INTRODUCTION

Why is so much attention being focused upon the elderly? One key to this question is the metamorphosis in numbers. There are now more older people than ever before in history. These numbers are greater not only because of the unprecedented population increase in the past century, but because people are living longer. Thus the proportion of older people in the population is rising. But this is not the only reason for the attention. Another is the fact that as people reach an advanced age a metamorphosis occurs, physical infirmities begin to place limitations on them which had not previously existed, thus requiring greater levels of care.

The proportion of elderly in Western Europe and the United States will increase substantially in the next few decades. For example, in 1980 the elderly population - those 65 years or older - constituted 11% of the total U.S. population. By the year 2030, the projection is for the percentage to jump to 18.3%. This means there will be more than 55 million elderly by 2030, whereas in 1980 there were only 25.5 million (Hancock, 1987).

The U.S. is not, however, the only or the most extreme example of this increase in the population of elderly. There is considerable variability in the proportion of the total population aged 65 and older in different countries. Sweden, Belgium, Austria, Norway and the United Kingdom will have an appreciably higher proportion in this age group over the next decade or two than the United States, the Netherlands, Finland, Switzerland, Germany, France and Denmark (Bier & Nienstrasz, 1967). Furthermore, there will be a metamorphosis within the age structure of the older population.

Once again using the U.S. as an example, significant growth will occur in the group known as the frail elderly - those 75 years or older - between the 1970s and the year 2030. This sector, which comprised 37.7% of the elderly population in 1977, will increase to 42.1% of the total elderly population by 2030 (Hancock, 1983). This single demographic characteristic could portend a significant metamorphosis in the relative health, well-being and independence of the elderly. Sheldon (1948) stated over four decades ago that "up to the age of 70, many individuals are represented by pathological states common to all ages, but after 70 the more specific symptoms of old age - e.g., weakness, vertigo, spondylosis, difficulty with traffic and loss of confidence - become increasingly important." This still holds true today. This demographic metamorphosis suggests the need for a greater variety of assistance for the elderly regarding their housing arrangements - e.g., shared housing, accessory apartments, life care communities, congregate housing, nursing homes and hospitals - a change thrust upon the elderly, not one freely chosen. Although developing areas of the world are not yet experiencing the relative increases in their elderly population to the extent found in more developed countries, it is just a matter of time before they are faced with a similar situation.

Programs which focus on the elderly generally have as their essential goals health, well-being, and independence. In the vast majority of these programs, the emphasis is upon physical, psychological, or social factors that contribute to these goals. It is only infrequently that such programs consider the role of the built environment as a significant element in the individual's life, other than when it seems to hinder such goals. This paper examines a specific built environment - a long-term care facility for the aged - and the role it plays in the lives of its residents all along the extreme or intensive end of the care continuum. The paper reviews the results of a study conducted to evaluate the success of a concerted effort to utilize the built environment as a positive factor in the metamorphosis of aging, and considers some of the larger theoretical issues involved in this process.

BACKGROUND & METHODOLOGY

The investigation was exploratory. It involved the evaluation of a long-term care facility for the elderly (which will be referred to as the Manor) located in the mid-western United States. It focused on a comparison of expectations and actualities. The purpose of the investigation was to determine how effectively the goals of the administrative staff had been interpreted by the architect in the physical design of a new facility to support the needs of residents. For many
years, the residents and staff had been housed in a former hospital building. By the early 1980s, the building had become increasingly difficult to maintain, with water, heating, moisture and structural concerns heading the list of maintenance problems. Therefore, in the late 1980s they moved to a new building specifically designed for their needs. Prior to the move, a baseline level of data was gathered from users regarding their assessments of how well the existing facility supported their needs. Almost a year after occupying the new facility, the users completed a similar assessment of the new facility. The pre- and post-move assessment procedure provided a means of determining whether the new facility was able to better serve the needs of the users than the previous one.

There were a number of key decisions that helped to direct the exploration. It was decided that determining how well the facilities supported the needs of the residents should take precedent. Generally the investigation attempted to determine how well the social goals of the administrative staff regarding the residents were met through the physical design of the facility. More specifically, it focused on the performance of the building as a whole, especially critical settings - e.g., resident rooms, dining areas and lounges - rather than smaller components, such as systems, details or finishes. A variety of techniques were used to gather data, including group discussion, interviews and observations. However, the main technique utilized for data collection was interviews with residents. In addition, the staff and administrators were involved in the evaluation, as well as the architectural team that designed the new facility. The foregoing decisions were instrumental in guiding the investigative process.

For ease of understanding the process, the exploratory evaluation of the Manor can be divided into three phases. During the initial phase, the social goals the organization wished to achieve by the construction of a new building were identified by analyzing the architectural program. Then, through group discussion with the major administrative staff involved in defining the architectural program, a consensus as to the validity of the social goals was achieved. Finally, there were discussions with the architectural team about the major design decisions, with the purpose of determining whether and how their design related to the social goals of the organization.

The secondary phase consisted of developing a survey to tap residents' perceptions of how well the facility met their needs. The survey developed consisted of both open and closed questions suggested by the social goals articulated by the administrative staff. A pre-test was conducted with a sample of ten residents to determine whether there were specific problems with the questions. After making minor revisions, the survey was administered by the Social Services staff (who had been trained in interview techniques) to develop a baseline of data on user satisfaction.

In the third phase, the same residents were surveyed (utilizing the same survey instrument) almost a year after they moved into the new building to determine whether the new facility was meeting their needs as well as or better than the old one. Observing the completed building and discussing the results with the architectural team to determine how it differed from their initial plans was part of this phase. Likewise, discussing the operation of the facility with administrative staff to understand their perception of its success was important. Finally, the survey data was analyzed to determine the net effect on users' perceptions of moving from the old facility to the new one.

**RESULTS OF THE SURVEYS**

In this paper a preliminary review of the data will be presented. The discussion will focus on a broad and detailed look at the impact of major aspects of the new building upon residents' lives by summarizing the results of the two surveys. As mentioned before, the survey instrument was developed to reflect the key social goals of the Manor's administrative staff. The goals were of two types - those that dealt more generally with people's satisfaction with the facility and those related to a specific area within the building. The general goals as articulated by the Manor's staff will be presented first in bold print, with a description of each goal and the results of both surveys following. However, prior to considering the goals, a brief look at the characteristics of the resident sample is necessary.

At the beginning of the research, there were nearly 250 residents in the old facility. By the time they moved to the new facility, the number of residents had decreased to 210. Initially, a sample of 90 residents was identified by the Social Services staff as able to be interviewed. The sample was not randomly selected but carefully chosen based on their perceived ability to complete the questionnaire. The average age was 71 with a range from 65-95 years. Seventy-three percent were females. Only 7% were married with the remaining either single, divorced or widowed. By the second interview period, the number of residents
who initially completed a questionnaire and were still able to be interviewed had dropped to 46.
In the analysis that follows only data from the 46 residents who completed both questionnaires
are reported.

GENERAL GOALS
1. The central goal of the new Manor should be to enhance the quality of life for the residents, even if its implementation might cause additional work for the staff. However, after moving to the new facility, fewer respondents felt their quality of life had been improved over the way it was just before first moving to the Manor (old facility = 70%; new facility = 51%). (All data will be reported in this sequence with the statistic for the old facility first and that for the new one second, unless otherwise stated.) The data revealed that
t heir emotional well-being (24-9%), as well as their interaction with others (7-4%), and sense of
control over their environment (17-0%) were reduced in the new facility. On the positive side, people did feel the quality of the space had been improved in the new facility (0-15%).

2. The new Manor should have a home-like quality. Residents felt only slightly less at home in the new facility than in the old (72-69%). People’s response to the new
environment included reductions in the number of positive comments concerning territorial
considerations (30-7%), interaction (11-9%), and sense of control (13-2%). Conversely,
increases in their sense of emotional well-being (11-17%), as well as their perceptions about
the overall quality of the space (2-9%) were recorded.

3. The residents should be able to congregate close to the action.
Furthermore, the new Manor should have lots of glass so residents (many of
whom are confined to wheelchairs) can see the world around them. Residents
actually slightly increased the amount of time spent in their rooms (56-67%), although more are
spending time in the new entry/lobby (4-9%), and fewer are spending time in the hall (9-4%). Fewer respondents felt they could view the outdoors from their room (25-12%), but a significant
increase is seen in the number of people who felt that the entry/lobby is where they go to view
the outdoors (4-40%).

MORE DETAILED GOALS FOR RESIDENT AREAS
1. The desire is for residents to have autonomy and individual control
over their area - resident room and toilet. There was little change in the residents’
perceptions regarding the control over various items in their room - e.g., nurse call (96-96%),
lights (94-93%) and heating and cooling (7-9%). They did feel, however, that they had less
control over window shades (72-61%), but greater control over window openings (33-39%),
and ventilation (4-11%).

2. Clearly identifying each resident’s “turtle” is important so residents will
be able to establish and control their own territory. A majority of residents, although
fewer than before, still feel they have enough space to store their personal belongings (85-
65%). Generally, the residents like their new rooms only slightly less than in the old facility (98-
89%). In the old facility, however, their reasons were more evenly dispersed across the 6
categories - emotional well-being, quality of space, territorial considerations, interaction, sense
of control and privacy - with emotional well-being high (22%), and privacy low (9%). In the new
facility, the overwhelming reason for liking their rooms is quality of space (15-44%), with
emotional well-being a significantly reduced second (22-13%).

3. Residents should be able to personalize their areas. In the old facility,
only 20% of the respondents said amenities were important in personalizing their room, but all
but one person (98%) said this was important in the new facility. There were also increases in
the importance of personal items (67-80%) and room arrangement (0-20%) as contributing to
the sense of their own place.

4. Privacy between roommates should be possible at times. More
respondents say their room is the place they go when they want to be alone in the new facility
(50-88%). Furthermore, residents continue to feel they have a satisfactory level of privacy
within their room (91-95%).

5. Safety of the residents should be insured. About the same percentage of
respondents feel as safe in their rooms in the new facility (96-93%), but the reasons seem to
have shifted from emotional well-being (18-13%) and privacy (15-4%), to the quality of the
space (2-17%).

6. Maintenance of resident’s privacy and dignity should be preserved
while bathing. There was a slight increase in the number of people who felt that they had
enough privacy when bathing (89-96%).

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GOALS CONCERNING THE PUBLIC AREAS

1. Corridors should appear as non-institutional as possible. They should look decorative, pleasant and interesting with a variety of colors. However, the residents felt the hallways were not as wide (63-57%), as well as being noisier (46-52%) and more crowded (35-48%). On the other hand, they felt the new hallways were almost as friendly (63-80%) as those in the old facility.

2. Wings of the building should be distinctive to avoid confusion by the residents. More residents seem to get confused in the hallways in the new facility (26-35%). Conversely, there was a slight increase in the number of people who felt they could find where they wanted to go (85-91%).

3. Landmarks are needed within the building to tell residents where they are. Fewer residents were familiar with the hallways (55-25%) as would be expected in a new facility. However, more residents felt the hallways were well marked (9-20%). Some residents felt they were more self-sufficient (8-20%), whereas others felt they needed help more often (8-20%).

4. It is hoped that activity areas in the new facility would become social centers for the residents. For organized activities, there was a significant increase in the use of two places - the dining area (30-63%), and the activity room (23-37%). But residents' positive feelings about the interaction in these settings reduced slightly (24-29%).

5. The chapel is considered an essential part of the spiritual and social life of the residents. There was a slight increase in the number of people who said they go to the chapel on a regular basis (41-48%). However, there was a slight drop in residents' liking of the new chapel (65-81%). The reasons for this seem to be a lessening of people's sense of well-being (47-17%) and their evaluations of the quality of space (24-15%).

There are some observations that are not related directly to a specific stated goal of the staff but were of interest to the author because they might have a significant impact on the residents' overall sense of well-being. One question, in particular, dealt with residents' overall satisfaction with the facility. While 77% of the residents were "satisfied" or "very satisfied" with the old facility, only 69% felt the same toward the new facility.

It is also possible to make some observations about where residents spend their time. Based on responses to five questions, it is clear there was an increase of activity in the entry (7-20%), and in residents' own rooms (78-84%), and a decrease in the lounge areas (48-32%). Also a decrease in the total number of responses by 17% seems to indicate a limiting of choices for the residents in the new facility or a reduction in their mobility.

Finally, it is possible to make some observations concerning the reasons given by the residents when asked what they liked about a place within the facility or why they felt as they did about the Manor. These observations are based on the combined responses to twelve questions. In the old facility, the emotional well-being of the residents seemed to be a significant reason for liking the place (115 responses), but in the new facility the most common reason for liking it is quality of space (66 responses). The frequency of responses to reasons for freshness were lower than for the old facility in all categories except for the quality of space, which nearly doubled. The total number of responses dropped by almost 30% from the old to the new facility. This could mean the residents find fewer reasons to like the new facility.

CONCLUSIONS & RECOMMENDATIONS

Considering the Manor's new facility, it is apparent it has not achieved many of the goals set forth by the administration. The residents do not feel the new Manor has enhanced their quality of life. This feeling seems to be influenced by reductions in feelings of well-being and sense of control, as well as diminished interaction with others. Also, there were fewer residents who felt "satisfied" with and "at home" in the new facility. On the positive side, however, there was a consistent feeling expressed by the residents that the quality of the space had been improved. They liked their rooms, they were able to personalize their rooms, and they felt they had a "satisfactory" level of privacy within their rooms.

The question that is unanswered is, why should residents have positive assessments of numerous specific aspects of the facility and yet have an overall sense that the Manor does not meet their expectations? Although the research was exploratory in nature, a post hoc analysis of the results from a theoretical perspective may assist in the development of future research. There are a variety of theoretical perspectives that might help to explain the apparent anomalies in the results. Two theoretical models of particular relevance will be considered - cognitive dissonance and competency-press theory.

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The transaction model developed by Lawton-Nahemow (1973) and referred to as competency-press theory is especially useful in helping to interpret the pre- and post-occupancy assessments of residents. The basic premise of this model is that individual behavior and satisfaction are contingent upon the dynamic balance between the demand character of the environment (press) and the individual's ability to deal with the demand (competency). When the competency and the press are not congruent the result is maladaptive behavior and dissatisfaction (Newcomer, Lawton & Byerts, 1986). One could hypothesize that the residents' long-term familiarity with the old facility versus their relative unfamiliarity with the new facility could have tipped the balance between competence and press. Through long-term familiarity with the old facility, even a resident with a relatively low competency level could have learned how to cope moderately well. However, the move to the new facility with its many unfamiliar aspects could render the resident with a low competency level unable to cope well. In addition, if the resident's low competency level were over-taxed by the strong press of the new environment, it could be expected that they would feel less "satisfied" and less "at home" than in the old facility. Unfortunately, the competency-press model does not provide a clear understanding of why residents assess numerous aspects of the new facility positively and yet have an overall sense that the Manor does not meet their expectations.

The cognitive dissonance formulations of Festinger (1957) - the older of the two perspectives and the one firmly embedded in the literature of social psychology - may provide a clue. From the cognitive dissonance viewpoint, an explanation of the results would seem to hinge on whether or not the residents were committed to moving to the new facility. If residents were not committed to the move, yet they were required to make the move, it would follow that reducing the importance of the outcome - e.g., by negatively evaluating the facility - might help to diminish the dissonance they felt between their position and their forced institutional relocation. In addition, the extent to which the reality involved was ambiguous the easier it would be to provide negative evaluations. In other words, it would be more difficult to evaluate negatively concrete aspects of the new facility which were clearly better than in the old facility such as the quality of space, whereas, whether one is "satisfied" or feels "at home" - a considerably more ambiguous reality - could be evaluated negatively much more easily.

Unfortunately, the questionnaire did not determine whether or not the resident was committed to the move. Nonetheless, such theoretical approaches to evaluating the assessments of elderly people under forced relocation conditions may prove fruitful in the future. More generally, it is clear the study of the emotional response of the elderly to major changes in their built environment has great potential for future research.

In conclusion, the intent of this paper was to discuss the relative success of an effort to utilize the built environment as a positive factor in the lives of the elderly residents of a long-term care facility. But as has been shown, it is not always easy to discern if certain effects result from the built environment we are trying to judge or from the social environment, so inextricably entwined with our daily lives. It is obvious, however, that both can have a significant impact on the elderly residents' well-being. In future research, it will be important to determine to what extent residents' well-being is influenced by these two factors, so we know where to invest our limited resources to gain the greatest impact for the residents. It is only through this type of research that we can gain the necessary knowledge to provide environments that are a supportive factor in people's metamorphosis into that stage of human development we refer to as elderly, thus enhancing their health, well-being and independence in the broadest sense.

REFERENCES