Case Study of BW Residence

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BW is a strong willed, independent woman born with mildly spastic Cerebral Palsy. Cerebral palsy, by definition, is a broad term used to describe a group of chronic disorders impairing control of movement that appear in the first few years of life and generally do not worsen over time. The term cerebral refers to the brain's two halves, or hemispheres, and palsy describes any disorder that impairs control of body movement. Thus, these disorders are not caused by problems in the muscles or nerves. Instead, faulty development or damage to motor areas in the brain disrupts the brain's ability to adequately control movement and posture.

In BW's case, there are secondary conditions such as arthritis and Carpal tunnel syndrome, which resulted from the every day use of crutches over a 37-year period. Because she developed the Carpal tunnel and arthritis, she no longer can use the crutches on a daily basis; therefore, it is necessary for her to use a powered wheelchair.

BW lives in an apartment on her own. Her current apartment is considered wheelchair accessible. However, she finds it very difficult to carry out daily tasks in some areas of her kitchen and bathroom. In BW's kitchen there are numerous things she'd like to change to make it easier for her to work.

This picture demonstrates BW having to get out of her wheelchair to reach items in her upper cabinets. To solve this problem, pull down shelves would provide access to all of the shelves in the upper cabinets.

Pull out shelves should roll out smoothly, with no struggle. However, these shelves use wooden tracks without casters. This does not allow the wooden shelf to glide along the tracks, clearly its intended purpose. Installing casters to the sides of the shelves and metal tracks on the inside of the cabinet wall would allow the shelf to easily glide out of the cabinet.

Trying to get as close as possible to the kitchen counter, the low and shallow toe-kick makes for limited workspace on the countertop. Raising the cabinets, and deepening the toe-kick will allow the user to get their chair closer to take advantage of the workspace above.

Attempting to use the two back burners can be very dangerous, while seated in a wheelchair. Reaching can cause the user to get burned while the front burners are in use. Controls in the front of the stove make it possible to accidentally turn on the front burners while reaching over. Arranging the burners in a row would enable the user to access each burner safely.

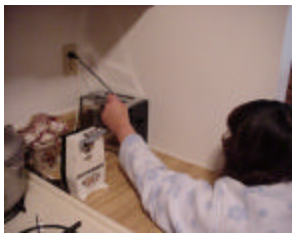
As you can see this oven is taller than the counter height. With limited strength and dexterity in the hands and arms, this causes the user to have to lift cookware off of the stove. This can cause the user to drop the hot cookware on them and suffer severe burns. To eliminate this hazard, a non-burn counter surface should be installed even with the stove so that transferring of cookware could be done with ease and without burning the top of the counter.

Even though there are no cabinets beneath the kitchen sink, there is now no room to store useful items that need to be in reach. This use of storage does not allow a wheelchair user to pull right up to the sink. A pantry would do wonders for this kitchen, and adding a caddy with wheels to pull out from underneath. This could store useful items used on a daily basis.

If you were to naturally pull up to the oven and open it, there is no way you could get your arms inside to pull out a pan without burning your arms and knees on the door. This forces you to maneuver quite a bit to pull to the far side of the oven, open the door and pull out a pan with limited balance and strength which is very dangerous.

Because BW is pulled all the way to one side of the oven, this causes her to use only one hand to retrieve the pan. Without the proper balance, or support, it makes this task almost impossible.

From a sitting position, reaching the fan and light switches on the hood is impossible. By installing those switches down low next to the stove, there would be no need for her to struggle, or try and get out of her wheelchair.



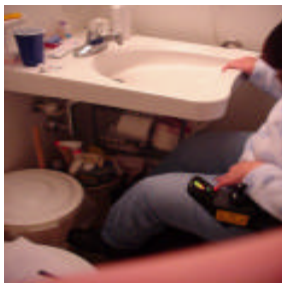
The outlets over the kitchen counters are too far back and up too high for a wheelchair user to access them. By installing the switches just underneath the countertop, this would eliminate unnecessary stress on the back and pulling of the electrical cords.

Because the cords on most kitchen appliances are very short, this makes it impossible to bring the appliance closer to someone in a wheelchair. Installing an outlet on this side-wall would make it a lot easier to reach the appliance.

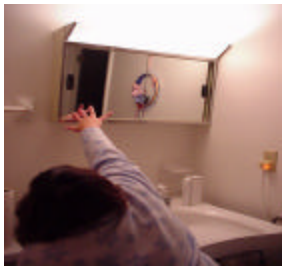
BW's bathroom is our second area of concern. There are many things that need to be changed to make the bathroom accessible for her.

This soap dish is too far back and too high on the wall to reach. We can solve the problem by installing the soap dish adjacent to the sink, or mounted to the side of the sink.

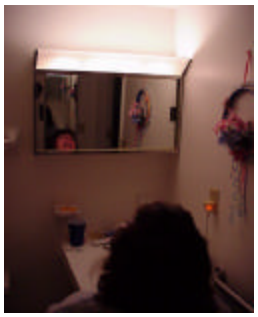
This round "knob" faucet is too hard to manage with soapy hands or with limited dexterity. A single lever faucet would work best because you can quickly get your desired water temperature without having to strain.



Without adequate bathroom storage, you are forced to store your daily necessities in spaces that are meant to be open for accessibility. Adding a roll under vanity with sink and drawers would provide more workspace and storage.

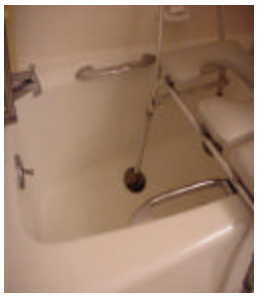


This medicine cabinet is too high for someone in a wheelchair. It is impossible to reach the mirror to slide it open to retrieve any of the stored items. Installing a vertical medicine cabinet over the sink no more than 40" from the floor would make viewing and retrieving items possible. Also, sliding the mirror to open the cabinet can be difficult, so adding a "D" shaped handle at the bottom would be a welcome addition.

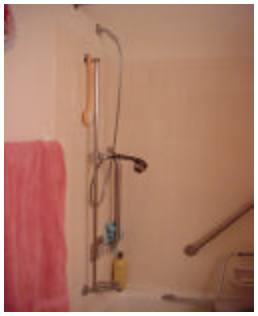


If the medicine cabinet were to be left in this manner, the mirror would be of no use. This placement is too high, even for children. As demonstrated, this is what you would be able to see from a seated position. Just the very top of your head.

This mirror is accessible unlike the medicine cabinet in the "accessible bathroom." A full-length mirror would be preferred so the user could see how she looks entirely.



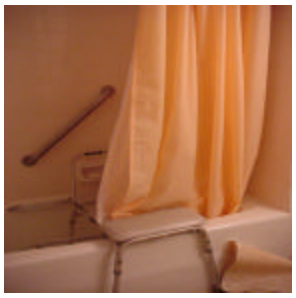
These interior handles are not sufficient for someone trying to lift him or herself out of the bathtub. The handles are too small, too low and they don't give the user proper leverage. Installing a side mounted tub bar would make it easier to grab hold and hoist your body up to a shower seat or to a standing position.



Because this bar is used for the hand held showerhead, it is not strong enough to grab onto while getting into or out of the tub. However, the location of such a bar is ideal. Moving this shower bar to the center of the wall, and installing a vertical grab bar in its place would be perfect.

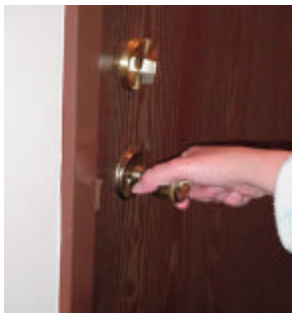
This illustrates the difficulty in getting out of the tub without the necessary grab bar.

This flooring it too slippery to stand on when wet. BW found that using rubber bathmats on the floor upside-down gives her traction and better control so she can walk back to her wheelchair. Slip resistant tile would be highly recommended.



Because there are bars connecting the transfer bench to the shower seat, the shower curtain cannot pass through properly to prevent water from spraying all over the bathroom floor. There are two ways to solve this problem: Install a separate rod at a lower level so the shower can pass all the way down through the transfer bench. Also, purchase a new liner with suction cups so the curtain can be secured to the inside of the tub.

For someone with limited dexterity, these sliding window locks make it virtually impossible to open and close the window. Installing roll out windows with crank handles would be ideal.



This round doorknob was installed on the entry door to the apartment. It makes it very difficult for someone with limited dexterity to get out quickly in the event of an emergency. A lever handle provides enough leverage to open the door when operated by an elbow or fist.

The case study shows examples of modifications which could improve the accessibility of the kitchen and bathroom in this apartment. Many of the solutions and product information can be found at different areas of this home page.