

# DESIGNING INDEPENDENT LIVING ENVIRONMENTS FOR SENIOR AGE CLIENTS

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## Abstract

*To introduce the principles involved in universal design to students in their first design studio, a project entitled "The Granny Flat" was initiated. A granny flat, or second unit, is a permanent, attached or detached addition to an existing single family dwelling. Granny flats include a kitchen, bathroom, living area, and sleeping area. They are designed with "barrier-free" access, and contain handrails, grab bars, non-slip and mark resistant flooring, and special cabinets to meet the needs of those in wheel chairs. The units are designed to provide the senior client with an independent living space while maintaining proximity to the family.*

*Before beginning the design process, the students toured the Barlett Independent Living Lab (BILL) at Oklahoma State University. BILL is a typical ranch style residence, designed to incorporate the adaptive and/or assistive features often involved in universal design perspective. The design students were required to spend five minutes each in a wheelchair and maneuver themselves through the space.*

*The final project presentation included: a site plan, a rendered furnishings board, a reflected ceiling plan, and a barrier-free and universal design research notebook. Students' response to the project was very positive. They expressed an increased awareness of universal and barrier-free design concepts both verbally and visually throughout the design process. In addition, the project was a success in reversing many of the misconceptions that students held regarding the lifestyle and residence of clients in wheelchairs.*

## Introduction

Today, for the first time in history, there are more Americans over the age of 65 than under the age of 30. By the year 2000, there will be 32 million people over 65, or about 12.5% of the population. The number of disabled will rise proportionately, and their projected total could reach 10%, or roughly 25 million (DHEW, 1977). In addition, the average life expectancy in America has reached a record 74.9 years, and people age 50

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and over make up a quarter of the U.S. population and are one of the fastest-growing public segments. The significance of this demographic information should not be disregarded in the classroom. Future design professionals, who are currently being trained to practice the art and science of interior design, need to understand the importance of concepts that promote independence for all people. An increased understanding of universal design concepts will enhance students' abilities to create accessible, functional and aesthetically pleasing design for the able-bodied, as well as for the home owner with disabilities. Such an understanding will enable tomorrow's interior designers to creatively and successfully offer design solutions that meet clients' ever-changing lifestyle needs.

To introduce the principles involved in universal design to the students at Oklahoma State University (OSU), within the Department of Design, Housing and Merchandising, a project entitled "The Granny Flat" was initiated in Studio I: Residential Design in fall semester 1993. The Granny Flat project was developed to address the needs of a specific demographic population, namely the senior age client, and does not contain all populations considered within the arena of universal design. According to the *ASID Report* article on "Accessible Design" (1993), a granny flat, or second unit, is a permanent attached or detached addition to an existing single family dwelling. Granny flats include a kitchen, bathroom, living area, and sleeping area. They are designed with "barrier free" access, and contain handrails, grab bars, non-slip and mark-resistant flooring, and special cabinets to meet the needs of those in wheelchairs. Because they are separate units, the granny flat provides the senior client with an independent living space while maintaining proximity to the rest of the family.

### **Objectives**

The major objective of the "granny flat" project was to educate students to the concepts involved in the universal design of interior spaces. Today, with the passage of legislation that includes the Fair Housing Amendments Act and the Americans with Disabilities Act, emphasis must be placed within interior design curriculums on integrating design solutions that accommodate people with disabilities into workplaces and housing features.

This heightened awareness of changing housing needs of the aging population, coupled with the increasing recognition of the civil rights of people with disabilities, is gradually resulting in changes in the way housing is designed. With the move toward more universally usable and marketable housing, the demand for easier-to-use entrances, kitchens, bedrooms, and bathrooms is still being met while demonstrating a sensitivity to aesthetics and resale value (Mace, 1991). This increased public awareness reinforces the importance of educating future designers toward an understanding of the needs of this growing population.

Prior to commencing the design process for the assigned granny flat project, the 36 students enrolled in residential design studio (18 students in each of two sections), were given a guided tour, led by the course faculty member, of the Barlett Independent Living Lab (BILL) at OSU. BILL, designed by Ronald Mace, FAIA, Director of Bar-

rier Free Environments, Inc., an interdisciplinary group of architects and other specialists who research and formulate guidelines for accessibility, was implemented in 1989. The facility averages more than 875 visitors per year. The BILL allows these visitors to understand accessibility issues and their impact on residential design. An invaluable resource, BILL is a typical, three bedroom, ranch style residence, designed to incorporate the adaptive and/or assistive features often involved in universal design solutions. Each of these numerous features illustrates the concept of providing greater convenience, comfort, and safety for individuals throughout their life span, regardless of age or ability.

The purpose of touring BILL was to use the site as a resource to acquaint design students with universal design concepts, and to illustrate how these solutions increase the quality of life by promoting independence without compromising aesthetics. In preparing the students for their own studio assignment, the lab was a valuable “hands-on” learning tool. The students had the opportunity to “experience” the realities of universal design rather than learning universal design concepts through reading material or class lectures. The home contains numerous examples of universal design including: 36" wide doorways, auxiliary handles on doors, “D” shaped door and drawer pulls, lever style door openers (as opposed to knobs), outlets and wall jacks at 20" above the floor, hard surfaces with non-skid tile, closet rods hung at 49" above the floor for ease of access to clothing, and work surfaces in the kitchen mounted on adjustable brackets. Experiencing BILL demystified universal design principles and concepts and promoted the students’ understanding that universal design is an extension of good interior design principles, supported by an understanding of human abilities and accessibility standards.

### **The Tour Procedure**

The tour consisted of analyzing the major areas of the home from a universal design perspective. At first preview, the home appears to look like any well-appointed residence; there is nothing institutional or antiseptic about it. Many of the students seemed surprised that it looked very similar to their own residences. Initially, the students were readily able to point out the obvious features of the home based on the basic principles of universal design. For example, the low pile of the carpet, the light switches mounted at a non-standard height, and the “D” shaped cabinetry hardware. In further analyzing the space, assisted by a few probing questions from the faculty member, the students began to notice more subtle features of the interior and how they might contribute to the concept of universal design. For example, the steady and firm sofa, with high arms and a seat height of 18" for ease of access, the solid wood occasional table with rounded corners for safety, an additional heavy, solid wood trestle table in the dining area, with the apron eliminated for roll-under knee clearance, if needed. The students discovered numerous other features which illustrated solutions a designer might offer clients that allow individuals to function safely and easily in their homes: a touch-controlled three-way floor lamp for those with manual dexterity problems; motorized vertical blinds used as window treatments to avoid the dilemma of locating and pulling

the cord; and remote-controlled gas fireplace logs for persons who may have trouble accessing the on/off knob.

The kitchen and bath areas were particularly beneficial examples of universal design solutions. The two bathroom areas are designed to be barrier-free. Again, these spaces were visible, existing examples that reinforced the concept that neither barrier-free nor universal design has to be unattractive. The features of these spaces were discussed, and subsequently reinforced in studio using various manufacturers' product literature featuring universal design products that are aesthetically pleasing and very "standard" looking. The kitchen area promoted much discussion and curiosity from the students. The adjustable height work surfaces bracketed to the walls were highlighted; they are so subtle in their installation, they would be difficult to distinguish if one did not know they were intentionally designed in that manner. The appliances, from the stove and refrigerator, microwave and oven, to the clothes washer and dryer, were all products that were touch-pad, or front-control access. The students more petite in stature were beginning to understand how these products would even be beneficial to them. The concepts of universal design were starting to become a reality to the students, as they were able to touch and operate the appliances, pull open the cabinets, and imagine the ease of working in such a "user-friendly" kitchen.

As the granny flat project was to have a barrier-free component, students were required to spend five minutes each in a wheelchair and maneuver themselves throughout the BILL. This exercise was an important part of the learning experience, as their assignment required that they design their granny flat for the anticipated future use by an occupant in a wheelchair. Using a wheelchair is often a very uncomfortable experience for students, but it is crucial that future interior designers understand the needs of clients who use wheelchairs. A useful analogy is to remind students that if they were designing for a child they would get down on their knees to see the environment from the child's perspective. Maneuvering around in a wheelchair is a way to better understand the world from that person's point of view, and that is the students' role as an interior designer. This exercise proved to be a strong one, as evidenced by the students' analysis of accessibility issues while working on their design solutions within the studio.

### **Project Requirements**

The specifics of the studio problem were given to the students following the tour of BILL. Each section of the studio was given a different floor plan of an existing single family dwelling, approximately 3,500 square feet in size. The students had to design an **attached** granny flat to the existing dwelling. One parameter of the project was that while the elderly person residing in the flat was currently mobile, their design solution should accommodate a person in a wheelchair. The project required the kitchen design to be based on universal design principles, the bath area to be barrier-free, and any architectural elements or permanent parts of the structure needed to be wheelchair accessible. The students were given more latitude in choosing freestanding pieces of furniture and their placement, so long as the furniture could be removed or relocated later without sacrificing the function or design of the space.

The project also included a lighting design concept, supported by a lecture and discussion of lighting design solutions for the aging eye. Another component dealt with textile selections based on color perception and maintenance of fabrics based on the needs of the elderly client. An interesting aspect of this part of the project was that each student was given an upholstery sample, sealed in an envelope, and told that this was the fabric from their “granny’s” sofa. Their challenge was to coordinate all materials and finish selections to this fabric sample. The purpose of this exercise was to reinforce the importance of offering design solutions that fit the client’s needs, even though they might not reflect the designers’ taste, and to reinforce to students the importance of using the fundamental principles of design to solve problems. An additional component of the project was the development of a research notebook that specified furnishings, hardware, materials, and finishes based on the principles of universal design discovered while touring the BILL. The final project presentation included: a site plan that illustrated the existing dwelling and the attached granny flat, a rendered furnishings floor plan and interior perspective of the flat, materials and finishes board, a furnishings board, and barrier-free and universal design product information displayed on a board or in a notebook format, and a reflected ceiling plan of the space.

### **Project Limitations**

If this project is implemented in the future, the faculty member will invite an interior design graduate student, who resides in a wheelchair, to accompany the class on the tour. The impact of hearing how the design solutions offered in the BILL assist a client in a wheelchair will have greater impact when it is vocalized from the point of view of someone who lives with a disability on a daily basis. In addition, the faculty member will invite a guest lecturer to the studio to communicate to the students some of the ADA guidelines as they apply to commercial design. The residential design students would benefit from this valuable information, and will be able to transfer much of it into universal design concepts that apply to the residential environment. In addition, the students can apply this information to the next design studio offered within the curriculum.

### **Conclusion**

The students’ response to the entire project was very positive. They expressed an increased awareness of universal and barrier-free design concepts both verbally and visually throughout the studio design process. The research component of the project was approached with zeal. The students began requesting manufacturers’ product literature and samples based on the knowledge they gained through the tour of the BILL. Most of the design solutions illustrated an appreciation for the importance of universal design and successfully incorporated barrier-free design solutions into this intimate size space without scarifying aesthetics. Many students commented on how their design solutions appeared as functional and appealing as other types of plans that did not have universal design or barrier-free design program requirements. It is the faculty member’s impression that this project was a success in reversing many of the miscon-

ceptions that students may have had regarding the lifestyles and residences of clients in a wheelchair.

The design solution illustrated (Figures 1-3) is one solution developed by an international student in the interior design program. Though all the projects were successful in their ability to promote independence in the lives of the user without appearing different or special, this project was selected to illustrate how a student from another culture, specifically Japan, incorporated the principles of universal design into a granny flat that might be built in her homeland. Note the use of the gardens surrounding the granny flat and how it became an integral part of the student's design. It was noted by the faculty member that this student struggled less with the minimal square footage requirements of 600 feet, perhaps because such a small space was not unfamiliar to her. Furthermore, the contemporary Asian influence can be seen in the products selected that support the programming requirements for a universally designed kitchen, and the furnishings selections that are sturdy, functional pieces that complement the overall design concept without appearing institutional.

The granny flat project, supported by the tour of the BILL, at OSU, was a successful project in increasing students' awareness that universal and barrier free design solutions do not have to be institutional-looking to be functional for the client. Overall, the project increased the students' understanding of universal design concepts and barrier-free design issues. It allowed the students to create accessible, functional, and aesthetically pleasing design solutions.

### References

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Figure 1. Presentation board entitled **Sketch** (Reiko Muzono, Student)



Figure 2. Presentation board entitled **The Granny Flat** (Reiko Mizuno, Student)



Figure 3. Presentation board entitled **Furnishings** (Reiko Mizuno, Student)