**Home for Disability**

Provide guidance in ways of designing and fitting out instructions that will enhance the capacity of people with disabilities to live more independency and comfortably in their own homes and communities. then they will help people to remain living at home and in their community independently and safely for as long as possible

Designed according to 4 key Principles:

1.Location: Integrated into the neighbourhood.

2. Trasportation: Easy to approach, enter and move about in.

3. Easy to understand, safe to use and manage.

4.Affordable and Flexible, cost effective and adaptable over time.

“This research is a gem. It provides an excellent framework for the design of living spaces that accommodate the practical needs of people with various special needs in a dignified, functional, and stylish manner.”

Building and access codes that focus on dimensions and clearances gave little guidance in

understanding the myriad issues of multiple disabilities.

HOW TO USE THIS RESEARCH The first part of the is a review of the accessible home. It is organized by activities rather than rooms, as the open floor plan that characterizes many accessible homes makes traditional rooms obsolete.

HOME IS WHERE WE PREPARE to meet the world, and where we retreat when the world roughs us up. Homes house our families, our memories, our stuff. The home is our castle— the place we are free to be ourselves. But when disability strikes, that same home can become a prison, presenting barriers, frustrations, and perils at every turn. Living with disability requires constant adaptation, for the person who must learn new skills and for family members who provide support and assistance. Many people hesitate to invest in access upgrades.

“Disability results from the interaction between persons with impairments and attitudinal and environmental barriers that hinder their full and effective participation in society on an equal basis with others.” —INTERNATIONAL CLASSIFICATION OF FUNCTIONING, DISABILITY, AND HEALTH

The good news is that a home designed with an understanding of the person’s requirements can go a long ways toward making everything easier, for everyone. This research is about how this works.

WHAT IS A DISABILITY? Disability is a complex phenomenon, an interaction between a person’s physical impairments, the activities they need to perform, and barriers presented by the setting in which this occurs. Physical conditions include health problems that can strike at birth, become manifest in youth or middle age, or appear in old age. Activities are any of the tasks involved in everyday life. Barriers include obstacles in the built and natural environment, as well as the social setting (lack of social supports, negative attitudes, inaccessible services and facilities). As either a temporary or permanent condition, disability affects three out of four people at some time in their lives.

The accessible home has a generous interior path of travel and rooms with pocket doors.

WHO NEEDS AN ACCESSIBLE HOME? The truth is that we all do at some time in our lives, whether for ourselves, family members, or guests. Young families need accessible homes. In the United States, 3 out of 100 babies born each year have significant birth defects, caused by genetics or problems during pregnancy, that result in physical or mental disabilities.

DIFFERENT FROM OTHER HOMES? Accessible homes look much like other homes. They often have a sunny open feeling because there are fewer walls between common areas. Doorways are wider and windows taller. Level floors create a comfortable flow between living areas and make rooms easier to keep clean. The kitchen is efficient and ergonomic, with compact storage and broad, sleek work areas. Bathrooms are a little more spacious than in traditional homes. Air quality is good, with operable windows and attention to nontoxic building materials. Sound quality is also good, thanks to simple acoustic features that block unwanted noise and enhance communication. Electrical fixtures provide even and glare-free glare-free illumination. Finish materials and details are selected for safety as well as general utility and attractiveness. The house is safe, designed to reduce falls. It is low-maintenance —well designed, durable, and skillfully constructed. The accessible home is the home of the future, but it is also the way we want to live now.

APPROACH AND ARRIVAL

Entrance

Porches don’t need to be large to be effective. A simple covered landing defines the entrance and provides weather protection as you enter this Maine HOME.

The accessible site requires planning, and the basic planning module is the footprint of a wheelchair, at 30 in. by 48 in.

The site is safer when there are separate areas for cars and people, with boundaries well marked to prevent meandering.

The site becomes an extension of the home when a person with a disability can pick up the mail, take out the trash, join friends and family in outdoor activities, and greet arriving To accomplish these goals a project requires careful planning.

All elements of the path of travel— from sidewalk to porch to yard— are integrated into the site for safe and comfortable passage.

SITE PLANNING should start before the home design is set in concrete, and include circulation to and around the house for pedestrians, for wheeled mobility devices, and, often, for automobiles.

Coordinating the design with sun angles and natural topography can reduce snow buildup and control rain runoff. All these techniques improve site

Design a network of pathways linking outdoor activity centers.

Indicate safe travel areas using contrasting walkway colors and textures.

Construct ramps and gentle steps with sturdy handrails where the land slopes steeply.

Add lighting for visibility.

Reduce maintenance by providing proper drainage, durable paving, and sturdy native plant species. With accessibility as a goal, both the site and the house can be brought into greater harmony.

stairs on nearly all of the houses in a new subdivision, putting them off-limits to people using wheelchairs.

DESIGN FUNCTIONAL DRIVEWAYS AND PARKING AREAS

**PARKING**

Parking :- For parking of vehicles of handicapped people the following provisions

shall be made:

Surface parking for two care spaces shall be provided near entrance for the

physically handicapped persons with maximum travel distance of 100 ft from

building entrance.

The width of parking bay shall be minimum 11 feet

The information stating that the space is reserved for wheel chair users shall

be conspicuously displayed.

Guiding floor materials shall be provided or a device which guides visually

impaired persons with audible signals or other devices which serves the same

purpose shall be provided.

Start site design by identifying the personal mobility devices that will be used.

Design maneuvering space to avoid long backups or extensive Y-turns.

Distinguish driveway edges to prevent vehicles from driving off the paving,

and mark pedestrian areas to reduce chances that people will wander into traffic,

or that cars will encroach onto footpaths.

A typical automobile stall is 8 ft. by 20 ft, and side-loading side-loading vans generally require an 11-ft. stall width. Measure the vehicle where possible, with all doors open and people actually entering, to see how large the parking area needs to be.

Provide space for an accessible passenger loading and transfer zone,

either beside or behind the vehicle, and door. If transfer requires assistance, make sure there is space for additional people nearby.

walkways and transfer areas within the parking area using a change in pavement texture or color for added safety.

Changing the texture of walkway surfaces to differentiate edges or crosswalks promotes way-finding for people who rely on a white cane to find their way through touch.

Raised curbs beside a walkway also allow way-finding when the homeowner is blind; placing the curb on one side only makes it clear which direction one is walking.

A change in paving color and texture clearly distinguishes pedestrian and vehicular traffic areas.

By placing a curb to one side of the pathway, and using a light-color paving stone, this accessible walkway is easy to use by someone with low vision or a wheelchair.

For people with wheeled mobility devices, walkways should be planar and at least 3 ft. wide with turning areas at least 5 ft. wide.

For people with low vision, walkways should be texturally distinct and clear of obstructions that may cause injury,

walkways should be texturally distinct and clear of obstructions that may cause injury, be level, uniform, nonslip, and slightly sloped for drainage.

Whether paved with a poured finish or constructed of porous materials, the surface should be free of tripping hazards, which codes describe as level changes greater than ¼ in.

Distinguish the walkway from surrounding surfaces by changing textures, colors, or materials.

Pay special attention to walkway edges so that wheelchairs or navigational canes do not installing a snow-melt system below the paving or providing covered walkways in areas where winters are harsh, to keep walkway.

**Lighting**

During daytime, bright sunlight casts shadows that may seem indistinguishable from holes in the pavement and can cause people with low vision or brain injuries to step off the pathway. Consider the natural shading qualities of plants and building elements when designing pathways for travel.

During the evening, visibility is reduced by darkness and the presence of light fixtures that cause glare. Choose light fixtures for even illumination of walkway surfaces:

step lights alongside walls,

low mushroom-type fixtures nestled into the landscape,

or up-lights placed. tree

to enhance way-finding.

Control outdoor lights with motion sensors for a hands-free path of travel.

outdoor lights with motion sensors for a hands-free path of travel. the site is hilly or flat.

Grading the site to drain water away from the house can be an important task in designing an accessible entrance.

THE LANDING

The accessible entrance starts with a landing— a flat surface where one “lands” after using a door, ramp, or stairway. Its primary function is to keep wheeled mobility devices from rolling backward or people from stepping off as the door is opening. Landings need to be large enough for people to reach door hardware and also to move aside as the door swings open. They also need to be configured so that people can position themselves to take hold of handrails before using the stairs or ramp back to grade. The size and location of the landing depends on the direction from which one approaches and whether the door swings inward or outward. Start with a minimum landing size of 5 ft. by 5 ft. so that a wheelchair has room to change direction, and plan the landing with space for additional people and gear to suit your own family’s lifestyle.

STAIRS

Unless the landing is at, Stair widths should be at least 36 in., when treads are at least 11 in. deep and risers are from 4 in. to 7 in. high. For safety, be sure tread and riser dimensions are uniform. A platform lift at the porch landing offers an alternate way to enter the home with arms full of groceries.

RAILING SYSTEMS

by codes, which set requirements for handrail heights (34 in. to 38 in. for adults and up to 28 in. for children) and limits on the size and shape of the gripping surface so that it can be comfortably used. Codes. The accessible home has handrails on both sides of a ramp or.

chair lift makes a porch accessible when the site does not have space for a long ramp.

A simple entrance, a wide door with sidelights, non-glare lighting, a level floor, and a mailbox within easy REACH.FROM SEATED POSITION.

COVERED LANDINGS

doorway. A landing roof provides weather protection, and larger roof areas provide more protection than small areas.

OTHER AMENITIES

abilities. A porch light is more than a convenience, it’s a safety feature and eases the transition between darkness and light while entering the home. Consider providing a place for cleaning mud off mobility devices, with a nearby faucet or suitable decking material to remove grit from shoe and wheel treads. Choose a doorbell for visibility from the exterior and audible (chimes, buzzers, bells) and visual (lights) signals on the interior. Locate the doorbell at an accessible height and with clear space for a wheelchair beside it. Provide an oversize mailbox so that packages do not clutter the landing. Add a shelf for placing bags while rummaging for keys, and a bench where a person can rest while waiting, for the door to be opened. The house number should be large enough to be legible from the public way, and placed where it can be easily seen by day or night.

**Build Connection**

home wonderful is the ease of moving between spaces, from outdoors to indoors, from room to room, from one floor to another.

porch doors— serve dual functions. As entrances they are generous and welcoming. As exits they are never too far away when we need to get out.

wide enough for people and their gear: groceries and luggage coming in, food for the barbecue and sports equipment going out. Coming in, the door can be.

easily. Going out, especially in an emergency, requires minimal effort, a simple push. As entrances, doors put the safety and comfort of home within reach. As exits, doors put nature’s freshness and the vitality of the neighborhood.

Transom glass and side lights bring abundant natural light into the entrance, and allow a homeowner to see arriving visitors. Combined with a wide door and zero-step entrance, these features make a welcoming and accessible point of arrival.

Door.

primarily a stylistic decision, but there are functional issues involved. Panel-type door surfaces should be smooth for the lowest 10 in., so that wheelchair footrests do not get caught in decorative moldings. Vision lights (windows either in or beside the door) should enable someone seated to see outside, with glass not more than 43 in. above the floor. purchase. Door thresholds in the accessible home are flush with the floor, or up to ½ in. high (maximum) and with beveled edges.

HARDWARE

Entrance hardware should be comfortable to the touch and, intuitive to operate, usable with a closed fist rather than a gripping or twisting motion. The backset (the distance from hardware centerline to, choose lever hardware rather than knobs, mounted 34 in. to 48 in. above the floor. should allow the door to be operated without too much effort (5-lb. pressure or less).

LOCKSETS There are good alternatives to standard keys if we look to the security industry. Electronic key-pads that respond to a user access code, proximity card-readers that respond to a swipe of an ID card, and fob-activated locks are three options. Biometric security devices recognize fingerprints, faces, and

Glass doors bring daylight into the house and allow someone with hearing loss to see who is in the next room without entering. Wide hallways make it easier to get around using MOBILITY DEVICE , Color contrast between floors, baseboard trim, and walls improves visibility for those with low.

REMOVE BARRIERS TO CONNECT INDOOR ACTIVITY AREAS

Standard interior door sizes are 30 in. in most homes, doorways actually need to be at least 32 in. clear for a wheelchair, so doors should be at least 34 in. wide. many houses have 34-in. hallways. For an accessible home, clear hallway width should really be 36 in., devices. Many accessible homes have hallways that are 60 in. wide, roomy enough for two people using wheelchairs to pass each other.IF FRIEND COMING.

* Locate doors to enable wheeled mobility devices to turn without backing up. Angle the walls at corners to widen the space where it is most needed.
* Align doors across a hall to shorten the path of travel between rooms.
* Use wood wainscoting to protect plaster from being nicked by assistive devices.
* Avoid gaps in wall surfaces and railings that might catch assistive devices or
* Install 9-in.-high baseboard moldings to protect wall surfaces from damage by wheelchair footrests.

We can’t control the aging process but by making homes that help prevent accidents, we can reduce the chances of hospitalization.

TRAILING People without sight find their way using touch in a process known as trailing. Standing with one arm about 6 in. from the wall and the hand extended about 12 in. from the body, a person walks forward, keeping the back of the hand in contact with the wall and the fingers.

Call for easy-clean wall surfaces and decorative moldings as well as flooring changes to mark an accessible indoor path of travel. Wood paneling and chair rails become trailing devices when the height is coordinated with the user’s reach range. Coordinate trailing features with electrical switches and outlets and plumbing installations to make controls easier to find using touch.

A wood chair rail allows people with low vision to navigate within a room using touch, and a beadboard wainscot makes a durable wall in areas of heavy use.

DESIGN FOR LOW VISION

**Persons with impaired vision**

Persons in this category are totally blind or with impaired vision. Visually impaired persons make use of other senses such as hearing or touch to compensate for the lack of vision. It is necessary to give instructions accessible through the sense of touch (hands, fingers or legs).

While walking with a white cane to spot their feet near the tip of the cane the persons may bump his or her head or shoulder against protruding objects.

Persons with limited vision may be able to discriminate between dark and bright shades and difference in primary colors.

A home where it is easier to see one’s way is a safer home. Place electrical outlets at the points of use to avoid having loose electrical cords that create a tripping hazard. Provide adequate lighting to keep walkways visible. Keep wall surfaces free of protruding objects that could cause a person to become injured. Design concepts used in environments for people with low vision, such as “landmarks” and “cognitive mapping,” provide insights for creating homes that improve visual accessibility.

LANDMARKS Landmarks are built-in features that mark destination points or that trigger decisions such as a change in direction. The designer can use landmarks to create homes where it is easier to navigate with low vision. For example, the hum of a ceiling fan is a landmark that helps people hear their way to the family room. Flooring that differentiates between rooms and textured thresholds are also landmarks. Bathroom floor tiles can be varied to indicate where it is advisable to stand to use the plumbing fixtures.

Contrast walls with doorways to distinguish room openings. Install baseboard moldings, walls, and floors in contrasting colors to clearly differentiate down from up, preventing confusion. A person with dementia may read strong flooring contrasts as holes and refuse to pass by, so use uniform colors and avoid shadows and glare.

INCORPORATE “GADGETS”

As part of the home’s egress system, the hallway is a natural place for various alarm systems, including fire and smoke detection and

security devices. Select doorbells, alarms, and security systems for users who have low vision (with audible signals such as bells and buzzers) and/ or hearing loss (with visible signals such as flashing lights).

*((((((((((((Adapting Your Home*

*Whether you live in a house or an apartment, you want to feel comfortable, capable, and in charge of your surroundings—that is what transforms living quarters into a home. Here is some basic advice about making your environment safe and well organized. It is founded on four important principles:*

* *Increase lighting*
* *Eliminate hazards*
* *Create color contrasts*
* *Organize and label items*
* *Reduction of glare*

*Increase Lighting*

* *Use stronger light bulbs or 3-way bulbs to provide nonglare lighting.*
* *Put lamps in places where you do close work. For example, put a gooseneck lamp in your reading-writing area. Many companies make lighter light bulbs which simulate natural day light which can be very helpful to someone with low vision.*
* *Install extra lights in the bedroom closet and other frequently used closets in other rooms.*
* *Put special lighting over all stairways—the places where accidents are most likely to occur.*
* *Make sure the lighting level is consistent throughout the house so shadows and dangerous bright spots are eliminated. Install rheostats.*
* *Be certain you can easily reach light switches from doorways and from your bed.*
* *Use a night light in the bedroom, hallway, and bathroom.*

*Eliminate Hazards*

* *Mark thermostats with brightly colored fluorescent tape at settings you typically use.*
* *Use nonskid, nonglare wax to polish floors.*
* *Close closet and cupboard doors and drawers completely as soon as you've taken out what you need.*
* *Pick up shoes, clothing, books, and other items that you could trip over. In fact, put away an object when you are through using it—for the sake of safety and so you can find it easily again.*
* *Mop up spills as soon as they occur.*

*Create Color Contrasts*

* *Put light colored objects against a dark background—a beige chair against a dark wood paneled wall, for example—and vice versa—a black switchplate on a white wall.*
* *Install doorknobs that contrast in color with the door for easy location.*
* *Avoid upholstery with patterns. Stripes, plaids, and checks can be visually confusing.*

*Organize and Label Items*

* *Keep items that are used together near each other—on the same shelf, in the same closet, or in the same box.*
* *Label each box using a broad-tipped black felt marker. Or write the contents on index cards and attach the cards to the boxes with rubber bands. Self-adhesive labels are also handy.*

*Reduce Glare*

* *Glare can be caused by sunlight or light from a lamp and can make it difficult for an individual with low vision to see when it hits shiny surfaces, such as a glass or highly polished table top, waxed floors, or the TV screen.*
* *Sunlight can fill the room with light without producing glare.*
* *Mini blinds are one of the best window coverings because they can be altered during the course of the day to eliminate the glare.*
* *Avoid using wax on the floor; use a flat finish.*
* *To make the television easier to see, simply turn the screen away from the sun or a lamp so the light source is behind the screen.*

*Tips for the Kitchen*

*Here are a few simple things you can do to make kitchen chores easier and safer.*

*Label Canned Foods and Other Staples*

*Cans are often a source of great frustration for anyone with very limited vision. You usually can't tell what's in a can by shaking it. Once it's open, and turns out not to be what you expected, you can't close it up and store it for another time. At that point, you have two unsatisfactory choices—throw it away or eat something you don't feel like having. That's why it's essential to label cans the same day they arrive from the store, before you put them away. To do that you will need help from a neighbor or relative to identify what each one contains. Here are a few things you can do to minimize any inconvenience this might cause the person helping you.*

* *Do your shopping for food staples such as canned goods, cereal, crackers, dry pasta, spices, etc., (things that have a long shelf life) once or twice a month rather than weekly.*
* *Prepare labels in advance, based on your shopping list. A self-adhesive label is easy to apply, marked with whatever tactile "code" you devise or large print labeling.*
* *You could also use varying numbers of rubber bands to distinguish one type of product from another—two bands for mixed fruits; three for green vegetables; four for sauces; etc.*

*Other Kitchen Tips*

* *Wear short sleeves or roll your sleeves above the elbow when working at the stove.*
* *Wear oven mitts to handle pots and pans.*
* *Set a timer to remind you when to turn off the stove or other electrical appliances.*
* *Make sure all your appliances are in good working order and avoid overloading circuits.*
* ***Don't****store spices on a shelf above the stove.*
* ***Don't****remove a pan from the stove before you turn off the flame.*
* ***Don't****wear anything with long, loose sleeves when cooking.*

*Tips for Organizing Bathroom*

*The bathroom—with its tile and slippery surfaces—can be a problem for someone with even a slight degree of vision loss. The following are simple, easy-to-manage accommodations to minimize the possibility of accidents.*

* *Make sure that any rug in the bath area is nonskid.*
* *Keep frequently used items in the same place at all times. Label them. Whenever possible, use plastic rather than glass containers.*
* *Buy towels, washcloths, and bath mats that contrast sharply with the tub and tiles.*
* *Use soaps and shampoos in pump dispensers to prevent spillage.*
* *Put a nonskid mat, friction tape, or patterned appliqués on the bottom of the tub or the floor of the shower. Choose colors that contrast with the surface.*
* *Hang a shower caddy in the shower to hold soap and shampoo.*
* *Have a grab bar installed on the edge of the tub or a railing on the wall of the shower to prevent slipping when getting in and out.*
* *Have additional lighting installed over the tub and shower.*
* *Replace a white toilet seat with a darker, contrasting seat. If necessary, put a frame with arms over the seat to make sitting down and getting up easier.*
* *Learn how far you have to rotate faucets to get the temperature you want. Turn on the cold water first, then add the hot. Turn off the hot water first. In the shower, use a hand-held showerhead so you can test the water temperature on your hand.*
* *To check the water level in the tub, sit on the edge of the tub, or kneel or squat beside it and lower your hand to the surface of the water. If your vision permits, put a contrasting strip of tape at the desired level and fill the tub to that level.*
* *To get the right amount of toothpaste on your brush, use a dark color or striped toothpaste. Hold the bristles of the brush between your thumb and forefinger. That way you can judge the amount as you squeeze it from the tube.*
* *File your nails rather than using scissors or a clipper. If you have diabetes, be certain that only a medical professional cuts your toenails.*
* *Shave with an electric razor rather than a regular one to avoid nicks and cuts.)))))))))*

By making your bathroom safer and more conveniently organized, you can minimize the possibility of falling and take care of personal hygiene more efficiently

Consider specifying occupancy sensors so that light fixtures turn on when a person enters the hallway. Planning for these devices within the design is the best way to ensure they are attractive and functional.

**swinging doors can be difficult for people in wheelchairs, who need to roll aside as the door swings open. Closing the door is equally challenging,** **and may require rolling into the next room to reach the handle, then backing up while pulling it shut. Accessible doorways need space for a wheelchair beside the latch edge, from 12 in. to 48 in. wide, depending on the angle of approach and the direction the door swings.** **“Use lever handles and cup pulls rather than knobs for hardware. They are easier to grasp, and can be used by someone with weak hand.**

**SLIDING DOORS Sliding doors are a good option where a swinging door would block a path of travel,**

**POCKET DOORS doors that slide into a pocket in the wall are a popular option. Pocket doors hang from a track above the opening, so they do not close as**

**Bi-fold doors are a good choice for pantry**

COGNITIVE MAPS Teasing apart the steps involved in memory allows the designer to create places where people with brain damage can function more effectively. It also enables us to design places where people who rely on memory, such as those who are blind, can navigate easily. Using our senses, we read the environment as a series of “navigational cues.” Tile tells us we are in the mudroom, while hardwood floors say hallway. Our brains assemble these cues into “cognitive maps,” a kind of spatial memory bank that we reference in getting around a place.

Whether or not a person actually remembers the way, navigational cues prompt them to pay attention. By “layering” spaces— for example, alternating between small and large spaces, high vs. low ceilings, active vs. silent areas, hard vs. resilient flooring, textured vs. smooth surfaces— the designer activates the memory to differentiate areas of the home. The fully accessible home is designed as a rich, multisensory experience.

**STAIRWAYS**

Stairways will always be a fact of life, a compact and inexpensive way to travel between floors. They are, however, a potential falling hazard, and thoughtful design can make them safer. Existing houses with limited space can still benefit from modifications that make a stair easy to use:

* Use nonslip finishes.
* Mark tread edges using a contrasting material to make it easier to see the drop off while descending.
* A rosewood strip inlaid into treads make it easy to see changes in floor level, whether walking up or down the stairs.
* Contrast risers with tread colors to make it easier to see while ascending.
* Mount handrails firmly on both sides so that a person with one strong arm can get a firm grip going in both directions.
* Contrast railing colors with the walls for better visibility.
* Design handrails to be continuous or to extend past the landings as tactile and visual cues that the stairs are nearby.

ELEVATORS Residential

elevators and lifts are good alternatives to stairs in places where ramps are impractical. One of the biggest investments in creating an accessible home, an elevator well-integrated into the design can add value at resale. The choice of an elevator depends on many factors, with vertical travel distance, floor plans, and costs topping the list. There are four basic options:

Residential elevator: The cab rides up and down within an enclosed shaft of fire-rated construction, extending beyond the upper and lower floor levels of a multistory building.

Vertical platform lift: An open platform with low sidewalls rides for short distances, 12 ft. or less, and is less costly than an elevator.

Incline platform lift: A flat platform rides beside a stair on a wall-mounted track. Because it folds against the wall when not in use, it needs a wider stair.

Incline chair lift: A seat mounted on a wall-mounted track rides alongside a stair. The building layout determines whether you can use a roll-through roll-through model or one that requires turns or backing out. Place the elevator near an interior stairway to economize on landing space and to allow to use the same route

Elevator call buttons mounted within the user’s reach and a short distance from the hall door ensure that she is out of range of the door swing while it opens. At the same time, the automatic door operator closing speed is adjusted to give her time to enter and leave the elevator safely.

Let’s start with the rooms where we spend much of our time and invite our guests guests— spaces typically called living and dining areas.

Connection room’

Imagine arriving at a gathering in your wheelchair. “Excuse me,” you say, pushing through the throngs to find a comfortable perch: Capturing the attention of people standing in a crowd is a constant challenge. Solution: Create wide aisles between furniture groupings so that people in wheelchairs can pass each other. Cluster furniture between open aisles to allow two ways to get around the room if one way is blocked. An accessible home is one without excuses. little larger, and furniture placement is centralized in rooms to allow ample travel space around it.

Living Space

**Social**

Due to reduced social opportunities some individuals may spend a lot of time at home. It is therefore important that their living areas are as pleasant as possible.

A person may have difficulty with social interaction or feel uncomfortable when their personal space is being invaded.

**Environmental**

A poor-quality environment can contribute to psychological distress, such as an increase on a person’s stressors, and so things like appliance breakdowns, disorganisation and poor hygiene can contribute to diminished mental health. For smokers, ventilation may be an important issue.

**Location**

Living areas should be orientated to maximise natural lighting.

Kitchen and living areas should be separate or clearly delineated.

**Living Room**

* Logical and convenient furniture layout
* High backed single seat
* Good natural and artificial lighting
* Easily maintained furniture
* Good ventilation
* Storage – good, clearly labeled
* Fireproof waste baskets for smokers
* Blinds and net curtains provide privacy -
* consider also automated blinds and assistive
* technology.
* Adequate number of suitably located sockets
* Consider impact of colour
* Create a focal point

**Lighting**

Natural lighting should be maximised. Room orientation, window size and positioning are important considerations.

Avoiding dimmer switches may be useful, as they are not compatible with many modern bulbs and they can be awkward for some people to use.

**Electrics**

Electrical sockets should be plentiful and well dispersed to enable portable appliances to be sensibly located and to avoid unnecessary clusters.

**Ventilation**

Ventilation may need to be automatic for

consistent air quality. If the person is a smoker one smoking area, if possible outside, should be arranged in collaboration with the smoker to contain tobacco-related refuse. As a minimum a no smoking policy in the bedroom should be encouraged to reduce the risk of fire.

If a person is a smoker, ventilation provision may need to be enhanced. Noisy ventilation may be difficult to tolerate and therefore may be switched off.

**Furniture**

Increased height chairs and armrests may be useful for leverage from seating.

Good quality, fire retardant, stain resistant and durable soft furnishings. Having personal space invaded can be uncomfortable for some people, so having a single seat option available should therefore be considered. The environment can be used to encourage social interaction, like arranging seats to face each other.

**Waste and refuse**

Waste bins should be provided in all rooms. They should be clearly marked and easily identifiable. Fireproof options may also enhance safety.

**Recommendations**

**Assistive technology**

Stand-alone devices:

An automated ventilation system may be beneficial if the person smokes indoors.

Thermostatic-controlled heating may avoid under or overuse of heating. A person may need assistance to set this up.

Automatic window dressings that close during darkness hours may be useful if a person fails to respond to the night drawing in.

An electronic clock and calendar will help with time orientation, if this is a problem.

Item locator devices to help find everyday items (such as wallets, keys and glasses) that are frequently misplaced. Handheld device can provide audio/visual cues to track devices.

Large button and easy-to-use devices, such as single button radio, large button phones and simplified TV remote controls.

**Telecare**

An externally monitored room thermometer located in a hallway or living space would provide early warning of extreme low or high household temperatures. A monitored CO2 detector could prevent the danger of not responding to a home alarm.

Automatic medication reminders and dispensers to monitor when medication has been taken from a pill dispenser. These can also initiate an alarm call if pills are not taken within a set period.

design window seats and alcoves along the path of travel. For larger gatherings, lay out furniture with wide

Link activity centers by ensuring clear sightlines that make it easier for people with low vision or hearing to connect.

lighting to make it easier to see gestures and expressions. Improve visual communication by planning circular furniture layouts with chairs rather than sofas, and using wing-back chairs that amplify sound much like cupping the ears does.

ARCHITECTURAL ACOUSTICS

Sound energy travels out from the source in all directions as waves, like ripples on a pond when we toss a stone. Some waves are absorbed by soft surfaces (recall the quiet of a wall lined with books). Some are deflected off hard surfaces.

There are many ways to reduce sound in a space, and simple modifications have a big impact.

Building structure: De-couple floor/ ceiling assemblies and install solid bridging between joists to reduce vibration.

Isolate joists from sheathing and strapping. Install vibration damping between underlayments.

Room configuration: Design tray or coffered ceilings to absorb extraneous sound. Avoid parallel

surfaces; skew walls slightly to eliminate echoes. Right-size rooms and provide wide openings.

A coffered ceiling over the dining room table absorbs extraneous noise and focuses sound back town to the table, making it easier to hear.

Wall design: Increase mass and air space. For example, a standard wood-stud wall with 5⁄8-in. drywall on each side has an STC of 35, but doubling-up the drywall, staggering studs, and installing the drywall on resilient clips increases the STC to over 60.

Windows and doors: Choose windows with double or triple layers of glass and acoustic glazing compounds to block outdoor noise. Weatherstrip exterior doors and choose solid interior doors.

Finishes and furnishings: Install soft surfaces such as carpeting and pads, cork flooring and underlayment, acoustic wall panels, and fissured acoustic tile ceilings. Choose upholstered furnishings and fabric window coverings.

Built-in cabinetry: Specify “soft-close” door hardware to avoid slamming.

Mechanical: Locate heating/ ventilating/ cooling cooling equipment away from living areas. Install using resilient curbs or suspension systems.

“The main floor is on the open plan, which makes it easier to hear the phone or one of its extensions ringing.” —HARD-OF-HEARING HOMEOWNER

DINING Regardless of where eating takes place, the dining area is a center of family life. In creating a dining area, balance requirements for people and furniture. Use round or oval tables to allow those who rely on lip reading or American Sign Language to “hear” the conversation visually. Provide acoustic treatments, as too much sound reverberation degrades one’s ability to participate in group discussions. For people with mobility impairment, size the room for furniture plus assistive devices. Choose tables with open knee-space for people in wheelchairs— a pedestal or trestle base rather than four corner legs.

select window coverings that filter daylight to avoid glare.

IN THE DETAILS :

Materials and details should always be selected to make a home comfortable and attractive, but in this case, these decisions are more than aesthetic— they also make a home livable. Common sense will take you far in choosing products. The accessible home is low-effort, so use durable scratch-resistant wall materials to reduce maintenance. Place windows sills low enough to see outside from a seated position, and specify easy-to-use hardware such as cranks or remote controls. Consider adding an enclosed direct-vent gas fireplace with electronic ignition for warmth and ambiance without the worry of sparks flying or the work of dealing with firewood and ash.

LIGHTING THE HOME Adequate light promotes safety, prevents accidents, reduces eye strain, helps people orient themselves in a room, increases one’s sense of security.

Controls are as important as fixtures in creating adequate light. Use pre-programmable dimmers to modify light levels.

Consider using automatic sensors for hallways, turning lights on when a person enters. Choose keypad Locate switches and outlets at consistent heights and locations so that a person. with low vision or cognitive limitations will find them more easily. Use back-lit keypad or manual switches and dimmers to help find room controls in the dark. Finally, make sure that face-plate colors contrast with the wall background to improve visibility.

Sturdy wood and tile finishes and built-in cabinets with space for a wheelchair footrest show sensible long-term planning in the home for a young family. A raised hearth puts the fireplace within easy reach.

designing such a space, architects should help structure organizational systems, minimize distractions, and create clean and comfortable spaces conducive

For a child in a wheelchair, tabletops should be 26 in. to 30 in. high and uppermost shelving from 20 in. to 36 in. above the floor.

For adults, these figures are higher— tabletops at 28 in. to 34 in. and shelving from 14 in. to 48 in. Reaching over an obstruction such as a desk requires lower heights. For the best fit, tailor designs to the actual user’s dimensional requirements.

**Kitchen**

~~An injury or an illness initiates a crash course in managing with new abilities and limitations.~~ Having the kitchen has tremendous potential for making it easier to live with a disability. kitchen is not about cabinet style or countertop materials— it’s about the ways that each design can support its users impeccably.

PLAN THE KITCHEN TO BALANCE WORKSPACE AND STORAGE NEEDS meticulous planning because this is a space where inches count. Appliances come in fixed sizes (often fractions of inches), and cabinets are modular (often increments of 3 in.).

This compact kitchen takes a minimum of space and works well with a nearby table. Built-in appliances and pantry storage are consolidated on one wall to allow maximum openness at the counter workspaces.

CHECKLIST OF USEFUL KITCHEN DIMENSIONS Codes and regulations such as the Americans with Disabilities Act of 2010 set dimensional standards for accessible kitchens. Starting with these guidelines, check your own measurements for a good kitchen-user fit. Counter height 34 in., or an adjustable counter with a range of 28 in. to 36 in. Accessible counter workspace 30 in. wide. Clear approach space 30 in. by 48 in. in front of sink and cooktop. Knee clearance below sinks at least 27 in. high and 8 in. deep at the knees, 11 in. deep at the ankles (and lower for children). Toe clearances below sinks at least 9 in. high and 6 in. deep. At least 50 percent of storage within reach ranges, which are 15 in. to 48 in. high, except over countertops, where the maximum is 44 in. high. Appliance controls with a maximum operating force of 5 lb. Counter workspace 30 in. wide beside side-hinged oven doors and to one side of bottom-hinged doors. Be sure at least 50 percent of freezer space is within 54 in. of the floor. Provide a 30-in. 30-in. by 48-in. clear floor space for approach, offset no more than 24 in. from the refrigerator centerline. Planning a kitchen means balancing requirements for storage (cabinets), workspace (counters), and appliances. The accessible kitchen adds one more requirement: putting everything within reach. One way to accomplish all this is by matching built-in items to the cook’s own dimensions. The other is to create separate self-contained activity centers.

TAILOR KITCHENS TO THE USERS’ DIMENSIONS The first rule of kitchen planning has long been “design around the 36-in. countertop.” Cabinets, dishwashers, and ranges are sized to fit under this counter so that the “average” user (a standing 5-ft. 10-in. male or 5-ft. 4-in. female) can comfortably cook. Many homeowners, however, actually prefer lower work surfaces, and now the ADA calls for 34-in. countertops.

The second rule of kitchen planning has been the supremacy of the “work triangle”— a layout with the sink, fridge, and stove all a short walking distance apart. For the accessible kitchen, however, a more useful model has several work areas, each designed so that everything needed can be accessed from a single position. These activity centers can be different for each homeowner. Providing a morning coffee center, a salad counter, a baking area, a children’s snack area, and a pass-through between the garage and pantry for transferring groceries.

Here are some features to look for: Shallow dishwasher and freezer drawers reduce the amount of bending to reach inside. Shallow sinks let a seated user reach the bottom of the bowl. Drain holes and plumbing traps at the back of the sink bowl leave knee clearance for seated users. Insulate or enclose the plumbing to protect legs from hot pipes. Single-lever faucet controls, located at the side of the sink, offer low-effort operation. Instant-hot-water dispensers shorten the Cooktops separate from wall ovens allow both to be placed at comfortable heights. Raised knobs with indicator bars make cooktop dials easy to operate with weak hand control. For people with low vision the contrast between burners and cooktop makes it easier to see the work surface. Cooktop controls at the front edge prevent reaching across burners to adjust the heat. Ovens with side-swinging doors let a seated cook get close to the opening. Automatic shutoff controls and gas alarms are safety features if you leave the heat on.

Use a 34-in. range if countertops are 34 in. high. These features make it easier for people with a variety of impairments to work in the kitchen.

KITCHENS FOR VISION IMPAIRMENT Individual experience, training in blindness skills, tactile acuity, and temperament all play a role in the choice of products. Choose white appliances and contrasting black knobs so that controls are easy to see. Avoid controls with silvery or reflective surfaces, which blur printed information. Use a dishwasher with contrasting-color interior racks, or ovens with light-color interiors and easy-clean settings. Select a refrigerator with uniform interior lighting. Consider appliances with voice-recognition or talking controls.

countertops for safety and comfort Provide ample countertops so that items can be left in place for easy retrieval. Round countertop edges and corners to reduce the chance of injury as someone bends down to feel for objects dropped or stored low. Choose countertop colors to contrast with appliances and utensils to make it easier to distinguish foods and features. Keep the cooktop away from windows to reduce glare that can obscure views of the work surface.

categorize storage cabinets Food identification relies on container sizes and shapes (canned soups vs. tuna vs. pet food, large/ small, square/ round). Install drawer dividers and add extra shelves to avoid high stacks of stored items. Make shelves shallow— one box or can deep. Subdivide drawers to make it easier to find objects by touch. Place adequate storage within reach to avoid using ladders to access high cabinets. Place ample storage near appliances— for example, pot holders near the oven, spice racks near the cooktop, coffee supplies near the coffeemaker, baking supplies near the mixer.

Built-in cabinets for microwaves and wall ovens should be placed within the cook’s comfort range for safe operation. White push-buttons on a black background make an appliance accessible for those with low vision.

CONTROL SAFETY AND COMFORT WITH AN ELECTRICAL PLAN Good task lighting improves kitchen safety by making it easier to see what you are doing.

Each kitchen has many identities. One goal of lighting design is to vary the light levels to suit these identities. For a gentle glow on the floor as you shuffle in for a late-night snack, go with ambient lighting. For bright lights on the cutting board surface, go with task lighting. Dim the lights to divert attention from dishes piled high in the sink, and use accent lighting to focus attention on gallery. Another goal is to locate the lighting controls so you never have to navigate in the dark.

Contrast electrical faceplate colors with wall colors to make them easier to see. A raised edge keeps spills off the floor.

kitchen; be sure to continue floor and wall finishes behind the cabinets to avoid the cost of patching-in later.

Bathroom

BATHROOMS ARE DANGEROUS places, and we all put ourselves in jeopardy several times a day. More than two-thirds of emergency room visits are due to bathroom falls.

“Design is not just what it looks like and feels like. Design is how it works.” —STEVE JOBS

**Bathroom**

* Comfort – ensure bathroom is warm.
* Safety – non-slip surfaces, automatic temperature controls.
* Automatic ventilation.
* Near bedroom, consider direct access.
* Cues such as open shelves to prompt actions.
* Maintenance – easily cleaned surfaces.
* Good lighting.
* Walls are strong enough to support.

Layout:

|  |
| --- |
| * The main bathroom (whether it is on the ground or the first floor) should be centrally located with ease of access from all parts of the dwelling. |
| * The bathroom windows should be large enough and located to provide maximum daylight for the bathroom. Typically, a bathroom will benefit from an east and south orientation to capture morning and midday sun. |
| * The bathroom door should be visually distinct through the use of colour or tone to make it clearly visible within the dwelling. |
| * Minimize or eliminate, where possible, any threshold between the bathroom floor and the hallway. While the bathroom floor may be tiled or finished with linoleum, in contrast to carpet or timber in the hallway, it is still important to minimize the color and tonal contrast at the threshold to avoid the appearance of a step. |

* Contrasting color, suitable finishing and optimum lighting can assist in safe and easy use of the bathroom. Bathroom door should open outward opening makes easily to access in case of an emergency. Provide desk lighting assist the user in achieve bathroom activities. Contrast the sink, toilet, and shower from their background and the floor. Contrast the handles of the door and drawers from their background. Slip resistant floor always recommended in bathroom floor. Fully walls tiled for easy cleaning.

|  |
| --- |
| * Use signage on the bathroom door to make it easily recognizable. |
| * Artificial lighting should be designed to provide high levels of even lighting with spot lights or similar feature lighting, such as downlighters or concealed strip lights, used to highlight specific areas or key objects such as sinks or WCs. |

**Location**

Bathrooms should be located close to

bedrooms, with simple unobstructed

routes between these rooms. Where

a person has reduced mobility a door

directly connecting the bedroom to the

bathroom should be considered.

**Ventilation** Automatic ventilation connected with light. Bathroom mirrors could be heated

electrically so that moisture does not condense on them.

**Shower:** showercontrols should be large and

respond easily to the touch, with large

push button controls recommended for

the principal on/off operations. Providing a shower with pre-set temperatures or alternatively provide a thermostatic control linked to the water supplied to hot taps to prevent the water reaching scalding temperature. Shower head should be adjustable in both height and direction. Shower doors should be as simple as possible.

**Taps**: avoid complex and mixer taps. Taps with short levers are preferred as they are easiest to use. Or the design that is the most person use is the best option. Same taps’ design throughout the house should be used. Hot and Cold labelling should be apparent and easily to distinguish (red/blue).

**Storage** should be large, well organized

around the tasks of the bathroom and

easily accessible.

Assistive Technology: Flood alarm, fall or slip alarm. Specialist bath plugs that automatically open to allow the water out when exceeds a specific level to prevent flooding. Devices that pre-set water temperature in taps and showers.

**Assistive technology**

**Telecare**

Flood detectors on the floor or skirting board below the wash hand basin or sink can detect a flood and transmit an alarm to a call centre.

Personal trigger alarms, such as pull cords or large button switches mounted on the wall low to the ground will initiate an alarm to a call centre after a slip or fall.

**‘Stand-alone’ devices**

Specialist bath plugs that automatically open to allow water out when the level exceeds a threshold may help avoid flooding which is more likely to happen and more difficult to deal with if the person has executive functioning difficulties.

Anti-scald bath and sink plugs designed to change colour at a temperature above 36 degrees centigrade help to prevent scalding by giving the person the specific instruction that the water is too hot.

More Details:

shallow sink, low mirror and windows, and generous toilet transfer space all improve accessibility.

Low shelves rather than grab-bars were designed so that a person with low hand-strength can lean on forearms rather than hands to support body weight during transfer to and from the toilet. What side of the toilet is farthest from the wall? Make sure the flush valve is on that side. May will need to make space for both the user and a caregiver.

A person with visual limitations needs extra light, subdivided storage compartments that give each object its proper home, and contrasting colors that make it easier to distinguish sink from countertops. In a home where someone is hard of hearing, locate the light switch on the hall side of the door, so that those waiting to use the bathroom can announce their presence when a knock isn’t enough. For someone with cognitive impairments, limit distraction by providing enough storage and workspace so that counters are not cluttered. And if reflections cause anxiety, remove mirrors or enclose them (for example, behind a custom-design cabinet panel).

AROUND THE USER’S MOBILITY NEEDS The accessible bathroom has a 30-in. by 48-in. space for mobility devices in front of each plumbing fixture and room to turn around in a wheelchair. You may need to install equipment such as a mobility lift within the bathroom or with a link to the bedroom. Convenient wheelchair parking space should be provided either at one end of an overhead lift or where the transfer occurs.

Consider the list below when designing bathroom storage:

Shower area: Hair-care products, shaving supplies, rolling shower seats.

Tub area: Soaps and face-cloths, hair-care products, rubber duckies, reading materials.

Toilet area: Extra toilet paper, sanitary products, wipes, medical equipment, portable lift motor and sling, transfer board, reading materials.

Sink area: Dental-care products, prescription and over-the-counter over-the-counter medicines, eye-care and contact lenses, ear/ nose/ throat products, first-aid supplies.

Vanity counter: Hair dryers/ curlers/ flatteners, hair-care products, accessories, clips, and make-up. Other storage: Bathroom linens, room-cleaning supplies.

Simple open shelves put storage just where it is most needed for the sink and toilet.

A mobility lift utilizes an overhead track to connect the bed with the bathroom. Sealed concrete floors and a synthetic shower surround with a tapered floor and drain combine for an easy-maintenance bathroom.

The toilet needs a grab-bar to one side, and a distance of 18 in. to the nearest wall or fixture on the other side.

Approached from the front, the sink needs a 34-in. maximum rim height and at least 27 in. for knee clearance, and removable cabinets below the sink.

least a 32-in. door clearance, and the door may swing either in or out.

DESIGN CURBLESS SHOWERS FOR SAFETY Curbless showers can be used by everyone. By shaving off the top surfaces of joist framing

Collapsible rubber dams can be installed to contain water in the shower. Size the shower for either a transfer seat (36 in. wide) or for wheelchair roll-in (60 in. wide, large enough for turns and assists). Design shower seat heights for the user’s comfort, usually 17 in. to 19 in. high.

Shower accidents are five times more likely to occur while getting out rather than getting in, and are disproportionately common 24, so sturdy grab-bars should really be in all shower areas floor materials such as textured tile or a slatted wood tray over a concrete floor.

Locate a towel shelf or hook within easy reach for drying off before exiting the shower. Place shower controls so they can be operated without the user getting wet, and locate a rolling shower curtain above a sloped floor so that water is deflected back to the drain.

Grab- bars on all three shower walls.

GRAB-BARS A person falling will grab hold of anything nearby, but towel bars and robe hooks are not engineered to support human weight. to install them later. Plywood sheathing 4 ft. high on all bathroom walls gives flexibility for locating bars. disability, planning now will save money and time later. Specify grab-bars that are 11⁄2 in. to 2 in. diameter, either round, oval, or square with eased edges and with a knurled, nonslip surface. Mount the bars 1 1⁄2 in. from the wall to prevent entrapment. Install bars to withstand a 250-lb. load in any direction. Grab-bars beside the toilet may be Toilet: Side and rear walls. Tub: Two bars on the side wall at standing and sitting reach ranges, one bar at the foot (control end) and one bar at the head if a removable seat is used. Shower: All three walls in a roll-in shower, and two walls in a transfer shower (beside and in front of a seat)

There are so many choices for tubs that it should be possible to find the right balance of therapeutic features, Install tub controls near the front edge to avoid a long reach.

Limit water temperatures in the tub and shower to 120 ° F (49 ° C). Provide a hand shower with a hose at least 59 in. long, making sure the spray is, Select large lever-type controls that are easy to see and operate.

DESIGN TOILETS FOR INDEPENDENCE standard seats (14 in. to 15 in.) are a little low for people to get on and off safely. “Comfort height” toilets raise the seat by a couple of inches, and wall-hung models can be mounted at a height that.

DESIGN SINKS FOR CONVENIENCE Accessible sinks have clear space below for knees and footrests for a person in a wheelchair, with a 30-in. by 48-in. approach space to the front. They also have surfaces nearby for all the paraphernalia that is used near the sink. Vanity counters with Locate the vanity at a comfortable height above the floor— 29 in. to 34 in. for seated use— and use a shallow sink for easy reach into the bowl. Locate lever controls beside rather than behind the sink. Enclose or insulate plumbing pipes to protect legs from being injured by hot pipes.

Mirrors over sinks should have the lower edge not more than 40 in. high, and other mirrors should not be more than 35 in. above the floor. A full-height mirror should be placed somewhere in the home, and the bathroom is one good location. Install mirror defoggers— electrical fabric that keeps mirrors warm— for clear mirrors when the room gets steamy.

so getting the lighting right without causing glare can be a design challenge. Dimmers give you the best of all worlds: brightness with softness.

A timer for the exhaust fan conserves energy by making sure the fan turns off after a given time— a nice feature for. people who may forget to flip the switch.

For a home where people have hearing loss, place lighting controls on the hall side of the bathroom door, so that those who want to use the facilities can give a visual signal that they are waiting. Finally, place grounded electrical outlets where they can easily be used for

The apron panel below the vanity is a good place for outlets, as they can be reached without stretching across the counter or having the electric cord come into contact with the water.

**Bathroom Wall mounted sink and WC makes the cleaning the floor easier and gives more spacious feeling. Use grab rails to assist the person transportation*.***

**Sleeping and dressing:**

According to the Centers for Disease Control, improving people’s sleep habits would reduce the incidence of chronic diseases such as diabetes, cardiovascular disease, hypertension, cancer, obesity, and depression, as well as improve the management of these conditions. It would avoid over 56,000 reported highway accidents each year and over one.

Open shelving puts everything within sight and within reach.

homeowner, who uses a wheelchair, prefers the swinging door when he needs to carry a lap-full of clothing fresh from the laundry.

“If I were asked to name the chief benefit of the house, I should say: the house shelters day-dreaming, the house protects the dreamer, the house allows one to dream in peace.” —GASTON BACHELARD, PHILOSOPHER

transfer space onto the bed. High ceilings add visual interest for a person lying down. QUIET Provide acoustically absorptive surfaces such as carpets and window coverings to reduce unwanted sound, both internally and from adjacent parts of the home.

replacing windows to add another layer of glazing. By locating closets between bedrooms, or between the bedroom and a noisy street, the walls and clothing also provide acoustic benefit.

DARKNESS The ability to regulate natural light is critical in making a room conducive to sleeping well. If you’re planning a new home, consider locating the sleeping areas on the east side to help calibrate the body’s circadian rhythms (internal clock) to nature. if you have trouble sleeping you may want to have the bedroom facing west where mornings are darker.

WINDOW COVERINGS

Low windows connect the home with the natural world outdoors and also bring in the sun’s warmth— important qualities for a homeowner who uses a wheelchair.

Window coverings regulate daylight to block glare from the sun, and they also help control indoor air temperatures by reducing air flow through the glass. Window coverings come in a variety of styles— shades, curtains, draperies, shutters, Knowing your functional requirements makes styling decisions a little easier.

Operating systems come in manual and motorized versions, which have the advantage of removing cords that can pose a tripping or tangling hazard. Window coverings can be controlled either individually or in groupings, depending on how sunlight travels through the room.

operated by either remote or by wall switches. For hard-to-reach windows or with dexterity limitations, choose motorized controls.

Multiple window coverings control heat loss and daylight to make a comfortable indoor environment.

Consider skylights and high windows for daylight without giving neighbors a view inside.

LIGHTING An approach to artificial illumination that works well in other areas of the house— ceiling fixtures— fixtures— is seldom right for the bedroom. For reading in bed, consider swing-arm fixtures or sconces mounted on the wall beside the headboard, or lamps set onto nightstands; you want fixtures that do not shine in the eyes of someone who is trying to sleep. Gently light the path of travel to critical areas such as the bathroom.

For added convenience, make sure any lighting controls can be operated from beside the bed, as well as upon entering the sleeping area.

**Clean Air**

In general, use natural and nontoxic materials, biocide-free products, and low-VOC (volatile organic compounds) paints in neutral colors.

THE PSYCHOLOGY OF COLOR Colors have a strong effect on our moods and behaviors, and many believe these effects are universal.

Many designers of healthcare environments apply the same principles in choosing paint colors. Here are some of the qualities associated with colors: Yellow: cheery Orange: energetic Red: stimulating, comforting Purple: spiritual, exotic, wise Blue: serene, ordered, sad Green: natural, healthy, fertile, tranquil White: pure, innocent, sterile, bland Brown: reliable, conventional, down-to-earth Black: powerful, mournful, life and rebirth This list suggests we should all have yellow kitchens and blue bedrooms, but personal experiences and cultural traditions also influence choice. Think about how colors make you feel when decorating.

DESIGN SAFE AND SECURE BEDROOMS Design the bedroom layout Create a generous path of travel connecting the bed with related spaces such as the bathroom and clothes closet. Make sure there is a 30-in. by 48-in. clear approach space on both sides of the bed and a 5-ft. clear floor area for turning; room, locate windows and doors to control daylight and privacy.

A sturdy metal-latticed headboard helps the homeowner shift position in bed, as he can grab it to turn his body during transfer or to reach the alarm clock.

Make sure the bedroom has ample and convenient storage, including the following: Shelf space for essential items beside the bed— alarm clock, watch, glasses, reading materials, tissues, phone, remotes, water bottles, and so on. Hooks for transitional clothing such as pajamas and bathrobes. Hampers for dirty clothing. A wardrobe stand or bench to lay out clothing for the next day. A designated parking area near the bed for mobility and assistive devices.

CUSTOMIZED STORAGE Clothing storage is not a one-size-fits-all matter. People who live in colder climates have to store clothes for four seasons.

CLOSET DESIGN Whether in the kitchen, family room, bathroom, or sleeping area, accessible cabinetry has similar hardware requirements. Use easy-glide drawers and large C- or D-type pulls rather than knobs. Locate closet rods within the user’s reach range, usually less than 48 in. above the floor for someone who uses a wheelchair. Design bench seats, where used, at 17 in. to 19 in. above the floor. Choose closet doors (pocket, sliding, bi-folds, or outswinging) to maximize usable space in the room, or omit doors altogether.

DESIGN DRESSING AREAS TO PROMOTE INDEPENDENCE Knowing how a person gets dressed allows the designer to plan a space that works. Install grab-bars useful for self-assisted standing. Provide space for turning about in a wheelchair or for having a caregiver assist with getting dressed.

Make sure there is adequate space under the counter for knees and a wheelchair footrest. Include mirrors in the plans as space permits. At least one should be full height.

One of the last stops on our virtual tour of the home, will be the utility areas, which also include the garage and mudroom.

**Utility spaces**

MUDROOMS, LAUNDRY ROOMS, and garages: three messy rooms, workplaces to be blocked off with closed doors when.

Mudrooms do not need to be large— a short length of wall with hooks is enough— as long as the path of travel and storage are both accessible.

the mudroom must be large enough to maneuver in safely, free of swinging doors that intrude on usable floor space. This means a 36-in.-wide path of travel and a 30-in. by 48-in. space beyond the arc of the door swing and in front of storage areas.

Dark colors make the mudroom easy to keep clean. The room contains a charging station for the homeowner’s power wheelchair. Provide a container so that mail does not clutter the floor and is easy to retrieve without bending down.

Open shelving beside the front entrance provides a handy place to put things when entering or leaving the house. The top surface is sized within reach of the person using it.

BENCH DESIGN Design benches at the same height as a wheelchair seat, usually 17 in. to 19 in. high. If back rests are provided, place them 18 in. high above the bench, and not more than 2 in. above, or 21⁄2 in. behind, the seat. A bench seat should be at least 42 in. long and from 20 in. to 24 in. Consider adding grab-bars on a wall beside the bench, but not behind it.

Provide wall hooks for navigational canes to show consideration for guests with low vision.

DESIGN CONVENIENT LAUNDRY AREAS

For people with disabilities, laundry activities offer a way to stay engaged with housekeeping. Locating the laundry near the center of the home shortens travel distances, an important quality for those who have difficult moving around. main hallway connecting bedrooms makes it easy for children to learn skills of independence and self-care, while the wide hall doubles as a staging area. reach. Side-by-side machines designed for front-loading are more convenient for a seated user, and Appliance doors should be no more than 36 in. high for top-loading washers, or from 15 in. to 36 in. high for front-loaders.

LAUNDRY CHUTE If you need to put the laundry on a lower floor from the bedrooms, consider installing a chute, with the opening both small and high enough to prevent people falling through, yet low enough to reach easily inside.

disabilities. For those with low vision, rotary dials with pointer indicators that click audibly into distinct positions allow the user to track the wash cycle by feeling the arrow location. Push-buttons with audible tones are made more user-friendly when the button surfaces are embossed. For improved visibility, choose appliance controls with large bold lettering, contrasted strongly with background colors, and display screens that produce less glare.

Outdoor places YARDS ARE THE OUTDOOR equivalent equivalent of indoor living areas, and with a little planning, the yard can have something for everyone. Whether disability occurs suddenly or lost. But by linking outdoor activity areas on a safe and sturdy path of travel, the accessible home puts the natural world.

An open porch near ground level makes a sunny spot to sit for much of the day. Extending the porch out into the yard gives views in several directions and increases natural ventilation.

For a person living with disability, indoor– outdoor activity areas bring the natural world and all its benefits within reach.

OPEN PORCHES When the yard is inaccessible, porches of all types provide another way to connect with the outdoors. With a roof and a deck but no walls, the open porch can be simply an extension of the entrance landing or an outdoor room in its own right.

DECKS A deck is a roofless porch, and an appropriate substitute where weather protection is not needed. Many decks are extensions of indoor living areas, transitional

homeowner who is blind had a cable installed alongside a pathway on his lot so that he could navigate using a white cane. One yard, accessible outdoor places, plan wide pathways with gentle grades, ramps, and handrails for.

CHOOSE OUTDOOR FURNISHINGS FOR DURABILITY AND COMFORT

logistics. Install built-in furnishings to keep the path of travel clear for a person with low vision or assistive equipment. these features is on an accessible path of travel and has an adjacent 30-in. by 48-in. space for a wheelchair.

SAFETY FIRST Choose pavement materials that are firm, slip-resistant, and sloped slightly so that water does not accumulate on walkways, and provide handrails where needed for stability. Paving made from recycled rubber tires makes a surface soft enough for falling, but also firm enough for using a tricycle or wheelchair.

ACCESSIBLE GARDENS

Use window boxes for small plants such as a kitchen garden. Incorporate vertical gardens into a retaining wall or as part of a privacy screen. Smaller container gardens are easier to water and to weed than large gardens and make the joys of working with plants accessible to everyone. As with any garden, be sure you have a source of water nearby, and a handy place to store yard tools.

CONTAINER GARDENING Grow plants in rolling containers that can be moved around to absorb sunlight or define different seating arrangements. Choose containers in colors that contrast with the pavement so they can be more easily seen by partially sighted gardeners and visitors.

Looking closely at activity centers both inside and outside the home, we gain a new image of the home. Rather than have walls and doors define activity areas, the accessible home is open, more like a loft on the interior. Bedrooms and bathrooms are linked with pocket doors and wide hallways to create a spacious private zone within the home. Kitchens and utility spaces are designed like the cockpit of an airplane: tightly coordinated workspaces, where everything needed is within easy reach. Living areas inside the home are coordinated with those on the outside by a seamless path of travel. Building systems— such as acoustics, lighting, and environmental controls— make each living space comfortable and safe. High-quality materials and well-constructed details reduce maintenance costs and chores. The accessible home promotes independence for its residents and is a welcoming presence for visitors.