

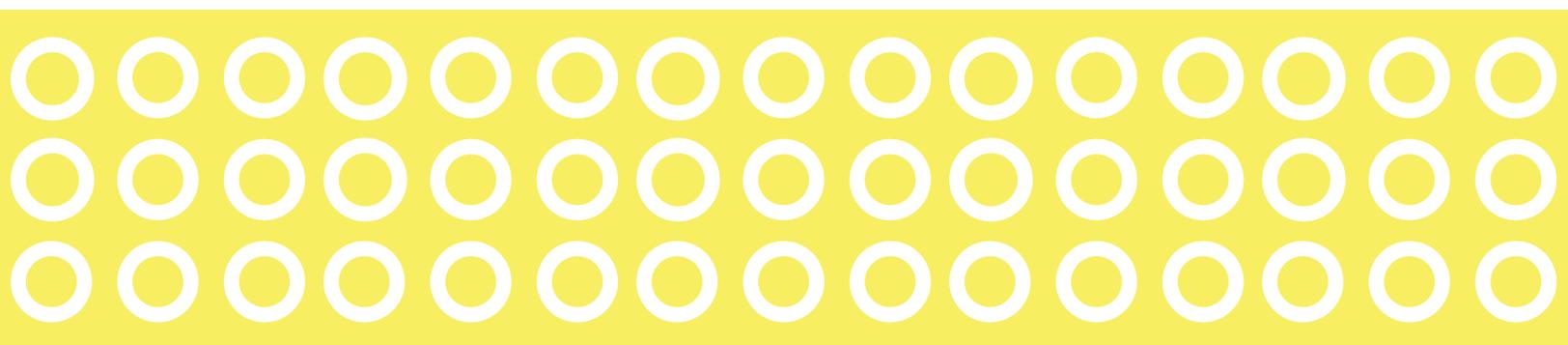


# AGING IN PLACE

---

*With SmartCells Cushioning Technology*

[www.smartcellsusa.com](http://www.smartcellsusa.com)



**Stability.**

**Comfort.**

**Safety.**

*We'll be there when you can't be.*

Because life in your golden years shouldn't be limited.

# Humans are creatures of habit.

We tend to stick to things we like and seldom travel outside of our comfort zone of familiar friends, food and places. However, as we age, things start to change, from friends moving away and growing apart to physical and mental changes. As more things change, we tend to gravitate to familiarity in our life, usually family and our homes.

*According to a recent poll conducted by the American Association of Retired Persons (AARP), over 87% of adults over the age of 65 wish to age-in-place. <sup>1</sup>*

The purpose of this guide is to inform you on the recommended options available when it comes to helping your loved one age in place.

This trend of aging in place has raised concerns among health care officials and younger loved ones regarding the safety and mobility of this increasingly independent yet vulnerable retired generation. This, along with many other reasons including: an increased feeling of independence, a comfortable and familiar environment, and close proximity to family, is 90% of a senior's desire to age-in-place.

The ability to safely age-in-place is most successful when seniors have the support of loved ones and living quarters that have been strategically designed to increase safety and mobility. This helps to reduce the risk of a possible injury from falling. We will explore each aspect of a typical house and discuss possible aging in place modifications that can be made to ensure your elderly loved one's safety.

We know that decisions regarding the care of your loved one can quickly become stressful. To ease your stress and ensure your loved one enjoys independence safely for years to come, our Fall Injury Prevention team has shared their expertise and insights regarding safe and efficient Aging in place home modifications.

# Common Area Modifications

The popular trend of aging in place continues to grow as senior safety, monitoring products and senior friendly home design become increasingly more effective and reliable.



of Seniors prefer to Age in Place

*In fact, in 2009 93 percent of all Medicare enrollees over the age of 65 were already aging and living in traditional communities.<sup>2</sup> Further research suggests that an overwhelming 87 percent of seniors would still desire to age-in-place even if they needed day-to-day assistance.<sup>3</sup>*

We will begin by exploring common area (living room, hallway, entrance, etc.) modifications that can be strategically made to help your senior loved-one safely age-in-place.

## Doors and Room Entrances

In an effort to increase accessibility for all modes of mobility (walker, wheelchair, etc.) doorways should be a minimum of 32 inches wide. In fact, many aging in place experts recommend that doors be 36 inches wide. This allows easy access to any room without fear of banging knuckles or wheels.

Since it can often be difficult to open round door knobs, all knobs should be replaced with door levers. In addition, keep doorways free of clutter and hinges greased so that they can easily be opened.

## Room Storage

Often common areas are home to book shelves, cabinets and storage drawers. These areas should be kept neat and items should be within easy reaching distance to prevent your elderly loved one from having to bend too far or stand on their toes or a stool to reach an item.

Hardware on cabinets and storage drawers should also be replaced with a knob that can easily be grabbed. Another great feature are storage cabinets or shelves on sliders so that seniors can reach items in the back of the shelf/cabinet without having to reach too far.

## Hallways and Staircases

Transition areas should always be well-lit and kept free of clutter. If possible, keep these areas clear of power cords. However, if this is not possible, make sure that the cords are positioned out of the way, or under taped cord covers that allow wheeled objects to easily roll over them. It is also smart to utilize night lights that can operate even in a power outage. Make sure hand rails are fastened securely to the wall. If you have a balance impaired loved one, strategically place grab rails throughout transition areas.

# Common Area Modifications

## Miscellaneous

Since these areas are often used to congregate, read or watch tv, lighting is important. Low-lighting can be difficult on the eyes when trying to read or focus and also dangerous when trying to navigate.

*Finally, make sure the thermostat can easily be reached by your elderly loved one and train them on how to use it.*

## Flooring

Make sure any rugs, carpeting, laminate or wood flooring is safely secured. Use non-slip grip under rugs and on steps to prevent tripping. If you have any loose floorboards or curled-up laminate edges make sure these are repaired immediately to prevent a slip, trip or fall.



# Bathroom

Did you know that a whopping **69%** of all falls occur in the bathroom?<sup>4</sup>



When it comes to falls, statistics show that 69% of all falls take place in the bathroom. The combination of steam, water, smooth flooring and transitions to-or-from the toilet or shower/tub, easily make the bathroom one of the most dangerous places in your house.

Considering the dangers of the bathroom and the fact that it is one of the most highly used rooms in the house, the bathroom is the one room in a house that should receive the most attention, and consequently most budget.

The following list of modifications range from inexpensive and simple, to complex and higher budget solutions.



## Location

Having the bathroom in an easy-to-access location is a critical starting point. While the ideal aging in place home is a single level, with the right modifications, it is possible to live in a two-story house safely. If your elderly loved one wishes to age in a multiple-story residence, make sure there is a bathroom optimized for safety on each floor. This will make it easier for your loved one to access the bathroom without having to rush.

## The Toilet

Transitions between standing and sitting are considered the most dangerous and run the highest risk for a potential fall. To reduce the transition distance between standing and sitting, the toilet seat height should be optimized for your elderly loved one. This can be accomplished inexpensively with a toilet seat extender, or more expensively with an all-new toilet. We also recommend moving the toilet paper holder to a location that is easily reachable from a sitting position.

# Bathroom

## The Shower & Tub

A close second to the standing/sitting transition in regards to potential risk of injury is the transition between getting into-and-out of the bath or shower. This is where bathroom remodels can get expensive in a hurry. To keep the risk for a slip or fall injury at a minimum, the shower or tub should have a short threshold to enter. If the bathroom has a tub in which the elderly loved one needs to lift their feet more than a couple inches it should be replaced.



The bath or shower should ideally be a walk-in design. In fact, there are several bath and tub manufacturers that create sit-in tubs with a door designed to allow your elderly loved one to safely access the tub. If your elderly loved one is in a wheelchair, a curb-less entry with a minimum width of 36 inches is necessary. Finally, installing an anti-slip pad or coating in the tub can help minimize the risk of a slip-related fall.

## Odds & Ends

Similar to toilet height, the height of one's sink also plays a big part in injury prevention. The sink height should be set to prevent your elderly loved one from having to bend over or stand on their tippy-toes to safely wash their hands.

***Grab and towel bars should also be strategically placed throughout the bathroom: close to the sink, shower, and toilet.***

These will provide your loved one with a place to steady themselves and will also prevent them from having to traverse out of the shower sopping wet. To prevent slips, trips and falls, the floor should always remain free of water and towels.

The bathroom should also be spacious and free of clutter. Having the space to safely maneuver a walker, cane, wheel chair, or any other mobility device will help reduce the risk of a mobility-related incident. If a cane is used, it is important to provide a hanger or a spot to lean the cane so it does not end up flat on the floor and difficult to reach when needed. It is also a good idea to remove any area rugs or trip hazards that are on the floor.

# Bedroom

A study released in 2011 found that beds and other bedroom-related furniture caused the 2nd most consumer product related injuries.

*According to the study, more than 360,000 seniors over the age of 65 were treated in emergency rooms for injuries caused by bedroom furniture.<sup>5</sup>*

For many people their home is considered their safe haven, a place where they can roam freely without fear of being in danger. However, if their home is not properly kept up and strategically designed for aging in place, then the home can quickly become a dangerous place. Considering seniors spend a majority of their time in their bedroom, the bedroom is typically one of the first places aging in place modifications should be made.

There are many changes that can make a bedroom safer for those aging in place. However, before any of these changes are made, it is important that the bedroom is easily accessible and close to other commonly used rooms, especially a bathroom. Ideally, the bedroom would also be located on the same level as other rooms so that your elderly loved one does not need to climb or descend any steps.

## Can You Hear Me Now?

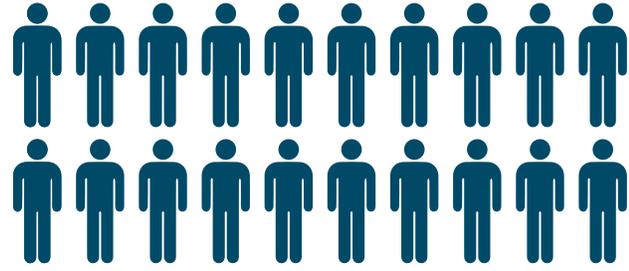
An important addition to your elderly loved one's bedroom is an easy-to-reach phone. Experts recommend locating the phone close to the bed and using a corded phone setup to prevent problems with lost handsets or handsets with dead batteries. It is also in good practice to have a spare phone battery close to the bed, in case the power goes out. Also, a corded phone does not need power to operate.

## The Space Case

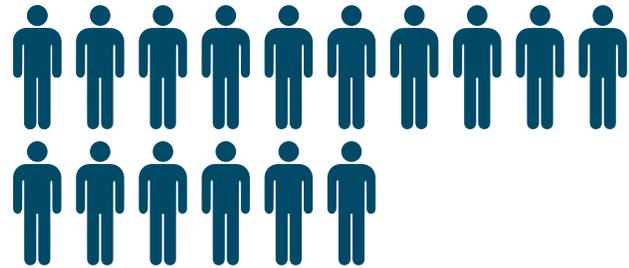
Bedrooms and closets come in all shapes and sizes. Utilizing storage drawers, easy-access shelving, and a simplistic bedroom design will help keep clutter off the floor and out of walkways. Make sure there is enough room to maneuver through the room comfortably with walkers, wheelchairs, or any other walking devices. Having laundry hampers nearby is another great way to keep the room free of clutter. Finally, if your loved one has a television in their room make sure it is fastened to the wall and the remotes are close to the bedside.

## Get Alarmed

Make sure your elderly loved one's room has a smoke alarm as well as a carbon monoxide alarm close to the bed. If your loved one is hard of hearing, installing an alarm that will also flash can help increase the chances of them noticing it in case it goes off. Finally, keep fresh batteries in all alarms throughout the house. A good rule of thumb is to change the batteries with the change of the season. Personal alarms worn on the body can be an important tool in case of a fall. Activating the alarm typically sends a signal to emergency personnel or the seniors loved ones.



**36 x 100,000**  
ER visits caused by bedroom furniture



# Bedroom

## The Furniture

Bedroom furniture should be appropriately sized for your elderly loved one. The bed should be a height at which it is easy for the senior to easily get in or out of without having to stretch or bend over too far. Adding a chair to the room is a great way to increase your senior's safety because they can sit in it while dressing.

## Flooring

Much like any other area in the home, make sure the bedroom carpet, laminate or floor boards are properly fastened to prevent tripping hazards. In addition, put non-slip grip under any rugs to prevent them from sliding or curling up on the edges. Area rugs can be a huge factor when it comes to tripping. If possible, we recommend removing area rugs to avoid unnecessary trip hazards.

***SmartCells® Fall Injury Prevention mats and flooring are stable, don't slip or curl, and help prevent falls and serious injury without compromising accessibility for your loved one.***



# Kitchen Area Tips

## DID YOU KNOW?

*14% of injuries in the home amongst persons aged 75 and older take place in the kitchen.<sup>6</sup>*



**of all falls occur in the kitchen area**

The kitchen is often the hub of gatherings and contains many potential risks for seniors. However, due to the many inherent dangers of a kitchen, it is often a room elderly loved ones tend to avoid. This avoidance of the kitchen can lead to many health and nutrition issues and could ultimately put your loved one in the hospital. For this paper, we will focus on how to make your elderly loved one's kitchen more accessible and safe. Simple changes can be made to a kitchen with little effort and minimal expense to make the kitchen a safe zone.



### Lighting

Keeping the kitchen safe starts with comfortable lighting. The bulbs should be bright yet not so bright that they blind your elderly loved one from reflections off kitchen surfaces. Making sure the bulbs do not flicker or take too long to get bright is another important point to review. Light switches should be easily accessible and located at each entrance to the kitchen.

### Location

If you are searching for an aging in place home for your loved one, keep kitchen location in mind. The best case scenario is to have a single-level house with the kitchen centrally located. If they already live in a house and would like to stay there, encourage them to arrange the living space so the kitchen is not far away from most activities which may require remodeling.

# Kitchen Area Tips



*Finally, store dishes close to the sink and/or dishwasher to prevent them from having to move too far to put dishes away.*

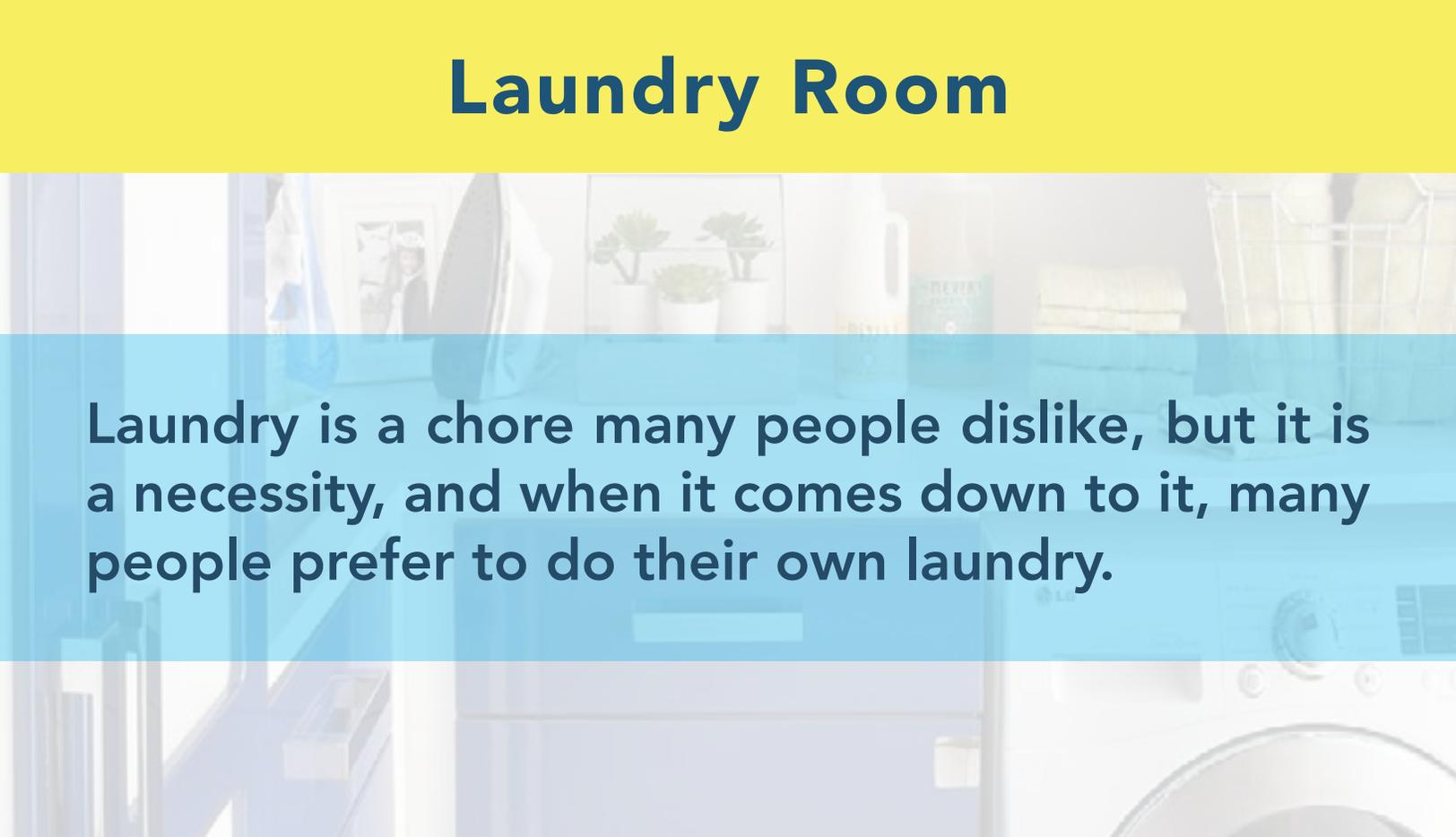
## Clean Up and Eliminate Risks

Keeping the kitchen space tidy and clutter free will go a long way in keeping your elderly loved one safe. Senior safety experts recommend disconnecting the garbage disposal to prevent any unnecessary accidents. Make sure any spills on the floor or counter are wiped up immediately to prevent slips. Removing the knobs from the stove if they no longer cook for themselves will prevent accidents from happening should they turn it on and forget to turn it off.



PHOTO FROM [WWW.AGEINPLACE.COM](http://WWW.AGEINPLACE.COM)

# Laundry Room



Laundry is a chore many people dislike, but it is a necessity, and when it comes down to it, many people prefer to do their own laundry.

## Location

Making sure the laundry room is in an easily accessible and safe part of the house is important. Since laundry baskets can quickly become full and heavy, having the laundry room in close proximity to the bedroom is essential. Each foot further your loved one has to carry their laundry basket, their risk of an injury or fall increases exponentially. A rolling hamper is an inexpensive investment that eliminates carrying heavy baskets and provides something to lean on while moving the laundry. If the laundry room cannot be moved to the same level as the bedroom consider a chair lift, laundry shoot, or elevator.

## Laundry Room Design

Once you have settled on the location, it is time to think about how the laundry room will be set-up. At a minimum, the space should be easily accessible by walker, wheel chair or any other mobility device. If the living area is small and the washer and dryer are in a hallway or a fairly small room, consider changing the location of the appliances or increasing room space by removing/moving walls.

*To prevent your loved one from having to bend over or reach over their heads, the laundry soap, fabric softener, iron, ironing board, dryer sheets and any other laundry chemical/tool should be close to the laundry appliances and within easy reach.*

Further, consider installing a wall-mounted ironing board, so it can easily be stored out of the way when it is not in use.

# Laundry Room

## The Appliance Matters

When it comes to choosing the right appliance, you have many options but we recommend opting for a front loading washer and dryer. This will reduce the need for your loved one to strain over lifting or pulling clothes out of the appliance. Several companies make pedestals to place the appliances on to make them even easier to access. You will also want to be considerate of how the appliance is operated. Does it have buttons or use a knob? Using buttons and color-coded stickers will make it easier for loved ones with poor eyesight. If the appliance is operated with knobs, make sure they are big and can be twisted easily.

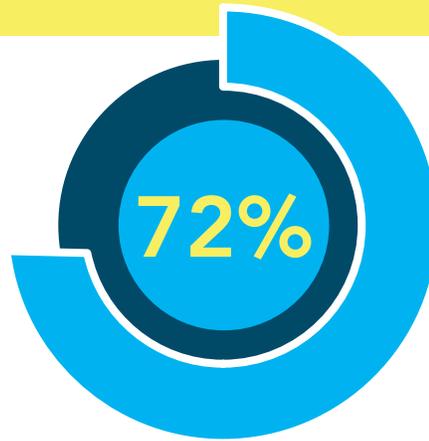


PHOTO FROM WWW.HASEGAWAHOME.COM



# Exterior Modifications

A study published in the American Journal of Public Health found that falls occurred outdoors more often than indoors amongst most age groups.



of outside injuries are caused by tripping.<sup>7</sup>

*Furthermore, 72% of outdoor falls for people over the age of 45 occurred due to environmental factors such as uneven surfaces, slipping or tripping on objects, and poorly maintained walkways.<sup>7</sup>*

When it comes to aging in place modifications, the exterior of the home is usually the last place to receive any love. However, when you take into consideration the facts that, the exterior of the home is a hub to the outside world, and elderly



people have an increased risk of experiencing a fall-related injury outside, outdoor aging in place modifications quickly rise in importance. The following are some ways you can show the exterior of the home some love and increase their safety.

## Entrances

What good does an aging in place optimized house do if it is dangerous to enter? The entrance is perhaps one of the most important aspects of an aging in place house. Keeping your loved one's future mobility in mind, it is recommended that the door has a no lip entry and a ramp instead of stairs. The ramp should be built to ADA requirements and equipped with a non-slip surface and hand rails.

If the doorway is not already covered, you will want to consider your options for covering it. This will help minimize the amount of precipitation that accumulates there. Furthermore, a bench or shelf located next to the front door is helpful for when your loved one has their hands full. It will keep your loved one from having to bend over to put stuff down when they need to get keys out.

Finally, the door should have a lever-type knob, and in case they forget their keys, an optional key-pad unlock or hide-a-key will keep them from being locked out.

# Exterior Modifications

## Lighting

Much like inside the house, the exterior should have plenty of lights available. Solar-powered lights are a great option for areas that get plenty of light. All walkways, the front door and each side of the house should be amply covered with lights. Since it may be hard for your loved one to remember to turn on the exterior lights, having them on a time or motion sensor is the best option. Some companies also offer lighting systems that can be operated by smart phones.

## Walkways

Most outdoor falls can be attributed to uneven surfaces and walkways that are poorly maintained. With this in mind, keeping your loved one's walkways safe is of the utmost importance.

Shrubbery and trees should be kept trimmed and off the walkway. If your loved one has a walkway lined with gravel or bark, consider having a curb installed to keep it from finding its way onto the walkway. Finally, any cracks or lips should be removed and fixed immediately. Slippery conditions such as moss should also be addressed.

## Maintenance

Keeping up on house maintenance can be overwhelming for anyone, especially for seniors. It is important to keep up on maintenance because it is easier to repair small issues than big ones. If you are not handy, having a contractor you trust is important. In addition to maintenance, you will also want to consider hiring groundskeepers to keep the lawn mowed, weeds pulled and vegetation trimmed.



# Garage

**Among the many reasons seniors wish to age-in-place, perhaps the two most popular reasons are the desire to live in a familiar and comfortable environment, and more importantly, the desire to remain independent.**

When designing and optimizing your elderly loved one's house it is important to keep these two goals of aging in place in mind in all areas, including the garage.

Even though the garage isn't a high-use place it is equally important to the independence and safety of your senior because it is another hub to access the outside world. As with any room, the garage should ideally be located on the main floor of the house.

Here are some smart modifications that can be made to your loved one's garage to keep it safe and accessible.



## Storage Wars

Let's face it, often the garage becomes the storage room for all the furniture, knick-knacks, odds-and-ends, tools, and things we don't have space for in the house. With all that stuff, the garage can quickly become a cluttered and dangerous environment.

Adding adjustable storage shelving, racks and tool storage will help keep the floor free of clutter and ensure your loved one has space to maneuver safely around the garage with a car parked in it. A convenient feature is to use storage shelves on rails with plastic totes. This will make it easy to keep the garage in order and help the homeowner find whatever might be needed.

***In addition, if there are multiple vehicles in the garage, it is a good rule of thumb to keep at least 5 feet between each vehicle and the walls. This allows doors to be opened fully and helps your senior access their vehicle safely.***

# Garage

## The Doors (Not the band)

Entering and exiting the garage should be easy for your loved one. Entry doors should be easy to open and lock. Ideally, these doors should have levers instead of knobs and should open fairly easily. Furthermore, make sure the doors are at least 36 inches wide to accommodate wheelchairs easily.

To make it easier for your loved one to get inside, there should be a no step entry into the house. If there are steps, consider installing a ramp with a railing. The garage door should be equipped with an automatic opener. To make it easy on your loved one you should consider investing in openers for each vehicle as well as a keyless pad entry in the off-chance that the garage door opener cannot be found or does not work.

## Lighting The Way

Most of the time garage lighting leaves a lot to be desired. Make sure the garage has plenty of light with switches by each door. In addition, many companies make light switches that can be controlled by a smart phone or on a timer. This will keep your loved one from having to get out of the car to shut the lights off when they leave.

## Flooring

Garage flooring is often a slick and unforgiving surface. This combination greatly increases the chance of a fall and fall-related injury. Using a non-slip coating on the floor will greatly reduce your loved ones risk of a fall.



# Final Thoughts

*Despite all of your hard work to keep your loved one safe while they age-in-place, the unfortunate fact is that they are still at risk of experiencing a fall. That is why a cushioning surface should be installed to reduce the likelihood of an injury.*

SmartCells Fall Injury Prevention Flooring and mats provide a stable and safe solution that allows your elderly love one to age gracefully and independently while giving you piece of mind that they are protected.



SMARTCELLS FLOORING INSTALLATION



FINISHED INSTALLION WITH FLOOR COVERING

Designed and engineered using the proven SmartCells Cushioning technology, our suite of Fall injury prevention products help prevent falls and serious injury without compromising accessibility. The unique SmartCells dual-stiffness technology provides stability for balance impaired persons and caregivers, while at the same time providing life-saving cushioning to protect loved ones when they fall.

Available in pre-sized mats, wall-to-wall flooring and custom applications based on your specific needs, SmartCells® fall protection products provide the security of being there when you can't be to reduce the likelihood of fall-related injuries.

SATECH, Inc., the maker of SmartCells, is a technology company that specializes in the development and marketing of SmartCells cushioning solutions that enhance performance, reduce fatigue and help prevent fall-related injuries. SmartCells mats and flooring have broad application in the industrial workplace, injury prevention, healthcare markets, and everyday consumer households.

For more information regarding our SmartCells Fall Injury Prevention product suite, or to schedule a free no-obligation consultation please call us at 360-748-8711 or email [aginginplace@smartcellsusa.com](mailto:aginginplace@smartcellsusa.com).

## SmartCells® Fall Injury Prevention

*We'll be there when you can't be.*

# SmartCells

**Address:**

1769 Bishop Road  
Chehalis, WA 98532

**Phone:**

(360) 748-8711

**Email:**

[aginginplace@smartcellsusa.com](mailto:aginginplace@smartcellsusa.com)

**Website:**

[www.smartcellsusa.com](http://www.smartcellsusa.com)



# SOURCES

1. AARP - Page 3

Site: <http://www.aarp.org/livable-communities/info-2014/livable-communities-facts-and-figures.html>

2. America's Aging Population - Page 4

Site: <http://www.prb.org/pdf11/aging-in-america.pdf>

3. In Your Home USA - Page 4

Site: <http://www.iyhusa.com/AginginPlaceFacts-Data.htm>

4. Homesecuritylist.com - Page 6

Site: <https://www.homesecuritylist.com/home-safety-seniors/>

5. Consumer Product Safety Commission - Page 8

Site: <https://www.cpsc.gov/s3fs-public/2011rpt.pdf>

6. The National Center for Biotechnology Information - Page 10

Site: <https://www.ncbi.nlm.nih.gov/pubmed/10578721>

7. The National Center for Biotechnology Information - Page 14

Site: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1483851/>