Beyond Code

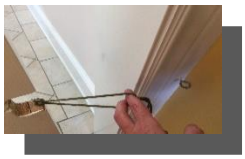
GUIDELINES FOR MAKING A HOME WHEELCHAIR FRIENDLY
(ADDED SECTION ON VISUAL ACCESSIBILITY)

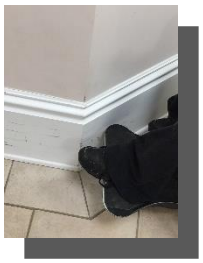
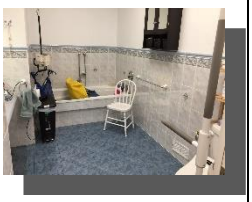
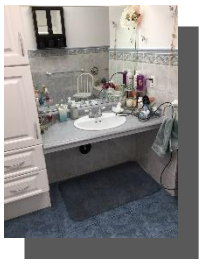
Voices and Choices | May 2020

Abstract

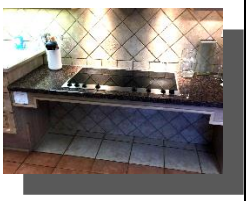
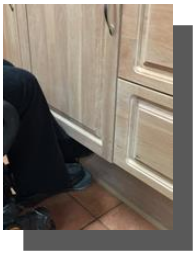
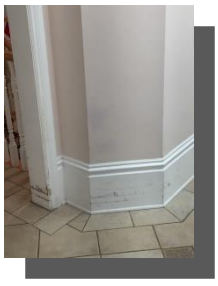
After research and touring a custom designed wheelchair home, the Hoffmans set to work to design a home that would be wheelchair friendly for their own daughter who uses a power wheelchair. Together with a committee of interested parents and individuals using a wheelchair, they have put together a list of the most beneficial suggestions.

TOP 30

1.	All doors minimum 36" wide, but for most adults 38" would be best	
2.	Levered door handles on all outside entry doors	
3.	Outside entry doors can have a plate to protect door at height of footplate.	
4.	Pocket doors allow for extra width not taken up by hinges – note that for those whose hands do not work well, it is challenging to open, close, and lock a pocket door. We have compensated – see photos. Can also make doorways wider than 36" and use hinged doors. Door handles should be levered.	 
5.	Five foot turning radius' in all areas (with furniture placement), so person does not need to back out of any location. Eg. On each side of bed, around table where you would eat, foyer	
6.	Extra space next to side of bed with outlet nearby to charge the power chair overnight	

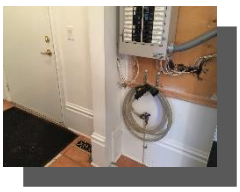
7.	Lowered light switches – 42 ” from floor	
8.	Light switches can be hooked into outlets so lamps can be turned on by light switch, so person does not have to manage lamp switches. Voice activated lighting may also be researched.	
9.	Raised outlets so person can reach to plug in various items – top of outlet 24 “	
10,	Tall baseboards so when wheelchair footplate hits the walls (which it will), damage is to baseboard and you don’t get holes in the drywall. Baseboard 12” high. For same reason, you can add wainscoting at height of joystick.	
11.	Bathroom size and shape: square(ish) better than long rectangle. 5 foot turning radius. Enough room for power chair, person, and a PSW. In our daughter’s case there is also an assistance dog all in the bathroom maneuvering. Dimensions: ours is 12’ x 8’ with 9’ x 6’ open floor space plus open under sink and counter.	
12.	Sink in bathroom and kitchen designed for wheelchair. Drive under sink and counter at lowered height. The person needs to be able to brush teeth and access counters. Top of counter at 30” – 33”. Keep valence minimal.	 

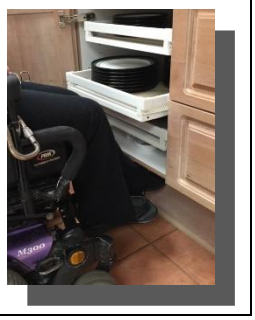
13.	Pipes for sink needs to be quickly turned to wall to not bump and burn person's knees when they drive under.	
14.	Sink faucets. Many people in power chairs have difficulty with hand movements. A faucet that has levered handle rather than knobs to turn works much better	
15.	Handles on drawers and cupboards should be used so person can put fingers into the handle and pull rather than a knob or indent.	
16.	Bathroom mirrors need to be low coming right to countertop	
17.	Special toilet called Toto Washlet – wall mount controls to wash, dry and for seat warmth. Must have electrical outlet near toilet.	
18.	Closets and Pantry – drive in with 5 foot turning radius. Hanging rods lowered – around 48" and accessible shelving (height, depth, pull out drawers and baskets)	 
19.	Windows set lower to the floor so person can easily see outside. Bottom of window at 20"	

20.	Window coverings need to be opened with pully system (or remote)	
21.	Kitchen – lowered cooktop and drive under cooktop. Top of cooktop at 30" Controls for cooktop at front so reaching over hot elements is not necessary	
22.	Lowered drive under counter for microwave - top of counter 30" -33"	
23.	Pop up table/counter in kitchen allowing drive under and work space	
24.	Raised toe kick under counters that footplate will fit under – raised 12"	
25.	Outlet at counter height in kitchen for small appliance and kitchen equipment use	
26.	Limited hallways – open concept. No 90 degree turns. Angled corners. Width of hallways – 5-6 feet in width. Should be able to turn around.	
27.	Lowered coat rod in front hall closet to reach to hang coats – around 48" and strong lowered	

	pegs on wall for hanging coats without need of hangers.	
28.	No carpets. Tile or hardwood flooring provides easy maneuverability and clean up. Hardwood needs to be very hard and hard coating as w/c tires often carry little pebbles from outside that can gouge flooring. Tile should not be deeply grooved if manual chair needs to maneuver.	
29.	Lowered doorbell	
30.	Lowered locks and cranks to open windows	

FURTHER IDEAS

1.	Entry level front door – no ramp needed. Porch with overhang to prevent snow and water accumulation around door	
2.	Lift to basement – drive on drive off. Lift door can be same as all other doors in the house. Phone located on lift in case of emergency.	
3.	Inside hose at garage. No need to turn off water in winter. Extend to garage with drain. Purpose to wash muddy wheels before entry to home	
4.	Poured cement ramp down into attached garage so can access home from garage. Cement should be rough to be non-slip.	

5.	Intercom at front door so person does not need to open door to answer	
6.	Lowered thermostat	
7.	Generator – natural gas self-starting each week to keep primed, self-starting when power out for 15 seconds. Tied into own fuse box and set for certain lights, appliances, furnace, and outlets. This is useful for charging chair when power out for long stretches. Automatically shuts off when power restored.	
8.	Access to backyard via ramped deck. Ramp should be minimum 4' wide and 1:12 slope.	
9.	Fenced backyard for assistance dog	
10.	Fuse box can be on main floor in closet behind sliding glass doors for easy access and yet decorative.	
11.	Keep in mind ceiling tracks will likely be installed for equipment (such as transporting person in sling) in both bathroom and bedroom. Make sure there are no overhead lights, fans etc in the path of where the track would be installed.	
12.	Pull out shelves in kitchen to access items more easily	

13.	Ceiling fan controls need to be on wall with on/off and toggle switch rather than chains hanging from fan for easy control.	
14.	Technology has been a huge boon for those with disabilities and it is always advancing. Seek out home automation ideas.	

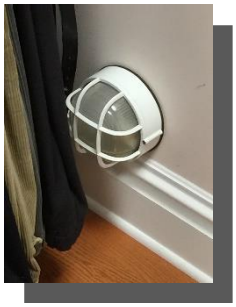
VISUAL FRIENDLY HOMES

The Hoffman home was also designed with visual considerations. Unfortunately, visual needs often do not match wheelchair needs; however, here are some ideas to create a home that can accommodate an individual with a visual impairment. Please note that visual impairment comes in a variety of levels and needs. Eg. Some need more light while for others excess light causes glare.

We thank Richard Marsolais – Vision Rehab Specialist for his invaluable input.

1. **Lighting:**
    a. There is nothing like natural light. Large and numerous windows are very helpful
    b. All lighting should be white light. Yellow light is very difficult for the visually impaired
    c. All lighting should have dimmer switches as there is a very wide range of vision loss.
    d. Ceiling lights are crucial and should be positioned every 6-8 feet
    e. The number of lumens is the key to choice of artificial lighting. Some lighting seems bright at the source, but the light does not disperse out and to the floor. Throughout kitchen, bathrooms, hall areas, closets, and basements the Hoffman's have 4'x 2' LED ceiling lights of 4800 lumens each or 2' x 2' LEDs of 4250 lumens each.

f. Closets can also have lighting near the floor. This helps illuminate the bottom of the closet where shoes, laundry baskets etc. are often stored. Marine lights with cages are used to prevent any clothes from hitting the bulbs.
g. Fluorescent lighting should also be put under cabinets in kitchen and bathrooms.
h. Voice activated lighting may also be researched.



2. **Contrast**
    a. Transition by contrast in colour is important from floor, to wall, to cabinets to counter.
    b. A contrast in paint colour around doorframes can give cues

3. **Spatial Markers** – to be wheelchair friendly, big open spaces are needed. This however is very disorienting for the person with a visual disability as it helps to have some spatial markers. Many things can act as spatial markers including:
    a. Different shaped windows
    b. A four foot protruding short wall
    c. Contrasting colours

4. **Sound**
    a. If there is a large open space have built-in sound buffers as the echoing of the sound can be very disorienting
    b. Use sound whenever possible such as:
        i. Thermostat

ii. Appliances such as microwave, toaster, oven

5. **Appliances**
    a. All appliances should have tactile directional dials. No flat-screen. If it is flat-screen, it should be one you can mark with tactile "bumps" thus not be a heat sensitive panel. Elements are easier than flat-top to locate. If flat-top then have good contrasting white circles on black top.

6. **Flooring Cues**
    a. Hardwood, tile and carpet all give different feedback texture wise and thus using a variety of flooring can be helpful.
    b. Using two contrasting colours of tiles – darker tile around edge and lighter same toned tile for main floor space can give a visual cue that a particular room is being approached or getting close to a counter

7. **Safety**
    a. Intercom system on the door so one can identify who is at the door before opening it.
    b. Doors or gates at top of all stairs
    c. Toilet should be raised ones for ease of getting up as some persons with vision loss have balance issues
    d. Railings need to be very strong and secure and preferable on both sides

e. Laundry on main floor so baskets do not need to be carried downstairs that can lead to falls.
f. Electrical outlets in accessible location such as 3-4 feet up from the floor for ease of access to prevent getting down on floor to locate outlet – possible disorientation and/or loss of balance.

8. **Closet accessibility** – rather than wide open closet space having specific areas for specific items is more accessible.
    a. Built in shoe racks, cubbies for sweaters or t-shirts
    b. Pantry cubbies for organizing different food items for ease of locating

9. **Other**
    a. Windows should be easy to manage – open, close, clean and lock
    b. Fuse box should be in a very accessible location with good markings, contrast and lighting.