DESIGN CASE STUDY

THE CAPTAIN CLARENCE ELDREDGE CONGREGATE HOUSE

Hyannis, Massachusetts

The following case study demonstrates how full project team cooperation between researchers and designers can result in an elegant building that adds to both new design and knowledge and new environment-behavior research approaches. The Captain Clarence Eldridge House is a congregate house designed and constructed in 1980 for twenty seniors. Such group living arrangements with formal support services gave rise to Assisted Living Residences as a housing type. Designed and built to demonstrate how a certain degree of shared living could house seniors in public housing with greater mutual awareness and care, and at lower construction cost, the building was intended from its inception to serve as a model for other similar buildings. Environment-behavior research was integral to the project’s programming and design because the model needed to include a sound rationale for decisions, not merely one person’s whimsy. The research and design team worked as one to define the attributes of this new “congregate” type of living, select the site, develop the design program, and design the building. The team of Korobkin-Jahan Architects as designers, Donham & Sweeney Architects as architects of record, and John Zeisel as team coordinator selected as the site a corner lot one block from Main Street in Hyannis, Massachusetts. An important factor in site selection was that residents could walk to Main Street, with its shops and restaurants, without crossing any streets. The intent was that the safety of walking to downtown

The Captain Clarence Eldridge House.
Hyannis would encourage residents to use local shops and restaurants. The team enlarged the original 2,000-square-foot 1890s whaling captain’s house on the site to 10,000 square feet while maintaining its residential character. The Captain Clarence Eldridge House is now home to twenty seniors living in a socially cohesive setting.

The owner, operator, and immediate client for design of “Eldridge House,” as local residents and neighbors refer to the building, is the Public Housing Authority for Barnstable County. The Housing Authority selected the combined design/research team because the Authority’s Executive was particularly interested in housing innovation and the Authority’s volunteer Board of Directors comprised college professors, a building inspector, and others who wanted to be clients for something new and exciting. Funding for Eldridge House was provided through a state government program whose chief architect, Stephen Demos, was also an environment-behavior researcher and author (Zeisel, Epp, and Demos, 1978).

The Eldridge House design program called for a single building to house twenty frail seniors in a house-like environment, with each resident having some private space and all residents sharing common areas such as living and dining rooms; but it did not specify precisely what would be private and what would be shared. This was left to the team to propose.

- The Critical Programming Dilemma revolved around a seemingly simple question: What spaces were to be private and what spaces were to be shared? Because the original design program did not answer this question, it became the primary programming question for the research and design team. From the beginning of the programming effort it was clear that bedrooms were to be private and that there would be a common living room, dining room, and serving kitchen. Unresolved questions included: Would each individual living and sleeping space have its own kitchen and dining area? Its own bathroom? Would adjacent residents share a toilet, sink, and shower? What about bathtubs?

The team began its programming by generating alternative scenarios and sketches with several private-shared space alternatives. Focus group interviews were carried out with five groups, each including more than ten seniors presently living in public housing units managed by the same housing authority.

The original flawed focused interview question was: “What should be private and what shared in the new housing being planned?” The team quickly learned from the first group interview that the term “shared” was the wrong term to use when discussing certain common areas. None of the respondents saw themselves sharing a bathtub merely because someone else might have bathed there previously or might bathe there later. They no more shared the bathroom than a hotel room occupant “shares” the room with all previous and future occupants. The phrases “used in common” or “used by others as well” fit the respondents’ frame of reference better, and uncovered what the team needed to know to make decisions about this critical issue.

How bathrooms were treated throughout the building was more important than how kitchen or dining areas were allocated. Having one’s own toilet was more important than having control over any other room. Few focus group participants wanted to have their toilet used in common with others. As they aged, participants further explained, they increasingly needed to use the toilet.
Resident’s notice, and the were afraid that a common toilet room might already be in use when they needed it.

Bathing, however, was different. The focus group consensus was that common bathtubs and showers were more acceptable than common toilets because they are employed less frequently and their use could be more conveniently planned and scheduled. When the research and design team tested with the focus group a European model of toiletting and washing—namely toilet and sink separate from bathtub or shower—approval was unanimous and the design solution became evident: Provide a private toilet and sink within each living space, along with several full bathtub and shower rooms accessible from common hallways.

The enlarged building is designed to look like an oversized turn of the century Cape Cod house, with the roofline, windows, and general exterior appearance of the 8,000-square-foot addition mirroring the original 2,000-square-foot original design. The final building comprises seventeen one-bedroom and three two-bedroom dwellings and looks very much like an extremely large single-family house with a wraparound front porch, clapboard siding, and paneled doors. On the first floor, with six living units are, a common kitchen, atrium piano area, living room, dining room, laundry, a mail area, a bathing room, a shower room, and a small office.

An open atrium connecting the two floors enables those on each floor to see activity on the other. The original building’s front door on a busy street serves as the formal front door for the new building and leads into a hallway. Most residents use the informal “back” door—closer to Main Street with its shops—leading past the common kitchen into a mailbox area at the foot of the common stairs.

*The Design Process:* The team developed the design and the user-needs program concurrently and interactively. As research inquiry was carried out, design inquiry was as well. As the design process generated new issues that need-resolution, the programming process followed up on them. For example, while the principle of a common “congregate” area was established early in the program, design options for this “congregate” area included a large interior room, a two-story atrium, a cluster of several spaces, or an outdoor garden. With these questions raised in design, research data were gathered to help select the best answer.

When the physical setting itself delineates parameters for the subject of inquiry, environment-behavior teams do better posing questions to themselves in drawings rather than verbally. In this case, the parameters were an existing building, the size and shape of the site, and the location and nature of the adjacent street and nearby Main Street. Even this verbal description lacks the completeness you can see in the following sketches.

*Inquiry by design:* In addition to answers designed into the building, the interactive research and design effort generated questions that the building included as physical hypotheses and experiments. The questions were:

1. Because older people tend to live alone, should the house be all single studio apartments or should there also be apartments for two people? If so, how many and in what configuration? While the single-person studios each have a small kitchen area, what should the two-person apartments have in terms of a cooking area?

2. Most of the apartments are located on the second floor, away from the common spaces. Should the downstairs apartments be completely separated from the common areas like the apartments upstairs, or should they be more open and connected to the downstairs common dining room and atrium?

3. Is the common kitchen a place where a staff person is in charge—preparing and serving meals alone—or would residents participate in the life of the kitchen, using it as many families do, to sit, have coffee or tea, and chat?
Because the research either did not clearly indicate a “right” direction, or it indicated an option to which only a minority might be attracted, the team designed hypotheses and experiments into the building to be tested in use. Only introducing an alternative by design would demonstrate how great the demand would be for a totally new option. Later research on the designed-in experiments indicated that each experiment proved to be positive when it contributed something to the setting beyond its original intention. What were these hypotheses and experiments?

The first hypothesis related to the fact that in addition to fourteen single-person apartments, Eldridge House included three two-person apartments. The hypothesis being tested was that, although they represented only a minority of potential residents, there was the possibility of elderly couples moving in, siblings or old friends who wanted to live together, and possibly even people who did not know each other but wanted companionship in their old age. For this reason, two traditional two-person apartments were included in the plan at the southeast corner of both floors. But this alone did not raise any truly probing questions through design which would significantly add to our knowledge.

To raise such questions, the plan included one completely unique two-person apartment—at the northwest corner of the second floor. Two bedrooms were designed each with their own front door for personal identity of each resident, and each with their own toilet room, but in this apartment the two residents share a full kitchen with place for a small kitchen table and two chairs next to a window overlooking the street and back door. From this kitchen there was also a view through an internal window into the common atrium on the second floor, to avoid isolating the residents in this apartment. Since the building was first occupied in 1980, one couple lived there using one bedroom as a bedroom and the other as a living room, friends and sisters have lived there each in their own bedroom while sharing breakfast together in their eat-in kitchen, and unrelated residents have lived there.

Although programming research showed that primarily single people would live at Eldridge House, offering these two-person options by design provided the entire house with more residents who were more social and couples who have sometimes been younger than other residents. The hypothesis that two-person apartments would broaden the resident population, adding to the social life of the entire house, has been confirmed. If it had not, renovations might have been necessary.

The second hypothesis related to apartment location on the first floor. Although the research found that most respondents wanted privacy in their apartments, some felt frail and were afraid of being isolated. While there was no clear direction to provide some more and some less private apartments, the team included in the design two apartments on the first floor that opened directly onto the common atrium and dining room. When a resident comes out of one of these apartments, she can see over a half-wall and be seen by others in the dining room. Once again, only trying it would tell us if this option solved the isolation problem for those residents who felt that way. Over the years, there have regularly been residents who were more social, who wanted more contact with others, and who selected these apartments.

The final hypothesis related to the common kitchen on the first floor that provides a place for shared meals to be prepared, and serves as the hub of the house. It is the first room you see when you come in the “back door,” it gives the house its interior “house-like” quality, and it provides a place for residents...
to sit together and chat without going into each other's apartments. But what would the cook think? Wasn't it her realm?

From the beginning, residents used the kitchen as they would their own kitchen in their own home. They set up a coffee maker there and were ready to serve a cup to visitors if someone should come by. They sat and played cards together there, and often met with the part-time administrator and care staff in the kitchen rather than in the office. There have been cooks who would have preferred "their own" space, but for the most part this type of person has not worked at the facility. The kitchen's message to everyone—residents, cook, and visitors—is that this is everyone's room, and that the meals prepared there are for the entire Eldridge House "family."

**E-B Post-Occupancy Evaluation**

Being a prototype meant that the building had to be a post-occupancy evaluation site if it was to serve its purpose. The team visited the building often during its first year of operation, usually with curious visitors and journalists. Each visit served as the chance to carry out an informal walk-through POE. The building was the subject of a master's POE thesis by a Harvard University psychology student who also attended architecture courses (Vanderburgh, 1981), was one of the central study sites for a federally funded study of congregate housing compared to nursing home care (Zeisel, Welch, and Epp, 1984), and was included in Victor Regnier's seminal evaluation and book, Assisted Living Housing for the Elderly (1994).

What did these more and less formal POEs uncover? What information did this conscious inquiry by design yield?

1. The elderly residents of Eldridge House tend to walk to Main Street regularly because, not having to cross any streets, they feel physically safe in making this short trip. One of the benefits to residents' quality of life is not only how residents use Eldridge House, but also how they do not use it. From the beginning, when team members would drop in to meet with a resident, she was always "out for a walk" or just on her way "to town." An unexpected side effect of this connection between the Eldridge House and Main Street is that the town of Hyannis decided shortly after completion to make the adjacent street one-way and to install a new sidewalk so Eldridge House residents could travel even more safely to Main Street.

2. Several design factors combined to "turn the building around." The "back door" next to the kitchen became the Eldridge House front door. Although located on a side street, the back door was closer to Main Street than the formal "front door" and the taxi drop-off and the parking areas are located there. Overlooking the steps and ramp leading to the back door is a window from the common kitchen. Residents playing cards and having a cup of coffee there serve as informal guardians, providing a feeling of security and safety for all residents using that door. The back door also leads directly to the mailboxes, and from that area you can see into the dining room and decide if you want to join an activity or pass by it. As a result of all these factors, it was decided to give the building address as the "back" rather than the "front" door. The building was officially turned around.

3. With a single central shared kitchen, it was difficult to make it a "backstage service area." One side effect was that residents played a greater part in selecting how meals would be prepared and served than if the kitchen had been less central to their lives. Eldridge House residents select their own cook, participate in meal selection, and even in laying the table. The kitchen location and design seem not only to create this opportunity, but almost to suggest that it is what it was designed for.

4. To encourage residents to feel at home in their apartments, each apartment has a kitchenette with a small window onto the interior hallway. While most residents do not cook entire meals there, they do like to sit there to feel at home. In fact many have breakfast there on their own rather than go to the common dining room. It provides them the chance to get up and make themselves ready for the day without confronting other residents who, although friendly, are often unwelcome encounters early in the morning. As a group, the residents decided that they would hire a cook to shop, prepare, and clean up only for lunch from 10 a.m. to 2 p.m., rather than serve three meals a day. The cook became a member of the large Eldridge House family.

The individual kitchenettes were originally planned almost as symbols of home rather than as an actual place to have meals. One unintended negative side effect of residents having breakfast and other snacks in their own kitchens is that the storage provided was inadequate. Some residents installed small cupboards that, no matter how small, made the kitchenette spaces even more inadequate. Future kitchenettes need to be more than symbolic if they are to be useful at all for residents.

5. In the design special effort was made to provide each resident with her own apartment "front door." Each apartment door is inset, creating a small interior "porch" in front of it that residents can decorate and otherwise "present themselves" to others. In addition to general hall lighting, next to each door there is a small lighting fixture just outside the front door, allowing the resident to control the ambience of his or her front porch. In addition, each apartment has an operable double hung window between the kitchenette and the front porch, and every front door is a "Dutch door" opening separately on the top and the bottom. Thus each resident can decide how much privacy they want at any time during the day.

What effect did this have? While no recent research has been carried out on this question, a year or so after occupancy a resident chastised the author when he asked how this combination of environmental design factors worked: "Don't you know, when we want visitors to drop in, we turn on the light and open the top of the Dutch door. When we want privacy everyone can tell." Each porch is individually decorated with furniture, as are the windows from the kitchenettes, which have curtains and display mementos.

6. The major innovation in social imagery that the POE studies uncovered was the two-level definition of "home" that residents developed. Throughout this description I have used the term "apartment," but residents refer to the place they live as their "home," not their apartment. "Would you like to see my home?" they
ask when inviting you to see where they live. At the same time they refer to the entire Eldridge House as their “home.” They see no contradiction between these two homes—the building with a grand porch near Main Street and the place that is theirs with its own front porch and kitchen window. By not designing either scale clearly as “home,” and employing residential imagery both inside and out, residents have developed their own “double home” image of where they live.

The uniqueness of Eldridge House at the time of its development, its overt and easily understandable research basis, and its high visibility through publications because of its design have made Eldridge House a true inquiry by design.

This evidence-based design case study is based on the contributions of Lenny Jones at the Barnstable Housing Authority; Stephen Demos of the Massachusetts Executive Office of Communities and Development; Korobkin-Jahan Architects, designers; Donham and Sweeney Architects, architects of record; and John Zeisel, research and design team coordinator.

OVERVIEW

People from different disciplines work together because they want to, not because they must. When researchers and designers cooperate, each uses the other to do more than either can do alone: researchers to have designers use and improve their information; designers to have E-B researchers help narrow the gap between them and their anonymous user clients.

The practical side to multidisciplinary professional cooperation is that designers make decisions about real environments for real clients and expect that applied E-B research can mesh with design—on a day-to-day operational basis. Occasions for cooperation in design include (1) programming research, in which investigators work with and study representative groups of potential users to arrive at a behavioral program; (2) design review during the design process, when researchers and designers test and modify their ideas in the light of available E-B knowledge; and (3) post-occupancy evaluation (POE) research of built projects in use in order to improve future designs and design processes.

Applied design research poses problems: How do you find out about users of an as-yet unbuilt setting? How do you present research information so that designers can use it? How do you reconstruct a past design process? How do designers present their decisions so that researchers can use them to improve a body of knowledge? Techniques invented to answer these questions represent practical ways to link applied E-B research to professional environmental design.

Cooperation enables people who work together to achieve more than the sum of each working separately. Even when people are through working together to solve shared problems, something remains: a knowledge of the other’s discipline and point of view; new ways to define problems; an improved knowledge of how to cooperate with others. These and other side effects of cooperation are the topic of the next chapter.