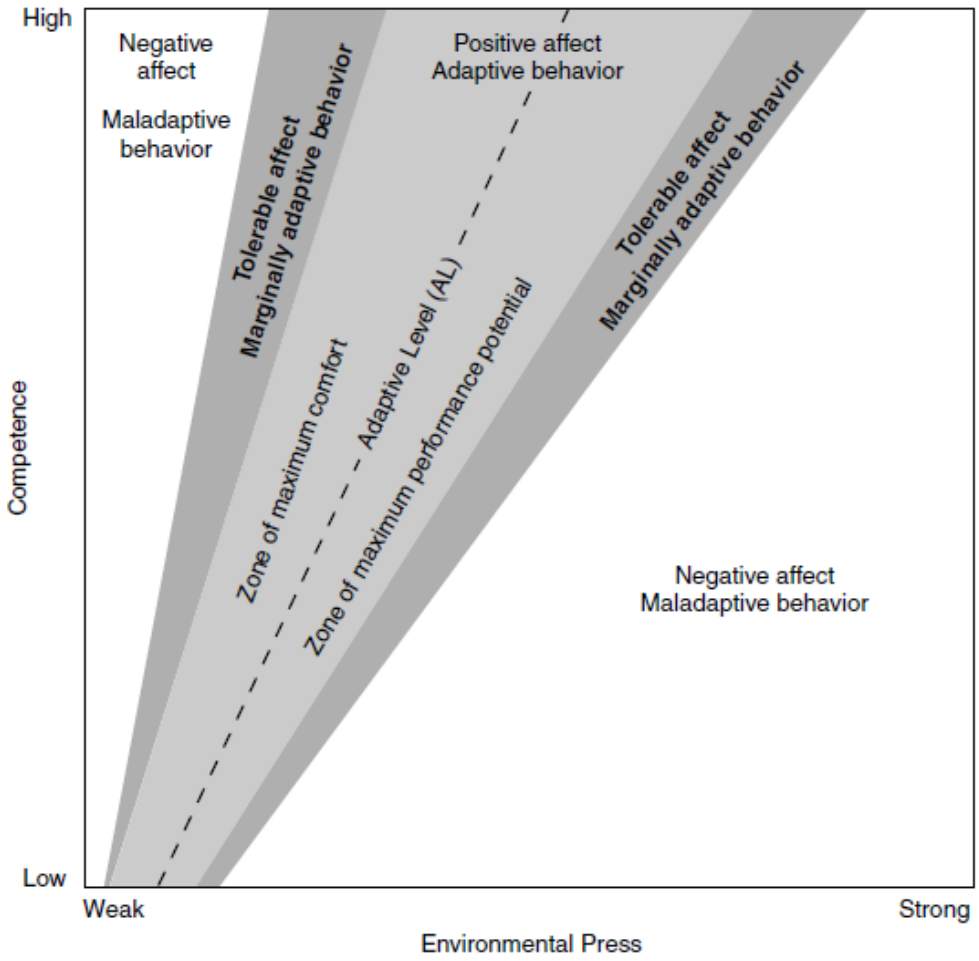


Figure 2-2. Lawton and Nahemow's Press-Competence Model (adapted from Lawton & Nahemow, 1973).

This model has several important theoretical aspects according to Moore, et al. (2003). The first is Lawton's ability to depict that for a person of a given competence, their environment could elicit maladaptive behavior, marginally adaptive behavior, comfort, or enhance performance. The second is the assertion that for different levels of competence there are different ranges of environmental press within which a person may operate effectively. According Lawton (1986), a small improvement in environmental quality could make all the difference in the world to a person with major limitations on his (sic) competence. The third is

his assertion that affect is an equally important outcome of person–environment relationships as is behavior.

The environmental docility and pro-activity hypotheses was proposed by Lawton (1990) to address the issue of person-environment in age-specific settings. Environmental docility refers to those situations in which personal competence declines and behavior is increasingly affected by characteristics of the environment. In contrast, environmental proactivity describes situations in which an increase in personal competence enhances a person's ability to make use of environmental resources and achieve a more positive outcome.

The environmental docility hypothesis has been defined as, "The less competent the individual, the greater the impact of environmental factors on that individual" (Moore et al., 2003, p. 472). The docility model asserts that as physical and mental health declines, environmental modifications and adaptive devices may be utilized to compensate for losses in competency, and may have a disproportionately stronger and more positive effect on impaired older people's behavior (Lawton, 1985, 1990; Tofle, 2009). To that end, an incremental improvement in environmental quality could be monumental to a person with major limitations, just as a small decrease in quality could totally disrupt that same person's equilibrium (Lawton, 1986; Moore et al., 2003).

The environmental pro-activity model provides, "As personal competence increases, the variety of environmental resources that can be used in satisfaction of the person's needs increases" (Lawton, 1990, p. 639). Lawton (1985) further proposes that environmental resources are likely to be better used by people of higher competence either can manipulate the environment independently or can utilize adaptive resources to increase control of their surroundings to satisfy their personal preferences related to space and place.

Although each position is unique in its premise, both suggest a continuum of responses or behaviors (Lawton, 1977). Together, these models illustrate the dynamic, reciprocal relationship between elderly persons and their environment (Moore et al., 2003), and "the exercise of personal competence at any level may be promoted by an environment provided, either by external circumstances or by personal choice" (Lawton, 1990, p. 639).

The Ecological Framework of Place (EFP). The notion of developing one coherent and useful framework or conceptual model of "Place" has been focused since the 1970s (Gubrium, 1978) as the core concept of environmental gerontology (Diaz Moore, 2014. P. 183). Forty years ago, Lawton and Nahemow (1973) published the primary environmental gerontology theory, 'the Ecological Model of Aging'. David Canter (1977; 1983; 1991) also provided a central theory (Figure 2-3) in environmental psychology, 'the Theory of Place' (Diaz Moore, 2014).

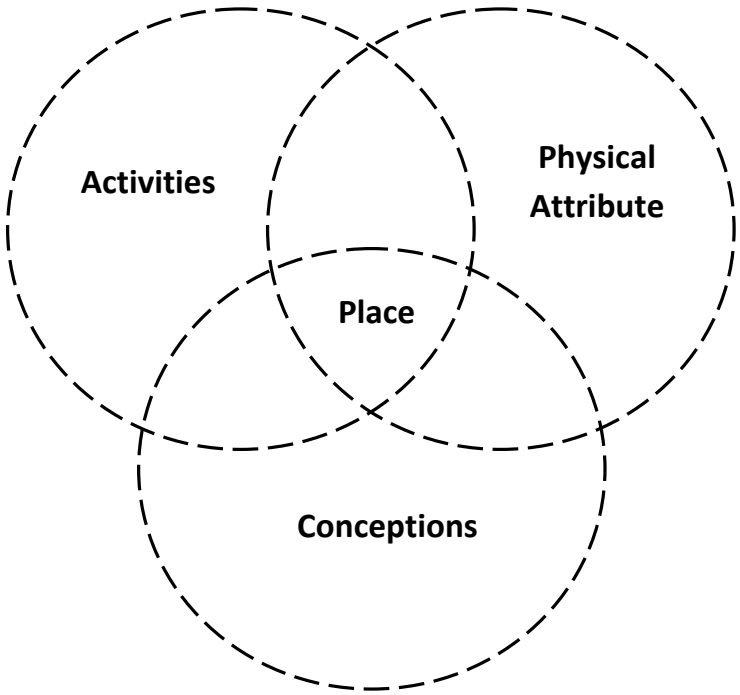


Figure 2-3. Diagrammatic view of Canter's Theory of Place (adapted from Canter, 1977, p. 158 in Diaz Moore, 2014).

In 2006, Diaz Moore and his colleagues developed 'A Model of Place' (Figure 2-4), consisting of three components; people, program and physical setting. The *people* component is composed of human beings at three levels of social aggregation: individual (participants); group (care professional and families); and organization (formal organization). The *physical setting* component is defined in two complementary ways; systems and properties. The *program* is defined by implicit and explicit intentions (activities and services). The result of the intersection of these three components is *place experience,* lies at the core of the model (Diaz Moore et al., 2006).

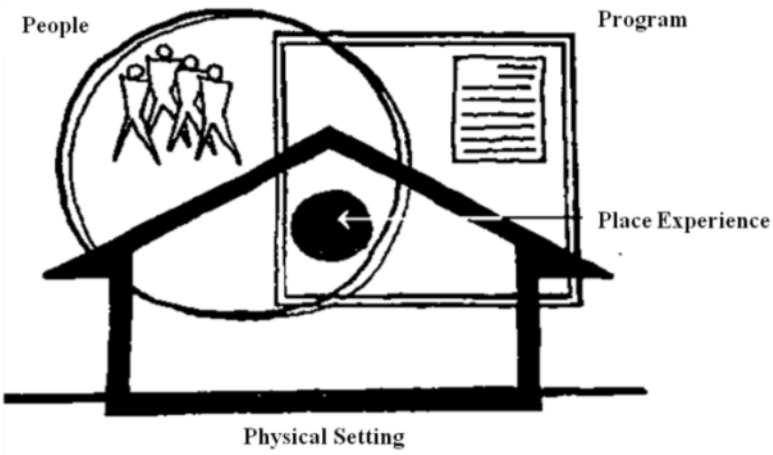


Figure 2-4. A Model of Place (adapted from Diaz Moore et al., 2006, p. 47)

In 2014, Diaz Moore developed 'the Ecological Framework of Place' (EFP), suggesting that "place is a milieu involving the *physical setting*, *people* ("place participants") and the *program* of the place, catalyzed by situated human *activity* and acknowledged that all four may change over *time"* (Figure 2-5). This model has been articulated from environmental psychology, environmental gerontology, and from the life course perspective; it has been examined for its incorporation of key themes of developmental science theory, as well as, for its theoretical, methodological and practical implications (Diaz Moore, 2014).

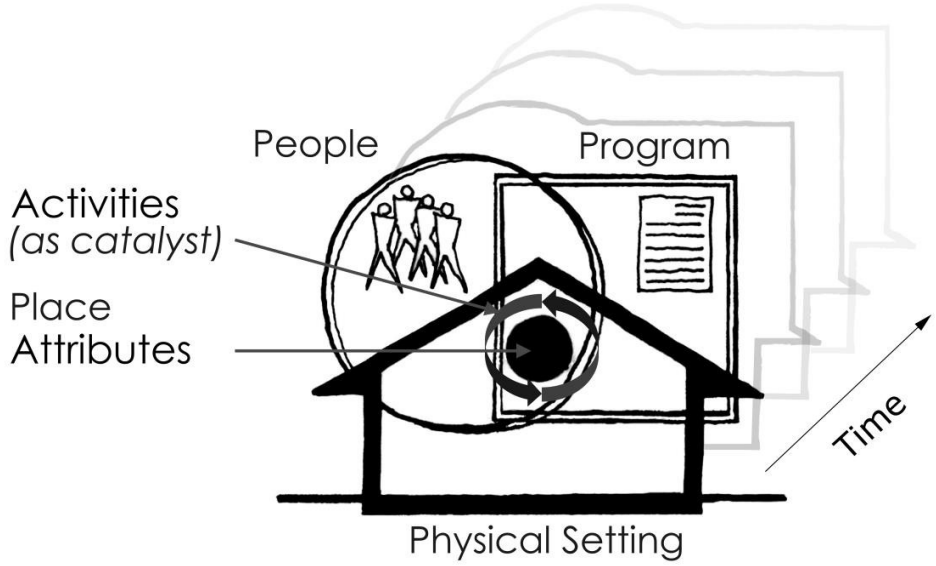


Figure 2-5. The Ecological Framework of Place for Aging (adopted from Diaz Moore, 2014 p.185)

As the EFP views *place* as a socio-physical milieu, it can be a suitable method of analysis and help develop understanding of hospice as a *place*.

Dying with Dignity is the core concept of the hospice-care movement, and defined as a basic constitutional law (NHS Estates report, 2005; Article 1 of the German Constitute in Pleschberger, 2007). The following diagram (Figure 2-6) represents a nursing home resident's concept of dignity, as developed by Pleschberger (2007), which demonstrates how various components, such as, the social relations, lifetime achievements (life course), quality of care (hospice care), personal beliefs, integrity and meaning, relate to the concept of dignity.

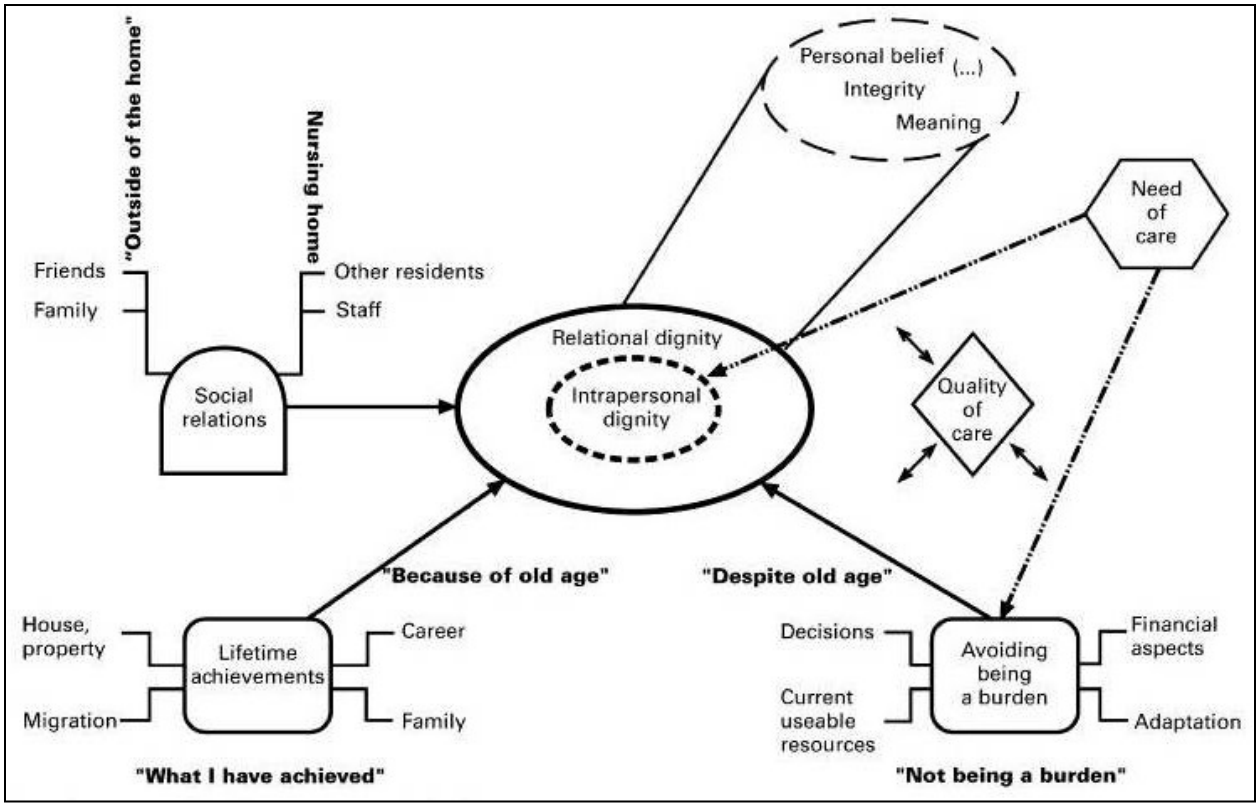


Figure 2-6. Nursing Home Resident's Concept of Dignity (adopted from Pleschberger, 2007, p.199)

To integrate this concept of *dying with dignity*, the hospice as place needs to consider patients in a subjective manner. This can be well addressed by the EFP model because it explicitly adopts the theme of developmental science theories: relational metatheory and integrated levels of organization; social embeddedness; temporality; and human agency. All these themes have integrated relationships in understanding the hospice patient, their concept of dignity, and their experience of place more subjectively. For example, how the dying person experiences the self and how the person individually interprets cultural meaning and importance of a place (hospice), has relationship with person-environment transactions (Rubinstein & de Medeiros Model, 2004).

As mentioned earlier, the hospice provides care to different age groups of people, but mostly older adults. The EFP for Aging was developed for places serving older adults. To

analyze the hospice, this study will be based on the assumption that all the patients are older adults, because the pediatric patients have different psychological status and need very different program requirements of children's hospices.

EFP components for hospice.

Activities as Catalyst. *Activities* is the catalyst of *Place* in the EFP; it is the relationship between the *People*, the *Program* and the *Physical Setting* (Diaz Moore, 2014). *Places* become experienced through human action (activities) and *people* attribute certain qualities (*Place Attributes* in EFP) to those place experiences (Diaz Moore, 2014). This approach to understanding experience is complementary to the modality view of experience found in psychology, divided into the process stages of perception, cognition, action, affect, and meaning (Diaz Moore et al., 2006). Both modalities and attributes of place experience dividing up people's holistic experience of *places* (Diaz Moore et al., 2006). As these attributes reside in the deep core of human experiences, they are placed at the core of the EFP (Diaz Moore et al., 2006; and Diaz Moore, 2014).

Physical Setting. The *physical setting* is "purposeful interventions, as laden with intentionality as are the individuals who occupy them" and it has been understood in EFP in terms of both objective sensory and spatial properties as well as their systems (Diaz Moore, 2014). These components can be defined as *building systems*, *spatial properties*, and *sensory properties* (Diaz Moore et al., 2006). *Building systems* can be defined in terms of structure and enclosure systems (beams, columns, walls, and floors), mechanical systems (heating, lighting, and ventilation), and finishes and furnishings. For example, the patient's room should have enough daylight (an opening in the wall, which is structure and enclosure system) and also artificial light (mechanical system). *Spatial Properties* of the hospice can be defined by size,

shape, proportion, location and arrangement of spaces. For example, the patient's room should be a minimum of 250 square feet in size (Verderber & Refuerzo, 2006). *Sensory Properties* (objective sensory) can be defined based on the level of illumination, temperature, sound, and air movement. For example, the hospice setting should have controlled level of noise (Moorhouse, 2006; and Verderber & Refuerzo, 2006).

People. *People* mean participants of a program; it has been used in a manner to reinforce that the concept of *place* is at a social level of analysis, and also the "EFP views People as expressing agency" (Diaz Moore, 2014). In the hospice environment, People can be conceptualized at four levels of social aggregation; individual (patients), group (families and care professionals), organizational (hospice as a formal organization), and cultural (persons participating due to culture).

Patients mean individuals who are getting end-of-life care in hospice, certified under the Federal hospice regulations as "terminal" (a life expectancy of six months or less) (Government Printing Office, 2000 in Swenson, 2009).

Patient's family means those persons who provide support to patients, identified by the patient's or hospice authority as individuals with whom the patient has a significant relationship in knowledge, care and affection, regardless of legal or biological status (Consensus Project for Quality Palliative Care, 2004). Importance of the family during the experience of death is one of the ten domains that characterize the quality of the death experience (Tong et al., 2003). In recent years, the concept of family-centered care has developed, and hospice care services maintain continuity of support into bereavement (Swenson, 2009; and Verderber & Refuerzo, 2006). So, the patient's family is an integral part of care environment.

Care professionals means those individuals who are providing clinical (e.g., physicians, nurses) and paramedical care (e.g., chaplains) and support (e.g., social volunteers) to patients (Moorhouse, 2006).

Organizational means participants who are contributing to hospice work as a formal organization (organizational staff, administrator, custodian, etc.) (Moorhouse, 2006).

Cultural means those persons who are participants of hospice to represent a certain culture, or cultural need of patients. For example, in the movie, *The Godfather* (1972), when the Godfather (Marlon Brando) was in hospital, his personal bodyguards were standing outside the hospital to protect him or his family from the enemies, and also the enemies were doing rounds to kill him; these people (personal guards or enemies) cannot be defined as the patient's family (as defined by Consensus Project for Quality Palliative Care, 2004), but they are participants in the hospital (or hospice) as a cultural outcome of the *Italian American Gangster*.

The experiential modalities (perception, cognition, action, affect, and meaning) and objective characteristics (measured competence) of People (Diaz Moore, 2014) must be considered to develop an understanding about hospice as a place. For example, a patient's experience of his room requires *perception* of the surroundings (walls, ceiling, floor, furniture, window, etc.), organizing these perceptions into a coherent *cognition* (this is a rectangle- shaped room), formulating a plan of *action* which has relation with his very low competence level (he needs to move his head towards the window to see the outside nature), *affect* (enhance positive feelings/ lessen blood pressure), *emotion* (less depressed/stressed), and *attribution* of meaning (pleasing/healing/therapeutic) (Diaz Moore et al., 2006; Verderber & Refuerzo, 2006; and Ulrich et al., 1984).

Program. *Program* typically refers to the specified series of activities that the care organization has committed itself to perform. It is a set of explicit and implicit (presumed) intentions (Diaz Moore et al., 2006, p.5). In EFP, *Program* "refers to the inherent yet largely implicit socially shared understandings that enable effective co-action and forward the underlying, socio-temporally negotiated purpose of the place" (Diaz Moore, 2014, p.186). The socially understood purpose, or *program* of hospice is to provide care and support to the terminally-ill patients and their families as discussed above. To fulfill this purpose, a set of explicit and implicit (presumed) intentions have accommodated in hospice, for example, residential accommodation for patients (patient's room, toilet, bathing, dinning, closet, etc.), or support for families to provide care for patients (accommodation for overnight-stay, social spaces, kitchen, café, laundry, etc.).

In EFP, the *Program* is conveyed through *Place Rules* and *Place Roles* (Canter, 1985 in Diaz Moore, 2014). *Place Rules* are the patterns and stability of human activities that occur within given settings; for example, in the kitchen area attached to a family social space, the kitchen is the domain primarily used by the patient's family to prepare food for themselves and patients (Diaz Moore, 2004; and Moorehouse, 2006). *Place Roles* dually recognize the hospice physical environment:

a) "Places are dependent on certain activities being co-enacted that people are required to play requisite roles in places" (Diaz Moore, 2014, p.19); for example, the corridor (main purpose is circulation) outside the patient's room can be utilized or co-enacted by the patient's family and care providers as a communicative space to discuss patient's situation (Anderson, 2008).

b) "An individual's assessment of a place is shaped by the set of roles available in that place and limitations with regard to the roles one enacts or is capable of enacting" (Diaz Moore,

2014, p.20). For example, with the patient's room having a wide door (role: to exit with bed) directly connected to the outside terrace garden, and the patient's bed with wheels (role: to push for moving), the family member can enact the action of taking the patient's bed to the garden (Verderber & Refuerzo, 2006).

Understanding of hospice *Program* through *Place Rules* and *Place Roles* are significant. For example, hospice patients are mostly bedbound and unable to walk around, and most of the spaces are used by family and staff, even in the patients' room. For designing a better place, analysis of rules and roles should be the beginning point.

Time as Change Agent. The EFP identifies *Time* as an integral aspect of place, the *Change Agent* (Diaz Moore, 2014). *Time* is a significant agent of hospice care, because it provides care to individuals who have life expectancy of six months or less; the patient's length of stay is basically the awaiting time to die. It is a temporary shelter for patients and their families, to accommodate the most important event of life, the death (Worpole, 2009). So, every day and every moment become intensely experiential and different (Rijbi et al., 2010). Although the patient's *place experience* ends with death, the family's *place experience* continues throughout bereavement (Swenson, 2009). *Time* has impact on *place experience* of hospice mainly in the following ways: time of the day, month, year can change certain properties of place, which may create rapid change of "cognitive-affective appraisals" in people (Diaz Moore, 2014), such as, the illumination level of daylight in patient's room changes with time, or access to garden becomes restricted during winter snow fall (Moorhouse, 2006).

As the patients' health status varies with time (deteriorating), the competence level and the needs of patient can be changed, so do the place rules and roles of a place. For example, patients with better health status like to enjoy the daylight through a window; it may be like a

visit to an outside garden. But, towards the end when the patient is in a vegetative state or most of the time sleeping, he or she may prefer to close the curtain of their room all the time to avoid daylight (Swenson, 2009).

Summary. From the above discussion, it can be summarized that the Ecological Framework of Place (EFP) is a suitable heuristic approach to understand a place. This analysis would be more comprehensive with the identification of place attributes (therapeutic goals) of hospice environment, which is one of the objectives of this study and the findings have discussed later. The therapeutic goals of hospice would provide a useful point of departure in which to engage in effective, systemic place making.

Post-Occupancy Evaluation

> The process of evaluating buildings in a systematic and rigorous manner after they have been built and occupied for some time ...(Preiser et al., 1988)

During the 1960s and 1970s, *Post-Occupancy Evaluation* (POE) was developed through a convergence of interests among social scientists, designers and planners. By the 1980s, it had significantly advanced in theory, method, strategy, and applications. POE became the focal point for discrete research areas, such as the built environment, facility management, and building delivery process. Since then, studies have been conducted to identify the diversity and variety in the application of POE (Preiser 1988; Zimring 2001; Kooymans and Haylock 2006).

What is POE?. POE may be defined as the process of systematically evaluating buildings after they have been built and occupied for some time. POE is an assessment of the effectiveness of occupied built environments for human users that focuses on occupant's satisfaction and functionality of space; where, 'effectiveness' corresponds to the achievement of personal and organizational goals by the enhancement of physical and organizational factors

(Friedmann et al. 1978; Preiser 1989; and, Zimmerman and Martin 2001; and, Turpin-Brooks and Viccar 2006). Another way to describe POE is a measurement of building performance throughout the life cycle of building from initial concept through occupancy such that the information gathered is used to improve future building designs (Turpin-Brooks and Viccar 2006; RIBA 1991; Preiser 2002; and Zimmerman and Martin 2001).

Building life cycle is comprised of six phases: planning, programming, design, construction, occupancy, and recycling, and each of these phases has corresponding assessments. POE differs from those assessment or evaluations in four ways (Preiser 2001, 2002):

- The evaluation target is *building performance* from the occupant's point of view;
- An evaluation criterion comes from the stated design criteria;
- The main measure in POE is the occupant's perception and satisfaction, and whether the designed environment supported their ability to perform; and,
- POE can include various issues about functionality of the environment as well as the occupants' satisfaction based on their psychological and social needs due to the method that involves human subjects.

POE is also defined by Zimring (1990) as "the examination of the effectiveness of designed environments for human users" (p. 270). It carries significance to the architects, builders, housing management and other housing authorities as it can provide an objective assessment of the strengths and weaknesses of an environment. According to Zimring (1990), historically post-occupancy evaluations were developed for three reasons: first, to understand the user's opinion; second, to examine conceptual problems such as way-finding and environmental stress; and third, to influence the views of organizations regarding the design of an existing or

planned built environment. These three reasons have strong links to Lawton and Nahemow's (1973) press-competence model discussed in the previous section, because they strive to look for the congruence or fit between the person and the environment.

Conceptual Model. The *building performance* concept is based on the assumption that a building is designed and built to support and enhance, the activities and goals of its occupants (Preiser, 1989). The following (Figure 2-7) shows the three major elements of building performance: buildings and settings, occupants, and occupant needs (Preiser, 1989). These major elements are measured, evaluated, and used in POEs to improve buildings in three major categories: technical; functional; and behavioral (Preiser, 1989).

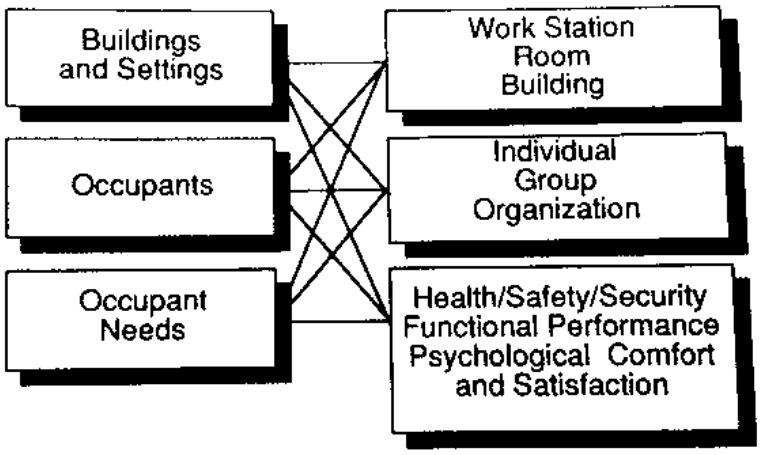


Figure 2-7. Elements of Building Performance (Adapted from Preiser, 1989).

This model has similarities with the model proposed by Diaz Moore and his colleagues (2006), called *A Model of Place* (in previous chapter, Figure 2-4); physical setting (buildings and settings), people (occupants), and program (occupant needs). The reason for comparing these two models is to prove that the product of the intersection of these three components is *place experience*; how a person experiences the environment. Early POE researchers were strongly

interested in understanding the experience of building users (Zeisel, 1975). For hospice, *patients' experience* plays a significant role in end-of-life care (will be discussed later).

There are several other studies that have identified the built environment characteristics that affect human behavior and comfort. For example, the Keys and Wener (1980) study outlined the relationship between physical environment, organization setting of the workplace, and staff perception and behavior; as shown in the Figure 2-8.

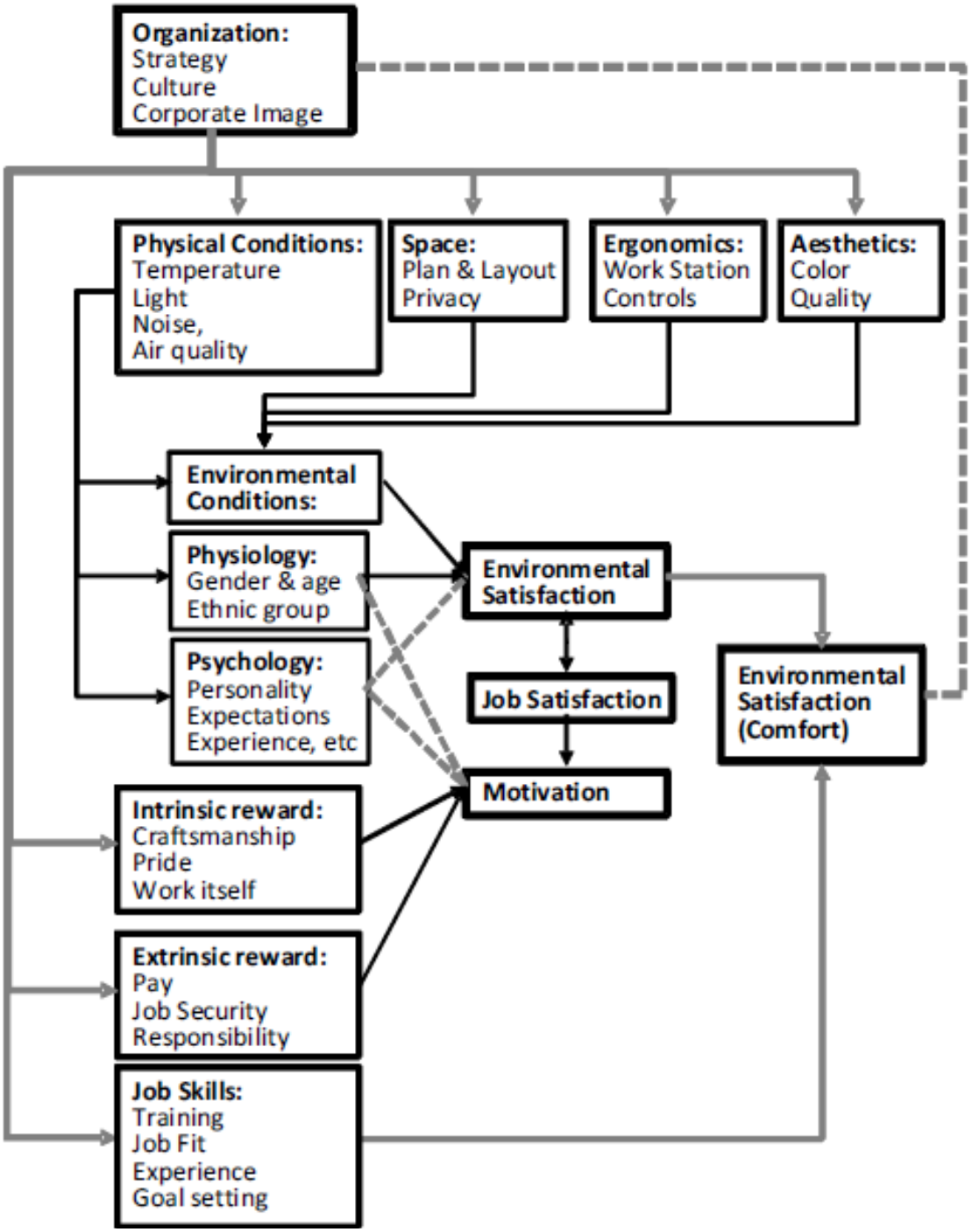


Figure 2-8. Relationship between Environment - Conditions, Occupancy Satisfaction, Productivity and Motivation (Adapted from Keys and Wener, 1980).

Another example is the *Conceptual Model of Environmental Behavior* by Marans and Spreckelmeyer (1981). This model (Figure 2-9) shows that how the physical environment and organizational setting of the workplace influences the perceptions and behaviors of workers. It relates objective environmental attributes to subjective user perceptions and assessments of the effect of the work environment on occupant behavior and satisfaction (Kirk and Spreckelmeyer, 1993).

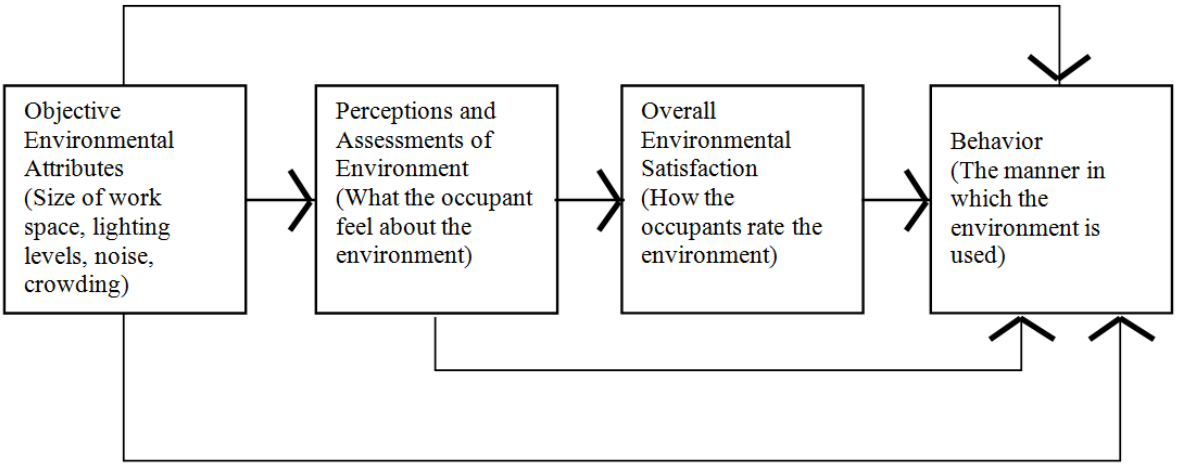


Figure 2-9. Conceptual Model of environmental behavior by Marans and Spreckelmeyer, 1981 (Adapted from Kirk and Spreckelmeyer, 1993).

Different Levels of POE. Wolfgang Preiser advocated three levels of POE: brief *indicative* studies, if the building under consideration has issues; more detailed *investigative* POEs, which focuses on the specific issues if there are any; and *diagnostic* studies aimed at correlating environmental measures with subjective user responses (Preiser, 1994; Preiser, 2002). All these levels are based on the purpose of conducting the evaluation and availability of resources such as budget, time, and work force (Preiser, 2002; Turpin-Brooks and Viccar, 2006). These three levels are summarized in Table 2-2.

Table 2-2: Levels of Post Occupancy Evaluation (adopted from Preiser, 1995).

		Phase 1	Phase 2	Phase 3
Level of Effort	Level 1: **Indicative**	Planning ⇨	Conducting ⇨	Applying
	Level 2: **Investigative**	Planning ⇨	Conducting ⇨	Applying
	Level 3: **Diagnostic**	Planning ⇨	Conducting ⇨	Applying
Steps		1.1 Reconnaissance & feasibility 1.2 Resource Planning 1.3 Research Planning	2.1 Initiating on-site data collection process 2.2 Monitoring & managing data collection procedures 2.3 Analyzing Data	3.1 Reporting finding 3.2 Recommending actions 3.3 Reviewing outcomes

Indicative level POEs. Usually present an overview of building performance and give an indication of major strengths and weaknesses of a particular building's performance. They usually consist of a walk-through and selected interviews with knowledgeable informants. It usually involves an interview with knowledgeable informants (the facility owner or manager), accompanied by a walk-through to record the positive and negative aspects of building performance. The evaluator may also use graphic images or photographs to substantiate observations. Typically, the time required for this level of evaluation depends on the size and complexity of the facility. A 10,000 square foot facility can be completed in less than half a day by a team of one to three persons who are familiar with the building type under consideration (Preiser, 1989; and Preiser, 2002).

Investigative level POEs. Go into more depth whereby objective evaluation criteria are explicitly stated and require more involvement from the evaluators. More rigorous evaluation techniques are employed to produce more reliable data compared to the first level. Investigative POE must be preceded by an indicative POE, such that a detailed evaluation is carried out of particular problems within the building in general. An indicative study is supported by survey

questionnaires of building occupants and can extend over several weeks and months (Preiser, 1989; and Preiser, 2002).

Diagnostic level POEs: Require considerable effort and consume the maximum resources in terms of time, money and labor versus the other two levels, and utilize sophisticated measurement techniques. The POEs are the most intense reviews of building performance that correlate and verify the physical performance data with occupant responses. It can extend over longer durations as compared to the other levels. The outcomes of this level of POE conducted across comparable facility types and sizes, thereby acquiring highly generic and valid data over a period of time will have great value and potential to transform into guidelines for organizations (Preiser, 1989; and Preiser, 2002).

The summary of POE levels with regard to methods that may be employed, time that is required and general comments assembled by Turpin-Brooks and Viccar in 2006 has shown below in Table 2-3:

Table 2-3: Method of Three POE Levels (adopted from Turpin-Brooks and Vicar, 2006).

Indicative			
Aims	Methods	Time Scale	Comments
Assessment by experienced personnel to highlight POE issues	• Walk-Through Evaluation • Structured Interviews • Group Meetings With End Users • General Inspection Of Building Performance • Archival Document Evaluation	Short Inspection period	• Quick, simple, not too intrusive/ disruptive to daily operation of building. • Judgmental and overview only.
Investigative			
Aims	Methods	Time Scale	Comments
In-depth study of building's performance and solutions to problems	• Survey Questionnaires • Interviews • Comparison of results with similar facilities • Report appropriate solutions to problems	One week to Several Months	• In-depth/ useful results • Can be intrusive/ time consuming depending on the number of personnel involved
Diagnostic			
Aims	Methods	Time Scale	Comments
Show up any deficiencies (to rectify) and collect data for future design of similar facilities	• Sophisticated data gathering and analysis techniques • Questionnaires • Surveys • Interviews • Physical measurements	Several months to several years	• Greater value in usability of results. • More time consuming.

As HEAP would be the first POE tool for hospice environments, so this study has considered to develop it as an indicative level of POE, which involves an assessment by experienced personnel to highlight evaluation criteria. To conduct this POE, the methods involved are structured interviews with the staff and a walk-through evaluation. The methods of using HEAP has discussed later in Chapter-8.

Environment Evaluation Tools. The theoretical background of person, environment, and the relationship between them was discussed earlier. To assess an environment, it is essential to understand the meaning of "environment". This study considered the definition provided by Cohen and Day (1993) as: "the interaction of organizational factors (i.e. policy, program, and services), the social environment (e.g. formal and informal caregivers), and the physical setting" (p. 9).

According to Lawton et al. (1984) living environments can be evaluated on the basis of meeting three goals: the first, to evaluate the performance criteria in terms of how the environment helps or hinders certain behaviors; the second, to evaluate the subjective criteria of environment, that includes the expectations and evaluations of the user and is measured by collecting subjective responses; and the third, to assess its social criteria by considering a group's social norms and cultural values. All of these criteria are represented in varying degrees throughout the history of post-occupancy evaluations. Environmental assessments begin in history with the suggestion by Kleemeier in 1959 (as cited in Lawton, 1980) that residences could vary along the dimensions of segregation, congregation and control. After a decade, Pincus and Wood (1970) added the dimensions of privacy, freedom, resources, integration and personalization; and these dimensions became the basis for the environmental assessment tools developed in the 1980s and 1990s.

In the 1980s, the first multi-dimensional tool was developed, the *Multiphasic Environmental Assessment Protocol* (MEAP) (Moos & Lemke, 1980) for assessing congregate housing facilities. This was followed by the *Therapeutic Environmental Screening Scale* (TESS) (Sloane & Mathew, 1990), the *Environment-Behavior* (E-B) model (Zeisel, Hyde, & Levkoff, 1994), the *Nursing Unit Rating Scale* (NURS) (Grant, 1996) and the *Professional Environmental*

Assessment Protocol (PEAP) (Norris-Baker *et al.,* 1999). Later, several other instruments were developed, among those the *Environmental Quality Assessment for Living* (EQUAL) checklists (Cutler et al., 2006) and the *Sheffield Care Environment Assessment Matrix* (SCEAM) (Parker, et al. 2004) are most prevalent.

Other Evaluation Tools. The *Multiphasic Environmental Assessment Protocol* (MEAP) was developed by Moos and Lemke (1980) and is the most comprehensive environmental evaluation instrument for use in nursing home facilities. It has five major rating instruments and each has the subcomponents of *Physical and Architectural Features Checklist* (PAF), *Policy and Program Information Form* (POLIF), *Resident and Staff Information Form* (RESIF), *Sheltered Care Environment Scale* (SCES) - Form R, and the *Rating Scale* (RS). The MEAP has been used for two decades in environmental research; it is known as a practical, inexpensive broad-based evaluation tool with a multi-method approach. It has also received many criticisms for its use of absolute terms and its difficulty in interpretation (Billingsley & Batterson, 1986). The MEAP was not chosen as a precedent tool for this study, because the questionnaire is extremely long. MEAP often requires multiple visits and hours of observations, whereas PEAP takes approximately two hours to administer.

The *Therapeutic Environment Screening Scale* (TESS) developed by Sloane & Mathew (1990) in its revised TESS+ form was used in the 1990s in the cooperative evaluation of dementia special care units (SCUs) sponsored by the National Institute on Aging to assess eight environmental domains: general design features; maintenance; inventory of spatial amenities and seating capacity; lighting; noise; amenities; programming; and global environment (Sloane, Mitchell, Long, & Lynn, 1995). TESS does not assess the physical environment specifically; it goes beyond physical environments to include programs and practices within the environments.

The TESS is a 12-item observational rating scale reflecting five principles: elimination of potentially noxious stimuli; enhancement of mood and self-image; promotion of safety; accommodation of a range of private and social activities; and provision of access to the outdoors (Grant, 1996). The TESS can be completed by a researcher with modest training by walking through a care unit and noting the presence of, or areas, or counts, of observable features of the environment. A number of aspects of care environments that were superior in SCUs to those found in non SCUs (Lawton et al., 1997). It led to the development of the PEAP as a benchmark against which other instruments could be compared. PEAP was chosen for this study instead of TESS for two reasons. First, Swenson (2009) tested the TESS-NH items on designated hospice rooms in ten nursing homes in the Midwest and identified the gap in usefulness of the (TESS-NH) in hospice rooms, and that is one of the grounds for the initiation of this study. Second, PEAP goes beyond simple documentation of objective properties of the setting to provide a more global set of evaluations, rather than more typical checklists of discrete environmental features such as TESS.

The *Environment-Behavior* (E-B) model was developed by Zeisel, Hyde, and Levkoff (1994) for special-care units and it assesses eight conceptually derived environment concepts: exit control; wandering paths; individual away places; common space; outdoor freedom; residential scale; autonomy support; and sensory comprehend ability. The E-B model was not selected because this instrument requires extensive training to develop rater as it depends on rater's judgments.

The *Nursing Unit Rating Scale* (NURS) was developed in 1996 by Grant defining six global concepts hypothesized to influence how people with dementia adapt to institutional environments: separation; stability; stimulation; complexity; control/tolerance; and continuity.

These concepts could be linked to adaptation through theories of environmental press and/or environment stress. They have special relevance to core problems commonly faced by residents with dementia in nursing homes, and they also have the capacity to affect behavioral outcomes in these patients (Grant, 1996). The process involves interviews with the nurse staff and measures care practices and policies. This instrument does not focus on physical environment, so didn't consider as a precedent tool.

The *Environmental Quality Assessment for Living* (EQUAL) checklists collects data on resident room, nursing unit and overall facility and creates resident specific measures and link to these resident outcomes and examines variation within and across facilities. The room and bathroom checklist has 112-items, the nursing unit checklist has 140-items, and the overall facility checklist has 134-item for assessment. The process is geared to individual resident for information on their specific space, and the instruments are easily transferable to other settings. It has not chosen for this study because the resident of hospice facilities are terminally ill, mostly bedbound and may be in a vegetative state, so it would be challenging for them to participate in the evaluation process (Cutler et al., 2006).

The *Sheffield Care Environment Assessment Matrix* (SCEAM), developed by Parker, et al. (2004) in the United Kingdom, provides a comprehensive assessment of the physical environment of residential care facilities for older people and consists of 370 items, each relating to a specific building feature. These are organized within a series of location categories (e.g.: day spaces, private rooms). To evaluate a building, the assessor walks through the facility and scores each item on the checklist, either as 1 (present) or 0 (absent). A recent review of relevant instruments (Nordin et al., 2011) identified the SCEAM as one instrument that met several important criteria for having application in the assessment of residential care facilities. But,

PEAP has chosen over SCEAM, because it provides a more global set of evaluations, rather than more typical checklists of objective properties.

PEAP. As mentioned earlier in Chapter-1, the Professional Environmental Assessment Protocol (PEAP) was developed to provide a standardized method of expert evaluation of SCUs for people with dementing illnesses such as Alzheimer's disease and related disorders (Norris-Baker et al., 1999). Although the PEAP is focused on the physical setting, the assessment is conducted within an understanding of the larger milieu of the social, organizational, and policy environments (Figure 1-1). Unlike tools that enumerate objective components of the environment and are relatively value free, the PEAP includes integral evaluative aspects that reflect its conceptual origins (Norris-Baker *et al*., 1999).

The PEAP (Appendix A) evaluates SCU settings with respect to eight dimensions of "the environment as experienced" that have been judged by consensus among a group of experts to be therapeutic with respect to the care of persons with dementia (Norris-Baker et al., 1999). The eight dimensions are presented below.

1) *Maximize safety and security*: The extent to which the environment both minimizes threats to resident safety and maximizes the sense of security of resident, staff, and family members. This dimension focuses on ease of monitoring residents (especially wandering behaviors), control of unauthorized exiting, support of functional abilities (i.e., reducing falls) and provision of specialized equipment. Example of support: use of handrails and nonskid floors.

2) *Maximize awareness and orientation:* The extent to which users (often staff and visitors as well as residents) can effectively orient themselves to physical, social, and temporal dimensions of the environment. Assessment focuses on signage, temporal and spatial

predictability, visual differentiation and structural characteristics (size of unit, etc.). Example of support is use of landmarks and other cues to promote awareness and orientation.

3) *Support functional abilities:* The extent to which the environments, and the rules regarding the use of the environment, support both the practice and continued use of everyday skills. These skills can be divided into activities of daily living (e.g., ambulation, grooming, bathing, toileting, and eating) and instrumental activities of daily living (e.g., using the telephone, light house work, and food preparation). Assessment of this dimension focuses on independence in self-care, independence in meals and eating, and ability to do functional activities. Example of support: a clear wandering path supports a resident's functional abilities and reduces a resident's dependence on staff.

4) *Facilitation of social contact:* The extent to which the physical environment and rules governing its use support social contact and interaction among residents. Assessment of this dimension focuses on the provision of a range of social spaces (opportunities for social contact), presence and placement of furnishings, presence of props or familiar artifacts, and social indicators (resident is alone or with others). Example of support: separate rooms and alcoves are built to support social contacts.

5) *Provision of privacy:* The extent to which input from (e.g., noise) and output to (e.g., confidential conversations) the larger environment are regulated. Assessment of this dimension focuses on policies regarding privacy, characteristics of residents' rooms (private vs. semi-private) and the availability of space alternatives (private to public domains). Example of support: availability of a range of public and private spaces for residents.

6) *Opportunities for personal control:* The extent to which the physical environment and the rules regarding the use of the environment provide residents with opportunities consistent

with their level of ability. The definition also encourages staff to allow residents to exercise their personal preferences and to make choices about what they will do and when it is done. The assessment of this dimension focuses on policies regarding space use and resident behavior, presence of chairs and other props and control over micro environment. Example of support: scope and opportunity in patient's room to make their own decisions and personalize their rooms.

7) *Regulation and quality of stimulation*: The seventh PEAP dimension is the regulation and quality of stimulation. Norris-Baker et al. (1999) state people with dementia have a decreased ability to deal with potentially conflicting stimuli and have greater difficulty distinguishing between foreground and background stimulation. Therefore, the environment must be sensitive to both the quality of stimulation and its regulation. The goal is stimulation without stress. Assessment of this dimension focuses on the regulation and quality of acoustic, visual, olfactory, and tactile stimulation. Example of support: an environment free from noxious noises or odors.

8) *Continuity of the Self*: The extent to which the environment and the rules regarding its use attempt to preserve continuity between present and past environments and the self of past and present. This can be expressed either through the presence of personal items belonging to the individual or by the creation of a non-institutional ambiance. Assessment of this dimension focuses on the extent of personalization, non-institutional environment (i.e. home-like), and the continuity of familiar behavior patterns and life-style. Example of support: providing a home-like environment that maintains as many links as possible to the residents' past.

Although the PEAP includes some assessment of organizational and policy features of the environment, the major emphases are on the physical environment. Three levels of physical

setting are considered when completing a PEAP. Fixed or structural features include those such as overall unit area and floor plan. Semi-fixed features include less permanent architectural elements, such as prosthetic devices or handrails. Non-fixed features include the presence of wall hangings and other props that decorate the environment and make it home-like (Norris-Baker et al*.,* 1999). The PEAP assesses the features of the environment that are believed to be therapeutic for persons with dementia, based on the current state of knowledge about environment-behavior relationships.

As mentioned in Chapter-1, PEAP has two major portions (Appendix A): the first portion called the PEAP Scoring Page, where eight above mentioned goals are assessed by the Directors of Care and the rater. The eight goals are rated on a 5-point scale.

1-2 = unusually low support

3-5 = low support

6-8 = moderate support

9-11 = high support

12-13 = exceptionally high support.

The higher scores indicate a more supportive environment and a low score would indicate an absence of these design features. Field notes are also made by the rater during observations, and information provided by the administrators and staff was used to prepare a narrative description and evaluation of the facility for each of the eight dimensions of the environment.

The second portion of the PEAP is the Staff Questionnaire that is supposed to be completed by the head nurse of each special care unit. This section does not include a rating scale but instead asks specific close-ended questions about each of the eight therapeutic goals. The Scoring Page and the Staff Questionnaire are similar in that they both ask respondents to

evaluate their environment and provide examples of each of the therapeutic goals. The two questionnaires differ as the Scoring Page evaluates the environment both quantitatively and qualitatively while the Staff Questionnaire uses only qualitative methods.

Summary

A number of POE tools are available for assessing environment of care facilities, mostly the nursing home with an emphasis on dementia special care units. None of these were designed specifically for use in hospice facilities or designated hospice room in nursing home. The need for developing an assessment tool for hospice is evident, and PEAP as a precedent model is paramount.

Three major reasons rationalized PEAP as an appropriate choice for inclusion in this current study. First, PEAP is an *Indicative level* of POE tool. This study wants to develop an indicative tool for hospice; the methods for this level POE tool are structured interviews with the staff and the wall-through evaluation. As discussed above, PEAP involves interviews with the staff and walk-through surveys by experienced personal to assess and score the evaluation criteria. Also, PEAP takes approximately two hours to administer which is a short inspection period as required for indicative level. For these characteristics, PEAP was found to be a suitable match for this level evaluation.

Second is the user's experience. Patients of hospice facilities are mostly bed-bound and most of their cognitive status is similar to the patients of SCUs for dementia care. As PEAP was developed based on the dementia care patient's experience, it was found most relevant for the hospice patients. Also, from most of the research on hospice patients' experience, the commonality found that the staff is expressing the patient's need or preferences about the environment. As PEAP includes a staff questionnaire, it provides the opportunity to the staff for

delivering their opinions. Also, PEAP includes an open-ended question which can be interpreted variously. The open-ended question allows the respondent to give responses that may be most salient to them about each environmental dimension.

The third is the reliability. PEAP has been shown to be a reliable tool. Norris-Baker et al. (1999) tested the reliability of PEAP in their study where twenty special-care units in Kansas were evaluated. Two raters completed PEAP assessments simultaneously but independently for twelve of the twenty units and provided data for assessment of reliability. Although the sample was small, results reported by Norris-Baker et al. (1999) indicated that the PEAP had good inter-rater reliability.

The above discussions in this chapter give us a sense of how we have come to think about care for the dying and how hospice care has synchronized today's death. The growth of creating new hospice facilities and renovating the old ones are increasing because of the rising number of the aging population in the United States. Defining therapeutic goals and developing assessment protocol for hospice environment carry significance in the quality-of-life of a dying person.

Chapter 3: Research Design and Methods

This chapter begins with a restatement of the research questions with a fuller understanding of the literature, theoretical support of the study, and the orientation with the precedent instrument, PEAP. Second, it explains the rationale for choosing the following specific research design. Third, it illustrates the research methods with phases of inquiry. Fourth, the strategies for ensuring trustworthiness described using Lincoln and Guba's (1985) four criteria: credibility, transferability, dependability and confirmability. This chapter ends by asserting the ethical considerations for this research study.

Restatement of Research Questions

This study focused on developing an indicative post-occupancy evaluation tool for hospice environments based on the patient's experience. The Professional Environmental Assessment Protocol (PEAP) is an assessment tool for use in special-care units for persons with dementia. PEAP has been selected as a precedent model for this current study to develop a similar tool for the hospice environment, titled the Hospice Environmental Assessment Protocol (HEAP).

To develop a tool like PEAP, this study has considered the following objectives:

1. To identify the 'Therapeutic Goals' of the hospice environment.
    a. To identify the definition of each goal;
    b. To identify the significance of each goal, 'why'; and
    c. To identify the design objectives and considerations of each goal, 'how'.
2. To develop Hospice Environmental Assessment Protocol (HEAP).
    a. To develop a list of design considerations for assessing the hospice environment;

b. To develop the evaluation criteria for each design consideration for a goal; and
c. To develop the five-point rating scale for each goal.

The user's manual for HEAP will be developed the in future, not in this current study. The process of evaluation and the content of the user's manual will be discussed in the conclusion.

Rationale for Qualitative Research

The rationale for choosing a specific research design is influenced by the researcher's understanding of the issues and problems under investigation (Tyson, 1992). How a researcher defines these points of inquiry naturally regulates the ontological and epistemological perspective of the research, and generates different types of data to answer research questions.

> The choice between the traditional scientific framework and the interpretive, naturalistic framework should be made to achieve agreement or accord between the values and assumptions embodied in a particular inquiry. (Rodwell, 1987, p.240).

In this study, the qualitative research method was used. Qualitative research uses a naturalistic approach that seeks to understand phenomena in context-specific settings, such as the "hospice setting", where the researcher does not attempt to manipulate the phenomenon of interest; instead, it unfolds naturally (Patton, 2002). Also, qualitative design methods are often highly appropriate for gaining an in-depth understanding of social phenomena, such as patients' experiences (Evans and Kowanko, 2000). Cresswell (1994) argued that a qualitative study is more suitable when a researcher has a research topic that needs to be explored because little

information exists on the topic or when the researcher wants to focus on the context in order to better understanding the process of the phenomenon being studied. From another perspective, Rodwell (1998) discussed the fit between qualitative methods and the research topic; a researcher should employ qualitative methods to investigate a complex subject where no single cause or combination of causes would be sufficient explanation.

The traditional quantitative framework is useful in understanding phenomena when the aim of the researcher is to arrive at generalizations through a deductive inquiry based on theory testing and control of the research settings for subject observation (Erlandson et al., 1993). This study seeks to explain a complex phenomenon from multiple perspectives in a natural setting through interpretations of individual and collective experiences. This study aimed to reveal the rich meaning that dying patients found in their affirmative experiences at the hospice environment, and to derive contextual information related to the process. So, selecting a qualitative research method is suitable for this study. Moreover, this project, developing HEAP, is building upon a precedent instrument, PEAP. The key method utilized during the development of the PEAP was qualitative as well.

Research Design

The qualitative research process evolved throughout the study period according to an emergent design (Erlandson et al., 1993; Lincoln & Guba, 1985). “Emergent” design is one that is not predetermined or finalized at the outset, strategies for data collection are open and depend on context, and revisions are made until the researcher is satisfied that the direction taken affords the greatest potential for discovery, meaningful answers to questions posed, or the generation of new hypotheses (or questions) (Suter, 2011). However, provisional planning helps the qualitative researcher to organize the research and move through the project with some estimation of a

timeline. Early decisions about what type of data should be collected and how it should be collected will undoubtedly be revised as the research progresses (Suter, 2011).

With that notion, this study had a provisional planning of research design to investigate the research questions and a multi-method research design was considered:

a) A systematic literature review, to identify the therapeutic goals (TGs) of the hospice environment and the design considerations to provide those goals;
b) Interviews with an expert panel, to collect their opinions about these set of goals and how to achieve these goals through design; and
c) Case study surveys, to examine how these goals are provided in the real life settings.

Systematic Literature Review. To develop a research-supported list of therapeutic goals for the hospice environment, a narrative literature review was completed using a systematic approach focusing on patients' experiences of end-of-life care. This study employed the literature review approach developed by Hawker and colleagues (2002) which outlines a process to systematically and objectively review research from different paradigms. Reviewing single sources of evidence might have limitations (Flemming, 2007), so this study considered a wide-ranging literature search from electronic databases, reference list searches, examination of literature recommended by relevant experts, and Google search for books, reports, and guidelines.

A search of seven electronic databases from 1998 to 2012 included PubMed, PsycINFO, Social Science Citation Index, the Science Citation Index, ProQuest Dissertations & Thesis, Avery, and Cochrane Library. The key words were selected in two groups and the search was conducted with individual cross matching from both groups. The first group includes 'hospice', 'palliative care', 'end-of-life', 'terminal care', 'dying', and 'terminally ill'. The second group

includes ‘environment’, ‘facility’, ‘design’, and ‘architecture’. Papers were only included if they were published in the English language, from 1 January 1998 onwards. The details of the literature search process (identification and selection) are shown in Figure 3-1, the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flowchart (Kader and Diaz Moore, 2015; Moher et al., 2009).

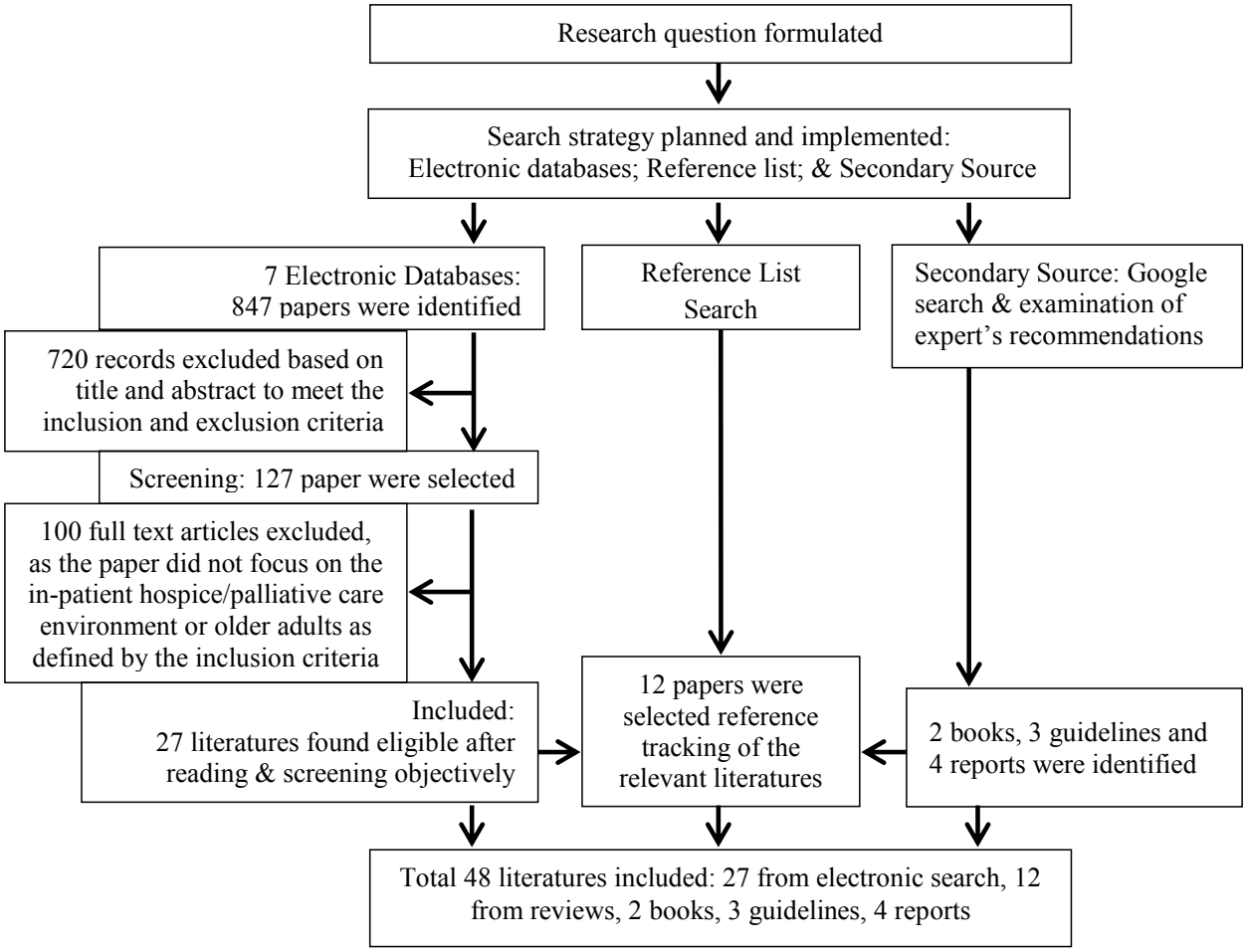


Figure 3-1. PRISMA flowchart. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses flowchart. (Retrieved from Kader and Diaz Moore, 2015)

A total of 847 papers were identified and assessed by their title and abstract using the inclusion and exclusion criteria, listed in Table 3-1. Papers that were included are written in the English language and focus on hospice, palliative care, or end-of-life care environments. All

types of studies were included, in addition to expert opinion articles and policy documents. Reference and citation tracking were performed for the publications and two published reviews in the field. Papers excluded which were on care in the domestic home, pediatric or adolescence patients, and examining social aspects of care such as ward routines, staffing levels (Kader and Diaz Moore, 2015).

Table 3-1: Inclusion and exclusion criteria for the electronic database search

Included	Excluded
Papers published in the English language	Papers not published in the English
Papers published from 1 January 1998 onwards	Papers published before 1 January 1998
Papers in which most of the participants studied were 'older people' aged 65 years or over, and/or their families and professional care givers	Papers in which all or most of the participants were under 65 years of age.
Papers that have examined the environment of end-of-life care or found environment as one of the dimension.	Papers examining social aspects of care such as ward routines, staffing levels and availability of social activities for patients
Papers examining in-patient care in settings such as hospices, hospital ward or nursing home	Papers examining care in the domestic home, assisted living in individual apartment

After the screening of titles and abstracts, 127 articles were selected. The second stage of the literature review was to assess each of these papers objectively, and decide whether they were relevant to the research topic; any form of information about the physical environment of hospice or palliative care found in the text were included. Twenty-seven articles were found eligible. An additional twelve records were identified from reference tracking. From a Google search as well as experts' suggestions, two books, three guidelines, and four reports were added. In total forty-eight articles were included; thirty-five full text articles (twenty-seven from electronic search and twelve from reviews), two books, three guidelines, and three reports. All of

these papers examined the physical environment in the context of wider issues such as quality of care, the experiences of patients, staff or family members of a particular care setting, and patients' views on a particular concept such as dignity or a 'good death'. A detailed description of the analysis and findings is discussed in Chapter IV.

Interviews with experts. To obtain the experts' opinions through interviews, the Delphi method was selected. The Delphi method was created in the 1950s by the RAND Corporation. It is a way to structure group communication to achieve the most reliable consensus of opinion of a group of experts and has been described as having applicability in most "areas of human endeavor" (Linstone & Turoff, 1975, p.4). This method involves a repetitive and iterative process that achieves group consensus rapidly and allows results to be presented in almost real-time reporting (Landeta, 2006). Landeta reported on the general validity of the Delphi Method in social science research and discovered that "this technique can be adapted to different social realities and requirements, making a positive contribution to social progress provided it is applied with the necessary methodological rigor" (Landeta, 2006, p. 472). The number of articles and doctoral theses in the social sciences using the Delphi method has increased over the last two decades, and the Delphi method has been used in the development of environmental design guidelines and evaluation instruments for during the twenty years (Norris-Baker et al. 1999; Skulmoski et al., 2007; James et al., 2009; Pullar et al., 2011; and Musa et al., 2015). Moreover, it is appropriate to note that the key method utilized during the development of the PEAP was the Delphi method, and, therefore this project is building upon disciplinary precedent.

The Modified Delphi Technique (MDT). This study will apply the Modified Delphi Technique (MDT) as developed by the RAND Corporation in the 1970s and 1980s. The MDT is similar to the original Delphi in terms of procedure (series of rounds) and intent (to predict future

events and to arrive at consensus) (Linstone & Turoff, 1975; Custer et al., 1999). The major modification is MDT begins with a statement or open-ended questionnaire about a subject that is given to the selected experts to evaluate, which may be drawn from various sources including synthesized reviews of the literature (Linstone & Turoff, 1975). In this study, a set of therapeutic goals were developed from an intensive literature review that allowed beginning the Delphi process with a questionnaire. The MDT also provides a method for the systematic solicitation of opinion and potential consensus among experienced practitioners in a particular field (Linstone & Turoff, 1975). In this study, an interdisciplinary expert's panel of architects, landscape architects, interior designers, and researchers who are experienced in particular issue "hospice facility design". This technique enhances the consensus-building process and the following advantages to the data collection process (Linstone & Turoff, 1975; Custer et al., 1999; Brooks, 1979; Adler & Ziglio, 1996; Fitch et al., 2001; and Judd, 1972):

- MDT generally improves the response rate because of the following reasons:
    a. It provides a rapid process of data collection and analysis which minimize the length of time the panel members have to be involved; and
    b. It does not require all participants' to have a face-to-face meeting together for open discussion and allows surveys or interviews with individual experts to collect the opinions, which solves the problem of time and place coordination for meeting because of their geographical separation.
- Face-to-face interaction may cause negative effects on the experts' responses due to their personality differences, differing opinions, and even body language that are some of the problems of group dynamics. MDT provides the anonymity and no communication between panel members that reduces any potential hidden agenda, or

member-to-member influence, or effects of bias due to group interaction, or collective groupthink.

- In the face-to-face Delphi, the entire panel sees the results and comments from all other members, which may lead to confusion or unresolved arguments. MDT reduces this scope as the experts provide their opinion individually.

Modified Delphi Technique for this study. The MDT utilized for this study was modified from the original Delphi Method in two ways: a) this study sought a systematic solicitation of opinion to develop and modify a set of therapeutic goals for hospice environments and the relevant design considerations to achieve those goals, and b) this study also employed technology by using online communication and phone interviews to remove the barrier of time and distance for face-to-face meetings.

Size of Expert Panel. Linstone and Turoff (1975) explained that the validity of the Delphi method relies on the heterogeneity of the panel members selected for the study. One criticism of the Delphi method and its modification is that there are no standard selection criteria for sampling in this method (Hasson et al., 2000), and an individual study should establish its own selection criteria for panel selection. Dalkey and Helmer (1963), the developers of the method, indicated that it is not necessary to select a large panel. Also, Dalkey and Helmer (1963), Linstone and Turoff (1975), stated that there is no minimum amount of participants required for the Delphi panel. Helmer (1967), and Linstone and Turoff (1975) noted that a smaller, informed group on a particular topic (those familiar with the topic) can come to a better consensus than a larger, uninformed group of participants simply taking a survey.

Also, Linstone and Turoff (1975) have indicated that every consensus-gathering endeavor is markedly different as to situation, problem, and context. Thus, it would be remiss to compare

panel sizes between similar or somewhat similar studies. However, the PEAP was developed using a Delphi method of nine panelists by Norris-Baker *et al*., (1999). Another study by Moore (2007) explored the design implications of Kaplan's Attention Restoration Theory (ART) for restorative gardens aimed to serve those with dementia and used a snowball sampling and a panel of nine experts for the Delphi method. Using these precedent studies, this research considered a panel of ten individuals for interviews.

Sample (Experts) Selection Procedure. This study considered the purposeful sampling method with a reputational sampling technique to achieve a good sampling of opinions among the panel. Merriam (1998) states that "Purposeful sampling is based on the assumption that the investigator wants to discover, understand, and gain insight and therefore must select a sample from which the most can be learned" (p. 61). The purposeful sampling has also referred to as nonprobability sampling, or purposive sampling (Teddlie & Yu, 2007). This sampling technique starts with selecting certain participants or cases based on a specific purpose, rather than randomized technique (Tashakkori & Teddlie, 2003). Teddlie & Yu (2007) defined six types of purposive sampling procedures that are based on achieving representativeness or comparability, reputational case sampling is one.

The reputational sampling technique uses an initial list of persons (experts) who may be identified from screening a population using selection criteria or probability methods (Kish, 1965; and Snow et al., 1981). This technique assumes that those persons are the key informer and are aware of others with similar characteristics (Kish, 1965) and, "thus the initial respondents will, hopefully, generate leads for future contacts who may be screened for inclusion in the sample" (Snow et al., 1981, p. 101).

This study began the reputational sampling by selecting book authors and researchers on hospice design in the United States. From the starting point four experts were selected. The search process also considered two major conferences presentations on hospice or palliative care environment and networking: the Environmental Design and Research Association (EDRA) and the Healthcare Design Conference (HCD) by the American Institute of Architects (AIA) Academy for Architecture for Health (AAH). One architect was selected from the networking of the EDRA conference and three expert architects were selected from HCD 2013, mainly from a round-table discussion on palliative care environments. From that session, all the participants' contact address were collected and later reviewed. As mentioned earlier, three experts were selected from this conference session. They were also asked to suggest any other expert they thought should be included in this study. One of the experts who is a landscape architect, researcher and book author, was selected in this process. Emails were sent to several leading healthcare-design firms asking their suggestions about experts, such as HOK, HKS, WHR, TreanorArchitects, HNM, and Perkins+Will. Three experts were selected in this process. A total of ten experts participated in this study.

Expert Selection Criteria. To obtain an interdisciplinary perspective on design issues and considerations for hospice environments, this study considered an expert panel mixed with practitioners and researchers from three disciplines; architecture, landscape architecture, and interior design. The selection criteria considered were:

- *Researchers:* The researcher must have published a book on hospice or palliative care architecture, or conducted at least one significant research project on hospice environment design.

- *Architects, Landscape Architects or Interior Designer:* Architects were selected based on their work experience on hospice facility design. Priority was given to those who have several years of experience on a number of project designs, or young architects who might have designed fewer numbers of hospice but their designs were recognized by the American Institute of Architects, or the Environment for Aging (EFA), or other relevant organizations as a best-practiced example or as a merit project which showcases exceptional design solutions to create a therapeutic environment for hospice care.

All criteria for participants were reviewed for each prospective expert to ascertain qualifications as an expert. The selected nominees for the expert panel were contacted via email or phone calls to gauge the nominee's interest and willingness to participate in the study. The researcher discussed the study time frame, Delphi procedures and the expert's availability to participate in the study. All panel members were asked to commit to the entire Delphi process of approximately three rounds so that there was no change in the participant sample throughout the study.

Selected Experts Bio. Here is the short biography of the selected experts:

1. Book author and researcher on hospice environment, university professor.
2. Book author and researcher on hospice facility design, practicing architect of several hospice projects.
3. Architect with more than twenty years of experience in healthcare facility design, and designed several hospice and palliative care facilities.
4. Researcher on hospice environment and architect of several hospice facilities; one of the hospice projects was showcased in the AIA senior living magazine.

5. Architect with more than fifteen years of experience in healthcare facility and hospice design. One of the design projects got AIA award.
6. Architect with more than twelve years of experience in healthcare facility. A recent hospice project design was awarded by the AIA.
7. Architect with more than fifteen years of work experience, and has designed several hospice projects.
8. Interior designer with seven years work experience and who has designed several healthcare facilities and worked on the remodeling of a hospice care facility in an existing hospital wing.
9. Landscape architect of a leading design firm; designed a hospice project that was awarded by the AIA and other landscape design associations.
10. Landscape architect and researcher. Published a book on landscape design with a chapter on hospice gardens, and also published a significant number of journal articles. Also a principal of a landscape design

Modified Delphi Rounds for this Study. After confirming the experts' qualifications and availability to participate in this study, the study moved into the interview process. As mentioned earlier in this section, the qualitative research process evolved throughout the study period according to an emergent design which is not predetermined or finalized at the outset, strategies for data collection are open and depend on context, and revisions are made until the researcher is satisfied that the direction taken affords the greatest potential for discovery, meaningful answers, or the generation of new hypotheses (Erlandson et al., 1993; Lincoln & Guba, 1985; Suter, 2011).

The research design of this study also evolved through the period of data collection and analysis. The preliminary research design was to conduct the Delphi Rounds (round of interviews) until the experts come consensus about the list of therapeutic goals and the design criteria for each goal. Five case studies would be conducted to verify these goals and design considerations by investigating real-life physical settings. After that, the research would come back to the experts again to obtain their confirmation.

The first round of interviews was conducted with the objective to get consensus about the therapeutic goals, which was achieved in the first round itself. All the experts provided affirmative testimony about goals the study had developed. No inclusions or exclusions were suggested, thus the need to conduct a second round of interviews became irrelevant. Experts were also asked to provide their suggestions about the design considerations for each goal which has discussed in Chapter-5.

A checklist of design considerations for each goal was developed after analyzing these interviews, and also a set of questions evolved for further inquiry through the case studies. Also, the study found the significance to validate the checklists through the case studies. The same questionnaire was used for the case study interviews, including the questions that evolved from the expert interviews. The hospice care providers were asked to mention “how their facility is achieving these goals”. After analyzing the data from case study surveys, a matrix checklist was developed comparing three different lists of design considerations evolved from three different data collection methods; literature review, the experts’ opinions, and case studies. These lists were compared to identify the common objectives and design considerations suggested by all these three. These matrixes are presented in Chapter-5.

All these findings helped to identify the significant criteria of each goal in developing the rating scale for assessing the hospice environment. The final checklist and the rating scales were developed as the final findings of this current study. The second round of Delphi method to get confirmations from the expert panel about these final checklists and evaluation criteria was started, but is not considered as a part of this thesis mainly for two reasons: a) the questionnaire became too big to ask a single person in one session, thus the interview format had to be changed and ended up in a long process of data collection which was not compatible with the time, length and rigor of this thesis study, and b) the data set will be too large to present within the context of a PhD thesis. A brief discussion about the format of the second round interviews and initial feedback will be discussed in the concluding chapter.

Case Studies. Case study as a methodology in architectural research area has a significant role and has become a dominant research technique (Alizadeh, 2006). "A case study is expected to capture the complexity of a single case", and this methodology has developed within the social science disciplines, such as psychology, sociology, anthropology and economics (Alizadeh, 2006, p. 57). It also utilized by the practice-oriented fields such as environmental studies, architecture, and urban planning. The case study is "a purposeful selection of a case to study and for triangulation", and it generally employs multi-method data collection process; also, "generalizations are made from a particular case" with intention of either theory or other cases (Alizadeh, 2006, p. 57).

There are different ideas and definition about case study. This study has agreed with the following definition provided by Rolf Johansson (2003) in a key note speech at the International Conference "Methodologies in Housing Research", which he claims that the other case study

researchers (Yin 1994; Merriam 1994; Stake 1995, 1998; Miles & Huberman 1994; Gillham 2001) might agree on along the following lines (as cited in Johanson, 2003, p. 2-14):

> The case study should be a complex functioning unit; be investigated in its natural context with a multitude of methods; and be contemporary. (Johansson, 2003, p. 2-14)

In case study methodology, different methods are combined with the purpose of explaining a case from different perspectives and to triangulate by combining methodologies (Johansson, 2003). This study considered the case study as the third method of data collection to strengthen the validation of the findings, tried to identify the organizational and social influences on the physical environment, and how the hospice care providers were using and modifying the spaces and their characteristics.

Case Study Selection Criteria. As mentioned earlier, all the experts were asked to suggest at least one or two hospice facilities in the United States for case study, assuming that the experts collectively possess the best repository of knowledge regarding the hospice environment. The practicing architects were requested to nominate one of their own designed projects. A list of nominated case studies was developed to contact those facilities for their approval. Five hospice facilities were selected among the nomination list based on the following criteria:

a) *Weather zone:* Northern state (cold) to southern state (hot);

b) *Size:* 10 to 36 bed;

c) *Location:* Urban, or semi-urban, or rural;

d) *Design quality:* Recognized by the American Institute of Architects, or the Environment for Aging (EFA), or other relevant organizations as a best-practice

example or as a merit project which showcases exceptional design solutions to create a therapeutic environment for hospice care;

e) *Building type:* Purpose built or renovated;

f) *Building age:* Old construction or new; and

g) *Facility type based on care model:* In-hospital hospice or palliative care unit, or medical center-affiliated free standing hospice, or non-hospital-affiliated autonomous hospice, or hospice home.

Selected Cases. As mentioned earlier, five cases were selected. The following map (Figure 3-2) in the next page shows the location of the case studies in Georgia, Missouri, Oklahoma, Texas, and Wisconsin. A brief introduction to each case study and the data collection process and the data analysis process is discussed in the *Chapter-6*.

Figure 3-2. The locations of the five case studies in the map of the United States. (Digital Image of United States Map, CLIPART KID, n.d.).

Standards of Research Quality

The standards of research quality were achieved throughout the steps in the process of research. Groat & Wang (2013) showed a comparative analysis of quality standards of positivism/postpositivism and naturalistic system of inquiries in a matrix (Table 3-2) using the "generic" terms, which was developed by social scientist Egon Guba in 1981 journal article (Groat & Wang, 2013, p. 80).

Table 3-2: Comparative Analysis of Two System Of Inquiries (developed by Guba, 1981and adopted from Groat & Wang, 2013, p. 81,)

Standard	**Postivism / Postpositivism**	**Naturalistic**
Truth Value	*Internal Validity* Equivalence of data of inquiry and phenomena they represent	*Credibility* Check data with interviewees; triangulation- multiple data sources of data collection
Applicability	*External Validity* Genaralizability	*Transferability* Thick description of context to assess similarity
Consistency	*Reliability* Instruments must produce stable results	*Dependability* Trackability of expected instability of data
Neutrality	*Objectivity* Methods explicated; Replicable; Investigator one-step removed from object of study	*Confirmability* Triangulation of data; practice of reflexivity by investigator

This study has considered the qualitative research design which is a naturalistic system of inquiry. To meet the "quality standards" for this naturalistic research, the present study considered Guba's criteria, which is called "the criteria for assessing trustworthiness" (Groat & Wang, 2013, p. 84). Furthermore, this study considered the strategies suggested by Creswell (2003) to ensure validity.

Strategies for ensuring Trustworthiness. As shown in the matrix, for naturalistic research, Guba's criteria are based on four primary issues: credibility; transferability; dependability; and confirmability (Guba, 1981; and Lincoln & Guba, 1985). This study also considered other literature to develop the following strategies to meet the standard quality of research (Shenton, 2004; Thurmond, 2001; Brewer and Hunter, 1989; Linstone & Turoff, 1975; and Guion, et al. 2011). To meet the objective of trustworthiness, Lincoln and Guba's criteria for qualitative studies applied to ensure that credible interpretations of the results of this study were produced.

Credibility. Lincoln and Guba (1985) argue that ensuring credibility is one of the most important factors in establishing trustworthiness. The following provisions have been made to promote the credibility of this study:

Triangulation: According to Guion, et al. (2011), triangulation is to check and establish validity in research studies by analyzing a research question from multiple perspectives. This process increases trustworthiness in research data, generates new ways of understanding a phenomenon, reveals exceptional findings, and provides a better understanding of the research question (Thurmond, 2001; Guba, 1981; and Brewer and Hunter, 1989). This study considered the following strategies to achieve the trustworthiness of methodological triangulation and data triangulation.

a) *Methodological Triangulation:* Methodological triangulation involves the use of multi-methods in research design (Thurmond, 2001; Guba, 1981; and Brewer and Hunter, 1989). According to Guba (1981) and Brewer and Hunter (1989), the use of different methods in research design balances the "individual limitations and exploits respective benefits" (as cited in Shenton, 2004, p. 64). With this consideration, the study considered a mixed method of

qualitative research to develop the evaluation tool HEAP; literature reviews, interviews to collect expert opinion, and case studies (interviews and observations). The findings of this study evolved by these three processes to achieve methodological triangulation.

b) *Data Triangulation:* This triangulation uses different sources of information in order to increase the credibility of a study, such as stakeholders in a specific field (participants, other researchers, or staff) (Tashakkori, & Teddlie, 2003; and Thurmond, 2001). In this study, the data triangulation for literature reviews confirmed the diversity of the literature selected, from empirical research to narrative articles, books, and guidelines which are developed from various disciplines of sociology, psychology, environmental psychology, healthcare, spiritual care, hospice management, architecture, landscape architecture, and others. The data triangulation of the Delphi method ensured the heterogeneity of the panel members selected (Linstone & Turoff, 1975). All the experts were familiar with hospice care environments, but they possessed different areas of expertise: architecture, landscape architecture, interior design, and research. The expert panel had divergent points of view about designing the hospice environment. Linstone and Turoff (1975) have explained that comparing the sub-group opinions adds to the reliability of the study. Therefore, this study considered the similarities and dissimilarities between the experts' opinions to achieve a deeper insight about the hospice environment. As mentioned by Mitroff and Turoff (2002), "the validity of the resulting judgment of the entire group is typically measured in terms of the explicit 'degree of consensus' among the experts" (p. 22). Therefore, data saturation or explicit degree of consensus among the experts opinion was considered to establish a credible result. Additionally, data triangulation in the case study surveys was confirmed by considering the diversity of the case selections based on the weather zone (Southern state, Midwest, and Northern state), location (city, sub-urban,

countryside), building type and age (purpose built or renovation), size (10 to 33 beds), facility type (individual or in-hospital), and design qualities (recognition for design).

Member Checks: Guba and Lincoln (1985) argued that the member check process is the single most important provision that can be made to strengthen credibility of a study. Member checks relating to the accuracy of the data may take place immediately and at the end of the data collection dialogues (Shenton, 2004). In this study, the Delphi method interviews and case study interviews were conducted in establishing the credibility of the findings. One expert serving on the panel was selected for the process to make the study more credible.

Peer scrutiny and debriefing session: This study considered several conference presentations to get the feedback by the colleagues, peers and academics (Shenton, 2004). Also, conducted frequent debriefing sessions between the researcher and her superiors, and the PhD committee group (Shenton, 2004). Through meeting and discussion, the researcher widened her vision and discussed alternative approaches. The committee meetings provided a sounding board for the researcher to test her interpretations and questioning from committee also helped to recognize "her own biases" (Shenton, 2004, p. 67).

Transferability. The second component is transferability, which can be improved when researchers provide detailed notes and a description of the time and context (Guba, 1981; and Lincoln & Guba, 1985). During the interviews the experts were asked to provide detailed explanations that provided the context for their ratings. Also, according to Guba (1981), transferability can also be achieved by providing a sufficiently "thick" description of the processes (Groat & Wang, 2013, p. 85). This study provided enough description about the data collection processes (discussed lated). As this study developed the evaluation tool was informed by the literature review of the therapeutic goals, and to establish strong "transferability", the

study considered surveying the physical settings of hospice care facilities as case studies. Therefore, the findings of this study were founded not only in literature reviews and expert opinions, but also on physical experience and observation of the hospice environment. As this study limited the consideration of hospice facilities only in the United States, the five cases for survey were heterogeneous and the findings should reach robust degrees of transferability for other hospices in this country.

Dependability and Confirmability. Lincoln and Guba (1985) expressed the close ties between credibility and dependability, arguing that, in practice, a demonstration of the former goes some distance in ensuring the latter.

As Andrew K. Shenton (2004) stated in his article that, "Lincoln and Guba stress the close ties between credibility and dependability, arguing that, in practice, a demonstration of the former goes some distance in ensuring the latter", and suggested that, "this may be achieved through the use of "overlapping methods", such as the focus group and individual interview" (Shenton, 2004, p. 71). To achieve dependability, this study used overlapping methods and reported in detail the processes to enable a future researcher to repeat the work, if not necessarily to gain the same results. To establish the confirmability of results, the study considered the Delphi method and case studies which provided an external audit for the findings. The external scrutiny was performed by two committee members at various intervals and mostly after data analysis and during questionnaire development.

Ethical Considerations for the Research Study. This study anticipated several ethical issues during the course of the research process as suggested by Creswell (2003):

Ethical issues in the research problem statement. This study identified a research problem that "will benefit the individuals being studied" (Creswell, 2003, p. 63), the patients and their families at the end-of-life care settings.

Ethical issues in the purpose statement and research questions. This study mentioned "the purpose of the study" in the problem statement and the questions as it "will be described to the participants" (Creswell, 2003p. 63) to avoid any kind of deception.

Ethical issues in the Delphi. The original Delphi method has two major ethical issues which need to be addressed: a) the psychological factors that can appear in committee processes, such as deferring to the dominant individuals, the influence of individual's professional status on group discussions, etc. (Linstone & Turoff, 1975); and b) the panel members' subjective knowledge and how it affects the outcomes of the study (Miller et al., 2007). First, this study considered the Modified Delphi technique, which has been developed in such a way as to eliminate the psychological factors. Second, the researcher is aware of the differences in opinion of experts' panel and their subjective knowledge, and the researcher has taken that into consideration while considering the data and analyzing results (Creswell, 1998).

Ethical issues in data collection. The researcher had respected "the participants and the sites selected for research" (Creswell, 1998, p. 64) during the data collection processes by the following ways:

- IRB Approval: This study received the approval from the University of Kansas Institutional Review Board (IRB) to conduct the Delphi method and to survey the case studies (Appendix B). It also approached the selected hospice facilities for case studies to get the approval from the institutions.

- Consent Form: All the participants signed an IRB-approved *Consent Form.* The identity of the participants was kept confidential. As these consent forms do not release the researcher from the responsibility of safeguarding the study participants' identifiable information, therefore, this research has assured anonymity and privacy through the researcher's actions as follows:
  a) This study used ten panel members and five case studies whose identities are known only to the researcher. Furthermore, the identity of the panel members were not revealed to each other in this study;
  b) Any paper-based data (printouts) was kept in a locked cabinet in a locked room providing access only to the researcher;
  c) All electronic data have been protected by strong passwords known only to the researcher. Multiple backups of the data were created and kept with security; and
  d) The online emails and questionnaire are accessible only to the researcher and panel members in a secure online environment.
- Sites: The researcher respected the "research sites" during the case study observation surveys, and tried to be cognizant of their impact and minimize their disruption of the physical setting of the sites during the surveys.
- Photographs: During case study surveys, the researcher avoided any human subject (patients, families or staff) in the photographs.

Ethical issues in the data analysis and interpretation. The researcher anticipated the following issues during data analysis and interpretation to achieve the "good ethical decisions" (Creswell, 1998, p. 66):

- Different participants and different cases were coded with random identifiers (codes are secured in the locked cabinet described above). All identifying personal information was kept confidential and no personally identifiable information has been reported in any data analysis report or finding narratives.
- All the data will be kept for a reasonable period of time (5-10 years). After that period the data will be discarded so that it does not fall into the hands of other researchers who might appropriate it for other purposes.
- Only aggregate data have been and will be reported.
- In the interpretation of data, the researcher has provided an accurate explanation of the information.

The Researcher's Role as Instrument. Creswell (2008) indicated that researcher can involve a wide range of strategic, ethical, and personal issues. The researcher, as "the primary data collection instrument in this qualitative research", plays a major role in the identification of the researcher's personal values, assumptions, and biases at the beginning of the study (Creswell, 2003, p. 200). Bishop (2005) has discussed insider/outsider relationships in research by cautioning that "insiders are inherently biased or that they are too close to the culture to ask critical questions." (p. 111).

As a PhD student in architecture, with a Master's degree focusing on healthcare design, the researcher is aware of certain knowledge in healthcare environment design and research, which could potentially bias the research process. To avoid this bias for this Modified Delphi Method study, the researcher has taken the following steps to balance the inherent subjectivity in the process with objectivity:

- The research had tried to keep the process anonymous, as much as possible, during data analysis by using codes for panel members.
- According to Bishop (2005) and Creswell (2008), while complete objectivity cannot be maintained, bias can be limited through the researcher's awareness. The researcher maintained objectivity, rather than subjectivity, during the course of this study as much as possible.
- Also, writing "reflection of the researcher's experience throughout the research process" allows the readers to understand the challenges encountered by the researcher, and also provides a lens through which readers can view the hospice environments (Creswell, 2003, p. 205).

Summary

The data collection process, analysis process and the process of developing rating scales will be discussed in the next chapter and was not mentioned here. As mentioned at the beginning of this chapter, as the methodology evolved, so too did the outcomes and analysis change as well. Each phase of data collection and analysis modified the research design for the next phases. Literature reviews, expert interviews, and case studies, all of these methods of data collections provided a comprehensive understanding through triangulations about the hospice environment and its therapeutic dimensions, thus developing a reliable tool HEAP.

Chapter 4: Phase 1 - Systematic Literature Review

As mentioned earlier, this study has considered a systematic literature review to identify the therapeutic goals for hospice environment. This section will discuss about the method of literature search and selection criteria, process of data extraction and analysis, findings and limitations.

Reviews

All of these literatures have examined the physical environment of hospice or palliative care service. Some focused on design issues and some studied physical environment in the context of wider issues such as quality of care, patients' perception and experience, staffs' or family members' perspective about hospice care or setting, and patients' views on a particular concept such as dignity or a 'good death'.

Two books, five guidelines, two reports, two dissertations, and ten journal articles focused on designing aspects of hospice and palliative care environment. In 2006, Verderber & Refuerzo wrote a major reference book *Innovations in Hospice Architecture*, an overview of historical background of the contemporary hospice and its basic principles of design. Another book by Ken Worpole in 2009, *Modern Hospice Design*, elaborates the architectural design challenges for palliative care. A series of hospice design guidelines and reports have published in Australia, UK and USA. In 2000, the *Hospice Unit Generic Brief* published in Australia. In 2005, the *Design Guidelines for Specialist Palliative Care Settings* was published by the Department of Health and Children of Irish government. Another guideline published in UK, *A Place to Die with Dignity: Creating a Supportive Environment* (NHS Estates 2005). In USA, the Hospice Education Institute published *Hospice Design Manual for In-Patient Facilities* (2006), written by Timothy Moorhouse. In 2010, Hospice Friendly Hospitals Programme published,

Quality Standards for End-of-Life Care in Hospitals. The King's Fund Enhancing the Healing Environment (EHE) program published *Improving Environments for Care at End of Life* on lessons from eight pilot sites (Waller et al. 2008). Another report published on summary of evaluation findings by the King's Fund EHE (Aurthur et al. 2010). Among the ten articles, two are literature reviews (Brereton et al. 2011; and Rigby et al. 2010). Anderson (2008) studied patients' room design in palliative care units. Two studies focused on environmental factors of end-of-life care at intensive care units (Fridh et al. 2007; Fridh et al. 2009). Silver (2004) focused on healing environments in end-of-life care. Tan et al. (2005) researched hospice environments on patient spiritual expression. Pease & Finlay (2002) focused on preference of single versus shared accommodation. Rowlands and Noble (2008) studied environmental impact and ward design. Kayser-Jones et al. (2003) identified the physical environment as one of the three factors that influence end-of-life care in nursing homes. The dissertation by Swenson (2009) examined the designated hospice rooms in nursing home facilities and the dissertation by Sargent (2012) explored design through relationship-centered end-of-life care.

A significant amount of studies focused on quality of care with different goals: quality of life in palliative care units (Cohen et al. 2001); quality of life for cancer patients (Cohen & Leis 2002); non-pharmacological care giving activities (Lindqvist et al. 2012); quality of spiritual care (Puchalski et al. 2009); views on dignity (Franklin et al. 2006); influencing forces of care (Wilson & Daley 1998). Kayser-Jones et al. (2005) suggested a model hospice unit with three factors: care; community; and compassion. Seven studies focused on patients' perception and dying experience: Chinese patients' dying experience in nursing home (Chan & Kayser-Jones 2005); experience of living-dying of black and white older adults (Engle et al. 1998); ways of relating to death (Ternestedt & Franklin 2006); minority and non-minority perspectives on what

is a “good death” (Tong et al. 2003); physical and psychosocial suffering in the dying process (Schroepfer 2007); and cancer patients’ experience towards death (Larkin et al. 2007; and Ryan 2005).

Family perception on hospice care was examined by ten studies with different objectives: identification of factors that influence quality of end-of-life care (Heyland et al. 2006; Russell et al. 2008; Stajduhar et al. 2011); end-of-life care in hospital (Hawker et al. 2006; and Spichiger 2008); and end-of-life care in nursing home (Kaarbo 2010; Munn & Zimmerman 2006; Vohra et al. 2004; Vohra et al. 2006; Wilson & Daley 1999). Staffs’ perspective on hospice care was studied by Brazil et al. (2004) and Evans et al. (2006). A dissertation by Nakashima (2002) investigated the psychosocial and spiritual well-being of older adults at end-of-life.

Analysis & Findings

This stage considered extraction of data from these 48 literatures onto a standard template (matrix) for comparison and analysis (Appendix C). Data analysis considered coding and thematic development. For extracting data and developing themes, this study used preset themes (e.g. safety, autonomy, functionality). The study has identified eleven Therapeutic Goals (TGs) for hospice environment. The definition of each goal has presented in the following Table 4-1 (Kader and Diaz Moore, 2015);

Table 4-1: Therapeutic Goals of Hospice Environment.

Provide continuity of self	Environmental characteristics that help preserve or support patients' past activities, preferences and awareness.
Provision of access to nature	Environmental characteristics that provide opportunities for visual and physical access to nature.
Provision of privacy	Environmental characteristics that facilitate patients' choices in various levels of privacy through regulation of visual and auditory stimuli.
Facilitate social interaction	Environmental characteristics that facilitate and enable meaningful interaction between patients with staff, their family and other patients.
Maximize safety and security	Environmental characteristics that maximize patient safety and security of self.
Provision of autonomy	Environmental characteristics that enable patients to exercise choice and personal preference about their environment and everyday life.
Regulate stimulation and support sensory therapies	Environmental characteristics that contribute to an appropriate quantity and quality of sensory experience, and support palliative therapies.
Provision of spiritual care	Environmental characteristics that facilitate opportunities for patients' spiritual care; religious, philosophical, existential, and personal beliefs, values, practices, and preferences.
Provide family accommodation	Environmental characteristics that facilitate patients' family accommodation and support control, functional independence, comfort, privacy, recreation, and spiritual care.
Provide support after death	Environmental characteristics that support care and dignity for patients and their families during the moment of death, body removal, bereavement and remembrance.
Maximize support for staff	Environmental characteristics that support staff for better efficiency, communication, observation, satisfaction, and wellbeing.

As this list illustrates, many dimensions are consistent with the aging and environment literature (e.g. safety & security, stimulation), but others emerge as particularly salient in the hospice care environment, such as spiritual care or support after death. Even where the environmental dimensions are consistent, the meanings of those dimensions are considered

somewhat differently due to the very specific needs surrounding the dying experience. The first eight dimensions have direct influence on patients' experience of hospice care environment, and the last three goals have indirect influence on patients' experience (e.g. support for staff). Table 4-2 shows the relationship of each citation to specific environmental dimensions which emerged as common through the thematic analysis of the full set of literature.

Table 4-2: Matrix of Literatures and Therapeutic Goals.

Therapeutic Goals / **Literature** (Author, Year)	***Continuity***	***Nature***	***Privacy***	***Social***	***Safety***	***Autonomy***	***Stimulation***	***Spiritual***	***Family***	***Family***	***Staff***
Anderson 2008	●	●	●	●		●	●		●	●	●
Arthur et al. 2010								●			
Brazil et al. 2004			●	●	●	●	●	●	●	●	
Brereton et al. 2012	●	●	●	●	●	●			●	●	
Chan & Kayser-Jones 2005								●	●	●	
Cohen et al. 2001	●		●	●		●	●	●			●
Cohen & Leis 2002		●	●	●		●		●			●
Department of Health and Children 2005	●	●	●	●	●	●	●	●	●	●	●
Engle et al. 1998				●				●			
Evans et al. 2006	●	●		●	●						
Franklin et al. 2006		●		●			●				
Fridh et al. 2007			●	●							
Fridh et al. 2009			●	●							
Hawker et al. 2006	●			●		●			●	●	
Heyland et al. 2006				●					●	●	
Hospice Friendly Hospitals 2010				●				●	●	●	●

Table 4-2 continued.

Therapeutic Goals / **Literature** (Author, Year)	***Continuity***	***Nature***	***Privacy***	***Social***	***Safety***	***Autonomy***	***Stimulation***	***Spiritual***	***Family***	***After Death***	***Staff***
Hospice Unit Generic Brief 2000	●	●	●	●	●	●	●	●	●	●	●
Kaarbo 2010				●	●						
Kayser-Jones et al. 2003						●		●	●	●	
Kayser-Jones et al. 2005	●			●					●	●	
Larkin 2007	●		●	●	●						
Lindqvist et al. 2012	●	●		●	●	●	●	●			
Moorhouse 2006	●	●	●	●	●	●	●	●	●	●	●
Munn & Zimmerman 2006	●			●					●	●	●
Nakashima 2002	●	●		●				●			
NHS Estates 2005	●	●	●	●		●	●	●	●	●	●
Pease & Finlay 2002			●	●							
Puchalski et al. 2009								●			
Rigby et al. 2010	●		●	●				●	●	●	●
Rowlands & Noble 2008		●	●	●							●
Russell et al. 2008							●				
Ryan 2005		●		●				●			
Sargent, 2012	●	●	●	●	●	●	●	●	●	●	●
Schroepfer 2007				●							●
Silver 2004	●			●		●	●	●	●	●	
Spichiger 2008	●			●		●					
Stajduhar et al. 2011			●		●	●	●				
Swenson 2009	●	●	●	●		●			●	●	
Tan et al. 2005				●				●			
Ternestedt & Franklin 2006	●			●							
Tong et al. 2003	●			●				●	●		●
Verderber & Refuerzo 2006	●	●	●	●	●	●	●	●	●	●	●
Vohra et al. 2004			●	●							
Vohra et al. 2006			●	●		●		●	●		●
Waller et al. 2008	●	●	●	●		●	●	●	●	●	
Warpole 2009	●	●	●	●		●	●	●	●	●	
Wilson & Daley 1999			●					●	●		●
Wilson & Daley 1998			●					●			

Discussion

The next section will discuss each therapeutic goal, the definition of each goal, and highlight the evidence suggestive of the appropriateness of this goal.

Provide Continuity of Self.

Definition. Environmental characteristics that help preserve or support patients' past activities, preferences, and awareness.

> I'd rather be home, of course, but they brought things from home and when I wake up, nice, cozy, then you don't have that longing. (Mentioned by a patient, as cited in Larkin et al., 2007, p.74)

Patients experience complex emotions, a sense of instability, and impermanence during the transition towards death (Department of Health and Children 2005; and Larkin et al., 2007). Lack of familiarity and disorientation with surrounding environment influence patients' emotions, as well as their quality of life (Nakashima, 2002; Cohen et al., 2001; Brereton et al., 2012; Rigby et al., 2010; Worpole, 2009; and Hawker et al., 2006). Hospice care should offer environments where the shifting boundaries of home could be re-created to achieve meaningful surroundings and to ease transition from home to institution (Larkin et al., 2007). The creation of a 'domestic' or 'home-like' environment is the most desirable characteristic for dying patients and their families to achieve the continuity of self (Waller et al. 2008; Swenson, 2009; Tong et al., 2003; Rigby et al., 2010; Brereton et al., 2011; Department of Health and Children 2005; Larkin et al., 2007; Moorhouse, 2006; Anderson, 2008; Verderber & Refuerzo, 2006; Evans et al., 2006; Kayser-Jones et al., 2005; Ternestedt & Franklin, 2006; Munn & Zimmerman, 2006; Cohen et al. 2001; and Silver, 2004).

Design Considerations. Home-like environments can be achieved in two ways; by avoiding institutional look, and by enabling patients to personalize their space (Department of Health and Children, 2005; Verderber & Refuerzo, 2006; Moorhouse, 2006; and Sargent, 2012). Avoiding institutional environment can be achieved through creating a homelike or residential like environment. Interior design needs careful attention in use of color, selection of furniture, quality of light, selection of finishes (wall, ceiling and floor), exploration of views, and so on (Department of Health and Children, 2005; Verderber & Refuerzo, 2006; Moorhouse, 2006; Hospice Unit Generic Brief, 2000; Anderson, 2008; and Lindqvist et al., 2012). Building layout, exterior appearance, and landscape design should be residential in size and scale; and outdoor spaces should be integrated with indoor spaces (Moorhouse, 2006; Hospice Unit Generic Brief, 2000; and Verderber & Refuerzo, 2006). Overall design should promote orientation with space, time and outside weather condition, such as creating color contrast, having window, clock, etc. (Verderber & Refuerzo, 2006; Moorhouse, 2006; Brereton et al., 2012; and Hospice Unit Generic Brief, 2000). Patients should have opportunity and encouragement to bring familiar items from home to create a personal dwelling space; it also works as cueing device for orientation (Nakashima, 2002; Larkin et al., 2007; NHS Estates 2005; Day, 2000; Spichiger, 2008). Design should provide wall shelves, picture hooks, and adequate space to accommodate patients' own belongings, photos, paintings, special chair, rug, mementos (Rigby et al. 2010; Department of Health and Children, 2005; Moorhouse, 2006; Verderber & Refuerzo, 2006; and Hospice Unit Generic Brief, 2000).

Provision of Access to Nature.

Definition. Environmental characteristics that provide opportunities for visual and physical access to nature.

> To be able to go out, to enjoy the trees and the air and the flowers and the colors, and to hear the birds singing, that's quality of life. (Mentioned by a patient as cited in Cohen & Leis, 2002, p. 5/10).

Having a connection with the outdoors and nature is a significant criterion for quality of life in hospice care; it improves the patient's mind, spirit, comfort and satisfaction (Rowlands & Noble, 2008; Evans et al., 2006; Nakashima, 2002; Cohen & Leis, 2002; Brereton, 2011; Waller et al., 2008; Warpole, 2009; and Franklin et al., 2006). The dying patients spent more and more time indoors and became increasingly confined in a limited space (Nakashima, 2002). If conditions do not allow patients to move to an outdoor garden or veranda, then a view of natural landscape through windows can be beneficial (Ulrich, 1984). A view to nature can enhance patients' positive feelings, reduce fear and anxiety, maintain a calm state of mind, and can help to reduce pain (Swenson, 2009; Moorhouse, 2006; Verderber & Refuerzo, 2006; Nakashima, 2002; Rowlands & Noble, 2008; Cohen & Leis, 2002; Ryan, 2005; and Diette et al., 2003). Natural light is "important in the feeling of well-being" in palliative care environment (Anderson, 2008, p. 64). Fresh air ameliorates the indoor air toxicity and feeling of a 24/7 air-conditioned environment (Verderber & Refuerzo, 2006). This finding agrees with the "biophilia" hypothesis by Wilson (1984), "human beings have an inherent bond with the natural world, and that contact with nature could benefit an individual's health" (Malenbaum et al., 2008, p.242). Also, it concurs with the research findings of Kaplan & Kaplan(1989), Hartig (1991), and Ulrich (1984) that access to nature has a significant impact in human psychology and overall wellbeing.

Design Consideration. Design should maximize advantage of natural light, views, and also fresh air through provision of large windows with operable section (Department of Health and Children, 2005; Waller et al., 2008; Hospice Unit Generic Brief, 2000; Moorhouse, 2006;

Verderber & Refuerzo, 2006; Worpole, 2009; Swenson, 2009; NHS Estates 2005; Lindqvist et al., 2012; Sargent, 2012; and Rowlands & Noble, 2008). In absence view of natural landscape through window, a natural picture can be beneficial (Rowlands & Noble, 2008; Moorhouse, 2006). A healing garden provides a place of refuge and beauty, and also retains a symbolic reference of ultimate home; an uncultivated primal world of 'Nature' (Warpole, 2009; Verderber & Refuerzo, 2006; Rowlands & Noble, 2008). Door should be wide enough to take patients out and outdoor landscape should consider hard surface for pathways to facilitate wheelchairs (Hospice Unit Generic Brief, 2000; Moorhouse, 2006). Building should have transitional spaces (e.g., patio) and intimate places in outside landscape with shade and sitting arrangements (Hospice Unit Generic Brief, 2000; Verderber & Refuerzo, 2006). Also, create attractive garden with beautiful landscape, flowers, plants, sculpture, bird feeders and water features (Moorhouse, 2006; Verderber & Refuerzo, 2006).

Provision of Privacy.

Definition. Environmental characteristics that facilitate patients' choices in various levels of privacy through regulation of visual and auditory stimuli.

> A good death is to give privacy to the family and the resident to work out there at the end. (Mentioned by a staff as cited in Brazil et al., 2004, p.88)

For dying persons and their families, privacy is particularly salient to the dignity, independence, quality of life, and the emotional well-being of patients and their families (Hospice Unit Generic Brief, 2000; Waller et al., 2008; Moorhous, 2006; Brereton et al., 2012; Rigby et al., 2010; Stajduhar et al., 2011; Sargent, 2012; Department of Health and Children 2005; Brereton et al., 2012; Cohen et al., 2001; Swenson, 2009; Cohen & Leis, 2002; NHS Estates 2005; Brazil et al., 2004; and Vohra et al., 2004). Family and staff find privacy more

important than patients (Rigby et al., 2010; and Wilson & Daley, 1998). Lack of privacy due to the presence of a roommate and excessive noise create concerns (Vohra et al., 2006; and Cohen et al., 2001).

> Dying residents should have the privacy of their own room in order to spend time with their families, share their feelings, and come to terms with their death. (Brazil et al., 2004, p. 88)

Design Considerations. A mixture of single rooms and shared rooms will be preferable in end-of-life care (Rigby et al., 2010; and Anderson, 2008). Single room with an attached bathroom provides better privacy for patients and their family (Hospice Unit Generic Brief, 2000; Ulrich et al., 2004; Worpole, 2009; Moorhous, 2006; Swenson, 2009; Verderber & Refuerzo, 2006; and Rigby et al., 2010); privacy for family accommodation; confidentiality of conversation (Rowlands & Noble, 2008;); avoidance of distress from watching other patients suffering (Brazil et al., 2004; Cohen et al., 2001; and Brereton et al., 2012); and provision of private TV and radio (Rigby et al., 2010).

Shared rooms are also preferable for patients to have scope for social interaction, companionship, and self-reflection (Cohen et al., 2001; Rowlands & Noble, 2008; Anderson, 2008; Larkin et al., 2007; Pease & Finlay, 2002; and Rigby et al., 2010), and for witnessing a quiet painless death of roommate to deal with their own fears for the final moments of life (Worpole, 2009; Rowlands & Noble, 2008; Anderson, 2008; Larkin et al., 2007; and Pease & Finlay, 2002). Providing privacy for actively dying patients and their roommates in shared rooms was found challenging (Wilson & Daley, 1999; Swenson, 2009; and Brazil et al., 2004). Moveable partitions may provide better privacy than curtains during bathing and personal care in shared rooms (Swenson, 2009; Anderson, 2008; and Verderber & Refuerzo, 2006). As privacy

needs increase as disease progresses, dying patients sometimes move to a single room or in a shared room with other empty bed (Anderson, 2008; Fridh et al., 2007; and Fridh et al., 2009), or move the roommate elsewhere (Anderson, 2008; and Rigby et al., 2010). Three beds over two beds in shared rooms help soften the impact of a death on one person (Worpole, 2009). Flexible room or trans-programmatic bedroom can provides the sociability among roommates and also can be convertible into single units quickly and easily when required (Worpole, 2009; and Verderber & Refuerzo, 2006). Having separate sleeping accommodations ensures privacy for both parties (Moorhous, 2006). Overall building should have good acoustic design (Moorhous, 2006).

Facilitate Social Interaction.

Definition. Environmental characteristics that facilitate and enable meaningful interaction between patients with staff, their family, and other patients.

> Very few people know what it feels like to know they are facing their last months of life. There can be a loneliness that is different from any other. It is a loneliness of the heart, even when you have people around you. (American Cancer Society, 2011)

With the decline of physical status towards the end-of-life, patients' desired level of socialization varies, and patients spend more time in and around their bed areas (Rigby et al., 2010; and Moorhouse, 2006). 'Presence of others', especially the physical and emotional 'proximity to loved ones' during the dying experience is one of the key themes of a good death (Tong et al., 2003; Brereton et al., 2012; Evans et al. 2006; Hawker et al., 2006; Fridh et al. 2007; Hospice Unit Generic Brief, 2000; Brazil, 2004; Cohen & Leis, 2002). It improves patients' social life and lessens the feeling of loneliness (Rigby et al., 2010; Moorhouse, 2006;

and American Cancer Society, 2011). To facilitate patients' social life, accommodation of family, visitors and access to phone calls or letters was emphasized in end-of-life care (Munn & Zimmerman, 2006; Ryan, 2005; Spichiger, 2008; Tan et al., 2005; Vohra et al., 2004; Ternestedt & Franklin, 2006; Silver, 2004; Vohra et al., 2006, Hawker et al., 2006; Swenson, 2009; Moorhouse, 2006; Hospice Friendly Hospitals 2010; Waller et al., 2008; Nakashima, 2002; Franklin et al., 2006). Patients benefited from interacting with other patients; it offers them self-reflection, mutual empathy, support, and companionship of this lonely journey (Munn & Zimmerman, 2006; Cohen et al., 2001; Rowlands & Noble, 2008; Rigby et al., 2010; Anderson, 2008; Larkin et al., 2007; Pease & Finlay, 2002; and Engle et al., 1998). Families found 'patients died alone' stressful (Kaarbo, 2009). Previous studies found that good staff communication can reduce anxiety and improve overall outcomes for the patient (Ulrich, et al., 2004).

Design Considerations. A single room is preferable to have the opportunity of private interaction with family (Worpole, 2009; Department of Health and Children 2005; Swenson, 2009; NHS Estates 2005; and Waller et al., 2008). Previous studies also support this finding (Ulrich et al., 2004). Shared rooms are preferable to have constant companionship by roommates (Rigby et al., 2010; Rowlands & Noble, 2008; Anderson, 2008; Larkin et al., 2007; and Pease & Finlay, 2002). Patient's room should have enough space to accommodate a large number of visitors to sit and to stand around the dying patient's bed; in single room a convertible piece of furniture for family to overnight stay, and in shared room a comfortable and easily moveable chair for each bed (Hospice Unit Generic Brief, 2000; NHS Estates 2005; Anderson, 2008; Moorhous, 2006; Verderber & Refuerzo, 2006; and Worpole, 2009). Anderson (2008) suggested about adequate room size is approximately 150-200 square feet per patient. The size of a private room should be 270 square feet including en-suite bathroom and toilet (Worpole, 2009), or it

should be 20-25 percent larger in size than a traditional hospital room (Verderber and Refuerzo, 2006).

Social interactions among patients, families, and staff also take place in the hallways, living room, dayroom, kitchen/café, and outdoor places or garden (Hospice Unit Generic Brief, 2000; Sargent, 2012; and Andersen, 2008). The design should incorporate a variety of cozy spaces to allow both group interaction and intimate discussion, residential look with comfortable furniture, a place for children to play freely under supervision, and outdoor landscape areas with shelter and sitting amenities (Moorhous, 2006; Sargent, 2012; Verderber & Refuerzo, 2006; Department of Health and Children 2005, 2005; Lindqvist et al., 2012; Hawker et al., 2006; Kayser-Jones et al., 2005; and Worpole, 2009). Patients' social interaction with staff is also significant and discussed later in the 'Staff support' chapter.

Maximize Safety & Security.

Definition. Environmental characteristics that maximize safety and security of patients, staff and families.

> Hospice patients and their families experience emotional and other traumas, and are in need of safety, security, and refuge. (Verderber & Refuerzo, 2006, p. 65)

Safety and security is one of the prime issues of any healthcare facility (Ulrich et al., 2004), and there is a significant amount of research has suggested in-depth design considerations related with safety and security of hospice care environments for patient, family, children and staff include accessibility, fire codes, theft and vandalism, patient's fall or slip, infection control, and secure continuous care (Hospice Unit Generic Brief, 2000; Moorhouse, 2006; Verderber & Refuerzo, 2006; Stajduhar et al., 2011; Brereton et al., 2012; Evans et al.,2006; Lindqvist et al., 2012; Larkin et al., 2007; Kaarbo, 2010; and Department of Health and Children 2005).

Design Consideration. Hospice care facilities must be fully barrier-free for disabled persons, should comply with regional fire safety codes and standards, and should be secured from theft and vandalism. The access and entrance should be screened without sacrificing the overall openness and welcoming environment (Department of Health and Children 2005; Hospice Unit Generic Brief, 2000; and Moorhouse, 2006). Infection control is essential for the protection of patients, staff, family members, and visitors (Stajduhar et al., 2011; and Moorhouse, 2006). The selection of furniture, fittings and finishes should consider performance including clinical and infection control (Moorhouse, 2006; and Department of Health and Children 2005). Grab bars must be installed in restrooms, showers, and other necessary areas to avoid patient falls or slips (Leibrock, 2000 in Sargent, 2012; and Moorhouse, 2006;). Furniture must have stability, and corners on table's benches and cupboards will preferably be rounded; also, the furniture selection should avoid glass or clear plastic furniture (Hospice Unit Generic Brief, 2000). Facilities must be equipped with continuous power supply and necessary medical supplies to secure continuous care and support; includes emergency generator, mechanical system, oxygen supply, patient call system, all types of specialized equipment and so on (Moorhouse, 2006; and Brazil et al., 2004).

Provision of Autonomy.

Definition. Environmental characteristics that enable patients to exercise choice and personal preference about their environment and everyday life.

> We are trying to give him everything he wants. From the special incense on his table, special drops in his water, his own pillow and slippers beside his bed, even if he is not able to walk. (Mentioned by a nurse technician as cited in Lindqvist, 2012, p. 4).

Humans need a sense of control and losing this can lead to depression, elevated blood pressure, and other serious problems (Ulrich, 1991; Ulrich et al., 2004). Having personal control on the surrounding environment (lighting, artwork and noise), communication (phone, nurse calling system, etc) and daily routine (food, personal hygiene, sleep, recreation, music, or family visit, etc.), is one of the key considerations before death (Cohen & Leis, 2002; Swenson, 2009; Silver, 2004; and Lindqvist, 2012; Department of Health and Children 2005; NHS Estates 2005; Waller et al., 2008; Tan et al., 2005; and Anderson, 2008). It is significant to understand the patient's wishes and allow exploring the choices (Lindqvist, 2012).

Design Consideration. Patients should have the opportunity to maintain control over their physical environment (e.g., furniture arrangements, personalizing, temperature, noise, lighting, ventilation, smell) and their daily activities (e.g., bath, eating, entertainment, and smoking). Lack of this control causes discomfort and dissatisfaction (Spichiger, 2008; Hospice Unit Generic Brief, 2000; Cohen et al., 2001; and Brereton et al., 2012; Anderson, 2008; Vohra et al., 2006; Waller et al., 2008; Stajduhar et al., 2011; Hawker et al., 2006; Moorhouse, 2006; and Kayser-Jones, 2003). Like the patient room, other areas of the facilities should encourage a sense of control (Sargent, 2012; Department of Health and Children 2005; Moorhouse, 2006; Anderson, 2008; and Verderber & Refuerzo, 2006). Window design and location should consider the control of glare, climate, and ventilation (Hospice Unit Generic Brief, 2000). Dimmer switches and operable curtains provide greater control over lighting levels (Warpole, 2009; Hospice Unit Generic Brief, 2000; and Moorhouse, 2006). Noise can be from different sources, such as, television, phone, bells, staffs loudly speaking, patients shouting, moaning or groaning (Cohen et al., 2001; Brereton et al., 2012; Brazil et al., 2004), which need to be addressed by designing sound containment throughout the entire facility (Moorhouse, 2006; Department of

Health and Children 2005; and Sargent 2012). Designated indoor and outdoor smoking area is supportive to patients and their families (Moorhouse, 2006).

Regulate Stimulation and Support Therapies.

Definition. Environmental characteristics that contribute to an appropriate quantity and quality of sensory experience, and support sensory therapies (palliative therapies).

> You know, what is quality of life for someone lying in bed unable to do almost anything except breathe and open their mouth? That's about it. So, is it just doing those things, having that person in the fresh air or where there's stimulation of some sort? (Mentioned by a patient's wife, as cited in Russell et al., 2008, p. 91).

Sensory stimulation offers therapeutic treatment for pain, depression and many other symptoms, which are basic criteria of palliative care (Center to Advance Palliative Care 2013; and Department of Health and Children 2005). Sensory stimulation may generate some kind of response 'a spark, a smile, a memory or a moment of lucidness' (NHPCO, 2007; p. 5). Different types of sensory therapies (music, aroma, art, massage, horticulture, spa/hydro, multi-sensory, etc.) are increasingly used in hospice care to improve patient's quality of life (Department of Health and Children 2005; Russell et al., 2008; Brazil, 2004; and Center To Advance Palliative Care 2013). Recent studies found environmental factors can influence patients' sensory experience (Ulrich et al., 2004). A meaningful view improves stress and reduces pain (Ulrich et al., 2004; and Malenbaum et al., 2008), color can affect mood (Ulrich et al., 2004), 'exposure to daylight' reduces depression, eases pain, lessens agitation, improves sleep and circadian rhythms (Joseph, 2006), and artwork (paintings, sculptures, water features, etc.) has multiple benefits on patients. For example, art representing nature evokes positive response and abstract art evokes

negative response, and water features have a relaxing effect (Verderber & Refuerzo, 2006; Moorhouse, 2006; Department of Health and Children 2005; and Ulrich et al., 2004).

Design Considerations. Hospice care environments should provide positive therapeutic stimuli, regulate level of stimulation, and should provide appropriate environment to perform different types of sensory therapies (Moorhouse, 2006; Department of Health and Children 2005; Verderber & Refuerzo, 2006; Sargent, 2012; Worpole, 2009). Though, there is a little empirical research found focusing on sensory environments for the dying patients (Lindqvist et al., 2012), positive environment for sensory stimulation in hospice care means a peaceful, warm and non-institutional interior design with the presence of natural light, attractive views, access to nature, and display of artworks (Hospice Unit Generic Brief, 2000; Silver, 2004; Department of Health and Children 2005; Stajduhar et al., 2011; Moorhouse, 2006; NHS Estates 2005; Waller et al. 2008; Lindqvist et al., 2012; and Anderson, 2008). Also the option for customization is significant, such as, photographs around bed, favorite perfume, cushions or pillow (Hospice Unit Generic Brief, 2000; Lindqvist et al. 2012; and Franklin et al., 2006).

Specific therapy requires definite environmental characteristics, such as for complementary therapies (aroma, acupuncture, or music), a quiet room which is free from noise and outside distraction, and have reasonably controlled acoustic, light and ventilation (Hospice Unit Generic Brief, 2000; Moorhouse, 2006; Department of Health and Children 2005; Anderson, 2008; and Verderber & Refuerzo, 2006). For art therapy, a designated space for activities, and also a store are to keep the works that are produced from the therapies (Verderber & Refuerzo, 2006). For horticultural therapy, a raised platform for gardening or a greenhouse (Hospice Unit Generic Brief, 2000; Verderber & Refuerzo, 2006). For special therapy, such as

multi-sensory room, or spa/hydrotherapy room, space has its own design criteria (Verderber & Refuerzo, 2006).

Supports for Spiritual Care.

Definition. Environmental characteristics that facilitate opportunities for patients' spiritual care; religious, philosophical, and existential or personal beliefs, values, practices, and preferences.

> Spirituality is the aspect of humanity that refers to the way individuals seek and express meaning and purpose and the way they experience their connectedness to the moment, to self, to others, to nature, and to the significant or sacred. (Puchalski et al., 2009, p. 887)

Spiritual care is a fundamental component for hospice or palliative care to support patients' personal striving for health, wholeness, comfort, and meaning of life (Hospice Unit Generic Brief, 2000; Brazil, 2004; Puchalski et al., 2009; Department of Health and Children 2005; Tong et al., 2003; Rigby et al., 2010; Vohra et al., 2006; Cohen & Leis, 2002; Cohen et al. 2001; Puchalski et al., 2009; Silver, 2004; Nakashima, 2002; Hospice Friendly Hospitals, 2010; Ryan, 2005; Engle et al., 1998). According to National Consensus Project (NCP) Guidelines (2009), "the palliative care service facilitates religious or spiritual rituals or practices as desired by patient and family, especially at the time of death," and "the patient and family are encouraged to display their own religious, spiritual or cultural symbols," *(as cited in Puchalski et al., 2009; p. 887).*

Each person's definition of spirituality is individualized and may or may not include a religious preference, so spiritual care should be defined broadly, such as, meaning-oriented

therapy, meditation, sacred/spiritual readings or rituals, yoga, art therapy, etc. (Puchalski et al. 2009).

Design Considerations. Though very little has been written about the physical characteristics that make an environment spiritual or meet spiritual care needs (Waller et al. 2008). The study found that hospice care facilities should ensure a calm contemplation environment that is culturally and religiously neutral (Hospice Unit Generic Brief, 2000; Puchalski et al., 2009; Arthur et al., 2010; Waller et al. 2008; NHS Estates 2005; Department of Health and Children 2005; Verderber & Refuerzo, 2006; Lindqvist et al., 2012; Kayser-Jones, 2003; Tan et al., 2005; and Moorhouse, 2006). According to Puchalski et al. (2009), environmental aesthetics should encourage reflection and foster self-nurturing behaviors. For spiritual care, the facilities should have a meditation room for quiet reflection, contemplation or prayer (Wilson and Daley, 1998; Verderber & Refuerzo, 2006; Moorhouse, 2006; Department of Health and Children 2005); an office or consultancy room for chaplains, religious worker, or funeral director (Department of Health and Children 2005; Moorhouse, 2006; and Sargent, 2012); a storage space for religious artifacts (crosses, stars, footbaths, etc.) (Moorhouse, 2006; Waller et al. 2008); and also should have option for single room accommodation for patients and their family to perform private prayer, worship or religious rituals (Rigby et al., 2010; and Tan et al., 2005). Some facilities might have sanctuary, chapel or mosque to accommodate group prayers or rituals (at least for 10 to 12 people) (Wilson and Daley, 1999; Hospice Unit Generic Brief, 2000, Tan et al., 2005; and Moorhouse, 2006). These spaces should be accessible by wheelchair or bed, and also could be enriching with architectural delight (Hospice Unit Generic Brief, 2000; Moorhouse, 2006). Garden or outdoor places can be used for meditation or spiritual reflection (Hospice Unit Generic Brief, 2000; Verderber & Refuerzo, 2006; Sargent, 2012; Tan

et al., 2005; and Worpole, 2009). “There is a long history of creating gardens attached to places of healing or spiritual care, often religious in symbolism and intent” (Warpole, 2009, p.78).

Provide Family Accommodation.

Definition. Environmental characteristics that facilitate patients’ family accommodation and support control, functional independence, comfort, privacy, recreation, and spiritual care.

> Family means those closest to the patient in knowledge, care and affection. This includes the biological family, the family of acquisition (related by marriage/contract) and the family of choice and friends (not related biologically or by marriage/contract). (Hospice Unit Generic Brief, 2000, p. 54)

The importance of ‘family presence’ during the experience of death is well established in palliative care (WHO, 1990; Hall & Kirschling, 1990; and Buckingham, 1982), and it has also got reconfirmed by some other studies (Munn & Zimmerman, 2006; Tong et al., 2003; Brazil et al., 2004; Brereton et al., 2012; Swenson, 2009; Vohra et al., 2006; Wilson and Daley, 1999). Relatives need support in caring for dying patient, as well as their own well-being (Brazil et al., 2004; Silver, 2004; Chan and Kayser-Jones, 2005; and Hospice Friendly Hospitals 2010).

Design Considerations. Swenson (2009) found that family accommodations in a designated hospice room of nursing home have four main criteria; privacy and dignity, room size, private accommodation and amenities. Family members’ satisfaction depends on location, accessibility, size and atmosphere, variety of indoor and outdoor spaces including a conservatory, patio and garden (Hawker et al., 2006 in Brereton et al., 2012). This study has identified several criteria that support family for patient’s care and their well-being; accessibility & wayfinding; control, functional independence, privacy, comfortable accommodation; safety; communication & social interaction; retreat & recreation; and spirituality & bereavement.

The important design considerations include: easy accessibility by visitors of all ages and also by pets (Hawker et al., 2006 in Brereton et al., 2012; Moorhouse, 2006; Hospice Unit Generic Brief, 2000; and Swenson, 2009); easy and clear directions or wayfinding for visitors (Verderber & Refuerzo, 2006; Hospice Unit Generic Brief, 2000; Moorhouse, 2006; Department of Health and Children 2005; and Anderson, 2008); family should have comfortable accommodations in patient's room (in a format of convertible bed) and also in separate visitor's room (in case of shared room) (Rigby et al., 2010; Verderber & Refuerzo, 2006; Brereton et al., 2012; Moorhouse, 2006; Hospice Unit Generic Brief, 2000; Department of Health and Children 2005; and Waller et al., 2008); patient's room size should be sufficient enough to accommodate overnight stay and large number of visitors (Hospice Unit Generic Brief, 2000; Department of Health and Children 2005; and Kayser-Jones, 2003); enough storage space for family use one (Anderson, 2008); control over surrounding environments and daily activities, such as temperature, furniture arrangement, visiting hours, music type (Kayser-Jones, 2003; Moorhouse, 2006; Anderson, 2008; Department of Health and Children 2005); amenities for functional independence, such as laundry, kitchen facilities, access to phone and internet (Kayser-Jones et al., 2005; Brereton et al., 2012; Anderson, 2008; Hospice Unit Generic Brief, 2000; Verderber & Refuerzo, 2006; and Waller et al., 2008); provide privacy for confidential discussions, comfort and satisfaction of family members (Heyland et al. 2006; Anderson, 2008; Waller et al., 2008; Swenson, 2009; and Hospice Unit Generic Brief, 2000); different sizes of social spaces to accommodate a large number of visitors to small family crowd (Moorhouse, 2006; Verderber & Refuerzo, 2006; and Sargent, 2012); a safe place for children to play under supervision (Verderber & Refuerzo, 2006); a place for pets which is 'unobtrusive, hygienic, and yet close in proximity to patients' (Verderber & Refuerzo, 2006; Hospice Unit Generic Brief, 2000; and

Moorhouse, 2006); a ‘family zone’ or private break-out area for relax and recreation (NHS Estates 2005; Moorhouse, 2006; Waller et al., 2008; Hospice Unit Generic Brief, 2000; Department of Health and Children 2005; and Worpole, 2009); outdoor garden for socialization and also for individual solitude and (Verderber & Refuerzo, 2006; Sargent, 2012; Department of Health and Children 2005; and Worpole, 2009); a smoking area (Hospice Unit Generic Brief, 2000); appropriate space for spiritual care (Moorhouse, 2006; and Department of Health and Children 2005); space for bereavement support (Department of Health and Children 2005; and Verderber & Refuerzo, 2006); and provide direct path to bereavement suite for relatives of deceased (Moorhouse, 2006). Design considerations related to families safety and security has mentioned in Goal-5.

Support after Death.

Definition. Environmental characteristics that support care and dignity for patients and their families during the moment of death, body removal, bereavement and remembrance.

> The room was filled with peace. They had put a white cloth on the bedside table and lit a candle. He was so beautiful in his best shirt, and everything was nice and clean. They had even laid a rose in his hand. (Kaarbo, 2009, p. 1129)

The event of death has some unique issues, and so do the environmental concerns (Waller et al. 2008; Worpole, 2009; Moorhouse, 2006; Hospice Friendly Hospitals 2010; and NHS Estates 2005). It starts right before the moment of death, continues through transfer of deceased, providing bereavement support for families, and ends with the expression of remembrance (Silver, 2004; Lindqvist, 2012; Moorhouse, 2006; Hospice Friendly Hospitals 2010; and NHS Estates 2005). Patients might have some wish about their death event; ‘some may want to die in a garden’ (Worpole, 2009), and families might have some expectation, may want to perform

bedside rituals, or something else, “the wife lie on the bed next to her dead husband and hold him” (Lindqvist, 2012; and Moorhouse, 2006).

Design Considerations. Important considerations for deceased person include: ensuring privacy and dignity; having at least one operable window in patient’s room to support the belief “the spirit can be let out of the room after the resident dies” (Swenson, 2009); control over room temperature to cool down, as the deceased may remain in their bed for a certain amount of time ‘to allow the soul to leave’ (Moorhouse, 2006); selective routes (not through public space) for discreet and sensitive transfer (Sargent, 2012; NHS Estates 2005; Moorhouse, 2006; and Hospice Friendly Hospitals 2010); well-designed transit or equipment (NHS Estates 2005); a dedicated storage for personal belongings while waiting for collection by family or estate (Department of Health and Children 2005); and specific areas or ways for expressions of remembrance of deceased in a dignified manner (Verderber & Refuerze, 2006; and Moorhouse, 2006). Important design considerations for family include: a dedicated area (quiet and religiously neutral with privacy) to grieve (Sargent, 2012; Department of Health and Children 2005; Verderber & Refuerze, 2006; and NHS Estates 2005); it can be small and adjacent to patient room, or big and near the entrance (Moorhouse, 2006; and Verderber & Refuerze, 2006); an appropriate place for ‘viewing’ the deceased (Department of Health and Children 2005; Hospice Unit Generic Brief 2000; Moorhouse, 2006; Hospice Friendly Hospitals 2010; Waller et al., 2008 ; Verderber & Refuerze, 2006]; or, bereavement suite which may include a viewing room, private lounge area with a bathroom, facilities for light refreshments, and connection with outdoor space or a private garden (Department of Health and Children 2005; and Moorhouse, 2006).

Support for Staff

Definition. Environmental characteristics that support staff (Care providees) for better communication, observation, efficiency, satisfaction, and wellbeing.

> They are taking care of seriously ill people and need all the help they can get through efficient design, and pleasant work areas. (Moorhouse, 2006, p.12)

Patients value good communication and relationship with staff, and also found staffs' good mood and liveliness in the unit as an important criterion at hospice care (Munn & Zimmerman, 2006; Rowlands & Noble, 2008; Cohen et al., 2001; Wilson & Daley, 1999; Verderber & Refuerzo, 2006; and Moorhouse, 2006). Staffs create a quality environment with respect and dignity into the transition of death, and at the same time they take challenge of bringing liveliness in the environment as required (Vohra et al., 2006; Tong et al., 2003; Sargent, 2012; Hospice friendly Hospitals 2010; Cohen & Leis, 2002; Rowlands & Noble, 2008; and Schroepfer, 2007). Staffs' satisfaction, productivity and overall well-being carry a great value to the success of a hospice care (Cohen et al., 2001; Verderber & Refuerzo, 2006; Hospice Friendly Hospitals 2010; and Moorhouse, 2006).

Design Considerations. A significant amount of research has suggested in-depth design considerations related with staff efficiency, safety and satisfaction in healthcare facilities (Ulrich, et al., 2004). Important considerations for hospice care include; short corridor runs (Moorhouse, 2006; Rigby et al., 2010; and Verderber & Refuerzo, 2006), nurse station central to the patient area (Moorhouse, 2006; and Verderber & Refuerzo, 2006), easy access to all the other spaces which get used for care giving purpose (Moorhouse, 2006), and a pleasing staff break areas to relax, chat, eat, retreat or watch TV (Sargent, 2012; NHS Estates 2005; and Moorhouse, 2006). All these spaces must ensure privacy, comfort and pleasing aesthetics; such as, daylight, view to

outside, non-institutional look and comfy furniture (Moorhouse, 2006). A meditation room or outdoor seating area could be helpful for staff for isolation and self-retreat from high activity areas (Verderber & Refuerzo, 2006; Moorhouse, 2006; and Sargent, 2012). Though previous study suggested that single room enhances good communication between staff and patients (Ulrich, et al., 2004), but a recent study has challenged the findings (Rowlands & Noble, 2008). Also, hallways found a good place of communication between staff and relatives in palliative care units (Anderson, 2008).

Limitations

The literature review has limitations and should be considered an initial effort at establishing this common language for connecting organizational and physical design decisions in a sympathetic and mutually reinforcing fashion. The review was conducted in such a way that it did not consider the conference proceedings relevant to hospice or palliative care which may contain very meaningful insight to this question. Also, the interpretation was conducted and limited to two researchers (Sharmin Kader and Keith Diaz Moore) which did engage in peer examination and a code-recode procedure.

Conclusion

This study engaged an exhaustive and systematic literature review in order to distill the salient environmental dimensions and subsequently, the therapeutic goals the hospice literature suggests are essential to promote in the hospice environments. As mentioned in Chapter-1, therapeutic goals can provide a sense of direction for planning and applying design skills more effectively and in greater concordance with the best practices of hospice care. Also, such lateral theoretical connections enable improvement in management procedures and the articulation of user requirements. Identification of these therapeutic goals provides a useful point of departure

for developing the environmental assessment tool. As mentioned in the Chapter-3, this study considered experts' opinion and case study surveys to validate and modify these goals and the design considerations for each goal.

Chapter 5: Phase 2 - Experts' Opinion

Questionnaire Development

The questionnaire was developed based on the findings from literature reviews. Twelve questions were composed and maintain a sequence developed from a pilot test. The first eleven questions are about the eleven therapeutic goals, and in the last question they were asked to provide their opinion about these eleven goals, if they want to add or discard any goal or any design considerations. The questionnaire started by asking the two main goals: continuity of self and access to nature. Then it followed the sequence of goals related to direct patients' experiences and tried to maintain their answers in detail-oriented answers. The last three goals are indirectly relevant with patients' experiences, so they were asked towards the end of the questionnaire. Though the goals were organized to stimulate continuous answers, several answers were overlapped, repeated or irrelevant. The questionnaire is attached in Appendix B.

Process of Interviews

All of the experts were contacted through emails, and were asked to provide a time for an online appointment or a phone interview. The experts were asked to provide a written consent form, which was signed and sent back through email. The questionnaire was sent to the experts a few days in advance before their interview in order for them to look over the questionnaire and organize their answers accordingly. All of the interviews were recorded using two voice recorders. As the written consent was taken in advance, the interview started by stating a short brief of the literature findings and by mentioning the eleven goals. Then, with their permission, the interview began. Though the estimated time for the interviews was 45-60 minutes, most of the experts' interviews lasted for more than one hour; only three of the experts finished their interviews within 45 to 60 minutes. The longest interview was a little over two hours. After the

interviews all of the experts were asked to suggest one or two hospice projects as a nomination for a case study. The practicing architects were asked to suggest one of their projects. All of the experts suggested one or two names of hospice facilities.

Process of Analysis

All of the interviews were transcribed manually (Appendix C). No software was used. After the transcription, the interviews were organized by goals; all of the experts' opinions were brought together one after another, and then were coded. Then all of these goals were coded. As the questions were semi-structured, it helped to extract data based on themes and subthemes. New themes also emerged and were listed. All of the coding and analysis was done manually.

Though the questions were organized by goals developed through the literature review, there is always an overlapping of design considerations for various goals. Sometimes the experts have mentioned one criterion in a previous goal so they avoided mentioning it again, sometimes one criterion has been mentioned but it is not relevant with the question, and sometimes they have mentioned the criterion repeatedly. Thus, data for the interview analysis was subtracted when review all of the answers to the goals. One sample of the data analysis and coding has been attached in Appendix C.

Discussion of Analysis

Goal 1: Provide Continuity of Self. All of the experts agreed on creating a non-institutional environment or a home-like environment. One of the experts mentioned that the term should be "home-look like" environment; "I would like to say, it sounds like you have to have home-look like thing. It has to have longevity to maintain, and also it is a healthcare facility" (Expert – 3). One expert was more detailed about "why an institutional environment is not suitable", and explained;

> In a hospice, the patients are not on their way to get better, they are on their way somewhere else, certainly, but they are not rushing, so what are we trying to do is give them every sensory clue that says, this is a place where you can relax and you can let go of the stress and you can take your time and you can just enjoy the day and be where you want to be. So that's why we want to give them places to put personal objects and it is important in places like a hospice to have a shelf or a deep window shelf for a photograph of a family because what's going on in that room in many ways is about reconnecting with the family and thinking about all the stories of a long life, right? (Expert – 4)

There are several design considerations that were mentioned by the experts to create a home-like environment. Most of the experts talked about the building layout; one said "*There should be bedrooms and living rooms to have a residential feelings*" (Expert-1), three suggested to avoid long corridors and to design an inpatient unit clustering multiple bedrooms with a living room (Expert-4,5,6), one recommended a residential scale dining room (Expert–5,8), and another expert mentioned that they created family rooms all over the hospice instead of having one giant room.

> We created four small rooms. One special thing we did, we created a country kitchen, like the assisted living. It has all the equipment and cooking wear, dining table for 6 persons, high stool with eating island. With all the lighting and views, it looks like a luxurious kitchen, and this kitchen is just for family members. We have learned that family members come and stay for whole afternoon, and they need to eat. Families can have their time to consult with each other, and care for

> each other. Residents' room needs to be quiet, so this works as a breakout room. It was created for the family members to feel at home. (Expert-5)

Most of the experts discussed the interior design; finish materials, selection of color, and furniture. One expert mentioned that they try to stay away from hard and shiny surfaces such as stainless steel, bright porcelain tiles, things that clatter; and instead tried to use wood where ever they could. Another expert provided an example of using a bio-product for flooring to create a home-like look; it looks like wood, but is a material that is easily cleaned. Another expert mentioned that they focus on interior aesthetics; "try to use materials that people emotionally aware in residential setting". Two experts mentioned the architectural detail works throughout the spaces (Expert-7 & 8).

One expert mentioned that they created home-like environments by providing views to outside gardens. A few experts talked about the furniture they try to select to make sure it looks like home. Three experts were elaborate about the patients' bed head-wall design; how they have designed their hospice facility hiding the equipment in a wooden box or panel.

> What you'll see in a nursing home or in a hospital is a wall behind the patient's head that is full of outlets, receptacles, attachments, vacuum bottles and all kinds of stuffs. And again it starts to look and feel like an ICU and that's not what we want. (Expert-4)

About the second objectives, most of the experts mentioned that patients' rooms must have the opportunity for personalization (e.g. shelves, wall hook). One expert mentioned,

> In the bedroom, there should be scope for furnishing, bringing items, rugs, furniture, picture of their children and family. Mainly photographs! That is what I found most important from my research. (Expert – 1)

Two experts talked about having enough storage space or closet space to bring their personal stuff, or providing enough shelves or spaces to display photographs, cards, flowers, etc. Two experts mentioned the short length of a patient's stay in the hospice facility, which makes it difficult to decorate the space, and to bring personal furniture and artwork.

One expert mentioned that they tried to create two options for a patient bed setup. This provides the family an opportunity to arrange the space the way they like it. Two experts talked about flexible furnishing in patients' rooms to allow for family members. One expert mentioned that built-in furniture is better in patients' rooms because if the furniture can move around the room it may create a risk for nurses to trip over at night.

Summary of Continuity of Self.

Comparison with Literature Review. Creating a home-like environment and scope for personalization were confirmed by all the experts. Most of the design criteria revealed from the literature reviews, have been mentioned by the experts. Due to the time constraints, the experts focused on discussed their main points, as a consequence they were not able to describe all details. Some design considerations are considered standard or are commonly practiced, therefore they may have not mentioned those considerations, such as hospice building exterior appearance should be residential in scale. On the other hand, there are some new considerations that were suggested by the experts, and also highlighted some of the issues for careful considerations, such as the patient's bed head design should avoid exposing all of the medical

equipment and gas systems, and try to create a home-like look by hiding the medical equipment behind a wood panel or box.

Conflict. There are no conflicts found between the findings from literature and experts.

Further Inquiry. One issue that was raised that hospice patients are there for a very short period of time (two to seven days). So, how many and what types of personal belongings are brought by patients and their family? This question was added to the case study questions for further inquiry.

Findings. A list of design considerations to provide continuity of self follows;

Table 5-1: The List of Design Considerations to Provide Continuity of Self.

Objectives	**Design Considerations**
Creating a non-institutional environment or home-like environment	Building layout should be home-like or residential: • Designing in-patient unit like a residential setting - having multiple bedroom clusters with a living room. • Provide natural light and views to outside garden/ landscape. • Avoid long corridors • Family room and dining room should be residential in scale, not large or too small in size • Dining area may be adjacent to a kitchenette to provide create home-like environment
	Home-like interior design to create a warm environment: • Attention to proportion, color, contrast (in wall, ceiling, floor), scale and detailing to create a home-like environment. • Use of cheerful, varied colors, textures and non-reflective finishes. • Use of comfortable and flexible furniture. • Use of meaningful artwork which provides positive stimulation. • Special consideration for patients' beds and headwall designs to look like home (such as, wooden panel on headwall to hide the medical equipment).
Provide scope for personalize patients' immediate surroundings	• Having desktop, table top, counter top, or window sill to display photos, paintings, cards, flowers, etc. • Having picture hooks, tag board, or any kind of scope to decorate wall with personal paintings, pictures, etc. • Provide shelving to display personal belongings. • Provide adequate space in patients' rooms to bring their own belongings (lamp, chair, rug, etc.).

Goal 2: Provision of Access to Nature. Access to nature was found to be very significant for hospice facilities by all of the experts: “It is very important!” (Expert-3); “That has been most important” (Expert-7); “Very Important! Natural environment could be helpful for healing” (Expert-2); “I agree that all of these (access to nature) are important” (Expert-1); “We have also found that in a lot of ways the outdoor spaces are a big stress release” (Expert-4).

One expert (Expert-4) elaborated on the many reasons of having outdoor accessible areas in a hospice. Some of the reasons were, for patients to go out, for families to get out and take a break, for kids to explore and play, and for visitors. It is also important for the staff to have a break, relax, and refresh themselves in these spaces.

> One of the things that we have learned is that everybody who deals with hospice needs access to the outdoors…. So it's been very important for the patients, family members and for the visitors to be able to go outside. They all appreciate being able to visit outside. Sometimes it's important for the families because they need an outlet for the younger children. Sometimes the families will spend very long day and it's important for the teenagers to get out and be able to get away and for the toddlers to get out more. (Expert-4)

This expert also mentioned another interesting point of having a good outdoor landscape area with hospice. It helps to build a relationship with the outside community by bringing people for various activities, such as garden clubs, women’s group meetings, boys scout troops, bird watching groups. It also helps bring people from the neighborhood and city people to come, see, and enjoy the facility and have a better understanding about what hospice is, and to later tell their friends and family about this hospice. Another expert mentioned that having a walking trail

around the hospice facility also helped bring the community to the site and to develop relationships (Expert-9).

Outdoor landscape areas carry great significance for patients and their families to have private family time, a barbeque party, or to socialize with other patients' families (Expert- 5, 6, 7, 8, & 9). One expert (Expert-10) mentioned people in certain cultures, such as the Native American people don't allow for a person to die inside the building, they prefer to die outside.

Providing views to the outside from patients' rooms and from other spaces was suggested by all of the experts. Three experts mentioned that hospice facilities should be designed by collaborating architects and landscape architects in order for the building layout and the outside landscape to be integrated for better views and accessibility.

> I think the landscape architects should be involved in the designing process from the beginning. I think the architects and landscape architects should work together, which I strongly encourage in hospices. I think it is extremely artificial, here is the building and here is the ground. Building is for architects and grounds are for landscape architects. How boring, and how old school! (Expert – 1)

To create a better indoor and outdoor relationship, several design recommendations have been derived: a) building layout integrating outdoor landscape, and b) size and location of windows or openings. To achieve the best outcome for views, building layout designs should incorporate the outside garden views from the indoor spaces. One expert mentioned "the garden needs to be seen from many rooms" (Expert-10). One suggested having a view from every patient's room and from all the spaces; he/she also provided an example of a project where 92% of the occupied spaces have views (Expert-9). Another expert explained the idea of the building layout is to breakdown the walls and bring the nature of the exterior into the interior (Expert-1).

One expert discussed the importance of having transitional spaces from the indoors to outdoors. Having the veranda, a patio, or a porch attached to a patient's room or having social spaces will provide a semi-outdoor area as a transition (Expert-6). One expert (Expert-5), mentioned that creating lots of outdoor landscape areas and gardens could be expensive, thus they designed only one garden and built the building around it to in order to have views from the indoors.

All the experts mentioned having large windows with lower sills in patients' rooms to have a full or a wide view to the outside. One said (Expert-10), "If the window is too high, how they will see?" Another expert mentioned having a visual interest in the outdoor landscape to look at from the inside (Expert-6). One mentioned that they have designed a hospice garden in such a way so that it is visible from all of the patients' rooms and social spaces (Expert-5). Four experts mentioned the view from the patients' bed location should provide the best possible view. One expert mentioned having a balance between the size and number of windows to create the indoor and outdoor connection. They also suggested not to overdo it because the larger the window, the more the window coverings (blinds and curtains), which are difficult to clean. Additionally, it was discussed for patients' privacy that the window locations would be strategically designed to ensure that patients would not be seen from the outside. He/she also mentioned having an operable window or door in the patient's room to allow for fresh air, which can be very refreshing for patients (Expert-3).

All of the experts discussed having direct access to the outside landscape for patients to enjoy outside nature. All of them suggested having bed access in the outdoor garden by providing a wide door, floor finish material for wheels to roll over, and having a wide pathway.

> One thing need to consider from the beginning of designing a hospice facility, the texture of the ground material. It is important! The bed will need to go all over

> these places without difficulties, which means that the texture of the ground material is important for a wheel chair or a walker. Like, brick, it has too many gaps in between, which will make it the most beautiful garden that is never used. So the selection of material should be smart. (Expert-1).

Four experts suggested providing a private patio or veranda with the patients' rooms. One expert mentioned that they used to design a shared patio for two rooms, but in recent years they have been getting requests for a private patio for each room (Expert-4). One expert elaborated on having a private patio or veranda as a break area for the patient family, and bringing the patient bed outside and using this space for private family events (Expert-6). Another expert mentioned that they didn't provide a private patio or veranda with the patient's room, but they provided a private outdoor landscape area with a garden which is attached to the inpatient unit. This space is not visible from inside, thus allowing the family and patients to have private time (Expert- 5).

Another expert mentioned that by providing an outdoor terrace with shade, a grilling area, and an activity room for families and that is patient bed accessible, this space was often used by patient families to have a family gathering (Expert- 8). Considering the garden design, two landscape architects provided detailed design recommendations: selection of flowers and plants should take into consideration the color and beauty as well as maintenance; have a point of interest in the garden to go and look; places to sit and relax; use of water features, sculptures, bird feeders, etc. One expert mentioned that it is better to use wild flowers because they only need to be trimmed twice a year, and also expressed his/her concern about providing grass near patients' rooms, because "the mower will be mowing those spaces once or twice a week, while patients are in their rooms and in their last days" (Expert- 9). The pathway should be wide enough to be bed accessible, have a short distance or loop, and there should be a destination to

go (Expert- 1, 5, 9, & 10). Also, one expert mentioned having both types of gardens, a man-made garden and also wide landscaping (Expert-9). Another mentioned providing various seating arrangements and providing privacy in those spaces; “People are seeking privacy in garden” (Expert-10). Two experts discussed providing an outdoor chapel in the hospice.

In regards to the indoor garden, three experts suggested to have a Zen garden, a small courtyard or a dayroom with plants in the hospice where the winter season is elongated for four to five months. To represent the nature inside the buildings, most of the experts mentioned using indoor plants, any form of art that represent nature (e.g., painting, picture, fish tank), and using natural materials for interior finishing (e.g., wood, stone). One expert mentioned having a rooftop garden for places where space is limited, like large cities or in high-rise buildings.

Summary of Access to Nature.

Comparison with Literature Review. All of the design considerations revealed from the literature reviews have been confirmed by the experts. Some new design considerations have also developed, such as, having transitional spaces, having large outdoor spaces to accommodate for family events, community meetings, or club’s party to develop relationships with the community. Providing a walking trail was also found to be an innovative idea to support staff and families to relax, exercise, and socialize. Noise from lawn mowers is an important issue to take into consideration when incorporating grass near patient rooms. Also, the experts suggested to consider the cost issue of garden maintenance and suggested to design accordingly. For example, having one garden and making it visible from most of the spaces, or providing an outdoor area attached with inpatient unit for patients and families. Having an outdoor chapel is also an attractive idea.

Conflict. There are no conflicts found between the findings from literature and experts.

Further inquiry. Two issues have risen. How many patients want to die in a garden or the outside? How frequently do the patient families or other enjoy the outside landscape? These questions were added in the case study questionnaire for further inquiry.

Findings. A list of design considerations to provide access to nature is as follows;

Table 5-2: The List of Design Considerations for Access to Nature.

Objectives	**Design Considerations**
Maximize daylight, views and fresh air through design	• Building layout design should consider the outside garden, views and organize accordingly. • Having views from each patient's bed. • Having views to outside landscape and garden from social and spiritual spaces. • Presence of daylight and views in most of the occupied spaces. • Size and location of windows and patient's bed arrangement should provide maximum view to outside from patients' bed. • Provide opportunities to have fresh air through operable window/door in patient's room and in other social spaces.
Provide transitional spaces or semi-outdoor spaces	• Provide transitional spaces (e.g., patio, veranda, terrace) to get outside from indoor spaces. • Create a large transitional space attached with a family room or a social space with privacy and patients' bed accessibility, so that it can accommodate a large gathering or family event (BBQ party, birthday party, etc.) • Floor finish materials should be appropriate for bed wheels. • Door should be wide enough to take patient beds out. • Create a nice view or visual interest from these spaces. • Provide a shading device for comfort in extreme sun.
Provide accessibility to outside nature	• Provide bed-accessible outdoor spaces and gardens. • Create wide pathways to garden allowing patients outside. • Create gardens with beautiful landscaping, flowers, plants, water features, bird feeders, sculptures, and with multiple seating arrangements. • Provide a visual interest and destination to go and sit. • Seating arrangements should take into consideration group gatherings or solitude. • Create man-made landscape and gardens with the presence of wild nature
Provide accessibility to outside nature (Continues)	• Consider garden maintenance and lawn mower sound near patients' room. • In a city or downtown area, where space is limited, provide roof garden. • In the country side or a large site, try to create big outdoor landscape areas to accommodate community activities.
Presentation of nature inside the building	• Use of materials for interior finishes that represent nature (stone, wood). • Provide a small garden, Zen garden, courtyard, or dayroom with natural features inside the building when the weather is too extreme to enjoy the outside garden. • Use of indoor plants, an aquarium, or other natural features inside of the building. • Use of art that represents nature.

Goal 3: Provision of Privacy. All of the experts discussed providing a private patient room. One mentioned that "as a rule, every project that I have worked on has had a private patient room" (Expert-4). Another expert mentioned that "I don't think the shared room concept would work here (USA)" (Expert-2). But, another expert stated positive comments about the shared room with consideration of social interaction;

> Early on, I've visited several hospices that were really successful and they had some semi private rooms and was really pleased because in certain cases I'm sure you know, where there is a situation where a patient may not have any family, but the roommates; even if they have been strangers before they get there, they sort of become family for each other and there are times where I've heard some stories of patients who did much better once they had a roommate than they ever have before they came into the building, and they did better than they would have done in a private room. (Expert-4)

Two experts provided examples of making a double room in their designed facilities. One designed two double rooms, a room with two beds to accommodate a sick or old spouse, siblings or friends. Another expert provided two oversized rooms to accommodate two beds in one room. The intention was to accommodate a couple or spouse in the same room. One expert (Expert-5) mentioned providing a private bath with each patient's room, instead of a shared bathroom to provide more privacy and convenience to patients.

Acoustic privacy has been recognized as a significant criterion by all of the experts. Having good acoustic design through using acoustic materials is recommended by most of the experts;

> The acoustics of the spaces are more important for us; how the wall and, doors perform and are constructed. We are looking at the sound transmission. We are using door seals and other technological designs, so that the sound from the room wouldn't escape the room. The acoustic privacy is becoming more and more important. (Expert-7).

Visual privacy of patient's beds from the circulation corridor was also found as being significant; patients' bed head shouldn't be visible. One mentioned, "Do not design with the visual access to resident's head" (Expert-6). Another one provided an example of his/her latest project where they used the bathroom as a barrier for visual privacy;

> We choose not to do the bed aligned with door. So, we put a private bathroom in the room, and the bathroom wall conceals the views of patients' bed from the door; so there is no need to use a privacy curtain. (Expert – 5)

One expert mentioned that they tried to create a transition from the public spaces of the corridor through a foyer type of design to enter the patients' rooms to restrict the direct view from outside to the room, and to use this as a semi-private space. He/she also said, "we try to avoid the direct view from the corridor to the patient's bed" (Expert-7). Another expert mentioned that the direct line of sight from the corridor to the patient's bed head is needed in a hospice. He/she liked to put the patients' rooms openings off a shared family room; it increases the usage of the space. But, it also challenges the privacy of the patient's room if the door stays open; this was reported that it was not an issue for privacy if a patient's family is not too big (Expert-4). Only one expert talked about the patients' room privacy from the outdoor garden and the pathway. He/she said that the rooms on the ground floor are visible. So, the facility put blinds

in the window (Expert-8). Three experts mentioned that they had tried to create a patient zone and family zone in their facilities to provide better privacy for families and patients from each other. One expert said that the patient's room has a family-zone, a patient-zone, and a staff-zone, but there is no visual or acoustic privacy between the family space and the patient's bed.

To provide privacy for private communication between staff and family, one expert (Expert-1) mentioned that "the care giver having a conversation with the family shouldn't be in the patient's room". Then they suggested having these types of conversations in a day room, or a semi-private space in the hallway, such as an alcove which may be in the circulation corner. This small space may be a connection between clusters of two or three rooms. Another expert said that previously, they designed a closed room for phone conversation, and now they provide alcoves or niches for one to two people adjacent to the walkway (Expert-6). Another expert said that there should be a private space for staff and family conversations (Expert-2). Another expert recommended a family room for these types of conversations (Expert-5). To ensure privacy in social spaces, three experts recommended providing multiple, small-scale family rooms, instead of having one large central social space for the entire facility.

One expert highlighted the need of having a private space for family members outside of the patient's room for cell phone conversations, "a phone booth is supportive", and then mentioned the distressful situation of when one person is talking on phone in the corridor (Expert-3). Another expert said that they are trying to create a place called the "huddle room", so that family members or staff members can step away from the corridor, and have private communication with others or on the phone (Expert-7).

Summary of Privacy.

Comparison with Literature Review. Some design considerations from the literature review have been confirmed by the experts. One of the significant issues in privacy is shared rooms, and most of the practicing architects (experts) mentioned that there are no shared rooms in their designed hospices. The literature discussed having shared rooms and their privacy considerations. The entire shared-room design recommendations have not been considered in the findings. There were other new design considerations that have been revealed by the interviews: providing a patient zone and a family zone in a patient's room; providing a foyer space in patient rooms to avoid visibility of patient bed heads from the corridor; providing space (niches, alcove, small room, or huddle room) for private conversations or cell phone conversations; and having one or two double rooms to accommodate old or sick spouses, parents, or friends. Separate accommodation rooms for families outside patients' rooms was mentioned by two experts, but none of the other experts who have designed hospice facilities recently have mentioned this. Three experts discussed providing one or two double beds in a single room.

Conflict. No shared rooms in USA hospice facilities.

Further inquiry. Is there any shared room? How do they providing privacy in shared room? Is there any double-room or with two bed to accommodate infirm spouse or friend? These questions were added in the case study questionnaire for further inquiry.

Findings. List of design considerations to provide access to nature is as follows:

Table 5-3: The List of Design Considerations for Privacy

Objectives	**Design Considerations**
Privacy in patients' room and other social spaces	• Single rooms with an attached bathroom to provide better privacy. • Provide a patients' zone and a family zone in a patient's room • Avoid visibility of a patient's bed head from circulation corridor through the room layout, such as, a presence of a small foyer, or the presence of an inward toilet, or making the entry recessed into the room. • Provide enough curtains or blinds for window or glass doors to veranda/patio to ensure patient room privacy from the outside garden or pathway (especially for ground floor rooms at night). • Good acoustic design to contain sound using acoustic material, and also throughout the layout; such as, presence of buffer zone (foyer, toilet, wall closet) between patients' rooms and corridors. • Provide separate rooms for family sleeping accommodations to ensure privacy for both patients and families. • Instead of having a single large central social space for the entire facility, distribution of social spaces into multiple small intimate spaces to provide better privacy for patients and families. • Provide spaces (niches, alcove, small room, or huddle room) for private conversations or cell phone conversations.

Goal 4: Facilitate Social Interaction. To facilitate social interaction, all of the recommendations made by the experts can be distributed into two main categories: social interaction in patients' rooms and in social spaces. Some experts also discussed the outdoor social space interactions. Few experts described the significance of social interactions in hospice facility:

> One of the main goals of the hospice is to reconcile families. They look back at the experiences and feel good that they had a chance to say what they wanted to say, to hear and ask questions; also to talk to other family members and sometimes to the professionals and other patients. So, really talking is one of the main goals for the patients and their family members, and it's going on 24 hours a day because we don't have visiting hours. (Expert-4)

One expert (Expert-1) noted that social interaction of patients depends upon on patient health conditions. Patients might be in pain or have other symptoms, or may be in good health in the morning or at night to interact with family members and others. This expert also suggested that social spaces should be designed to accommodate social interaction at different times. Another expert (Expert-4) pointed out that social interactions could happen at any time and place. The most important conversations may happen between the chaplain and one of the family members at three in the morning. One expert explained the difference between hospice and nursing home social space. In nursing homes, patients can roam around and utilize the social space even in a wheel chair, but in hospices most of the patients are bedridden (Expert-6).

Most experts made recommendations about patients' rooms to enhance the social interaction and communication between patients and their families. One (Expert-6) suggested having enough space in and around the patient's room to accommodate a sofa bed, a couple of chairs and a table for games and other activities. Another expert (Expert-3) recommended that the furniture in the patient's room should have a daybed, movable furniture, a heavy weighted chair that is comfortable, but also have lightweight chairs as well. One expert (Expert-7) mentioned that they try to create different zones in patient rooms; a staff zone, a patient zone, and a family zone. The family zone allows for the family to gather around a table or around a patient's bedside, depending on the situation, in order to allow interaction with patients and families. Another expert (Expert-2) stated that family members need to visit the patients in comfort, so the room size should be big enough, and additionally stated that seating around a table is more comfortable than on a couch.

One mentioned that social interaction should be accommodated between families with staff or other families in social spaces. Interactions between patients are limited to no interaction

at all. One expert suggested that the hospice social spaces should also be age-appropriate (e.g., provide children play area).

Experts suggested various sizes and functional types of social spaces in hospices. One expert recommended having multiple small spaces or niches for two to three person conversations, a small gathering space for five to six people, and a large space for memorial services for thirty to forty people. He/she also mentioned that it may be difficult to create all these spaces due to the budget, therefore these spaces should be arranged in such a way that these spaces can open up into a big space, and also open out to the outdoor patio to create a large space in order to accommodate large gatherings for memorial services or yearly gathering with donors.

Four experts recommended the unit design pattern of arranging the patients' rooms and the family break room or living room. The location of the family room should be close to the patient room or surrounded by other patient rooms, allowing families to use it more frequently. Social spaces should be in different levels; within the pod or unit, within the neighborhood, and within the facility. One expert suggested that if a facility is located between neighborhoods, it would allow for socialization on a larger scale, such as a space for group therapy or activities.

The location of family room is important. One expert (Expert-6) mentioned that the family area should be design based on the following functions:

1) Just to leave the resident's room for retreat, contemplation or breath, reading book, having conversation with one or two person – this type of spaces should be closer to patient's room;
2) Family room with TV, radio, computer, children play area, or library – little further from patient room to avoid disturbance;

3) Big spaces for community activities (playing piano, games, etc), dinning, meditation space - for ten to twelve people, and more distant from the patient room because it would be noisy.

The location of these spaces should be located in between semi-public and private areas, so that it can be approachable from both a public side and also from inpatient units. Another expert mentioned that all the social spaces should have daylight. He/she also mentioned there should be an alcove with a kitchen at the end of the hall, which can be a family social area (Expert-1).

One expert recommended creating family rooms all over the hospice instead of having one giant room and provided examples from their last project. They created four small family rooms with a country kitchen, like ones in assisted living. It has all of the equipment, such as cooking ware, a dining table for six people, and high stools with an eating island. With all of the lighting features and views, it looks like a luxurious kitchen. The feedback that they received was that family members come and stay for the entire afternoon and eat together. It also provides them time to consult and care for another. Patient rooms need to be quiet, and this works as a breakout room (Expert-5). Another expert (Expert-3) mentioned that the most socially interactive area is the dining area of the hospice, because it provides an opportunity for patients and staff to communicate, relax and entertain. One expert (Expert-2) also found the dining room was a place of social interaction and suggested, “Patients should dine in the dining room if their health improves”.

One expert provided an example of a family room in a recent hospice project. They have created an open space with natural and outside views. There is a table with four chairs where a family can have a snack anytime of the day; additionally there are some child-sized furniture,

storage for games and toys beside the child zone. There is also a coffee table with enough seating around it, so kids can sit on the floor and do a jigsaw puzzle on top of it. There is also a reading nook in another corner with a bookshelf so that anyone can relax and read.

> So we are trying to make sure that you can do many different things in a room that's fairly large which is done though furniture groupings, so sometimes its child size furniture, sometimes it's a bench. We like things that can be round so that we can push it up against a wall and use it like a desk or pull it and we can all sit around it so that the family can share a picnic or a big meal. So, we are trying to do multiple things all at the time. (Expert-4)

Three experts discussed creating an outdoor social space. One provided an example of their designed project where they created a large patio with a grill space, allowing families to have private family time. They also created a children play area, which is outside with the garden space (Expert-8). One expert (Expert-9) stated that they provided a mile-long trail in their design to allow staff and visitors to be able to walk and do exercise. This space is also open to the neighborhood community for use. Another expert explained the benefit of incorporating an outdoor area with an indoor social space in the following way:

> Sometimes, you can't build a room for every function, the gardens and outdoor patio can do that. If you have a building, that's fairly transparent and though it's in your mind that 'I could go outside, I could just run outside for a minute or we could go round the corner'. Then people will walk and have those conversations outside, you don't have to build a roof and close every square inch that people use. You can make the outdoor spaces programmable just the same way. (Expert-4)

Summary of Social Interaction.

Comparison with Literature Review. A single room is preferable to have the opportunity for better interaction with families; all of the interviewed experts supported this notion. As mentioned in earlier goal 3, privacy, a shared room is not practiced in USA hospice facilities. Instead of a shared room, three experts suggested providing a double room for better social interactions with spouses. Only one expert showed concern for patients who have no family, in regards to the lack of social interactions in a private room. Some new design criterion has been recommended by the experts such as having a table and movable chairs in patient rooms to play cards, eat, or other activities. Another criterion is to provide outdoor private spaces for family time, and providing smaller spaces or niches for two-person conversation. The dining room and the family kitchen have been reported as the most socially active areas. There are several new considerations for outdoor social spaces, having a walking trail, having a large outdoor space that can accommodate large community gathering.

Conflict. No shared rooms in USA hospice facilities.

Further inquiry. What do the patients do when they have no family? Do they die alone? How many family members come to visit patient? How many family members want to stay overnight?

Findings. A list of design considerations to provide access to nature is as follows:

Table 5-4: The List of Design Considerations for Social Interaction.

Objectives	**Design Considerations**
Opportunities in patients' room	• Single rooms with a bigger size to provide enough space around patient's bed to accommodate several people and chairs for visitors. • Having comfy chair, recliner, or daybed for families to relax on or stay overnight. • Have a small table with two or three movable chairs in the room. • At least one room should be big enough to have the opportunity to be converted into a double bed to accommodate spouses, partners or friends.
Opportunities in social or common spaces	• Provide multiple social or family rooms instead of having one single large central space for the entire facility to use. • Have multiple social spaces that vary by size and functional type: a family area, a dining area, a family kitchen, and a lounge or waiting area towards the front of the facility. • Provide an opportunity to create a large social space if necessary, such as a visitor's lounge, a meeting room, or dining space that could open up and connect with outdoor spaces to accommodate for large gatherings, parties, or celebrations. • Provide a range of outdoor social spaces such as a barbeque space, meditation area, and these places should have outdoor furniture, shade, enough seating, and privacy to promote group gatherings.

Goal 5: Maximize Safety & Security. In regards to safety and security, the experts expressed their opinion based upon the points mentioned in the questionnaire and some of them added other points. When asked about security of the hospice facility, one expert expressed, "security is a serious concern for most hospice facilities" (Expert-5). Another said, "Security of the facility from theft and vandalism is very important" (Expert-1). Most of them suggested providing secure access for the staff by providing a security lock system. One expert (Expert-7) provided an example of their design where they used a RFID infra-red system which tracks patients and family member movement within the facility, and controls their access to various rooms. "It is almost like a hotel, where the family member can use their card to enter; also the staff can have their access. The system monitors who have these accesses that also allows family

members to come and go at various hours. So if the family tries to come in the middle of the night or leave early in the morning, this technology allows us to successfully manage that." Another expert mentioned creating a balance between good access and security (Expert-6).

One expert (Expert-4) said that there are lots of challenging issues to ensure security within a hospice facility. He/she said that a hospice facility needs to have a welcoming entrance for the public, but public access into the facility during the day needs to be screened by the staff or a receptionist. Family members would like to have a shortcut entrance to the inpatient unit, and that access also needs to be monitored using a lock system, card access, or control from the nurse station. Another entrance is required for staff entry from the staff parking lot. Thus, managing these entrances is challenging. The expert suggested designing a hospice that considers two zones. One is active during the day; another zone, such as the inpatient units are active at night. By separating these two zones, the facility can lock the day-zone in the evening and can monitor the night zone with a controlled night entrance from the parking lot.

Another expert also confirmed the importance of security at night. Families can get out for smoking, so the outside smoking area has to be secure. He/she also suggested that the front door needs to have visibility to see if any vehicles approach, and be secure at night for staff entry and families from the parking lot. One expert suggested having cameras and enough lighting at the entrance and in the parking lot, and also recommended having places for the staff to lock their belongings (Expert-6). Also, it was suggested that like in a hotel, every patient room should have safety box or chamber, where the family can store their valuables. Another expert (Expert-9) provided an example where their site is located far away and thus vandalism is not an issue. Also, there is a pathway around the facility connecting all the gardens and patios, which helps the staff to monitor the outside.

In terms of infection control in the hospice environment, the experts mentioned that the procedure is standard like a hospital, like having a sink in the patient room, using finished materials that are suitable for cleaning and maintenance, and also having an isolated room within the facility. One expert provided an example of "one patient's room has an elevated infection control standard. It still has a normal door which can be can be air locked. It has an attached staff washing area. There is a toilet for that room" (Expert-5).

To provide suggestions that would ease monitoring patients for the staff, experts talked about the nurse communication system and location of the nurse station. One said (Expert-6), "ease of monitoring residents has changed because of technology". Another mentioned that they are trying to increase the visual privacy within a patient's room by allowing the staff' to monitor the patients, which is a critical part of their jobs (Expert-7). In regards to the location of the nurse stations, various recommendations have been derived. Three experts suggested a central nurse station, but two other experts mentioned having a decentralized nurse station, or having one nurse station for each pod or unit. One expert (Expert-5) provided an example of their hospice where they design the nurse station with glass doors to provide acoustic privacy. All of the experts discussed two-way communication systems that were in place in their facilities, such as implementing a nurse-call system.

In regards to the support for operational safety for staff, one expert mentioned that "staff safety is important, but in the hospice facility, we need to think about both family and staff. Some experts mentioned that their facilities have patient lifting equipment for staff operational safety. One said, "More and more ceiling lifting and portable lifting are used by staff to lift and transfer patients from bed" (Expert-7).

To prevent patient falls at night, the experts suggested having a hospital bed as a standard consideration. One expert provided an example of a new type of bed that can be lowered to the floor. It can help children or patients who have trouble with wandering (Expert-4).

In terms of design considerations for safe bathroom design, the experts described the bathrooms in hospice facilities are like those found in hospitals or in other healthcare facilities. The bathroom features in hospices include a wheelchair accessible shower, a grab-bar, and enough space for two assistants within the bathroom. Two experts mentioned that for patients who need help using the restroom or showering, there should be a central bathing area to accommodate these needs.

To provide safe environment for children, several design criteria were suggested by the experts to create a safe children play area. One mentioned (Expert-4), "we want to create safe place for children", and recommended to place the children play area near the nurse station with an internal window or glass wall to make it visible from the nurse station and hallway. Another expert talked about the interior design of children play area to create a "happy" looking environment (Expert-5). One provided the example of their design where they have provided a dedicated place for children, a "play room" with visual and acoustic privacy. When the researcher asked about having a children corner within the patient's room, few experts mentioned that they had not found that degree of specialization or accommodation for children within a patient room

In regards to pets, all of the experts stated that they have not made any designs to accommodate pets. They reported that it was considered to be something management of the hospice dealt with. Some mentioned that their designed facilities are pet friendly. Some hospices have therapeutic pets, some allow pets to stay in the patient room, and some allowed for pet

visits within the facility. Some comments of experts are as follows: “We didn’t talk about design or the process of how they are going to allow pets, though they are now allowing pets” (Expert-8); “No space for pet; pet should stay in the room” (Expert-3); “We didn’t created anything for pets” (Expert-5); “The facility has a community dog” (Expert-6); “We haven’t built anything especially for pets” (Expert-4).

When asked about emergency management during a disaster situation, most of the experts made short statements stating that facilities would be run by an emergency generator. Only one expert discussed tornado damage. “Tornados are very important! Usually the patients are moved into the hallways, but during the tornado in Joplin (Missouri), the hallways became the wind tunnel”, he/she was suggesting for more research to find out the possible solutions (Expert-3).

Summary of Safety and Security.

Comparison with Literature Review. Most of the design criteria from the literature reviews in regards to safety and security were mentioned by the experts. Due to the time constraints, the experts did not have enough time to discuss all elements of their designs, thus they have stated their main points. Some design considerations are standard or commonly practiced, thus the experts may have neglected to mention them. Some considerations that may have been neglected are fire safety codes or ADA standards. Additionally, there are new design considerations that were suggested and highlighted by the experts. An example of this is the new measures that are taken when considering security, such as including a night zone in the design for the hospice facility. About the location of nurse stations, the experts mentioned that it is not required in hospice to have a direct line of sight. Experts stated that it is not necessary for nurses

to be able to see the patient's bed head or direct line of sight from the nurse station. Some also recommended that pets should be kept within the patient room.

Conflict. No space for pet accommodations other than the patient room.

Further inquiry. Is there any isolation room? Is there any incidence of thefts and vandalisms occurring within a hospice facility? Is there any pet policy?

Findings. A list of design considerations to support safety and security is as follows:

Table 5-5: The List of Design Considerations for Access to Nature

Objectives	**Design Considerations**
Mitigation of potential hazards	• Patient's beds should have safety features to avoid patients from falling off their beds. • Grab bars located on all sides of the restrooms and showers in patient's rooms. • Bathrooms and showers must have enough space to accommodate for at least two people can assist patients. • Having a nurse calling system in patient's room to call for any help.
Infection control	• The selection of furniture, fittings and finishes should consider performance including clinical and infection control. • Provide at least one isolation room with the appropriate standards. • Having a hand washing sink and sanitizer in patient's room
Theft and vandalism	• Design should ensure the security of the entire facility, including the parking lot by installing a security system (alarm, camera, door lock). • Building layout should consider a night zone or 24-hour zone, and a day zone for admin area to provide enough security during night. • A secure night entry to in-patient unit for families and staff members. • Provide a clear view from inside the building to entry ways.

Goal 6: Provision of Autonomy. To provide support for ensuring the patients' autonomy, the experts mainly focused on the control of the microenvironment and the design considerations relevant with control over daylight, airflow, temperature, noise and smell.

One expert mentioned that the "control over the microenvironment is important, they (patients and their family members) experience stress". Another expert suggested that patients should have control over the airflow, the temperature, the noise, and the light inside their room.

It has been suggested by four experts to have an operable window or door within patients' rooms to allow patients to control the amount of fresh air in their rooms. One expert said that they avoided having an operable window in order to have an energy-efficient building, and mentioned that control over air quality can be achieved through airflow, or ceiling fans.

Temperature control in patient rooms is another significant issue in supporting comfort. One expert described that in hospice care, a patient might want to have it set to a warmer temperature, whereas another patient may want it to be set to a cooler temperature. In order to achieve this individual control system, they have used the Variable Refrigerant Flow (VRF) technology in the HVAC system. Though this technology is very expensive it is highly effective. One expert suggested having control of shower water temperature and also mentioned having a proper humidification system or portable humidifier.

One expert said that having control over noise is complicated in a care facility; therefore, the acoustic design should be good in a hospice. Another mentioned that in hospital hospice the noise from the hospital is an important factor to consider within the design, and suggested making a patient's room acoustically private. One expert complained about the hallway, "the hallways are always noisy", then suggested designing hallways with acoustic ceilings and other noise control materials to avoid echoing within the corridor. The expert also advised that the furnishing in the hallways need to be able to absorb sound.

In regards to daylight or glare control, providing blinds and curtains in the window is the basic design considerations mentioned by most of the experts. One expert suggested having black-out curtains to block out light completely. Another expert suggested providing various different types of artificial light they have used in their hospice patient rooms to avoid glare and to provide comfort. Another expert discussed a study they had just finished in one of the care

facilities where the patients are able to change the color of their lighting according to their own preferences. They tried to accommodate different light the in hospice environment which would help the circadian rhythm cycle, which affects the patients' sleep and mood.

To avoid odors in the hospice facility, two experts point out the kitchen as a source of smell. One suggested to have the kitchen location further away from inpatients units, and also suggested having a high quality exhaust system to restrict the smell in the kitchen zone. Another expert said:

> For smell, all the rooms are sealed, and what (name of the hospice) did, the smell in the kitchen, like the cookies, popcorn, or the apple pie, all these smells will trigger a memory, so you can smell it and it will feel like home. (Expert- 5)

None of the experts talked about control over physical settings (e.g., opportunity to move the patient bed) in this section. Some of them talked about providing flexibility in furniture arrangement in different goals. While asked about providing support to have control over daily routines, two experts mentioned about provisions of spiritual care. One said, "spiritual spaces are extremely important in order to promote personal autonomy" (Expert-1), and suggested to have more than one spiritual care space to provide choices for multipurpose use, such as religious services, or a patient's birthday party with children in one of those spaces. The provision of spiritual care will be discussed in the spiritual care section.

Summary of Autonomy.

Comparison with Literature Review. All of the experts mainly focused on the control over the microenvironment. Individual temperature control systems provide better satisfaction to the patients and families, but these types systems could be expensive. Another point suggested by experts was in order to contain food smells within the kitchen the location should be further

away from inpatient units. Also, they have advised that the kitchen should be equipped with high quality exhaust fan. None of the experts talked about control over physical settings.

Conflict. Did not talk about control over physical settings, such as providing movable chairs in patient rooms, providing opportunity to move the patient's bed, etc.

Further inquiry. Is there any individual temperature control for each patient room? Where is the location of kitchen? Is there any smell inside the facility? If yes, what is the source?

Findings. List of design considerations to support autonomy are as follows:

Table 5-6: The List of Design Considerations for Autonomy

Objectives	**Design Considerations**
Control over micro environment (air, temperature, noise, light, smell, etc.)	• A single room provides better control over a microenvironment. • For natural light, provide curtains or blinds for the window, the glass door, the skylight or any other openings. • For artificial light, provide various settings of artificial lighting in patient's room with dimmer switches to have control over creating the desired environment. • To allow for airflow, having operable windows or doors within patient's rooms and in social spaces. • Additionally, to allow for airflow, installing ceiling fans with dimmer switches in patient rooms and in common areas. • Good acoustic design in order to create sound containment throughout the entire facility. • Noise control in patient rooms and spiritual or retreat areas. • Social areas of the facilities should provide sense of control. • To prevent the smells from migrating from the kitchen, make the kitchen farther away from patient rooms and equip with high a quality exhaust fans.

Goal 7: Regulate Stimulation and Support Therapies. This goal has three main objectives: to regulate stimulation; to enhance stimulation; and to support palliative therapies in the hospice facility.

To enhance sensory stimulation of hospice patients, all of the experts provided some design considerations for tactile and visual stimulation. To enhance tactile stimulation, one

expert said that they used a variety of textures in their design, such as stone, wood, or fabric for different types of furniture. Another expert mentioned using some artistic quilts and blankets as a wall décor in their designed hospice. For visual stimulation, five experts suggested the use of a variety of colors in interior design, views to outside nature, and use of positive art to decorate the interior. One expert (Expert-4) stated, "We didn't want the space to feel like a hospital, therefore we used natural materials and various colors and textures that make the environment richer". Another expert mentioned about installing mirrors in their facility to create reflection and visual interest. Two experts talked about providing nice views to the outside from a patient room. One expert (Expert-9) said that their last design allows for 92% of the facility to be lit by natural lighting and have views to the outside. Another one (Expert-5) mentioned that they have designed a hospice with different color themes in patient rooms, and also tried to avoid using black color, even in the carpet.

> We choose colors very carefully. For eighteen patient rooms we used six different color themes. This gives each room some variety. Families can choose the room color to whatever color the patient might like. (Expert-5)

In regard to regulating stimulation for patients, most of the experts did not make any comments. Only three experts suggested a few considerations, such as control over daylight and views, having direct or indirect light with a dimmable switch, and having good acoustic control to prevent conversations from other rooms to be over heard in another patient's room. To regulate olfactory stimulation, one expert (Expert-6) weighed the benefits of having the kitchen located farther away from patient rooms to prevent the smells from migrating to other parts of the facility. Another expert (Expert-5) stated that they designed a country kitchen in each family room, to allow for smells to be diffused throughout the facility.

To provide support for palliative therapies, a few experts suggested having a dedicated room for spa therapy or message therapy. One expert (Expert-3) stated that their designed hospice facility did not ask for any special requirement for palliative therapies, and another expert also said that there is no space for therapies to be held in their facility (Expert-8). One expert (Expert-4) argued that he/she has not seen the use of therapy, but one client wanted to have a special room for massage therapy for the patient families to use. One expert (Expert-5) mentioned having music therapy within a patient room, instead of moving patients from one room to another. Another expert (Expert-1) stated that for children hospices the multi-sensory room is required. None of them said anything about designated spaces or rooms for art therapy classes.

> We have not seen a lot of it (spaces for therapies) to tell you the truth and it may be that's going to be more prevalent where you are going to have longer stays. But, stays have shrunk to very short durations. There's less time for this. (Expert-4)

Two experts suggested providing TV and music systems in the patient rooms so that patients and their families can have a choice for entertainment. In regards to therapies that enhance tactile stimulation, such as horticulture therapy, one expert (Expert-1) thought about horticulture therapy in the hospice as most of the patients are bedbound, “what does it mean, bringing plants into patients’ rooms!” Three experts mentioned that they have provided space for gardening, among them one said that those gardens are mostly taken care of by the family;

> I don't see a lot of it. The horticulture thing is the gardening, but I am not seeing the patients in the garden. I am seeing the family members and the families who have gone through the program, who have lost someone years ago. They'll come

back and do it, but I don't see a lot of it. So I am not the right person to talk about this. (Expert-4)

Summary of Stimulation

Comparison with Literature Review. All of the experts focused on talking about providing positive sensory stimulation. A few mentioned regulating stimulation, mainly noise, glare, and odor control. Most of the experts stated that the hospice facilities they have designed or visited may have a spa room or bathing facility, and there may be music instruments in the living room or spiritual care room, but they have not seen or designed any other designated space for art therapy or any other palliative therapies. According to the experts, all other types of palliative therapies, such as pet therapy, massage therapy, aroma therapy, or music therapy were all said to take place in a patient's room. They suggested providing enough space in patient rooms and beds to accommodate for these therapy activities.

Conflict. Only mentioned about the spa room, do not provide art therapy room.

Further inquiry. What types of palliative therapies do they provide and what are the designated spaces for these activities?

Findings. List of design considerations for stimulation is as follows;

Table 5-7: The List of Design Considerations to Regulate Stimulation and Provide Sensory Therapies

Objectives	**Design Considerations**
Provide or enhance positive therapeutic stimuli	• Acoustic stimulation through presence of white noise or pink noise such as a ceiling fan, an HVAC system, or water features. • Presence of daylight in all spaces with the appropriate amount of light and including a control system such as blinds or curtains to avoid glare. • Provide different modes of artificial lighting in patient rooms with a dimmer switch. • Provide a nice view from patient beds. • Use of positive art which is socially and culturally meaningful throughout the facility. • Selection of color, material and finishes for the interior design should create a warm, home-like environment. • Food smells that are reflective to patients provide a home-like feeling. • Avoid using similar types of surfaces by using soft surfaces, and material that represent nature, such as stone or wood.
Regulate levels of stimulation	• To avoid food odors from the kitchen, providing the kitchen location farther away from patient rooms and equip with a high quality exhaust fan. • Provide blinds or curtains to control daylight. • Good acoustic design to create sound containment throughout the entire facility.
Provide support for therapies	• Having a dedicated room for spa therapy or message therapy.

Goal 8: Support for Spiritual Care. Some experts recognized the provision of spiritual care as a very significant factor. One expert (Expert-6) mentioned that hospices are either religion based or non-religious. Another (Expert-4) discussed in detail about the difficulties of designing spaces for spiritual care in hospice facilitates, and explained two reasons for that: one, most of the clients do not know exactly what type of space they would prefer in their hospice as a spiritual care space; and second, how to achieve that requirement through design.

> There's always this conversation about- what is the chapel? Is it a chapel? Is it a church? Is it really not a worship space at all? Is it a meditation room? And we end up going from one extreme to another. Some groups do not want to put anything in place that even accidentally refers to one tradition instead of another

> and that's kind of hard to do. There are some groups that really want just a very neutral meditation space and they don't want anything figurative in the windows. Then there are other groups at the far extreme who want something very specific. They want stained glass and they want symbols of particular traditions. And you will get everything in between and the hardest ones to permeate in some ways are the ones that are trying to make a flexible space. They want to look Jewish sometimes, they want to look Muslim sometimes, they want to look Hindu sometimes, and they want to look Southern Baptist sometimes. That's tough, right? (Expert-4)

All of the experts suggested creating a non-denominational or culturally neutral space. Some experts suggested accommodating for more than one spiritual care space such as, a chapel, a meditation space, or an outdoor designated meditation area with isolation from noise and people. One expert suggested providing organized and non-organized spiritual care spaces, especially providing a formal and an informal meditation space. Another expert advised providing more than one spiritual care space in multicultural hospices, to accommodate choices of those spaces for multipurpose use, such as religious services, prayer, or a patient's birthday party with children in one of those spaces.

> I don't think it is enough anymore to have one chapel; the chapel needs to become a multi-functional spiritual space. (Expert-1)

One mentioned that a meditation room and a prayer room are important and they try to convince clients for different sizes of those types of rooms, "so faith can be accommodated individually, or with the family members and a priest or pastor in a small group" (Expert-7).

In terms of sizes and design criteria of spiritual spaces in the hospice, some experts made very specific recommendations. One expert suggested providing a chapel for thirty people to accommodate not only spiritual activities but also graduation parties or other events of the patient's family. He/she also advised to have a meditation space for four to five people. This expert also advised to design meditation spaces with movable chairs and if possible with music instruments, and also specified that the lighting and artifacts are important in these spaces to create an ambient environment (Expert-6). In terms of the size of a chapel or spiritual care space, one expert provided an example of their design where they provided a chapel with a size of fourteen by twenty feet (Expert-8). Another expert provided an example of a hospice, where they used stained glass in the chapel and made higher ceilings to create a different environment. This space can accommodate sixteen to eighteen people (Expert-5). Another (Expert-3) recommended providing calm and quite environments in the meditation or spiritual care spaces, and trying to achieve the "holiness" by using nice materials. He/she also mentioned using a water fountain in the meditation space to create an ambient environment and also pointed out that using water features inside any healthcare facility is challenging due to the risk of infection control. He/she also brought up the challenging issues of using skylights in the care facility which could be "very distracting" and difficult to control the glare. About stained glass, this expert pointed out the challenges to define the appropriate location to place the glass, as the entire thing depends on the direction of sun, location of windows and where people are standing. Another expert mentioned having a chapel focused on a garden court (Expert-9).

In terms of the location of spiritual care spaces in a hospice, no expert talked about it besides one (Expert-2), who suggested to locate a sanctuary in a place where family do not need to go through the patient area, and patients do not need to pass through the public area (Expert-

2). One interesting point recognized in these conversations was different experts mentioned different names for the spiritual care space, such as calling this space “chapel” but he/she mentioned that their client called this space as a “meditation space” (Expert-5). Another expert mentioned that they prefer to call the spiritual care room as a “meditation room” instead of prayer room or chapel (Expert-3). Another mentioned it as a “sanctuary” (Expert-3). All of these different designations of the spiritual care space confirm that various facilities, clients, or even designers address this space in various ways.

Most of the experts suggested having outdoor spaces for spiritual care. One (Expert-2) advised having a tranquil garden to create a space for spiritual care. Another suggested having a designated outdoor landscape area with a water feature, a pond, or a nice landscape to create enclosure that allows for people to meditate, pray, or communicate with God (Expert-6). One expert mentioned that hospice gardens help for reflection of the internal life (Expert-10). Another expert (Expert-5) provided examples of their project for which they created a private garden space to support spiritual care, which is only accessible from the inpatients unit and located far from the parking lot in order to make it quiet. Having this area surrounded by tall vegetation allows for there to be visual privacy.

> Interior chapel, and the idea of having an exterior chapel in the woods where people can go and relax, trying to use local materials within the garden. (Expert-9)

When asked this question, “how to create a scared environment in the patient’s room?” some experts showed their confusion “What does it mean? Provided table, or a corner in the room! There should be hierarchy from the patient’s bed to the chapel” (Expert-1). Another expert expressed;

> I don't see how you make a patient's room sacred. I think you can keep it calm and you can keep it simple and clean and you can keep random equipment out of the way by building it in or if you have to have it, by making a spot for it and making sure you can keep it in that spot so that things seem tidy, but the patient's room in my experience, is usually taken over by the family members so they are kind of going to be what they want them to be. And they may or may not be what you and I would want to meditate in, but that's kind of what they'll have. (Expert-4)

To achieve this quality in patient rooms, one mentioned achieving that by providing a nice view to the outside. Another suggested to providing shelving or a side table in patient rooms to put religious artifacts on, a full-height window to catch daylight, and big windows to see outside nature (Expert-6). Another (Expert-7) talked about creating a connection to nature and architecture by providing maximum views to the outside, and providing an example in their designed hospice they also considered different modes of artificial light in patient rooms to create a contemplation environment. This expert also brainstormed an idea that every patient room might have a skylight so that patients might have a view of daylight or night light of the sky which will create a sacred space.

Besides the above-mentioned space and design considerations, one expert advised having storage to keep all of their religious artifacts or other supplies in order to support spiritual care (Expert-2). Another suggested providing enough space around the patient bed to accommodate any kind of spiritual activities, such as a patient’s family surrounding the bed to pray or to participate in rituals (Expert-6).

Summary of Spiritual Care.

Comparison with Literature Review. All of the design considerations mentioned in the literature review were supported by the experts. They did not mention providing office spaces for a chaplain or a religious worker. The experts did elaborate on the design criteria in a patient's room for spiritual care and contemplation. They suggested having enough bedside space to accommodate a chaplain or family member for personal prayer or rituals and shelves or side tables to display personal religious artifacts. Also, they recommended achieving the architectural quality which could create a contemplative environment by providing skylights, large windows with views to outside nature, and stained glass. Two experts talked about the challenges of providing skylights, because of glare. Two experts mentioned the route to the chapel or meditation room, the hierarchy from the patient's room to the chapel, and from public spaces to the chapel. One of the experts provided an example of a hospice in Saudi Arabia, where all the patient beds must face Mecca. This example was not included in the analysis because the project was not conducted within the USA.

Conflict. Experts did not talk about an office for chaplain, or a religious worker.

Further inquiry. Where do patients like to have spiritual care? How frequent do the patients visit a meditation space? How many spiritual spaces are in the facility?

Findings. A list of design considerations to support spiritual care is as follows:

Table 5-8: The List of Design Considerations for Spiritual Care

Objectives	**Design Considerations**
Facilities to support range of spiritual care (pray or meditation)	Provide non-denominational or neutral environment by avoiding presence of religious artifacts or symbol, unless, it is a religion specific hospice.
	Having more than one spiritual care space: a formal (sanctuary or chapel, quite room or meditation space) and an informal (veranda, patio, outdoor retreat areas).
Facilities in Spiritual spaces	Provide a sanctuary, chapel or meditation space to accommodate group prayers or rituals for at least for ten people and maximum thirty people). • Spaces should be accessible by wheelchair or bed. • Good acoustic design to ensure a calm contemplation environment. • Environmental aesthetic (like paintings, pictures, décor, or outside view) should encourage reflection and foster self-nurturing behaviors. • Enrich with architectural delight such as the use of skylight, stained glass, nice view, or water features. • Comfortable and flexible furnishings. • There should be a hierarchy from a patient's room to the chapel or the meditation space and have separate routes for patients and the public. • Storage space to keep religious or spiritual care artifacts and supplies.
	Provide another "quiet room" for small gatherings for meditation, quiet reflection, prayer, a grieving room, or as a consultancy room for chaplains, religious worker, or funeral director.
	The quiet room should be accessible by wheelchairs or beds, with good acoustic design to ensure quietness, have comfortable and flexible furnishings, with environmental aesthetics like, paintings, pictures, décor, or an outside view, additionally having an enrich architectural delight like skylights, stained glass, nice views, or a water feature in order to encourage reflection and foster self-nurturing behaviors.
Spiritual care in outdoor space	Provide an outdoor meditation or retreat area with seating arrangements, attractive features such as a water fountain or a pond and a nice view. Provide visual privacy and avoid noise in those spaces.
Spiritual care in patient's room	Patient rooms should have the following criteria to support a range of spiritual care: • Provide private patient rooms with enough space around the patient's bed to perform bedside prayers, worships or religious rituals. • Create a non-denominational or a neutral environment. • Provide shelving, a side table or a counter top to display religious artifacts. • Architectural delight such as a skylight, a nice view to outside, should encourage reflection and foster self-nurturing behaviors. • Provide different modes of artificial light to create a contemplation environment.

Goal 9: Provide Family Accommodation. In terms of providing accommodation of patients' families in the hospice facility, all the experts found this goal as one of the most significant. While discussing this goal, several experts mentioned that they have already discussed most of the family accommodation in previous goals, but still they suggested many design recommendations.

Providing comfortable accommodation and overnight stay for the patients' families are very significant considerations for a hospice facility according to all the experts. Mainly two objectives came up during the interviews; accommodating visitors and family overnight stays. To accommodate visitors, most of the experts talked about several criteria: a) having enough and comfortable furniture in patient rooms; b) providing a large size room for patients; and c) having different levels of spaces with appropriate furniture to accommodate various numbers of visitors.

To provide support for family overnight stays, several design criteria were suggested by the experts. Most of them suggested having enough furniture and closet space in patient rooms to allow for family members to stay overnight. One suggested that there should be a table and a chair so they can have their laptop and a window seat where a spouse can spend the night (Expert-2).

> You don't want the family to be moving into the place, don't make it too luxurious, but make it comfortable. (Expert-2)

Another recommended having a bed, or pullout bed, or making the room like a suite (Expert-1). One provided an example of their project where they built a desk that is large enough so the family member can put a laptop or do whatever they like to do (Expert-5). Another expert provided the example of a furniture design competition for cancer patient care where the solution provided a king-size bed that can be two single beds to treat the patients and can attach another

single to make it more king size for accommodation for the spouse (Expert-7). One expert suggested a having a lockable safety chamber for family members to store valuables (Expert-2).

With the above-mentioned design considerations, two experts added different views for family sleep space. One said that there should be some separate rooms for families to sleep over (Expert-2), and another discussed the family privacy issue and provided examples of some larger hospice where there is a dorm for family members. It can be upstairs, downstairs, around the corner, or down the hallway, but it is still close to a patient's room. This expert also mentioned that if the furnishing and space allows, two people can stay in a patient's room that is very close to the patient, such as a spouse, son or daughter. If there are more than two people, they would need to say in the dormitory or in an apartment (Expert-1). Two experts mentioned in the fourth goal-Social Interaction, to provide at least one double bedroom to accommodate a sick or elderly spouse, parents, or friends in the patient room.

For functional independence, the experts suggested providing a family bathroom, a laundry room, a kitchen, or a 24-hour kitchenette, a library, and a computer room. For recreation, the experts suggested having a family break room with a TV, a DVD player, games, and CDs for recreation. To create ease accessibility and wayfinding, three experts recommended that the building design and layout should be self-explanatory (Expert- 1, 5, and 7).

> It is not like a hospital, because a hospital is much larger in scale. Hospices are from 8 beds to 36 beds. Wayfinding is needed to be by the configuration (Expert-1).

One provided an example of their designed project where the building configuration is very simple, with two L-shapes; the corridors are short in walking distance (Expert-5). One mentioned that they design a large entrance sign for a hospice that is situated on a large hospital

campus to support navigation (Expert-8). Another expert suggested for two or three story hospices having a central staircase and elevator to help wayfinding (Expert-1). One suggested multiple neighborhoods layouts which would help navigation through facility.

Most of the experts responded that they have never designed any bereavement suite or space in a hospice. The bereavement support is mostly done outside of the hospice facility. Experts did not talk about the family room or family break area, children play area, or the outdoor social spaces while answering this goal. Most of them already mentioned those spaces and design considerations in previous goals. The design considerations were suggested by the experts about these spaces are discussed again in the following paragraph.

The experts suggested having different sizes of social spaces to accommodate a large number of visitors to small family gatherings. Three experts suggested having a "family zone" or family room close to the patient room (Expert- 1, 4, 6, 7), and provide comfortable furniture, nice view to outside, visual privacy and recreational facility (Expert- 1, 4, 6, 7). Most of the experts suggested providing private break-out areas in outdoor settings. One expert mentioned providing smoking areas. Five experts also recommended having a safe place for children to play under supervision, and suggested creating exciting interior designs with suitable furniture, toys, games, and video players. Two suggested having an inside glass window in the children play room to monitor from the circulation area, family room, or nurse area. One suggested locating the children play area a little further from inpatient units to avoid noise sources. Two mentioned providing outdoor children play areas. Most of the experts discussed having a large outdoor space with visual privacy, and having several small seating areas in the garden for individual solitude.

Summary of Family Accommodation.

Comparison with Literature Review. The experts confirmed all the design criteria mentioned in the literature review except one; no bereavement suite or designated space inside the hospice facility. In terms of accommodating pets in the hospice facility, the experts stated in goal five-Safety and Security that there no spaces they had designed or they were asked by their clients to provide for pets. Some new design criteria were revealed; the location of the family zone close to the patient room, the accommodation of two persons overnight stay in the patient room, having a desk and couple of movable chairs in the patient room, ease in wayfinding through simple building layout design, and providing a glass door or a wall in the children play area to contain noise and to provide visibility.

Conflict. No bereavement suites and no place for pets.

Further inquiry. What is the usual size of family members to stay overnight? What is the average number of visitors?

Findings. List of design considerations for family accommodation is as follows:

Table 5-9: The List of Design Considerations for Family Accommodation

Objectives	**Design Considerations**
Comfortable accommodation and overnight stay	• Patient rooms should be large enough and have multiple movable chairs to accommodate visitors. • Provide comfortable and flexible furniture in patient rooms to accommodate up to two family members overnight. • Have at least one double bed room to accommodate a sick or elderly spouse, parents, or friends. • Provide enough storage and closet space, and at least one chamber with locking options. Have a table or desk for family members to work on their laptop, or write, or eat. • Have a separate family accommodation room for overnight stays to ensure privacy between patients and their families if required. • Different sizes of social spaces to accommodate a large number of visitors or a small family.
Functional and recreational facility	• Provide laundry facilities, a designated shower and restroom are outside patient rooms, a 24-hour kitchenette, and access to computers, phones and an internet connection. • Have a "family zone" close to patient rooms with nice views, comfortable furnishings, visual privacy and recreational facilities. • Provide a safe place for children to play under supervision with exciting interior design, suitable furniture, toys and games. • Provide an inside glass window or wall in children play room have visibility from circulation area, or family room, or the nurse's area. • Place the children play area little further from inpatient units to avoid noise (one expert suggested). • One large outdoor space with visual privacy to allow for private family time, and having several small seating areas in the garden for individuals. • Provide designated smoking area with security.
Easy accessibility & wayfinding	• The facility should have easy and clear directions for wayfinding through simple building design configuration. • Provide enough signs to make this easy to find. • Do not make the sign too prominent like hospital facility inside the facility.

Goal 10: Provide Support after Death. A deceased person's body removal was found to be an important issue by the experts in hospice facility design. Most of the experts discussed this topic in detail. Some of them mentioned how the patient's body removal from the facility varies

from one hospice to another, and also mentioned how it depends on management. According to the experts, there are two schools of thoughts in regards to body removal.

First, patients arrive by the front door but leave silently using another exit to avoid public places such as the main entrance, the lobby, or the lounges. The action is done to provide a private route for the deceased and the family, and to avoid unwanted noise or activities in this journey out of the hospice. This is also done to avoid other patients and families seeing the deceased body as this may cause stress for them. The second option is that patients arrive through the front door and leave through the front door. The idea behind this is to treat the patients in same manner as when they were alive. Also, this idea supports the notion that death is nothing to hide, the hospice is a place where patients die, and seeing a deceased by others may aid in the upcoming event of their loved one's death.

> It's really very important. We want to make sure that it's entirely normal and that everybody faces death. The smarter we are, the more comfortable we can get with it. Because it's something that we should not be afraid of and when we hide it or cover it up or put it around a corner, all we do is make it mysterious and frightening and so some groups have said that it's important. If there are four families in one wing of the hospice and if one of them looses a family member we want to work hard to keep the other families from realizing that a death just occurred that's going to come to all of us. We don't want to force them to participate, but we are not going to hide the process either. We want them to be close enough so that they can see that this is something that all of us will handle with sensitivity. And that we all come through it and that we are stronger after it's over and we can only show that if they can see it. And so that is the logic of this is

> one…. And we don't make a fuss about it either way. We don't hide it or force it on all of our visitors but it's what goes on here so are just going to be sensible about it. (Expert-4)

In support of the second idea, one expert provided an example of their last hospice project. When a patient passed away, all of the staff members stopped working, and when the body is removed from the facility, all of them come into the public circulation space to show their respect. He argued that he liked this idea; it is a way to honor the patient's death. To accommodate these kinds of events, they designed a wider corridor space within the facility.

On the other hand, one expert disagreed with the second idea of leaving by the front door. According to this expert, the family members and visitors must not see a deceased one being removed. wheeling out. Three other experts also opposed the second idea and were asked to avoid exiting through the front door. They all suggested having an alternative exit which can be used for this purpose. They also showed their concern that some hospice facilities may use the service exit for body removal, which should not be done because it is disrespectful to the deceased. One expert provided examples of some hospices which do not allow the funeral vehicle in their front door and also do not allow the deceased to be transferred out by a service door. One said, *"Not by the loading dock. Family members may not like to see that"* (Expert-6). Another expert stated the following:

> Don't accidentally make a service exit into an exit for the body because that's really not appropriate. I think it's not in anybody's interest to take a service corridor and had it do double duty as a path to the funeral homes. You don't want it to be the same path as the dirty laundry is going out obviously. (Expert-4)

On the other hand, one expert provided an example of their last hospice project where all of the patients come to the main door, and the deceased are transported out through the back door in the service area which has a transportation facility. To balance these conflicting ideas, three experts provided design suggestions of avoiding the front door and also the service door. One suggested providing a side exit to the vehicle, such as a private garage. Two experts provided the design suggestion of having the patient room with a porch for removal of the body. These porches must be connected with sidewalks and this route would link through the gardens and eventually go to a location where a vehicle would wait to transfer the body.

Another idea suggested by two experts of taking the body through a chapel or meditation space. “It's sort of a nice way to leave the building- to go from the patient room into the chapel and then from the chapel into the hearse” (Expert-4). One argued that sometimes hospice management liked to move the deceased family member into a chapel or a meditation space while they are preparing the body. The family can gather there, spend time, and grieve. The deceased body can be brought to the chapel and from there it can be transported outside to the funeral car or ambulance.

One expert mentioned that they started designing hospices by asking the question about which route the deceased will be taken from the facility, and when the client cannot provide a clear instruction about which route to take, they design the hospice with multiple options so that management can accommodate any route the patient’s family wants.

Concerning the question of designing a mortuary or a viewing room within the hospice, all of the experts said that usually there are no mortuaries or viewing rooms within the hospice facility because these services are provided outside the hospice in a separate facility. One suggested that a meditation room can be used as a viewing room. One of them mentioned that a mortuary is common in the UK and in Europe, but in the USA, hospices usually do not provide any mortuary services. One said that the deceased are usually transferred to the funeral home or another facility, thus eliminating the need for a mortuary.

The provision for having individual room temperature control systems in patient rooms can help to lower the room temperature which might help to keep the deceased body for a few hours if needed. In response to this thought, a few experts mentioned that they have designed facilities with individual temperature control system that can fulfill this requirement.

An operable window in the patient room provides the opportunity to have a connection with outside nature when the patient passes away, which is required in some culture or beliefs. An operable window in the patient room to satisfy this belief "allows the soul to leave the room". When asked about this belief and providing operable window in patients room, one expert mentioned that their client was considering this belief and asked to provide operable window to respect that.

> They talked about operable windows in the patient room, for some believe that when someone passes their spirit can pass through the window and go outside. I can't remember we did that in the new patient rooms, but I remember it was one of the issues considered to respect their beliefs. (Expert-8)

One expert (Expert-10) said that there must be an opportunity to take the patient's bed outdoors, where the patient can take their last breath.

> In New Mexico, the Navajo don't allow a person to die in a building, so having patio where the spirit wouldn't be trapped in the building, and will be outside in nature. (Expert-10)

To support this concept, three experts mentioned that they provided a portico or porch with each patient's room to allow access to outside nature. Another expert didn't discuss this belief and design consideration to accommodate that during the interview but wrote about it in his book. Three experts mentioned that the windows in their designed facilities are sealed to make the air conditioning system efficient.

If the facility provides onsite bereavement support, there needs to be a designated area for this activity. Most of the experts stated that there is no designated space or room designed to be a bereavement suite. One expert mentioned that bereavement support is mostly outside of the facility. Another discussed an alternative space which can be used to provide bereavement support, such as a meeting room or meditation room.

Providing a storage space in the hospice to keep the deceased patient's belongings for few days or few months was mentioned by two experts. One expert mentioned having a plastic cover on a patient's belongings in the store room. Another expert advised that there needs to be some kind of locker to keep a patients' belongings.

In regards to the expression of remembrance for the deceased patients in a hospice facility, same experts provided some design recommendations, but others mentioned that they did not provide any designated area to accommodate this consideration. One said that in the outdoor garden of his designed facility there is a brick walk area where the family can have an engraved brick. Two experts provided examples of their designed hospice facilities where there

were dedication areas for people to donate money and display the name, called the “donors wall”. One expert mentioned having a “memory wall”.

> On the memory wall, the family can post pictures when they enter, then transferred to the wall of honor. And that wall will stand for a certain time obliviously depends on the census of the patients into the facility. (Expert-7)

One expert provided examples about a hospice which he/she visited and liked their way of expressing remembrance:

> The hospice has 12” x 12” ceramic tiles in their hallway. It is so beautiful! So, a wall will become for remembrance. It can be wall outside in the landscape, a circular low height wall.(Expert-1)

Another expert said that there are so many options to express the remembrance, such as art within a community can create some art to display, in garden there can be an engraved stone, a brick walkway, a bench, a sculpture, a memory tree, a memory wall or a dedication wall located near the front door or in social spaces. One expert mentioned providing a flower room to organize flowers from funeral homes.

Summary of Support after Death.

Comparison with Literature Review. The experts confirmed all the design criteria mentioned in literature review except two; no mortuary or viewing room and no designated storage space to keep the patient’s belongings after death. About the body removal route from the patient room to the funeral car, the experts provided different opinions. One opinion seems consistent that the deceased body should not exit through a service entry or dock. The exit route needs to be discrete.

Conflict. No mortuary or viewing room and no designated storage space

Further inquiry. Do they provide an operable window? What is the route to remove the deceased's body? Is there any provision for displaying remembrances for the deceased patients?

Findings. A list of design considerations for support after death is follows;

Table 5-10: The List of Design Considerations for Support After Death

Objectives	**Design Considerations**
Support during the moment of death	• Provide enough space for bedside rituals. Patient rooms need to be big in size, that it can accommodate a large gathering around the bed. • Having an operable window or door to "allow for the soul to leave the room". • Individual temperature control systems within rooms to help to lower the temperature in rooms to help to keep the body for few hours. • A small mediation room or quiet room for family members to gather after death and for grieving.
Body removal or transfer	Having a discreet and sensitive route to transfer the deceased from a bedroom to a funeral car. The exit should not be through a service entry.
Express remembrance	• Provide a dignified way of expressing remembrance to the deceased like provision of a designated space in wall to display names or have a donor wall, or a memory tree, or provision for artifacts or stones in the outdoor garden. • A flower room or a designated space to organize flowers for a funeral home.

Goal 11: Support for Staff. Most of the experts mentioned about the significance of considering the staff needs and comfort in hospice design, because "*staff are the back bone of the hospice"* (Expert-6), or *"Staff is an important point. We should do everything to have a good work force"* (Expert-2).

From all of the interviews, privacy was found to be the most significant criteria in staff working areas as well as in their rest areas. For the overall building layout and zoning, two experts discussed providing separate zoning for the staff.

> In our design, the first floor is for the patient and family, upstairs is for staff to have privacy. It's not about a different level; it is about different zoning, where the staffs are not watched by people all the time, and hearing patients. (Expert-3)

Another expert brought up the issue of having separate parking for staff and suggested having separate parking areas towards the back for the travelling healthcare staff so that they can enter and exit, unload their supplies from the car in private and securely without crossing into public spaces. One expert discussed the location of director's room in one hospice to provide enough privacy and also accessibility to the public;

> The director of the hospice wants to be in front because everybody needs to see her, and they often end up in her office, but she means to be able to get away from them. So she needs to be a kind of a gatekeeper. The director's office tends to be right up at the front, but there is almost always a gatekeeper, some kind of receptionist or somebody in front of her. (Expert-4)

Three experts suggested providing a comfortable work area for staff by creating enough work areas, views, and natural lighting in all work spaces.

All experts mentioned providing opportunities for the staff to socialize, for relaxation, and for recreation. Having a staff break area was suggested by most of the experts. Two experts suggested having attached outdoor areas with a staff break area. One expert suggested a single staff lounge area or lunch area for both types of staff to enhance their communication. *"That's a place where they are meant to be able to go and see each other during the day"* (Expert-4). One landscape architect provided an example of an outdoor activity area, or a walking trail for staff and families to get out and walk, and exercise to reduce their stress and also to socialize.

Several design recommendations revealed the need for staff observation, communication, and providing care. The location of the nurse station was the center of the discussions because it is an important criterion. Different types of opinion or suggestions came out.

> The nurse station needs to be larger. They need to communicate with family, but they also need privacy. They all need to have communication and how everybody should work together. Nurses need then peers' support. There is a lot of pressure on a nurse. (Expert-1)

Four experts suggested a decentralized nurse station, one nurse station for each neighborhood or pod. It brings the staff closer to the patients for communication and care. Two experts favored a centralized nurse station because it provides the nurses opportunity to have a community and support from peers. One expert suggested that the nurse station needs to be larger and with lots of storage space for equipment. Another provided an example where they designed glass doors for the nurse station, because it provides acoustic privacy and visual accessibility. One expert also acknowledged the fact that the bedside charting system and computers-on-wheels support the nurses to take their notes easily. Two experts suggested providing a defined staff zone in the patient room with a supply closet so that at night the staff can come and monitor patients without interrupting the family.

Summary of Support for staff.

Comparison with Literature Review. All of the experts highlighted privacy for staff. They all suggested having a nice staff break area and outdoor area. Some mentioned providing separate zones for staff areas. They also talked about the location of the nurse station to provide efficiency and privacy. They suggested having necessary equipment and mechanical system to ease observation, communication, and the care process for staff like a nurse-call system, patient

lifting systems, cameras, and Wi-Fi. The experts did not say anything about staff communication with family and patients in this goal, as it was discussed in goal three- Privacy.

Conflict. There were no conflicts found between the literature and experts.

Further inquiry. How does privacy for staff ensured in hospice facility? Where do the staffs take break? Is there any staff only outdoor area?

Findings. A list of design considerations for support for staff is follows:

Table 5-11: The List of Design Considerations to Support for Staff

Objectives	**Design Considerations**
Privacy & Comfort	• Building layout and planning should consider separate zones for staff to ensure privacy. • Provide separate entrances and parking lots. • Location of chief administrator/ director's room in front with a gatekeeper, allowing it to be easily accessible by the patients without interfering with other staff's privacy. • Travelling healthcare staff can park in the separate staff only parking and can access the building without crossing public spaces.
	Provide a comfortable work area with enough space and storage, and with the presence of a view and daylight.
Socialization, relaxation and recreation	• Provide a staff break area for inpatient and outside staff with comfortable furniture, the presence of daylight, a nice view to outside, an attached outdoor space, and a TV or another form of recreation. • Have a staff-only outdoor area with visual privacy and nice views.
Ease in observation and care	• Visual and acoustic privacy at nurse stations • Have adequate storage area near nurse's stations • Provide a defined staff zone in patients' room near supply closet so that at night staff can come and monitor patients without disturbing family.

Limitations

As mentioned earlier, twelve questions were composed to maintain a sequence developed from the pilot test. The questionnaire was initiated by focusing on two main goals; the continuity of self and access to nature. Then it followed the sequence of goals directly related to patient

experiences. The last three goals are indirectly relevant with patient experiences, so they were asked at the end. Though the goals were organized to provide a continuity of answers, several answers overlapped, were repeated, or were irrelevant.

As the questions were not shuffled it maintained the same sequence, and the questionnaire was long and quite intensive. Even after providing multiple cues during the interview to go to the next goals, some experts took more time and provided elaborate answers for the initial goals and provided short answers towards the end due to tiredness or time limitations. Some experts were very enthusiastic from the beginning to the end, and continued the discussion even when the interview was finished. For these reasons, there is a possibility that the last goals might have received less input than the initial goals.

Family accommodation is one of the primary considerations in hospice design and the majority of the hospice spaces are used by patient families. Most of the design considerations relevant to family accommodation were mentioned during the initial goals, when the experts were asked about the family accommodations. Some experts started with the statement that they have already mentioned the considerations and kept the answer short.

Conclusion

The diversity of the expert panel provided recommendations from various perspectives which have enriched the overall findings of the hospice environment. The practicing architects who have designed recent hospices mentioned new issues for consideration and also provided their solutions to address these issues that were not mentioned within the literature. The researchers and authors provided feedback about best-practice design criteria and discussed the pros and cons of these features. The landscape architects pointed out the background reasoning of landscape design and decisions, and also stated some new findings. Some architects provided

insights about cost, maintenance and energy efficiency of hospice design, and also went into how this influenced some design considerations. Some provided examples of contextual considerations according to the climate. Some raised questions which need further research, such as the impact of transferring the deceased through the front or public entrance and its impact on other patient families. Even though different groups of experts brought diverse insights and suggestions, most of the design criteria were repeated and helped to achieve data saturation levels.

The experts' opinions contributed developing a better understanding about the most significant design objectives and criteria of a hospice environment. It helped to validate, modify, and summarize the findings from the literature reviews. As stated earlier, the primary literature sources were from Australia, Canada, Europe, the UK, and the USA. The findings are a compilation of design considerations from various regions of the world. The healthcare delivery systems are not similar in different countries, especially since the USA's healthcare system is unique than other countries. For example, private patient rooms in long-term care facilities have become a standard practice and rule to receive financial reimbursement in the USA. So the new and old facilities are being remodeled to make all patient room private. This criterion has also changed the social environment in the hospice facility which has an impact on overall hospice design. Another design consideration different in the USA is the absence of a mortuary and a viewing room in most of hospice facilities. After death the deceased is transferred to another facility or a funeral home, while having a mortuary and a viewing room are common in the UK and other parts of Europe.

All these differences create unique characteristics for American hospice facilities and the expert interviews made those criteria more noticeable. These interviews also helped to formulate

the questionnaire and list of criteria to observe during the case study surveys. The findings also helped to identify the significant design issues of today's hospice environment which would be the assessment factors for the post-occupancy evaluation.

Chapter 6: Phase 3 - Case Study Surveys

Data Collection Process

After the final selection, the experts supported the researcher by providing contacts of the case studies. The researcher approached the facility staff through email and sent out Consent Forms to secure their approval (Appendix B). The data collection processes were explained to the facility staff and each was asked to provide an appointment for interviews and walk-through which may take three to four hours. All the case studies were visited within a one-month period to collect the data, starting from early September and finishing in early October. Also, all the facilities were visited during working days from noon to afternoon to have similarities in the functioning and visitors' traffic. Due to the time of the year, the sky was either gloomy or rainy in four cases; only one case study, the weather was sunny and hot.

Data was collected using multiple methods: first, an interview with the hospice administrator or manager which was voice-recorded; second, a walk-through survey was conducted with the staff while taking photographs; and third, after the tour, the researcher wrote field-notes about the conversations during the walk-through and the key points from the observations were recorded.

Questionnaire Development. The questionnaire was similar to the questionnaire administered to the expert panel. The only difference was that the staffs of the case-studies were asked "How do you achieve this goal in your facility" instead of "What are your suggestions to achieve this goal." As discussed in the previous chapter, after analyzing the experts' interviews there were a few questions derived for each goal. Those questions were added in each goal as prompts. The interview was conducted with this semi-structured questionnaire. During the walk-through several other conversations happened which raised other questions, but those

conversations were not voice-recorded. The questionnaire was administered maintaining the same sequence as in the experts' questionnaire. Though the goals were organized to stimulate continuous answers, several answers were overlapped, repeated, or were irrelevant. The questionnaire is attached in Appendix B.

Process of Interviews. A questionnaire containing the main questions was sent to the case studies in advance so that the facility administration could select the personnel who were able to answer those questions. In one case, the director provided the interview and also provided the walk-through survey. In another case, the facility manager provided the interview and also the walk-through survey. In the remainder of the three cases, the process involved multiple people. In one case, the executive director provided the interview as she was involved during the project renovation, but the director of operations provided the walk-through survey. In another case, three persons together gave the interview: the assistant director, vice president of patient services, and also a nurse. The walk-through for that case study was provided by the assistant director. The last case arranged a group meeting to provide the interview; the director, a nurse, the facility maintenance personnel, the custodian, and the landscape caretaker. The first three persons provided the tour. All the interviews took 45 minutes to one-and-half hours. All the participants were very enthusiastic in answering the long questionnaire.

Process of Walk-Through Survey. After conducting the interviews, the researcher had a tour of the facility with the staff. The tour routes were spontaneous and guided by the staff. The staffs introduced the spaces and described the utilization patterns of those spaces as well as, advantages and challenges they face within the settings. During the walk-through, the researcher was also introduced to some other staffs and was provided the opportunity to ask any questions of those staff such as "Where they go for smoking?", or "How frequently the family kitchen was

utilized for cooking?" These conversations were not recorded, but any significant topic was written down in the field notes after the survey.

The researcher took a number of photographs of each facility. Some photos were spontaneous and some predetermined, such as a shot of a patient's room, the family room, the nurse station, and a shot from patient's pillow looking outside the window to capture the view from the bed. A digital single-lens reflex camera (also called a digital SLR or DSLR) was used to take all the shots in a fully automatic mode. Some shots were taken with flash due to the lack of lighting. The survey covered most of the interior spaces and also the outdoor garden and landscape. The tours were one hour to two hours long. After the tour, the researcher took a break and wrote down the key points about that facility, especially the points which were not recorded (Appendix E).

Introduction to Case Studies

Case Study-1. This hospice house is located in a wing of a regional hospital (451 licensed beds) in the Kansas City metropolitan area. It accommodates sixteen beds, all in private rooms. This hospice program also serves end-of-life care at home or other places of residence, grief support services, community grief support, community education and outreach. The volunteers are associated with the following specialty programs: Lifetime Legacy Video, Friendly Pet Visits in collaboration with Pets for Life and Pet Partners, and No One Dies Alone support program. The facility is open to families 24 hours a day and welcomes visiting pets.

The hospice house is located in the pavilion level of a multi-storey hospital facility. The structure was not designed to serve as a hospice care unit, but was renovated a few years ago to accommodate the hospice service. The original building was constructed during the 1970s. The

administrative area is located in the tenth floor of the hospital building and connected to the hospice house with public elevators.

Though this hospice is situated in a hospital facility, the hospice is located in a quiet corner of the pavilion level and isolated from the hustle and bustle of this busy metropolitan hospital. The surrounding of the facility has a nice view and green spaces. The building layout is U-shaped and creates a courtyard space. The area is designed as a garden with walking paths, a water fountain, and other landscape features. The outer sides of the building look toward green areas. The hospice has two entrances: one is individual to the hospice and another is from the hospital side with plenty of visitor parking (Figure 6-1: A & B).

(A) (B)

Figure 6-1. Two Entrances of Case-1. (A) The photo shows the separate entrance to the hospice from the drive way, and (B) Internal Entrance the photo shows the internal entrance from the hospital side which has the reception desk. @ Sharmin Kader.

(A) (B)

Figure 6-2. Landscape and Lounge of Case-1. (A) The outdoor landscape (of the hospice unit with multiple seating arrangements), and (B) The entrance lounge (with the reception desk from hospital side, and at the corner the children play area with children furniture and library.) @ Sharmin Kader.

(A) (B)

Figure 6-3. Courtyard of Case-1. (A) The courtyard garden (B) The water fountain in the garden. @ Sharmin Kader.

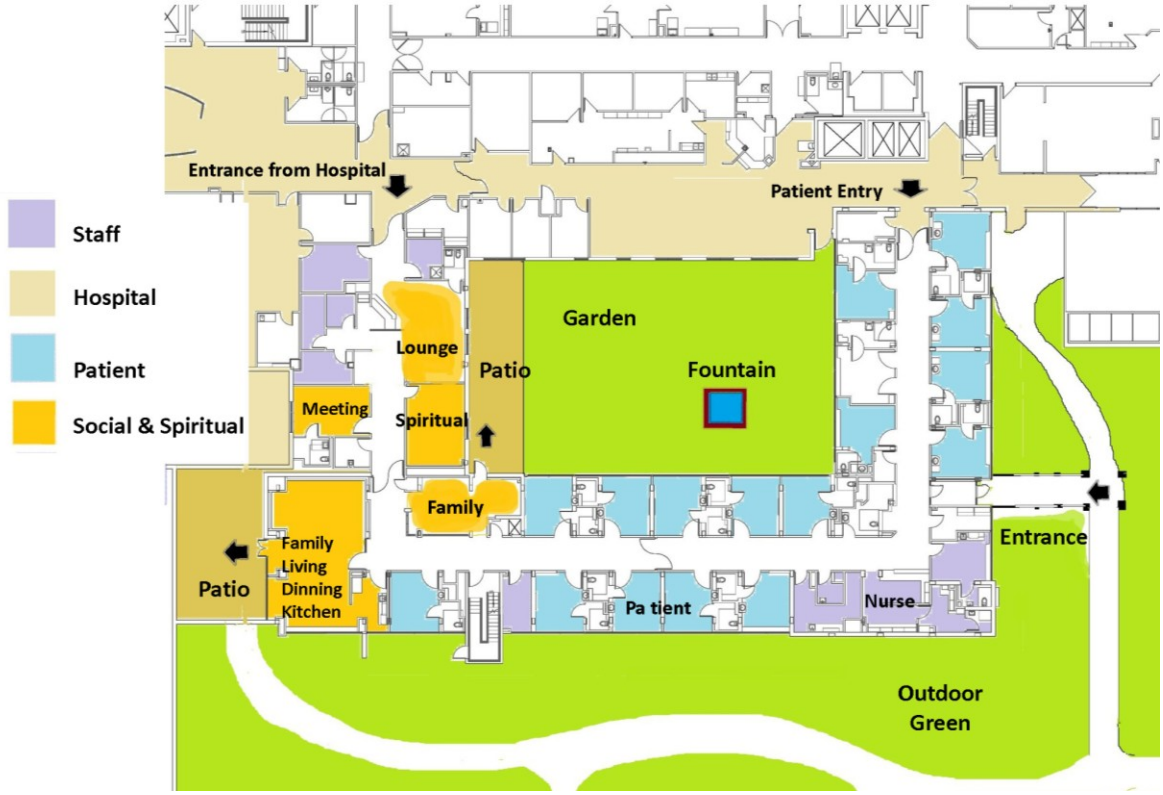


Figure 6-4. Floor Layout of Case -1. The plan of the hospice unit shows the U-shaped building layout. The left upper-side entrance is from the hospital with the reception desk and lounge. The right upper-side double door entrance is for staff and patients only, the deceased body exits through that door and crosses the public corridor of the hospital. The right side middle entrance is from the outdoor landscape for families and staff. This figure is produced by Sharmin Kader from the building layout with permission.

There is a reception in the lobby-lounge and a children's play area in the corner of the lobby. Both entrances are monitored by staff. The separate entry opens into the inpatient unit, and the hospital entry opens into the lobby-lounge of this hospice.

The hospice is designed with sixteen private rooms. All the rooms have bedside chairs that open into a bed, and a wall closet for families to keep personal belongings. Each room has a private toilet. One room is designed to work as an isolation-room, and one room has a bariatric-bed. As the structure is not purpose-built as a hospice, the room sizes are comparatively small a most hospice patient rooms. Each room has a wide window with a view to outside nature.

(A)

(B)

(C)

(D)

Figure 6-5. Patient Room of Case-1. (A) The patient room with views to outside courtyard-garden. (B) Another view of the same room shows the only closet space for that room for patients and family. (C) A view from patient's bed pillow to display the direct visibility to the corridor. (D) The hospice unit corridor. @ Sharmin Kader.

The patient rooms are small in size as this unit was used as a hospital unit. There is a privacy curtain in front of the door. The closet size is too small to accommodate patient and their family members' belongings (Figure 6-A to C). The double loaded corridor is moderately longer than any other cases (Figure 6-D).

There is a family kitchen, family bath, laundry, a library with computer and wireless internet access, and a spiritual center. The spiritual space is non-denominational and decorated with a stained glass wall-décor (Figure 6-6: A). A patio with shades, BBQ and outdoor seating

arrangements is for patients and their families to have a private time, or staff to organize gatherings. There is a staff break room with kitchenette and a nice view to the outside at the ground level and is mainly used by the inpatient staff (Figure 6-7: B).

(A) (B)

Figure 6-6. Common Spaces of Case-1. (A) The Spiritual Care Space with a window looking towards the outside courtyard-garden, and (B) The family living room which is adjacent with the family dining and kitchenette. @ Sharmin Kader.

(A) (B)

Figure 6-7. Retreat Areas. (A) The outdoor patio with BBQ grill and seating arrangements, and (B) Staff break room. @ Sharmin Kader.

Case Study-2. This facility has a different model of hospice care, known as a "Social Model Hospice," which is a community supported home that provides care for terminally ill individuals. Despite the availability of hospice programs, some patients cannot remain in their own homes to die due to the lack of 24/7 caregivers. This hospice provides that "next best thing"

to home for these people, acting as a surrogate family. This hospice facility calls their residents ‘guests’.

This innovative model of care has become established during the last ten years across the country. This hospice house does not provided skilled nursing care or treatments, IV medications or infusion, acute or inpatient levels of care, or blood sugar management. The services that are included in this care model are as follows:

- Routine personal care such as bathing, dressing, toileting, assistance with transfers and repositioning, assistance with eating, and assistance with medications.
- Meal preparation, laundry, and housekeeping.
- Access to hospice services and cooperation with the hospice plan of care.

The hospice building was completed in 2009 on a five-acre contoured site; the south side is lower and has a view of a beautiful creek (Figure 6-8). The building sits on the middle of the slope to exploit the views to the creek and the reserve woodland. It has total of 9,000 sq ft. of built area, and offers ten guest rooms on the first floor and administrative offices on the second floor. The facility can be accessed from the road located on the west side and parking for staff and visitors is available in front of the building and towards the eastside in a circular parking arrangement. Several manicured landscape and gardens are designed on both sides.

Figure 6-8. The site plan of Case-2. It shows the entrance to the site, building location. The south side is lower and has a view of a beautiful creek and the reserve woodland. Image used with permission.

Figure 6-9. Outdoor Garden of Case-2. The left side outdoor landscape with water fountain, bench and beautiful views. @ Sharmin Kader.

The architecture expresses a rustic image through its design, material selection, and setting. The facility preserves the existing drainage on the undulating terrain, as well as the existing native trees and vegetation. On the east side there is an outdoor garden with multiple seating arrangements, and from there a wooded path leads to a pavilion which is nestled in trees.

The pavilion is used as a chapel and adjoins with a meditative garden and a labyrinth. A labyrinth is a walking path with one route that leads into the center point and back out again.

(A) (B)

Figure 6-10. Common spaces of Case-2. (A) The outdoor pavilion which uses as a meditation space or chapel, and (B) the entrance lounge of the hospice, the reception desk at the left-hand side. @ Sharmin Kader.

The facility accommodates ten guest bedrooms and each room has a private veranda or patio with two French doors so that guests can be taken outside. The bedrooms are large enough to accommodate at least two family members at night. A sofa-bed, a recliner, a desk, and two chairs are the common furnishing for each room. Each room has a personal closet area to store personal belongings and is equipped with a TV and a CD player. Two rooms share one bathroom, with individual vanities. Separate bathrooms are available for the family members. Five bedrooms are clustered with one family living area. Some other amenities are also available to support the families, such as a dining area, 24-hour kitchenette, laundry facility, TV room, video games and toys for the children, a library, and meditation and reading space on the second level.

Figure 6-11. The building layout of Case – 2. It shows the ten rooms in two clusters. The family living room is at the center of each wing with no daylight. Each room has private patio space with double French door for bed accessibility. Image used with permission. Color rendering by Sharmin Kader.

(A) (B)

Figure 6-12. Patient room and patio. (A) A patient room view from the door showing all the amenities, and (B) the series of private patios looking towards the Southside creek. @ Sharmin Kader.

This hospice welcomes people with an intimate and country looking lobby-lounge. The stairs to the second level and the double-height space creates a warm environment for the visitors. The dining room and two dens are attached with this lobby area for multiple activities. There is a large multipurpose room on the second level to accommodate large gatherings or parties.

(A) (B)

Figure 6-13. Social Spaces of Case-2 (A) The dining room with the central kitchen behind, and (B) the multipurpose room at the second level. @ Sharmin Kader.

A meditation space was created on one side of the multipurpose room with a partition wall. The comfortable furniture is arranged focusing a wall-feature, a water-fountain to create a serene environment. A spa room is available with whirlpool baths, massages table, hair washing sink, and provisions for aroma therapy. There is a fish tank in one of the family living rooms and the entire facility displays meaningful artwork throughout the facility. A butterfly habitat is located at a corner of the front lobby. This hospice believes that the butterfly is a symbol of hope, rebirth, and new life, and invites families to release a butterfly at the time of a loved one's death.

Case Study-3. This hospice facility is located in a country setting just outside of a small city in Wisconsin. It is a community-based free-standing hospice facility. This twenty-bed 28,000 sq. ft. facility sits in a quiet and peaceful ten-acre site overlooking a river. The building is designed to maximize the serene views, a pastoral setting and rolling hills. Therapeutic gardens,

nature trails, a pond and resting areas surround the exterior. This facility received recognition for its design and was published in articles, newsletters, and websites as an innovative hospice example. The hospice's philosophy is to provide an atmosphere of a country retreat to their patients and families. This hospice also provides home-hospice care as well.

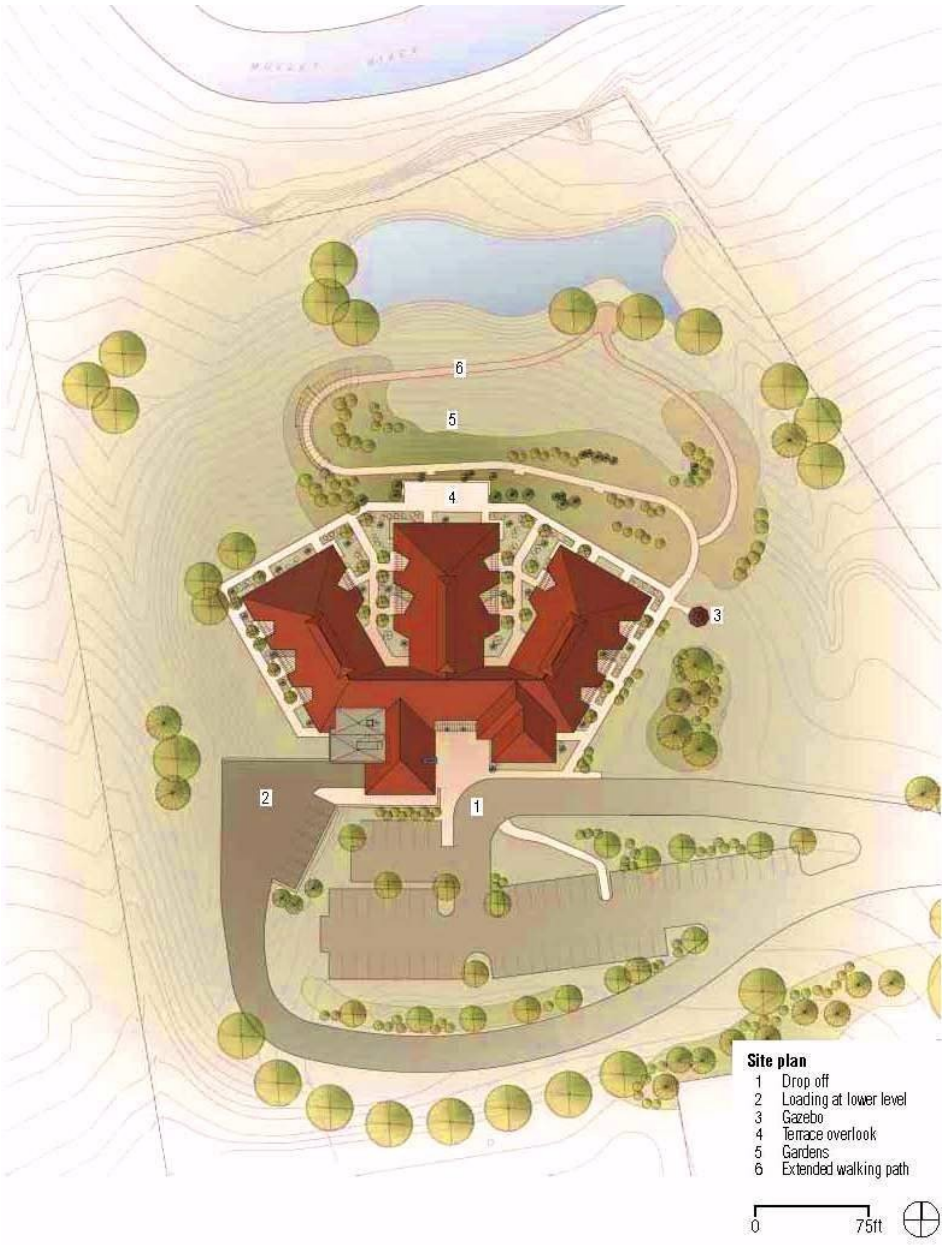


Figure 6-14. The site plan of Case-3. It shows the entrance to the site, and the north side pond and the river. Image used with permission.

Figure 6-15.View from riverside. The view of the facility from the north side field showing the vegetation, walking path and seating arrangements in the walking trail. Image used with permission.

The building is designed to focus on the northern orientation overlooking a river, pond, and healing gardens. The slope of the site allows “back of house” support functions to be accessed from a visually concealed lower level, preserving the upper level for all resident-centered spaces and reducing the overall scale of the building. It also maximizes views to the river. The facility has three resident wings surrounded on both sides by exterior gardens. The resident rooms are oriented 60 degrees relative to the corridor to promote views out of the courtyard and not into adjacent resident rooms to ensure privacy. Each resident’s room has a private sheltered patio with a pair of French doors to allow east access to the gardens. The facility is surrounded by a walking trail which is also connected with the patios and provides a range of social spaces.

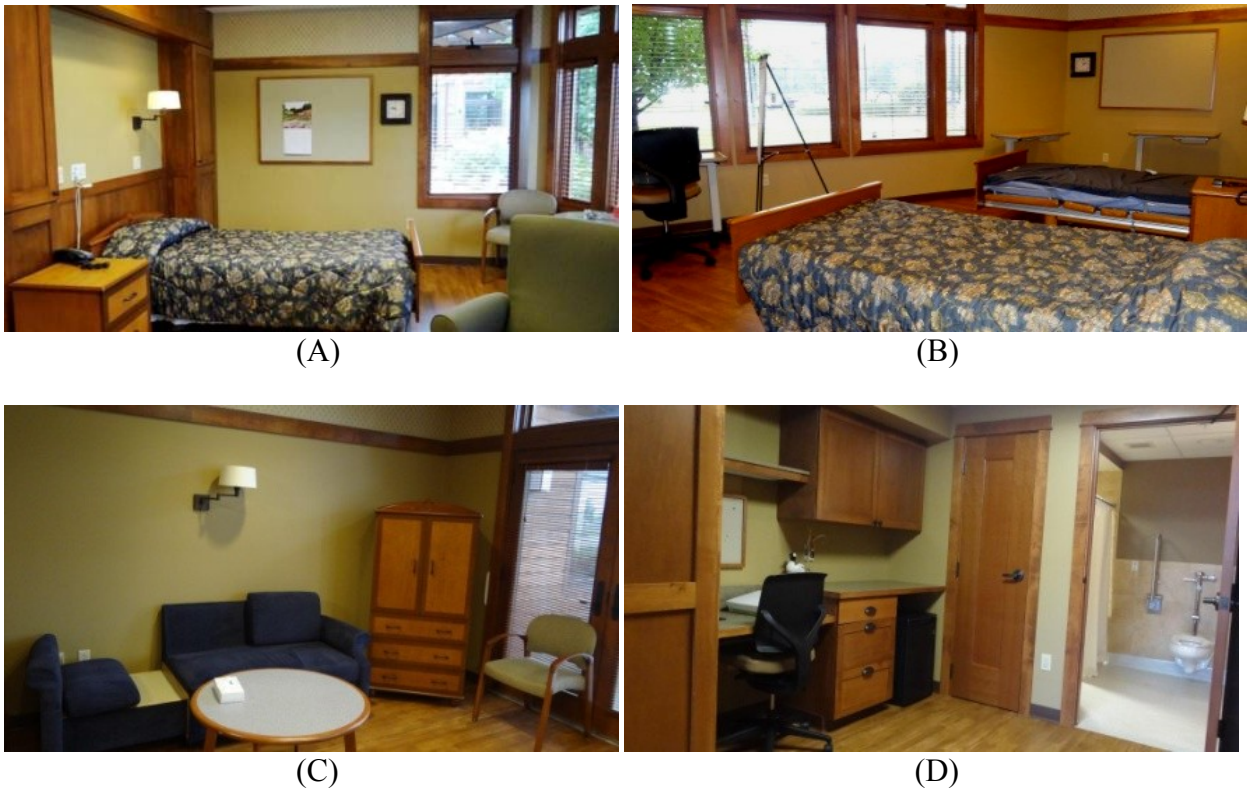
Figure 6-16. The building layout of Case-3. It shows the south side main entrance, three pods or wings. Each pod has six patients room, two nooks, one den. This figure is produced by Sharmin Kader from the building layout with permission.

(A) (B)

Figure 6-17. Outdoor garden and patio of Case-3. (A) A private patio of a room with the outdoor furniture. (B) The garden pathway in-between two pods. @ Sharmin Kader.

The hospice has twenty-beds: sixteen private rooms and two double rooms. All rooms are designed with extra space for families, maximized privacy, and control over the environment.

Each room has access to a private patio and garden spaces. The resident rooms are large enough to allow visitors in the room, but gathering spaces are also provided directly outside the resident rooms. The resident bathrooms have an accessible toilet and a large accessible shower with a foldable shower seat. The toilet has enough space to allow staff assistance from both sides and is equipped with dual drop-down grab bars.



(A) (B)

(C) (D)

Figure 6-18. Patient room of Case-3. (A) A patient room. (B) A double-bed room, (C) Another view of the patient room showing the convertible sofa and closet space for family. (D) the foyer space of the the double room with attached private bathroom. @ Sharmin Kader.

The building is configured into a series of smaller residential-sized wings, total of three. Each wing has resident rooms, numerous reading nooks, den with TV and computer, and kitchenette. The corridors have clerestory windows that allow sunshine during the day and moonlight to peek through at night. The corridors also have several seating/reading nooks with hardwood half-height walls and columns which provide a sense of enclosure.

(A) (B)

Figure 6-19. Circulation space of Case-3. (A) The reading nook of a pod. (B) A view of the corridor looking towards the den. @ Sharmin Kader.

This building also offers some other activity spaces and amenities, such as a great room with a grand piano, chapel, library, children's play room, handicapped accessible spa, dining room with a fireplace, and a professional kitchen.

(A) (B)

Figure 6-20. Meditation room and Library of Case-3. (A) The Meditation Room, view from entrance. (B) The central library of the facility. @ Sharmin Kader.

The facility also incorporates utilitarian components, such as eight-foot corridors, medical gases, and staff/service spaces. Staff and support spaces are decentralized in each wing. The staff area has meeting rooms, conference room, administrative offices; and staffs break areas and storage spaces. Parts of these spaces are located in the upper or main level and the remainder is in the lower level. There is separate staff parking on the lower level.

(A) (B)

Figure 6-21. Family areas of Case-3. (A) The central lounge with piano and desk for playing games. (B) One Den or family room near to the central lounge. @ Sharmin Kader.

Case Study-4. This hospice program was founded in 1980. It is the oldest hospice of the five case studies. The facility is located in a prime location of the Houston metropolitan area in Texas. It is an independent hospice which is a non-profit organization that is community-based and community-supported. This hospice also provides pediatric hospice services to infants and youth aged 18 and younger.

In 1989, the hospice facility received a historic residence as a donation to house their center. The house is a picturesque English Tudor-style home built in 1925 and has gardens covering a 2.5 acre site. In 1996, the hospice opened a patient care center adjacent to the historic house. The style of the three-story structure, like an English country manor, matches the 1925 Tudor architecture. The site is a triangular shaped plot; one side is adjacent to a bayou, another side is adjacent to another residence and the front side is the main access road. A circular driveway leads to the porch of the inpatient building. There is parking at the ground level and also at the basement level. The staff has separate parking and access to the old residence. The adapted residence houses the administrative offices; conference rooms, staff break room, and bulk storage spaces.

Figure 6-22. Outdoor landscape view of Case-4. A panoramic view standing at the garden of the hospice facility showing the old house and also the inpatient building, and the outdoor landscape. @ Sharmin Kader.

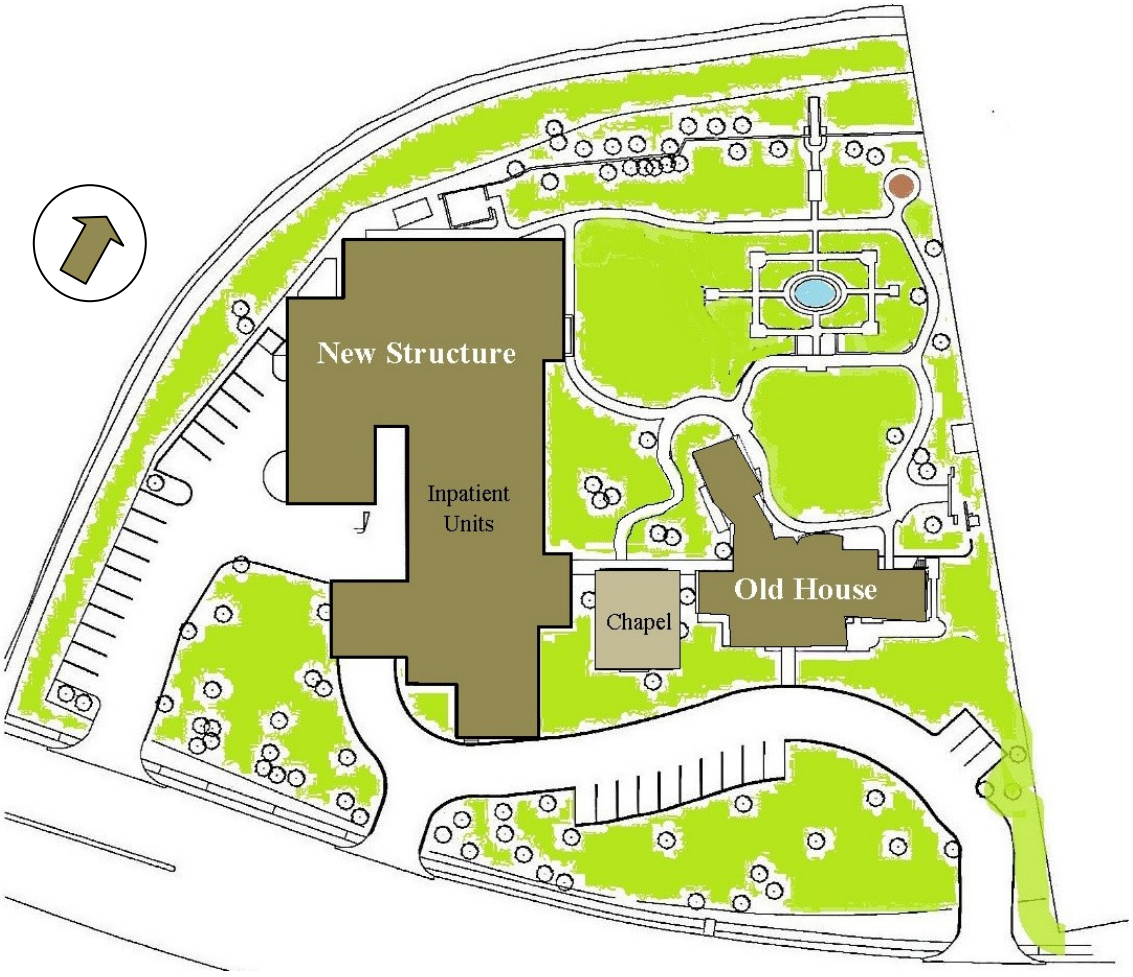


Figure 6-23. The site plan of Case-4. One side is adjacent to a bayou, another side is adjacent to another residence and the front side is the main access road) Image used with permission. Modified by Sharmin Kader.

The first floor of the inpatient building has sixteen private rooms, with two rooms at the far end of the floor capable of conversion to semi-private rooms. The second floor has thirteen private rooms with two semi-private rooms. Each patient's room has a wide bay window with views to outside trees, gardens, and natural landscapes. Each room has its own private bathroom. All the rooms are large enough to accommodate at least eight to ten visitors. There is flexible furniture in the room: light-weight stools, movable tables, a full-size fold out sofa-bed, one recliner, and the long window seat can accommodate more than two persons for sleeping. Rooms are equipped with flat-screen TVs and Wi-Fi connections. Bookcases with drawers flank the large window. The doors to the patients' rooms are recessed and the bathroom provides visual privacy to patient's bed-head from the corridor. The corridor is eight feet wide with hand rail on both sides. The nurses' station is located at the center of each floor. There is a staff break room, conference room, and medical support space behind the nurses' stations.

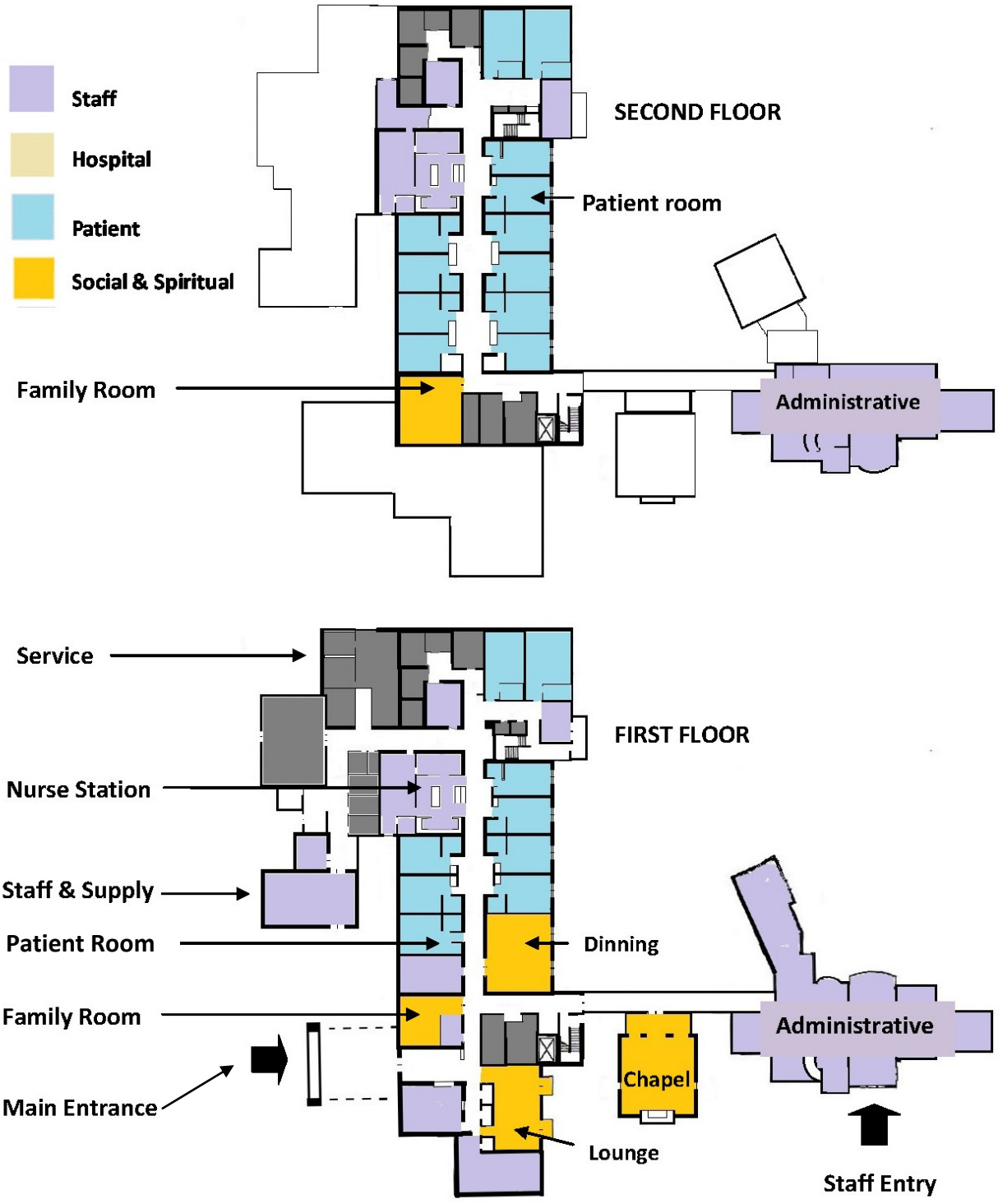


Figure 6-24. The building layout of Case-4. The inpatient building at the left-side and the old house at the right-side. The building is three storey. The first and second floor plans are presented. This figure is produced by Sharmin Kader from the building layout with permission.

(A)

(B)

(C)

(D)

Figure 6-25. Patient room of Case-4. (A) Patient room looking towards the garden, (B) The convertible bed for the family, (C) the nurse station, (D)The double loaded corridor. @ Sharmin Kader.

The inpatient building has multiple activity rooms (Figure 6-26) and each floor has two dayrooms situated at the opposite ends, a counseling alcove for informal conversation, dining room, and a family lounge on the first floor. Family rooms with computers, televisions, books, magazines, and board games are located on each of the three floors. Shower and laundry facilities are available for loved ones who spend the night. The entrance has a wide lobby and seating area. Donated artworks, specially the quilts which are made by the volunteers, are exhibited throughout the walls.

(A) (B)

Figure 6-26. Common spaces of Case-4. (A) The first floor lounge for family, (B) The family kitchenette and the dining space. @ Sharmin Kader.

The residence and inpatient building are connected via an arcade, and a chapel is located at the middle. The chapel is nondenominational and big enough to hold a gathering or even a wedding ceremony.

(A) (B)

Figure 6-27. Chapel of Case-4. (A) The Chapel and podium, (B) Another view of the Chapel. @ Sharmin Kader.

The garden is the most beautiful part of this hospice, and is composed of five distinct but closely interwoven areas: an imaginary 'river', a garden maze for children to play, open lawns and walking paths that can accommodate beds and wheelchairs, a gazebo, and a flower garden. This space has received landscape design awards.

Figure 6-28. Garden view of Case-4. The garden with the small water pond at the center. @ Sharmin Kader.

Figure 6-29. Another garden view of Case-4. @ Sharmin Kader.

Case Study – 5. This 34,000-square-foot hospice facility sits on twelve acres of a 210-acre site located in Southern Georgia on the perimeter of a small town. With a college to the north, railroad tracks to the south and a major vehicular circulation to the west, the project is nestled in the middle of an upland forest surrounded by wetlands (Figure 6-31). The property hosts a variety of indigenous plant species, a walking trail, healing gardens, an outdoor chapel, a

natural pond, and a bird sanctuary. There are seven gardens on the site. This project is a Leadership in Energy and Environmental Design (LEED) Silver building and has received several awards for its design. The landscape design creates an ecological oasis for the local community and has also achieved awards.

Figure 6-30. Exterior view of Case-5. One of the exterior views displaying the use of wood, stone and the architectural characteristics. @ Sharmin Kader.

The building layout is organized into a series of wings incorporating gardens in between. These wings are connected through a main circulation walkway. The first wing is different from the rest because it houses the staff area with a separate entrance, parking, and outdoor terrace. The next three wings, which are designed as 'pods,' are identical and are each comprised of six private rooms grouped around a family living room.

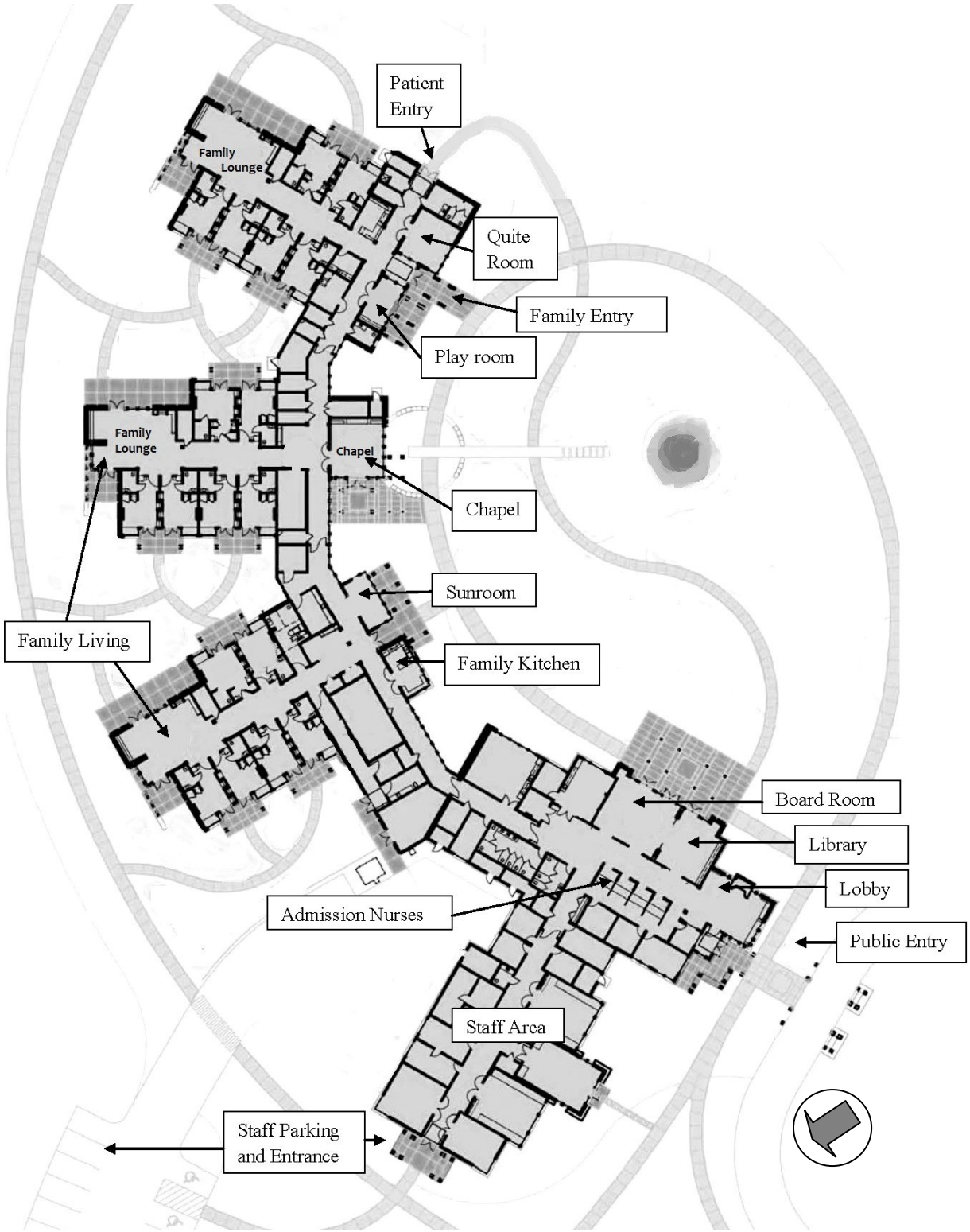


Figure 6-31. The site plan of Case-5. Showing the entrance to the site, three pods and the location of the six gardens. Image used with permission. Space labeling by Sharmin Kader.

The front entrance has a reception, lobby-lounge, and admission cubicles. This front block houses the home-care offices, director's office, library, a meeting room, and the staff lounge. This hospice building incorporates familiar materials like fieldstone, stained cedar for large timber pieces, poplar in patient rooms and for bookcases, painted pine in the lobby, cork in the children's area and chapel, and bamboo for general flooring. Patient room floors are linoleum. About 92 percent of the spaces have access to daylight and views to outside nature.

(A) (B)

Figure 6-32. View from common spaces of Case-5. (A) the entrance lounge with the high-windows and views to outside, and (B) the main circulation spine with windows in right-side providing views to outside. @ Sharmin Kader.

Individual patient rooms offer window-seat beds for overnight visitors, and double French doors lead out onto a shared porch overlooking the garden so that patient beds can be rolled outside. Large storage areas for personal items, overhead ceiling fans, Volker beds and adjustable reading lights, and headwalls behind the beds to conceal medical outlets and equipment are also provided. A detail photograph of the birch headwall in patient rooms is shown in Figure 6-33, which disguises medical outlets, receptacles, and switches.

(A) (B)

Figure 6-33. Patient room of Case-5. (A) the patient room with the semi-private patio and bed-accessible French door, window bed for families, and (B) the innovative design solution to hide the mechanical systems behind patient's bed. @ Sharmin Kader.

Each pod has a children's area, a reading nook, a small dining table, and an outdoor terrace with outdoor furniture. The family living rooms feature tall window walls, a planked ceiling, bamboo flooring, and custom birch millwork.

(A) (B)

Figure 6-34. Family Area of Case-5. (A) the family room in each pod, and (B) another view of the family area, the reading nook. @ Sharmin Kader.

The facility offers family members reading areas, millwork for children's games, dining and conversation areas, as well as access to outdoor terraces with sunscreens. Other spaces include a kitchenette with banquette seating, a dedicated children's playroom, a quiet room, sunroom, and a nondenominational chapel. There is a family entry towards the end of the spine

which is accessible from the family parking. The main circulation spine ends with a door which works as an entrance and exit for patients from the ambulance or transportation vehicle.

(A) (B)

Figure 6-35. Spiritual spaces of Case-5. (A) the chapel with the podium and outdoor views, and (B) the quite room or meditation room, or meeting room for staff and family conversations, the room is with patient's bed accessible door. @ Sharmin Kader.

Analysis of Case Studies

Like the experts' interviews, all of the interviews of these five case studies were transcribed manually. After the transcription, the interviews were organized by goals. All of the case study opinions were brought together one after another, and then were coded. All of these goals were coded. As the questions were semi-structured, it helped to extract data based on themes and subthemes. New themes also emerged and were listed. All of the coding and analysis was done manually. Though the questions were organized in a goal-oriented manner, there was always an overlapping of design considerations for various goals. Sometimes the experts mentioned one criterion in a previous goal so they avoided mentioning it again. Sometimes one criterion was mentioned but was not relevant with the question. Sometimes they mentioned the criterion repeatedly. One sample of the data analysis coding has been attached in Appendix D.

All the field notes and all the photographs were also analyzed based on each goal. The findings from walk-through surveys mostly supported the content of the staff interviews, but several conflicts were noticed which are not significant. For example, the staff mentioned in the

interview that the facility is non-denominational, but during the walk-through several religious symbols were recognized and photographed. On the other hand, there were few significant criteria not mentioned by the staff but recognized by the researcher during the walk-through. All these data were analyzed to construct the findings for each goal. Due to space limitations, the analysis of only one goal (Privacy) is discussed below. Brief discussions about the case study findings for each goal are discussed later. Additionally, the findings from the case studies were compared with the findings from the literature reviews and experts' interviews.

Analysis of Privacy.

Providing privacy for patients and their families at the end-of-life care is one of the significant objectives of the hospice movement. A private room with a private toilet offers the maximum degree of privacy for the patient to spend time with his or her family. From the expert interviews it is cleared that all the patient rooms should be private in the United States. All the case studies also confirmed this finding; there were no shared rooms in any of the case studies, but there were double-bed rooms in Case-3 and Case-4 to accommodate spouses, parents, or friends. Case-3 participants mentioned that they usually use these double-rooms when the patient has a sick spouse or large family (Figure 6-36: A). Case-4 was designed in the early 1990s, when the private-room movement was not started in the US; therefore the facility has six rooms which can be converted into semi-private rooms. In the interview, the director of operations mentioned that they use those rooms for pediatric patients to accommodate parents. All the cases have private bathroom facilities. Case-2 has semi-private bathrooms and the shower is common, but there are two separate sinks and vanities for two private rooms (Figure 6-36: B). Case-2 and Case-3 have private patios with each room. Case-5 has a semi-private patio with each room.

(A) (B)

Figure 6-36. Analysis of Privacy-1. (A) the double-bed patient room in Case- 3 and (B) the shared bathrooms in Case-2. @ Sharmin Kader.

Besides providing private rooms for patients, some other design criteria need to be considered to ensure privacy for the patients and their families in the rooms. Among those, good acoustic design for the contentment of sound is one of the most significant. This can be achieved through using acoustic materials and creating buffer zones between side-by-side rooms and between a room and corridor. Case-4 and Case-5 have inboard-bathrooms in the patients' rooms. Case-1 and Case-2 placed the bathroom between two rooms, which helps blocks noise from the shared wall. Case-3 provides a unique example, in that all the patient rooms have bathrooms and foyers at the corridor and there are no shared walls without buffering (Figure 6-37). All the case studies have utilized good acoustic materials, as mentioned during the interviews and also observed during the walk-through surveys. No noticeable noise or violation of acoustic privacy was recognized during the walkthroughs.

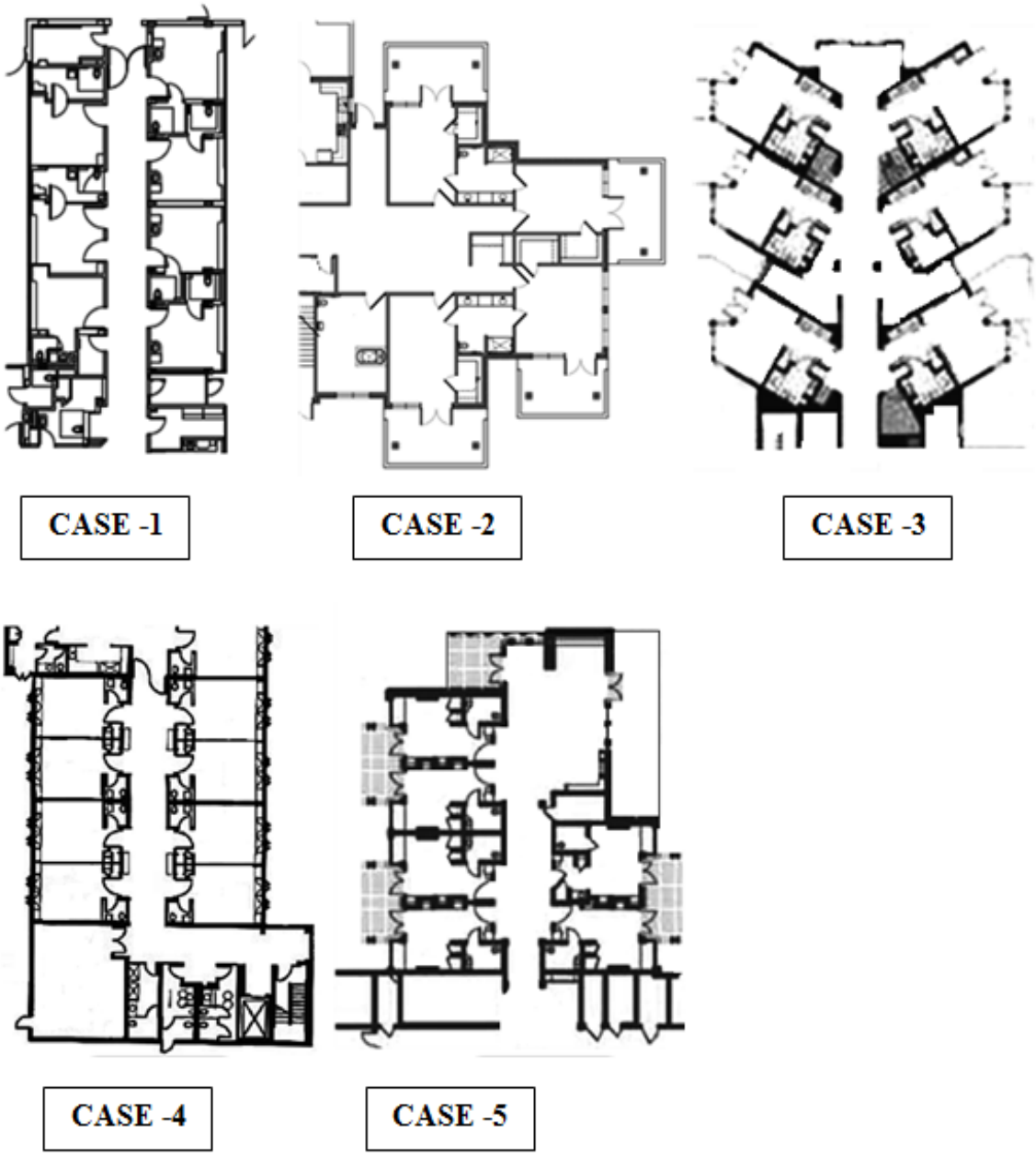


Figure 6-37. Analysis of Privacy – 2. Five layouts of five case studies showing the patient rooms arrangements. Images used with permissions.

Visual Privacy of Patient's Room. Ensuring visual privacy to the patient room is another important consideration. Some experts suggested avoiding visibility of the patient's head from the corridor, while from the case study surveys another point revealed the patient's room should

not be visible from an outside garden or pathway. Case-1 revealed that there were privacy issues of patient rooms from the outside, especially at night due to the translucent curtain. They have since added blinds so that the patient room cannot be visible from the garden or the opposing patient rooms.

Figure 6-38.Analysis of Privacy – 3. Curtain material was quite transparent and people would be able to see at night from the outside. @ Sharmin Kader.

Visibility of patient's bed-head. With regard to avoiding visibility of the patient's head from the corridor, three cases mentioned this during the interviews. Case-1 discussed the visibility concern in their facility. Since the building was used previously as a hospital, the patients' heads are visible from the corridors. The executive director mentioned that they have used a decorative curtain in front of the door instead of surrounding the patient's bed so that the patients do not feel congested and have openness in the room.

> There is just a partial curtain in front of the doorway, and it is very light weight, and looks more like a decorative fabric. But, it doesn't look institutional. Also the air can come in. If there are very sick people, no family, their room door is always open. (Executive Director of Case-1)

(A) (B) (C) (D)

Figure 6-39. Analysis of Privacy -4. The patient room in Case-1, the direct visibility of patient's bed, the curtain at the door . (A) View of the curtain from inside the patient room, (B)View of the curtain from the corridor, (C) View of the door without curtain from inside the patient room, and (D) View of the patient room from the corridor without curtain. @ Sharmin Kader.

In Case-2, the layout is such that in some rooms the patient bed can be visible from the circulation corridor, and there is no privacy curtain in front of the door or around the bed. During the walk- through survey, most of the rooms were occupied and all the doors were closed in the rooms. The director mentioned that they like to have clear visibility to monitor patients while there is no family member inside the room.

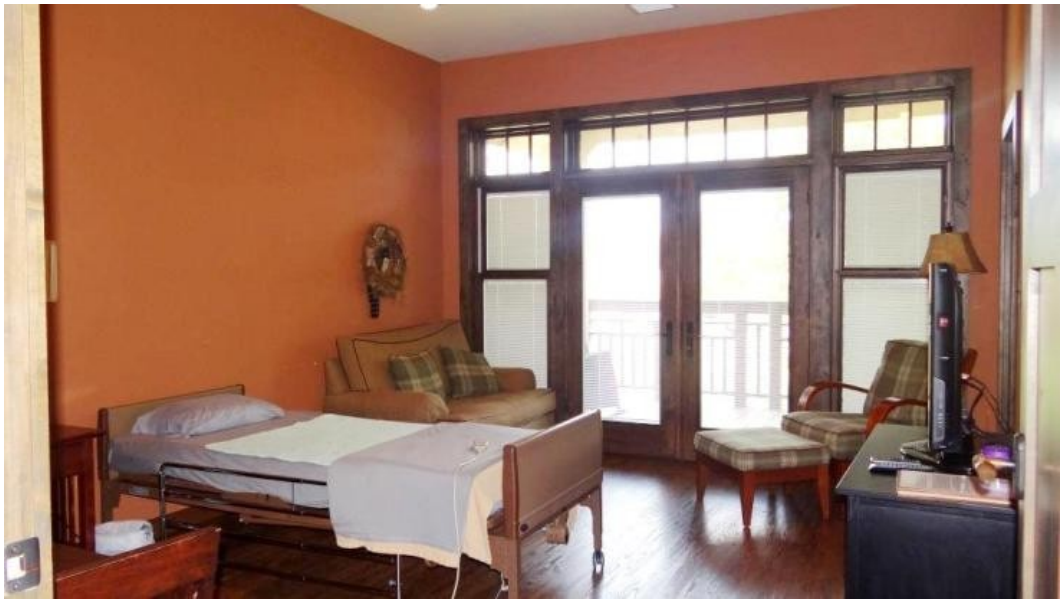
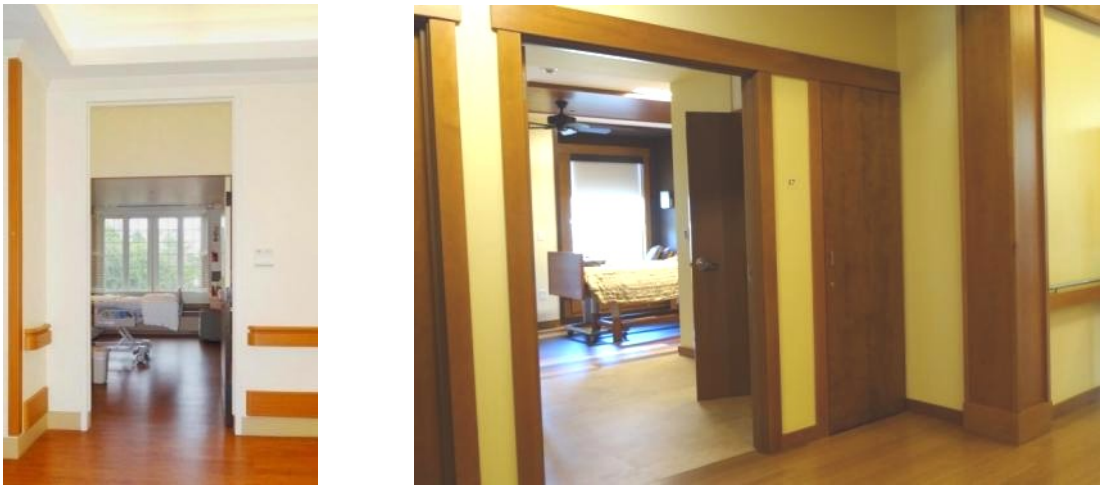


Figure 6-40. Analysis of Privacy – 5. The patient room in Case-2, the direct visibility of patient's bed from the circulation space, and also there is no curtain (few rooms have better privacy) @ Sharmin Kader.

Case-4 and Case-5 addressed this issue through room layout. As mentioned earlier, these two facilities have bathrooms located between the corridor and patient room, which ensures some privacy to the patient's head. Only the foot board of patient's bed is visible from the corridor.



(A) (B)

Figure 6-41. Analysis of Privacy -6. [(A) The patient's bed visibility in Case-4. (B) The patient's bed visibility in Case-5.Both used inboard bathrooms which enhanced the visual privacy.] @ Sharmin Kader.

In Case-3, there is a foyer space between the corridor and the patient's room. Also the patient's bed is not parallel to the corridor; it is placed in a way so that the patient can have maximum views to the outside. This layout provides complete privacy from patient's bed. Figure 6-42 (A) shows the view from the corridor, and Figure 6-42 (B) shows the view of the room standing from the foyer.

(A) (B)

Figure 6-42. Analysis of Privacy-7. (A) No visibility of patient's bed from corridor due to the location of the foyer in Case-3. (B) The patient room where the bed head is placed in such a way it has more wide views to outside and better privacy. @ Sharmin Kader.

Visual Privacy in the Patio. Visual privacy of the private patio was mentioned in the interviews with the Case-3 architect and the facility manager. The rooms are placed at 60-degree angles so that each patio and patient's room will not be visible from rooms across the patio courtyard. Other than Case-3, privacy for the patio was not discussed in any other interviews. Case-5 has shared patios for two rooms. In Case-2, some verandas are placed side-by-side without any screen or wall between for visual privacy.

Figure 6-43. Analysis of Privacy-8. The series of private veranda or patio lacking visual privacy from each other, but providing nice and open views. Case-2. @ Sharmin Kader.

Privacy for Staff and Family Conversation. Providing opportunities for staff and family members to have conversations privately was found to be significant in the literature reviews and also in expert interviews. In the hospice communication between staff and family is done frequently because the family plays a dual role; they provide care to the patients and also they need care from the staff. There are various levels and forms of communications. Some conversations happen outside the patient rooms, such as the patient's health status. These conversations should not take place in the hallway. Sometimes these conversations are short, and the staff and family need a private space to stand and talk which is nearby the patient's room. Sometimes these discussions are long and involve decision making by the family. These require closed-door conversations where both parties can sit.

All the case studies mentioned in the interviews where these conversations usually take place. In Case-1, there are two family rooms where the staff and family can have a closed-door conversation. As this building was designed in 1970s, the double-loaded corridors are long without having any break, nook, alcoves, where people can stand and talk privately. The staff

and families have to walk some distance to get any space to have private conversations. During the walk-through survey, the staff showed the meeting room (Figure 6-44) where private conferences happen, which is a long distance from most of the patient rooms. Even though one family room has a door, the room is accommodating the dining space, thus making private talks there difficult. During the walk-through survey, the chaplain mentioned that he talked with family members in his private office. If the group is large he uses the spiritual space. The following layout shows the distance of these meeting spaces. The locations of two patios are quite distant from the patient rooms and difficult to use for private conversations.

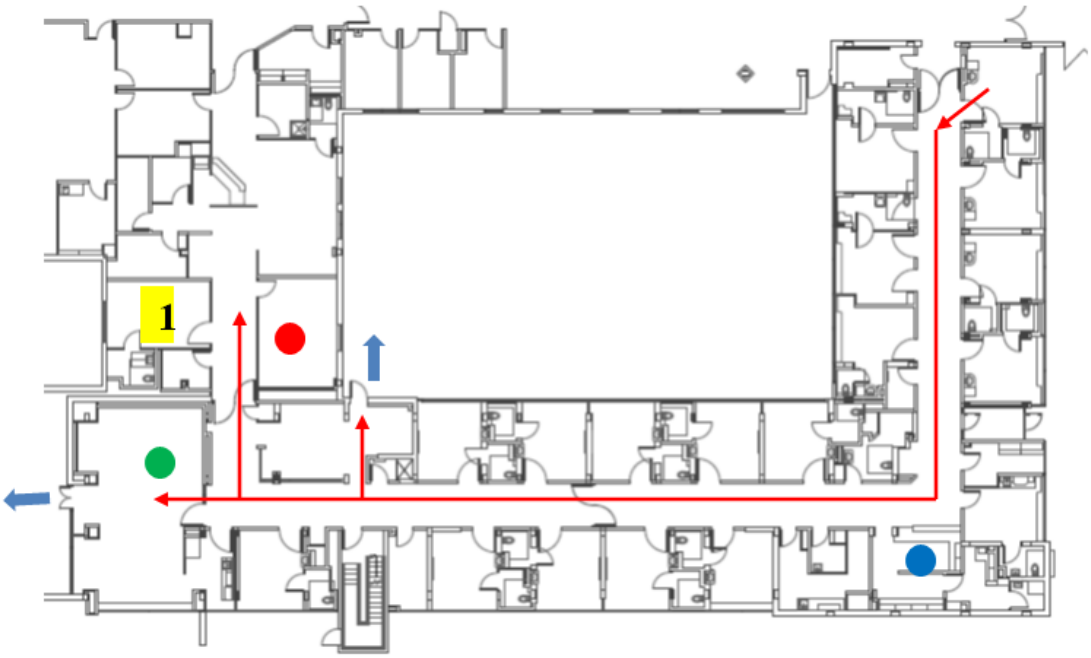


Figure 6-44. Analysis of Privacy-9. Plan analysis of Case-1. Image used with permission.

In Figure 6-44, the red line is showing the walking distance from the far-end room to the meeting room where the staff and families can have private conversations. The three dots are showing the possible locations where these conversations may take place. The nurse station is the blue dot. The green dot is the family room with TV, dining tables and attached outdoor patio.

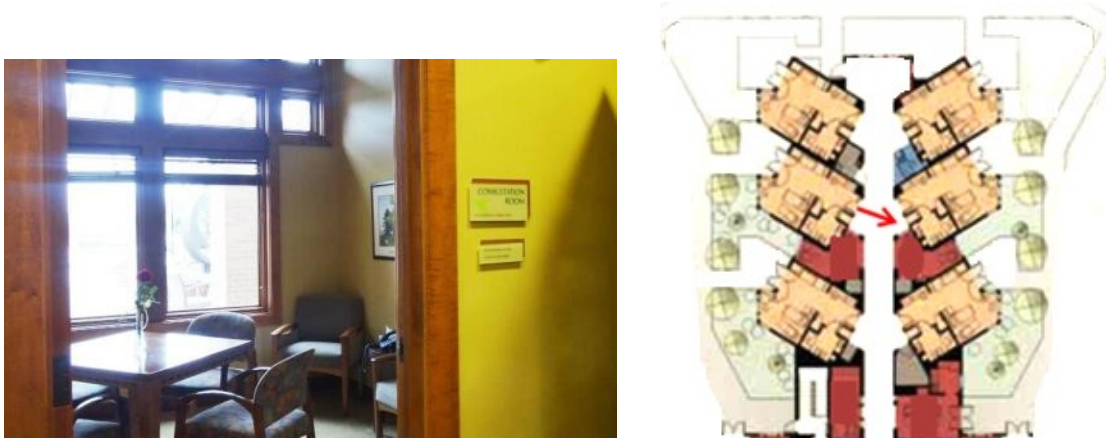
The red dot is the spiritual care space. Among all these spaces, the most suitable for private communication are the yellow room-meeting room, and the red dot room-spiritual space.

In Case-2, the director mentioned that they use the den or staff rooms in the upper level. Sometimes they take the family members to the patio to discuss issues in a soothing environment (Figure 6-45: A) She also mentioned that they have two family living areas which can be used for these purposes. To ensure acoustic privacy and respect when a patient dies, they lit a candle outside the patient's room (Figure 6-45: B) so staff and other family members can remain quiet.

(A) (B)

Figure 6-45. Analysis of Privacy-10. (A) The outdoor patio with table and chairs, where the private conversation between staff and families takes place according to the director of the hospice. (B) the signage lamp was lit when a patient die to inform the staff and others outside that room the room contains a deceased. Case-2. @ Sharmin Kader.

Case-3 participants mentioned they have a consultation room (Figure 6-46: A) for this purpose. Also, they take the family into their office if required, in the library, or sometimes they use the chapel as a private meeting room and post a sign on the door. This facility also has three small spaces (nooks) in each wing outside the patient's room, which can be utilized for small talks between staff and family. Also, the family space or den in each wing can be used for this purpose (Figure 6-46: B).



(A) (B)

Figure 6-46. Analysis of Privacy-11. (A) The consultancy room near the front area (B) the location of reading nook. Case-3. (A)- @ Sharmin Kader & (B)-Image used with permission.

Case-4 participants mentioned that the staff takes the family members to the family room for a conversation, and they also have conference rooms behind each nurse station on every floor for private communications with family members.

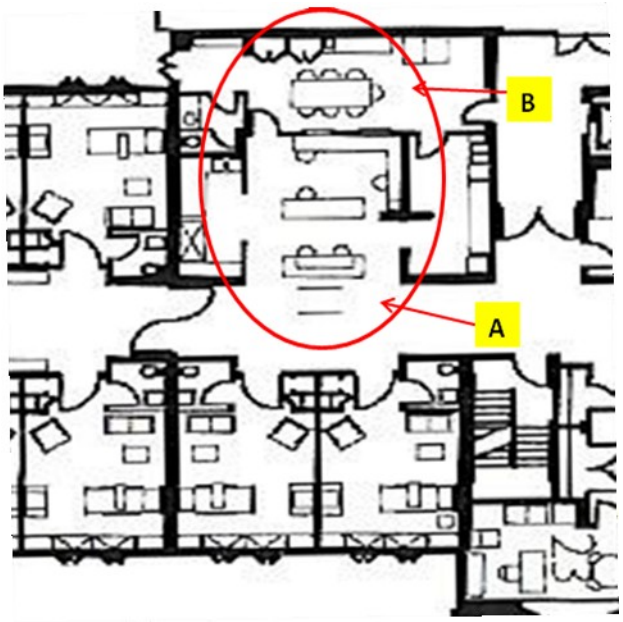


Figure 6-47. Analysis of Privacy -12. The location of nurse station and the meeting room behind the nurse station for conversation with family and also to take a break in Case-4. Image used with permission.

(A) (B)

Figure 6-48. Analysis of Privacy-13 (A) The nurse station (B) the meeting room behind the nurse station with supply closet and TV for staff recreation. Both in Case-4. @ Sharmin Kader.

Case-5 participants said they used the quiet room for private conversation between nurses and family members. They also use the family kitchen or the sunroom to have a closed-door talk. Each pod has a patio at the end which can also be used. During the walk-through survey, it was revealed that the family room is clustered with six patient rooms, each with a nook and corner for a small talk.

(A) (B)

Figure 6-49. Analysis of Privacy-14 (A) The quite room (B) the family kitchen. Both in Case-5. @ Sharmin Kader.

(A) (B)

Figure 6-50. Analysis of Privacy-15. (A) The reading nook, and (B) the dayroom with piano and reading nook in Case-5). @ Sharmin Kader.

In Case-5 there is a booth for staff and family communication during the patient's admission. This space is so noisy and has little acoustic privacy it is not used. Due to the lack of acoustic privacy this space is underutilized (Figure 6-52).

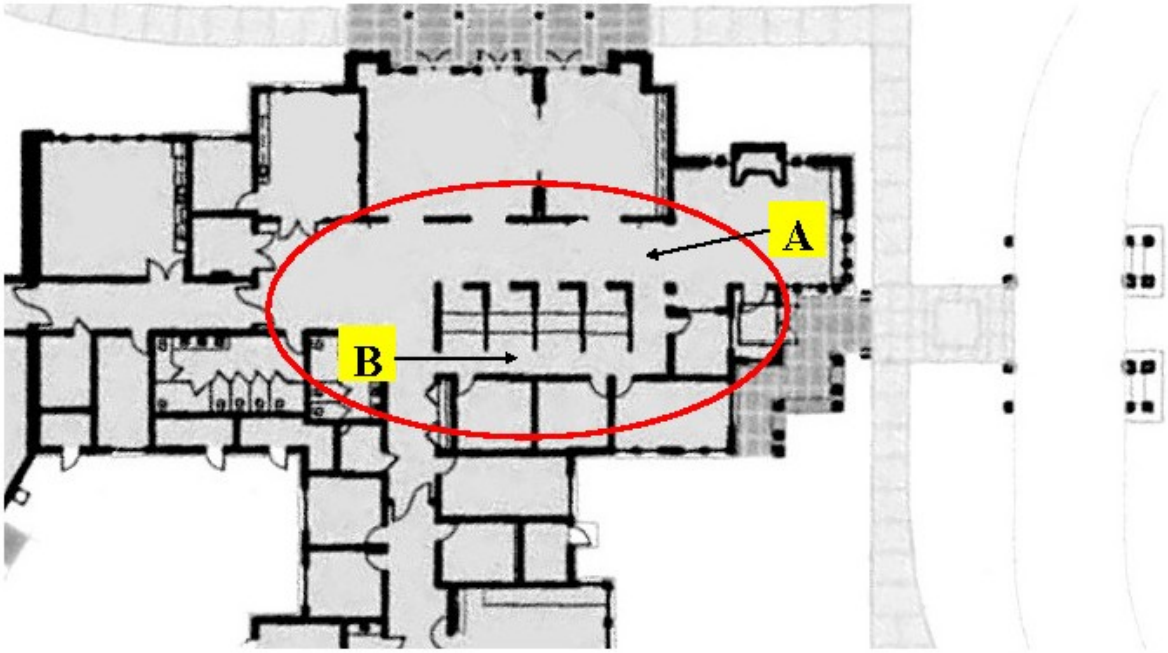


Figure 6-51. Analysis of Privacy-16. This layout is showing the two photographs from A and B location. Case-5, the middle circled space is for Admission Nurses, but this space is underutilized due to the lack of acoustic privacy. Layout used with permission. Analytical drawing by Sharmin Kader.

(A) (B)

Figure 6-52. Analysis of Privacy-17. [(A) The view from the main circulation, the left-side booths for admissions. (B) A view from the behind side of these booths.] @ Sharmin Kader.

Another complaint about acoustic and visual privacy was mentioned by the nurse during the walk-through in Case-5. She reported that the nurse station is located at the corner of an intersection between two hallways. As the nurse station is at the corner of a long hallway, sound echoes and conversations can be heard from a long distance. Also she reported that there is a visual privacy issue for their computer monitors.

(A) (B)

Figure 6-52. Analysis of Privacy-18. (A) The view from the main circulation to the pod, looking towards the family room. (B) Another view from the main circulation spine showing the left-side nurse station, which is lacking visual and acoustic privacy according to the nurse. Case-5. @ Sharmin Kader.

From the above discussion, it can be summarized that there should be more than one option to accommodate the staff and family conversation; close to patient rooms, with semi-

privacy (corner, nook, niches, and alcove), and with full privacy/ closed door discussion (meeting room, den, quiet room, family room, etc.). Also, having a patio near the family room or nurse station might help "to break the hard news to the family" according to one of the hospice directors.

Privacy for family members. Providing privacy for phone conversations was suggested by the experts but none of the case studies have phone booths or huddle rooms as mentioned by two experts. In three case studies (2, 3 & 5) there were private or semi-private patios with each room which can be used by family members for cell phone conversations. If there is a nook or patio adjacent to the family room, that can also be used for this purpose. In Case-3, the reading nooks can be used for this purpose.

Two experts suggested providing an option for separate family accommodation or separate rooms where the patients and family members might have privacy from each other. None of the case studies had separate rooms for families to sleep. In Case-1 and Case-4 empty patient rooms could be used by family members if they requested to sleep separately or more comfortably. Another consideration was suggested by the experts to provide a patient zone and a family zone in a patient's room, which was confirmed by all the case studies. The furniture layouts are organized to create a family zone in the patient's room. The nurse of Case-5 mentioned that the family members step out to the patio or in the garden when the nurses are taking care of the patients, such as changing or cleaning the patient's linen.

Participants in Case-4 brought up the visual privacy issue for smoking and discussed the solution their facility. No smoking is allowed inside the facility or near the facility, but there is a gazebo in the garden which is designated for smoking by staff or family members.

There are smoking gazebos so you go to the far end of the lawn if you want privacy to smoke. Nobody sees anybody smoking on campus. (Nurse of Case-4)

(A) (B)

Figure 6-53. Analysis of Privacy-19. (A) The gazebo which is used as a smoking space for the facility in the Case-4. (B) In case-3, the signage is showing Smoking-Free. @ Sharmin Kader.

All the case studies were smoke-free facilities. Figure 6-53 (B) shows the sign of 'Smoke-Free' in the front entrance of the Case-3. During the walk-through survey, the facility manager mentioned that the backyard terrace was used by the family members and staff for smoking (Figure 6-54). Case-1 and Case-2 allowed patients to smoke in their rooms, but family were required to use the outside patio for smoking.

Figure 6-54. Analysis of Privacy-20. The view of the backyard terrace which was used by the family members and staff for smoking according to the facility manager in Case-3. @ Sharmin Kader.

The literature and experts both suggested creating multiple intimate scale social spaces instead off one big space to ensure enough privacy for socialization and recreation. All the case studies have multiple small-scale social spaces with adequate visual and acoustic privacy. The literature and experts also mentioned to create semi-outdoor and outdoor social space (patio or veranda) with visual and acoustic privacy so that patients may have a private time with families. All the cases have these opportunities in their facility.

Summary of Privacy.

Comparison with literature. All the design considerations are confirmed by the case studies except the shared room. No cases used shared rooms to accommodate patients, but two facilities have two beds in the room which can be used by patients' sick or elderly family without disturbing patient's privacy.

Comparison with experts' opinion. All the suggestions by expert's panel have been confirmed by the case studies. Only one design consideration was not found in case studies; provision of separate room for family sleeping accommodation to ensure privacy for both patient and family. But, two cases mentioned that they open empty patient rooms if possible for family member to sleep in privacy and comfort.

New findings. Provide enough curtains or blinds for window or glass doors to ensure patient room's privacy from the outside garden or pathway (especially for ground floor rooms).

Further study. Need to have separate room to accommodate family member if required.

Table 6-1: Design Checklist of Privacy

Goal 3		**L**	**E**	**C**
Privacy in patient's room:				
	Single room with an attached bathroom provides better privacy.	X	X	X
	Provide a patients' zone and a family zone in a patient's room.		X	X
	Avoid visibility of a patient's bed head from circulation corridor through the room layout, such as, a presence of a small foyer, or the presence of an inward toilet, or making the entry recessed into the room.		X	X
	Provide enough curtains or blinds for window or glass doors to veranda/patio to ensure patient room privacy from the outside garden or pathway (especially for ground floor rooms at night).			X
	Use good acoustic material in wall, floor, ceiling, door and window.	X	X	X
	Acoustic privacy through layout; such as, presence of buffer zone (foyer, toilet, wall closet) between patients' room and corridor.		X	X
	(if there is any shared room) Moveable partitions may provide better privacy than curtains during personal care in shared room. (found in literature)	X		
	Provide separate room for family sleeping accommodation to ensure privacy for both patient and family.		X	
Privacy concerns in social and circulation spaces:				
	Instead of having one single large central social space for the entire facility, distribution of social spaces into multiple small intimate spaces throughout the facility (pod style -multiple bedrooms clustered with a living room) provides better privacy for patients and family.	X	X	X
	Good acoustic design to contain sound using acoustic materials and finishes, home-like furniture, cushions, curtains, carpets.	X	X	X
	Provide niches, alcove, small room, or huddle room near patients' rooms so that staff can have small talk with family in those spaces without traveling long distance.	X	X	X
	Provide more than one designated spaces for private communication between staff and families to avoid conversation in front of patient or in the hallway.		X	X
Privacy concerns in outdoor spaces:				
	Provide semi-outdoor or outdoor social spaces (patio or veranda) with visual and acoustic privacy so that patients may have a private time with families, or family can use those spaces for individual solitude.	X	X	X

Note: L–Literature, E–Experts' Opinion, C–Case Study

Brief Analysis of Other Goals.

Goal 1 - Provide Continuity of Self. Creating a home-like environment and scope for personalization were confirmed by all the case studies. All the study participants mentioned in their interviews that their facilities are designed with the notion to create a home-like environment. During interviews, three cases pointed out that they have tried to create a home-like environment by providing private patient rooms with views to outside gardens. The interior designs of all the cases have considered design criteria that provides home-like environments; use wooden panels for patient headwalls, comfortable and home-like furniture, use of non-glossy interior finishes, etc.

All the facility buildings, except Case-1 (situated in a hospital building), are designed considering residential appearance, size, and scale. As Case-1 is situated in a hospital facility, the building size and scale is similar with any other large hospital building. All the cases have intimate and welcoming entrances to the facility. Case-1 has two entrances, a separate entrance from the outside parking lot which is intimate in scale, and another is from the hospital side which is more institutional. As the hospital building was designed at the late 80s, Case-1 has long corridors and is less non-institutional than any the other cases.

To provide opportunities for personalization, all the case studies mentioned that their facilities try to accommodate any request from patients and the families. There are various options revealed to display personal pictures and photographs; wall shelves, window sills, side tables, etc. From the walk-through surveys it was also noticed that photo frames, cards, and flowers are the most common items in patient rooms. Patient rooms must have a spare space to accommodate one piece of furniture, such as a chair, or a refrigerator, or a lamp. One case mentioned that patients' families were more enthusiastic to decorate the patient's room a

patients. Some patients made comments to their staff that they don't see any point or significance of decorating their rooms. Three case studies mentioned that even though their facilities have provided space and scope for personalization, due to the short length of stay, they often found no attempt for personalization.

One point revealed through the interviews and walk-through surveys that the facilities provided clocks in patient rooms. One case mentioned they also provided calendars in each patient's room.

- ***Comparison with literature*** – No conflicts found.
- ***Comparisons with experts' opinion*** – All the design criteria suggested by the experts were confirmed through the case study surveys. Experts did not mention the building size, scale and exterior appearance, which has identified in the case studies.
- ***New findings*** – Providing clock and calendar in patient rooms. Also, the families like to decorate patient rooms.
- ***Further study*** – What types and how many personal belongings are brought to the patient rooms by the families?

Table 6-2: Design Checklist of Continuity of Self

Goal 1		**L**	**E**	**C**
Provide a non-institutional or residential exterior appearance:				
	Building size, scale and detailing should provide residential look	X		X
	Provide an intimate and welcoming entrance	X		X
	Create compatibility with site and surrounding through landscape design	X	X	X
Building layout should be non-institutional or residential:				
	Design patients' unit like a residential setting - having multiple bedrooms clustered with a living room.	X	X	X
	Avoid long corridor length	X	X	X
	Family room and dining room should be residential in scale, not too big size	X	X	X
	Family kitchen adjacent to family room to create a home-like environment		X	X
	Create building layout incorporating outside landscape to provide nice views from most of the areas.	X	X	X
Home-like interior design in patient's room:				
	Attention to proportion, color, contrast (in wall, ceiling, floor), scale and detailing to create a homelike bedroom environment.	X	X	X
	Use of cheerful, varied colors, textures and non-reflective finishes.	X	X	X
	Use of comfortable furniture: lounge chair, desk, bedside table	X	X	X
	Special consideration for patients' bed and headwall design to look-like home (such as, wooden panel on headwall to hide the medical equipment).	X	X	X
	Use of meaningful artwork which provides positive stimulation.	X	X	X
	Family living room with bookshelves and a small area for children with appropriate furniture and games.		X	X
Provide space for personalizing patients' immediate surroundings:				
	Provide desktop, or table top, or counter top, or window sill to display photos, paintings, cards, flowers, etc.	X	X	X
	Provide picture hooks, tag board, or any kind of space to decorate wall with personal paintings, pictures, etc.	X	X	X
	Provide wall shelves to display personal belongings.	X	X	X
	Provide adequate space in patients' room to bring their own belongings. etc.).	X	X	X
Provide cue to patients about time, day and outside weather by using clock, calendar and windows.		X		X

Note: L–Literature, E–Experts' Opinion, C–Case Study

Goal 2 - Provision of Access to Nature. All the case-study facilities are designed with beautiful outdoor landscapes and garden, and integrate the views to outside nature in the building layout design. All the facilities have beautiful gardens. One has an English garden with a water pond in the center, another was designed with the concept of a Japanese garden, and one has wildflower gardens. All the cases have attempted to provide beautiful views to outside nature from most of the patient rooms. Also, the size and location of the windows are wide to provide enough exposure from the patients' beds. Three facilities have private patios or verandas with each patient's room, which extends the opportunity for physical access to the outside. In one case study, the nurse mentioned that the family members tend to step outside when the nurses are taking care of their patients. Another case mentioned that the patios are frequently used by the families, and they have provided smoking stands in each patio. All the cases have tried to provide wide doors and accessibility to the outdoor patio or garden. The other two cases did not provide a private patio with each patient's room; one provided two outdoor patios for family gathering with patients and in the interviews staff mentioned that those spaces got used frequently by staff and families. Another had no patio space with visual privacy for patients and families to spend time privately. The significance of having transitional space was found stronger after the case studies.

Two cases with beautiful gardens had limited access for patients in the gardens. One garden was beautifully designed with a water fountain, but patient beds are only accessible to the patio to look over the garden. Another facility had a beautiful garden with a small pond in the center, but the pathways to the seating area was very narrow and had a very rough finish material which is not suitable to take the beds into that area. Facilities which are located in the country or suburban areas are situated at large sites. These facilities have incorporated various features,

such as walking trails, to maximize the scope for exploring nature. Those spaces might not be accessible by patient beds but are frequently used by staff and the patients' families as reported during interviews. While asked the question, "How frequently are the patients taken out to the garden?" all the cases mentioned that sometimes the staff or family members take patients to the outside patios.

Most of the facilities have used indoor plants and fresh flowers to decorate the spaces, also these facilities have used pictures and paintings of nature. In one case study, there was a butterfly habitat in the lobby area and a fish tank in the family area, which created a beautiful environment and place of attraction.

To answer the question, "Is there any patient who wanted to die in the garden?" all the case study participants mentioned that they didn't get that request from their patients and families, but it is possible for them to accommodate that request in their facilities.

- ***Comparison with literature*** – No conflict was found. All the findings are confirmed.
- ***Comparison with experts' opinion*** – No conflict. Most of the findings are confirmed.
- ***New findings*** – Significance of having transitional areas. Butterfly habitats, fish tank.
- ***Further study*** – How frequently are the patients taken out in the garden? Significance of having private patio. Significance of having at least one private patio space for families.

Table 6-3: Design Checklist of Access to Nature.

Goal 2		**L**	**E**	**C**
Maximize daylight, views and fresh air through design:				
	Building layout design should consider the outside garden and views and organize accordingly.	X	X	X
	Have views from each patient's bed.	X	X	X
	Have views to outside landscape and garden from social and spiritual spaces.	X	X	X
	Presence of daylight and views in most of the occupied spaces.	X	X	X
	Size and location of window and patient's bed arrangement should provide maximum view to outside from patients' bed.	X	X	X
	Provide opportunities to have fresh air through operable window/ door in patient's room and in other social spaces.	X	X	X
Provide transitional spaces or semi-outdoor spaces:				
	Provide transitional spaces (e.g., patio, veranda, and terrace) in-between indoor spaces and outside space.	X	X	X
	Create a large transitional space attached with family room or social space with privacy and patients' bed accessibility, so that it can accommodate a large gathering or family event (BBQ party, birthday party, etc.)		X	X
	Floor finish materials should be appropriate for rolling bed wheels.			
	Door should be wide enough to take patients out.	X	X	X
	Try to create nice view or visual interest from these spaces.		X	X
	Provide shading device for comfort in extreme sun.		X	X
Provide accessibility to outside nature:				
	Provide bed-accessible outdoor spaces and garden.	X	X	X
	Create wide pathways to garden so that patients can be rolled out side.	X	X	X
	Create garden with beautiful landscape, flowers, plants, water features, bird feeder, sculpture, and multiple seating arrangements.	X	X	X
	Provide a visual interest and destination to go and sit.		X	X
	Seating arrangements should incorporate group gathering or individual solitude.	X	X	X
	Create man-made landscape and garden with the presence of wild nature.		X	X
	Consider garden maintenance and lawn mowing sound near patients' room.		X	X

Note: L–Literature, E–Experts' Opinion, C–Case Study

Table 6-3 Continued.

Provide accessibility to outside nature:				
	In city or downtown, where ground has no space, provide roof garden.		X	
	In country-side or with a large site, try to create outdoor landscape area to accommodate community activities.		X	X
Presentation of nature inside the building:				
	Use of materials or interior finishes that represent nature (stone, wood).	X	X	X
	Provide small garden, Zen garden, courtyard, or dayroom with natural features inside the building where the weather is extreme to enjoy an outside garden.		X	
	Use of indoor plants, aquarium, or other natural features inside the building.		X	X
	Use of art that represents nature.	X	X	X

Note: L–Literature, E–Experts' Opinion, C–Case Study

Goal 4 - Facilitate Social Interaction. Social interaction between patients and their families is a most significant criteria; it is mentioned in the literature and also by all the experts. The question is who is the family? What is the usual size of family for one patient? What is the best way to accommodate these families? All the case studies provided various feedback:s;family could be a pet, or an infirm spouse, or at least fifteen to twenty people, or no one. Interesting stories came out during the interviews; two cases reported that one or two of their patients wanted to meet their horse and the hospice had to accommodate that opportunity. Four cases mentioned that the family size could vary, but all these cases also recognized a pattern of the large family size for specific patients. In Texas, if the patient is from a Hispanic background there may be many visitors and they will overflow the room, corridor, and the family living room. Sometimes twenty to fifty visitors from this background came with food and occupied the whole dining room. In Georgia, if the patients are from African-American backgrounds and affiliated with a church, there will be many visitors. In Wisconsin, patients from the Hmong community usually have many visitors. Whatever the size and type are, all the cases confirmed

that they try their best to provide a comfortable accommodation for the families. Case-1 allows patients' family members to drink alcohol inside the facility as long they behaving properly, because the families might like to share some quality moment by sharing drink or food.

Design considerations suggested by the experts and also in the literature were confirmed by the case studies. As mentioned earlier, only the shared room was not available. Case-5 addressed the need for having companionship for the patients who are in respite care and stayed in the facility only for five days to give a break to their family care provider (spouse or children). Those patients usually complained about the loneliness as there was no program for social interaction between hospice patients like in a nursing home. Case-3 and Case-4 have double-bed rooms to accommodate spouses or family to provide companionship to the dying patients. The notion of having companionship for the dying patients was found to be important in the case studies. Hospice facilities also have volunteers who fulfill these requirements, but as mentioned in the literature review, the journey to death can be understandable by another dying person. Further research is needed to investigate the outcome of the shared room for hospice patients.

All the case studies have confirmed that the patient rooms should have the opportunity to accommodate at least two persons. All the cases had more than one lightweight chair in the patient's room and a desk to work, eat, or write. Though hospice patients were mostly bed-bound during the walk-through surveys, two patients were found in wheelchairs in Case-3 and Case-4: one was enjoying the garden, another was eating in the kitchen, and another was having conversations with the family members in a lounge. Case-2 and Case-3 reported that very few patients get better after admission in the facility and stay there for two to three months, and those patients create a bond for the staff and other families.

Other design considerations as discussed by the experts and mentioned in the literature were confirmed through the case studies, such as a kitchen with a dining area promoted interaction between staff and families, families and families, or families and patients. All the cases reported that the dining space was the most interactive place in the hospice. Case-1 and Case-3 said that the library and children play area were also very active.

From the walk-through surveys it was revealed that all the cases have multiple social spaces designed with home-like interior features and furniture to promote social interaction. The need to have a large space to accommodate a large gathering for holidays or yearly events was found significant from the case studies. All the cases mentioned that their facility hosted monthly, half-yearly, or annual events in their facilities which confirmed the expert's suggestion to have an opportunity to create a large, social space if required. The cases also reported that they used the outdoor patio space for these types of gatherings and annual events.

- ***Comparison with literature*** – No shared room, but there are double rooms.
- ***Comparison with experts' opinion*** – No conflict. All the recommendations are confirmed.
- ***New findings*** – The need to have a large space for annual events, and also the need to have double rooms.
- ***Further study*** – What is the outcome for providing a few shared rooms in a hospice?

Table 6-4: Design Checklist of Social Interaction.

Goal 4		**L**	**E**	**C**
Opportunities in patient room:				
	Single room provides better opportunity for patients to interact with family & staff.	X	X	X
	Patient's room should have enough space to accommodate a large number of visitors to sit and to stand around bed.	X	X	X
	Provide comfortable chair/ recliner or daybed for family to relax and overnight stay,	X	X	X
	Provide at least one lightweight/movable chair.	X	X	X
	Provide a desk or small table in the room.		X	X
	Provide opportunity for phone conversation and internet connection.	X	X	X
	At least one room should be big enough and have opportunity to convert into a double bed, or shared room to accommodate spouses, partners or friends, or two patients who have no family but prefer to have company from one another.		X	X
	Shared rooms are preferable to have constant companionship by roommates.	X		
	In shared room a comfortable and easily moveable chair for each bed.	X		
	For shared room, three beds per room is better over two beds. It lessen the impact of one patient if only one roommate dies, and reduce the 'left alone' feelings.	X		
Opportunities in social or common spaces				
	Instead of having one single, large central social space for the entire facility, distribute the social spaces into multiple small intimate spaces throughout the facility (pod style -multiple bedrooms clustered with a living room) to provide better privacy for patients and family.	X	X	X
	Have a range of social spaces by size and functional type: lounge or waiting area towards the front of the facility, family area/living room.	X	X	X
	Provide a fireplace in the living room that attracts people and encourage friendships.	X		X
	A kitchen with dining area for patients' families promotes interaction between staff and families, families and families, or families and patients.	X	X	X
Opportunities in social or common spaces		**L**	**E**	**C**
	Provide opportunity to create a large social space if required: such as the visitors lounge, meeting room, or dinning space could open or connect with another space or connect to outdoor space to accommodate large gathering, party, or celebration.		X	X
	Interior design should incorporate non-institutional look and furnishing to encourage private conversation and entertainment.	X	X	X
	Hallways with niches, nooks, or corners are potential space for interaction.	X	X	X
	Provide range of outdoor and semi-outdoor social spaces (outdoor BBQ space, meditation space, and patio with outdoor furniture and shading device) with shelter and sitting amenities with privacy to promote group gathering.	X	X	X

Note: L–Literature, E–Experts' Opinion, C–Case Study

Goal 5 - Maximize Safety and Security. All the design considerations which were mentioned by the experts and also in the literature were confirmed through the case study surveys. Hospice as a healthcare facility should comply with the standard design considerations for safety and security. Issues mentioned most by the staff during the interviews were theft and vandalism. Three case studies mentioned incidences of theft and vandalism in their facility. One case mentioned that they had to improve their security system, but still worried about a secure entrance at night for staff and family. Case-5 mentioned a family fight inside the facility when the staff had to call the security of the adjacent hospital. Having secure staff parking, secure night entrance to the facility, and good monitoring systems were found to be important. Case-5 mentioned wild-life as a threat for their facility as the building was situated in woodlands.

All the case studies maintained the standard safety features. Case-1 mentioned that their facility had one bariatric bed to accommodate bariatric patients to avoid patient falls. Case-5 mentioned using patient beds which were height adjustable. Case-3 mentioned motion sensors in patient rooms to monitor patient movements. Case-4 mentioned having video monitoring in two patient rooms for restless patients or pediatric patients when their parents want to step out of the room. All the cases have nurse-call systems in patient rooms. All cases were designed with garb bars in patient restrooms and showers, and also have enough space in toilet and shower so that at least two people can assist patients. All the five facilities had specially equipped bathrooms for patients.

Three case studies mentioned having one isolation room in their facilities and one had mentioned having three isolation rooms, but the design standard mentioned the isolation room in the literature was not found in the case studies. These isolation rooms have negative air pressure.

Four case studies had separate family toilet and shower rooms to avoid cross contamination from patent toilet.

No pet room or designated space was found in the case studies. All the facilities allow pets in patient rooms under family observation. Three cases mentioned that they ask family member about the shots of pets before allowing those inside the facilities. Concerning emergency preparedness, all the cases mentioned their preparations for disaster management. One described how their facility was managed in the hurricane Katrina. Case-5 complained about not having a covered porch in the patients' entrance of their facility, which caused trouble during rain and snow. In those situations, they had to use a public entry to transfer the deceased patient's body.

- ***Comparison with literature*** – No conflict found. All the findings are confirmed.
- ***Comparison with experts' opinion*** – No conflict. Most of the findings are confirmed.
- ***New findings*** – Security concern.
- ***Further study*** – The need or demand of bariatric beds. Secure entry and also having a welcoming entrance.

Table 6-5: Design Checklist of Safety and Security.

Goal 5		**L**	**E**	**C**
Mitigation of Potential Hazards:				
	Patient's bed should have safety features to avoid fall (height adjustable, movable railing, etc.).	X	X	X
	Provide at least one bariatric bed.			X
	Garb bars in patient restroom and shower on all sides.	X	X	X
	Provide specially equipped bathroom.	X		X
	Toilet and shower must have enough space so that at least two people can assist patients.	X	X	X
	Provide nurse calling system in patient's room to ask for any help.	X	X	X
	All furniture must have stability, rounded corner and also avoid glass or clear plastic furniture.	X		
	Elements supportive to functional independence of patients and to their families should be secured (stoves, kitchen utilities, microwave, electronic appliances, etc.) and ease in monitoring by staff.	X		
	Provide at least one covered porch for transferring patients during adverse weather (rain, snow).			X
Infection control:				
	The selection of furniture, fittings and finishes should consider performance including, clinical and infection control.	X	X	X
	At least have one isolation room designed with appropriate standards.		X	X
	Provide hand washing sink and sanitizer in patient rooms.	X	X	X
	Provide separate family toilet and shower to avoid cross contamination from patient toilet.			X
Theft and vandalism:				
	• Design should ensure security of the entire facility, including the parking area by installing security system (alarm, camera, door lock).	X	X	X
	• Building layout should consider a night zone or 24-hour zone and a day zone (admin area) to provide enough security for night.	X	X	X
	• Secure night entry to the inpatient unit for the family and staff.	X	X	X
	• Provide clear view from inside the building to the entry access.	X	X	X
	• Provide enough artificial lighting at night from parking lot to entrance.			X
	• Provide video monitoring or other security system (if in separate level or location parking)			X

Note: L–Literature, E–Experts' Opinion, C–Case Study

Goal 6 - Provision of Autonomy. All the cases mentioned their facilities try to provide all kinds of support to patients and their families to ensure autonomy through design and management. All the design considerations which were mentioned by the experts and also in the literature were confirmed by the case studies; private rooms provide better opportunity to control daylight, artificial light, noise, airflow, and temperature. All the cases had individual room temperature control systems, except Case-1. Case-1 had no control over the temperature and airflow, the HVAC system was central to the hospital so the administration had no control over temperature, and none of the windows were operable. During the walk-through survey inside the unit in Case-1, the researcher noticed that each room and each social space had a paddle fan to reduce the temperature. The inside temperature was hot and uncomfortable. The individual temperature control system was found significant for autonomy and comfort.

Some experts mentioned providing a kitchen location a little further away from the patient area with a high quality exhaust fan. Though in most cases the kitchen was located a little further away and no smells were found during the walk-through survey, two cases talked about how they utilize the smells from freshly baked cookies and coffee as a positive stimulation to create a home environment. All the case studies had 24/7 family kitchenettes, which provided flexibility to the family to prepare food for their patients anytime.

From the walk-through surveys it was revealed that four cases provided multiple flexible chairs in social spaces, patios, and in patient rooms for family members to arrange the space according to their needs. All the facilities provided amenities to patients and their families for having control over entertainment and communication, such as, TV, CD player, DVDs, Wi-Fi, and phone. Smoking was allowed in all the facilities. Some allowed their patients to smoke inside the rooms, and some had designated outdoor areas. No designated indoor smoking area

was found in any facilities. Case-1 mentioned that they also allow their patients and families to drink alcohol inside the facility.

- ***Comparison with literature*** – No conflict found. All the findings are confirmed.
- ***Comparison with experts' opinion*** – Smells of food mentioned as a positive stimulation in case studies. No other conflict and most of the findings are confirmed.
- ***New findings*** – Smoking areas in outdoor garden.
- ***Further study*** – location of kitchen or kitchenette, and individual temperature control for each room.

Table 6-6: Design Checklist of Autonomy.

Goal 6		**L**	**E**	**C**
Control over micro environment (air, temperature, noise, light, smell, etc.):				
	A single room provides better control over micro-environment.	X	X	X
	(Daylight) Provide curtains or blinds in the window, glass door, skylight or any openings.	X	X	X
	(Artificial light) provides various types (moods) of artificial lighting in patient rooms with dimmer switches to have control over creating desired environment.	X	X	X
	(Airflow) Provide operable window or door in patient rooms and in some social spaces.	X	X	X
	(Airflow) Provide ceiling fan with dimmer switch in patient rooms and also in common areas.	X	X	X
	(Noise) Good acoustic design to create sound containment throughout the entire facility. (noise control in patient rooms and spiritual or retreat areas)	X	X	X
	Like patient room, social areas of the facilities should provide sense of control.	X	X	X
	To avoid food smell from kitchen, provide kitchen location little further with high quality exhaust fan.		X	
Control over physical settings:				
	Provide some movable chairs in patient rooms, social spaces, and also in outdoor space.	X		X
Control over daily routine & activities (bath, eating, smoking, watching TV, praying, etc.):				
	Provide a 24-hour family kitchenette to provide control over patient's food preparation.			X
	Provide TV, CD player, DVDs, Wi-Fi, and phone in patient rooms to have control over entertainment and communication.	X		X
	Designated interior room, or screened outside area, or only outside are for smoking with visual privacy.	X		
	Smoking area should have a hard surface floor, blinds in place with good ventilation.	X		
	If patient rooms patios are allowed for smoking it should not be shared.	X		

Note: L–Literature, E–Experts' Opinion, C–Case Study

Goal 7 - Regulate Stimulation and Support Sensory Therapies. All the case studies mentioned providing visual cues to patients by providing nice views to the outside, meaningful

artworks, handmade quilts in patient rooms to use and take away after the patient's death as a memory, and home-like warm interior design. Case-2 mentioned presence of a fish tank and butterfly habitat which works as symbols of life and death. Two cases (1 & 5) mentioned that their volunteers bake cookies and made fresh coffee, which helped to create a residential environment. Case-2 mentioned using electronic aroma therapy dispensers in many places. All the cases mentioned providing TV and music systems for patients. Case-3 mentioned providing books to the patients. Case-3 also mentioned that the sound of children's play and giggling brings smiles in patients. Two facilities talked about controlling glare. Case-3 mentioned their difficulties to cover the high windows in patient rooms during winter when the sun lowers and creates glare in the patients' face. Case-5 complained about the echo in their main long circulation corridor.

About palliative therapies, all the cases mentioned providing music therapy. Some mentioned having pet therapy, message or touch therapy, and one facility mentioned providing art therapy in patient rooms. Patient rooms should be large in size to accommodate these therapies at the patients' bedside. Three cases had pianos in their family lounge so that music can be heard in patient rooms. The only designated area for therapy found was the spa room. Three facilities mentioned using the spa therapy a lot. One facility had this room but had not started using it. Besides this room, most of the palliative therapies took place in patient rooms. No case studies provided horticulture therapy for patients. Case-2 mentioned that sometimes the family wants to care for the plants.

One point that came out from the case studies survey was that designers should provide opportunities to regulate stimulating sources, such as placing children play rooms distant from

patient rooms with glass doors to control noise. The staff can control and use these stimulations when desired.

- ***Comparison with literature*** – No multi-sensory room or no art therapy room, or horticulture therapy. The only designated space was in spa therapy room.
- ***Comparison with experts' opinion*** – Most of the suggestions were confirmed, but some new findings were derived, such as cookie smell as a positive stimulation, location of piano, location and design of children play area.
- ***New findings*** – None.
- ***Further study*** – Does the patient enjoy children giggling sound? Do they like the cookie smell? How much space the therapist need to play any instrument beside patients' bed?

Table 6-7 Design Checklist of Regulate Stimulation and Support Sensory Therapies.

Goal 7		**L**	**E**	**C**
Provide or enhance positive therapeutic stimuli (Acoustic, visual, olfactory & tactile):				
	• (Visual) Presence of daylight in all spaces with appropriate amount and control system (blinds or curtains) to avoid glare.	X	X	X
	• (Visual) Provide different moods of artificial lighting in patient rooms with dimmer switch.		X	X
	• (Visual) Provide nice view from patient's bed.	X	X	X
	• (Visual) Use of positive art which are socially and culturally meaningful: painting of local landscape, quilt made by local people, etc.	X	X	X
	• (Visual) Selection of color, material and finishes for interior design should create a warm homelike environment.	X	X	X
	• (Visual & tactile) Provide indoor plants, aquarium, butter fly habitants, etc.	X	X	X
	• (Visual) Designated space, countertop, and shelves in patient rooms to display personal photographs, cards or other artifacts.	X	X	X
	• (Olfactory) Smells of food which are reflective to patients or desired provide feelings like home.		X	X
	• (Olfactory) Provide opportunity to open door or window in patient rooms to bring fresh air from outside.	X		X
	• (Tactile) Use various textures and avoid all similar surfaces, use soft surface, use of material that represent nature, such as, stone, wood.	X	X	X
	• (Tactile) Use of quilt in patients' bed.			X
	• (Acoustic) Presence of white noise or pink noise (ceiling fan, HVAC system, water features)	X	X	
	• (Acoustic) Sound of children playing and giggling can bring smile in patients, so location and design of children play area is important.			X

Note. (L–Literature, E–Experts' Opinion, C–Case Study)

Table 6-7 Continued.

Regulate levels of stimulation:		**L**	**E**	**C**
	• (Acoustic) Control noise by use of good acoustic material in wall, floor, ceiling, door and window.	X	X	X
	• (Acoustic) Ensure acoustic privacy through layout; such as, presence of buffer zone (foyer, toilet, wall closet) between patient rooms and corridor.		X	X
	• (Visual) Avoid glare by ensuring all openings have options for daylight control.	X	X	X
	• (Visual) Provide appropriate cue without becoming overwhelming by avoiding overabundance of artifacts (paintings, photos, tapestries, quilts) on wall which competing for attention.	X		
	• (Olfactory) Avoid bad odor by providing frequent rounds of fresh air in HVAC system.			X
	• (Olfactory) Location of kitchen is important to avoid spreading cooking smell.		X	
	• (Olfactory) Provide appropriate ventilation in the kitchen.		X	
Provide support for palliative therapies :				
	• Patient rooms should be large enough to accommodate music therapist, pet therapist or message/touch therapist.	X	X	X
	• Electric outlet in appropriate location for laptop, TV, CD, DVDS, speaker, etc.			X
	• A spa room or specially equipped bathroom with sink for hair washing.	X	X	X
	• Location of piano should be in place so that music can be heard from patient rooms and other common areas.			X
	• Presence of multi-sensory room, art therapy room, horticulture facility in outdoor landscape, storage space to keep necessary supplies and other spaces.	X		

Note. (L–Literature, E–Experts' Opinion, C–Case Study)

Goal 8 - Spiritual Care. All the case studies mentioned that they try to provide support as much possible for spiritual care. The director of Case-2 said, "We just try to cater to individual preferences". All the case studies were non-denominational and in interviews all mentioned that they try to create neutral environments; only the facility manager of Case-3 mentioned that the facility was neutral, although they have a statue of an angel in their garden and he thinks it does not carry any significance. During the walk-through survey, one angel statue was found in their

spiritual care space as well. In Case-1, the meeting room displayed one angel statue as it is used by the chaplain for consultancy. This facility also has an angel statue in their garden. Also, there is one angel statue in Case-4.

One significant fact came out from all the case study surveys. The spiritual care is not only for the patients, and it is also significant for the family and staff. Three cases (2, 3, & 5) mentioned that their staff also made requests for weekly prayer and also need spiritual care. Patients took spiritual care mostly in their rooms and they sometimes used the meditation space or chapel. Sometimes they took the patients to the patio and garden. The case studies revealed that the facility should have one designated spiritual care space, such as a meditation room or chapel. In four cases (except case-2), there were indoor chapels or meditation spaces. All these spiritual care spaces were designed to achieve the serenity and sacredness by using indirect daylight through skylights or stained glass. All these spaces were accessible by wheelchair or patient beds. One of the experts mentioned in his interview that there must be hierarchy from the patient rooms to the chapel or meditation space, and all the case studies maintained this criterion.

It was found that the facility also needed to have multiple informal spaces for refuge and retreat (e.g., quiet room, patio, outdoor meditation space). These spaces were mostly used by the family and staff. There is a need for a quiet room or a meeting space for staff and family with patient beds accessible for spiritual consultancy. In Case-1 there was a designated office space for the chaplain near the patients' area, and in other case studies the religious worker office space was located in the staff areas. No storage space was reported by these case studies to store religious artifacts. Case-3 mentioned that they got so many donations from the patients' families; they have opened a resale house in downtown.

All the case studies had healing gardens and several outdoor spaces with attractive features (water feature, pond, nice view) for meditation or retreat. Two cases had outdoor chapels; one was in the wood and without a solid pathway for wheel chair or bed (for family and staff). All these gardens and outdoor spaces had visual privacy and were noiseless.

To accommodate spiritual care and other bedside rituals, there should be enough space beside patient beds. Case-5 mentioned using different moods of artificial lighting to create a contemplation environment in patient rooms. The case studies also confirmed the criteria of providing shelves, side tables, or window sills in patient rooms to display religious artifacts according to personal preferences. About architectural delight in patient rooms, all the case studies provided nice views from patient rooms to encourage reflection and self-nurturing behaviors. Only Case-3 provided high windows which bring nice daylight in patient rooms, but the facility manager mentioned the difficulties they face in winter to cover those windows as the sun comes down low and shines on patient faces.

- ***Comparison with literature*** - Most of the findings are confirmed, except there is no designated storage space to keep religious artifacts.
- ***Comparison with experts' opinion*** - Most of the suggestions are confirmed.
- ***New findings*** - Big chapels or outdoor chapels are also used for marriage ceremonies. Most of the spiritual care takes place in patient rooms.
- ***Further study*** - What should be the ideal size and shape of the meditation space? Asking questions to the chaplain about the design criteria in patient rooms? Where should be the chaplain's office location?

Table 6-8: Design Checklist of Spiritual Care.

Goal 8		**L**	**E**	**C**
Facilities to support range of spiritual care (pray or meditation):				
	Provide non-denominational or neutral environment by avoiding presence of religious artifacts or symbol (unless it is a religion-specific hospice).	X	X	X
	Provide more than one spiritual care spaces: formal (sanctuary or chapel, quiet room or meditation space) and informal (veranda, patio, outdoor retreat areas).	X	X	X
Provide facilities in spiritual spaces:				
	Provide a sanctuary, chapel or meditation space to accommodate group prayers or rituals (at least for 10 to 12 people).	X	X	X
	If the chapel is large enough to accommodate 30 people, provide accessibility from public area so that it can be used for memorial service, marriage ceremony, or other purposes.	X		X
	Spiritual spaces should be accessible by wheelchair or bed.	X	X	X
	Good acoustic design to ensure a calm contemplation environment.	X	X	X
	Environmental aesthetic (painting, picture, décor, outside view) should encourage reflection and foster self-nurturing behaviors.	X	X	X
	Enrich with architectural delight (use of skylight, stain glass, nice view, water features) in these spiritual spaces.	X	X	X
	Comfortable and flexible furnishing in chapel or meditation space.	X		X
	There should be hierarchy from patient rooms to chapel or meditation space and have separate routes for patients and public.		X	X
	A storage space to keep religious or spiritual care artifacts and supplies.	X	X	
	An office room or consultancy space for chaplain, religious worker, funeral director for meeting.	X		X
	Provide another “quiet room” for small gathering (4-5 people) for meditation, quiet reflection, or prayer, or might work as a grieving room, or consultancy room for chaplains, religious worker, or funeral director.	X	X	X
	The quiet room should be accessible by wheelchair or bed, with good acoustic design to ensure quietness, comfortable and flexible furnishing, with environmental aesthetic (painting, picture, décor, outside view) and enrich architectural delight (skylight, stain glass, nice view, water feature) to encourage reflection and foster self-nurturing behaviors.	X		X

Note. (L–Literature, E–Experts’ Opinion, C–Case Study)

Table 6-8 Continued.

Spiritual care in outdoor space:		**L**	**E**	**C**
	Provide a healing garden.	X		X
	Provide outdoor meditation or retreat areas with multiple seating arrangements, attractive features (water fountain, pond) and nice view.	X	X	X
	Provide outdoor chapel, or meditation space, or a designated space to perform rituals or range of spiritual care (e.g., fire dance by native American people).		X	X
	In the garden, provide a destination to go, sit and enjoy the view or attractive features (pond, fountain, creek, etc.).	X	X	X
	Avoid noise from traffic or crowds to these areas.			X
	Spaces should be accessible by wheelchair or bed.	X	X	X
Provide support in patient's room for range of spiritual care:				
	Provide private patient rooms.	X	X	X
	Provide enough space around patient's bed to perform bedside prayer, worship or rituals.	X	X	X
	Provide shelves, side table or counter top to display religious artifact according to personal preference.	X	X	X
	Architectural delight (skylight, nice view to outside) should encourage reflection and foster self-nurturing behaviors.	X	X	X
	Provide different moods of artificial light to create contemplation environment.		X	X

Note. (L–Literature, E–Experts' Opinion, C–Case Study)

Goal 9 - Family Accommodation. All the case studies mentioned they try to provide maximum support for family members and visitors. About the family size for each patient, all the cases mentioned that the size varies; some may not have any family, some may have one to two family members, and some may have more than twenty visitors. As mentioned in the Goal-4 (Social Interaction) patient ethnic background plays a significant role on the size of the family members and numbers of visitor to expect; if the patient belongs to the Hispanic community, or African American community, or a church community, or Hmong community, there will be many visitors. One of the case studies mentioned that they try to give double rooms to the patients who belong to the Hmong community to accommodate their large crowds. No cases had

separate rooms for family accommodation, but two cases mentioned that in some cases, the nurses allow family member to sleep in the empty patient room.

All the facilities had large patient rooms except Case-1, because it was a hospital unit which was renovated into a hospice facility. About patient room size, different literature suggested different sizes, and the experts mentioned that the clients want larger room for a patients. Further research is required on the ideal or standard room size for hospice patients to accommodate various sizes of families. All the cases had comfortable and flexible furniture in patient rooms to accommodate at least two persons to sleep. Four cases provided enough closet and storage spaces for families, and provided desks or small tables for families to work or eat.

All the facilities had multiple family areas and supportive amenities; laundry, kitchen, computer, vending machine, etc. Two cases had separate children play rooms, one had a children corner within each family area, and another had children areas in the front lounge space. Three cases had fully equipped family kitchens, and two had small kitchenettes. All the cases had separate family entries except Case-2, and had multiple outdoor seating spaces for families.

About the bereavement support room, one provided bereavement support outside the hospice facility, two used the meeting or consultancy space for bereavement support, one had designated areas for bereavement, and another used family lounge spaces for this purpose. All the cases mentioned having memorial services in their facilities. Smoking areas for family members was mentioned by all the cases. Most of the cases had patio or outdoor areas for smoking. Those which had private patios were used for smoking with privacy. Another one had a shaded space in the garden with visual privacy so that others can't see smoking.

All the cases had easy accessibility and enough signage systems. Only one had no signage from the main road and was a little difficult to identify the location. One staff of this

facility complained about the lack of signage systems. All the facilities had easy and clear directions or wayfinding through simple building design configurations.

- ***Comparison with literature*** - Most of the findings are confirmed, there is no separate family accommodation room.
- ***Comparison with experts' opinion*** - Most of the suggestions are confirmed.
- ***New findings*** - The consultancy rooms are usually used for bereavement support, and sometimes they could be in a separate outside facility.
- ***Further study*** - What should be the ideal size for the patient rooms to accommodate various sizes of family members? The need to have a safety chamber in the patient's room closet? The need to have separate family rooms?

Table 6-9: Design Checklist of Family Accommodation.

Goal 9		**L**	**E**	**C**
Comfortable accommodation and overnight stay:				
	Patient rooms should be large enough and with multiple movable chairs to accommodate several visitors.	X	X	X
	At least one comfortable sleep area (daybed/sofa bed) in patient rooms.	X	X	X
	Provide comfortable and flexible furniture in patient rooms to accommodate two family members overnight stay.		X	X
	Provide at least one double bedroom to accommodate infirm spouse, parents, or friends.		X	X
	Provide enough storage and closet space.	X	X	X
	At least one chamber with locking options.		X	X
	Provide a table or desk for family to work on laptop (write, eat, etc.).		X	X
	Provide separate visitor's room for overnight stay to ensure privacy for both parties.	X	X	
	Different sizes of social spaces to accommodate a large number of visitors to small family crowd.	X	X	X
	Appropriate space for bereavement support room which has direct path from main entry without crossing the patient units.	X		X
Provide support and necessary amenities for family members' functional independence:				
	Provide laundry facilities (washer, dryer, ironing board)	X	X	X
	Designated shower areas and toilet areas (outside patient rooms or inside patients' room)	X	X	X
	Provide 24-hour kitchen or kitchenette for family.	X	X	X
	Provide vending machine.			X
	Provide access to computer, phone, Wi-Fi internet connection	X	X	X

Note. (L–Literature, E–Experts' Opinion, C–Case Study)

Table 6-9 Continued.

Provide support for retreat and recreation:				
	Provide a family zone close to patient rooms with nice view, comfortable furnishing, visual privacy and recreational facilities.	X	X	X
	Provide a safe place for children to play under supervision with exciting interior design, suitable furniture for children, toys and games.	X	X	X
	Provide glass window or wall for supervision from circulation area, or family room, or nurse area.		X	X
	Locate children play area a little further from inpatient units to avoid noise sources.		X	X
	Provide one large outdoor space with visual privacy for private family time.		X	X
	Provide several small seating areas in garden for individual solitude.	X	X	X
	Provide designated smoking area with visual privacy and night security.	X		X
Provide support for easy accessibility & wayfinding:				
	The facility should be easily accessible (presence of enough direction and signage system)	X		X
	Provide welcoming entrance for visitors.	X		X
	Provide easy and clear directions or wayfinding through simple building design configuration.		X	X
	Provide enough signage system but not make as prominent like hospital facility.		X	X

Note. (L–Literature, E–Experts' Opinion, C–Case Study)

Goal 10 - Support after Death. Each facility described its own unique protocol of managing the event of death, body removal, and expressing remembrances. All of the facilities tried to provide a farewell to the patients with care and dignity. Most of the design considerations suggested by the literature and experts were confirmed, but there were some conflicts, exclusions, and inclusions.

As mentioned earlier, patient rooms need to be large in size so that they can accommodate a large gathering around the bed for rituals or any other activities. When asked about having an operable window or door to "allow the soul to leave", some cases agreed with the notion and mentioned that they try to accommodate this. All the cases mentioned they have

volunteers who come and sit beside the dying patients who have no family member during the moment of death. Three facilities mentioned that they use a signage system outside the doors of deceased patients to inform the staff and others that the deceased body is still inside. Case-2 has a candle holder outside every door, and they lit the candle when a patient dies. It helps staff and others maintain a quiet environment. There are different policies about keeping the body in the room for a number of hours; one case mentioned that they had to keep one deceased patient for twelve hours. Two case studies mentioned the necessity of having designated storage space to keep the deceased's belongings.

There is a contradictory finding about removing the deceased body; only one case mentioned that they like to remove the body through the front door. Case-1 complained that they have to transfer the body by crossing a public route in the hospital. One case removed the body through their underground dock area and two others used separate exits designated for this purpose. Case-5 complained that their exit had no cover or shading device, so they faced difficulties during bad weather, such as, rain or snow.

All the facilities had their own ways of expressing the memory of the deceased patients. Most of the facilities organized a memorial service yearly. There are donor walls in three case studies; one had an outside donor wall in the court, one had brick tiles in the back yard, and stones in the garden landscapes were common. All of these donor walls and landscape stones were appropriately visible. One case study had a retail shop where they sell all the donations, and another case mentioned that they had trouble managing so many donations and need a large storage space.

One case study had a flower room and two other cases had a designated space in the staff area to organize flowers from funerals. One case study had a bereavement suite which was

located near the front entrance without having views of inpatient units, with comfortable furnishing, visual and acoustic privacy, with nice view to outside.

- ***Comparison with literature*** - Most of the findings are confirmed, no conflicts.
- ***Comparison with experts' opinion*** - Most of the suggestions are confirmed.
- ***New findings*** - The need of having a grieving room, flower room design, signage system on the door.
- ***Further study*** - What should be the ideal ways of removing the deceased body? How much does the operable window carry significance?

Table 6-10: Design Checklist of Support after Death.

Goal 10		**L**	**E**	**C**
Support in patient's room during the moment of death:				
	• Patient rooms need to be big in size so that it can accommodate a large gathering around the bed for rituals or any other activities.	X	X	X
	• Provide an operable window or door to "Allow the Soul to Leave".	X	X	X
	• Provide any kind of signage system outside the door to inform the staff and others that the deceased body is still inside.			X
	• Individual room temperature control system helps to lower the temperature which helps to keep the body for few hours.	X		
A small grieving room (or quiet room) for family members to gather after the death.				
	• Provide visual privacy	X	X	X
	• Location should be near to the inpatient area	X		X
	• Good acoustic design to ensure a calm contemplation environment.	X	X	X
	• Comfortable and flexible furnishing	X		X
	• Environmental aesthetic (painting, picture, décor, outside view) should encourage reflection and foster self-nurturing behaviors'.	X		X
	• Enrich with architectural delight (use of skylight, stain glass, nice view, water features)	X		X
Provide a discreet route to transfer deceased body from bedroom to funeral car:				
	• The route must avoid major public or social space.	X	X	X
	• Better to have a separate exit than the front entrance	X	X	X
	• Body should not transfer through service exit or dock.	X	X	X
	• Covered porch to transfer during adverse weather			X
Provide a dignified ways of expressing remembrance to the deceased patients:				
	• Designated space in wall (a brink tile wall, donor wall, memory tree wall, etc.) or in outdoor garden (stones, landscape feathers, furniture)	X	X	X
	• The place or wall or landscape should have appropriate visibility		X	X
Storage space to keep all the donations from patients' family (if not in separate location).		X		X
Flower room or a designated space to organize flowers from funeral hall.		X	X	X
Provide a bereave suite or meeting room with direct path from entrance without having views of inpatient units, with comfortable furnishing, visual and acoustic privacy, with nice view to outside and presence of meaningful positive artifacts.		X		X

Note. (L–Literature, E–Experts' Opinion, C–Case Study)

Goal 11 - Maximize Support for Staff. All the case studies mentioned the social and organizational support they try to provide their staffs. Case-1 mentioned that sometimes they make food that is not only for patient's family but also for the staff. They served those foods in the family dining area so that staff and family may have a social interaction. The director of Case-2 mentioned they work as a team and support each other during hard times;

> We work as a team, we communicate to each other a lot….If we have a bad family (behaved badly with staff), we all do support our staff, and we hold the hands and laughing. (Director of Case-2)

In the interview of Case-4, the manager mentioned that their staff and patient's family are like one big family, and the staff have the spiritual and bereavement support for the patients and their family. One facility had a touch therapist for the staffs, patients, and family. Also, they organized a monthly get together party for staff, patients and families where they fly balloons, have food, games, and other activities.

> We are one big family, both staff and patients and we have to be like that for mutual respect and understanding. We have the chaplain, social workers, and groups for bereavements that are there for us, too. So it's almost the same as it is for the patients. (Case-4)

The director of Case-5 mentioned in the interview that the staff utilizes the chapel and the prayer box outside the chapel;

> Staff as well as family members are encouraged to write prayer requests and place them in that box. The chaplain takes out those requests and prays. The inside and outside chapel can be utilized by the staff. (Director of Case-5)

To provide support for staff, several objectives were found to be significant from all the case studies; privacy, comfort, ease in observation and care, socialization and peer support, relaxation and recreation, and spiritual care.

Although privacy was mentioned as one of the prime considerations to support staff, during the interviews only one case study mentioned having break rooms adjacent to the nurse station in each floor so that staff could do anything with privacy in that space. From the walk-through surveys and analysis of building layouts, it was revealed that all the hospice facilities had designed separate zoning for staff areas with adequate privacy. In Case-1, the inpatient unit was located at the ground level, but the staff and admin area was located on the tenth floor with a receptionist or gatekeeper to ensure privacy and unwanted interruption. In Case-2, the staff area was located on the second floor, and the first floor is designated for the public and inpatient unit. There was no gatekeeper and the patient family can go upstairs anytime to meet the director or other staff. In Case-3 the staff parking, break room, locker room and other amenities were located at the basement level. At the first floor level, the staff area was on the right side of the front entrance with a gatekeeper, and not visible from public circulation or inpatient units. In Case-4, the staff area was located at the old house (separate building), which is linked with the hospice building through a covered walkway. In Case -5, the staff area was on the left side of the front entrance with a secure door, but the director's room was located outside the door. A receptionist or gatekeeper was located in front of the director's office. The architect mentioned that they designed this so that people could have easy access to the director's office without interrupting staff area's privacy. But in the interview, the director complained of having the room in such isolation from staff area.

> One comment I would say about the design, it doesn't promote communication between managers. I am on the outside of these double doors, managers are through these doors, the facility manager is down here (near the conference room), and custodians is typically at the back. We don't have overhead intercom systems, so you have to actually pick up the phone and call them. Usually, nobody is at their desk. It is a very big building, so I find myself looking for people, texting everybody. (Director of Case-5)

Separate parking and entry to staff areas were suggested by the experts, and four case studies had separate staff parking and separate entrances to staff areas without crossing public areas. Only Case-2 had side entries, but the staff had to go to the second floor, crossing the entrance lounge, although they don't have to cross the patients' area.

Comfortable work areas for staff were significant issues and the experts suggested creating comfortable work areas for staff by providing enough work and storage area, comfortable furnishing, efficient layout, presence of daylight, and views to the outside. During the walk-through surveys, several office spaces in Case-1 and Case-3 lacked daylight and views. In Case-5, the nurse complained about the location of the nurse station and distribution of staff. She said that one nurse can serve eight patients, but the each pod had six patient rooms, so they have to open another pod and the nurses have to walk all the way to take care of one additional patient. She also expressed discomfort about the nurse station design, because of privacy and noise. Case-1 also had a very small nurse station and reported the issue of lack of privacy of their computer screens. Case-3 also had six patient rooms in one wing and each wing had a CNA (certified nurse assistant) station. Their nurse station was centrally located. The facility manager didn't mention any issues with staff distribution in this arrangement. Case-4 had a large central

nurse station on each floor. Other than the issue with nurse-station location, all the case studies had comfortable work areas for the staffs by providing all the design considerations suggested by the literature and experts.

Staff break areas for retreat and recreation were mentioned by all the experts, and all the case studies confirmed the need. Besides Case-3, all the cases had a designated area for staff to take a break. In Case-5 there were staff only outdoor areas on the patio. Case-3 staff lounge was not used very much. They go to the dining room to be with the family and the facility manager said that they don't like this separation. In Case-4 there was a break room behind the nurse station which was found very convenient for the nurses to take a break.

- ***Comparison with literature*** - Most of the findings are confirmed, no conflicts.
- ***Comparison with experts' opinion*** - Most of the suggestions are confirmed, except the location of the nurse station was found contradictory.
- ***New findings*** - Break area behind nurse station.
- ***Further study*** - What should be the ideal location and distribution for nurse's station in hospice facility?

Table 6-11: Design Checklist of Support for Staff.

Goal 11		**L**	**E**	**C**
Provide privacy and comfort:				
	Building layout and planning should consider separate zoning for staff area to ensure privacy.		X	X
	Provide separate parking	X		X
	Provide separate staff entrance for better privacy	X	X	X
	Location of chief administrator/ directors' room in front with a gate keeper, so that it can be easily accessible by the patients' without interfering other staff's privacy.		X	X
	Travelling healthcare staff can park in the separate or staff-only parking and can building without crossing public routes.		X	
	Provide comfortable work area for staff with enough task area, storage space, presence of view and daylight.	X	X	X
Provide support for socialization, relaxation and recreation:				
	Provide a staff break area for inpatient and outside staff with comfortable furniture, presence of daylight, nice view to outside, attached outdoor space, and TV or other form of recreation.	X	X	X
	Provide a quiet area besides the staff breaks area (semi-outdoor area; i.e. patio) with visual privacy, comfortable furniture and nice view for solitude.		X	X
	Provide a staff only outdoor area with visual privacy and nice view.		X	X
Provide support to ease in observation and care:				
	Building layout should consider short corridor runs from nurse stations to patient rooms and supply areas	X		X
	Provide visual and acoustic privacy at nurse station	X	X	X
	Provide adequate storage area near nurse station		X	X
	Provide a small private break area attached or near nurse station (convenient for night), if the central break area is in long walking or in different floor			X
	Provide necessary equipment and mechanical system to ease observation, communication and care process (nurse calling system, patients' lifting system, camera, Wi-Fi, etc.)	X	X	X
	Provide a defined staff zone in patient rooms with supply closet so that at night the staff can come easily and monitor patients without interrupting family.		X	X

Note. (L–Literature, E–Experts' Opinion, C–Case Study)

Limitations

The data collection process had several limitations. First, the facilities were visited for only one day due to the time constraint for both parties. The interview process and walk-through surveys happened in the same day and were quite exhaustive for the researcher. As a result, when the researcher wrote the field notes about the walk-through surveys, the notes were very brief due to the tiredness of the researcher. The researcher tried to recall later that night or next day about the conversations, but there were chances she might not include all the points. Second, all the tours were taken during working days, noon or afternoon time periods, with two intentions: to have staff attendance for the interviews and to have fewer visitors present in the social spaces to take photographs. The downside of these survey times was that it eliminated the opportunity to observe how the social spaces were used during heavy traffic visitor hours. Third, all the surveys were conducted during the months of September and October. In four cases the weather was cloudy or rainy on the data-collection day, so the indoor environments were gloomy and difficult to build an understanding the amount of daylight in those spaces on a regular sunny day. Also, some photographs came out dark or needed use of a flash. Fourth, after the data analysis, it was revealed that hospice facilities function differently at night, such as having a well-lit parking lot with secured entrances to the facility. A short duration walk-through survey at night would be beneficial for this research.

The fifth limitation is about the interview participant. In two case studies, the participants included nurses, which provided in-depth feedback about those facilities from a patient-care perspective, location of nurse station, and the efficiency of the layouts. In the other three case studies, this type of feedback was absent. Though the researcher stopped by every nurse station and generated conversations about these topics to get the nurses' feedback casually. In one

facility, this conversation did not happen due to a busy work load, so there was no feedback about that facility's location and distribution of nurse station.

The sixth limitation is the same for the experts' interviews; the length and sequence of the twelve questions. As mentioned earlier in the expert interview chapter, though twelve questions were composed to maintain a sequence and to provide a continuity of answers, several answers overlapped, were repeated, or were irrelevant. As family accommodation is one of the primary considerations in hospice design, the majority of the hospice spaces are used by patient families. Most of the design considerations relevant to family accommodation were mentioned during the initial goals. When the staffs were asked about the family accommodations, some experts started with the statement that they have already mentioned the considerations and kept the answer short.

Conclusion

The diversity of the case studies provided examples of various hospice settings and enriched the overall findings of hospice environments. The three hospice facilities were newly designed (two are recognized by the AIA) and offered examples of innovations and solutions in today's hospice design. On the other hand, the renovated hospice facility showed issues and challenges in the adaptation process of a hospital unit and its overall impact on care and patient experience. The purpose-built hospice facility which was constructed in the early 1990s set another example. It helped recognize the difference in the newly constructed one and how or why the evaluation happened in the design considerations. The family room and the corridor design in the old facility are traditional and different than the three new facilities. Even though different case studies brought diverse insights and recommendations, most of the design criteria repeated and helped to achieve data saturation levels.

The findings from the case studies provided an in-depth understanding about the social and organizational context of hospice environments and their relationship with the physical setting. Although the case studies were similar in their intentions to provide the best hospice care, the diversity of social and organizational culture was evident and how these factors influenced the utilization of physical settings were also recognized. Some case studies raised some questions which need further research, such as the social activity of patients who are at the hospice facility for five day respite care without their families in private rooms and sometimes complain about the loneliness.

The comparative analysis of the case study findings with the findings from the literature review and the expert interviews enriched the overall results of this study. Several design considerations recognized in the case studies were not mentioned by the experts and also not found in the literature reviews. For example, the issues with theft and vandalism were found to be very significant for most of the case studies. This analysis also helped reveal the significant criteria of hospice environment and determine which one to include for the evaluation tool.

Chapter 7: Development of Rating Scale

After the three phases of data collection and analysis, the next step was to develop the rating scale to evaluate each goal. As discussed in Chapter-1, PEAP has a set of questions for each goal and has a five-point descriptive scale: exceptionally high support, high support, moderate support, low support, and unusually low support.

This study developed the design checklist for each goal from the literature reviews, expert interviews, and case studies. In this phase, the checklist of each goal was analyzed to identify which design considerations to include and which to exclude. Also, in this phase the five-point descriptive scales were developed for each goal. In addition, this study also developed evaluation criteria for each design consideration of each goal. As the rating scale has five-points, five criteria were developed for each design consideration. For each goal an Evaluation Matrix was developed which contains the design objectives to achieve that environmental dimension, design considerations to achieve each design objective, and five evaluation criteria or indicators for each consideration. A sample matrix is as follows (Figure 7-1):

Therapeutic Goal						
Objectives	**Design Considerations**	**5**	**4**	**3**	**2**	**1**
Example	Example & Example & Example.	XYZ	XYZ	XYZ	XYZ	XYZ
	Example & Example & Example.	XYZ	XYZ	XYZ	XYZ	XYZ
Example	Example & Example & Example.	XYZ	XYZ	XYZ	XYZ	XYZ
	Example & Example & Example.	XYZ	XYZ	XYZ	XYZ	XYZ
Example	Example & Example & Example.	XYZ	XYZ	XYZ	XYZ	XYZ
	Example & Example & Example.	XYZ	XYZ	XYZ	XYZ	XYZ

Figure 7-1. A sample model of Evaluation Matrix (#5 - exceptionally effective provision , #4 - high provision, #3 - moderate provision, #2 - limited provision, #1 - unusually low provision.) @ Sharmin Kader

PEAP does not have this evaluation matrix. The eleven matrixes were developed with the following intentions:

a) It will provide more detail guidance to the rater to evaluate each design consideration, and consequently each goal.
b) It will increase the inter-rater reliability.
c) It will also help to develop the user's manual with examples for each criterion, such as five pictures for five scales which will work as indicators or visual clues.
d) It will help to develop software.

These evaluation criteria for each design consideration were developed based on the best-practice evidence from the case studies. The process of developing the evaluation matrix is discussed below.

Development of Evaluation Matrix

At first, the design checklist of each goal was analyzed to identify which design consideration should be included or excluded. For inclusion in the matrix, the following conditions were met: the design considerations which were mentioned in all three phases; were mentioned by experts and also found in case studies; or those which were found in case studies only but carried a great significance. For exclusion there could be several reasons; for example, a design consideration was only found in the literature and not suggested by experts and absent in case the studies. Maybe this design consideration does not occur in the United States, such as the use of a partition wall in a shared room. There were no shared rooms found in the case studies. Some other design considerations were excluded too, which were suggested by the experts as

new innovations but not well-established or found in the case studies. Those criteria are not included because the outcome is still unknown and needs more research.

The selected design considerations were further analyzed to develop the five evaluation criteria. There are some design criteria which are significant or must achieve the optimum level of environmental quality, such as a private room. Usually, these criteria are well-established and mentioned in all three phases, or not mentioned as a basic standard but present in the case studies. On the other hand, there are some design criteria which are mentioned by a few experts and are present in one or two case studies as a best-practice example and are optional. These considerations help to achieve a high score in the evaluation. Some design considerations are relevant to the building layout (e.g., distribution of social spaces) and some are relevant to design quality (e.g., use of wood and stone in the interior design). Each design consideration is unique and the evaluation criteria depend on the nature of the design consideration. So, the evaluation patterns are not uniform for all the design considerations. There are unique characteristics based on the nature of the criteria. The following table is providing examples of three different types of evaluation criteria.

Table 7-1: Examples of Three Different Types of Design Considerations

	Design Considerations of Goal 8 – Spiritual Care
Type – A	Patient room should have the following criteria to support a range of spiritual care: • *Single room accommodation for patients and their family to perform private prayer, worship or religious rituals • *Provide non-denominational or neutral environment with the opportunity to personalize according to the religious or cultural preference. • Enough space around the patient's bed to perform bedside prayer or rituals. • Good acoustic design to ensure a calm contemplation environment. • Environmental aesthetic (painting, picture, décor, outside view) should encourage reflection and foster self-nurturing behaviors.
Type – B	Provide non-denominational or culturally and religiously neutral environment. Avoid presence of religious artifacts or symbols (unless it is a religion-specific hospice) throughout the facility and outside areas.
Type – C	Have more than one spiritual care space: formal (sanctuary or chapel, quite room or meditation space) and informal (veranda, patio, outdoor retreat areas).

In the above table, Type-A has a mix of both types of criteria: significant and regular or optional. Also, here we can see that the first three criteria are significant with an asterisk, and the last two criteria are optional criteria. To rate Type-A, the following five criteria were developed (Table 7-2):

- # 5 is presence of all the criteria with exceptionally effective features.
- # 3 is presence of all the significant criteria but absence of all the optional.
- #1 is absence of all the optional including two significant criteria.

Table 7-2: Examples of Evaluation Criteria of Type-A Design Considerations

Design Criteria	Exceptionally High	High	Moderate	Low	Unusually Low
	# 5	**# 4**	**# 3**	**# 2**	**# 1**
Patients room should have the following criteria to support range of spiritual care: • *Single room ….. • *Neutral environment.. • *Good acoustic ….. • Bedside space …… • Environmental aesthetic..	Presence with exceptional support	Presence with good support	Absence of one/two optional criteria	Absence of optional & any one significant	Absence of optional & any two significant

Type –B is more relevant to interior design quality. The consideration is providing non-denominational or religiously neutral environments by avoiding religious artifacts or symbols, unless the hospice is religiously denominational. Even the case studies interviews mentioned that the facility is neutral, but during the walk-through survey, the researcher recognized the use of religious artifacts. To score number-five, the facility must not display any religious artifact (Table 7-3).

Table 7-3: Evaluation Criteria of Type-B Design Considerations

Design Considerations	Exceptionally High	High	Moderate	Low	Unusually Low
	# 5	**# 4**	**# 3**	**# 2**	**# 1**
Provide non-denominational or culturally and religiously neutral environment. Avoid presence of religious artifacts or symbol (unless, it is a religion specific hospice)	No symbol or artifacts present and exceptional support to create a neutral environment	No symbol or artifacts present and good support to create a neutral environment	Display of one/two artifacts insignificantly (such as an angel statue at garden)	One/ two displayed with significance (angel in meditation room)	More than two displayed with significance.

The following criteria were developed to rate the Type-C, which has relevance with the space allocation and distribution, such as having multiple spiritual care spaces.

Table 7-4: Evaluation Criteria of Type-C Design Considerations

Design Considerations	Exceptionally High	High	Moderate	Low	Unusually Low
	# 5	**# 4**	**# 3**	**# 2**	**# 1**
Having more than one spiritual care spaces: formal (sanctuary or chapel, quite room or meditation space) and informal (veranda, patio, outdoor retreat areas).	At least two formal and multiple informal spaces	At least one formal and multiple informal spaces	One formal, more than two informal spaces	One formal, two informal space	One formal, one informal outdoor space

Example of 'Privacy' Rating Scale. The following table is similar to Table 6-1. The column had been added to show which design considerations are included and which are not. Following this table, each design consideration has been discussed to provide the reason for inclusion or exclusion. If included, the evaluation factor and criteria for five-point scales have been discussed. After that the Descriptive Scales for Privacy are discussed. The Evaluation Matrix of Provision for Privacy are presented in the next chapter (Table 8-3).

Table 7-5: The List of Design Considerations for Provision of Privacy.

Privacy in patient's room:		**L**	**E**	**C**	**I**
	1. Single room with an attached bathroom provides better privacy.	X	X	X	√
	2. Provide a patient zone and a family zone in a patient room.		X	X	
	3. Avoid visibility of a patient's bed head from circulation corridor through the room layout, such as the presence of a small foyer, or the presence of an inward toilet, or making the entry recessed into the room.		X	X	√
	4. Provide enough curtains or blinds for window or glass doors to veranda/patio to insure patient room privacy from the outside garden or pathway (especially for ground floor rooms at night).			X	√
	5. Use good acoustic materials in wall, floor, ceiling, door and window, and furniture.	X	X	X	√
	6. Acoustic privacy through layout; such as presence of a buffer zone (foyer, toilet, wall closet) between patient room and corridor.		X	X	√
	7. Moveable partitions may provide better privacy than curtains in shared room during personal care in shared room.	X			
	8. Provide separate room for family sleeping accommodation to insure privacy of both patient and family.		X		
Privacy concerns in social and circulation spaces:					
	9. Instead of having one large central social space for the entire facility, distribution of social spaces into multiple small intimate spaces throughout the facility (pod-style multiple bedrooms clustered with a living room) provides better privacy for patients and family.	X	X	X	√
	10. Good acoustic design to contain sound using acoustic materials and finishes, home-like furniture, cushions, curtains, carpets.	X	X	X	√
	11. Provide niches, alcove, small room, or huddle room near patient rooms so that staff can have small talk with family in those spaces without traveling long distance.	X	X	X	√
	12. Provide more than one designated spaces for private communication between staff and families to avoid conversation in front of patient or in the hallway.		X	X	√
Privacy concerns in outdoor spaces:					
	13. Provide semi-outdoor or outdoor social spaces (patio or veranda) with visual and acoustic privacy so that patients may have private times with families, or family can use those spaces for individual solitude.	X	X	X	√

Note. (L–Literature, E–Experts' Opinion, C–Case Study, and I- Included in the in Evaluation Matrix.

Design Consideration #1: *Single room with an attached bathroom provides better privacy.*

Reason for inclusion in the rating scale: This criterion was found most significant in providing privacy for hospice patients and their families. It was mentioned in all three levels of data collection.

Evaluation Criteria: All the case studies displayed provision of all private rooms; also, this criterion is the standard practice in the USA. Four of the cases had attached private bathrooms in each patient room. This was a significant consideration for ensuring privacy. The first three categories had private patient rooms, but the high and moderate level could have shared bathrooms. The following evaluation criteria were developed to evaluate this criterion.

- *Exceptionally effective provision* – All single rooms with attached private bathroom (based on the best-practice case studies).
- *High provision* – All single rooms, but a few rooms have shared bathroom (based on researcher's assumption).
- *Moderate provision* – All single rooms, but all rooms have shared bathroom with two or three rooms (based on one case study).
- *Limited provision* – Most of the rooms are private with private or shared bathrooms, but there are few shared rooms with shared bathrooms (based on researcher's assumption).
- *Unusually low provision* – Mostly shared rooms with shared bathrooms (based on researcher's assumption).

Design Consideration #2: *Provide a patient zone and a family zone in a patient's room.*

Reason for exclusion in the rating scale: Three experts mentioned that they had tried to create patient zones and family zones in their facilities to provide better privacy for families and

patients. It is also a well-established criterion in patient room design for hospice or hospital facilities to provide safety at night for staff. In the case study surveys, all the patient rooms were found to consider this design criterion. In four cases there was no visual or auditory privacy between patient zones and family zones. Only in one case study, there was a foyer space with a working desk and closet in the patient's room which had visual and auditory privacy. As these zoning or division are not distinguished or separable and also not contributing visual or auditory privacy, this criterion was not considered for evaluation. To consider this criterion as an evaluation factor, more well-established research of this criterion is required.

Design Consideration #3: *Avoid visibility of a patient's bed head from circulation corridor through the room layout, such as the presence of a small foyer, the presence of an inboard toilet, or making the entry recessed into the room.*

Reason for inclusion in the rating scale: This criterion was mentioned by the experts and also found in the best-practice case studies.

Evaluation Criteria: One of the case studies had a foyer space and the patient's bed is completely invisible from the corridor. In two other case studies, the location of inboard bathrooms increased visual privacy of the patient's bed head. In one case study, there was no buffer zone, and patient rooms were completely visible from the corridor. The following evaluation criteria were developed based on the case studies' findings and assumptions:

- *Exceptionally effective provision* – Entire bed is not visible (based on case studies).
- *High provision* – Only foot board is visible and most of the bed is not visible (based on case studies).

- *Moderate provision* – Patient's bed is partially visible from the corridor but patient's head not visible (based on one case study).
- *Limited provision* – Patient's bed is completely visible from corridor but has privacy curtain (based on case study).
- *Unusually low provision* – Patient's bed is completely visible from corridor without any privacy curtain (based on researcher's assumption).

Design Consideration #4: *Provide enough curtains or blinds for window or glass doors to veranda/patio to ensure patient room privacy from the outside garden or pathway (especially for ground floor rooms at night).*

Reason for inclusion in the rating scale: This criterion was mentioned by the staff in one case study. The recent trend of providing large windows in patient rooms to provide maximum view to the outside was found to be significant. But it was also significant to have enough coverage of these openings so that patients and their families could have enough privacy.

Evaluation Criteria: All the case studies displayed enough support to achieve this criterion. As the case study tours were during the daytime, it was difficult to verify the opacity or visual privacy from outside to inside. The following evaluation criteria are based on researcher's assumption:

- *Exceptionally effective provision* – All the patient rooms have blinds and curtains to cover all the openings to insure privacy from outside (based on case studies).
- *High provision* – Most of the openings are covered but there may be some parts of the openings which have no coverage or complete blockage (based on case studies).

- *Moderate provision* – Most of the openings have coverage but do not have complete blackout curtains or blinds (based on one case study).
- *Limited provision* – Some parts of the openings are without coverage or translucent coverage, and there are opportunities for people to see inside through those openings (based on researcher's assumption).
- *Unusually low provision* – Most of the openings in patient rooms are without coverage or translucent coverage, and there are opportunities for people to see inside through those openings (based on researcher's assumption).

Design Consideration #5: *Use good acoustic materials in wall, floor, ceiling, doors and windows, and furniture.*

Reason for inclusion in the rating scale: This criterion was mentioned in all three phases of data collection and found to be a significant criterion to insure acoustic privacy. All the case studies displayed the use of the good acoustic materials. During the tours, no noise was recognized in any patient rooms of these facilities, but it was also difficult to evaluate the acoustic privacy within such a short period of observation.

Evaluation Criteria: This criterion includes the use of acoustic materials or absorbent materials in the ceilings, walls and non-glossy surfaces in floors and walls. Also, the furniture should have wood and fabrics. Wall surfaces should have wood, wall paper, or soft surfaces to achieve a good acoustic quality. Curtains in windows or doors help acoustic control. The following evaluation criteria were developed based on the case studies' findings and assumptions:

- *Exceptionally effective provision* – Exceptionally high level of use of soft or absorbent surfaces in the ceiling and wall surfaces, use of non-glossy surfaces

on the floor, and use of wood and fabrics in the furniture (based on case studies).

- *High provision* – High level of soft or absorbent surfaces in the ceiling and wall surfaces, use of non-glossy surfaces in the floor, and use of wood and fabrics in the furniture (based on case studies).
- *Moderate provision* – One surface, wall, floor, or ceiling is lacking acoustic material and the other two surfaces have moderate levels of acoustic material use (based on researcher's assumption).
- *Limited provision* – Two surfaces, such as floor and wall, are hard and glossy (based on researcher's assumption).
- *Unusually low provision* – All the surfaces (ceiling, wall, and floor) are hard and glossy (based on researcher's assumption).

Design Consideration #6: *Acoustic privacy through layout, such as presence of buffer zone (foyer, toilet, wall closet) between patient room and corridor.*

Reason for inclusion in the rating scale: This criterion was mentioned by the experts and also confirmed by three case studies. The utilization of buffer spaces between patient rooms and corridors or with another room to insure acoustic privacy was found to be significant.

Evaluation Criteria: As discussed in the previous chapter (Analysis of Privacy) acoustic privacy can be achieved by creating buffer zones (foyer, toilet, wall closet) between side-by-side rooms and between a room and corridor. Two case studies had inboard-bathrooms in the patient rooms and two case studies placed the bathroom between two rooms, which helped block noise from the shared wall. One case provided a unique example, in that all the patient rooms have bathrooms and foyers at the corridor and there were no shared walls without buffering. The

evaluation criteria were developed based on how many shared walls of a patient room had a buffer zone which increased acoustic privacy.

- *Exceptionally effective provision* – Exceptionally high level of presence of buffer zones in all three internally shared walls (based on the best-practice case studies).
- *High provision* – Presence of buffer zone in two internal walls (based on researcher's assumption).
- *Moderate provision* – Presence of buffer zone (bathroom, closet) between patient's room and corridor (based on one case study).
- *Limited provision* – Only one side wall has partial buffer zone and no buffer between room and corridor (based on researcher's assumption).
- *Unusually low provision* – No buffer zone, the location of closet and bathroom are out-board so three internal walls are exposed (based on researcher's assumption).

Design Consideration #7: *Moveable partitions may provide better privacy than curtains during personal care in shared room. (Found in literature)*

Reason for exclusion in the rating scale: This criterion was mentioned in the literature only. In the USA, the standard of practice is to have private rooms, and from the case studies no shared rooms were. Therefore, this criterion was not included in the rating scale.

Design Consideration #8: *Provide separate room for family sleeping accommodation to ensure privacy for both patient and family.*

Reason for exclusion in the rating scale: This criterion was mentioned by two experts during the interviews, but no separate family accommodation rooms were found in the five case

studies. This criterion needs more research and also more evidence to be included as an evaluation factor.

Design Consideration #9: *Instead of having one large central social space for the entire facility, distribution of social spaces into multiple, small intimate spaces throughout the facility (pod style -multiple bedrooms clustered with a living room) provides better privacy for patients and family.*

Reason for inclusion in the rating scale: This criterion was mentioned in all three phases of data collection and found to be a significant factor to insure privacy in social spaces.

Evaluation Criteria: The evaluation of this criterion was based on the building layout and distribution pattern of social spaces. Three best-practice case studies had the pod-style layout, where multiple bedrooms were clustered with a living room, and there were other various sizes of social spaces present throughout the facilities. The evaluation criteria were based on the arrangements of social space numbers, sizes and distributions.

- *Exceptionally effective provision* – Each pod has two social spaces (one family room, one den), and there are at least four social spaces (family room or lounge or TV room, public lounge in lobby, dining space, library, den) central to all the pods (based on case studies).
- *High provision* – Each pod has one family room and the facility has at least three social spaces: lounge, dinning, library, den, or TV-room (based on case studies).
- *Moderate provision* – Each pod has one family room and there is a central lounge and a dinning space (based on one case study).

- *Limited provision* – Two to three social spaces central to the facility (based on researcher's assumption).
- *Unusually low provision* – One or two large multipurpose rooms which contains lounge, family gathering space, dinning space and other functions (based on researcher's assumption).

Design Consideration #10: *Good acoustic design to contain sound using acoustic materials and finishes, home-like furniture, cushions, curtains, carpets.*

Reason for inclusion in the rating scale: This criterion was mentioned in all three phases of the research. All the case studies displayed use of the good acoustic materials. During the tours, no noise was recognized, but it is also difficult to evaluate the acoustic privacy within such a short period of observations.

Evaluation Criteria: This criterion includes the use of acoustic materials or absorbent materials in ceilings, walls, and non-glossy surfaces in floors and walls. Also, the furniture should have wood and fabrics. Wall surfaces should have wood, wall paper, or soft surfaces to achieve good acoustic quality. Curtains in windows or doors help acoustic control. The following evaluation criteria were developed based on the case study findings and researcher's assumptions.

- *Exceptionally effective provision* – Exceptionally high level of use of acoustic materials throughout all the social spaces and circulation spaces. Use of soft or absorbent surfaces in the ceiling and wall surfaces, use of non-glossy surface on the floors, and use of wood and fabrics in the furniture (based on case studies).

- *High provision* – High level of use of acoustic materials in the social and circulation spaces. Use of soft or absorbent surfaces in the ceiling and wall surface, use of non-glossy surfaces on the floor, and use of wood and fabrics in the furniture (based on case studies).
- *Moderate provision* – Moderate level of use of acoustic materials, may be in the walls, floors, or ceilings, any one or two surfaces are lacking acoustic material (based on researcher's assumption).
- *Limited provision* – Any two surfaces of most of the social and circulation spaces are lacking acoustic materials, such as floors and walls, are hard and glossy (based on researcher's assumption).
- *Unusually low provision* – most of the spaces and most of the surfaces are lacking use of acoustic materials (based on researcher's assumption).

Design Consideration #11: *Provide niches, alcoves, small rooms, or huddle rooms near patient rooms so staff can have small talks with family in those spaces without traveling long distances.*

Reason for inclusion in the rating scale: This criterion was mentioned in all three phases. In the best-practice examples, there are multiple niches or alcoves available which can be utilized for this purpose.

Evaluation Criteria: This criterion includes two factors: 1) presence of any of these spaces near patient rooms or adjacent to circulation corridors; and 2) how many of these spaces are available. All the rooms have at least one small niche or alcove, or huddle room. The following evaluation criteria were developed based on the case study findings and assumptions:

- *Exceptionally effective provision* – Each pod has at least one or two niches, alcoves, or huddle spaces where staff may have communication with patients' families without walking a long distance (based on case studies).
- *High provision* – Each pod or wing has one small niche which is equally distant from the rooms (based on case studies).
- *Moderate provision* – One or two small niches which are centrally located and equally distant from the pods or wings (based on case study).
- *Limited provision* – No niches or alcoves adjacent to the circulation pathway, only family room or den available for this conversation (based on researcher's assumption).
- *Unusually low provision* – No niches, alcoves, or any such space. Family room is large and not suitable for private conversations (based on researcher's assumption).

Design Consideration #12: *Provide more than one designated space for private communication between staff and families to avoid conversation in front of patient or in the hallway.*

Reason for inclusion in the rating scale: This criterion was mentioned by experts and also confirmed by most of the case studies.

Evaluation Criteria: All the case studies have multiple meeting spaces for staff and family conversations. This criterion includes two factors: 1) number of private meeting spaces; and 2) the distance of those meeting spaces from the patient rooms. The following evaluation criteria were developed based on the case study findings and assumptions:

- *Exceptionally effective provision* – Each pod or wing has a private meeting space where closed-door conversations can take place (based on case studies).
- *High provision* – There is more than one meeting space which is centrally located and equally distant from each pod or wing (based on case studies).
- *Moderate provision* – At least one meeting space which is centrally located (based on case study).
- *Limited provision* – Only one meeting space which is remotely located from patient rooms (based on researcher's assumption).
- *Unusually low provision* – Only one meeting space which is located on a different floor or far distant from patient unit. May be in the staff area (based on researcher's assumption).

Design Consideration #13: *Provide semi-outdoor or outdoor social spaces (patio or veranda) with visual and acoustic privacy so that patients may have private time with families, or family can use those spaces for individual solitude.*

Reason for inclusion in the rating scale: This criterion was mentioned in all three phases. In the best-practice examples, there were multiple semi-outdoor or outdoor social spaces with visual and acoustic privacy.

Evaluation Criteria: All the case studies have multiple semi-outdoor or outdoor social spaces for patients and their families. This criterion includes two factors: 1) presence and number of semi-outdoor spaces with visual and acoustic privacy; and 2) number and presence of outdoor seating spaces with visual and acoustic privacy. The following evaluation criteria were developed based on the case studies' findings and assumptions:

- *Exceptionally effective provision* – Each room and each pod have private patios with visual and acoustic privacy. Also, multiple outdoor seating areas with visual and acoustic privacy (based on case studies).
- *High provision* – Either each room or each pod has private patio with visual and acoustic privacy. Also, at least two outdoor seating areas with visual and acoustic privacy (based on case studies).
- *Moderate provision* – At least one private patio for the facility with visual and acoustic privacy. Also, at least one outdoor seating areas with visual and acoustic privacy (based on case study).
- *Limited provision* – No semi-outdoor space with visual privacy and no outdoor seating space with visual privacy (based on researcher's assumption).
- *Unusually low provision* – No semi-outdoor space with visual and acoustic privacy and no outdoor seating space with visual and acoustic privacy (based on researcher's assumption.

Descriptive Scales (Example of Privacy). There are five descriptive scales for each goal in PEAP (Appendix A). The descriptive scales for HEAP were also developed keeping the similarities in structure with the PEAP scales. Each scale contains a description of two to four evaluation criteria for that goal. The following five scales were developed to rate the provision of privacy:

5. Exceptionally effective in provision of privacy. The patient room is private with exceptionally good visual and acoustic privacy. The facility has provided an extra provision of privacy by considering good acoustic design through planning of the building layout and use of

acoustic materials. The facility also provides exceptional opportunities for private family time outside patient rooms, as well as confidential conversations between staff and family.

4. High provision of privacy. Several indicators warrant this rating: visual privacy of patient room from corridor; opportunities for private family time outside patient room; and acoustic design throughout the building. All these criteria are not exceptionally effective as #5. One indicator may rank #3, but the rest of the indicators are towards good and exceptionally good.

3. Moderate provision of privacy. Some efforts are made to provide a moderate level of privacy. The facility may contain one or two issues with visual or acoustic privacy. Limited opportunities for private family time outside patient rooms and also limited scope for confidential conversation between staff and family. There may be one indicator ranked at #2, but the rest of the features are moderate to good level.

2. Limited provision of privacy. Privacy is compromised in one or two critical ways. One or two indicators may rank #3. Also, one indicator may be ranked at #1.

1. Unusually low provision of privacy. This rare rating is reserved for a facility which has compromised privacy in unusual ways. Most of the rooms are shared and with poor visual and acoustic privacy. The overall facility is lacking sound containment and creates a noisy environment. Provisions are limited for opportunities for private family time outside patient rooms, and very limited scope for confidential conversations between staff and family.

Summary

The same process was followed to develop evaluation matrix and descriptive scales for other the goals. All the Evaluation Matrixes and the Rating Scales are presented in the next

chapter. Some limitations of the development process of evaluation criteria and the rating scales are discussed in the summary of the next chapter.

Chapter 8: Presentation of Heap

As discussed in the previous chapter, an evaluation matrix and a five-point descriptive rating scale was developed for each goal using the process described. This chapter compiles all the evaluation matrixes and scales for each goal. Following that, the next section describes the rating process utilizing these matrixes. In the third section, a few examples are provided about how the user's manual will be developed and will work in future.

Goal 1 - Provide Continuity of Self.

Definition. Environmental characteristics that help preserve or support patients past activities, preferences and awareness.

Evaluation Matrix. The following table is showing the evaluation matrix.

TABLE 8-1: Evaluation Matrix of Provide Continuity of Self (Goal-1)

Design Objective – 1: Creating a non-institutional environment or home-like environment.					
1.1.1: Provide a non-institutional or residential exterior appearance.	**5**	**4**	**3**	**2**	**1**
1. * Building size, scale and detailing should provide residential look. 2. * Provide an intimate and welcoming entrance. 3. Create compatibility with site and surrounding through landscape design.	All present with exceptional support	All present with good support	All present with moderate support	Absence of two	Absence of three
1.1.2: Building layout should be non-institutional or residential in size, scale and indoor-outdoor relationship.	**5**	**4**	**3**	**2**	**1**
1. *Designing patients' unit like a residential setting - have multiple bedrooms clustered with a living room. 2. *Avoiding long corridor length. 3. * Family room and dining room should be intimate in scale, not too big. 4. Family kitchen adjacent to family room to create a home-like environment. 5. Create building layout incorporating outside landscape to provide nice views from most of the areas.	All present with exceptional support	All present with good support	Presence of only significant criteria	Absence of one significant and two regular	Absence of more than three
1.1.3: Home-like interior design in patient rooms.	**5**	**4**	**3**	**2**	**1**
1. *Attention to proportion, color, contrast (in wall, ceiling, floor), scale and detailing to create a homelike bedroom environment. 2. Use of cheerful, varied colors, textures and non-reflective finishes. 3. Use of comfortable furniture: lounge chair, desk, and bedside table. 4. *Special consideration for designing patients' bed and headwall to hide mechanical systems as much possible and use of wooden panel or other home-like material to create a non-institutional look. 5. Use of meaningful artworks which provides positive stimulation.	All present with exceptional support	All present with good support	Presence of all significant with moderate support	Absence of two criteria	Absence of more than two

Note. 5 - Exceptionally High, 4 – High, 3 – Moderate, 2- Low, 1 - Unusually Low, [*]-Significant Criteria

Table 8-1 Continued.

1.1.4: Home-like interior design in social spaces.	**5**	**4**	**3**	**2**	**1**
1. * Attention to proportion, color, contrast (in wall, ceiling, floor), scale and detailing to create a homelike environment. 2. * Use of cheerful, varied colors, textures and non-reflective finishes. 3. * Use of comfortable and flexible furniture. 4. * Use of meaningful artwork which provides positive stimulation. 5. Use of hearth to create an intimate and inviting living room. 6. Use of Table lamp, bookshelves, rugs, piano or other home-like features or furniture.	All present with exceptional support	All present with good support	Presence of only significant criteria	Absence of one significant and two regular	Absence of more than three
1.1.5: Provide cue to patients about time, day and outside weather.	**5**	**4**	**3**	**2**	**1**
1. * Window size should be large enough to provide visibility of outside environment from patient bed. 2. * Provide a clock in patient room with appropriate visibility. 3. Provide a wall or desk calendar, or a digital calendar.	All present with exceptional support	All present with good support	Absence of calendar.	Absence of clock and calendar.	Absence of all.
Design Objective – 2: Scope for personalization.					
1.2.1: Provide scope for personalize patients' immediate surroundings.	**5**	**4**	**3**	**2**	**1**
1. * Have desktop, or Table top, or counter top, or window sill to display photos, paintings, cards, flowers, etc. 2. * Have picture hooks, tag board, or any kind of scope to decorate wall with personal paintings, pictures, etc. 3. Provide wall shelves to display personal belongings. 4. Provide adequate space in patient rooms to bring their own belongings (lamp, chair, rug, etc.).	All present with exceptional support	All present with good support	All present with moderate support	Absence of two	Absence of three

Note. 5 - Exceptionally High, 4 – High, 3 – Moderate, 2- Low, 1 - Unusually Low, [*]-Significant Criteria

Descriptive Scales.

5. Exceptionally high support for continuity of self. All the criteria are present with exceptionally high level of support for continuity of self. The building has residential size, scale, and residential look in exterior appearance to the entire layout and interior design. Interior design has highly effective design criteria; such as, use of floor finish which looks like wooden panel, having a hearth in the living area finished with stone, and use of meaningful artifacts throughout the facility. The headwalls of patient rooms are made with wooden panels and hide medical equipment. Patient rooms have wall-hooks, shelves and side Table to display personal belongings. Also they have enough space to bring one piece of furniture (e.g., chair, lamp, small refrigerator). All the rooms have views to outside to provide orientation with day and time.

4. High level of support for continuity of self. This rating is reserved for the facility which has all the efforts in good level of effectiveness, but all these criteria are not exceptionally effective as #5. One or two indicators may rank in #3, but the rest of the indicators have to be towards good and exceptionally good.

3. Moderate level of support for continuity of self. Some efforts are made in moderate level. The facility may contains all significant criteria with moderate support; such as, very few painting or pictures in the wall, non-meaningful or inappropriate artifacts, or interior are not warm or home-like, or use of monotonous color scheme in interior design, and lacking color and material contrast. There may be one indicator ranked at #2, but rests are moderate to good level.

2. Low level of support for continuity of self. Access to nature is compromised in one or two critical ways; building size and layout are not residential type and it doesn't incorporate outdoor nature, or the interior design is like institutional (use of reflecting surfaces and no

variation in color, texture and detailing), or facility may have limited scope of personalization in patient's room.

1. Unusually low level of support for continuity of self. This rare rating is reserved for facility which has compromised access to nature in unusual ways. Building size and layout are not residential type and it doesn't incorporate outdoor nature. Building layout and the interior designs are like institutional (use of reflecting surfaces and no variation in color, texture and detailing). Patient's room provides very limited scope for personalization.

Goal 2 - Provision of Access to Nature.

Definition. Environmental characteristics that provide opportunities for access to nature; both physically and visually.

Evaluation Matrix. The following table is showing the evaluation matrix.

Table 8-2: Evaluation Matrix of Provide Access to Nature (Goal-2)

Design Objective – 1: Maximize daylight, views and fresh air through design.					
2.1.1: Building layout and design should consider the outside garden and views and organize accordingly.	**5**	**4**	**3**	**2**	**1**
1. * Cluster and arrange the building in such a way that the view to the outside garden and landscape are visible from most of the spaces. 4. * Patient's room arrangement and window size and location should provide maximum view to outside from each patient bed. 2. * Views to outside landscape and garden from social and spiritual spaces. 3. * Presence of opening and daylight in most of the spaces. 4. Have an operable window or door in patient room to have fresh air.	All present with exceptional support	All present with good support	All present with moderate support	Absence of one regular criteria	Absence of more than one
2.1.2: Provide transitional spaces or semi-outdoor spaces.	**5**	**4**	**3**	**2**	**1**
1. * Provide transitional spaces (e.g., patio, veranda, and terrace) in-between indoor spaces and outside space. 2. * Floor finish materials should be appropriate for rolling bed wheels. 3. * Door should be wide enough to take patients out. 4. Create a large transitional space attached with family room or social space with privacy and patients' bed accessibility, so that it can accommodate a large gathering or family event (BBQ party, birthday party, etc.) 5. Try to create nice view or visual interest from these spaces. 6. Provide shading device for comfort in extreme sun.	All present with exceptional support	All present with good support	Absence of one regular	Absence of one significant and two regular	Absence of two significant and two regular

Note. 5 - Exceptionally High, 4 – High, 3 – Moderate, 2- Low, 1 - Unusually Low, [*]-Significant Criteria

Table 8-2 Continued.

Design Objective – 2: Provide accessibility to outside nature.					
2.2.1: Provide accessibility to outside nature.	**5**	**4**	**3**	**2**	**1**
1. * Provide bed-accessible outdoor spaces and garden. 2. * Create wide pathways to garden so that patients can be rolled out side. 3. * Create garden with beautiful landscape, flowers, plants, water features, bird feeder, sculpture, and multiple seating arrangements. 4. * Provide a visual interest and destination to go and sit. 5. * Seating arrangements should incorporate group gathering and also individual solitude. 6. Create man-made landscape and garden with the presence of wild nature. 7. Consider garden maintenance and lawn mowing sound near patients' room. 8. In city or downtown, where ground has no space, provide roof garden. 9. In country-side or with a large site, try to create outdoor landscape area to accommodate community activities.	All present with exceptional support	Presence of all the significant with good support and absence of one regular	Absence of several regular	Absence of one or two significant and several regular	Absence of more than two significant and several regular
Design Objective – 3: Presentation of nature inside the building.					
2.3.1: Presentation of nature in form of artifacts, use natural materials for interior finishes and small indoor garden or natural feature.	**5**	**4**	**3**	**2**	**1**
1. * Use of materials or interior finishes that represent nature (stone, wood). 2. * Use of art that represents nature. 3. Use of indoor plants, or aquarium, or other natural features inside the building. 4. Provide small garden, Zen garden, courtyard, or dayroom with natural features inside the building where the weather is extreme to enjoy an outside garden.	All present with exceptional support	All present with good support	All present with moderate support	Absence of one	Absence of two

Note. 5 - Exceptionally High, 4 – High, 3 – Moderate, 2- Low, 1 - Unusually Low, [*]-Significant Criteria

Descriptive Scales.

5. Exceptionally high support for Access to Nature. All the criteria are present with exceptionally high level of support for access to nature. The building design has integrated landscape design in every part of the facility. A nice outside view is from most of the areas of the facility. The facility has a range of outdoor and semi-outdoor areas with opportunity to have a private family time for patients. All the patient rooms have nice views to outside, and a veranda attached which is bed accessible. Also, the facility has presence of nice views from social and spiritual spaces.

4. High level of support for Access to Nature. This rating is reserved for the facility which has all the efforts in good level of effectiveness, but all these criteria are not exceptionally effective as #5. One or two indicators may rank in #3, but the rest of the indicators have to be towards good and exceptionally good.

3. Moderate level of support for Access to Nature. Some efforts are made to provide a moderate level of access to nature. The facility may contain all the significant criteria with moderate level of support; such as, presence of transitional spaces with patients' bed accessibility but lacking nice view or good landscape design. It may have a nice garden but bed accessibility is restricted to a point, or may be all the patient rooms do not provide nice outside views. There may be one indicator ranked at #2, but rest of the features is moderate to good level to achieve this ranking.

2. Low level of support for Access to Nature. Access to Nature is compromised in one or two critical ways; building size and layout do not incorporate outdoor nature, or some patient rooms lacking a moderate level of view to outside, or some common areas lacking views and daylight, or outdoor garden lacking bed accessible pathway.

1. Unusually low level of support for Access to Nature. This rare rating is reserved for facility which has compromised access to nature in unusual way. A large scale building without appropriate break in massing, zoning or clustering areas to incorporate natural light and view inside the building. Window size and location in patient rooms does not provide a direct view to outside from patients' bed. Interior design is lacking of using artifacts and material that represents nature. Lack of transitional space and absence of a nice garden or absence of a nice outdoor space with bed accessibility, provides very limited scope for patients' to enjoy outside nature.

Goal 3 – Provision of Privacy

Definition. Environmental characteristics that facilitate patients' choices in various levels of privacy through regulation of visual and auditory stimuli.

Evaluation Matrix. The following table is showing the evaluation matrix.

Table 8-3: Evaluation Matrix of Provision of Privacy (Goal-3)

Design Objective – 1: Provide privacy in patient's room.					
3.1.1: Single room with an attached bathroom provides better privacy.	**5**	**4**	**3**	**2**	**1**
Single room with an attached bathroom ranks best, private room with shared bathroom ranks second in privacy and shared room with shared bathroom ranks last in privacy.	All single	All single, few shared bathroom	All single, all shared bathroom	Few shared room	Mostly shared
3.1.2: Avoid visibility of a patient's bed head from circulation corridor.	**5**	**4**	**3**	**2**	**1**
Building layout should provide privacy of patient's bed from corridor by using a small foyer, or an inboard toilet, or making the entry recessed.	Entire Bed not visible	Only Foot board	Mostly visible	Completely (curtain)	Completely visible
3.1.3: Provide visual privacy of patient room form outside garden or pathway.	**5**	**4**	**3**	**2**	**1**
Provide enough curtain or blinds in window or glass door to veranda/patio to ensure patient's room privacy from outside garden or pathway, especially for ground floor rooms at night.	Presence exceptional support	Presence with good support	Presence moderate support	Presence limited support	Very limited support
3.1.4: Use good acoustic material in wall, floor, ceiling, door, and furniture.	**5**	**4**	**3**	**2**	**1**
1. Use of acoustic materials or absorbent materials in the ceilings, walls and non-glossy surfaces in floors and walls. 2. Furniture should have wood and fabrics. 3. Wall surfaces should have wood, wall paper, or soft surfaces. 4. Curtains in windows help acoustic control.	Presence exceptional support	Presence with good support	One surface or few areas are lacking	Two surfaces or several area are lacking	All surfaces are hard or glossy
3.1.5: Acoustic privacy through layout; such as, presence of buffer zone (foyer, toilet, wall closet) between patient rooms and corridor.	**5**	**4**	**3**	**2**	**1**
Buffer zones (foyer, toilet, wall closet) between side-by-side rooms and between a room and corridor.	All internal walls have buffer	Two sides have buffer	Only buffer room & corridor	No buffer in two wall	All wall exposed

Note. 5 - Exceptionally High, 4 – High, 3 – Moderate, 2- Low, 1 - Unusually Low, [*]-Significant Criteria

Table 8-3 Continued.

Design Objective – 2: Privacy concerns in the social spaces, in the circulation spaces, and in outdoor areas.					
3.2.1: Instead of having one large central social space for the entire facility, multiple small intimate spaces provide better privacy for patients and family.	**5**	**4**	**3**	**2**	**1**
1. Distribution of multiple intimate spaces throughout the facility (pod style -multiple bedrooms clustered with a living room). 2. Each pod may have multiple social spaces (one family room, one den). 3. Social spaces central to all the pods (family room or lounge or TV room, public lounge in lobby, dining space, library, den).	Multiple spaces in each pod & multiple central	One space in each pod & two in central	One social in each pod and one dining	One dining and one living room	One central multipurpose room
3.2.2: Good acoustic design to contain sound using acoustic materials and finishes, home-like furniture, cushions, curtains, carpets.	**5**	**4**	**3**	**2**	**1**
Use of acoustic or absorbent materials in ceilings and walls (soft surface, wood, wallpaper). Use non-glossy surfaces in floors and walls. Furniture should have wood and fabrics. Use of fabric curtains.	Presence exceptional support	Presence with good support	Few areas are lacking	Several areas are lacking	Most of the areas are lacking
3.2.3: Provide spaces near patient room for small talk between staff & family.	**5**	**4**	**3**	**2**	**1**
Presence of one or two niches, alcoves, or huddle spaces near patient rooms or adjacent to circulation corridors without traveling long distances.	Presence exceptional	Presence with good	Presence moderate	Presence limited	Very limited
3.2.4: Provide designated space for private communication between staff and families to avoid conversation in front of patient or others.	**5**	**4**	**3**	**2**	**1**
1. Provide more than one space for the facility. 2. Provide at least one space with acoustic privacy in each pod. 3. Location of this space should not be far from patient area.	Each pod has one	Multiple centrally	One central in close distance	One in moderate distance	One in long distance

Note. 5 - Exceptionally High, 4 – High, 3 – Moderate, 2- Low, 1 - Unusually Low, [*]-Significant Criteria

Table 8-3 Continued.

Design Objective – 2 Continued.					
3.2.5: Provide semi-outdoor or outdoor social spaces with visual and acoustic privacy for private time for family gathering and also for individual solitude.	**5**	**4**	**3**	**2**	**1**
1. Provide multiple semi-outdoor spaces with visual and acoustic privacy. 2. At least one outdoor space with visual privacy for private family time. 3. Outdoor seating spaces for meditation or solitude with visual privacy.	Each room & pod has patio	Only each pod has patio	At least one patio for facility	Lacking visual privacy	Lacking visual & acoustic

Note. 5 - Exceptionally High, 4 – High, 3 – Moderate, 2- Low, 1 - Unusually Low, [*]-Significant Criteria

Descriptive Scales.

5. Exceptionally effective in provision of privacy. The patient's room is private with exceptionally good visual and acoustic privacy. The facility has provided an extra provision of privacy by considering good acoustic design through planning of building layout and using of acoustic materials. The facility also provides exceptional opportunities for private family time outside patient rooms, as well as confidential conversation between staff and family.

4. High provision of privacy. Several indicators warrant this rating: visual privacy of patient rooms from corridor, opportunities for private family time outside patient rooms, and acoustic design throughout the building, all these criteria are not exceptionally effective as #5. One indicator may rank #3, but the rest of the indicators are towards good and exceptionally good.

3. Moderate provision of privacy. Some efforts are made to provide a moderate level of privacy. The facility may contain one or two issues with visual or acoustic privacy. Limited opportunities for private family time outside patient rooms and also limited scope for

confidential conversation between staff and family. There may be one indicator ranked at #2, but rests of the features are moderate to good level.

2. Limited provision of privacy. Privacy is compromised in one or two critical ways. One or two indicators may be ranged from #3; also one indicator may be ranked at #1, but if most of the features is limited in support restraints from ranking #1.

1. Unusually low provision of privacy. This rare rating is reserved for facility which has compromised privacy in unusual way. Most of the rooms are shared and with poor visual and acoustic privacy. The overall facility is lacking sound containment and ended up creating noisy environment. Also, provides very limited opportunity for private family time outside patient rooms, and very limited scope for confidential conversation between staff and family.

Goal 4 - Facilitate Social Interaction.

Definition. Environmental characteristics that facilitate and enable meaningful interaction between patients with staff, their family and other patients.

Evaluation Matrix. The following table is showing the evaluation matrix.

Table 8-4: Evaluation Matrix of Facilitate Social Interaction (Goal-4)

Design Objective – 1: Opportunities in patient rooms.					
4.1.1: Single room with the following criteria provides better opportunity for patients to interact with staff and families.	**5**	**4**	**3**	**2**	**1**
1. * Single room provides better opportunity for patients to interact with staff and families. 2. * Patient's room should have enough space to accommodate a large number of visitors to sit and to stand around bed. 3. * Provide comfortable chair, recliner or daybed for family to relax and sleep, 4. * Provide at least one lightweight or movable chair. 5. Provide a desk or small Table in the room. 6. Provide opportunity for phone conversation and internet connection. 7. At least one room should be big enough and have opportunity to convert into a double bed, or shared room to accommodate spouses, partners or friends, or two patients who have no family but prefer to have company from one another.	Presence of all the criteria with exceptional support.	Presence of all the criteria with good support.	Only significant criteria are present	Absence of one or two significant criteria	Absence of more than two significant criteria
Design Objective – 2: Opportunities in social or common spaces.					
4.2.1: Have a range of social spaces by size and functional type	**5**	**4**	**3**	**2**	**1**
1. *Lounge or waiting area towards the front of the facility 2. *Family area/living room 3. *Dining area 4. *Family kitchenette 5. *Semi-outdoor area (dayroom, den, veranda, patio, courtyard) 6. *Outdoor area (seating arrangement in the outdoor landscape) 7. Children play room 8. Library and computer room	Presence of all the criteria with exceptional support.	Presence of all the criteria with good support.	Only significant criteria are present	Absence of one or two significant criteria	Absence of more than two significant criteria

Note. 5 - Exceptionally High, 4 – High, 3 – Moderate, 2- Low, 1 - Unusually Low, [*]-Significant Criteria

Table 8-4 Continued.

4.2.2: Provide multiple small intimate spaces instead of one large central space for multi-purpose.	**5**	**4**	**3**	**2**	**1**
Instead of having one single large central social space for the entire facility, distribution of social spaces into multiple small intimate spaces throughout the facility (pod style -multiple bedrooms clustered with a living room) provides better privacy for patients and family.	Multiple spaces in each pod & multiple central	One space in each pod & two in central	One social in each pod and one dining	One dining and one living room	One central multipurpose room
4.2.3: Interior design should incorporate non-institutional look and furnishing to encourage private conversation and entertainment.	**5**	**4**	**3**	**2**	**1**
1. * Use of comfortable and flexible furniture. 2. * Furniture arrangements should be intimate for conversation. 3. Use of hearth to create an intimate and inviting living room. 4. Provide opportunity to create a large social space if required: such as the visitors lounge, meeting room, or dinning space could open or connect with another space or connect to outdoor space to accommodate large gathering, party, or celebration.	Presence with exceptional support	Presence with good support	Absence of one regular	Absence of one significant criteria	Absence of two significant criteria
Design Objective – 3: Opportunities in outdoor social spaces.					
4.3.1: Provide range of outdoor social spaces to promote group gathering.	**5**	**4**	**3**	**2**	**1**
4. * Provide semi-outdoor spaces with bed accessibility and with outdoor furniture and shading device, etc. 5. * Provide bed-accessible outdoor landscapes or garden with seating arrangements to incorporate group gathering. 6. One outdoor space with visual privacy to use that space for private time for family with patients.	Presence of all the criteria with exceptional support.	Presence of all the criteria with good support.	Absence of regular	Absence of two criteria	Absence of all

Note. 5 - Exceptionally High, 4 – High, 3 – Moderate, 2- Low, 1 - Unusually Low, [*]-Significant Criteria

Descriptive Scales.

5. Unusually high facilitation of social interaction. All the criteria are present with exceptionally high level of effectiveness to facilitate and enable meaningful interaction between patients with staff, their families and with other patients. The facility has extra-large patient rooms with enough furnishing for large gathering. Also, it has multiple small intimate spaces to provide better privacy for patients and family. There is an opportunity to create a large gathering space adding some small spaces and outdoor landscape space to have annual events. Interior design should incorporate non-institutional look and furnishing to encourage private conversation and entertainment. The facility has range of outdoor social spaces with enough seating arrangement and privacy.

4. Notably strong facilitation of social context. This rating is reserved for the facility which has all the efforts in good level of effectiveness, but all these criteria are not exceptionally effective as #5. One or two indicators may rank in #3, but the rest of the indicators have to be towards good and exceptionally good.

3. Moderate level of social facilitation. Some efforts are made to provide a moderate level of social interaction. The facility may contain all the significant criteria with moderate level of support; such as, patient rooms are medium large and lacking of movable chairs or desk. It may have limited number of movable chairs to create a flexible arrangement to enhance interaction. There may be one indicator ranked at #2, but rests are moderate to good level to achieve this ranking.

2. Limited facilitation of social interaction. Social interaction is compromised in one or two critical ways: may have small patient room, and also may lack of social space design which

promotes interaction between patients and their families. If one or two indicators ranked from #3 and/or one ranked from #1, but most of the features are in #2, it restraints from ranking #1.

1. Unusually low level of social facilitation. This rare rating is reserved for facility which has compromised patients' social interaction in unusual way. Patient rooms are small in size and lacking enough furnishing to accommodate more than two family members. The social spaces are design in institutional way, a very big large multipurpose space with lack of intimate scale and privacy to promote conversation. The furniture arrangement also do not support for patients' social interaction with family. The facility is lacking of outdoor seating spaces and lacking privacy to promote group gathering.

Goal 5 - Maximize Safety and Security.

Definition. Environmental characteristics that maximize safety and security of patients, staff and families.

Evaluation Matrix. The following table is showing the evaluation matrix.

Table 8-5: Evaluation Matrix of Maximize Safety & Security (Goal-5)

Design Objective – 1: Mitigation of potential hazards.					
5.1.1: Avoid patient fall from bed, during transferring and bathing.	**5**	**4**	**3**	**2**	**1**
1. * Patient's bed should have safety features to avoid fall (e.g., height adjustable, having at least one bariatric bed to accommodate bariatric patient, having movable railing). 2. * Garb bars in patient restroom and shower on all sides. 3. * Have specially equipped bathroom. 4. * Toilet and shower must have enough space so that at least two people can assist patients. 5. * Have nurse calling system in patient's room to ask for any help. 6. * Provide rounded edges of furniture and counters to minimize injury if someone bumps or falls against it.	Presence of all the criteria with exceptional support.	Presence of all the criteria with good support.	Presence of all the criteria with moderate level	Absence of one or two criteria	Absence of more than two criteria
5.1.2: Mitigation of potential hazards throughout the facility.	**5**	**4**	**3**	**2**	**1**
1. * All furniture must have stability, rounded corner and also avoid of glass or clear plastic furniture. 2. * Elements supportive to functional independence of patients and to their families should be secured (stoves, kitchen utilities, microwave, electronic appliances, etc.) and ease in monitoring by staff. 3. * Covered porch for transferring patients during adverse weather.	Presence of all the criteria with exceptional support.	Presence of all the criteria with good support.	Presence of all the criteria with moderate level	Absence of one criteria	Absence of two or three criteria
Design Objective – 2: Provide support for infection control.					
5.2.1: Provide the following considerations in patient room and other areas.	**5**	**4**	**3**	**2**	**1**
1. * The selection of furniture, fittings and finishes should consider performance including clinical and infection control. 2. * Provide one isolation room with appropriate standards. 3. * Provide hand washing sink and sanitizer in patient room. 4. * Provide separate family toilet & shower to avoid cross contamination from patient's toilet.	Presence of all the criteria with exceptional support.	Presence of all the criteria with good support.	Presence of all the criteria with moderate level	Absence of one criteria	Absence of two or more criteria

Note. 5 - Exceptionally High, 4 – High, 3 – Moderate, 2- Low, 1 - Unusually Low, [*]-Significant Criteria

Table 8-5 Continued.

Design Objective – 3: Provide support for security from theft and vandalism.					
10.3.1: Design should ensure security of the entire facility including the parking area.	**5**	**4**	**3**	**2**	**1**
• * Building layout should be ease in observing and monitoring by staff. • * Provide enough security systems (alarm, camera, door lock). • * Building layout should consider a night zone or 24-hour zone and a day zone (admin area) to provide enough security for night. • *Secure night entry to the in-patient units for staff and family. • Provide clear view from inside the building to entry access. • Provide enough artificial lighting at parking lot to building entrance. • Provide video monitoring or other security systems (if in separate level or location parking)	Presence of all the criteria with exceptional support.	Presence of all the criteria with good support.	Absence of one or two regular	Absence of one significant and two regular	Absence of more than one significant several regular

Note. 5 - Exceptionally High, 4 – High, 3 – Moderate, 2- Low, 1 - Unusually Low, [*]-Significant Criteria

Descriptive Scales.

5. Exceptionally high support for safety and security. All the criteria are present with exceptionally high level of effectiveness to ensure safety and security. The facility has provided extra efforts to ensure safety for patients and their families by mitigating potential hazards and infection control. It has also provided exceptional consideration for security throughout the site and building.

4. High level of support for safety and security. This rating is reserved for the facility which has all the efforts in good level of effectiveness, but all these criteria are not exceptionally effective as #5. One or two indicators may rank in #3, but the rest of the indicators have to be towards good and exceptionally good.

3. Moderate level of support. Some efforts are made to provide a moderate level of safety and security. The facility may contain all the significant criteria with moderate level of support; such as, a few number of furniture may lacking mitigation of potential hazard (sharp edge), or difficulties in monitoring children play area (solid door, or far from regular observation), family kitchenette (not visible or difficult in observation), difficulties in monitoring social areas at night to avoid fight between family members or watching inappropriate TV show. Also, provides moderate support for security, such as no monitoring system at night entrance and parking lot. There may be one indicator ranked at #2, but rest is moderate to good level.

2. Low level of support. Safety and security is compromised in one or two critical ways; may be limited support in theft and vandalism, and/or limited support in infection control. If one or two indicators ranked from #3 and/or one ranked from #1, but most of the features are in #2, it restraints from ranking #1.

1. Unusually low level of support for safety and security. This rare rating is reserved for facility which has compromised safety and security in unusual way. It provides very limited support for ensuring security from theft and vandalism; such as, no artificial light at parking lot and it is without any monitoring system which threatens secure entry for staff and families at night. Also, very low level support in infection control and mitigation of potential hazards; such as, no isolation room or no separate family restroom, furniture are designed with potential hazards, no covered porch for safe patients' transfer, no monitoring of children play area, etc.

Goal 6 – Provision of Autonomy.

Definition: Environmental characteristics that enable patients to exercise choice and personal preference about their environment and everyday life.

Evaluation Matrix. The following table is showing the evaluation matrix.

Table 8-6: Evaluation Matrix of Provision of Autonomy (Goal-6)

Design Objective – 1: Control over micro environment and physical settings.					
6.1.1: Provide control over micro environment (air, temperature, noise, light, smell, etc.).	**5**	**4**	**3**	**2**	**1**
1. *A single room provides better control over micro-environment. 2. * (Daylight) Provide curtains or blinds in the window, glass door, skylight or any openings. 3. * (Artificial light) provides various types (moods) of artificial lighting in patient rooms with dimmer switches to have control over creating desired environment. 4. * (Airflow) Provide operable window or door in patient rooms and in some social spaces. 5. * (Airflow) Provide ceiling fan with dimmer switch in patient rooms and also in common areas. 6. * (Noise) Good acoustic design to create sound containment throughout the entire facility. (noise control in patient rooms and spiritual or retreat areas) 7. * Like patient room, social areas of the facilities should provide sense of control over daylight, artificial light, airflow, noise and smell. 8. To avoid food smell from kitchen, provide kitchen location little further with high quality exhaust fan.	All present with exceptional support	All present with good support	Absence of one or two significant	Absence of three significant	Absence of more than three significant
6.1.2: Provide control over physical settings.	**5**	**4**	**3**	**2**	**1**
1. * Provide at least two movable chairs in patient rooms. 2. * Provide some extra space in patient rooms to accommodate any piece of furniture or have flexibility to move chairs. 3. *Provide few pieces of movable chairs in social spaces. 4. Provide few pieces of movable chairs in spiritual spaces. 5. Provide at least one area for gathering in outdoor spaces with one or two piece of movable seats.	All present with exceptional support	All present with good support	Absence of regular	Absence of regular and one significant	Absence of more than three

Note. 5 - Exceptionally High, 4 – High, 3 – Moderate, 2- Low, 1 - Unusually Low, [*]-Significant Criteria

Table 8-6 Continued.

Design Objective – 2: *Control over daily routine & activities (bath, eating, smoking, watching TV, praying, etc.).*					
6.3.1: Provide following supports for controlling daily routine and activities.	**5**	**4**	**3**	**2**	**1**
1. * Provide a 24-hour family kitchenette to provide control over patient's food preparation. 2. * Provide TV, CD player, DVDs, Wi-Fi, and phone in patient rooms to have control over entertainment and communication. 3. * Designated interior room, or screened outside area, or only outside are for smoking with visual privacy. 4. Smoking area should have a hard surface floor, blinds in place with good ventilation. 5. If patient rooms patios are allowed for smoking it should not be shared.	All present with exceptional support	All present with good support	Absence of regular	Absence of regular and one significant	Absence of more than three

Note. 5 - Exceptionally High, 4 – High, 3 – Moderate, 2- Low, 1 - Unusually Low

Descriptive Scales.

5. Exceptionally high support for autonomy. All the criteria are present with exceptionally high level of effectiveness to ensure control over microenvironment and physical setting, and autonomy in performing daily routine. The facility has provided extra efforts to ensure control over daylight, artificial light and airflow. Each room may contain individual thermal control system. All the patient's room and social spaces have movable or flexible seating arrangement. It also has a designated smoking area with patient bed accessibility, and a 24-hour kitchenette with necessary appliances for preparing patient's food.

4. High level of support for autonomy. This rating is reserved for the facility which has all the efforts in good level of effectiveness, but all these criteria are not exceptionally effective as #5. One or two indicators may rank in #3, but the rest of the indicators have to be towards good and exceptionally good.

3. Moderate level of support. Some efforts are made to provide a moderate level of autonomy. The facility may contain all the significant criteria with moderate level of support; such as, a few areas in the facility are having trouble with glare. It may have limited number of movable chairs to create a flexible arrangement to enhance interaction. There may be one indicator ranked at #2, but rests of the features are moderate to good level.

2. Low level of support. Autonomy is compromised in one or two critical ways; may have few shared rooms, limited support on control over micro-environment (no dimmer switch, no operable window, etc.) and physical setting (no movable chair). Also, low support in performing daily routine: no kitchen, or no smoking area, no TV or other entertainment equipment or no control over these amenities. If one or two indicators ranked from #3 and/or one ranked from #1, but most of the features are in #2, it restraints from ranking #1.

1. Unusually low level of support for autonomy. This rare rating is reserved for facility which has compromised patient's autonomy in unusual way. It provides very limited support for Control over micro environment and physical setting: may have mostly shared room, or may have lacking of controlling features and limited considerations for noise and glare control; also, absence of kitchen or designated smoking area.

Goal 7 - Regulate Stimulation and Support Sensory Therapies.

Definition. Environmental characteristics that contribute to an appropriate quantity and quality of sensory experience, and support sensory therapies (palliative therapies).

Evaluation Matrix. The following table is showing the evaluation matrix.

Table 8-7: Evaluation Matrix of Regulate Stimulation and Support Sensory Therapies (Goal-7)

Design Objective – 1: Provide or enhance positive therapeutic stimuli through environmental design.					
7.1.1: Provide positive visual stimulation.	**5**	**4**	**3**	**2**	**1**
1. * Presence of appropriate amount of daylight in all spaces. 2. * Provide nice view from patient's bed. 3. * Use of positive art which are socially and culturally meaningful: painting of local landscape, quilt made by local people, etc. 4. * Selection of color, material and finishes for interior design should create a warm homelike environment. 5. Designated space, countertop, and shelves in patient rooms to display personal photographs, cards or other artifacts. 6. Different moods of artificial lighting with dimmer switch in patient rooms. 7. Provide indoor plants, aquarium, butter fly habitants, etc.	All present with exceptional support	All present with good support	All present with moderate level	Absence of one significant	Absence of two significant
7.1.2: Provide positive tactile stimulation.	**5**	**4**	**3**	**2**	**1**
1. *Use various textures and avoid all similar surfaces, use soft surface, use of material that represent nature, such as, stone, wood. 2. Provide indoor plants, aquarium, butter fly habitants, etc. 3. Use of quilt in patients' bed.	Presence with exceptional support	Presence with good support	Presence with moderate support	Absence of one criteria	Absence of two criteria
7.1.3: Provide positive olfactory stimulation.	**5**	**4**	**3**	**2**	**1**
1. * Provide operable window in patient room to smell fresh air from outside. 2. * HVAC system should have efficient airflow. 3. Provide baking or cooking scope near dining or living area, because smells of familiar food (e.g., cookie, coffee) are reflective to home-like feelings.	Presence with exceptional support	Presence with good support	Presence with moderate support	Absence of one criteria	Absence of two criteria
7.1.4: Provide positive acoustic stimulation.	**5**	**4**	**3**	**2**	**1**
1. Presence of white noise (ceiling fan, HVAC system, water features) 2. Sound of children giggling can be positive for patients, so location of children play area is important.	Presence exceptional support	Presence with good support	Presence moderate support	Absence of one criteria	Absence of two criteria

Note. 5 - Exceptionally High, 4 – High, 3 – Moderate, 2- Low, 1 - Unusually Low, [*]-Significant Criteria

Table 8-7 Continued.

Design Objective – 2: Regulate levels of acoustic stimulation, visual stimulation, and olfactory stimulation (often the intrusion of noxious stimulation). In general long-term care facilities are known for their lack of tactile stimulation, which limiting the need for regulation.					
7.2.1: Regulate acoustic stimulation by controlling noise (Noise connotes unpleasant or unnecessary acoustic stimulation).	**5**	**4**	**3**	**2**	**1**
1. Use of good acoustic material in wall, floor, ceiling, door and window. 2. Acoustic privacy through layout; such as, presence of buffer zone (foyer, toilet, wall closet) between patient rooms and corridor.	Presence exceptional support	Presence with good support	Presence moderate support	Absence of one criteria	Absence of two criteria
7.2.2: Regulate visual stimulation.	**5**	**4**	**3**	**2**	**1**
1. Provide appropriate cue without becoming overwhelming by avoiding overabundance of artifacts (paintings, photos, quilts) on wall which competing for attention. 2. Eliminate aversive stimuli (e.g., glare) by ensuring all openings have options for controlling daylight.	Presence with exceptional support	Presence with good support	Presence with moderate support	Absence of one criteria	Absence of two criteria
7.2.3: Regulate olfactory stimulation.	**5**	**4**	**3**	**2**	**1**
1. Provide appropriate ventilation to avoid bad odor from trash, kitchen cooking, or other sources. 2. Fresh airflow through HVAC and having operable window and door.	Presence exceptional support	Presence with good support	Presence moderate support	Absence of one criteria	Absence of two criteria
Design Objective – 3: Provide support for therapies (music therapy, aroma therapy, horticulture therapy, multi-sensory room design)					
7.3.1: Provide scope for designated spaces to support various therapies.	**5**	**4**	**3**	**2**	**1**
1. *Patient rooms should be large enough to accommodate music therapist, pet therapist or message/touch therapist. 2. * Electric outlet in appropriate location for laptop, TV, CD players, etc. 3. * A spa room or specially equipped bathroom with sink for hair washing. 4. Location of piano should be in place so that music can be heard from patient rooms and other common areas. 5. Other designated spaces for message and aroma therapy, multi-sensory room, horticulture facility, etc	All present with exceptional support	All present with good support	Absence of regular	Absence of regular and one significant	Absence of more than three

Note. 5 - Exceptionally High, 4 – High, 3 – Moderate, 2- Low, 1 - Unusually Low, [*]-Significant Criteria

Descriptive Scales.

5. Exceptionally well regulated stimulation and support for quality stimulation & sensory therapies. The facility has provided exceptionally well regulated stimulation by ensuring highly effective acoustic design, by controlling glare. The environments provide or enhance all positive stimuli with exceptionally high scope. Also, this facility has scope for various types of sensory stimulation. using of a range of potential engaging visual, olfactory and tactile stimuli using of a range of potential engaging visual, olfactory & tactile stimuli.

4. High regulation of stimulation and support for quality stimulation & sensory therapies. This rating is reserved for the facility which has all the efforts in good level of effectiveness, but all these criteria are not exceptionally effective as #5. One or two indicators may rank in #3, but the rest of the indicators have to be towards good and exceptionally good.

3. Moderate regulation of stimulation and support for quality stimulation & sensory therapies. Some efforts are made to provide a moderate regulation of stimulation and support for quality stimulation & sensory therapies. Design considerations to provide or enhance positive therapeutic stimuli may be lacking one or two criteria, but presence of all the significant criteria. One or two indicators may be good but mainly an absence of notably supportive features as in #4. There may be one indicator ranked at #2, but rests of the features are moderate to good level.

2. Limited regulation of stimulation and support for quality stimulation & sensory therapies. Regulation of stimulation is compromised in one or two critical ways. Also, very limited scope to provide or enhance positive therapeutic stimuli and support palliative therapies. One or two indicators may be ranged from #3; also one indicator may be ranked at #1, but if most of the features is limited in support restraints from ranking #1.

1. Unusually low regulation of stimulation and support for quality stimulation & sensory therapies. This rare rating is reserved for facility which has compromised regulation of stimulation (acoustic, visual and olfactory) and support for positive therapeutic stimuli. It has absence of acoustic and olfactory stimuli and very limited scope for visual and tactile stimuli. The facility also provides very limited support in patient rooms for sensory therapies and no other designated areas or amenities to support palliative therapies.

Goal 8 - Spiritual Care.

Definition: Environmental characteristics that facilitate patients' family accommodation and support control, functional independence, comfort, privacy, recreation, and spiritual care.

Evaluation Matrix. The following table is showing the evaluation matrix.

Table 8-8: Evaluation Matrix of Support for Spiritual Care (Goal-8)

Design Objective – 1: Facilities to support range of spiritual care (pray or meditation).					
8.1.1: Provide non-denominational or neutral environment in the facility.	**5**	**4**	**3**	**2**	**1**
1. Avoid presence of religious artifacts or symbol (unless it is a religion-specific hospice). 2. Avoid designing the spiritual space with any religion specific architecture.	Presence exceptional support	Presence with good support	Presence moderate support	Absence of one criteria	Absence of two criteria
8.1.2: Provide more than one spiritual care spaces	**5**	**4**	**3**	**2**	**1**
1. Provide formal spiritual care spaces: a sanctuary or chapel to accommodate at least ten to twelve persons, and another room call "quiet room" for small gathering (4-5 people) for meditation, quiet reflection, or prayer, or might work as a grieving room, or consultancy room for chaplains, religious worker, or funeral director. 2. Provide informal meditation spaces for reflection and individual solitude: semi-outdoor spaces (veranda, patio) and outdoor retreat areas.	At least two formal & multiple informal spaces	At least one formal & multiple informal spaces	One formal, few semi, & several outdoor	One formal, two semi, and few outdoor	One formal, two informal
Design Objective – 2: Provide facilities for spiritual care in formal spiritual spaces, informal spiritual spaces and in patient rooms.					
8.2.1: Provide a sanctuary, chapel or meditation space to accommodate group prayers or rituals (at least for 10 to 12 people).	**5**	**4**	**3**	**2**	**1**
1. * Spaces should be accessible by wheelchair or bed. 2. * Good acoustic design to ensure a calm contemplation environment. 3. * Environmental aesthetic (painting, picture, décor, outside view) should encourage reflection and foster self-nurturing behaviors'. 4. Comfortable and flexible furnishing. 5. Enrich with architectural delight (use of skylight, stain glass, nice view, water features).	Presence of all the criteria with exceptional support.	Presence of all the criteria with good support.	Absence of one regular	Absence of any three	Absence of more than three

Note. 5 - Exceptionally High, 4 – High, 3 – Moderate, 2- Low, 1 - Unusually Low, [*]-Significant Criteria

Table 8-8 Continued.

8.2.2: The quite room or meditation room should have the following criteria.	**5**	**4**	**3**	**2**	**1**
*Spaces should be accessible by wheelchair/ bed *Good acoustic design to ensure a calm contemplation environment. *Comfortable and flexible furnishing Environmental aesthetic (painting, picture, décor, outside view) should encourage reflection and foster self-nurturing behaviors'. Enrich with architectural delight (use of skylight, stain glass, nice view, water features)	Presence of all the criteria with exceptional support.	Presence of all the criteria with good support.	Presence of all significant	No quiet room but have alternative space with limited support	No quiet room or alternative space
8.2.3: Provide support in patient's room for range of spiritual care.	**5**	**4**	**3**	**2**	**1**
1. * Provide private patient rooms. 2. * Provide enough space around patient's bed to perform bedside prayer, worship or rituals. 3. * Provide shelves, side Table or counter top to display religious artifact according to personal preference. 4. Architectural delight (skylight, nice view to outside) should encourage reflection and foster self-nurturing behaviors. 5. Provide different moods of artificial light to create contemplation environment.	Presence with exception support	Presence with good support	Absence of regular criteria	Absence of three criteria	Absence of more than three criteria
8.2.4: Provide support for spiritual care in outdoor space.	**5**	**4**	**3**	**2**	**1**
1. * Provide a healing garden. 2. * Provide outdoor meditation or retreat areas with multiple seating arrangements, attractive features (water fountain, pond) and nice view. 3. Provide outdoor chapel, or meditation space, or a designated space to perform rituals or range of spiritual care (e.g., fire dance by Native American people). 4. Avoid noise from traffic or crowds to these areas. 5. Spaces should be accessible by wheelchair or bed. 6. In the garden, provide a destination to go, sit and enjoy the view or attractive features (pond, fountain, creek, etc.).	All present with exceptional support	Presence of all the significant with good support	Presence of all with moderate support	Absence of two significant and two regular	Absence of several significant and two regular

Note. 5 - Exceptionally High, 4 – High, 3 – Moderate, 2- Low, 1 - Unusually Low, [*]-Significant Criteria

Descriptive Scales.

5. Exceptionally high level of support for spiritual care. The facility has provided an extra support for spiritual care by providing multiple spiritual care spaces: one chapel or meditation space, one quiet room, several semi-outdoor areas (e.g., veranda, patio, dayroom), and several outdoor seating areas. All these spaces contain highest qualities of environment to support range of spiritual care. Also, all the patients room are single, noiseless, with large space around patients' bed, and also with environmental aesthetics (presence of painting, picture, décor, outside view, etc.) that encourage reflection and foster self-nurturing behaviors.

4. High level of support for spiritual care. Several indicators warrant this rating. One may be number of spiritual care spaces; may be the facility has only a chapel or meditation room, but no "quite room" or designated space for consultancy. Also, the overall design qualities of the formal and informal spiritual care spaces including the patient rooms are good but not exceptionally good as mentioned in #5. There may be one or two indicators which ranked in #3, but the rest of the indicators are towards good and exceptionally good.

3. Moderate level of support for spiritual care. Some efforts are made to provide a moderate level of support for spiritual care. The environment may contain one or two artifacts displaying in insignificant manner. All the spiritual care spaces may be lacking one or two criteria, but presence of all the significant criteria. One or two indicators may be good but mainly an absence of notably supportive features as in #4. There may be one indicator ranked at #2, but rests of the features are moderate to good level.

2. Limited support for spiritual care. Spiritual care is compromised in one or two critical ways. One or two indicators may be ranged from #3; also one indicator may be ranked at #1, but if most of the features is limited in support restraints from ranking #1.

1. Unusually low support for spiritual care. This rare rating is reserved for facility which has compromised spiritual care in unusual way. Most of the features are absent: the facility has failed to represent non-denominational or neutral environment, also it has very limited number of spaces with absence of qualities to support spiritual care. Most of the patient rooms are noisy, unpleasing and lack of spaces around bed to perform any pray or consultancy.

Goal 9 - Family Accommodation.

Definition: Environmental characteristics that facilitate patients' family accommodation and support control, functional independence, comfort, privacy, recreation, and spiritual care.

Evaluation Matrix. The following table is showing the evaluation matrix.

Table 8-9: Evaluation Matrix of Provide Family Accommodation (Goal-9)

Design Objective – 1: Easy accessibility & wayfinding.					
9.1.1: Facility should be easily accessible with enough wayfinding signage.	**5**	**4**	**3**	**2**	**1**
1. Easy and clear directions through simple building design configuration. 2. Provide enough and appropriate signage system. 3. *Welcoming entrance for visitors.	Presence exceptional support	Presence with good support	Presence moderate support	Absence of two	Absence of three
Design Objective – 2: Provide comfortable accommodation for family members to stay for few days or for a short visit.					
9.2.1: Provide support in patient rooms for family accommodation.	**5**	**4**	**3**	**2**	**1**
1. Single room provides better opportunities for family accommodation. 2. Large in size to accommodate large gathering (at least 5 people) 3. Provide two family members' sleep 4. At least one person's comfortable sleep (daybed/sofa bed) 5. Try to create a distinct zone in patient rooms for family, so that at night the staff can come easily and monitor patients 6. Enough storage or closet space 7. Light weight movable chairs, at least two. 8. At least one chamber with locking options. 9. Have a Table or desk to work on laptop, or write, or eating food, etc. 10. Provide at least one double room to accommodate infirm spouse or family. 11. Provide at least one separate room or opportunity for separate sleeping accommodation for family to ensure privacy for both parties, or in the scenario when the patient room is not enough to accommodate more than one family member, or if there is a shared room.	Presence of all the significant and three optional with exceptional support	Presence of all the significant and two optional with good support	Presence of all the significant and one optional with moderate support	Presence of only significant with limited support	Absence of more than two significant with very limited support
9.3.3: A safe place for children to play under supervision.	**5**	**4**	**3**	**2**	**1**
1. Special interior design for children area with furniture, toys, and games. 2. Have a glass door or opening to control noise and to ease in observation. 3. Furniture should be comfortable and with rounded corner for safety.	Presence exceptional support	Presence with good support	Presence moderate support	Absence of one criteria	Absence of two criteria

Note. 5 - Exceptionally High, 4 – High, 3 – Moderate, 2- Low, 1 - Unusually Low, [*]-Significant Criteria

Table 8-9 Continued.

9.2.2: Provide different sizes of social spaces to accommodate a large number of visitors to small family crowd.	**5**	**4**	**3**	**2**	**1**
1. *Lounge or waiting area towards the front of the facility. 2. *Family area/living room in each pod or wing. 3. *Dining area adjacent with family room or centrally located. 4. *Multiple semi-outdoor and outdoor areas with seating arrangement. 5. *Children play area. 6. One large space for family gathering with privacy and enough seating arrangements. 7. Small spaces or seating arrangements for individual solitude. 8. Designated smoking area.	Presence of all the criteria with exceptional support.	Presence of all the criteria with good support.	Presence of all the criteria with moderate support.	Absence of one or two significant criteria	Absence of more than two significant criteria
9.2.3: Provide amenities and support for functional independence of families.	**5**	**4**	**3**	**2**	**1**
1. * Provide laundry facilities 2. * Designated shower areas and toilet areas (outside patient rooms or inside patient rooms) 3. * Provide 24-hour kitchen or kitchenette for family. 4. * Access to computer 5. * Access to phone ***6.*** * Access to Wi-Fi internet connection	Presence of all the criteria with exceptional support.	Presence of all the criteria with good support.	Presence of all the criteria with moderate support.	Absence of one criteria	Absence of two or more criteria
9.3.2: Have a 'family zone' or private break-out area.	**5**	**4**	**3**	**2**	**1**
1. *Close to patient's room 2. * Home-like intimate scale and interior design. 3. * Comfortable and flexible furnishing. 4. * Visual and acoustic privacy. 5. * TV, DVD players, games, books, CDs for recreation. 6. Use of meaningful positive artifacts. 7. Have nice view to outside.	Presence of all the criteria with exceptional support.	Presence of all the criteria with good support.	Presence of all the criteria with moderate support.	Absence of one or two significant criteria	Absence of more than two significant criteria

Note. 5 - Exceptionally High, 4 – High, 3 – Moderate, 2- Low, 1 - Unusually Low, [*]-Significant Criteria

Descriptive Scales.

5. Exceptionally high support for family accommodation. The facility provides an extra support to accommodate patient's family and visitors with comfort, autonomy (functional independency), and privacy. It provides various sizes and types of social spaces and amenities for families with exceptionally effective design criteria. All the patient rooms are also design with scope for family accommodation. Also, the facility provides an easily accessible and welcoming environment for all types of family members.

4. High support for family accommodation. This rating is reserved for the facility which has all the efforts in good level of effectiveness, but all these criteria are not exceptionally effective as #5. One or two indicators may rank in #3, but the rest of the indicators have to be towards good and exceptionally good.

3. Moderate support for family accommodation. Some efforts are made to provide a moderate level of support for family accommodation. All the objectives and requirement for facility design, patient rooms design and the social spaces design may be lacking one or two criteria to provide family and visitors' accommodation with autonomy and privacy, but presence of all the significant criteria. One or two indicators may be good but mainly an absence of notably supportive features as in #4. There may be one indicator ranked at #2, but rests of the features are moderate to good level.

2. Limited support for family accommodation. Family accommodation is compromised in one or two critical ways: not welcoming and easily accessible environment, absence of some significant features to provide comfortable family and visitors' accommodation with autonomy and privacy. One or two indicators may be ranged from #3; also one indicator may be ranked at #1, but if most of the features is limited in support restraints from ranking #1.

1. Unusually low support for family accommodation. This rare rating is reserved for facility which has compromised family accommodation in unusual way. Most of the features are absent: the facility has failed to represent non-denominational or neutral environment, also it has very limited number of spaces with absence of qualities to support spiritual care. Most of the patient rooms are noisy, unpleasing and lack of spaces around bed to perform any pray or consultancy.

Goal 10 - Support after Death.

Definition: Environmental characteristics that support care and dignity for patients and their families during the moment of death, body removal, bereavement and remembrance.

Evaluation Matrix. The following table is showing the evaluation matrix.

Table 8-10: Evaluation Matrix of Provide Support After Death (Goal-10)

Design Objective – 1: Provide support during the moment of death.					
10.1.1: Provide support in patient rooms to accommodate the event of death.	**5**	**4**	**3**	**2**	**1**
4. * Room size should be larger to accommodate a large gathering. 5. * Provide enough space around the patient bed for bedside rituals to accommodate multiple people around the bed. 6. * Provide an operable opening (window or door) to support the believe 'Allow the Soul to Leave", during the moment of death. 7. Provide any kind of signage system outside the door to inform the staff and others that the deceased body is still inside. 8. Individual temperature control system allows lowering temperature which helps to keep the body for few hours.	All present with exceptional support	All present with good support	Absence of one or two regular	Absence of one significant and two regular	Absence of two significant and two regular
10.1.2: A small grieving or quiet room for families to gather after death.	**5**	**4**	**3**	**2**	**1**
6. * Location should be near to the in-patient area. 7. * Provide enough visual privacy. 8. * Good acoustic design to ensure a calm contemplation environment. 9. * Comfortable and flexible furnishing. 10. Environmental aesthetic (painting, picture, décor, view) should encourage reflection and foster self-nurturing behaviors'. 11. Enrich with architectural delight (e.g., skylight, stain glass, nice view)	All present with exceptional support	Presence of all the significant with good support and absence of one regular	Absence of one significant and two regular	Absence of two significant and two regular	Absence of any designated space for families to grieve
Design Objective – 2: Provide support for deceased patient's body removal or transfer from the facility.					
10.2.1: Provide a discreet and sensitive route to transfer deceased patient's body from bedroom to funeral car.	**5**	**4**	**3**	**2**	**1**
1. * Should not transfer through service exit which is not sensitive. 2. * Covered porch to transfer during adverse weather. 3. * The route must avoid major public or social space. 4. Better to have a separate patient entrance or exit to transfer from ambulance and to funeral car.	All present with exceptional support	All present with good support	Absence of one regular	Depart through moderately poor service exit	Depart through unusually poor service exit

Note. 5 - Exceptionally High, 4 – High, 3 – Moderate, 2- Low, 1 - Unusually Low, [*]-Significant Criteria

Table 8-10 Continued.

Design Objective – 3: Provide support after death and departure of deceased patients.					
10.3.1: Provide dignified ways of expressing remembrance for deceased.	**5**	**4**	**3**	**2**	**1**
1. * Designated space in wall (e.g., brink tile wall, donor wall, memory tree wall.) or in outdoor garden (stones, landscape feathers) 2. * These places should have appropriate visibility and sensitivity. 3. * Storage space with privacy and security to store patients' belongings for few months while waiting for family members to pick up. 4. Storage space to keep the donations from patient families. 5. Flower room or a designated space with sink to organize flowers from funeral hall.	All present with exceptional support	Presence of all the significant with good support and absence of one regular	Absence of one regular	Absence of one significant and two regular	Absence of two significant and two regular
10.3.2: If the facility is providing on-site bereavement support, a bereave suite or meeting room is required with the following criteria:	**5**	**4**	**3**	**2**	**1**
1. * Provide visual and acoustic privacy. 2. * Intimate arrangement with comfortable furnishing. 3. Locate near to the entrance and avoid route through in-patient units. 4. Environmental aesthetic (painting, picture, décor, outside view) should encourage reflection and foster self-nurturing behaviors'.	All present with exceptional support	All present with good support	Absence of one regular	Absence of one significant and two regular	Absence of two significant and two regular

Note. 5 - Exceptionally High, 4 – High, 3 – Moderate, 2- Low, 1 - Unusually Low, [*]-Significant Criteria

Descriptive Scales.

5. Exceptionally high level of support after death. The facility has provided exceptional considerations to provide support after death: patient's room, grieving room, body removal route, and the bereavement room (if any), all of these spaces are designed with all the features. Also there are one or two excellent ways of expressing the remembrance for the deceased.

4. High level of support after death. This rating is reserved for the facility which has all the efforts in good level of support, but all these criteria are not exceptionally effective as #5.

One or two indicators may rank in #3, but the rest of the indicators have to be towards good and exceptionally good.

3. Moderate level of support after death. Some efforts are made to provide a moderate level of support after death. Patient rooms and bereavement room are lacking one or two criteria, the desired environment to remove deceased body may lacking one criterion, but the rest of the features are presence with moderate support. One or two indicators may be good but mainly an absence of notably supportive features as in #4. There may be one indicator ranked at #2, but rests of the features are moderate to good level.

2. Limited support after death. Several indicators warrant this rating. Support after death is compromised in one or two critical ways: limited support during the moment of death, the process of body removal and also having no considerations of expressing remembrance indicates the lacking of care with dignity to the diseased. One or two indicators may be ranged from #3; also one indicator may be ranked at #1, but if most of the features is limited in support restraints from ranking #1.

1. Unusually low support after death. This rare rating is reserved for facility which has compromised support after death in unusual way. Most of the features are absent: the facility has failed to indicate any support to the deceased and their family during and after the death. Patients room are lacking of features to accommodate the event of death, also the facility has not consider any dignified ways to remove deceased body and express remembrance.

Goal 11 - Maximize Support for Staff.

Definition. Environmental characteristics that support staff for better communication, observation, efficiency, satisfaction, and wellbeing.

Evaluation Matrix. The following table is showing the evaluation matrix.

Table 8-11: Evaluation Matrix of Maximize Support for Staff (Goal-11)

Design Objective – 1: Provide privacy and comfort for staff.					
11.1.1: Provide following criteria to insure privacy for staff.	**5**	**4**	**3**	**2**	**1**
1. * Building layout and planning should consider separate zoning for staff area to insure privacy. 2. *Provide separate parking area. 3. Separate staff entrance provides better privacy. 4. Location of chief administrator/ directors' room in front with a gate keeper, so that it can be easily accessible by the patients' without interfering other staff's privacy. 5. Travelling healthcare staff can park in the separate or staff only parking and can remove building without crossing public route.	All present with exceptional support	All present with good support	Absence of two regular	No separate parking or entrance and limited privacy in staff area	No separate parking & entrance with very limited privacy
11.1.2: Provide comfortable work area for the staff.	**5**	**4**	**3**	**2**	**1**
1. *Avoid one large open working area or institutional look and create intimate scale office spaces with more residential look. 2. *Have enough work area and storage space. 3. *Have an efficient layout. 4. *Have daylight in maximum work areas. 5. Have a nice view to outside from most of the work station. 6. Provide comfortable and flexible furnishing.	All present with exceptional support	Presence of all the significant with good support	Presence of all with moderate support	Absence of two significant and two regular	Absence of several significant and two regular
Design Objective – 2: Provide support for socialization, relaxation and recreation.					
11.2.1: Create a staff break area for inpatient and outside staff.	**5**	**4**	**3**	**2**	**1**
1. * Provide an intimate scale space or room. 2. * Provide comfortable and flexible furnishing. 3. * Presence of nice view to outside and daylight. 4. * Provide visual and acoustic privacy. 5. Attached outdoor area with seating opportunity. 6. Recreational facilities (TV, games, books, videos).	All present with exceptional support	Presence of all the significant with good support	Presence of all with moderate support	Absence of two significant and two regular	Absence of several significant and two regular

Note. 5 - Exceptionally High, 4 – High, 3 – Moderate, 2- Low, 1 - Unusually Low, [*]-Significant Criteria

Table 8-11 Continued.

Design Objective – 2 Continues: Provide support for socialization, relaxation and recreation.					
11.2.2: Create a staff break area for inpatient and outside staff.	**5**	**4**	**3**	**2**	**1**
Provide a quiet area besides the staff break area for individual solitude. 1. * Provide visual privacy 2. * Provide acoustic Privacy 3. * Provide comfortable furniture 4. Provide a nice view to outside. 5. Environmental aesthetic (painting, picture, décor) should encourage reflection and foster self-nurturing behaviors'. 6. Provide a small break area attached to nurse station if the central break area is in long walking distance or in different floor (convenient for night).	All present with exceptional support	Presence of all the significant with good support	Presence of all with moderate support	Absence of one significant and two regular	No designated quiet area
11.2.3: Access to outdoor landscape for retreat or meditation.	**5**	**4**	**3**	**2**	**1**
1. * Provide a staff only outdoor area. 2. * Provide visual privacy from patient area. 3. Avoid noise and maximize serenity. 4. Nice view from the seating area. 5. Access to a walking trail or garden or nicely designed landscaped area.	All present with exceptional support	Presence of all the significant with good support	Presence of all with moderate support	Absence of one significant and two regular	Absence of two significant and two regular
Design Objective – 3: Provide support to ease in observation and care.					
10.3.1: Provide following support in nurse station and patient rooms.	**5**	**4**	**3**	**2**	**1**
1. * Building layout should consider short corridor run from nurse station to patient rooms and supply areas. 2. * Visual & acoustic privacy at nurse station. 3. * Provide necessary equipment and mechanical system to ease observation, communication and care process (nurse calling system, patients' lifting system, camera, Wi-Fi, etc.). 4. * Provide staff zone in patient rooms with supply closet so that at night the staff can come easily and monitor patients without interrupting family. 5. Adequate storage area near nurse station. 6. Provide two ways communication systems between nurse and patients.	Presence with exceptional support	Presence with good support	Presence with moderate support	Absence of one significant and two regular	Absence of two significant and two regular

Note. 5 - Exceptionally High, 4 – High, 3 – Moderate, 2- Low, 1 - Unusually Low, [*]-Significant Criteria

Descriptive Scales.

5. Exceptionally high support for Staff. The facility has provided exceptional considerations to provide support for staff: distinctive clear separate zoning for staff area, separate entry from staff only parking area, presence of daylight, nice view in all the work areas, residential layout and non-institutional interior design. It provides extra support to create scope for staff socialization, recreation and retreat. The facility also provides all the highly effective equipment, mechanical system and amenities for staff to ease in their observation and care providing process.

4. High support for Staff. This rating is reserved for the facility which has all the efforts in good level of effectiveness, but all these criteria are not exceptionally effective as #5. One or two indicators may rank in #3, but the rest of the indicators have to be towards good and exceptionally good.

3. Moderate support for Staff. Some efforts are made to provide a moderate level of support for staff. All the objectives are lacking one or two criteria to provide a comfortable work area for staff with privacy, may be lacking of enough storage space, or lack of good features in staff break room. One or two indicators may be good but mainly an absence of notably supportive features as in #4. There may be one indicator ranked at #2, but rest of the features is moderate to good level.

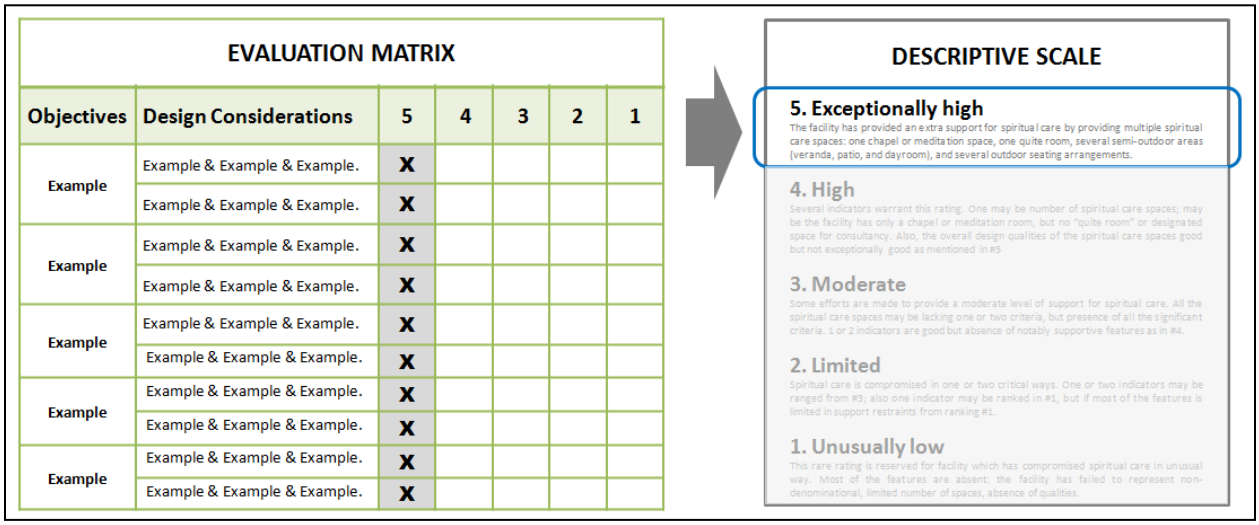
2. Limited support for Staff. Support for staff is compromised in one or two critical ways: may not have a distinct zoning for staff area in the building, or may lacking some major features to provide privacy and comfortable work area, or may be absence of some significant features to provide support for socialization and recreation, and or, lack of some features for ease

in observation and care. One or two indicators may be ranged from #3; also one indicator may be ranked at #1, but if most of the features is limited in support restraints from ranking #1.

1. Unusually low support for Staff. This rare rating is reserved for facility which has compromised support for staff in unusual way. Most of the features are absent: the building layout has no clear zoning for staff or admin area to provide privacy, the facility has failed to provide a comfortable work area for the staff, also it has very limited scope for staff socialization and relaxation. Most of the features to support ease in observation and care are lacking.

Discussion of Rating Process

These evaluation matrixes would be used to score the descriptive rating scales. The summary of all design consideration scores would help the HEAP-rater to score the rating scale. For example, one hospice facility could score five in all design considerations and can get the exceptionally high level of support in the rating scale (Figure 8-1). In another scenario, the hospice facility could score in one or two design consideration from number four, the high level of support (Figure 8-2).



EVALUATION MATRIX

Objectives	Design Considerations	5	4	3	2	1
Example	Example & Example & Example.	X				
	Example & Example & Example.	X				
Example	Example & Example & Example.	X				
	Example & Example & Example.	X				
Example	Example & Example & Example.	X				
	Example & Example & Example.	X				
Example	Example & Example & Example.	X				
	Example & Example & Example.	X				
Example	Example & Example & Example.	X				
	Example & Example & Example.	X				

Figure 8-1. Example of Rating Process Scenario – A. All the design considerations scored five in the Evaluation Matrix to rank (#5) Exceptionally High level of support. @ Sharmin Kader

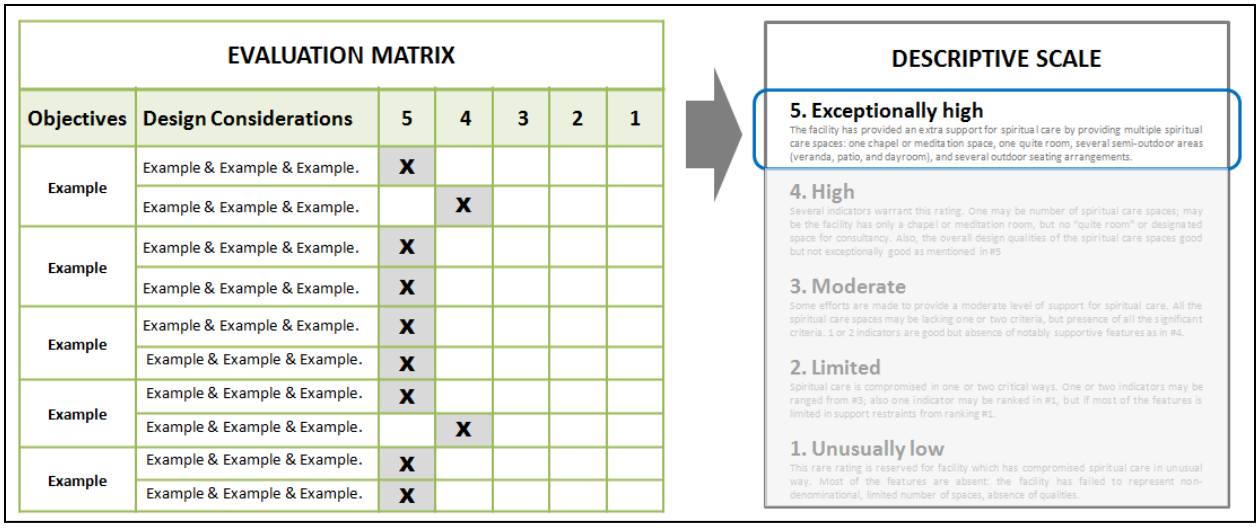


Figure 8-2. Example of Rating Process Scenario – B. Most of the design considerations scored five in the Evaluation Matrix to rank (#5) Exceptionally High level of support. @ Sharmin Kader

To rank number three, which is a moderate level of support, all the design considerations of any goal could score at number three, or one or two considerations could score from upper the level (#4) and one or two from lower level (Figure 8-3). That means, if one or two criteria are scoring from the lower level or upper level, the overall scoring could be the same.

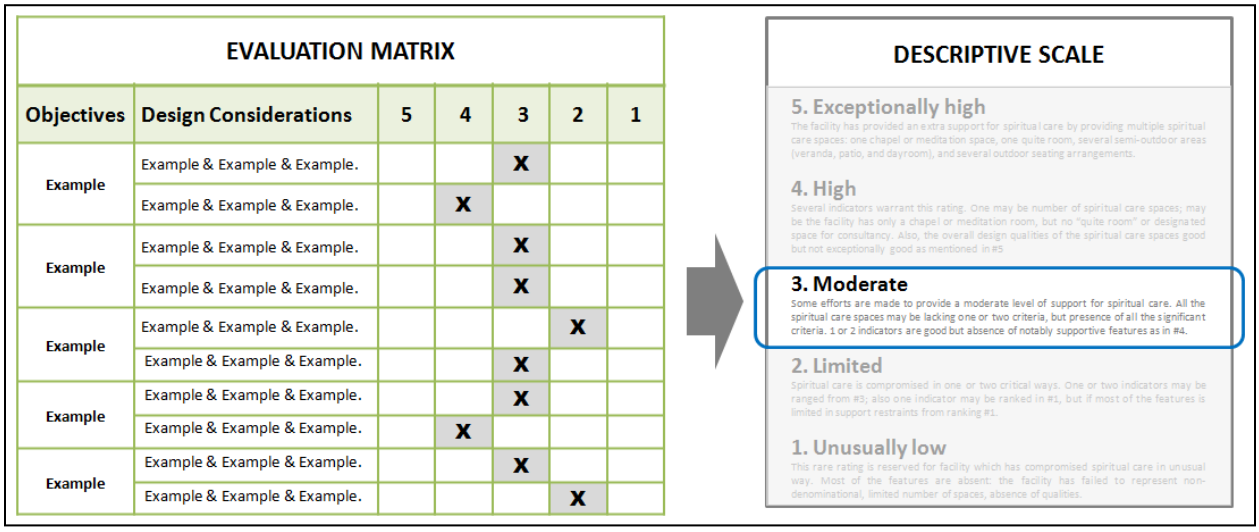


Figure 8-3. Example of Rating Process Scenario – C. Most of the design considerations in the Evaluation Matrix scored three, only two considerations scored four and one considerations scored two to rank (#3) Moderate level of support. @ Sharmin Kader

To solve the confusion of which one to calculate or not, there will be a range in the five-point descriptive scale which will help to summarize the result. The rater will summarize the number and based on that will made the judgment. The ranges for each scale will vary for each goal, and it will depend on the number of design considerations that are present in each goal. For example, the following range distribution was developed for a goal which has ten design considerations:

5. Exceptionally high support [50-45]

4. High level of support [44-35]

3. Moderate level of support [34-25]

2. Low level of support [24- 15]

1. Unusually low level of support [14-10]

For example, in Figure 8-3 the total score is 31 (3+3+4+3+3+2+3+3+4+3=31) so the overall score is a Moderate level of support which has a range from 25 to 34.

Discussion of User's Manual

Any assessment tool requires some guidance or training for the person who is going to use the tool. For PEAP, there is a description for each goal and how to use the instrument. To train the HEAP-rater to use this tool, a user's manual will be developed in the future. The manual will have these evaluation matrixes and there will be at least one picture or sketch for each evaluation criteria. That means each design consideration would have at least five examples, one example for each point. One of the intentions is to create the evaluation matrix is to develop a more interactive and self-explanatory manual. This manual will be developed based on evidences from the case studies or assumptions of worst-case scenarios. For example, one of the design considerations for provision of privacy goal is *Avoid visibility of a patient's bed head from*

circulation corridor through the room layout, such as a small foyer; the presence of an inboard toilet, or making the entry recessed into the room. The user manual will have at least one picture for each scale to provide the rater better guidance.

5. Exceptional effective provision – Entire bed is not visible. In Figure 8-4, the patients' room has an entrance foyer which hides the entire patient's bed and provides no visibility from the corridor.

Figure 8-4. Example of Exceptionally Effective Provision (The patient room has an entrance foyer which hides the entire patient's bed and provides no visibility from the corridor.) @ Sharmin Kader

4. High provision – Only foot board is visible and most of the bed is not visible. In Figure 8-5, the patient's bed head is not visible from the corridor.

Figure 8-5. Example of Highly Effective Provision (The patient's bed-head is not visible from the corridor.) @ Sharmin Kader

3. Moderate provision – Patient's bed is partially visible from the corridor but patient's bed head not visible. In Figure 8-6, the patients' bed is more visible than number four, but the bed head is still not visible.

Figure 8-6. Example of Moderate Provision. (the patients' bed is more visible than number four, but the bed-head is still not visible.) @ Sharmin Kader

2. Limited provision – Patient's bed is completely visible from corridor but has privacy curtain. In Figure 8-7, the patient's room is completely visible, but there is a curtain in front of the door.

Figure 8-7. Example of Limited Provision. ((a) the patient's room is completely visible without the curtain, (b) the view from the corridor with the curtain in front of the door.) @ Sharmin Kader

1. Unusually low provision – Patient's bed is completely visible from corridor without any privacy curtain. There is no picture or evidence available from case studies, so it is based on assumption. This scenario is exactly same like Figure 8-7 without privacy curtain.

Summary

These matrixes were developed based on the available evidence from the case studies and should be considered an initial effort. These matrixes need to be enhanced and validated through further expert opinion (second round of Delphi method).

As mentioned earlier, few design considerations were excluded, mostly for two reasons. First, the consideration was mentioned only in the literature, but was not mentioned by experts or present in the case studies or is not common practice in the United States; such as shared patient room or a mortuary, separate pet areas (pet stays in the patient room), or storage areas to

store patients' artworks from art therapy class. Second, the design consideration was suggested by one expert (mostly practicing architects) as new a innovation in their recent designed hospice project, but enough evidence about the outcome is not established or researched yet, such as the use of glass walls in the nurse station to enhance acoustic privacy.

Evaluation factors for each design consideration are unique, and each consideration was analyzed to develop the evaluation criteria. As presented in the matrices, some considerations may have all the significant criteria, and the evaluation factors depend on the design quality or amount of amenities available. In the goal-Safety and Security, most of the design considerations are significant.

Another point needs to be noted that these evaluation criteria are created based on the significance generated from the expert interviews and case study surveys. Some design considerations are evaluated in detail, such as acoustic design of patient rooms. Some considerations are evaluated in groups or bundles, such as acoustic design of all the social spaces are evaluated together instead of dividing into individual spaces, acoustic design of dining room, or acoustic design of lounge area.

This study also accepted repetition of the same design consideration in multiple goals to balance the weighting factor of a design consideration. For example, having a nice view to the outside from the patient's bed provides multiple therapeutic goals: continuity of self; access to nature; sensory stimulation; and spiritual care. Having a signage system outside patient's door (informs staff that the deceased patient is inside) results in only one goal, support after death. By doing this repetition, each consideration is getting the importance it deserves, such as if any hospice facility is does not provide a nice view from patient's bed, the rating would suffer in multiple goals. This distribution would also help the architects and hospice owners to identify

the importance of any particular design consideration to make design decision accordingly. As mentioned earlier, these distribution patterns along with the evaluation criteria of each design consideration are needed for further validation through experts' opinion and other methods of research.

Chapter 9: Conclusion

Reflection

This study developed a post-occupancy evaluation (POE) tool for hospice facility environments. The initial intention was to replicate the conceptual and structural framework of PEAP as well as the methodology by which it was developed. But, as stated in Chapter III, the research methodology used in this study evolved due to both a change in the objective of the research project and, subsequently, the tactics best thought to achieve the desired outcomes.

The research objective was redefined after the proposal defense, and the research only focused on developing an assessment tool for the hospice physical setting. This was done for two reasons. The first was to configure the length, time, and rigor of this study in the context of a doctoral thesis. Second, the background discipline of the researcher is architecture, whereas PEAP was developed by a group of experts from various disciplinary backgrounds. More collaboration is required with hospice care and management experts to develop the evaluation criteria of the hospice organizational policy and management.

This study initially considered a systematic literature review to identify the therapeutic goals and multiple rounds of Delphi methods to obtain expert opinion, with no case study surveys. After careful consideration, this study used case study surveys to strengthen the data collection process through triangulation, which contributed significantly in this research and generated the idea of developing the evaluation matrixes. The evaluation matrixes are an innovative contribution of this study with the expectation that they will simplify the overall evaluation process and will also increase the inter-rater validity. The last change in the methodology occurred after the data analysis and development of the evaluation matrixes. The second round of interviews with the experts was excluded as a part of this study. This was done

for two reasons: 1) the questionnaire became too large to ask a single person in one session. The interview format changed and resulted in a long process of data collection which was not compatible with this thesis study; and 2) the data were too extensive to present within the content of a doctoral thesis. In addition, the concepts of developing the evaluation matrixes was augmented after attending the post-occupancy evaluation network meeting and presenting a poster at the Environmental Design Research Association's yearly conference at Los Angeles in 2015. The discussion about the technological advancements in the post-occupancy evaluation field and the ability to generate a common database helped to modify the final findings and this research's future direction in the development of a software and online training program to prepare the HEAP raters. Furthermore, after presenting the final findings in the Healthcare Design Conference at Washington D.C. in November 2015, this study was able to define further future directions and to publish the design considerations as a guideline in journal articles or as a book.

Significant Contributions

This research has significance in the area of hospice environment research. A small amount of research and literature have been published in this area, and the definitions of the therapeutic goals and the design checklist for each goal created a milestone in the theory and research of environmental design research for hospice facilities. As stated earlier, post-occupancy evaluation is significant in many ways to the architect as well as to the building owner. This hospice environmental assessment tool provides feedback and guidelines to the architects for better future designs, and to the hospice organization about what they already have with the identification of the strengths and weaknesses for continuous improvement. To describe in more detail, this study has contributed in the following five areas:

Architectural Practice: The therapeutic goals and design checklists are significant findings for the architects and planners hospice facilities. These design checklists can be utilized to develop hospice facility design guidelines. As a POE tool, the evaluation matrixes of HEAP have achieved an advanced level which can be utilized in practice in multiple ways. Also, it is an indicative level of assessment tool which provides the foundation to develop the further POE of investigative and diagnostic levels.

Theory: One of the important accelerators toward advancing design quality in assisted living for people with dementia was the articulation of common therapeutic goals that the physical environment can facilitate. It is hoped that the eleven therapeutic goals developed herein for hospice environments play a similar catalyzing role.

Methodology: This study also contributed by innovating a new methodology of developing the evaluation matrixes for each therapeutic goal, which can also be implemented in developing POE tools for other types of building.

Hospice Care Practice: The therapeutic goals can be utilized to rate hospice care services. Although the findings had focused on physical settings, these considerations can also be addressed through organizational policy and management.

Future Research: This research carries significance for future research on hospice environments. Each goal and each design considerations of those goals can be a research inquiry in and of itself. Several vital issues and concerns have also been identified which are discussed later in Section 9.4. In short, this study has established an entire program of research.

Limitations

The limitations related in the research design and data collection processes have been discussed earlier in each three phases of the thesis. The limitations of the overall outcomes are:

- To utilize this tool, the development of a user's manual is necessary for use by other persons besides the researcher.
- The second round of interviews with the experts are necessary to validate and until modification of the evaluation criteria of the design considerations of each goal.
- The evaluation matrixes were developed based on the five case studies and assumptions based on the best-practice design solutions. Also, the need of doing case studies which do not represent best-practice is necessary as a future step.
- This study was limited to develop a tool for hospice physical settings. As a result, it is contributing a part of the assessment process, not the entire hospice care milieu which also includes social and organizational dimensions.
- Patients' and their families' perspectives were considered from the literature reviews, and in the future more participation from these two groups would be beneficial.
- This tool was developed to use in hospice facilities in the USA, so it is not generalizable to other countries and special hospice facilities, such as children's hospice or AIDS hospice.

Future Research Directions

Future research is needed to address the limitations and refine the methodologies of this study. The next step of this research is to conduct a second round of expert interviews. Each goal needs to be evaluated by three to four experts, which will eradicate the challenge of a lengthy questionnaire. As mentioned earlier in the reflection section, the evaluation matrix is based on five-point scales: exceptionally high support to unusually low support. To develop more evidence-based evaluation criteria and a user's manual, more case studies from a range of hospice environments are required. This study covered the best hospice facilities considering

best-practice examples. In the future, case studies from lesser quality hospices will be required. The fourth phase would be to develop the user's manual based on the case studies and also based on the researcher's and experts' assumptions. The last step of this phase would be to develop software for capturing and analyzing the data in a "just-in-time" format. Further steps should involve more in-depth research for each goal to build up more rigorous findings which will support investigative and diagnostic levels of POE tools. The need to develop the evaluation tool to assess the organizational policy and management of hospice environments is required to achieve a comprehensive tool.

Future Research Topics. This study identified several issues and questions about hospice environments which need further research to develop empirical findings. Also, the findings were based on qualitative research and further quantification is needed to support the qualitative findings, such as utilization rates of garden spaces or family satisfaction of private patio spaces. Although the further study topics for each goal were mentioned briefly in the summary of case study analysis, these topics are more elaborately explained again for future researchers.

Further study to provide continuity of self. The scope for personalization was found to be significant in this study, and also was supported by much of the literature to provide continuity of self in hospice facilities. This study also recognized that there is a relationship with the patient's length of stay (LOS) and the personalization of the room from expert opinion and case studies. One case study even mentioned that patient families are more enthusiastic to decorate the patient's room than the patients themselves. Further research needs to be done on the relationship between LOS and personalization, and also what types of objects or furniture the families bring to the facility. Another study topic is the location of the family kitchen in the

family room. One expert mentioned an innovative idea in their hospice to create a home-like environment which got positive feedback. Further research is required to establish this consideration as established evidence as follows:

- *Is there any relationship between the patient's LOS and scope for personalization? How much scope should be provided for hospice patients?*
- *What types of and how many personal belongings are brought by the patients and their families to the hospice facility?*
- *What is the satisfaction rate of patients' families with the scope for personalization? What is the rate of utilization?*
- *What are the positive and negative outcomes of placing the family kitchen in the family room to create a home-like environment?*

Further study to provide access to nature. This is one of the most significant goals for hospice environments, and there is a good deal of further research that is needed to develop empirical evidence in this area. This study found the transitional spaces play a vital role in access to nature for the patients and their families. As privacy in these spaces is significant, a private patio is better than a semi-private, and a semi is better than one shared by more than four patient rooms. The dilemma is to provide these spaces with an energy-efficient building in a hot climate zone. To discover patient and family satisfaction for having these transitional spaces is necessary for advocacy while making an energy efficient design is an important research topic. Another design consideration that needs more research is the presence of indoor gardens, fish tanks, butterfly habitats, or zen gardens. The positive impact of each of these options for hospice patients and their families require more confirmation.

Bed accessible gardens or outdoor landscape areas are significant for patients to enjoy nature, but there is no study on the utilization rate and how far these opportunities should be provided. Making a bed-accessible pathway is expensive although dying patients might enjoy going out in such a space. The rest of the garden space might be utilized for staff and family members. This study also found that hospice gardens carry spiritual and symbolic values. Which type of garden (e.g., English, Japanese, or wild) carries what symbolic role is a topic for further study.

- *What is the utilization rate and satisfaction rate of the private patio, semi-private patio, or other form of transitional spaces in the hospice facility?*
- *What are the benefits of using indoor plants, zen gardens, fish tanks, fountains, or butterfly habitats to the patient and family?*
- *How often do hospice patients utilize gardens or outdoor landscape spaces? Should bed-accessible pathways be provided?*
- *What types of gardens provide what kind of symbolic values? Which garden type should be used for hospice patients?*

Further study to provide support for privacy. There are two issues that need more research to gather more evidence for privacy in hospice environments. The study found that avoiding visibility of the patient's head from the corridor supports better privacy. The feedback from nurses and care providers about the indirect and elongated journey to reach a patient is unknown. Another design consideration which is new and innovative is providing privacy for family members in the patient room by creating a separate zone. These solutions need further research. It might be easy to develop these design solutions, but the challenge is to create this opportunity within a fixed budget.

- *What is the outcome of staff efficiency and comfort for the patient rooms which has an indirect and elongated entry?*
- *How much it is required to provide a family zone with visual privacy in the patient room?*
- *How can a family zone or huddle room be created in the patient room with limit space requirements and costs?*

Further study to provide support for social interaction. Although a shared room is no longer the norm in hospice care facilities in the United Sated, one of the significant findings from this research was that the shared room also carries some benefits for providing companionship in the last days of dying patients. One case study expressed concerns about the respite care patient's loneliness in their facility. These patients are taking home hospice care and reside in the facility for only five days (as Medicare supports five days) without their home-care provider. This program was developed to provide a respite for the patient's family caregiver. Some of the patients in that case study complained about the loneliness of those five days. Patients without families need some companionship in these last days. Although there is a volunteer program, "No Patient Dies Alone", which supports the patient without a family by providing companionship to the dying patient, a shared room could provide a solution as well.

- *What is the outcome for providing a few shared rooms in a hospice?*
- *How can a room be designed which will provide the opportunity to become shared if needed?*

Further study to provide support for safety and security. Security was found to be significant in this research. Suggestions were provided about secure night entrances, well-lit parking lots, and other security considerations. One of the hospice directors showed concern

about creating a welcoming entrance and environment in the hospice as well as insuring the security of the facility. More research would support these design considerations. Another factor that was raised the provision of bariatric beds or height-adjustable beds in patient rooms.

- *How to create a secure and also welcoming entrance?*
- *What are the mandatory security measures of a hospice facility?*
- *What is the programming requirement for providing bariatric beds in hospice facility?*
- *How might height-adjustable patient beds help in reducing patient falls?*

Further study to provide support for autonomy. The need to provide designated smoking areas for patients and their families was found to be significant. Although this space requirement was mentioned in the Hospice Design Manual, few case studies had any designated space for smoking. Individual temperature control systems were found satisfactory for the patients and their families. More research needs to focus on quantifying the satisfaction rate since providing this opportunity is expensive.

- *What is the utilization rate and satisfaction rate of a designated smoking area in the hospice facility?*
- *What is the satisfaction rate for the individual temperature control system versus no control?*

Further study to provide support for stimulation and therapies. All the case studies confirmed that the only dedicated space for palliative therapies in their facilities is the spa room. One case study said that patients enjoy children's giggling sounds. Two cases mentioned that they bake cookies to create home-like feelings in the patient units. Although a substantial

amount of research has been conducted on the sensory stimulation of patients, more research is needed on the impact of children's sounds and food smells on dying patients.

- *What are the benefits or constraints of providing children play areas in each pod or wing based on dying patients' experiences?*
- *How much do patients like food or cookie smells? What are the benefits of this sensory perception?*
- *How much space is required to accommodate music therapists in patient rooms?*

Further study to provide support for spiritual care. All the case studies were non-denominational in this study and each had a meditation space or chapel. These spiritual spaces were designed with architectural features to create a serene and sacred environment, and also some were designed with a specific character without displaying religious symbols. All the cases reported that most of the time spiritual care was provided in the patient rooms. Different cases had provided chaplain meeting spaces in various ways, either in the meditation space, in the meeting room, in the quiet room, or in the chaplain's office. The need to define which space would be suitable for the chaplain would be a good research topic.

- *What is the ideal size and shape of a non-denominational meditation space?*
- *What architectural features create an ambient and sacred environment and also will be denominational in character?*
- *What are the design suggestions by chaplains about spiritual spaces and their consultancy rooms?*

Further study to provide support for family accommodation. One significant concern that came out of this study was providing separate sleeping accommodations for family members. Two experts mentioned in their interviews and two case studies mentioned that they

opened an empty patient room for family members. No case study had any separate family accommodation rooms. In addition, the size of the hospice patient rooms should be larger than standard hospital patient rooms, but it is still not determined what would be the ideal size. Instead of having all the patient rooms the same size, there may be a need for various sizes. The concept of having a double room is innovative, and further research is necessary to reinforce this concept.

- *What is the need for designing separate sleeping accommodation for the family?*
- *What is the ideal size of the patient room? How to accommodate various sizes of family members?*
- *What is the need and impact of providing double rooms in hospice facilities?*

Further study to provide support after death. Today, there are two schools of thought in hospice facilities for the deceased patient's body removal from the facility: the front exit or a separate exit. One of the case study directors reported a few months earlier that they changed the patient's exit from their facility. Now they are using the front door, as this seemed appropriate to their management. More research needs to be conducted to get feedback from patients' families about which exit to use. Another issue that came out from some of the case studies was having a large storage space to store all the donation items. One case mentioned that they had a separate storage space and a store where they sell those items. Another case study mentioned that they had stopped receiving any objects as donations due to the challenges of managing those products. The last and one of the most significant concerns is having an operable window in patient rooms while making hospice facility energy efficient. One expert mentioned that they did not provide any operable windows in one of their projects located in southern state to make it an energy efficient building.

- *What is the ideal way of removing the deceased patient's body from a hospice facility?*
- *What is the psychological benefit or stress of patients' families in relation to the front exit, separate exit, or service exit?*
- *What is the programming requirement of storage spaces in a hospice facility?*
- *How much does the operable window carry significance?*

Further study to provide support for staff. The hospice facility requires a secure night zone for both the staff and family. This night zone should have secure well-lit parking lots and screened entrances. One case study complained that their staff break area is located far away in the staff zone, which is not suitable at night and isolates a staff to walk far way to take an hour-long break. This case study also mentioned that the hospice pod or wing should have at least eight rooms for one nurse, instead of six patients per nurse. One expert mentioned that they had experimented in their last project by providing a glass wall and door in the nurse station to enhance the acoustic privacy. Further research is required to measure the positive outcome of this innovation. Another point rose was having a common or social area where all the staff would go and communicate with each other.

- *What type of nurse station is suitable for the hospice facility? Should it be centralized or decentralized?*
- *What is the ideal ratio of patient room numbers to nurses to design a pod or wing with a decentralized nurse station?*
- *Where should be the break area for nurses are located at night if the break room is a farther away from the inpatient unit? Is a break room adjacent to the nurse station suitable for night use?*

- *What are the positive and negative outcomes of a glass wall and door in a nurse station to enhance acoustic privacy?*
- *What types of social spaces for staff help create better socialization and communication between different types of staff, such as volunteers, travel staff for home hospice services, and inpatient staff?*

Concluding Remarks

If there is one certainty to life it is that it will end in death. While much architectural research rightly has focused on so-called, first, second and third places, it is clear we have overlooked what are our last places – places of dying. There is no time at which we are more vulnerable and the environment so latent with meaning than in our last places. This study plows new territory in attempting to enhance our ability to design more thoughtful and efficacious hospice environments. It offers eleven salient therapeutic goals for these environments and, in so doing, challenges architects and society to create more enabling and inspiring environments to support a high quality dying experience for all involved. While there is much research to be done, I leave you with this assertion (paraphrasing Powell Lawton): the right to a quality environment at the time of the dying experience is an inalienable right and needs no empirical justification.

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Appendices

APPENDIX A: The Professional Environmental Assessment Protocol (PEAP)

THE PROFESSIONAL ENVIRONMENTAL ASSESSMENT PROTOCOL
G. Weisman, P. Lawton, M. Calkins, & P. Sloane

Overview

The goal of the Professional Environmental Assessment Protocol is the focused evaluation of specialized dementia care facilities (Special Care Units) with respect to eight dimensions of the environment as experienced (e.g., Environmental Awareness & Orientation) judged to be therapeutic with respect to the care of persons with Alzheimer's disease or related dementias.

What is Professional Environmental Assessment?

This approach differs from other commonly employed approaches to environmental description and assessment. It goes beyond the simple documentation of objective properties of a setting (e.g., enumeration of all spaces comprising an SCU, calculation of square footage of each, etc.). Thus indicators included in discussion of each of the 8 attributes of the PEAP are just that -- *indicators* -- and are not meant to constitute a checklist. At the same time the PEAP is meant to be more focused than totally global evaluations (e.g., everything else being equal is this a good or bad environment for dementia care?).

What aspects of the environment are being evaluated?

The primary focus of the PEAP is the *physical setting* and the extent to which it supports the needs of people with dementia. At the same time it is recognized that the physical world does not exist in isolation. It must be understood and evaluated within the larger context of Unit philosophy of care and program, level of resident capability, constraints of budget and regulations, etc.

One can usefully differentiate 3 levels of the physical setting, all of which are potentially important in completing a PEAP:

Fixed or Structural Features: Such features include overall unit area and floor plan, presence or absence of windows, etc.)

Semi-Fixed Features: These include less permanent architectural elements – e.g., presence or absence of handrails, wall and floor surfaces.

Non-Fixed Features: The presence of wall hangings, activity supplies and endless other "props" can play a critical role in the life of a setting.

PROFESSIONAL ENVIRONMENTAL ASSESSMENT PROTOCOL

SCORING PAGE
Unit I.D. _____

[1] Maximize Awareness and Orientation	(HIGH)	**5**	**4**	**3**	**2**	**1**	(LOW)
[2] Maximize Safety and Security	(HIGH)	**5**	**4**	**3**	**2**	**1**	(LOW)
[3] Provision of Privacy	(HIGH)	**5**	**4**	**3**	**2**	**1**	(LOW)
[4] Regulation of Stimulation	(HIGH)	**5**	**4**	**3**	**2**	**1**	(LOW)
[5] Quality of Stimulation	(HIGH)	**5**	**4**	**3**	**2**	**1**	(LOW)
[6] Support Functional Abilities	(HIGH)	**5**	**4**	**3**	**2**	**1**	(LOW)
[7] Opportunity for Personal Control	(HIGH)	**5**	**4**	**3**	**2**	**1**	(LOW)
[8] Continuity of the Self	(HIGH)	**5**	**4**	**3**	**2**	**1**	(LOW)
[9] Facilitation of Social Contact	(HIGH)	**5**	**4**	**3**	**2**	**1**	(LOW)

PROFESSIONAL ENVIRONMENTAL ASSESSMENT PROTOCOL

QUESTIONNAIRE (to be completed by Unit Director, Charge Nurse, etc.)

Maximize Awareness and Orientation

Is a regular program of activities provided?
Are specific rooms unambiguously used for specific activities?

Maximize Safety and Security

Is potentially hazardous equipment (ovens, etc.) secured?

Provision of Privacy

Do residents have choice of roommate?
Does facility policy require staff to knock on resident doors before entering?
Does facility policy require that residents be out of bedroom for a major part of day?
Do staff allow residents to keep door their room closed?

Regulaltion & Quality of Stimulation

Is use of pagers and TV tightly proscribed
Is there some temporal patterning of activities throughout the daily schedule?

Support Functional Abilities

- To what extent do policies encourage/discourage independent activity performance?
- Are cooking facilities available to residents?
- Do residents have unrestricted access to their own clothes?

What is facility policy regarding personal supplies in resident rooms?

Opportunities for Personal Control

- To what degree is the schedule regimented?

What rules, if any, govern what activities take place, when, and where?
Do staff permit flexibility in rising and retiring of residents?

Continuity of the Self

Is there a policy regarding bringing of personal furniture?

Facilitation of Social Contact

Is there a staff policy regarding placement of chairs adjacent to nursing station or other (potential) activity areas?

MAXIMIZE SAFETY AND SECURITY

Definition: The extent to which the environment both minimizes threats to resident safety and maximizes sense of security of residents, staff, and family members.

The cognitive impairments associated with dementia, as well as more general age-related physical deficits, can threaten the safety and security of people with Alzheimer's disease and those who provide care for them. Thus Safety and Security focuses on quite fundamental concerns. The cognitively impaired individual may not be able to understand the potential hazards in any given situation, and the environment must therefore allow the potential for close monitoring by staff, ideally in an unobtrusive manner. In addition to securing possible hazards, the physical environment can further minimize potential problems through the inclusion of a variety of safety precautions and prosthetic devices.

Several assessment dimensions (Support Functional Abilities, and Opportunities for Personal Control) suggest the inclusion within a unit of features or characteristics which are potentially hazardous (e.g., a kitchen or unrestricted access to the outdoors). Thus, it is important to ascertain from staff whether the philosophy of the unit recognizes and accepts the potential risks inherent in encouraging individual control, autonomy and maintenance of familiar activities (such as cooking), as opposed to trying to ensure resident safety at all costs. For a review of those features of the environment which may be seen as "competence-inducing" see Support of Functional Abilities.

Assessment Questions for Safety and Security

Ease of monitoring residents: Because so many situations are potentially hazardous to the person with dementia, the staff should be able to easily monitor the location and activity of residents. Ideally this occurs in an unobtrusive, non-institutional way. In addition, it should be relatively easy for residents to be able to locate staff when they are feeling anxious or alone. To what extent:

can residents in corridors and shared social spaces be viewed by staff in a natural and unobtrusive fashion?

can staff easily see residents in outside courtyards (if available)?

are staff readily available to residents, either through presence in an identifiable and predictable location, or through a high staff to resident ratio, such that staff are usually visible to residents walking through the unit? (How often during this assessment can you easily see a staff member?)

Control of unauthorized exiting: Unauthorized exiting from SCUs is often a problem or concern of facilities. Although the provision of resident control over decisions about going outside is important (see Opportunities for Personal Control), it is critical that residents not be allowed to wander away unattended. To what extent:

are exits from the unit which lead to unprotected/unsecured areas (either inside or outside) monitored (either electronically or by staff surveillance)?

are the monitoring systems fail-safe? [S]

are monitoring systems unobtrusive (absence of loud alarms or lights)? [S]

are exits disguised to naturally discourage residents from going through these doors (door and frame painted to match the adjacent walls, painted over with mural, minimal view to other side)?

Mitigation of Potential Hazards: People with dementia are typically older, and therefore experiencing a variety of physical/sensory related losses in addition to their cognitive impairments. The environment should serve to compensate for these losses and support remaining capabilities (see also Support of Functional Abilities.) To what extent:

are elements (such as handrails) which support independent ambulation and transfer (if resident uses a wheelchair) present in corridors, bathrooms (both private and shared) shared social spaces and bed rooms?

are there obstacles which might impede independence in ambulation (barriers such as carts or chairs placed so access to handrails is limited or discontinuous)?

are surfaces non-glare and non-slippery?

are floor surfaces soft to cushion a fall?

are gradual transitions provided between different floor surfaces (e.g., carpet to vinyl) particularly when they fall in the middle of a space?

are edges of furniture and counters rounded to minimize injury when someone bumps or falls against it?

is space provided for staff to provide assistance to residents in bathing and toilet rooms?

Provision of Specialized Equipment: As mentioned above, there is often a conflict between ensuring safety and providing opportunities for residents to engage in familiar activities, such as cooking. Ideally, both goals can be accomplished through the use of specialized equipment. To what extent:

are those elements which are both supportive of residents independent functioning (such as stoves, kitchen utensils, and razors) and potentially hazardous effectively secured? [S]

is specialized bathing equipment provided which minimizes resident anxiety and allows staff to provide needed assistance?

can the beds of residents who try to get up at night and are thus in danger of falling be placed low to the floor?

Rating Scale for Safety and Security

5. **Exceptionally high support for safety and security**

Staff can easily and unobtrusively monitor residents location and activities, and are easily available to residents as well. Problems of elopement are handled in a dignified and non institutional fashion; exit doors are disguised or lead to secured outdoor areas. Traditional safety elements are well positioned and integrated into building design; handrails are typically provided on both walls of corridors as well as in bath and toilet areas. There may even be handrails in the bedroom for low functioning residents. There are few barriers to use of these supports. Adequate floor area is provided for staff to assist with bathing and toileting, and equipment is non-threatening. Competence supporting features which are potentially hazardous are adequately secured.

4. **High level of support for safety and security**

Safety elements are generally present and well handled, however one or two non-serious problems lead to down-grading. For instance, there may not be enough space in the bathrooms or tub rooms to enable one or two staff to provide assistance easily, or there is low visibility into a courtyard, or exits are controlled but highly visible to residents, or some surfaces are shiny and appear slippery.

3. **Moderate level of support**

Exits are likely to be controlled (alarm, wanderguard, etc.) but unobtrusive staff surveillance throughout the unit is not often possible. Hazards are minimized by their absence rather than the careful control of competence inducing elements and equipment. Handrails are not as extensive throughout the unit: they may be found on one rather than both walls of corridors, or on only one side of a bathroom.

2. **Low level of support**

   Environment presents one or several hazards to residents -- unsecured or unmonitored exits or equipment, the absence of handrails, inadequate space for staff access in bath and toilet, or slippery floors.

1. **Unusually low level of support for safety and security**

   Exits to unsecured areas are neither controlled nor easily observed. Basic elements such as handrails may be ill-placed and/or absent. Residents have easy access to potentially hazardous areas (e.g., janitor's closet) or elements (e.g., kitchen equipment). Flooring may be irregular and/or slippery. Bath and toilet areas are cramped, compromising ability of staff to render assistance.

APPENDIX B: IRB Approval Documents

Approval of Protocol Letter – Page 1.

THE UNIVERSITY OF KANSAS
Research

APPROVAL OF PROTOCOL

July 24, 2014

Sharmin Kader
skader@ku.edu

Dear Sharmin Kader:

On 7/24/2014, the IRB reviewed the following submission:

Type of Review:	Initial Study
Title of Study:	Development of Hospice Environmental Assessment Protocol (HEAP): A Post Occupancy Evaluation Tool
Investigator:	Sharmin Kader
IRB ID:	STUDY00001461
Funding:	None
Grant ID:	None
Documents Reviewed:	• hscl_photo_video_authorization.doc, • Corrected - Informed Consent Letter- Architect.doc, • Corrected - Informed Consent Letter- Hospice Organization.doc, • Corrected HSCL Submission form, • hscl_photo_video_authorization.doc, • Questionnaire - Round 2.docx, • Informed Consent Letter- Architect.doc, • Questionnaire - Round 3.docx, • Corrected Informed Consent Letter - hospice, • Corrected Informed Consent Letter, • HSCL_Initial_Submission_Form-HEAP 3.pdf, • Questionnaire - Round 1.docx, • Informed Consent Letter- Hospice Organization.doc,

The IRB approved the study on 7/24/2014.

1. Notify HSCL about any new investigators not named in the original application. Note that new investigators must take the online tutorial at https://rgs.drupal.ku.edu/human_subjects_compliance_training.
2. Any injury to a subject because of the research procedure must be reported immediately.
3. When signed consent documents are required, the primary investigator must retain the signed consent documents for at least three years past completion of the research activity.

Continuing review is not required for this project, however you are required to report any significant changes to the protocol prior to altering the project.

Please note university data security and handling requirements for your project:
https://documents.ku.edu/policies/IT/DataClassificationandHandlingProceduresGuide.htm

Human Subjects Committee Lawrence
Youngberg Hall | 2385 Irving Hill Road | Lawrence, KS 66045-7568 | (785) 864-7429 | www.research.ku.edu

Approval of Protocol Letter – Page 2.

THE UNIVERSITY OF KANSAS
Research

You must use the final, watermarked version of the consent form, available under the "Documents" tab in eCompliance.

Sincerely,

Stephanie Dyson Elms, MPA
IRB Administrator, KU Lawrence Campus

Human Subjects Committee Lawrence
Youngberg Hall | 2385 Irving Hill Road | Lawrence, KS 66045-7568 | (785) 864-7429 | www.research.ku.edu

Consent Form for Expert's Interview.

LETTER OF INFORMED CONSENT

Development of Hospice Environmental Assessment Protocol (HEAP):
A Post Occupancy Evaluation Tool for Hospice Building Facilities

Dear XY,

The Post Occupancy Evaluation (POE) is essential for any building facilities, to provide information to the architects about the performance of their designs, and also provide guidelines to the owners and the users to achieve the best out of what they already have. Till today, hospice facilities are conducting the environmental assessment protocol using the POE tools that are developed to use in nursing home. But, the environmental need of hospice is quite different than nursing home for various reasons; and in a recent study by Denise L. Swenson (2009), the gap in the usefulness of nursing home's instrument in hospice has identified. So, the need of developing a POE tool for use in hospice facilities is evident, and this study has focused on fulfilling that goal considering multi-method qualitative research in three steps;

a) The Literature Review to identify the therapeutic goals to assess the hospice environment,
b) The Delphi method to obtain the experts' opinion about this assessment protocol, and
c) The Case Studies Survey to modify and finalize the POE tool.

At this moment, the study wants to conduct the second phase, the Delphi method, which involves interviewing experts' panel of six Architects to obtain their opinion about the hospice design dimensions and the assessment protocol. For this purpose, I am interviewing Architects who have expertise in the designing or researching hospice environment. You have been selected as a National Expert in hospice environment, and I would like to interview you to obtain your views and opinions.

I am seeking your permission to interview you regarding this POE tool. There will be three interviews in two weeks interval and each interview will not take more than 45 minutes. The interview will be conducted at your convenient time over the phone or using online software Skype or GoToMeeting. Also, you will be requested to nominate one or two hospice facilities as case study purpose for this study. All responses will be kept confidential, and your name will not be associated in any way with the information collected or reported from this study. It is possible, however, with internet communications, that through intent or accident someone other than the intended recipient may see your response. Involvement in this study poses no risks. You have no obligation to participate, and you may discontinue your involvement at any time.

If you have any questions about this project or your participation in it, you may ask me, Sharmin Kader at (785)864-3171 or skader@ku.edu, or Kent Spreckelmeyer at (785)864-3164 or kents@ku.edu. If you have any questions about your rights you may call the human subject protection. The phone number is 785-864-7429. If you have any additional questions about your rights as a research participant, you may call (785)864-7429; email at irb@ku.edu; write the Human Subjects Committee Lawrence Campus (HSCL), University of Kansas, 2385 Irving Hill Road, Lawrence, Kansas 66045-7563.

****

I have read this Letter of Informed Consent and agree to allow me to take part in this study as a research participant. By my signature I affirm that I am at least 18 years old and that I have received a copy of this Consent and Authorization form.

Participant's Name (please print)

Participant's Signature Date

KU Lawrence IRB # STUDY00001461 | Approval Period 7/24/2014

Consent Form for Case Study Interview.

LETTER OF INFORMED CONSENT

Development of Hospice Environmental Assessment Protocol (HEAP):
A Post Occupancy Evaluation Tool for Hospice Building Facilities

To,
The Chief of Staff
XYZ Hospice Care Facilities

The Post Occupancy Evaluation (POE) is essential for any building facilities, to provide information to the architects about the performance of their designs, and also provide guidelines to the owners and the users to achieve the best out of what they already have. Till today, hospice facilities are conducting the environmental assessment protocol using the POE tools that are developed to use in nursing home. But, the environmental need of hospice is quite different than nursing home for various reasons; and in a recent study by Denise L. Swenson (2009), the gap in the usefulness of nursing home's instrument in hospice has identified. So, the need of developing a POE tool for use in hospice facilities is evident, and this study has focused on fulfilling that goal considering multi-method qualitative research in three steps;

a) The Literature Review to identify the therapeutic goals to assess the hospice environment,
b) The Delphi method to obtain the experts' opinion about this assessment protocol, and
c) The Case Studies Survey to modify and finalize the POE tool.

At this moment, the study wants to conduct the third phase, the Case Studies Survey, which involves a guided to the selected hospice facilities with staff and an interview with the chief administrative staff to modify the post occupancy evaluation tool developing for hospice. For this purpose, your hospice facility has been nominated by the experts' panel as an exemplary hospice environment for this study.

I am seeking your permission to conduct a walk through survey in your facility and also interview you regarding this POE tool. A date convenient will be scheduled with you to have a guided tour with you in your facility for one to two hours, and after the tour, an interview with you will be obtained. The interview duration could be 30 minutes to 60 minutes. The interview will be a semi-structured interview, and the questionnaire will be based on the developed tools. No personal or patients' information will be asked, and the entire question will be related to the building interior and exterior design, or architectural design. During the walk-through in the building, photographs will be taken of empty bed, empty room, landscape, wall decor, window, or any other physical spaces without any existence of human subject. No human or any other objects related to patients' privacy will be photographed. Some selected photographs may be published with findings without mentioning your institutions identity, but individuals may be able to indirectly identify which facilities participated in this study through the photographs. All responses will be kept confidential, and your name will not be associated in any way with the information collected or reported from this study. All the photographs will be stored in privacy with the researcher for at least five years, until the findings got published. Once the duration will be over, all the photographs will be deleted and destroyed. Involvement in this study poses no risks. You have no obligation to participate, and you may discontinue your involvement at any time.

If you have any questions about this project or your participation in it, you may ask me, Sharmin Kader at (785)864-3171 or skader@ku.edu, or Kent Spreckelmeyer at (785)864-3164 or kents@ku.edu. If you have any questions about your rights you may call the human subject protection. The phone number is 785-864-7429. If you have any additional questions about your rights as a research participant, you may call (785)864-7429; email at irb@ku.edu; write the Human Subjects Committee Lawrence Campus (HSCL), University of Kansas, 2385 Irving Hill Road, Lawrence, Kansas 66045-7563

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I have read this Letter of Informed Consent and agree to allow me to take part in this study as a research participant. By my signature I affirm that I am at least 18 years old and that I have received a copy of this Consent and Authorization form.

Participant's Name (please print)

Participant's Signature Date

KU Lawrence IRB # STUDY00001461 | Approval Period 7/24/2014

Authorization for Release of Photograph – Page 1.

Authorization for Release of Photograph

I, _____ (*Name of Individual*), by signing this release, authorize the University of Kansas, the Department of Architecture, and their student or staff to use photographs of the "Name of the hospice care organization", for the following purposes:

1. Use in University and Department of Architecture education and training activities and materials (including print and on line or electronic instructional materials); and

2. Use in print or electronic form in journal publications, presentations, brochures, newsletters/bulletins, and websites for educational, public relations or promotional purposes which may result in the raising of funds for the further research.

I understand that the images described above may be included in, copied and distributed by means of various print or electronic media. I understand that my organization mane name will not be included with the images.

I understand that this Authorization can be revoked at any time to the extent that the use or disclosure has not already occurred prior to my request for revocation. In order to revoke the authorization, I must notify in writing at the following address:

Sharmin Kader,
Department of Architecture
University of Kansas
Lawrence, KS 66045
(785)864-3171
skader@ku.edu

Kent Spreckelmeyer,
Department of Architecture
University of Kansas
Lawrence, KS 66045
(785)864-3164 or
kents@ku.edu

If I cancel this Authorization after publication of the materials outlined above, I understand that my cancellation may not be able to be honored. If I revoke this Authorization, the University and the Department of Architecture, or the student Sharmin Kader, or the faculty Kent Spreckelmeyer shall not engage in any new uses or disclosures of the images or testimonials.

The University and Department of Architecture will not condition treatment, payment, enrollment or eligibility for services or benefits on the execution of this Authorization. I understand that the images and testimonials may be subject to re-disclosure by the person or entity receiving such information and thus will no longer be protected by federal privacy regulations.

This Authorization is given without promise of compensation. The photos become the property of the University of Kansas and I release to the University any right, title and/or interest of any kind that he "Name of the Hospice Organization" may have in the information or images produced.

Rev 7/13

Authorization for Release of Photograph – Page 2.

I have read this document and understand its contents.

Signature of individual _____

Position of the individual _____

Date _____

The authorization must be signed and dated and a copy provided to the individual completing the form.

Questionnaire for Expert.

This study has conducted an intensive literature review and found eleven therapeutic goals for hospice environment. I will ask you to provide your opinion about each goal and the relevant design considerations or design issues for that goal.

Question 01:
Provide Continuity of Self: Environmental characteristics that help preserve or support patients' past activities, preferences and awareness.

(Design objectives revealed from the literature reviews for this goal are mainly two: creating a non-institutional environment or home-like environment; and providing scope to patients' for personalizing their spaces)

- What are your suggestions to achieve this goal in hospice facilities?
  - How to create a home-like environment?
  - How to provide scope for personalization?
- Do you like to add any other design consideration for this goal?

Question 02:
Provision of Access to Nature: Environmental characteristics that provide opportunities for visual and physical access to nature.

(Design objectives revealed from the literature reviews for this goal are mainly: maximize connection with outdoor environment; outdoor garden; representation of nature in form of arts in interior design; and outdoor accessibility for patients' bed.)

- What are your suggestions to achieve this goal in hospice facilities?
  - What are your suggestions for outside landscape design and garden?
  - How to represent nature in the interior design?
  - How to create better accessibility for patients' to outside landscape?
- Do you like to add any other design consideration for this goal?

Question 03:
Provision of Privacy: Environmental characteristics that facilitate patients' choices in various levels of privacy through regulation of visual and auditory stimuli.

(Design objectives revealed from the literature reviews for this goal are mainly: visual and auditory privacy in private patient room, in shared room, in social spaces, in outdoor spaces; and space for private communication between patient and staff, family and staff, and within family members.)

- What are your suggestions to achieve this goal in hospice facilities?
  - What are your suggestions for privacy in patient room?
  - What are your suggestions for privacy in shared room?
  - How to provide privacy in social spaces and outdoor spaces?
  - How to create spaces for private communication between staff and family members?
- Do you like to add any other design consideration for this goal?

Question 04:
Facilitate Social Interaction: Environmental characteristics that facilitate and enable meaningful interaction between patients with staff, their family and other patients.

(Design objectives revealed from the literature reviews for this goal are mainly: social interaction between patient and family; between patient to patient, family to family, and family to staff.)

- What are your suggestions to achieve this goal in hospice facilities?
  - How to support social interaction in patient room?
  - How to increase interaction in social spaces and outdoor spaces?
- Do you like to add any other design consideration for this goal?

Question 05:
Maximize Safety & Security: Environmental characteristics that maximize patient safety and security of self.

(Design objectives revealed from the literature reviews for this goal are mainly: ease of monitoring patients; mitigation of potential hazards, infection control, reduce patients fall; provision of specialized equipment for operational safety; protection from theft and vandalism; secure continuous care in emergency; staff safety; and, safety for children and pets.)

- What are your suggestions to achieve this goal in hospice facilities?
  - What are your suggestions to ease monitoring patient?
  - How to mitigate potential hazards, patients fall, and infection control?
  - How to protect from theft and vandalism?
  - What are the design considerations for emergency situation?
  - How to provide safety for children and pets?
- Do you like to add any other design consideration for this goal?

Question 06:
Provision of Autonomy: Environmental characteristics that enable patients to exercise choice and personal preference about their environment and everyday life.

(Design objectives revealed from the literature reviews are mainly: control over micro-environment (air, temperature, noise, light, smell, etc.); and autonomy in daily activities such as smoking, bathing, food preparation, or praying.)

- What are your suggestions to achieve this goal in hospice facilities?
  - What are your suggestions to provide control over micro-environment?
  - How to provide autonomy in daily activities, such as smoking, bathing, food preparation, or praying?
- Do you like to add any other design consideration for this goal?

Question 07:
Regulate of Stimulation: Environmental characteristics that contribute to an appropriate quantity and quality of sensory experience, and support palliative therapies.

(Design objectives revealed from the literature reviews are mainly: acoustic stimulation, visual stimulation, olfactory stimulation, tactile stimulation; and support for therapies.)

- What are your suggestions to achieve this goal in hospice facilities?

- What are your suggestions to achieve the acoustic stimulation?
- What are your suggestions to achieve the visual stimulation?
- What are your suggestions to achieve the olfactory stimulation?
- What are your suggestions to achieve the tactile stimulation?
- How to support the various types of therapies: music therapy, art therapy, multi-sensory therapy, horticulture therapy, etc.?

- Do you like to add any other design consideration for this goal?

Question 08:

Provision of Spiritual Care: Environmental characteristics that facilitate opportunities for patients' spiritual care; religious, philosophical, existential, and personal beliefs, values, practices, and preferences.

(Design objectives revealed from the literature reviews are mainly: support for range of spiritual care, calm and sacredness; spiritual care in patient room; formal and informal spaces for prayer or meditation.)

- What are your suggestions to achieve this goal in hospice facilities?
  - How to support range of spiritual care in patient room?
  - How to create formal and informal spaces for spiritual care?
  - How to achieve sacredness in patient room and in spiritual spaces?
- Do you like to add any other design consideration for this goal?

Question 09:

Provide Family Accommodation: Environmental characteristics that facilitate patients' family accommodation and support control, functional independence, comfort, privacy, recreation, and spiritual care.

(Design objectives revealed from the literature reviews are mainly: location, accessibility & wayfinding; comfortable accommodation; autonomy; privacy; communication & social interaction; retreat and recreation; and bereavement support.)

- What are your suggestions to achieve this goal in hospice facilities?
  - How to create better location, accessibility & wayfinding for family?
  - What are your suggestions to achieve the comfortable accommodation for family with autonomy and privacy?
  - What are your suggestions to create spaces for socialization and communication, entertainment, and retreat?
  - How to create spaces for bereavement support?
- Do you like to add any other design consideration for this goal?

Question 10:

Provide Support after Death: Environmental characteristics that support care and dignity for patients and their families during the moment of death, body removal, bereavement and remembrance.

(Design objectives revealed from the literature reviews are mainly: support during the moment of death and right after the death; body removal from facility; provision for grieving and bereavement; viewing room; mortuary area; scope for storing patient's belongings; and remembrance or dedication.)

- What are your suggestions to achieve this goal in hospice facilities?

        - How to support during the moment of death, right after the death, body removal or transfer?
        - How to create spaces for grieving, viewing and bereavement support?
        - How to provide scope for storing patient's belongings and displaying remembrance for deceased patients?
    - Do you like to add any other design consideration for this goal?

Question 11:
Maximize Support for Staff: Environmental characteristics that support staff for better efficiency, communication, observation, satisfaction, and wellbeing.

(Design objectives revealed from the literature reviews are mainly: maximize staff communication with patients and families; ease of observation and care; socialization with other staff; provision of recreation, retreat and meditation.)

- What are your suggestions to achieve this goal in hospice facilities?
    - How to maximize staff communication with patients and families?
    - How to ease of observation and care?
    - How to maximize socialization with other staff?
    - How to create spaces for socialization, recreation, retreat and meditation?
- Do you like to add any other design consideration for this goal?

Question 12:
What is your opinion about these eleven therapeutic goals? Do you have any suggestion to add or subtract any goal? Or, do you have any suggestion for redistribution of design consideration between these goals?

Questionnaire for Case Study.

This study has conducted an intensive literature review and found eleven therapeutic goals for hospice environment. I will ask you to provide your opinion about each goal and the relevant design considerations or design issues for that goal.

Question 01:
Provide Continuity of Self: Environmental characteristics that help preserve or support patients' past activities, preferences and awareness.

(Design objectives revealed from the literature reviews for this goal are mainly two: creating a non-institutional environment or home-like environment; and providing scope to patients' for personalizing their spaces)

- How do you achieve this goal in your hospice facility?
- How do you achieve this goal in your hospice facility?
  - How to create a home-like environment?
  - How to provide scope for personalization?
  - (Addition) How many and what types of personal belongings are brought by patients and their family? Do they bring any furniture?
  - (Addition) What is the average length of stay?
- Do you like to add any other design consideration for this goal?

Question 02:
Provision of Access to Nature: Environmental characteristics that provide opportunities for visual and physical access to nature.

(Design objectives revealed from the literature reviews for this goal are mainly: maximize connection with outdoor environment; outdoor garden; representation of nature in form of arts in interior design; and outdoor accessibility for patients' bed.)

- How do you achieve this goal in your hospice facility?
  - What are your suggestions for outside landscape design and garden?
  - How to represent nature in the interior design?
  - How to create better accessibility for patients' to outside landscape?
  - (Addition) How many patients want to die in a garden or the outside?
  - (Addition) How frequently do the patient families or other enjoy the outside landscape?
- Do you like to add any other design consideration for this goal?

Question 03:
Provision of Privacy: Environmental characteristics that facilitate patients' choices in various levels of privacy through regulation of visual and auditory stimuli.

(Design objectives revealed from the literature reviews for this goal are mainly: visual and auditory privacy in private patient room, in shared room, in social spaces, in outdoor spaces; and space for private communication between patient and staff, family and staff, and within family members.)

- How do you achieve this goal in your hospice facility?
  - What are your suggestions for privacy in patient room?

- What are your suggestions for privacy in shared room?
- How to provide privacy in social spaces and outdoor spaces?
- How to create spaces for private communication between staff and family members?
- (Addition) Is there any shared room? If yes, how many? How do they providing privacy in shared room?
- (Addition) Is there any double-room or with two bed to accommodate infirm spouse or friend?

- Do you like to add any other design consideration for this goal?

Question 04:

Facilitate Social Interaction: Environmental characteristics that facilitate and enable meaningful interaction between patients with staff, their family and other patients.

(Design objectives revealed from the literature reviews for this goal are mainly: social interaction between patient and family; between patient to patient, family to family, and family to staff.)

- How do you achieve this goal in your hospice facility?
  - How to support social interaction in patient room?
  - How to increase interaction in social spaces and outdoor spaces?
  - (Addition) What do the patients do when they have no family? Do they die alone?
  - (Addition) How many family members come to visit patient?
  - (Addition) How many family members want to stay overnight?
- Do you like to add any other design consideration for this goal?

Question 05:

Maximize Safety & Security: Environmental characteristics that maximize patient safety and security of self.

(Design objectives revealed from the literature reviews for this goal are mainly: ease of monitoring patients; mitigation of potential hazards, infection control, reduce patients fall; provision of specialized equipment for operational safety; protection from theft and vandalism; secure continuous care in emergency; staff safety; and, safety for children and pets.)

- How do you achieve this goal in your hospice facility?
  - What are your suggestions to ease monitoring patient?
  - How to mitigate potential hazards, patients fall, and infection control?
  - How to protect from theft and vandalism?
  - What are the design considerations for emergency situation?
  - How to provide safety for children and pets?
  - (Addition) Is there any isolation room?
  - (Addition) Is there any incidence of thefts and vandalisms occurring within a hospice facility?
  - (Addition) Is there any pet policy?
- Do you like to add any other design consideration for this goal?

Question 06:
Provision of Autonomy: Environmental characteristics that enable patients to exercise choice and personal preference about their environment and everyday life.

(Design objectives revealed from the literature reviews are mainly: control over micro-environment (air, temperature, noise, light, smell, etc.); and autonomy in daily activities such as smoking, bathing, food preparation, or praying.)

- How do you achieve this goal in your hospice facility?
  - What are your suggestions to provide control over micro-environment?
  - How to provide autonomy in daily activities, such as smoking, bathing, food preparation, or praying?
  - (Addition) Is there any individual temperature control for each patient room?
  - (Addition) Where is the location of kitchen? Is there any smell inside the facility? If yes, what is the source?
- Do you like to add any other design consideration for this goal?

Question 07:
Regulate of Stimulation: Environmental characteristics that contribute to an appropriate quantity and quality of sensory experience, and support palliative therapies.

(Design objectives revealed from the literature reviews are mainly: acoustic stimulation, visual stimulation, olfactory stimulation, tactile stimulation; and support for therapies.)

- How do you achieve this goal in your hospice facility?
  - What are your suggestions to achieve the acoustic stimulation?
  - What are your suggestions to achieve the visual stimulation?
  - What are your suggestions to achieve the olfactory stimulation?
  - What are your suggestions to achieve the tactile stimulation?
  - (Addition) What types of palliative therapies do you provide?
  - How to support those therapies in your facility?
- Do you like to add any other design consideration for this goal?

Question 08:
Provision of Spiritual Care: Environmental characteristics that facilitate opportunities for patients' spiritual care; religious, philosophical, existential, and personal beliefs, values, practices, and preferences.

(Design objectives revealed from the literature reviews are mainly: support for range of spiritual care, calm and sacredness; spiritual care in patient room; formal and informal spaces for prayer or meditation.)

- How do you achieve this goal in your hospice facility?
  - How to support range of spiritual care in patient room?
  - How to create formal and informal spaces for spiritual care?
  - How to achieve sacredness in patient room and in spiritual spaces?
  - (Addition) How many spiritual spaces are in the facility?
  - (Addition) Where do patients like to have spiritual care? How frequent do the patients visit a meditation space?
- Do you like to add any other design consideration for this goal?

Question 09:
Provide Family Accommodation: Environmental characteristics that facilitate patients' family accommodation and support control, functional independence, comfort, privacy, recreation, and spiritual care.

(Design objectives revealed from the literature reviews are mainly: location, accessibility & wayfinding; comfortable accommodation; autonomy; privacy; communication & social interaction; retreat and recreation; and bereavement support.)

- How do you achieve this goal in your hospice facility?
  - How to create better location, accessibility & wayfinding for family?
  - What are your suggestions to achieve the comfortable accommodation for family with autonomy and privacy?
  - What are your suggestions to create spaces for socialization and communication, entertainment, and retreat?
  - How to create spaces for bereavement support?
  - (Addition) What is the usual size of family members to stay overnight? What is the average number of visitors?
- Do you like to add any other design consideration for this goal?

Question 10:
Provide Support after Death: Environmental characteristics that support care and dignity for patients and their families during the moment of death, body removal, bereavement and remembrance.

(Design objectives revealed from the literature reviews are mainly: support during the moment of death and right after the death; body removal from facility; provision for grieving and bereavement; viewing room; mortuary area; scope for storing patient's belongings; and remembrance or dedication.)

- How do you achieve this goal in your hospice facility?
  - How to support during the moment of death, right after the death, body removal or transfer?
  - How to create spaces for grieving, viewing and bereavement support?
  - How to provide scope for storing patient's belongings and displaying remembrance for deceased patients?
  - (Addition) Do you provide an operable window so that it would "allow the soul to leave"?
  - (Addition) What is the route to remove the deceased's body?
- Do you like to add any other design consideration for this goal?

Question 11:
Maximize Support for Staff: Environmental characteristics that support staff for better efficiency, communication, observation, satisfaction, and wellbeing.

(Design objectives revealed from the literature reviews are mainly: maximize staff communication with patients and families; ease of observation and care; socialization with other staff; provision of recreation, retreat and meditation.)

- How do you achieve this goal in your hospice facility?
  - How to maximize staff communication with patients and families?

        - How to ease of observation and care?
        - How to maximize socialization with other staff?
        - How to create spaces for socialization, recreation, retreat and meditation?
        - (Addition) How does privacy for staff ensured in hospice facility?
        - (Addition) Where do your staffs take breaks? Is there any staff only outdoor area?
    - Do you like to add any other design consideration for this goal?

Question 12:
What is your opinion about these eleven therapeutic goals? Do you have any suggestion to add or subtract any goal? Or, do you have any suggestion for redistribution of design consideration between these goals?

APPENDIX C: Systematic Literature Review - Sample of Analysis

MATRIX 1: LITERETURE REVIEWS (Sample of Analysis)

Author Year Country	Goal/Objective	Setting	Study Participants	Method	Findings in Abstract	Relevant Findings
Stajduhar et al. (2011) Canada	To identify the core aspects of the quality of end-of-life care that are important for family members	Four types of in-patient health care settings	24 bereaved family members who had a relative die in the previous 3 to 6 months in one of the four settings	Qualitative Interview	Findings suggest the need to distinguish between perceived substantive or tangible features of received care, interpretations of the causes and symbolic meanings of that care, and personal and affective outcomes. Practitioners are encouraged to reflect on how behaviors and communications may be interpreted by families. Attention also needs to be given to the changes in practice and organizational decision making that can facilitate more positive experiences for families and patients.	• Family members (participants) valued peaceful, calm environments where there was a low level of noise and commotion, and where there were physical comforts (for example, in the form of chairs and adequate space), privacy, and cleanliness. Isolation-room experiences were referred to as "distressing," "sterile," impersonal, cold, depressing, or stressful. Participants appreciated quite, pleasant roommates who (if desired) could interact socially. • Aspects such as lighting, location, and amenities (a courtyard, a window view, or a bright and colorful room) were noted. The space should facilitate visiting. One participant described a room by saying, "You can't sit by the head of the bed where the person is… you can maybe squish" in just between the bed and the counter … I have a closet at home bigger." Cleanliness was important, particularly in relation to concerns about infection (several participants described hospital-acquired illness). • Negative physical environments generated unhappiness, stress, anxiety, fear, and confusion for families and patients. • Having a difficult roommate was traumatic for one participant's father: "He said, 'Don't leave me here.' It was a nightmare." A few believed that patient (for example, distress, confusion, or iatrogenic conditions). • Negative environments generated disappointment. Mom and Dad "deserved privacy for the last few months", and "it was stressful to see somebody who's had a good life, paid taxes, done their part, and get stuck in a hallway. It hurt." • Participants connected with positive environments with feeling reassured that for example, the patients were respected. For them, positive environments promoted calmness and physical and emotional comfort, including not feeling that they were disturbing others.
Vohra et al (2006) Canada	To explore end-of-life (EOL) care using the Family Perception of Care Scale (FPCS).	Six long term care (LTC) facilities	213 (respondents) family members who had a family member die in one of the surveyed LTC facilities within the preceding 12 months.	A postal survey was used to collect data from family members. Thematic analysis of family member comments provided while completing the survey.	Family comments fell into two themes: 1) appreciation for care and 2) concerns with care. The appreciation for care theme included the following subthemes: psychosocial support, family care, and spiritual care. The concerns with care theme included the subthemes: physical care, staffing levels, staff knowledge, physician availability, communication, and physical environment.	Family comments fell into two themes: (1) appreciation for care and (2) concerns with care. The appreciation for care theme included the following subthemes: psychosocial support, family care, and spiritual care. The concerns with care theme included the subthemes: physical care, staffing levels, staff knowledge, physician availability, communication, and physical environment. Family members expressed concerns regarding lack of air conditioning, lack of privacy due to the presence of a roommate, and excessive noise. For example, one family member said: -------- look the copy Family members expressed concerns regarding lack of privacy due to the presence of a roommate, and excessive noise. For example, one family member said: [The resident] remained in her own room till the end. However, the room was shared with another [person]. This [person] was very sensitive and stayed out of the room much of the time. However, at night she did have to be there and that must have been very difficult for her. It was probably comforting to [the resident] to remain in her familiar room, but we feel that her roommate should not have been forced to be a part of the scene.
Brereton et al. (2011) LIT REVIEW	To identify key elements of the physical hospital environment for end of life care of older adults and their families as reported by patients, relatives, staff and policy makers.	Literature Review.	Ten articles were included.	An integrative review was conducted. Data synthesis involved thematic analysis informed by the findings of included literature.	Ten articles were included. Four themes were identified: privacy as needed, proximity (physically and emotionally) to loved ones, home and nature, satisfaction with the physical environment, and deficiencies in physical environment.	**Satisfaction with physical environment** - The cleanliness and homeliness of the hospital environment were important to relative satisfaction according to Evans et al. (2006) and Hawker et al. (2006). Veatch and Veatch (1994) reported that patients valued being able to see a clock. They, along with Hawker et al. (2006), suggested familiarity with the new environment was important to patients. In addition, Hawker et al. (2006) found that the location, accessibility, size and atmosphere of local community hospitals which had a variety of indoor and outdoor spaces including a conservatory, patio and garden contributed to relatives' satisfaction. Nonetheless, deficiencies in the physical environment were also identified. **Deficiencies in the physical environment** - More information and greater detail are provided about deficiencies in the physical environment for patients and their relatives than any other aspect of end of life care in the studies reviewed (Sallstrom et al. 1987, Veatch & Veatch 1994, Evans et al. 2006, Fridh et al. 2007, 2009). Goodridge and Marr (2002) found that 44% of falls occurred when patients were moving from bed to chair and that patient's need assistance. However, it is not clear whether or not deficiencies in the physical environment were partly responsible for the falls. Furthermore, Goodridge and Marr (2002) do not specify whether or not physical environmental modification would assist in preventing falls. Families also identified environmental deficiencies including noise from television, bells, staff (Hawker et al. 2006), people talking and other patients shouting or moaning and groaning (Sallstrom et al. 1987). Relatives in Sallstrom et al.'s (1987) study indicated that the large room was a 'deterrent', patients were 'deserted' and one suggested that it undermined the patients' self-esteem. Patients reported environmental deficiencies when other patients were complaining of pain (Veatch & Veatch 1994). Patient dissatisfaction with the noise level stemmed from shared rooms where the quality of care is heavily influenced by interactions between roommates (Veatch & Veatch 1994). Carers/relatives were frustrated with hospital cleanliness (Evans et al. 2006). They also identified the limited waiting room space, lack of access to a telephone, poor signposting of departments in the hospital and hazards as problematic, although the nature of the latter was not clearly explained (Fridh et al. 2009). Nurses reported deficiencies relating to proximity and privacy in the ICU environment (Fridh et al. 2007). Despite deficiencies in the ICU environment, Fridh et al. (2009) found that close relatives were less concerned about their own comfort and needs than they were with the patient's needs and condition. Relatives suggested that the physical environment was less important than warm, professional care and less frightening than the patient's condition. Some relatives found monitoring equipment distressing, whilst others reported that this was interesting and comforting as it provided them with some insight into the patient's condition (Fridh et al. 2009).
Evans et al (2006) USA	To describe caregivers' reasons for transfer from home hospice to inpatient facilities, preferences for site of care and death, and their experiences during these transfers.	A university-affiliated community hospice provider.	Caregivers of deceased hospice patients who transferred to an acute care hospital, a freestanding inpatient hospice facility, or a nursing home while enrolled in hospice and died between January 2003 and February 2004.	A semi structured interview protocol was developed and used for all interviews. Interviews were coded for reasons for transfer, preferences for site of care and death, and experience upon transfer using a grounded theory approach.	Patients transferred because of an acute medical event, an uncontrolled symptom, imminent death, or inability to provide needed care safely at home. Although all caregivers expressed a strong preference for care at home, other concerns such as pain and symptom control, safety, and quality and quantity of life became more important with time. We found significant variation in specific preferences regarding care and site of death. Satisfaction with care at the transfer facilities was determined by clarifying goals of care, following treatment preferences, providing personalized care, and the patient's environment.	Identified three attributes of satisfaction with patient's environment: cleanliness of the facility and the patient, a home-like feeling, and proximity to nature. Components of satisfaction with the patient's environment: Caregivers noted the impact of their surroundings on their patients and themselves. When speaking of the home or hospice facility, remarks about the patient's environment were most frequently positive. Whereas frustrations (e.g., with cleanliness) were more frequently identified with acute hospital care. **Cleanliness.** The cleanliness of the hospice facility, as well as patients being kept clean was valued. It was clean. Most of the [nursing] homes you go in you know you smell lots of odor. You didn't smell any odor. He was never wet and if we was in the room and told them he had used the bathroom they would come right in and change him right them. **Home-like feeling.** Caregivers commented on the home-like environment of the hospice facility. Having family present was important to many patients, and the small building with a central area for families made caregivers feel welcome. This facility design also encouraged camaraderie among members of different families and between caregivers and other patients. Amenities at the hospice facility signaled comfort to many caregivers. Her room would beat the finest hotel room all to pieces—it was fully equipped, radio, television, a private bath, and glass doors that opened onto a little place outside. The furniture was—well of course the bed itself was only a sick bed you know—but the other furniture was just comfortable as it could be— recliners and all that. **Proximity to nature.** Proximity to nature was a positive factor. At the hospice facility, caregivers described how each room had a sliding door and patio that looked out onto a meadow and pond. Nurses would wheel the patient's bed outside to be in the sunlight or put birdseed on the patio to bring birds and squirrels for the patients to watch. Proximity to nature was also mentioned at home.

MATRIX - AUTONOMY

Anderson (2008)	* Washroom directly connected to patient room * environments need to be adaptable to changing needs * provide kitchen and laundry facilities for family independence in providing care to loved one * storage space
Stajduhar et al. (2011)	Physical comfort (chair and space), privacy, cleanliness (infection control), quite, lighting, location, and amenities (a courtyard, a window view, or a bright and colorful room), facilitate visiting; Promoted calmness and physical and emotional comfort, including not feeling that they were disturbing others.
Vohra et al (2006)	Negative care/environment – Lack of air conditioning, Lack of privacy due to the presence of a roommate, Excessive noise.
*Brereton et al. (2011)	Patients valued being able to see a clock, familiarity with the new environment Relatives satisfaction - location, accessibility, size and atmosphere, variety of indoor and outdoor spaces including a conservatory, patio and garden
Kim & Kwon (2007)	This study showed lower comfort level in psychospiritual and environmental comfort than physical and sociocultural comfort in cancer patients.
Cohen et al. (2001)	-Daily routine- some patients found the environment calm and life. Staffs are in good mood. Other comments reflected difficulty adjusting to an institutional routine. - Comparisons between being at home versus being on the PCUs: A few people commented on their lack of familiarity with hospital routine and a preference for familiar home surroundings as major influences on their QOL.
Schroepfer (2007)	Story 1: Two patients felt better while moved into inpatient hospice facility. She found living at the facility brought the peace of mind and attention from caring staff and volunteers that she wanted and needed; she no longer wished for death.
Cohen & Leis (2002)	Five broad domains were found to be important determinants of patient QOL. Among them Physical Environment is one. Category of Physical Environment:Whether or not they felt they were in the right place, be it home or a palliative care unit. ***dignity.*** There is much overlap in the themes found in this study and a qualitative study designed to explain the construct of dignity in the terminally ill (27). All of our categories in the domains "own state" and "outlook" were found to be important to the construct of dignity. Other categories to define dignity were also similar to those found in this study: care tenor (being treated with respect), social support (support), burden to others (being a burden), as well as privacy boundaries, which we included in our broader category of physical environment: indoors/does not meet psychosocial needs.
Tong et al. (2003)	***10 domains that characterize the quality of the death experience***: 1) physical comfort, 2) burdens on family, 3) location and environment, 4) presence of others, 5) concerns regarding prolongation of life, 6) communication, 7) completion and emotional health, 8) spiritual care, 9) cultural concerns, 10) individualization.
Larkin et al (2007)	***Dwelling Space:*** Some centers invited patients to create a personal dwelling space by bringing items from home. Meaningful surroundings for the patients created a bridge between the transitions from home to institutional care.
Nakashima (2002)	Six primary contributing components to their psychosocial and spiritual well-being were identified; one of them is a ***comforting physical environment.*** **Facing Hindrances/discomfort:** The living space could deprive comfort elements were lacking. Small size of the room, shared room, lack of access to outdoor, bed way from window in shared room, disorientation and lack of opportunity to personalization.

APPENDIX D: Expert's Interview Transcript and Analysis

Interview Transcript of One Expert.

Question 1: *Provide continuity of self …*

Answer:

If we kind of take half a step back before we dive into the specifics, I think it's sort of helpful to group under overall reasons. We've got eleven things to do but some you probably want to talk about why these things are important, in other words- what do they serve? What is the overall purpose? Why would you want to provide a continuity of self? And I think part of that has to do with distinguishing a hospice from an ICU or a skilled nursing facility or any other place where these folks are currently cared for that is not a purpose built hospice. Right!

Sharmin – Yes, sure.

So you are sort of asking yourself that why is a hospice better? And you are not necessarily looking for a financial reason although you can talk about that if you want to but architecturally in terms of the hospice's mission how does a building do a better job for patient? And I think that one of the things that it does that it is supporting a very different floor of existence than the one that you find in an ICU where there's typically that institutional feel that you identified in your questioner but the reason the institutional feel is a problem because it tends to be loud and bright, right? In a hospice, the patience are not on their way to get better, they are on their way somewhere else certainly but they are not rushing, so what are we trying to do is give them every sensory clue that says, that this is a place where you can relax and you can let go of the stress and you can take your time and you can just enjoy the day and be where you want to be so that's why we want to give them places to put personal objects and it is important in places like a hospice to have a shelf or a deep window shelf for a photograph of a family because what's going on in that room in many ways is about reconnecting with the family and thinking about all the stories of a long life, right? so that's sort of the why behind all of this stuff. So that's the reason why institutional environments are not suitable. They technically are too small, too loud and bright. Too noisy and too busy. That is why we want them to be non- institutional. What that means is this rule- I have done about a dozen hospices now and what we try to do is stay away from hard and shiny surfaces- stainless steel, bright porcelain tiles, things that clatter. What you are looking for is something that has got a lot more texture to it and a lot more color. So, to be non-institutional is important and we like to use wood where ever we can. We like to use home-like finish on the floors and we like to use colors and wall patterns; wallpaper, prints and mars prints for example. And the whole idea that it doesn't feel like a hospital because what's going on here is not what goes on in a hospital and it's a different kind of place. So the color palette and the material palette are different and as you say- you need to have a different room so that they have- well, two things need to happen- one is that the patient need to be able to keep whatever that is important to them and if it is a begonia then it is a begonia or if it is a cat then it is a cat or if it is a model ship then it is a model ship, but whatever they would like to have they need space for it and of course ideally we would like them to be interactive with hospice staff for quite sometimes though the length of stay in these buildings is pretty limited by reimbursement, which is too bad. Because in some cases the longer they can work with the staff, the more the staff can do for them. They are not coming in for an overnight stay as a rule and it is usually more than two or three days and given that is going to be quite some time, they need a little more space for practical things just so that they have enough room for their stuff that they would have. But you know that there is a requirement that a hospice

room also has to have enough space for a family member to spend the night. And that automatically means that we need enough room for either a foldout bed or a built in window seat bed or some other sort of an accommodation of the family member who is going to spend the night. Now they have a suitcase that needs to get put up or put out of the way and they need a place to put a change of clothes, so you end up with this additional storage requirement and there are often a number of family members who are coming to visit and they need a place to be, so that is one reason why we sort of like built in window seat beds. They make pretty good places for people to sit and the other thing that we like about those is that- if you just use a piece of pull out furniture, sometimes that furniture moves around and in the middle of the night the nurse can stumble over it, not quite sure where the family member is sleeping. So you have to come in and look very carefully. But in a built in situation, she does not usually worry about tripping over the family member at night. So space sort of is a separate and a whole new way of thinking about what is going on around that patient. The other thing that's nice is that, if you are going to be there a little while it's good if the bed can work and be located in several different places in the room and so if you love someone who really loves the outdoors, then it's nice to have a view but it's even better if the bed can roll out onto a porch or go outside. Some rooms are designed with kind of an inward space a little further away from the outside window and that's sort of another space where the bed can be setup so that it's closer to the outside so that you can get a better view of the outdoors. Part of that is about trying to let people make a difference and setup the room it lets them adjust the room the way they would like to have it. You have to be careful because things like reading lights need to be mounted on the bed if you are going to do that, you don't want to mount them on the wall because you rather not have a single location that says that this is the only place where the bed can work, but it's doable if you are sort of careful about it. And then may be the most institutional thing that we come up against in a hospice room is all the stuff that goes on the head wall. So if you design a hospital room then you know you are going to need to bring in med- gases and you would much rather have those be built in as oppose to having loose oxygen canisters and vacuum pumps cluttering up with tubes and canisters and coils and plugs. You really don't want to loose equipment, you'd rather built in the med gases and once you built them in, if you are not careful, what you'll see in a nursing home or in a hospital is a wall behind the patient's head that is full of outlets, receptacles, attachments, vacuum bottles and all kinds of stuffs. And again it starts to look and feel like an ICU and that's not what we want.

Sharmin – Okay!

So what we've done is workout a system. We've tried several different variations to disguise those outlets and the pieces of equipments when they are not in use. And we have done it in a lot of different ways. But the thing that we seem to have been happiest with right now is a system where we pull a bit of the head wall forward in another word- there's a portion of the head wall behind the bed, it's about the same width of the bed and it actually extends beyond the rest of the room's wall by almost 12 to 14 inches and then what we do is we just tuck all the outlets into the 12 or 14 inch wing wall so that when you stand at the foot of the bed and you look up at your patient's face- you see the patient and you see the pillow under their head and you see the wall behind them and there is nothing on that wall but it's pulled forward a little bit and on that ends of that wall are all those outlets and switches and other things, that sort of keeps all instruments well within the nurses reach. They can get in there and turn that nurse alarm off, that nurse call button off. They can get to whatever it is they can reach really fast but it is not a visual element that dominates the rest of the room, so that's one of the things that we did. I don't know how much information that you got but when (XYZ)s Hospice was published, those head walls were pretty heavily discussed so there are several common images of that photograph we took of that detail. That's why we do

it. We are trying to keep that stuff out of sight and out of mind unless it's in use in which case it's handy, we want it to work but we don't want to have to think about it or look at it if we don't have to. So I am expecting that you've heard a lot about this before right? Have you designed a hospice before or worked on one?

Sharmin- No, I've not designed any.

Well it's the kind of stuff that you, may be as an exercise you might want to get a program and actually try laying one out. Because sometimes you don't feel attentive these questions until you actually start wrestling with it a little bit.

Sharmin- I understand. I am architect; I would like to do that. I understand what you are saying.....

In some ways the questioner goals are helpful. It's very important to write them down so they stay in mind but they are kind of like code required minimum, you need to do these things. But the reasons behind them are something that people sometimes miss.

Sharmin - Explained main intention of research ..... Explained the knowledge gathered from literature reviews and site visits ...

It's a big topic and I wish you well. I think it's important and I am sure you are going to get a lot of overlap in the comments and in the features that you hear about so it will be interesting to see it when you are done. Do you want to stick with this goal? Or, you want to go to the next goal.

Sharmin - Sure

Question 2: *Access to nature ...*

Answer:

One of the things that we learned is that everybody who deals with hospice needs access to the outdoors but groups still always wants to be in the same place. So it's been very important for the patient to be able to go outside and for the family members who are there and for the visitors coming to see the patient. They all appreciate being able to visit outside. Sometimes it's important for the families because they need an outlet for the younger children. Sometimes the families will spend very long day and it's important for the teenagers to get out and be able to get away and for the toddlers to get out more. It's also kind of nice if the parents looking into the spaces can see folks moving around outdoors so it's interesting that way. So we found too that visitors and donors would like to come and there is sort of a public function for the people who come to the building, who may not actually be there to visit a particular patient, they may be there because they are getting trained or they may be there for an educational session or they may be family members coming for years worth of counseling. There are lots of people who comes and go to the building. They don't necessarily need to be mixed up with the patients and the families unless the patients feel up to it. So what we've figured out that on the campus we have tried to zone it. So there are outdoors and gardens and special commemorative spaces for the public, really just for visitors, you can come and go. You would never necessarily see patient or family member at all, because they don't go back into the private spaces. There are other spaces because the staff needs a little bit of relief themselves. They need to be able to get out and take a fresh breath once in a while, they need a space to eat their lunch need to be somewhere sometimes where nobody can get to them. It's important that they can get away from all the folks that they are caring for. Sometimes there are times they need not to be available so you need sort of separate staff for the outdoor areas and then we need the private areas for the families and the patients where there will not be anyone to wander into them. But there is an intermediate set of gardens that you can choose if you are having a good day and you feel like you want some company and you are a patient then you choose to go to one of those spaces where you know you

are going to see cars coming and going and you'll see visitors and you might run into some body that you haven't met. So we have tried to organize in that case, the campus kind of works from west to east and the east side of the building is the most private and the west is the most public and there are zones in the middle where the two public and private groups can overlap and there are all sorts of garden spaces that tend to be very popular with donors and so as a rule- hospice are part of a hospital or health system and it will often have an overall mission- it wants to be very responsive to the community, so they like having a place that people come to visit over and over again and they enjoy building relations with garden clubs or women's groups or boy scout troops. Lots of groups like to adopt these gardens and provide bird houses or take over the planting and attending of the gardens. So you'll end up with lots of different types of gardens. We've got rock gardens, we've had outdoor chapels, we had fish and flower garden; sometimes someone who had passed away loved roses for example, so there will be particular sort of rose garden or plants that were favorite of a particular family member will be kept up. We try to organize them so they change with the seasons and that they are not all the same. And, we try to make sure that they are visible from a lot of different places from inside the building. Because another function is that, we've got so many family members coming back together they often got along very well. Sometimes they haven't even seen each other for a very long time, and maybe there are reasons why they haven't been in touch, but now this crisis in the family brings them back all together. They appreciate any thing that is the topic of conversation. So if you've got a specially beautiful flowering tree or if you've got an unusual bush, or an unusual plant or a fireplace or a fountain and kind of a focus of discussion- it can really help psychology of family members who are facing all sort of stress and strains and that can ease them pass some of those awkward moments and it gives everybody a little bit more to do.

Sometimes waiting in a hospice can be a long slow process. And it's nice to be able to go out and sit in the swing or it's nice to watch kids' roller skate away in the pecan trees. We try to supervise as many spaces as we can. At the (XYZ) Hospice, it was especially unusual because they really are struggling with another issue that we have not talked about yet which is a sort of general lack of knowledge and sometimes misunderstanding about what hospice is. Since it is associated with the end of life, people who haven't even been there sometimes misunderstand it and they can be quite frightened of it. So what (XYZ) did was that they intentionally have invited many community groups that are interested to come and spend time on the campus and have the business women's lunch or have the club meetings or boy scout troops or have the autobahn bird group come out and the thought was that they really wanted people to come and spend time with them and they had a big 200 acre site and they went to the trouble of protecting the wet lands and they got designated as an autobahn signature environment and they took that as a reason to put plaques up and talk about the birds and animals in the plant here on the site and made it into an education center. So they have a bird watching platform and so on, out into the wetlands. The idea was that the sanctuary designation was why people would come and they liked for anybody to come out and spend time with them because at one point or another they figure someone- somewhere, these visitors know they need hospice and when that need arises then these visitors will remember and they will be able to say- "Well ah, I think that you should go and see what's happening over at (XYZ)s Hospice, they may be able to help". So thing is, these outdoor areas are like kind of a draw to pull people on to the campus and while they are there they want to be good hosts and they want people to understand what goes on in the hospice program is a benefit and it's available and it's ready whenever anybody may need them. So I think that what we are kind of seeing is a very smart use of environmental movement and all the discussion in America right now are about green buildings and sustainability. And the reason to

encourage folks to come out and see what they have done it's very sort of savvy way to give people more information about what they are doing and what they have done and give them sort of a nice trip.

I think we have also found that in a lot of ways the outdoor spaces are a big stress release so sometimes there are situations that are impossible to deal with can be delayed and interrupted in good ways so that you get refreshed and you can come back and continue to cope with whatever it is but we'll try to make it possible for the beds to roll out and that's why we do a lot of those porches. You may consider an interesting question to me- there seems to be some disagreements in the early days, we would do these porches and we intended to pair them up, so we had two rooms opening up to a shared porch and whenever we've done that, the feedback we've got is that everybody likes that. And it's not usually a problem, the families sometimes use the porch at the same time, it's not common for two hospital beds to be out at a single porch at the same time but if you think how big those beds are you really need a lot of space round them so once they roll out, they'll fill up a reasonable size porch pretty fast- that's what we've done, sort of shared porches for each pair of rooms at least we did in the early days. Lately I'm getting a lot of requests for each patient's room to have its own separate outdoor porch. Well that's a wonderful thing in terms of privacy, it's really quite a large fact when you start to lay it out. The geometry of a porch that big starts to upset the overall shape and layout of the building in an unusual way. And I'm not sure it's for the good to tell you the truth, so that's one of these questions that's kind of beginning to change. And i don't know where the pendulum's going to land. Whether privacy is more important? Or whether other factors might affect it but any way that one of the things has started to see a little bit over time. That sort of plugs into your third point which is about privacy. So with the porches there is this question that, well can we share or do we want more privacy?

Question 3: *Privacy ...*

Answer:

As a rule that every project that I've worked on has had private patient room although early on I've visited several hospices that were really successful and they had some semi private rooms and were really pleased because in certain cases I'm sure you know, where is a situation where a patient may not have any family, the roommates- even if they have been strangers before they get there, they sort of become family for each other and there are times where I've heard some stories that patients who did much better once they had a roommate then they had ever done before they came into the building and they did better than they would have done in a private room. So that's one of those things. The other sort of thing, privacy issue I guess I will mention is, when I layout buildings I really very much like to put the patient rooms' opening off a shared family room I don't really like for them to open off corridors. I'd rather they open from a space where the family members can come out and spend some time and read or get a bite to eat or sit in a slightly different room. So you go through the patient room- you go out into this living room area, you are immediately there. There's sort of a psychological factor cause family's living room is right outside, the patient's room feel close and that family's use them they are pretty heavily occupied. There is a sense that if anything should happen in that patient room. They are close enough that they will hear , they would know, they won't miss anything, they will be right there. When we put family room even down a short corridor- they just don't get used, except by one or two patient rooms that are immediately next to them. If they are just a few feet away, they just don't get used and if they are round a corner they don't get used at all, which is a great shame to some of these family rooms that have been designed in some other projects, they are beautiful but we've been told early on in one really gorgeous example, I went to visit back in the 80's, when I first started doing this work . That it was a great shame- There was this beautiful place that was completely empty all day long and instead of using the great

family room the families were spending their time in this cramped little alcove as it was close to their patient's room door. The beautiful family room was around two corners and they just couldn't go in there. So then the question becomes- so patients' rooms are opening off to family rooms and the doors are sometimes standing open- Is there not a privacy issue and don't you get a problem and there are family members from different families sharing their room together and don't you sort of bump into privacy issues with different patients and what we are hearing is that we don't have that problem unless the families are quite large and this is another thing that we are starting to see- early on almost all our patients' rooms were identical, every now and then we would make one or two different than the other, especially if one was designated as an isolation but generally speaking, they were all the same. Now we are starting to get request not for double rooms but for some larger rooms because sometimes family groups that come to visit are so large. So it's not just one or two people but can be five or six or more that are staying for quite a long time and if the space is not physically big enough then what you end up with is a staff that has to enforce these sort of visiting policies which they rather not have to fuss at people about. They would rather spend their energy doing other things. But it's also that the large family groups that can be a little difficult in terms of noise, disturbing other patients. So that's the only time that I've heard about real privacy problems. There's one other thing that I think I'll get to a little bit later is it's not really so much a privacy issue although I suppose you might think of it that way- we've tried to make sure that the staff- We encourage strong interactions between the staff and the family, that bond is almost always there anyhow very often the patients have been in homecare, so they'll know some of the staff before they ever come to spend sometime in the building, they feel very comfortable and they depend on them and the staff intentionally forges this really strong bond. So we've done some designs where we've broke down the half wall between the nurse desk and the patient's family members in the corridor, so you'd walk to the nurse station if you'll and you'll stand on one side of it and in a typical hospital that might be a 42 or 48 inch wall and what we've tried is putting in something like kitchen table and in some ways it's a good thing but we created another issue which was that there are times when the staff needs not to be in a conversation, they do need a place where they can sit, chat and write carefully and think carefully so if you make some of their work space very accessible, you need to be sure to provide some other spaces quite close by that's got a little privacy issue around it so you are going to make sure not to make everything out in the open. We often ran into that in what we called nurse servers. We were putting them double sided closets essentially. They open, it's one in each patient room and it's at the core room interface and the little closet will have a door that opens into the hallway and it will have another door opposite that opens into the patient's room and the idea is that you can stock them at night- you can put all kinds of sheets, linins and medicines there and it'll just be there and then when the staff needs it at anytime, they can just open up the door on the patient room side and there it is. And for something that works beautifully, we had one group that tried to put meds in these nurse servers so we had done double locking doors got all the security issues sorted out and we had a place for them to chat though we had it all figured out but what we found out is that it didn't work at all for the staff because what they did have is a really strong to the patient families and whenever the staff member was around the family member was going to talk to them and the staff said that you know that it's really not a good idea to be counting lots of small white pills. It is pretty dangerous and very potent medicines and we want to get these doses right and we do not want to make mistakes with any of these medications and we can't be doing it while simultaneously talking to the family reassuring them and helping them answer their questions. If we are going to deal with medicines, we'll be doing that in a separate room where nobody is disturbing us. So they took the medicine from the nurse servers and they are not using the nurse servers for medicine any

more. The interaction part worked and the efficiency for stocking for other kinds of non crucial supplies worked but the medicine had to be handles separately. So that's not so much of a privacy issue but it is kind of a separation issue.

Sharmin- Privacy of patient room entrance?

You know that really hasn't been an issue for us. I think what's happened is that in old hospital layout, especially in ICUs, where they want to sit the nurse in the center so that they can see all the patients in their beds all around them. And sometimes in the nursing home you'll hear the staff that want to be able to walk around the corridor, they want to be able to look through the doorway and see the patient and the beds do that they can monitor things. They are not having the situation where the staff is more standing are in the patient room so they are not trying to monitor a situation from afar. They are not sitting on a desk and looking in a patient room. So they don't really need that direct sight line. What that means is that we are not laying out the rooms either to disguise or encourage that sight line. We are just laying out the rooms to just do some other things instead. To be honest with you- the geometry of the thing is effected by the width of the pair of double doors that can open out onto a porch and then the links of built in window seat beds which often goes right beside it and then what we are doing is trying to figure out- "ok how can I get the bathroom where I want it; or how can I get clearance on three sides of the bed?" So I am not often thinking very much about either encouraging or discouraging a line of sight from the patient room door or to the patient room bed, I am doing some other thing but I am not doing that.

Sharmin – Thank you! Do you like to add something?

(No.)

Question 4: *Social Interaction …*

Answer:

We have provided all kinds of stuffs and I think what's nice is that remembering that you are using the building 24 hours a day and one of the main goals of the hospice is to reconcile families. They look back at the experience and feel good that they had a chance to say what they wanted to say, to hear and ask questions and talk to their family members and sometimes to the professionals and often to the patients. So really talking is one of the main goals for the patients and the family members and its going on 24 hours a day because we don't have visiting hours. So you may have the most important conversation at two in the morning and may be you need to have that over a bowl of popcorn and that's why for example the family kitchen get to be really important may be the most important things that happens is a conversation is a conversation between a Chaplin and the son or mother or sister and it might happen at seven in the morning or at three in the morning, you just don't know. So we try to provide spaces that work all around the clock. We do want some of them to be fairly large, that's what the chapel is usually for. Memorial services tend to be the biggest gathering but some of the conversations are only for two people. You don't to have a conversation about a very private or sensitive topic between two people in a great big echoic space. So we need little spaces. We need niches and benches, we need spaces for small groups or spaces for five or six people, may be spaces for thirty or forty people and even those kind of open out if you have doors out into a patio so that you can have larger groups if you can have indoor and outdoor services. And most budgets cannot really accommodate all these different kinds of spaces so what's nice is if they can open into each other or be near to each other so that you can open them up and that is why the family living rooms, the last times we've done them have been sort of- we call them a room but it is a room that's got a coffee table big enough for a jigsaw puzzle so the kids can sit on the floor and do the jigsaw puzzle. It has got child size furniture and storage for games and things for

the kids in one part of the same room. It's got a table and chair so that you can have your snack in the middle of the afternoon. It has a reading nook in another corner so that you can curl up with a comic book. So we are trying to make sure that you can do many different kinds of things in a room that's fairly large and you do that with furniture groupings, so sometimes it's child size furniture, sometimes it's a bench and we like things that can be round so that we can push it up against a wall and use it like a desk or pull it and we can all sit around it so that the family can share a picnic or a big meal. So we are trying to do multiple things all the time. Well this is not much of an architectural issue but the bed themselves are pretty interesting and its useful to get some nice looking beds they are also pretty heavy duty. Volker makes some good beds and I found it interesting that they have a bed that's called the needling bed. It drops all the way to the floor then you have a patient that's a child and if you are worried about that you don't want the child to fall out of the bed, you don't want to put bars up like a playpen. You just lower the bed and it goes all the way down to the floor so the child can't fall out if the bed is already down at the floor level. That can be helped if you have other patients you know who have trouble with wandering and who are accidentally able to fall out of the bed. So needling beds are very useful, they are very interesting pieces of furniture. Those are the sorts of things that we are trying to do. The better it can work with all these different groups, the more those groups are going to come and that's what you want. It's a pleasure that people are coming and are comfortable spending time. That's what we are trying to do with so many kinds of spaces. And again, budgets are limited. Sometimes you can't build the room for every functions and the gardens and outdoor patio can do that especially if you have seen them. If you have a building that's fairly transparent and though it's in your mind that I could go outside, I could just run outside for a minute or we could go round the corner. Then people will walk and have those conversations outside, you don't have to build a roof and close every square inch that people use. You can make the outdoor spaces programmable just the same way.

Question 5: *Safet and Security …*

Answer:

One of the things about these building is that they have a lot of doors. This is one of the reasons why you should find a program and try laying one out. Because what you'll find is that you've got all these groups of people but you don't want them mixed up. I don't know if this is so much of a safety issue rather I think it's more about privacy and partly about the mission. But there is always this question about a tragic route for the family members and the patient after death occurs. So you generally got a front door, that's a place for people who've never been to the building want to come in. you need to identify places for people who are unfamiliar to come and where they'll be greeted in a warm and friendly way that may or may not be the entrance the family members will use and remember that they are coming and going in all hours of the day and night and their entry needs to be especially well lit and secure because they may be coming and going at 4 in the morning. So it's nice if they can park very close and come right into the door near a place where there always be a staff member around the clock and we have got the healthcare staff who are working out of the same building. The inpatient staff is one group with the residential staff who are also taking care of the patients who are in the building but those buildings grow out of a program that's taking care of hundreds of people in their own homes and the staff members who take care of folks in their own houses often work out of the same hospice building, in fact being able to unite the two staffs is a very important goal down at (XYZ)s. Their director did not want to have separate offices for travelling workers. She wanted them all to feel that they were part of the same team and she wanted them all to feel that they had a special place that they created for them to do their work. And she wanted family members and patients to feel like they were not handed over to a different team when they came into the

building, if they were taken care at home for some time and then they needed to come in and stay in the building. She wanted them to know that it was the same staff that's taking care of them, it may not be the same individual person but that person was right close by and in close contact with people that were there. So you've got these home-case staff/care givers- they are like honey bees. They typically come into the building in the morning, will have team meetings; they'll load up the supplies in their carts and they'll drive all around and then they'll come back towards the end of the day around 4 or 5 o'clock and have team meetings in the end. Now they are coming and going but this traffic- you don't want to get mixed up with all the other public traffic. And then you've got the people who deliver the sheets and the fold linins , these routine delivery staff. And then we are always trying to make it so that everybody can get outside to see the outdoor gardens. So we've got all these doors, doors in every patient room, we've got doors from the family living rooms, we've got doors from the chapel that open out onto the terraces, we've got all these exterior doors and that becomes a conversation we always have to have because it's pretty hard to lock down a building that has got as many doors as these buildings do and in the layout they look like snowflakes because you are trying to separate the various traffic populations and you tend to have entrances on every single sides so you hardly have a back, you know you just have a family front and a public front and you have a staff front but it's very hard to find a discrete place to take the trash or to put the generator. So that gets to be kind of an interesting geometric problem too. So you have to talk with the staff very early on about all these doors and make sure that they want all those doors; make sure you haven't created a safety hazard. And usually what happens that they'll monitor all the doors and you'll need an electronic system that tells you whether a door is open or close or locked or unlocked, so they want to know in the middle of the night the security officer on duty needs to be able to tell whether or not the patient room door is open or has been open. In some facility they go around and just lock doors after six o'clock at night. This is a little bit tricky but you have to make sure you explain it to the family members because they may want to go out at 1 in the morning and smoke a cigarette or something but you need to sort of make it clear that this is how we are going to handle this and in an inner city which is where I have not lived very often- I think it could be much harder. We generally have more land, more space around our building. They've been either in the country, they've been rural or they have been in small towns so we had pretty large sites so in that sense the whole campus sense has been portrait. But I think if you are in an urban environment you'll have to really think of this awfully hard because the buildings are very porous and they don't shut down much, the home care portions do sort of stop operations after say 5 or 6 o'clock but then another population who will be coming in for counseling sessions- will be a women's group or men's group or parent's group. All the sort of counseling groups tends to come after hours because people are working, so you'll get lots of traffic if you are doing those sessions on campus. There'll be some coming in about 6 or 7 o'clock. They'll stay till 9 or 10 o'clock so you've got lots of different comings and goings that you need to sort of think. We've some buildings that sort of lock off about half of the facility after about seven o'clock. So the inpatient staff and the patients are there and their families are functioning in the building 24 hours all around the clock but there's another part of the building that really is open from about 7 in the morning until about 6 o'clock might stay open a little late if it had counseling sessions but it closes up and after about 10 o'clock at night that part of the building is locked off. Sometimes the same decision you'll see in terms of construction codes and occupancy types so sometimes you'll see that part of the building is constructed to healthcare standards and part of the building is constructed to business standards and that can be a cost saving measure. So that's another sort of distinction you might not want to get into but that is a decision that sometime is being made.

Potential Hazards- it's not a lot of that, I mean there are bio- hazardous material but not any worst than what you would normally find in a nursing home. Infection control is an issue you might want to talk to about to your care givers. Isolation rooms are becoming less and less common. I think people just don't want to do all that, I mean they still need to deal with it(infection issue). But the resume has been written in such a way that it doesn't any longer insist on having an absolute isolation room. I mean they just insist that you have policies in place and when there is a choice sometimes what we are finding is that the staffs are deciding not to actually pay for a distinctly different designed isolation room with a positive or negative air flow and the extra sink and the washing sink and the vestibule and so on.

You know the bathrooms here are no different from any other health care bathroom. We do state pretty often that the patients don't themselves go in and take showers or has very often because the family members spending the night very often and they are the ones actually using the tub and sometimes the tubs are going away but that's an idiosyncratic issue and every staff does it in their own way. There's not a lot of specialized equipment I mean there's usually a central bathing room and it gets more or less used. That's another room you'll get a lot of debate about and it has to do with how the staff wants to use it. I don't hear much about theft or vandalism and the only thing you sometimes get a comment about- we've always got ceiling fans it turns out as much as the temperature is important, the circulation of air is also very important to make a patient comfortable. So we always like to have ceiling fans that can be controlled by remote controls and sometimes the TV remote control or the fan remote control can walk out the door- I don't know how to stop that. And the rest of it I think is you know is less about architecture and more about operation policy.

Sharmin- Pet policy... Hygiene Policy

I don't know much about those things but I wish I did. We always try to build in a children's play room and we put it right next to a nurse station and we give it internal windows. Our preference would be to have it open except we won't because that'll make some noise. So to contain the noise and let the kids make some noise and watch their videos, we'll give it glass walls but we want to put it within sight lines of somebody whose probably going to be at that desk so that's a safe place for children to play when their families don't want them to go outside.

And I do not have lots of experience about policies about pets I think what seems to have happened so far is that the facilities may have one or two pets of their own and those are normally very well behaved quiet controllable cats as a rule and then they'll just have to deal with the patient's pet on a case by case basis. And if an animal is any kind of a problem with the staff or other families then I think they can't just cope with it. They just want to deal with it one at a time but we have not built anything especially for the pets. We've never done anything. I think the pets in my building are living in the people spaces.

Question 6: *Autonomy ...*

Answer:

Let's talk a little about thermostat, every room has its own temperature control and the fans are very important and the other thing that's important to control is the light and it's useful to have black out curtains so that you can get a little of light or you can block it out altogether. Lately, we have used some fan light that we have liked a lot. They are liner, they go above the patient's bed. They aren't really over the center, they run parallel to the long axis of the bed and they are sort of above the sides of the bed so that when you lie on the bed and you look up, you don't see the lights. Straight up what you see is the ceiling and they cross light so that prevents shadows. The light and the fan placement needs to be coordinated because what we don't want is to give a strong effect when you get those two together and

you turn the fan on what you'll get is the blinking effect. They'll give everyone a headache. So the fans tend to go not over the head where you might expect them but they are closer down towards the foot of the bed and the lights tend to be over the head of the bed and we'll usually have several different kinds of beds. We'll have an exam light which is at the high light level, which is only used by the physician who are sort of checking on things more often there at a lower light level which is kind of an ambient light level and there'll be a reading light which we like to attach to the head board of the bed itself so it moves with the bed, we try not to attach with the wall. Then there'll be an entry light in the vestibule and there'll also be a night light of course and there almost always another reading light over in the area where the family members spend the night so that they have a light of their own. So there are a lots of different lights in our rooms. Well there's also lights out on the porch too and there's never been an issue.

Question 7: *Sensory Stimulation …*

Answer:

I am not going to be a lot of help on this one. We don't want the spaces to feel like a hospital. We are using material, colors and texture that are richer than that you'll normally find. But when it comes to the therapy, I am not seeing them in use so much with the patients. I think the last time they came up- i had a group that wanted merge massage and they wanted a special room for that and they wanted to deal mostly with the family members. We have not seen a lot of it to tell you the truth, and it may be that's going to be more prevalent where you are going to have longer stay but stays have shrunk to just very short durations. There's less time for this. I don't see a lot of it. The horticulture thing is the gardening but I am not seeing the patients garden. I am seeing the family members and the and the families who have gone through the program, who has lost someone years ago. They'll come back and do it but I don't see a lot of it. So I am not the right person to talk about this.

Question 8: *Spiritual Care …*

Answer:

This is one of those difficult things and I think what you want in the rewarding part of practicing these projects is that when you have a chance to work with the staff, you can get them to figure out what is it that you want them to do. They generally don't know. Most people that I've worked with never had a chance, they've either never worked on a hospice building that was purpose built for them or they have never had a chance to design one but they haven't been in a lot of them. So they are figuring it out which is interesting process and you get to ask them- what was it really like to have? Many of them never had anything before and the ones who had it may only had one of them, and it could be something else and there's always this conversation about- what is the chapel? Is it a chapel? Is it a church? Is it really not a worship space at all? Is it a meditation room and we end up going from one extreme to another. Some groups they generally have to talk about it quite a lot and even though there always are chaplains of all sorts of denominations as part of the care takers. What they actually build is very widely. Some groups do not want to put anything in place that even accidentally refers to one tradition instead of another and that's kind of hard to do. Every once in a while you'll get a group that doesn't want anything that looks like a right angle because they think that it looks like a cross and you have to sort of remind them that 90 degree is kind of built into the floors and walls. There are some groups that really want just sort of very neutral meditation space and they don't want anything figurative in the windows. Then there are other groups at the far extreme who want something very specific. They want stained glass and they want symbols of particular traditions. And you will get everything in between and the hardest ones to permeate in some ways are the ones that are trying to make a flexible space. They want to look Jewish sometimes and they

want to look Muslim sometimes, they want to look Hindu sometimes, they want to look Southern Baptist sometimes. That's tough right?

So it all depends on what's the group's mission is and how they want to carry it out. All I've been able to do is show them a lot of examples and then try to find the answers of what they are looking for. And when they are not sure, or sometimes what's worked is to say let's wait until you get a donor down the line and may be somebody will want to give you a beautiful particular stained glass window but until that person comes along let's put some ripple glass in and make sure that there is a nice plant planted outside the window. And you'll be in the chapel or the meditation space and this tree will be wading its leaves gently beyond and you'll see blue skies and you'll see paint buds and you'll have all that colors but it will be something that's there because nature brought it to you and it will be something that's permanent and fixed that you can't change. Though what we will try to do is give them something that are simple spaces that they could develop over time as folks come along. You might want to look for a way to incorporate a question or a point about what do you do in the building to reflect the enthusiasm of donors and this is a place where it becomes an issue. So you start to get people who are trying to put their name up on plaques everywhere or they want to donate all kinds of things that may be aren't quite appropriate. But the whole issue about how donors relate to the building is another whole topic you might want to think about at some point. I don't see how you make a patient's room sacred. I think you can keep it calm and you can keep it simple and clean and you can keep random equipment out of the way by building it in or if you have to have it, by making a spot for it and making sure you can keep it in that spot so that things seem tidy but the patient's room in my experience has been taken over pretty thoroughly by the family members so they are kind of going to be what they want them to be. And they may or may not be what you and I would want to meditate in but that's kind of what they'll have. The chaplains are very important members of the clergy and they are right there on hands so that's always a nice thing to know that they are active and involved.

Question 9: *Family Accommodation …*

Answer:

We have already talked about a lot of that.

Sharmin – Do you want about the bereavement support? Or anything else?

There are all sorts of bereavement programs, they are all architectural and I am not sure whether you have looked into them. They can be small groups, there can be opportunity for education- VCRs and training tapes and that sort of things, nooks and that sort of things. There can be talks and lectures. But sometimes they are camps, like camps for children who have lost a family member and those need to be places where large groups of people can get out and play and workout and use their energy and get sort of what it is they need to physically get out of their system. So even at (XYZ)s we had 200 acres, they said that wasn't enough property to have their bereavement camp. They wanted their camp somewhere else where the kids could be noisy and as loud as they needed to be and they never had to worry about that noise accidentally disturbing patients who are in the building itself. So bereavement support is a real interesting field and it comes in every flavor but sometimes folks don't want all the flavors in the same place and they often want to separate parts of it and sometimes they feel it's important actually they like to bring people who can participate on campus and sometimes they bring the program to the people. So sometimes they'll do them in churches and they'll do them at schools, they'll do them in community and evening education venues so that not everybody is always coming back to the campus. I have been told that there are some folks who don't like to came back to the hospice itself because they associate that with a loss and they would rather comeback for counseling be is a different place they don't want to come to

the hospice house. They want to come somewhere else for the year of counseling. That has never been what I have seen in the world that I've worked in, there is a bond between the staff and the family. They miss the family member who is gone but they are very fond of the staff and they like to came back to the hospice house. So that's the thing different groups react to differently.

Question 10: *Support after Death …*

Answer:

Again, there is a lot depending on the staff that you are working with. The conversation that I always have to work through is that- how do you want to handle the removal of the body? What do you want to do? And I've groups who say that it's really very important. We want to make sure that it's entirely normal and that everybody faces. The smarter we are, the more comfortable we can get with it. Because it's something that we should not be afraid of and when we hide it or cover it up or put it around a corner- all we do is make it mysterious and frightening and so some groups have said that it's important. If there are four families in one wing of the hospice and if one of them looses a family member we want to work hard to keep the other families from realizing that a death just occurred that's going to come to all of us. We don't want to force them to participate but we are not going to hide the process either. We want them to be close enough so that they can see that this is something that all of us will handle with sensitivity. And that we all come through it and that we are stronger after it's over and we can only show that if they can see it. And so that is the logic of this is one of the things that happens once you come in and go out. And we don't make a fuss about it either way. We don't hide it or force it on all of our visitors but it's what goes on here so are just going to be sensible about it. We have meals everyday sometimes we have admissions and often we have deaths. But then how they do that gets to be another question. So when I cannot get a clear instruction from my clients, I try hard to make sure I designed in options. So like having rooms with the patient's beds to roll out onto the porches but I try hard to connect those porches to sidewalks so that if you really had a situation where you did not want the lost one to go back through the building. If you really wanted to move the body out of the building, you could go right straight out that building and you could get a waiting ambulance or hearse without having to bring the body all the way through every corridors and back in front of all the other patients' spaces. So that's another sort of added benefit of having doors from patients rooms to inside but you need to be sure to build sidewalks that link up through the gardens and eventually get to a location where you could have a vehicle. So that's one way you can handle it.

Another sensitive thing to do is to, sometimes people like to move the deceased family member into a chapel or in the meditation room and the family will spend time in there, they may not be in the bed room they rather in the meditation room and it's always nice if you are outside the doors of the chapel or the meditation room, again it's nice because it opens out onto a terrace. You can have an indoor- outdoor service- accommodate more people. It's sort of a nice way to leave the building- to go from the patient room into the chapel and then from the chapel into the hearse. That's a pretty nice sequence it's also important to make sure you can go out the front door. They don't always do it but it's important to make sure that they can do it and there are some families that just cannot make up their mind and cannot quite get their arms around it and they really want sort of an internal way out. And in that case you have to be really careful that you don't accidentally make a service exit into an exit for the body because that's really not appropriate. I think it's not in anybody's interest to take a service corridor and had it do double duty as a path to the funeral homes. So as long as you insist on having a unobtrusive way out of one building , that's fine, but you don't want it to be the same path the dirty laundry is going out obviously. So it sort of gives them choices and options and you try to make them sensitive and the staff that has been the most

supportive and the ones that I've admired the most are the ones that generally go from the chapel out or they'll go out through the front door. The folks are getting sort of used to the whole idea or had less experience. They are the ones who seem to get a little bit worked up about- "oh my God, we are going to have a really important donor who's coming in and they mustn't see the funeral director". Well maybe they shouldn't have come. May be they are not the donor that you want. So that's the place you just have to work really hard. I've never been asked for storage for residents belongings that a new one to be. There is a lot in the room. I guess it would depend on how fast they needed to turn that space over if they were really crowded and they needed to make it available right away that might be a problem. I sort of chased that one before and I don't know much about the other rituals. I worked a little bit on a hospice that would have been in Saudi Arabia, those were the rooms that needed to be oriented the right way. The patients needed to be able to face Mecca and that again has a whole new geometry problem because you need to be able to get all your rooms pointed in the right direction but mostly the thing that I have been asked for is how are we going to bring the family out and how can we get a crowd of people out with dignity without disrupting everyone else.

Question 11: *Staff Support ...*

Answer:

Well you've got it all there, we have talked about it already. Do you want the staff to communicate with the patients and they will. That's why we make those nurse stations accessible and sometimes we see a lot of bedside chartings and computers on wheels and what they are using to roll in and take their notes. So you don't have to do much to encourage it because it is already is what's happening but once we've given all these places to communicate you also need to be sure to give them separate spaces where they can seek and get their notes clearly expressed so they are always in conversation with the patients and the families. The socialization question is won. I think we touched on before on that tends to translate on concern that's the inpatient staff and the homecare staff have unity of purpose and feel like they are part of the same program so that often happens- What good is a request for a single staff lounge or a single staff lunch room, right? And that's a place where they are meant to be able to go and see each other during the day. That is also sort of what personal reaction is in our project. And the retreat or meditation is another one of these things where sort of isolates examples tend to be the director of the hospice. She wants to be in front because everybody needs to see her and they often end up in her office but she means to be able to get away from them. She doesn't have time to see you because I am having an emergency. So she needs kind of a gate keeper. So that the director's office tends to be right up at the front but there is almost always a gate keeper, some kind of receptionist or somebody in front of her. So she can sort of screen the right folks and make sure that people who are in desperate situations can get in when they need to get in and they can protect the directors time and other instances that really needs to be separated so it gets a little bit interesting that way. This is kind of a stupid little practical thing that comes but the travelling healthcare staff often uses their own cars they don't always have a fleet that belongs to the health care system. And their own cars may or may not be beat up looking . So they tend to wind up at their own parking lot because they come and go and do not want to mix up their own cars with the patients' families' and they also are not always prettiest cars in the world so they tend to get parked around at the back. And they come early in the morning and leave sometimes late at night. They have a security issue as well. So they tend to be in large parking lots sort of around the back because they are not one of the most beautiful vehicles. But we also need to remember to make sure that they are safe and those paths are safe and they intend to come and go with their arms full of stuffs. They don't carry medicines 'cause it's too dangerous and asking for trouble. They do carry bulky bandages and sheets and

all kinds of supplies sometimes. So we don't want them to walk any further than needed. So it cares to be a supply closet or supply storage room on the way out that's monitored because you don't just want your supplies to just walk out. But when you need supplies you just want to pick them up and not carry them any further then necessary. So there is a convenience issue and making sure that the health care staff can get from their cars and in the building and into the places where they work and meet and from those meetings walk back out with their supplies into their cars and there another traditional issue which is if you think about the fact that these staffs are not in the building much of the day.

We've seen a shift in an early project, everybody may not have his own office but certainly his own desk and space and he could put whatever he wanted there and leave it there all day long every day. Now we are seeing sort of a hostelling model where there are plenty of spaces where folks come in and chart but there's not so much designated space instead there tends to be sort of plug-in for laptops. But you don't know which spaces or counter top is going to be free when you come in. you take the one that's open and lots of things are held and stored electronically but there's less built in space that way because you don't have separate distinct work space for every single staff member. They can sort of share and use them by shifts. That keeps the total square footage down a little but so that's one of the staff issue that had reason for the last few years.

Question 12: *What is your opinion about these eleven therapeutic goals? Do you have any suggestion to add or subtract any goal? Or, do you have any suggestion for redistribution about these goals?*

Answer:

Well, don't forget. You've got lots of goals for different groups. For the staff and the families and for the patient. You might want to consider adding a set of goals related for the public at large because again what we are finding is that hospices mission is still not as well understood as it might be. And so when they build this building, this is their chance to say in a very concrete way that they made a commitment to this and they typically want to make sure that even to perfect strangers that their architecture conveys that what they are doing is unusual and it is distinctive. There is something extraordinary about it and they want a perfect stranger to walk up to their building and sense that it's welcoming. And that it's a reassuring place where these people inside are more than glad to answer question and to have volunteers and to talk to them about what they do. So I wouldn't call it public relations but I would call it sort of community relationship that most of the hospices are trying to build and when they build the building it's a real focus of energy and enthusiasm we've been really lucky the programs have usually been in existence for 10 to 15 years and there's a lot of affection that grown in the community. If you are losing a family member there's not much that's worse and anybody that comes in to help you through that time, that's somebody you are really grateful to. You don't forget. So family members become donors and volunteers and that affection spills over onto the architecture. So the programs are usually places where they want to help people maintain that enthusiasm and there's this sort of question- How does the building feel? What kind of a face does it have to the world at large and does it express our commitment? Does it say that this is a place where you'll be safe, where someone cares about you, where you are in a different world so that's sort of a side of things that's sort of worth thinking about. The successful hospices do that really well and the ones that I have found that I have been disappointed in has sort of missed those opportunities and I think it's the hardest thing when you try to get a hospice that has been placed inside an overall hospital building when a wing is to be renovated to become a hospice. It can do its job very well but if it doesn't have a chance to have its own distinctive image, if it can't create sort of a separation for itself. Then it has lost a step. It has lost an opportunity to

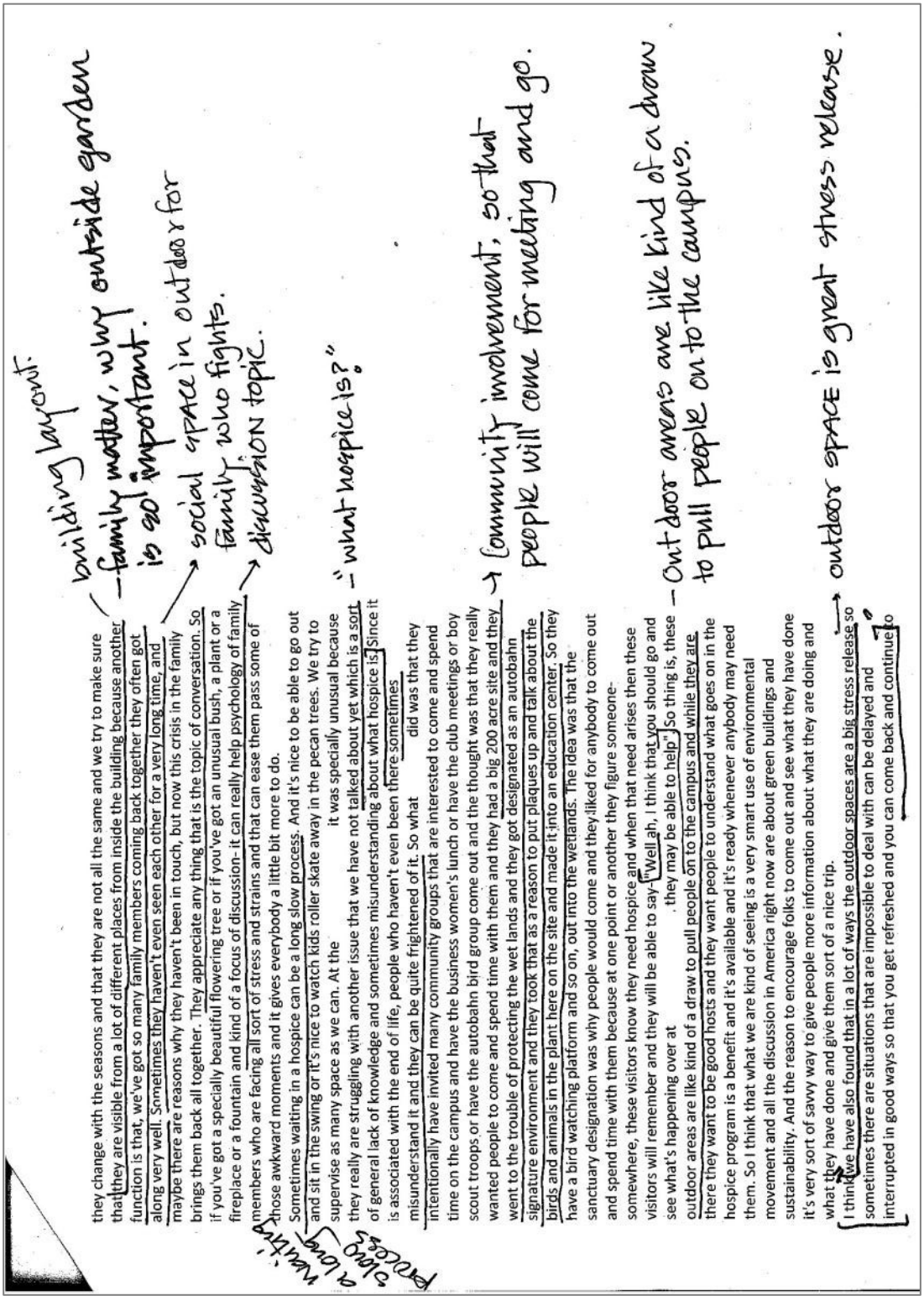
reinforce the difference that reality is at the heart of what they do. So that's a place where the architects make a big difference.

Sharmin – Thank you so much! That's fantastic. Anything else you would like to use?

Expert – No, I wish you good luck. I would like to see the final draft or findings.

Sharmin – Thanks again! Really appreciate.

Analysis of Interview Transcript – Sample.



APPENDIX E: Case Study Interview Transcript and Field Note

Interview Transcript of Case Study – One Sample.

Question 1: *Provide continuity of self …*

Answer:

Facility Manager – I would say the doors opening to the outside give you a view down in the natural environment to look down to see wild life and native plant species, and provide like home-like touch to it. Actually, you will feel like you have lots of privacy. And from time to time, we wheeled out patients to the outside, and they expired. I think that is a good thing.

Director – Well, there is a chapel, where patients and family members can go, its non-denominational, can participate any spiritual rituals, they may have. There is also a children's play room, supplied with toys and various games, puzzles, stuffed animals, where children of patient's, or grandchildren of patient's can go, and play, and interact with other children, and family, and also there is also a quite room. That we really utilize for family consult with nursing staff here. The other piece of that is we have outdoor chapel. That family member can utilize.

Sharmin – Tell me more about scope for personalization? Do the patients bring any personal item? Picture or furniture?

Director – I think this question is for him (Project Manager).

Project Manager – there is really not that much room in the patients room to bring their personal furniture, that you will see in the tour. They are designed to be very home-like. There is place where the care giver can stay and sleep and there is adequate sitting in the rooms. You can see that it is not at all look like a hospital room. We make sure that med-gases are not seeing and all of that stuff is hidden behind the wooden column or that sort of thing. Again, by intent it is not made to look like a hospital.

Sharmin – so, they are allowed to bring their pictures and arts?

Project Manager – sure, we will encourage that.

Administration – even the linen closet which is pretty cool. You can stock them from the outside as well as dirty laundry can be picked up and delivered from the outside, so that the patients and their families are not disturbed.

Project Manager – and the beds do not look like they are hospital beds; they are kind of unique, very home-like, and very residential.

Sharmin – Do you like to add or say more about this goal?

Director – (After a little silence) No.

Question 2: *Access to nature …*

Answer:

Nurse – all the rooms have French doors, so all the room can access to the outdoor patio. All the beds can be wheeled out. But the beds have to be there, but the wheel chairs can be wheeled down and go around building.

Project Manager – the building design consideration has that every patients pod a private view to the wood. We are built on 210 acres of site; there is 195 acres that is undeveloped. That has miles of trails not only for visitors for patients as well. They can be taken out on a wheel chair. As she said that every room of the patients has a fresh door and from early on design was to physically take the bed out of the

room. Patients can be taken outdoor under cover and can enjoy the nature. There are seven overlooks, nature, bridge and each of these has placards.

Sharmin – how long this facility has been opened? Any incidents happened where patient want to die in a garden?

Director – not happened. But, we can accommodate that.

Sharmin – Tell me more about the garden utilization.

Project Manager – I don't know about the utilization. But I can say that we have 12 pages of drawings on landscape design. We spent a huge amount of dollar on landscape. I can't mention.

Nurse – patients do go out to enjoy. But here, it I shot. Mainly used by the families to meditate. Also, when the nurses are doing patients care, lots of the time, the families step outside. Instead of coming inside, they go outside just to sit and talk. We are in south of X state, and here it is hot outside. It is 100 degree.

Director – and we take care lots of patients of cancer or long term disease, and it is hard to breathe outside. So, I don't know the grounds are utilized as much as per patients, as they are for families.

Question 3: *Privacy …*

Answer:

Facility Manager – All rooms are private, and they all have private baths. There are two sets of blinds, if they want to have complete black out.

Director – Quite room is sound proof. Private patio for each room, and there is private patio at the end of each pod. There are nooks to read and write. Adequate seats, couches and sofas, outside table and chairs. in the quite room, we utilize that for private conversation between nurse and family. There is also a kitchen that can be utilized to have conversations with family members; we can talk about that earlier. There is a family kitchen.

Facility Manager – there is a sun room, there is a piano.

Director – (continuing) and sunroom, there is a piano, also have door that can be closed for private conversation. And that space can also utilize for private family events.

Sharmin – is the patients bed can be seen from outside?

Project Manager – the foot of patient's bed can be seen from the outside.

Sharmin – Do you like to suggest or mention some other points about the privacy?

Director – No.

Question 4: *Social Interaction …*

Answer:

Director – we have chapel, kitchen, children room, end of each room there is a waiting area. There are books and games. We also have a conference room for family consultation or family meeting. We do not set restriction on patients' visitor number or we do not set any visiting hours.

Sharmin – how many family members usually come to visit patient?

Nurse – it depends on the patients, it can be 0 to 15 to 20 people coming into an hour.

Sharmin – please tell me about the patients' population?

Director – about patients population, we are 70% white, 30% African American, we have a small Asian population, say less than 1%, very small Hispanic. Our patients' benchmark reaches the national level. We have opportunity to reach African American population and Hispanic. Family dynamics, it can

be no family, ot it could be very large family, same thing with religion. It really depends on the patients, we have really large church family, or they might not have any at all.

Nurse – it is really depends on the disease, are not the disease, why they are here? Are the patients here for respite? Which means they are giving their care giver a break? In that case, we encourage the care giver for "don't come". Because, that is the point of the patients for coming out here. Sometimes, with those patients, they won't have family. They may call on the phone.

Sharmin – So, those patients, how long they are going to stay here?

Nurse – if they are here for respite, they are staying here for 5 nights. We also take patients for symptom management. Also patients who are actively dying, if they are here for symptom management they are here for as long as their symptoms get under control.

Sharmin – How long is that going be?

Director – average length of stay is for seven days.

Sharmin – If the patient is actively dying? Then!

Nurse – normally, according to medical opinion Is, actively dying is for 24 to 48 hours. But, that is again different, every patients is different, we can't say, it is 24 to 48 hours. We have some patients are coming who are here for only 50 minutes before they past. And we had patients coming they had 2 weeks before they past. So, it is that everybody is different.

Sharmin – Is there any incidence happen, where patients stayed for 3 months or more?

Director – no, it didn't happen. They would like to.

Sharmin – What types of families or population have large family?

Nurse – not, that any kind striking my mind.

Director – if the patients are too young.

Nurse – yes, that is true. Recently, we have a patient that came from hospital It was people were bringing it was probably 40 to 50 people. There were church people, food all around, people from outside the town. The family room was full.

Director – if you are this part of the country, you are in the Bible belt. So the church typically plays a very important role at the end of life, sometimes more than the family, depends on the patients' involvement in the church. I see, more extended family in African American families, and more community neighborhood support in African American cases. For example, we have a patient here for symptom management, and she had 3 grandchildren, and she has 9 grandchildren. We don't see that in other population, mostly mother, father and children. We cover 11 county, we have higher Hispanic community in the Tyson food company.

Sharmin – Do you want to add something more for social interaction?

Director – the only thing I want to add for social interaction, is may be coming up for something else, the diet choice. Now, we are Coca-Cola drinkers here, and we tried to keep a stock of Coca-Cola. We have patients who want to diet any time of the day, we try to meet that need. We have volunteers, who come here every week and bakes cookie.

Sharmin – do you see more frequently that one patient's family is hanging around with other patients' family using any of this social space?

Nurse – mainly, you know just to say, hey or how are you? But not full bond conversations, because people tend to stay in their own patients' room. So, they are not really looking for interaction.

Energy, Maintenance and Security Personnel – I saw patient's family coming here with food and them sharing the food with next bed patients' family.

Nurse – but, it is not something is done on a daily basis.

Energy, Maintenance and Security Personnel – during holidays may be.

Question 5: *Safety and Security …*

Answer:

Director – I would say that the setup of the pods is that functional. The nurses' stations are on one end, six patient rooms down the hall, and the family area, at the other end. You have patients on bed three are almost at the very end of the hallway. If you have mainly 7 patients, you need to bring an entirely separate staff for that 7th patient. Because it is not easy for one nurse and one CAN to care for that 7th patients, because the patients is in completely different hall, when your staffing ratio could be 8 to 1.

Nurse – when you will go down there, you will be able to see what she is talking about. It is not a far distance, but it is a distance to walk when somebody is down there. It is hospital, where the nurse station is at the center and that's not the way, it is.

Facility Manager – there is an advance nurse calling system

Project Manager – that was a key component to the design, exactly what they are saying, to be able to have nurse station and all of that conversation may be taking place at the nurse station, where not at the center of the pod. The six beds for a pod layout whatever the senses may be , whenever you got the 7th patients, you have. Open up the entre pod for the 7th patients. That is definitely not a perfect situation from a clinical perspective.

Nurse – I understand not putting the nurse station at the center, so the conversations are not right there. But, the acoustics are not good. So, you can hear everything down that hallway. So, brining the station here, really not making a difference because the sound everything just echo.

But with security, we do have lots of doors that lock every night at 7 pm.

Facility Manager – magnetic locks.

Nurse – you can get in unless you are buzzed in, where patients are brought into, you cannot get in there any time unless you are buzzed. So, when ambulance transport or family transport brings patients in that can only be got in- buzzing in.

Director – we do not have any covered patients transportation area. So, if it is raining or snowing, one out of ten, that might, patients have to come in through the front door, all the way through administration all the way down the hall way.

Nurse – you know, patients pass away back there, you know, if it is raining, the funeral home has to take the body out in the pouring rain, if there could be a board meeting going on or other visitors. We couldn't bring the gurney, a dead body through this whole space. There is no covered parking area so that patients could be brought in and out.

Director – to me, that is one of the worse design features that we do not have.

Sharmin – is there any kind of incidence of theft and vandalism here?

Nurse – no, we do have security camera here.

Energy, Maintenance and Security Personnel – we have security here till midnight.

Director – wild lives, and family member may have disagreement with each other, and fight against patient's belonging, we have security system here, the hospital has security system and we call upon them.

Energy, Maintenance and Security Personnel – everything we can see from my office.

Nurse – if it has come down in that point, we call all. Most recent we have visiting schedule, you visit here, and you visit here, if you pass each other in the hallway, and you will not speak, it was interesting.

Sharmin – What about infection control? Accommodation of pet?

Nurse – we do have pet therapy. We have volunteer comes and brings a dog, the infection control is gel in everyroom, you gel in and gel outif the patients are actively dying and they needed to say goodbye to their pet, we definitely allow it. Even, to meet it we need to wheel the patient out at the front door where the dog brought or cat brought right there.

Director – Yes, horse!

Nurse – whatever, if they need to say goodbye to their animal, if that the patients and their families need, we are gonna accommodate that.

Sharmin – Is there any horse here?

Director – not here, but in the hospice industry, yes.

Energy, Maintenance and Security Personnel – we have disinfection cleaner. I use three types of cleaner that all. I use glass cleaner, disinfection, etc.

Facility Manager – we have isolation room, and we can maintain negative pressure and there are in each pod. There are three isolation rooms.

Sharmin – Tell me about the specialized equipment, such as patient lift.

Nurse – we do, we have hydraulic lift that we can use.

Director – according to bath, we can have patients in shampoo and bath.

Nurse – we haven't used it yet, but it is there.

Administration – each patient room has shower space that will accommodate wheel chair, shower chair, we could do sturdy shower chair.

Sharmin – Please tell me about the bathroom design? Does the bathroom have enough space?

Director – yes, two people can be there. And we have oxygen storage, we will not be running out we have emergency bank of oxygen.

Sharmin – Is there emergency weather situation happen in last 4 years?

Facility Manager – we have emergency electric supply for patients' room.

Director – will you please talk about the lick?

Facility Manager – we had pretty serious leakage happened. If there is any way to improve, there is water pipe to everywhere.

Facility Manager – we are having a problem with de-humidifier.

Nurse – doors do swell up. The patients' doors are hard to close and open. One of the exterior doors, it's a fresh door, the wood in casing it now there is a crack.

Facility Manager – we have CO2 monitoring system for most of the rooms, when it details large number of CO2 for a large amount of people.

Sharmin – Do you like to add something else?

Nurse & Director – Nothing.

(Project Manager left the interview as he had other appointment)

Question 6: *Autonomy …*

Answer:

Nurse – the windows don't open, they can open their blinds, open their doors. The patients' room has individual light, air, temperature control system and ceiling fan and TVS.

Facility Manager – the lights are not dimmable. But, there are several different modes of lighting.

Director – beds are all electric.

Sharmin – What about control over daily routine? Timing of food, bath, etc?

Nurse – the food is served in a certain time. It is brad over, right now because we don't have our cooking stuff, or food broad up here from other facility. The meals are served at a particular hour. They don't have code on choice, but if they choose not to eat, then we will try to accommodate something else. But, for bath, they can let us know when they want to and will accommodate.

Sharmin – Is there any time to go the gardens? Or, particular time for praying?

Director – we have a Chaplain, social workers, and volunteers. We do not have planned activities for our respite patients. We hear in a regular basis that they love being here, but they are board. As, mentioned earlier, they do not have family members coming in. we hear they are board. We are trying to planned activities. They will bring their hobbies and electronics to keep them occupies, versus, where in the long term care facilities, they have lots of activities.

Question 7: *Sensory Stimulation …*

Answer:

Director – we do not have any of those therapies available through paid staff. However, we have a strong core of volunteer staff that is capable of offering music therapy, aroma therapy, pets therapy, massage therapy. We do not have any of those amenities offered through staff. We have volunteer who come every week to bake cookies, you know smell of that can apparent through the entire building another volunteer comes regularly to play the piano. If patients specific request, the volunteer try to accommodate.

Sharmin – They can also control there curtains? Shut down their doors? They can do those?

Director – we do have the bath area, you know the hair washing basin, woorpool.

Question 8: *Spiritual Care …*

Answer:

Director – patients and families can bring their own sacrament. We have indoor and outdoor chapel. The indoor chapel allows lots of natural light. It is a non-denominational chapel. We have chaplain in our staff, we have bereavement coordinator.

Sharmin – Do you have quite room?

The quite room can be utilized for prayer the sun room can be utilized for prayer. The outdoor spaces can be utilized for prayer. It is very spaces accommodate family members, prayer groups, there is outdoor sitting, garden areas. The trails for meditation, all of that could be utilized for spiritual care.

Question 9: *Family Accommodation …*

Answer:

Nurse – the location it is beautiful place, but nobody knows where we are, nobody in this city knows where it is. We are not allowed to put signage up in the road, for whatever reason that could be. We got phone calls daily, how do I get there? It is a new address, because we took it. It is kind off negative thing that people don't know where we are. There are only two neighborhoods located near to this hospice.

Director – the flip side is that's' why it is quite don't have unnecessary traffic or highway, so it is a very calm and quite environment.

Sharmin – So patients are coming from hospital mainly?

Nurse – either from home or from hospital. So when they get here, it's like "whoa!! Wow!!" you know, it is so different being at the hospital and coming here, because in hospital things are beeping, IVs

are beeping, phones are ringing, and that's' not the way it is out here. But, with the family accommodation, each room is supplied with its own bed, for the family like a day bed built into the window. So, families always encouraged to stay except their own respite stay. But, that's you know.

Sharmin – What about their control & autonomy? Family can do their laundry!! They can take bath!! Or, cook!!

Nurse – there is a store, there is a refrigerator, and there is a microwave down in the family kitchen.

Director – fresh coffee all the time at the dining area.

Nurse – yes, little eating area. Its look like a regular kitchen area, like a home, just a small little kitchen area to eat, but if there are cultural preferences like foods or things like that, you know, we are gonna try our very best to accommodate those. So might not know what about to do because the cultures are so differet, they wil find out what is the preference for the patients' culture will be.

Facility Manager – there was one guy kept coming back for Mrs. X 's cookies, he was coming to hospice so that he can eat.

Sharmin – Fantastic!

(Everybody is laughing)

Director – that part of laundry, FM mentioned that earlier, Yes, we do have a family laundry area, vending machine, ironing board. You kn ow, all of that is available for family members.

Sharmin – okay, what about bereavement support?

Director – we have a bereavement coordinator who follows family members after the death for 13 months. That is a medicine regulation requirement. For example, we had a patient that passed last night, who resided in an assisted living facilities, he never utilized this hospice, but his best friend at the assisted living facility, was very down, very sad, so our bereavement coordinator went over today and get support to him, and allowed him to express his feelings about losing a very close friend. So, it's not just limited to ones' family member. One week ago, we very unexpectedly lost a very well-known physician in our community that is affiliated with our healthcare system and we offered bereavement support to his entire staff. So, our bereavement just extended beyond the immediate family member. We have a support group that is available, we do memorial service twice a year. we are a non-profit organization which has the hospice fund, which is designed to supply bereavement materials. The community, family members, who have lost patients' under our care, you know, we do lot more than just meeting the federal requirement.

Sharmin – Do you have a space for bereavement meeting?

Nurse – lots of times, it happen in their home. Once the patient's passes here, over the 13 months, we contact over the phone, make a home visits, mail list, we do have a bereavement room setup here upfront, where lots of support group help up. Also, bereavement does not necessary starts when the patients die. There are… as a primary nurse and worked directly with the patients, there are families you see, very quickly need that and bereavement go ahead and starts even before the patients passes away.

Director – when during the admission process that those bereavement needs to identify and our continuous assessment.

Nurse – most of the time it is someone younger, and when I said younger; it is mother and father probably going to bury their child. So, there are rooms that can be utilized if that will need to be.

Sharmin – Okay, fantastic! Is it happen, like family had come back, and they wanted to see where the patients died after like one year!

Nurse – that is something different happen, that we had a family lost their mother here, and she was coming to visit someone else and she made the comment, "Great!! That means I have to pass the

room!!" you know, very negatively. You know, she doesn't have to go and pass the room that her mother had died in, but nobody come here to celebrate or anniversary, celebrate is not the best word to use. But, it is more off not willing to see the room.

Sharmin – Do you want anything?

(Silence) No answer.

Question 10: *Support after Death …*

Answer:

Nurse – okay, if the family wants to do rituals, that are completely fine, they have their room, to do it. Ummm, someone asked me, not too long ago, to opening the window, when his father passed away at home, when they opened the window at the time of death, that's not the ritual we do, but that is certainly if the family wants to do, we can certainly open the door to let the spirit go this is how the person was explaining it to me. Once the patient's passes, the body needs to stay in the room, we need to clean the body and things like that, we simply shut the door. Ummmm.. And we have minimal staff, you know, there is not lot of us, so everybody knows that Mr. X, room 5 had passed away. You know, we all will be aware of that. Ummm, the negatives of that are, it may be not in the hospital, we cal the funeral home, we don't call 911. The funeral home comes here and we do assist with the removal of the body from the bed to the gurney. Then, they wheeled out in the hallways, their own parade all most, yea …

Custodian – there is something we used to do when a patient passes away and the funeral car is in the door, we close all the doors, if the kids are playing in the playroom, they need to go to their parents. So, it is pretty much the staff. If the patients at the room 3 is dead and we are bringing the patients from room 4, and if the families see the dead is going, you know, that trigger their stuff.

Nurse – even, the door shut, you are bringing the body in the parade and take through the hallway, and you know, if it is raining, you know the funeral people and the body, you have taken out in the pouring rain, and it is a good distance, it is not from here to the wall where I parked, it is pretty good distance, so..

Director – it is a design flaw.

Nurse – (continuing) It is completely a design flaw. I think there should be a way, you could just walk outside with patients. You know, it just feel like to me, they are just put on to a parade and there are ways where you could directly outside the French door, you know those French door could go outside the way. What people don't realize that when you finally taking the patients away, that horror on the family, then we go, we say, "I am sorry, they are gone". When you, I mean the funeral people cover the body and takes the patient away, that's the moment the people hit the floor. So, there is way that the patients are taken out. The way they are taken out just seems odd to me. You know…

Director – it wasn't well thought at all.

Nurse – no, it wasn't well thought at all.

Director – As a hospice, we sent a bud vase to every patients death. Umm… patients, ones they are passed. They are not allowed to stay two three days, a family is coming in from out of town at the end or for funeral home has not been chosen, the body is transported to the morgue.

Nurse – we don't like to leave patients here, umm.. just because things happen, the funeral home needs to be taken care off. We were actually smiled when you asked the question, the last week, we had a patient that passes away at 4:30 am, and his body was not taken from here like 11:30. That is because we couldn't get in touch with his brother which was the only family. We don't had a funeral home at file and finally the social worker went to the patient's house, excuse me, went to the patient's brother house and

we were getting ready to call police. I mean half his door wa broken down because his brother was here passed away for 6 hours and things start happening to a body at this point. The funeral home needs to be taken care of.

Sharmin – so, do you send the body to the morgue if it is late?

Nurse – we don't send patients' body to the morgue, very rarely, if there is any body showing up, if this is kind of like stay, or we will go to the morgue. It's not we try not to do that, because we like to go to the funeral home.

Sharmin – What about patients' belonging? Is there any store room or storage?

Nurse – once something goes to patients home, we can't reuse it. So, we do have to do something if there is any one. Otherwise, we do have to store those in the laundry room. To me, that's a design flaw, there should be somewhere, like a lost and found, almost, and that can be put. I mean, if you put in there, you have to put patients' level on it. The families going there to do there laundry, and they see the patients' name on it, and that's a HIPAA violation. You know potential HIPAA violation. So, the family got call, if the family doesn't coming and pick it up then eventually it got trashed.

Sharmin – Is there any system to display the remembrance?

Director – we have this building was built from donations from capitol campaign fund, the health system employees and the community built this building. There is an established foundation, where donations are sent, some of those funds are used for maintenance of the building. Other pieces are used for community education, enrichment. You know, for hospice care. There is a wall for donars', there are rooms in memory of patients, the kitchen was built in memory of a community member, so the chapel, the board room, they all are the memorial.

Sharmin – do you have something like, write down patient's name on a tree?

Director – there is a memorial garden, behind you, you can see the flag poles. That is designated for family too, want to purchase a brick in memory for a patient who served our country. We have the memorial services, twice a year, where are do give candles to surviving family members, we encourage them to lit those candles at special occasion of the memory of patients that we took care off.,

Sharmin – Do you want to add something else?

Director – Nope.

Question 11: *Staff Support …*

Answer:

Director – we utilize the chapel, ther is a prayer box outside of the chapel, staff as well as family members are encouraged to write prayer request and place in that box, chaplain takes out those request and prays. Facility manager put a box in front of the family exit, to drop some request or issues that need to take care off. The inside and outside chapel can be utilized by the staff. Trails, occasionally, the staff exercising or hiking in the trails, wildlife is very common here. One comment I would say about the design, if the administrative hall is that it doesn't promote communication between managers, I am on the outside of these double doors. Managers are through these doors, FM is down here (near conference room), custody is typically at the back, we don't have overhead intercom system, you have to actually pick up the phone and call them. Usually, nobody out their desk, it is a very big building, so I find myself looking for people, texting everybody, we are in the building, "where are you?". If FM and custody, they are employee of the healthcare system, if the building is having a problem, we have to still put a work order with plants. There has to be paper trail. Like Nurse said, the way building design for staff and

patients communication, it doesn't function. We are offsite of the main server of the hospital. So our server speed is much slower. So, our telecommunication are down.

Nurse – it happens often. Yesterday afternoon, we had no phone, no communication.

Director – with all those windows and open areas, we still have very little access with cell phones. But, communication was not considered during the design of the building at all.

Nurse: if we are going back there, I will show you, as a nurse, the function of how taking care of patients would work better. It is hard to explain, unless you see it. Because, I worked in another facility and we are moving from one place to other, and it never consulted with a nurse. You know, it is a nursing facility, to make the medical place better, instead of just making the place beautiful, it would need to be more functional.

Director – it is beautiful, you know, the design of this building has own so many awards, there have been a variety of articles that have been written interior design is phenomenal, but functionality in a medical setting was probably at the bottom.

Facility Manager – exotic material,

Nurse – continuing… and yes, lots of equipment that used to build if they don't exist anymore, and it's only been four years. like the bamboo floors they don't exist. The tile that was in some of area, they discontinued, they didn't get stuff that had been or will be in the market for a long time.

Energy, Maintenance and Security Personnel – it should be sill, but it is not, lots of complain about floor bamboo.

Director – the acoustic of the floor, you can hear everything.

Sharmin – okay, which place do you use to take a break?

Nurse – we have staff break room.

Director – there is a locker room, there is a employee shower.

Question 12: *What is your opinion about these eleven therapeutic goals? Do you have any suggestion to add or subtract any goal? Or, do you have any suggestion for redistribution about these goals?*

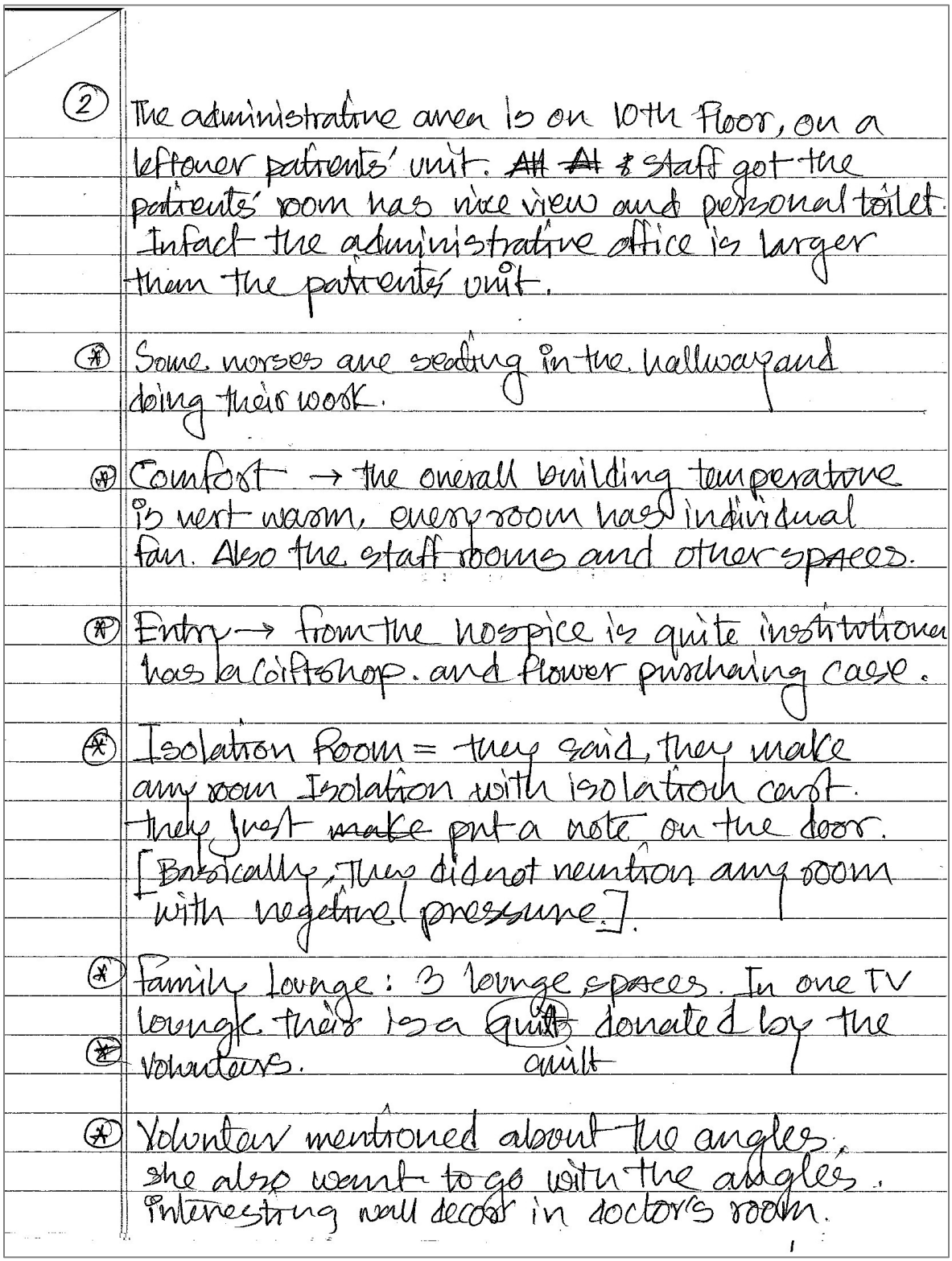
Facility Manager – fire sprinkle and fire drill

Sharmin – yes, that is under the safety and security, I didn't mention. Anything else do you like to add?

Nurse – No.

Sharmin – Thanks for the interview.

Sample of Case Study Field Notes.



(2) The administrative area is on 10th floor, on a leftover ~~patients'~~ unit. ~~All~~ ~~At~~ & staff got the patients' room has nice view and personal toilet. Infact the administrative office is larger than the patients' unit.

(*) Some nurses are seating in the hallway and doing their work.

(*) Comfort → the overall building temperature is very warm, every room has individual fan. Also the staff rooms and other spaces.

(*) Entry → from the hospice is quite institutional has a Giftshop. and flower purchasing case.

(*) Isolation Room = they said, they make any room Isolation with isolation cart. They just ~~make~~ put a note on the door. [Basically, they did not mention any room with negative pressure.].

(*) Family lounge: 3 lounge spaces. In one TV lounge. their is a ~~quilt~~ quilt donated by the

(*) volunteers.

(*) Volunteer mentioned about the angles. she also went to go with the angles. interesting wall decor in doctor's room.

APPENDIX F: VITA

Sharmin Kader graduated from the Bangladesh University of Engineering and Technology (BUET) with a Bachelor of Architecture degree, in March 2004. She worked as an architect in Dhaka for three years. She was also teaching architecture in the North-South University. In August 2006, Sharmin came to the Texas A&M University at College Station, Texas to pursue her master's degree in Construction Management. Along with master's degree, she received two additional certificates; one in Health System & Design, and another in Facility Management. In fall semester of 2010, she started doctoral program in the department of architecture at the University of Kansas (KU). She focused her research in healthcare design and environment of gerontology. In August 2014, Sharmin started working as a research associate (intern) at the Lawrence office of Treanor Architects. She is recipient of several awards and honors throughout her academic and professional career: the AIA Arthur N. Tuttle Jr. Graduate Fellowship in Health Facility Planning and Design (2013–2014); the King Student Medal for Excellence in Architectural & Environmental Design Research from the ARCC (2015); the International Fellowship by the AAUW (2014-2015); and Outstanding International Woman Student Award by the Emily Taylor Center for Women & Gender Equity at the KU. Sharmin also engages herself in various volunteer services with social and professional organizations. She served as the founding president of the Bangladesh Student Association at KU, developing community support systems and organizing events. She was co-chair of EDRA46 graduate student workshop committee. Sharmin has presented her research works in several national and international conferences. She successfully defended her doctoral dissertation on June 21, 2016 and graduated from the University of Kansas with a Doctor of Philosophy in Architecture degree in August, 2016.

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* AIA - The American Institute of Architects.
* ARCC - Architectural Research Centers Consortium.
* AAUW - American Association of University Women