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SPECIAL NEEDS RESOURCE PROJECT e-newsletter

Things to Think About!

Accessibility in Architecture

By Linda Jorgensen

In early October 2008 the Special Needs Resource Project was contacted by Pat Tripeny, Director of the University of Utah's School of Architecture about assisting him in presenting a design studio for graduate students. The focus of the studio was developing accessible residential housing design, taking into account people of different abilities and mobility aids in the process. This is a new studio format for the School of Architecture, aimed at preparing students for work with clients who require flexibility and creativity for an accessible private residence in the median market price range. Needed were volunteer families for students to work with and someone to provide an Introduction to current mobility technology. The course was on!

Students spent the first few weeks familiarizing themselves with the Americans with Disabilities Act (ADA) and local building codes. Then, working specifically with an individual or family, began a series of new home designs from the ground up keeping in mind plans needed to be as accessible and adaptable as possible. Students also spent time with a local builder/developer, learning about the local housing market and median range housing plans for the middle income consumer.

ADA Compliance Does Not Assure Real-Life Accessibility

Once familiar with the ADA students were asked to draft their current residence (dorm room, apartment, family home, etc.) then redesign that space to be compliant with current ADA regulation. The ADA makes no reference to single family dwellings yet this is the standard most often referenced when questions regarding accessibility arise. Student's reactions to this exercise were mixed. Most were surprised at how difficult it was to bring their residences into compliance. One student stated his home "needs an exterior entrance into the bedroom as the hallways in the house are smaller than an average wheelchair". Another needed a 90 ft. long ramp to the front door while yet another had to demolish a large closet to allow access to the one family bathroom. Bringing an existing space into compliance was not quite as easy as some thought with the general consensus being "none of our houses are real-life accessible".

Getting Real

After students completed their first exercise it was time to take the process off the drafting table and into the real world. The class was broken up into 3 teams and assigned a client. Each client was unique relying on various custom wheelchairs, specialized vehicles and other features within their home settings. Family sizes and needs were also variations that needed to be taken into consideration by student designers. The challenge now was to design a residence that could be used, or accessed, by everyone living, or visiting, in that space.

- Scott, a married father of two, uses a self propelled custom manual chair with the wheels in a "splay" position. Drives an adapted mid-sized SUV with wheelchair storage inside the rear storage area.

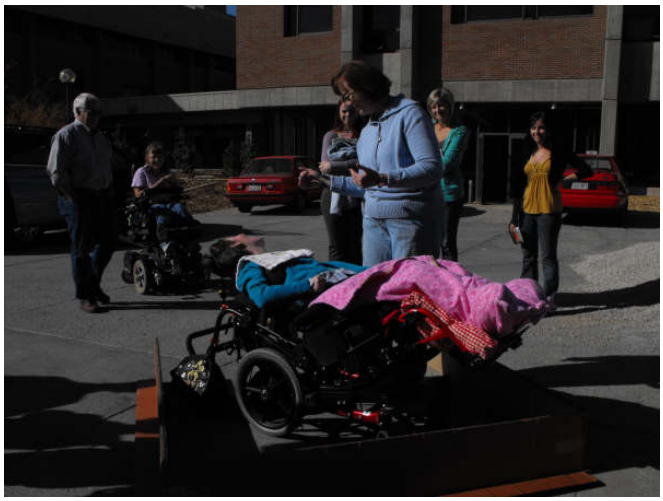
- Katie, a teenager living with her parents, uses a custom manual chair in a semi-reclined position. She is unable to move herself and must be pushed by parents and care assistants. The family drives a mini-van with a manual unload wheelchair ramp.

- Madison, a young adult also living at home. Uses a Permobile C400 stander with full power for independent mobility. The family drives a 15 passenger 1-ton van with an under vehicle lift. The largest, and tallest, of the three vehicles in the exercise.

The first task students were given was to assess how much room each individual used as a turning radius. Scott, being self propelled and in the smaller of the 3 wheelchairs took the full ADA required 5 ft. Katie, being semi-reclined and unable to move herself needed 9 ft.6 in. to accommodate both her wheelchair and the care provider maneuvering the chair from behind. Madison's optimal turning radius was 6 ft. 6 in., again, to accommodate a care assistant within the same space. The ADA requires a minimum of 5 ft. of clear floor space. Given the disparity of space requirements between various wheelchair models this raised the question of bathroom stalls. "Do they work?"

To illustrate the point we brought out a five foot box for everyone to try for "fit". A tight squeeze when there are no other intrusions into the space such as towel racks, wall shelving, garbage cans, and toilet seats but an impossibility

for many when all the above noted items are included as part of the 5 ft. stall space. (More information regarding restroom misfits can be found in SNRP's June 2007 newsletter. "The Annual Family Vacation")



"Trying to fit in a 5 ft. box. Can't close the door here"

Figuring Out Technology

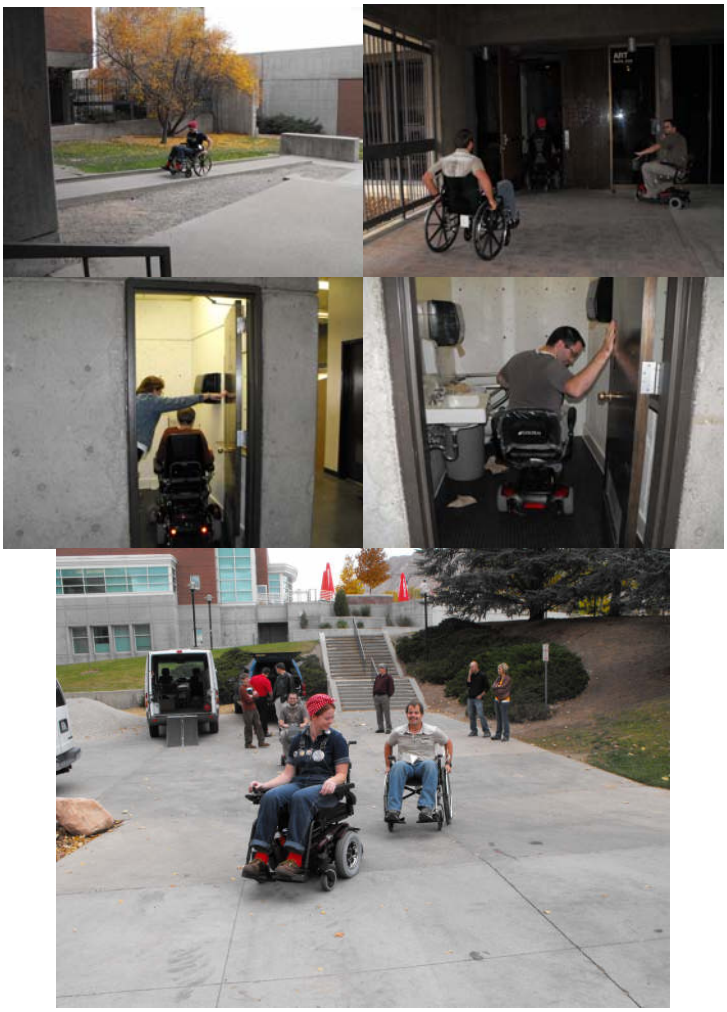
Once students had met with their clients and obtained a list of needs and requirements each needed in their living space, it was time to introduce them to the wide variety of up to date wheelchair models available. The ADA was written in the late 1980's, passed in 1990, using the K1 wheelchair as the model. While the law has had a couple of small changes it has, for the most part, remained as it was originally written. New technology has far outpaced the ADA and the K1 is no longer the wheelchair of choice.

This wheelchair, used most commonly in hospitals and other care facilities, is far behind current technology. Not all wheelchairs are created equal. In order for students to understand the needs posed by updated mobility technology it was important for them to see technology currently available and in use by the general public.

Scott Ingraham, Sales Manager for Permobile Inc. and Gary Carvey, Rehab Specialist for Norco Medical Mobility Services brought a selection of demonstration wheelchairs to the University and provided an Introduction to Wheelchair Technology for the class.

Wheelchair Rodeo

After the Introduction students were allowed to use the various chairs to maneuver through campus in various settings. The result was not only fun for the students but eye opening as well. Each student was able to try all 7 different models in a variety of settings both inside and outside the school of architecture building. Bathrooms, walkways, ramps, automatic doors, elevators, hallways and classrooms were all tried by the students.



Class consensus was most of campus is inaccessible to the average wheelchair user, spaces are much too narrow or small and while the sign on the bathroom door may state "Unisex ~ Wheelchair Accessible", once you are in and the door is closed, you may not be able to get out.

Time to get to work

With a basic understanding of wheelchair use in various spaces, basic measurements and a list of needs/wants from their clients the students got down to work. Designs were developed then presented to the client for fine tuning.

By the end of the course students developed nine complete house plans for review with many other plans being developed and fine tuned along the way. Students were also able to present plans to one of the local developers with the hope that at least one would be considered for use in the builder's library of home plans available to average consumers. The results were impressive. Nine well designed homes with various universal design features were presented. Any one of which would work well for the application it was designed for.

"Pat Tripeny goes over course conclusions with class members"

Lessons Learned

When asked what they learned during this 7 week course the student's responses were almost unanimous. Most agreed the information gained during the course was some of the most practical they had received to date. They learned it is possible to be ADA compliant but not real-life accessible. That ADA legislation in its current form is old and hasn't kept up with new technology and standards which requires architects, designers, builders and others to be more in tune with individual needs, and "90` angles are the enemy".

By the end of the 7 week studio students were able to develop a universal residential home design that met individual and family needs in a variety of ways, identified problem areas, possible solutions, and design common architectural features in creative ways. Students were able to develop basic principles which they can now use as they develop plans for their own clients in their new career field. All of us who participated were impressed with the scope of the student's abilities.

This particular 7 week design studio will now be offered as a permanent part of the curriculum at the University of Utah. (And, yes, since the U. of U. won the Sugar Bowl Linda will now be wearing red anytime she is asked to participate again. Just don't tell her Dad.)

If there is anything that is not discussed in our newsletters and you would like to see it discussed, or you would like to be added to our newsletter mailing list, please contact us at snrproject@hotmail.com