

A Study to Determine the Need for Aesthetic Enhancement to Grab Bars

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## Abstract

This research discovers if there is or will be a need for either new designs or just a better-looking grab bar for the aging consumer. Grab bars are safety devices used to support the weight of a person with limited strength and mobility. These devices are usually located in bathrooms for the handicapped. More Americans are nearing their retirement years and may want to retrofit their homes to be comfortable and safe. With the aging of America will this population segment have to retrofit their existing homes or will the homebuilders accommodate them by building new homes with better-looking safety assistant architecture? The current market is flooded with industrial looking and designed grab bars. Users are not overcoming their associated negative stigma of being labeled disabled. In performing this research, information was gathered and made available through conducting a survey with twelve of the United State's largest homebuilders and builders of assisted living and retirement communities. These companies have the closest relationship with the aged. The outcome of the research illustrates: A) grab bars are needed in the bathrooms B) there is a market for a more pleasing design; however, that need must come from either the design firms or directly from the consumer or end-user C) When it comes down to what is important for the builder, it is first *need* and then *performance and looks* closely followed by *value*. During the research process, this writer found that there are better-looking grab bars available; however, they lack market penetration. The best way to improve market penetration will be through the voices of the consumers as well as from the increasing use of Universal Design.

## Table of Contents

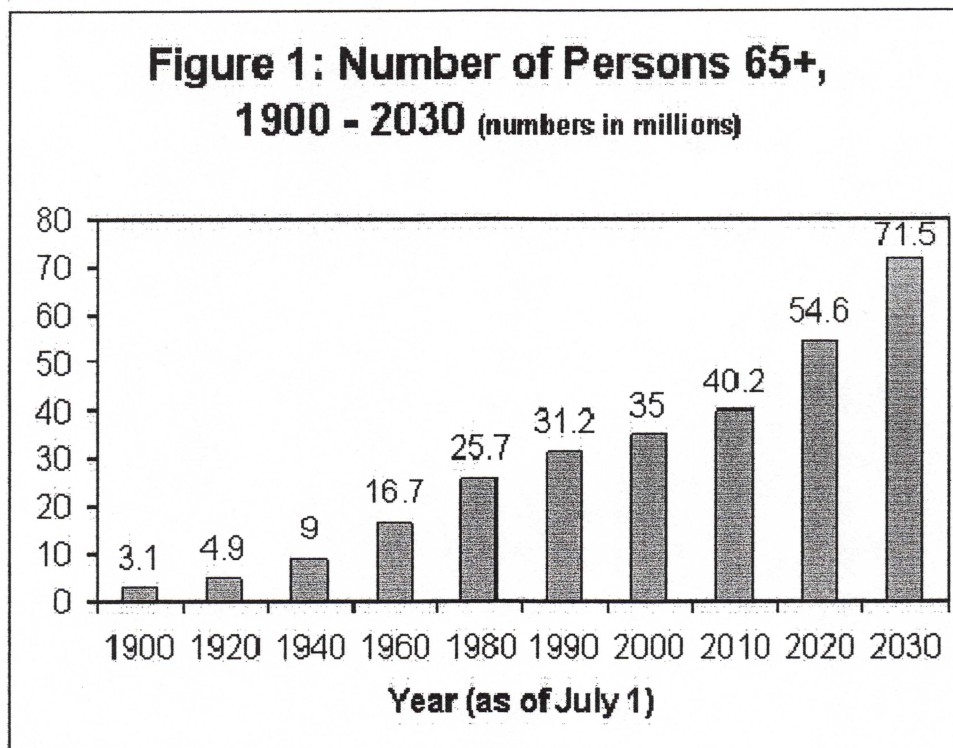
Abstract .....	i
Table of Contents .....	ii
Introduction-Research Problem .....	1
Literature Review .....	7
Survey Methodology .....	12
Analysis of Survey Results .....	13
Recommendations .....	19
Conclusion .....	22
References .....	23
Appendix .....	26

Introduction-Research Problem

This study determines if there is or will be a need in the near distant future for either a new design or just a better-looking grab bar for the aging consumer. If so, how much would the consumer be willing to pay for it. Furthering the understanding of how to modify existing product for consumer tastes, competition, or install ability.

- Institutional grab bars vs. aesthetical designed ones
- Aging population will need assistance
- Philosophical implications for using an institutional looking grab bar vs. an aesthetic one.

According to the American Association of Retired Persons (AARP.) in 1900, only 4% of our population was over the age of 65. As evidence of the growing population of Baby Boomers, the following chart indicates the progression of aging Americans.



Thirty years from now, more than one-half of the population of the US will be over the age of 50 (AARP 2000). As a demographic shift older citizens will comprise an increasingly large percentage of our population. America's 70 million Baby Boomers have influenced the construction industry with their new demands since becoming tax-paying adults. They have demanded new hospitals, schools, subdivisions, and malls. As the baby boom generation has aged, so have the main areas where their money is spent. When "Baby Boomers" had their own babies, lots of money was spent on products for children. Moreover, as Boomers grow into later adulthood, more money will be spent on products and environments that allow them to care for their parents, and in future years maintain their own independence as well. With 70 million consumers in the United States over the age of 50 who have a combined annual income of more than \$866 billion the group controls 77 percent of the total financial assets in the country and 1/2 of the discretionary spending power (AARP 2000). This dramatic change will significantly affect every aspect of society.

In 2000, (AARP) surveyed 2,000 Americans age 45 and older in a landmark study, *Fixing to Stay*. The findings stated that most want to stay in their homes as they age rather than move into assisted living arrangements. Will building contractors be poised to help sustain this fast growing population segment with the necessary products needed to maintain a person's independence in a home? How will this effect homes not initially designed for someone who may need additional assistance with their mobility or physical stability? Moreover, will builders anticipate the trend and begin installing these devices in all new homes?

Ordinarily data is collected over an extended period of time so design standards respond slowly to changes in society's makeup. Typically, the process of planning, design, and manufacturing of any product is lengthy. Therefore, changes in design standards do not result in immediate or

significant changes in the residential construction environment. For many people, elements of the physical environment and current design can be inconvenient, unsafe, or in some cases barriers to life's daily activities. This would include the same devices that old people use hence, the stainless steel grab bars that are in the handicap bathrooms and nursing homes. However, while Baby Boomers are still working and spending their cash, will the homebuilders take into consideration their upcoming needs for better-looking safety assistant-architecture? Will they just continue to ignore the Boomers and make them fend for themselves in the secondary remodel market?

Often the world at large thinks all products that meet varying abilities need to be cumbersome and ugly, a bit like living in a stereotypical sterile hospital ward. The products themselves add to the problem by calling unwelcome attention to the disability at the expense of the individual's need for an aesthetically pleasing environment. The bathroom is an area of design pertinent to ageing markets that generally has not been emphasized in new construction or in long-term care facilities. For those with physical limitations, control of the physical environment is important for both self-esteem and safety. Design should allow one to function as independently as possible. Assistance in the bathroom did not become part of the early design since most users did not live long enough to become old and acquire physical limitations. The concept of early bathroom design, therefore, centered on independent use rather than aesthetics . Those who were unable to use this available design needed to seek assistance, thus compromising their privacy, dignity, and self-reliance. Within a longer lifespan, people encounter a greater number of disabling conditions, for which they must develop new coping strategies and solutions for greater independence.

The design of bathrooms in assisted living facilities is usually driven by the examples provided in the *Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities* manual. The design examples illustrated in these guidelines are intended for persons who do not need physical assistance from a second person, in transferring on and off the toilet. Most individuals can use the standard grab bars, yet, many cannot effectively use the grab bars in the standard position. In many residential bathrooms, the toilet is right next to a wall and the grab bar is inaccessible for most users. However, if the toilet is at least 18" from a wall, it makes it possible to use an angled grab bar. This is more useful than the standard horizontal bar, as they are able to grasp an angled grab bar at the lower position and move up the bar. Older adults seldom use the horizontal bar over the tank, as called for in the ADA guidelines. The only real use of this grab bar is a towel rack. It would seem that there should be a better product, which would address these needs.

Inadequately designed shower and bathtub grab bars are an issue as well (Hirsch, 2004). In order to have grab bars there must be something secure to attach them to. Because of this, it is mandatory in some states to install 2" by 6" backing blocks in the wall framing in the areas of the toilet and bath areas. This measure will at least provide an ample surface for the fastening screws for safety aids. The current ADA guidelines require that such devices will support up to 250 lbs. (Evan Terry Associates, P.C. 1997). This is quite difficult to attain if there are no such backing blocks to attach the grab bars. This is also a major problem for retrofitting existing bathrooms for safety aids. The specific problem for showers and baths is that many are molded fiberglass in design and because of this, there is a large gap or space in between the tub/shower surface and the wall framing. This requires extremely long fasteners and a potential damage to the surfaces of the tub/shower if extreme pressure is applied to the bars. Some companies offer a



suction cup grab device which work well most of the time; however, when the bar gives way it can be quite hazardous to the user.

Most designs are fit for purpose, meaning that the function is the design and if it serves the need, it is sufficient. In early design the prototype for grab bars was nothing more than standard galvanized water pipes used with fittings and flanges. These are very unappealing even if they do work extremely well. These bars never rust and the installer can custom make them any length with a variety of shapes and sizes. This also helps with the installation problem when there are not backing blocks in the wall. The bars are made to span accordingly from one framing stud to the next. However, should every person trying to help a person gain mobility have to be an engineer, or, should some company spend the time necessary on Research and Development and take the thinking out of grab bars and design the bathroom with grab bars in mind from the very beginning and install them in all new homes? On the other hand, there is Universal Design. Universal design, which is related to "inclusive design" and "design for all" is an approach to the design of products, services, and environments to be useable by as many people as possible regardless of age, ability or situation. It is a commitment to designing for all people. It implies a belief that all people, regardless of their physical condition, can benefit from the same environment or product if designed appropriately. Universal design of residential bathrooms therefore, should benefit all people living in a home. Most residential bathrooms fall short of this goal. They do not support all users equally, and their designs improve the function independence of some, while others experience functional deprivation. Designers for "special needs" often give little consideration to appearance, and so institutional-looking products surround people with certain disabilities. Universal design, on the other hand, adapts products that are already accepted by the population at large, or creates ones that will be pleasing to

everyone. It has been proven that universal design is marketable. Would universal design solve some of these issues and create a demand for aesthetically pleasing products and environments? What can be done to the available safety devices so they would not stand out as different or necessary? The purpose of this research is to determine if *emotional aesthetics* are more important than *fit for purpose* and to see if there is a market for better-looking safety assistant architecture.

Literature Review

After a thorough review of data it can be noted that the literature has not sufficiently addressed this subject at hand. Therefore, there is little to support or deny the research question.

While researching better designs for grab bars, the first question which could be raised is; who would design such a device? According to (Encarta 98), Industrial Design is art and science involved in the creation of machine-made products. It is concerned with aesthetic appearance as well as with functional efficiency. The success of a design is measured by the profit it yields its manufacturer and the service and pleasure it affords its owner. Under prevailing standards of design, a product should have beauty of line, color, proportion, and texture; high efficiency and safety of operation; convenience or comfort in use; ease of maintenance and repair; durability; and expression of function in terms of form. The relative importance of any of these standards may vary depending on the object. A consideration basic to all good design is the factor of realistic cost. Thus, effective industrial design requires, besides artistic ability, combined knowledge of engineering principles and materials, production techniques and cost, and knowledge of marketing conditions.

Who uses grab bars? The handicapped and the aged. According to (Encarta 98), the handicapped are physically or mentally disabled and the aged are elderly people advanced in years.

Therefore, there are issues, one, having industrial personnel designing personal products, and demographics related to handicapped and the aged. Those who would like to extend their years at their own homes.

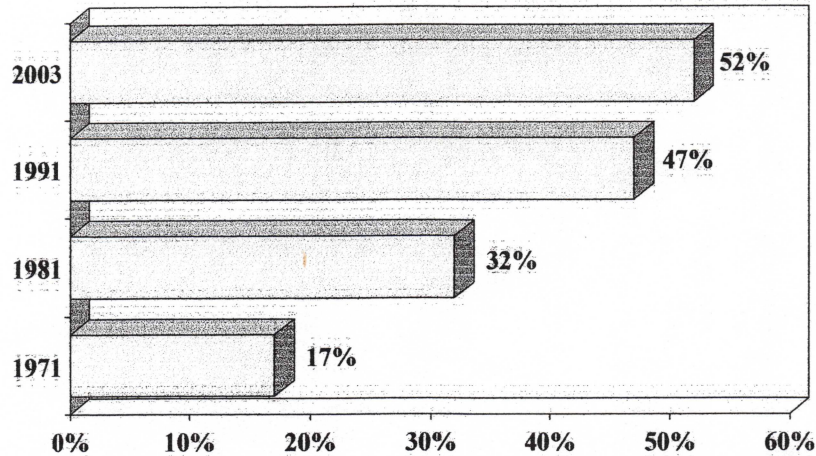
As Baby Boomers continue to redefine new home designs, are they faced with a lack of choices. The home construction industry built single story homes in the 1970's; built their large homes on small lots in the 1980's; and their gate-guarded estates in the 1990's; and now it is multi-story homes on small lots. William Novelli AARP CEO has stated of houses today, "There is one

area in which they are no better than houses built in the 1950s or even the 1850s. They do not accommodate for people as they age." A new home allows the advantage of building in all the necessary design options that could potentially be needed in ones advancing years. Even so most builders are not installing grab bars with all of the needed safety aids. (Petrillo 2005) points out that aesthetics are extremely important, especially as they relate to bathroom remodeling. Petrillo says, " Previous fixture designs were thought of as functional, with a clinical or institutional look as opposed to being the kind of fixture you would want to find in a home. But the goal now is to design products that aid people and still preserve the aesthetic appeal, without the clinical sensibility" (Petrillo, 2005). Is this the beginning of a shift in thinking and awareness of the need to support and design to the psychological aspects of product use?

Will builders and suppliers be proactive and take into consideration; the ageing market that need assistance, and meet the boomers demand for safety architecture, that is both functional and also aesthetically pleasing in the new homes which will be constructed? If people choose to stay in their homes as they age, they will find their two story homes not as accessible to them as was the case when they bought their homes years ago. Because of the increasing number of two story homes being built accessibility needs will increase.

As evidence of a lack of accessibility the following graph indicates.

Figure 2  
**New Homes Completed  
with 2 Stories or More**



In the last 30 years, the percentage of new two story homes sold rose from 17% to 52%.

Looking at these percentages it would appear that little or no consideration is given to the fact that as people age, it is increasingly difficult to move around in two story homes. Because of this; it is easy to assume that there is a need for a complete shift in thinking when it comes to design. For example, among Americans 70 years of age and older, grab bars and shower seats are the most common home modification (23%), followed by wheelchair accessibility inside the home, involving wide hallways (9%), special railings (8%), and ramps at street level 5%; (Tabbarah, Silverstein, & Seeman, 2000). It would be safe to assume that the market is underserved. Dr. Self stated (personal communication, January 14, 2006), “could it be because grab bars are so ugly and cold”? Grab bars are long associated with an institutional and thus unappealing look. However, (Baumann) supports lack of ingenuity by the statement, “One obvious safety feature in an ADA bathroom is grab bars, which remain fairly standard in design.” He mentions that Moen's (a leader in bathroom fixtures) accessories group offers a new

line of grab bars with varying lengths and finishes, including white enamel and chrome (Baumann 2001). If this were changed, and a designer addressed the need and supplied a new product that would fit within any decor and even add a new level of attractiveness, maybe grab bars usage would increase.

In all of the literature that was reviewed for this project, very little, if any addressed the design intent except for the choice of color. In the book *Beautiful Universal Design*, (Leibrock 1999), information refers to the standard grab bars that currently available. The book did not address design aesthetics for grab bars, except for the product is available in other colors. Design standards focus on the user's physical characteristics (weight, height, and reach) and capabilities (strength, vision, or hearing). Design standards are based on the mean, or average, of statistical data. (Baumann 2001). Quotes Roger Harris, vice president of architecture for Dallas-based Forrest Perkins LLC, said he expects product variety to be even broader in the future. "We are seeing a better selection of grab bars with an upgraded look," he said. "It used to be you could only get a utilitarian grab bar, but now there are a lot more decorative options." This would indicate that over the past couple of years the market demand for more aesthetic grab bars is opening up and being filled.

According to Davies and Beasley (1994) there is very little data available on older people in general and even less related to the issue of design of safety architecture. Far more data are available on physical characteristics of people than there is on user capabilities. According to J. Carlson (personal communication, February 14, 2006), an architect with many years of experience in design, believes that most companies still use fit for purpose instead of a core competency of design aesthetics. Current market products, although very functional, are industrial in appearance. The market segment that is being targeted has developed and supported

current design aesthetics for all products; that is to say from blenders to cars. As Baby Boomers begin to understand and develop a need for physical assistance in a home they nurtured over time, their need to sustain a physical and psychological standard of living will become paramount to their well-being. This can be accomplished and supported with universal design solutions. Carlson feels her personal life-long disability experiences provide insight, sympathy, empathy, and understandings to the psychological ramifications of what the potential Boomers will be or are currently experiencing. Carlson's many years of architectural training and career path coupled with an innate design sense leads her to believe that there has to be a common solution, which will ultimately lead to customer satisfaction.



Survey Methodology

Survey design is conducted when independent variables such as the psychological conflict of coming to grips with a body that needs assistance vs. the emotional self-ego that denies the fact. This will influence the eventual determination if a product that serves the body while aesthetically camouflages the psychological effects of labeling a product as being for the handicapped, disabled, or for the geriatric set. This independent variable obviously will affect the dependant variable. A need, which will in the end will equate to product sales and service. Primary data seems to be the optimal source for the initial investigation for the design of the product. Secondary data may become apparent as more is revealed but at this point does not appear available.

The model for this survey is as follows: The names compiled from forty of the largest building contractors who specialize in; residential, assisted-living, and the retirement housing market in the United States were listed in order by volume of sales. Twenty-seven names were randomly drawn to be surveyed. The surveys were mailed to the company's design managers in January of 2006. There were 12 respondents. Candidates were chosen for the following reasons; by the volume of units produced, years of experience in housing market, and because they are all experts in the housing market.

The pilot study is limited to using large-scale existing established building contractors of two different segments:

1. Developers who build speculative housing tracts for the public across all regions of the U.S.
2. Construction firms who design and build multiple unit housing for the ageing population in both assisted and retirement communities.

Analysis of Survey Results

The subjects are 12 managers from 27 randomly selected building contractors in the United States. Of the 27 survey questionnaires mailed to businesses, only twelve were returned suitable for processing, for a return rate of 44.4%. Lack of participation did not allow for a gap analysis to be done between the general housing market and the developers that specifically target a market segment that is predisposed to the psychology and physical conditions of this market segment. See Appendix A for a sample of the survey form. The following survey questions have been broken down on a question by question basis with a general synopsis. Each question has supporting tabulated results.

**1. *What is your overall perception of aesthetics and usability of handrails and grab bars currently available?***

3	Poor	25%
5	Average	41%
4	Good	33%
0	Excellent	0%

The overall perception of aesthetics and usability of handrails and grab bars currently available indicated that there is room for improvement as no one indicated complete satisfaction. The highest rating was 41%

stating the products on the market are average regarding aesthetic and usability. Some 33% did indicate that the bars and rails available were good. Keep in mind they are not the ones using the devices.

**2. *Does your company currently use stability bars in the housing communities for the aging population?***

1	Yes	8%
7	Sometimes	58%
4	Never	33 %
0	Maybe in the future	

When asked if their company currently use stability bars in the housing communities for the aging population? The majority 58% replied sometimes and 33% said never. However, this could be

because the companies surveyed are so large that to say yes/no would be false because of the different markets. Even though 33% said never this would be because their only market is residential housing. It was interesting that none of the respondents chose "maybe in the future."

**3. *If you do not currently, do you at least install the backing required to attach the devices in the future?***

1	Yes	8%
8	Sometimes	66%
3	Never	25%
0	Maybe in the future	

In response to this question as to whether the companies installed backing blocks to aid the ease of installation at a future time, the responses were similar to the full installation situation. Eight percent responded yes, 66% sometimes, and 25% never. This again could be because of the expansiveness of the companies surveyed.

**4. *What keeps you from using these products?***

0	Low Quality	0%
7	Looks	58%
4	Lack of need.	33%
1	Budget constraints	8%

One of the most heavily weighted responses was the question what keeps you from using these products. Fifty-eight percent responded looks and 33% stated lack of need and only 8% was concerned with budget restraints. In response to the looks as being the main reason, it would appear that the current looks of the products available would take away from the building design. This is despite that it has been proven that bars are useful, they would ultimately keep them from installing them because of how they look. The lack of need could be because the aged population has not yet demanded to have grab bars and handrails as of yet.

**5. *Who has the ability to request that you use and install handrails and grab bars***

5	Design firm	41%
3	Board of directors	25%
4	Operations	33%
0	Nobody	0%

According to 41% of the respondents, the design firm will be the ones requesting that the builders install grab bars. It is interesting to note the lower response levels of directors and operations in light of liability issues that are currently pervasive in our society.

**6. What rooms would require handrails and grab bars**

11	1. Bath	92%
1	2. Kitchen & Bath	8%
0	3. Hall ways	0%

The findings were unanimous as to the placement of the grab bar in the bathrooms.

**7. How important are these features as being a part of this product? Choose two**

8	A. Need	34%
6	B. Function	25 %
6	C. Visual appeal	25%
4	D. Cost	16%

When trying to hone in on the most important deciding factors as to what mattered the most, the quest was posed in two different ways. One way it was asked was how important are these features as being a part of this product? Need, function, visual appeal, and costs. The next question asked them to rate the importance. The results were as follows: need was 34%, function and visual appeal was 25%, and cost was only 16%.

**8. Please rank the importance of the features found in question no. 7 from 1 to 4**

9	A need	75%
5	C visual appeal	41%
5	C visual appeal	41%
8	B function	33%

However, when asked to rate need, it came out at number one at 75%. Number 2 was visual appeal at 41%. Number 3 was visual appeal at 41% and number 4 was function at 33%. It would

appear that the aged population has yet to state their need. If they were to make this known, it would seem that the market would listen. However, it will first be necessary to have a visually pleasing product

**9. If a better-looking product were available, would you be interested in buying it?**

2	Very Interested	16%
5	Somewhat Interested	41%
5	Indifferent	41%
0	Not Interested	0%

When asked if a better-looking product was available; would you be interested in buying it? The respondents selected their level of interest as follows: 16% not

interested 41% somewhat interested, and 41% very interested. This demonstrates that there is a need for a better-looking product.

**10. What would be your main reason for buying this product?**

8	Low price	66%
6	Customer demand	50%
0	Building Code	0%

However, according to the response to this question which states what would be your main reason for buying this product? It will be up to the consumer and the building departments to demand a

better-looking product with the results at 66% customer demand and 50% building code specifications.

**11. Would you be likely to select a better-looking product over the current product, which is now being used?**

12	Yes	100%
0	No	0%

The respondents were also asked would you be likely to select a better-looking product over the current product which is now being used? All

responded unanimously with yes.

**12. What do you think would be a fair price for a better-looking product in a standard restroom installation?**

5	Up to \$200	41%
1	\$200-\$400	8%
6	Cost not an issue	50%

Next, when asked how much would they pay it was 41% up to \$200 and only 8% in between \$200 and \$400. However, 50 % the

majority stated that cost was not an issue. This could be due to the understanding that what the customer wants is what the builder will deliver.

**13. Do you know any private parties that have these items in their homes?**

3	Yes	25%
9	No	75%
	If yes how old are they? 77-58-82	

When asked if the respondents knew of any private parties that had grab bars in their private homes the response was 25% yes and 75% no indicates that there

is a market however, it is not very well served.

**14. *Select the three most important criteria in choosing this product.***

8	Value
10	Best Performance & Looks
1	Name Recognition
4	High Quality
1	Convenience
5	Price
4	Availability
0	Don't Know

The respondents were then again asked to select the most important criteria in choosing this product and it came back as follows: 83% best performance and looks, 66.6% chose value, 42% listed price as the top three choices. High quality and availability were next in line at 33%.

**15. *How long have you been in the building industry?***

5	0-5 years	41%
2	5-10 years	16%
3	10-15 years	25%
2	15 plus years	16%

The remainder of the questions dealt with the respondents and how long they have been in the industry, where they lived, and if they were a large corporation or small company doing less

than a million dollars a year in sales. Only 41% had less than 5 years experience in the building industry. The remaining 59% varied in experience. This is very important when you consider the quality of the survey.

**16. *What is your company's annual revenue in millions of US dollars?***

3	Less 1M	25%
1	10M-20M	8%
1	20M-29M	8%
0	30M-39M	0%
7	Over 400M	58%

Over 58% of the companies surveyed generated well above 400 million in annual profits.



17. *In what area of the country do you live?*

0	East Coast	0%
2	Midwest	16%
0	Southeast	0%
7	Northwest	58%
3	Southwest	25%

The majority of the respondents were from the Northwest.

This is somewhat skewed because of the size of the

corporations and the fact that several companies had points of

contact here in the Northwest. The statistics as follows: 16% Midwest, 58 % Northwest, and

25% Southwest. Please take note that the majority of the organizations surveyed have operations

in most areas of the United States.

Recommendations

The survey was created to extract data from a selected population. The respondents would have made a very good focus group if it had been possible to gather them all around and use their many years of experience. However, when looking squarely at the issue, the question, is there a market for a more pleasing looking grab bar and handrails? This writer believes that a market exists. Research has determined: A) that the grab bars are needed in the bathrooms. B) That there is a market for a more pleasing design, however, that need must come from either the design firms or directly from the consumer or end-user. C) When it comes down to what is important for the builder it is first need and then performance and looks closely followed by value. The survey did not isolate an exact need or define the demographics for meeting the Baby Boomers safety needs. The Baby Boomers need a product which is pleasing to the eye and not a psychological distraction. This would allow vanity to enhance convenience and safety.

Why are grab bars needed in the bathroom? Simply put, independence. The human psyche is very delicate, and most individuals do care how they are perceived in the light of others. Having to ask for help to get out of a chair is one thing, but having to ask for help to get up off the toilet is another. Having to ask for help to bath is even more difficult for others, especially, when independence can be had by installing simple devices in the bathroom, which allows the person the ease of transfer of weight and balance, and which will ultimately ensure safety. However, because of the human psyche, it is very difficult for any individual to admit that he or she is aging and needs some sort of safety devices. Just by having these in your home is like a giant banner, which reads, "I am old and have out lived my usefulness and I am now a bother." The problem is that because of this, the consumer normally waits until it is too late, an accident has already occurred, and mobility has been reduced even further by the complication of an injury.

### Finding #1

Universal Design is a possible solution. When bathrooms are designed with everyone's safety and ease of use is taken into consideration, not just a select market but woman and children, tall and short people, old and feeble as well as handicapped and disabled. Considerable studies have been done, and the results support universal design as compared to a specialty market like ADA approved products. Many ADA products are big sellers due mainly because of usability. However, when they are marketed solely to the handicap population, non-handicap people do not purchase the products due to the stigma.

### Finding #2

There is a market for a more pleasing design of grab bars; however, that need must come either from the design firms or directly from the consumer or end-user. Who will be the voice of the market, or better yet, who will demand grab bars in all homes which will ultimately make it safer for all users? Will it be one of the homebuilders who services the market because of insight versus being reactive similar to installing safety belts in cars. Will it be an engineer at a design firm? Whoever it is, it is very important that they address the psychological issues as well as aesthetics. It will also be necessary to address ergonomics and usability to ensure they work for more than just a towel bar, as so many which are in use today. Will it be the case where it will be necessary to flood the housing market with standard bars to the point of them being second nature and just a part of the bathroom fixtures? This would solve the psychological dilemma if everyone were required to have them.

### Finding #3

Once the need is established and the builder accepts the obligation to install grab bars, this will be the point where the interest will increase for finding the product with the best performance

and looks. Years ago, a kitchen sink was just an object, which provided utility, it is now a focal point in the most expensive room in the house. The challenge is to develop the current safety architecture to the point where they are no longer an eyesore and become a thing of beauty that removes the stigma from having them in the first place. Will it be possible to design a new and improved version? Looks and performance will need to be addressed in order to please the most meticulous Baby Boomer, and besides, it may be an opportunity to charge a great deal of money for a new and emerging market.

Value will come after the market is developed, and companies will become competitive and start to copy the successful products. The high end product will have to find balance with what is affordable as compared to what the market is willing to bear for the next best thing. (Baumann 2001) states, "developers should consider upping the budget when it comes to renovating bathrooms to meet ADA code". "Nicer-looking, better-designed grab bars are more expensive. We're trying to get the look, but stay in line with our budget," he said. "ADA bathrooms might need a higher budget." (Baumann 2001). This supports the premise of no competition and high cost. Regardless of price, the consumer currently has an unmet need. This research has specifically determined that there is a need for aesthetic enhancement to grab bars.

## Conclusion

This research project is but a beginning in the development of assessing and then filling a need to provide Boomers with alternatives to current safety devices. Safety devices will aid them to stay in the own homes longer after retirement. In the discovery process, as it turns out, there are more aesthetic grab bars available. The problem is that there is not enough market penetration to make it known. Design still does not address the psychological need of individuals by insisting that the builders install better-looking safety assistant architecture. How many accidents can and would be eliminated if some company actually succeeds in market penetration to the point of saturation so that even the poorest homes have grab bars and handrails! How great it will be when safety architecture is available to all? Therefore, imagine all those who need grab bars and have them available universally. Especially after grab bars have been redesigned so they are seen actually as a thing of beauty instead of an indicator of being disabled. Psychologically, it is painful enough to be limited in mobility, especially when one does not have the ability to ask for help, and would rather stumble. When grab bars become an aesthetic enhancement to the environment and consumer products are designed to lessen psychological and perhaps physical pain, universal design will have met its ultimate goal.

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## Appendix

Survey completed by:	Project/Organization Role	
<p><b>Product Description:</b> Typical handrails, safety bars, and heavy duty grab bars, which are used in hospitals, hotels, government facilities, commercial building, and residential settings to provide stability and the extra support required by the elderly as well as people with limited mobility.</p>		
ID	Question	Selection
1	What is your overall perception of aesthetics and usability of handrails and grab bars currently available?	<input type="checkbox"/> Poor <input type="checkbox"/> Average <input type="checkbox"/> Good <input type="checkbox"/> Excellent
2	Does your company currently use stability bars in the housing communities for the aging population?	<input type="checkbox"/> Yes <input type="checkbox"/> Sometimes <input type="checkbox"/> Never <input type="checkbox"/> Maybe in the future
3	If you do not currently, do you at least install the backing required to attach the devices in the future?	<input type="checkbox"/> Yes <input type="checkbox"/> Sometimes <input type="checkbox"/> Never <input type="checkbox"/> Maybe in the future
4	What keeps you from using these products?	<input type="checkbox"/> Low Quality <input type="checkbox"/> Looks <input type="checkbox"/> Lack of need. <input type="checkbox"/> Budget constraints
5	Who has the ability to request that you use and install handrails and grab bars in your structures?	<input type="checkbox"/> Design firm <input type="checkbox"/> Board of directors <input type="checkbox"/> Operations <input type="checkbox"/> Nobody
6	What rooms would require handrails and grab bars	<input type="checkbox"/> 1. Bath <input type="checkbox"/> 2. Kitchen & Bath <input type="checkbox"/> 3. Hall ways
7	How important are these features as being a part of this product? Feature A Need Feature B Function Feature C Visual appeal Feature D Costs	Assign a level of importance:  <input type="checkbox"/> Not Important <input type="checkbox"/> Neutral <input type="checkbox"/> Important <input type="checkbox"/> Very Important
8	Please rank the importance of the features found in question no. 7 from 1 to 4 Feature A Need Feature B Function Feature C Visual Appeal Feature D Costs	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4

9	If a better looking product were available, would you be interested in buying it? Please select your level of interest.	<input type="checkbox"/> Not Interested <input type="checkbox"/> Indifferent <input type="checkbox"/> Somewhat Interested <input type="checkbox"/> Very Interested
10	What would be your main reason for buying this product?	<input type="checkbox"/> Customer demand <input type="checkbox"/> Building Code <input type="checkbox"/> Low price
11	What do you think would be a fair price for a better-looking product in a standard restroom installation.	<input type="checkbox"/> Up to\$200 <input type="checkbox"/> \$200-\$400 <input type="checkbox"/> Cost not an issue
12	Would you be likely to select a better-looking product over the current product, which is now being used?	<input type="checkbox"/> Yes <input type="checkbox"/> No
13	Do you know any private parties that have these items in their homes?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> If yes how old are they? <input type="checkbox"/>
14	Select the three most important criteria in choosing this product.	<input type="checkbox"/> Value <input type="checkbox"/> Best Performance & Looks <input type="checkbox"/> Name Recognition <input type="checkbox"/> High Quality <input type="checkbox"/> Convenience <input type="checkbox"/> Price <input type="checkbox"/> Availability <input type="checkbox"/> Don't Know <input type="checkbox"/>
15	How long have you been in the building industry	<input type="checkbox"/> 0-5 years <input type="checkbox"/> 5-10 years <input type="checkbox"/> 10-15 years <input type="checkbox"/> 15 plus years
16	What is your company's annual revenue in millions of US dollars?	<input type="checkbox"/> Less 1M <input type="checkbox"/> 1M-20M <input type="checkbox"/> 20M-29M <input type="checkbox"/> 30M-39M <input type="checkbox"/> Over 400M
17	In what area of the country do you live?	<input type="checkbox"/> East Coast <input type="checkbox"/> Midwest <input type="checkbox"/> Southeast <input type="checkbox"/> Northwest <input type="checkbox"/> Southwest