

DEMOGRAPHIC TRANSFORMATIONS: CATALYST FOR CHANGE

Sarasota Design Conference 2018: Designing for Change

Sherry Ahrentzen, PhD

Shimberg Center for Housing Studies, College of Design, Construction & Planning
University of Florida



Demographic
Change

The diagram consists of three orange rounded rectangular boxes arranged in a triangle. The top box is labeled 'Demographic Change'. The bottom-left box is labeled 'Health & Healthcare'. The bottom-right box is labeled 'Climate Change'. Black curved lines connect each box to the other two, forming a continuous loop that signifies the interconnected nature of these three global challenges. The background is a satellite image of the Earth, showing cloud patterns and landmasses.

Health &
Healthcare

Climate
Change

ROADMAP

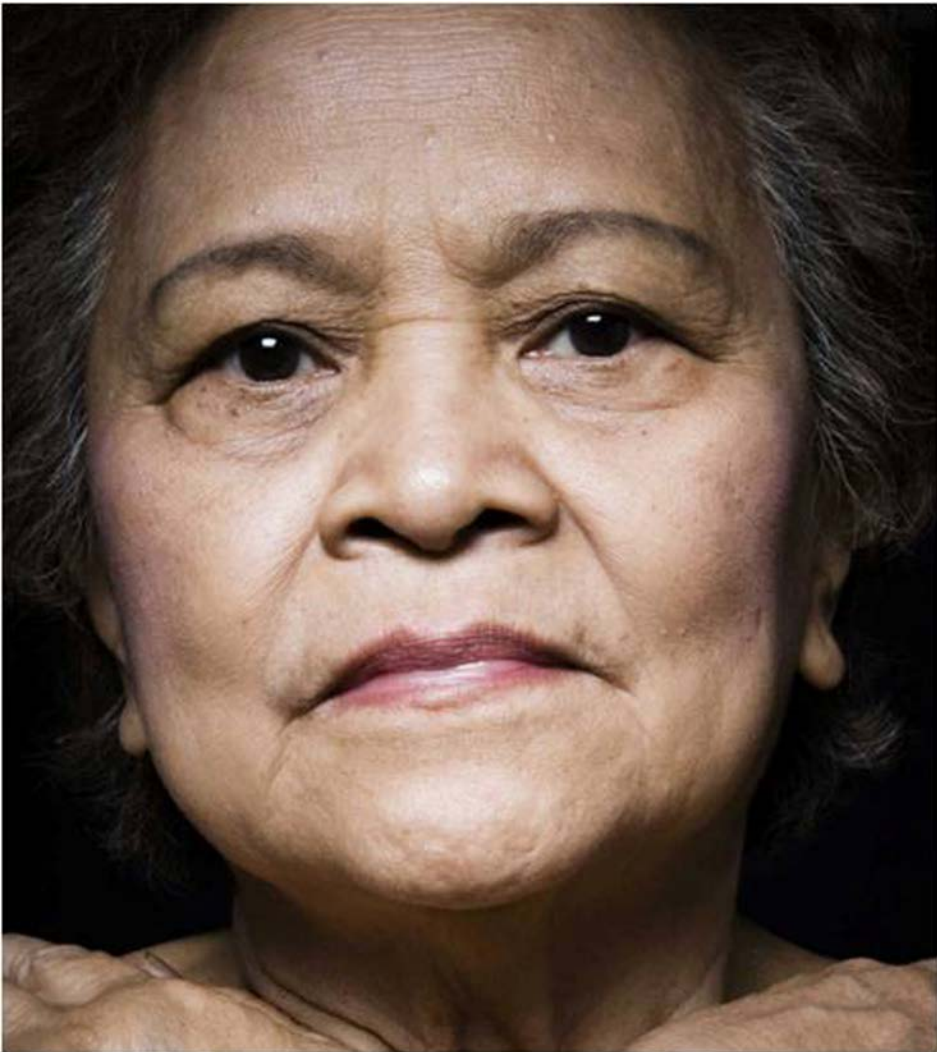


- Demographic Transformation and Aging
- Building Performance for Occupant Health
- Expanding Housing Options



WE ARE NEAR GROUND ZERO

- [Sarasota County](#)
- [Sumter County](#)
- [Housing Florida's Older Adults:
By the Numbers](#)



DEMOGRAPHIC TRANSFORMATIONS: AGING

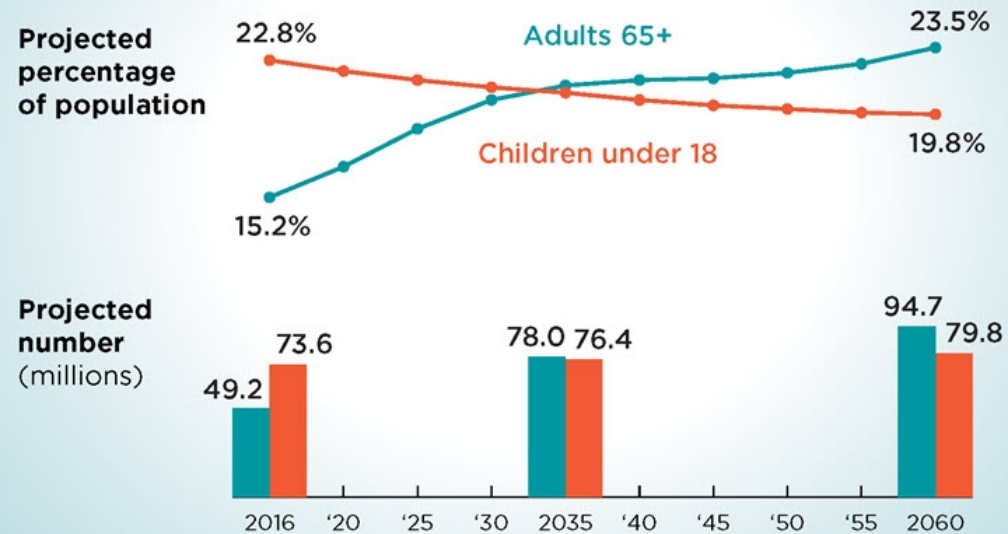
By 2030, more than 70 million Americans – and 960 million people worldwide – will be 65 years or older



An Aging Nation

Projected Number of Children
and Older Adults

For the First Time in U.S. History Older Adults Are
Projected to Outnumber Children by 2035



Note: 2016 data are estimates not projections.

United States[™]
Census
Bureau

U.S. Department of Commerce
Economics and Statistics Administration
U.S. CENSUS BUREAU
[census.gov](https://www.census.gov)

Source: National Population
Projections, 2017
www.census.gov/programs-surveys/popproj.html

Fig. 3.1. Proportion of population aged 60 years or older, by country, 2015

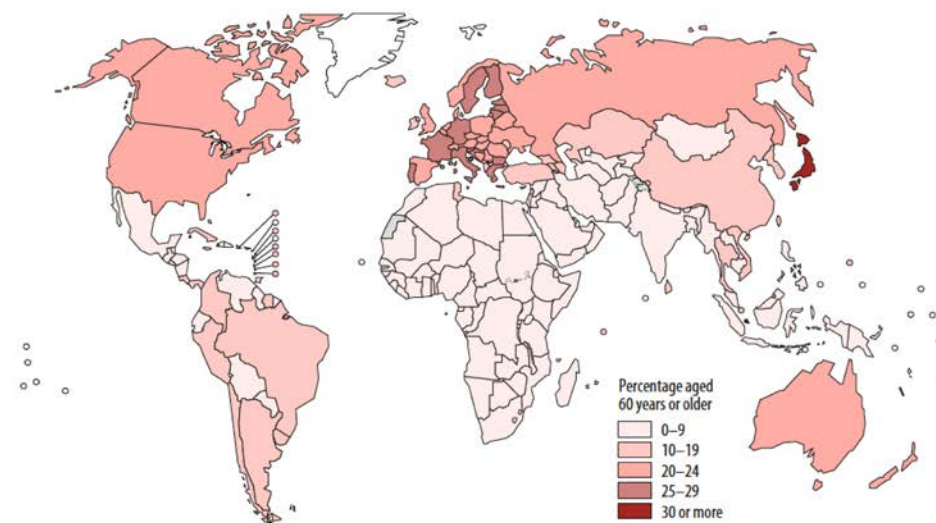
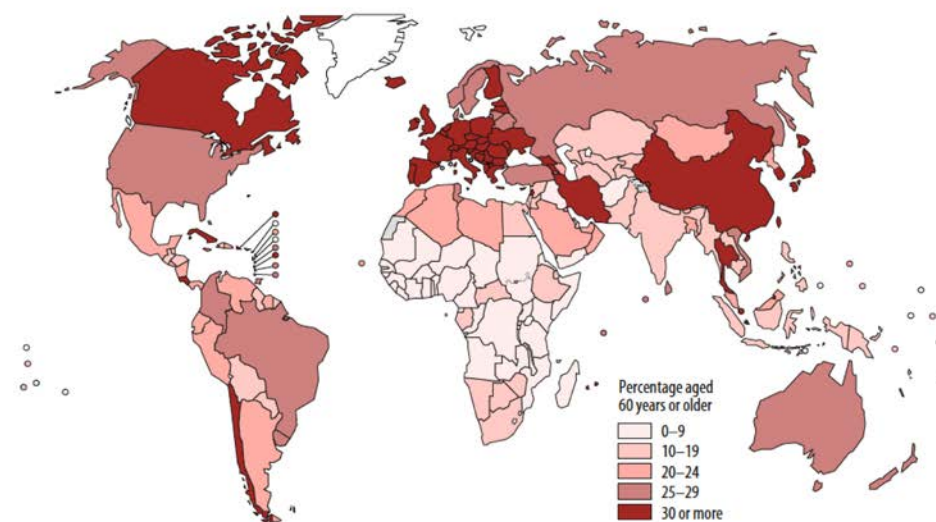
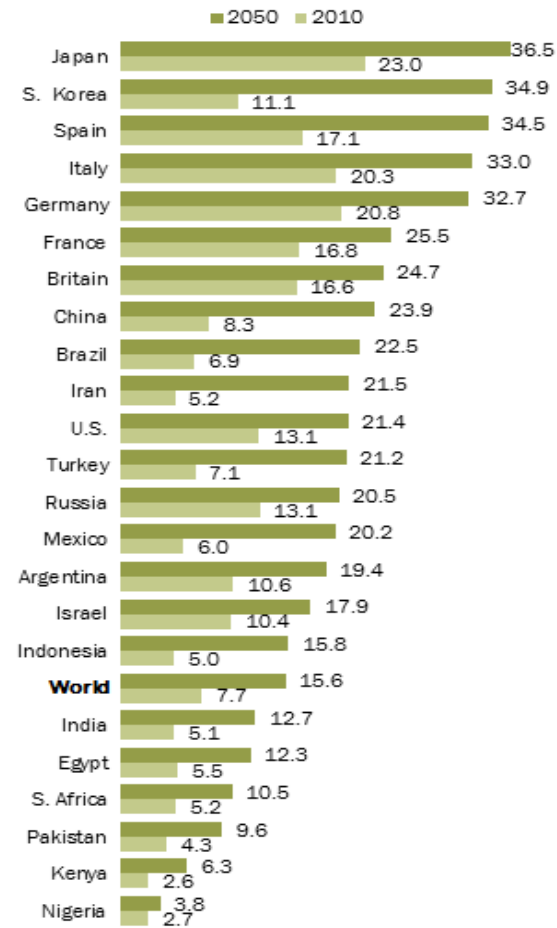


Fig. 3.2. Proportion of population aged 60 years or older, by country, 2050 projections



Proportion of People 65 and Older in a Country's Population, Estimates for 2010 and 2050

%



Source: United Nations, Department of Economic and Social Affairs, *World Population Prospects: 2012 Revision*, June 2013, <http://esa.un.org/unpd/wpp/index.htm>

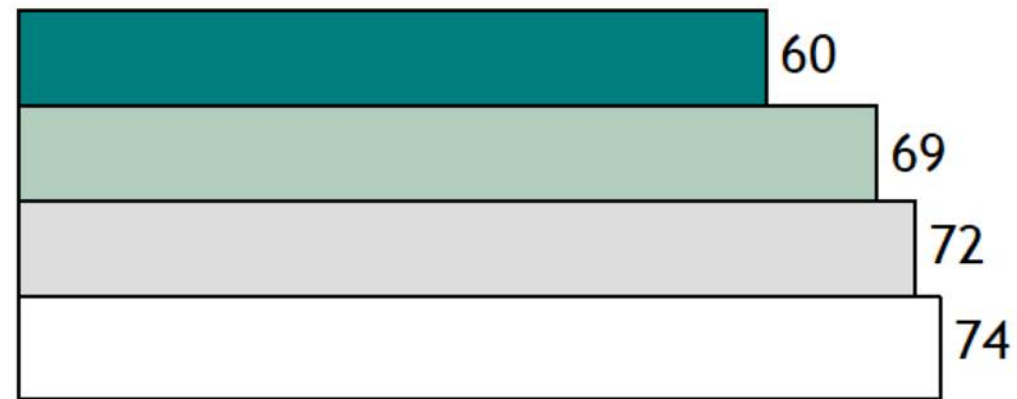
PEW RESEARCH CENTER

At What Age Does the Average Person Become Old?

Mean age shown

Age of respondents ■ 18-29 ■ 30-49 ■ 50-64 ■ 65+

Age of
becoming old

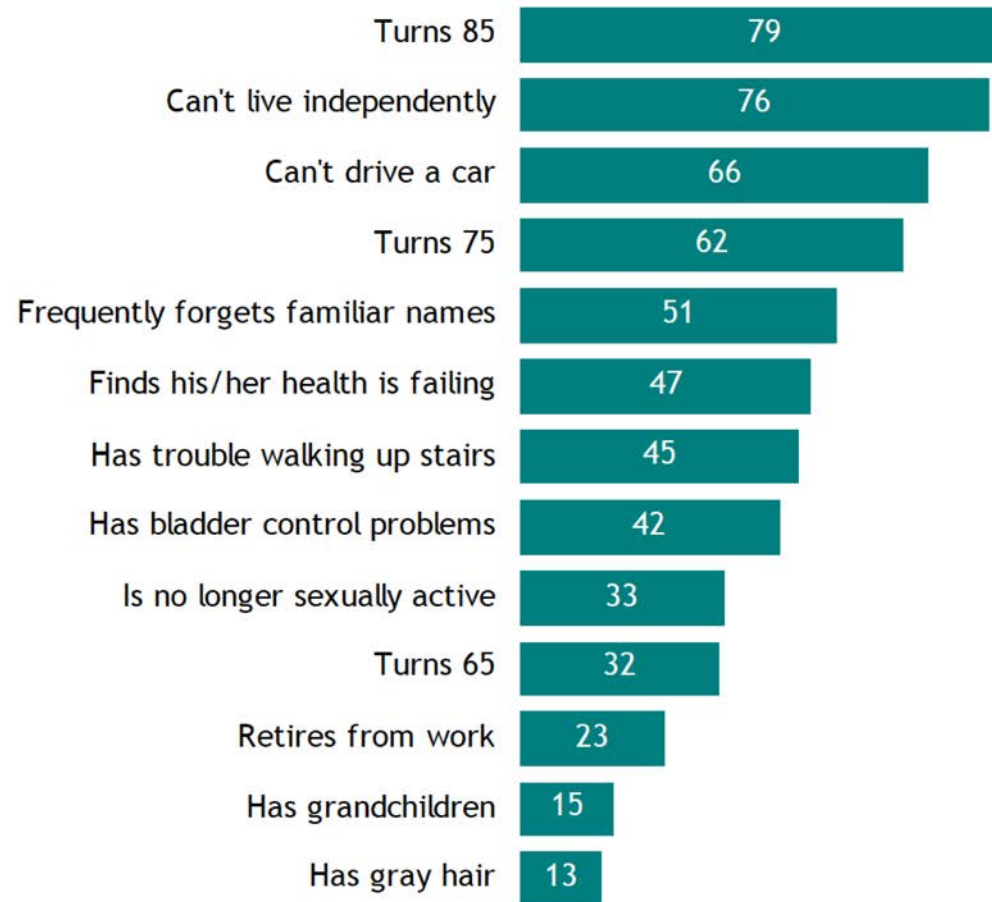


Note: Asked of all 2,969 adults in the survey.

PewResearchCenter

The Markers of Old Age

% saying that a person is old when he or she ...



Note: Asked of all 2,969 adults in the survey.

PewResearchCenter

As the boomers reach 65, then 75, then 85, the population in each age bracket will swell; the age mix of the old will shift upward.

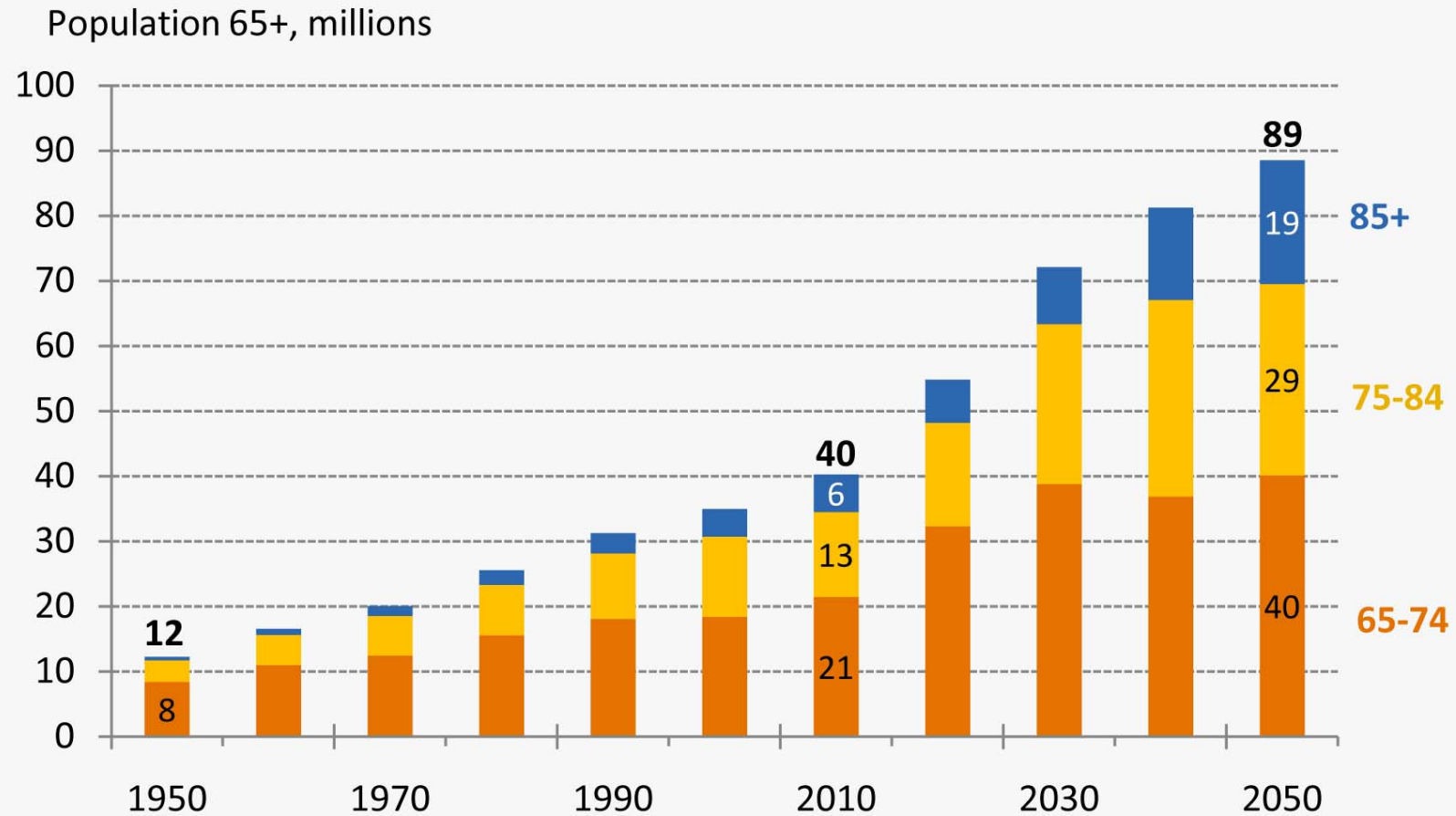
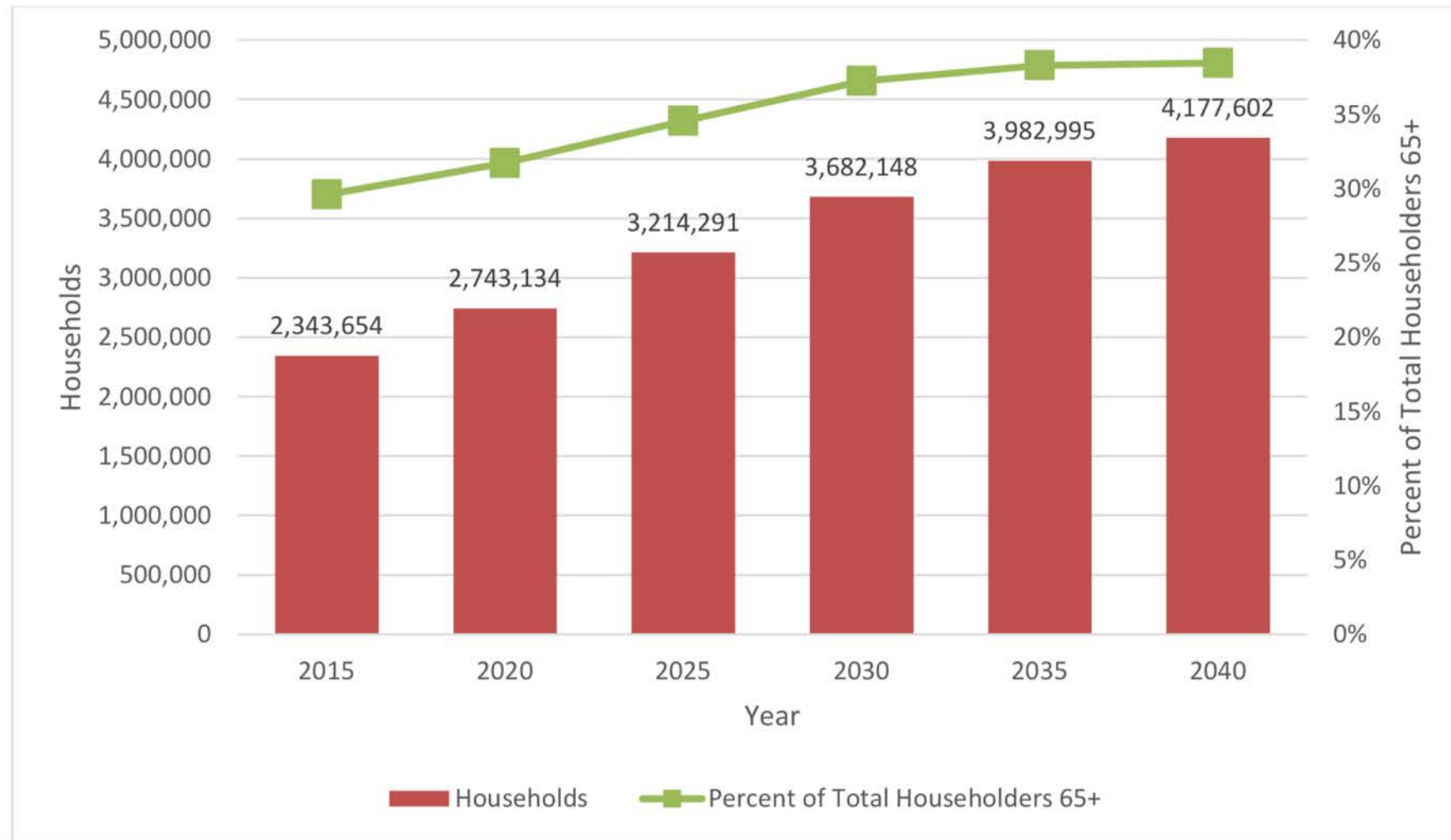


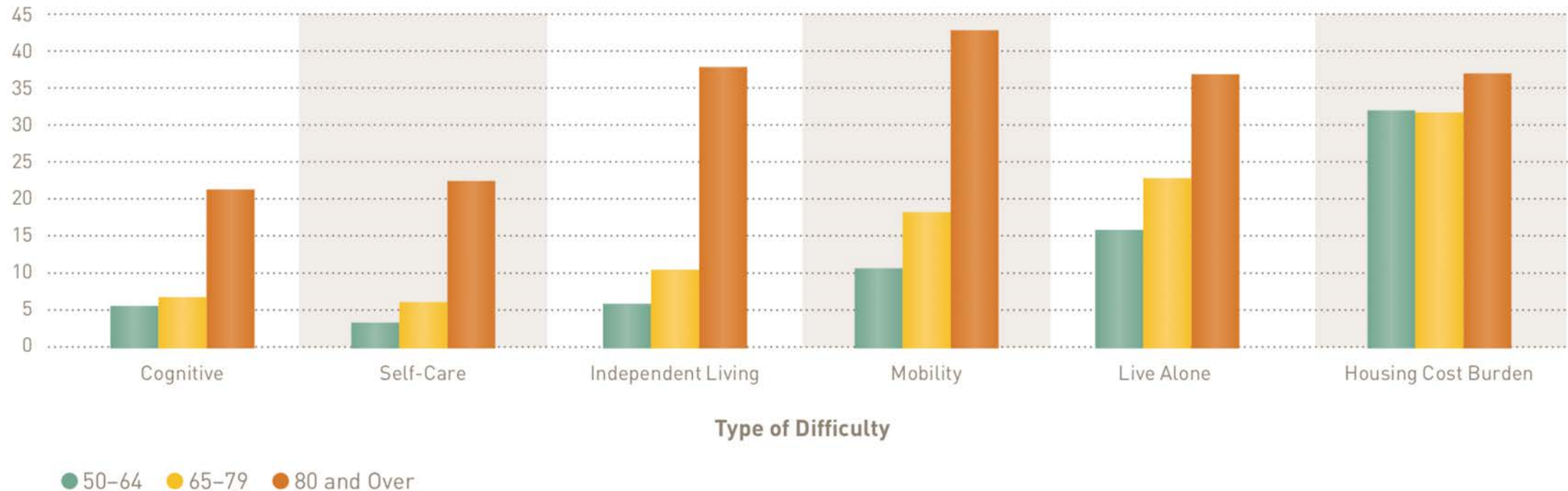
Figure 1a: Projected Households with Householder 65 Years and Older in Florida, 2015 – 2040



Source: Shimberg Center for Housing Studies, Affordable Housing Needs Assessment (AHNA)

Aging Brings Increasing Risks of Disability, Isolation, and Financial Stress

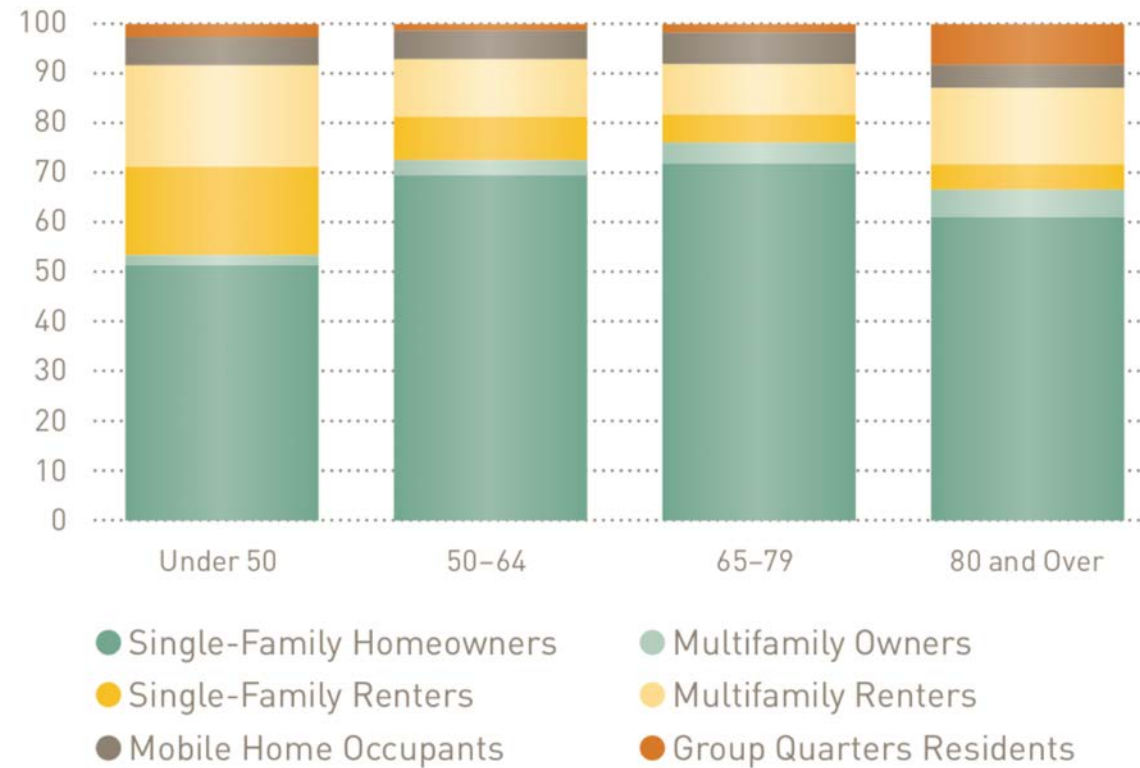
Share Facing Difficulty by Age Group (Percent)



Notes: A cognitive disability is defined as serious difficulty remembering, concentrating, or making decisions; self-care disability as difficulty bathing or dressing; independent living disability as difficulty doing errands alone; and mobility disability as serious difficulty walking or climbing stairs. Housing cost burden is defined as paying more than 30 percent of income for housing costs.
Source: JCHS tabulations of US Census Bureau, 2012 American Community Survey.

Even at Advanced Ages, the Vast Majority of Older Adults Lives in Private Homes

Share of Population by Age Group (Percent)

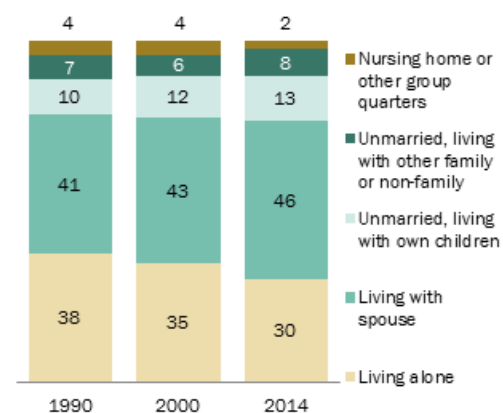


Notes: Mobile home occupants include owners and renters living in trailers, boats, RVs, vans, and other structures. Group quarters residents may live in either institutional or non-institutional facilities.

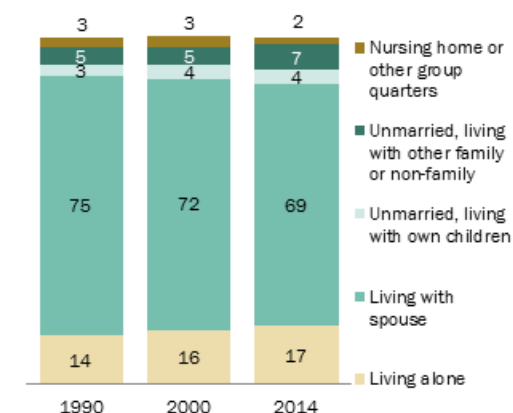
Source: JCHS tabulations of US Census Bureau, 2012 American Community Survey.

Large declines in the share of older Americans ages 85 and older living in nursing homes or other group quarters since 1990

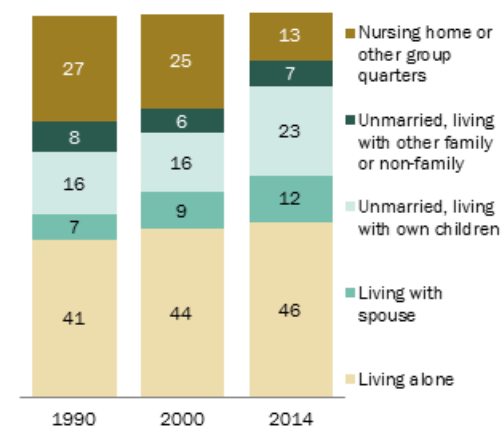
% among women ages 65 to 84



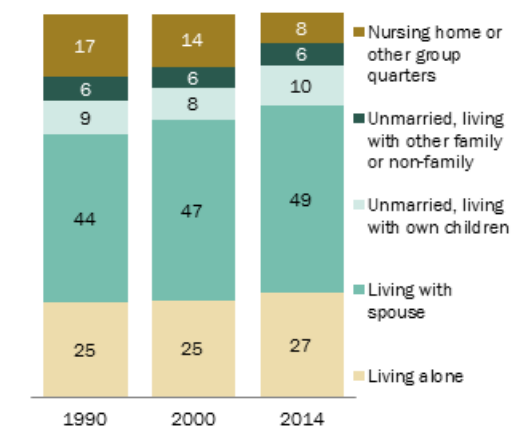
% among men ages 65 to 84



% among women ages 85 and older



% among men ages 85 and older



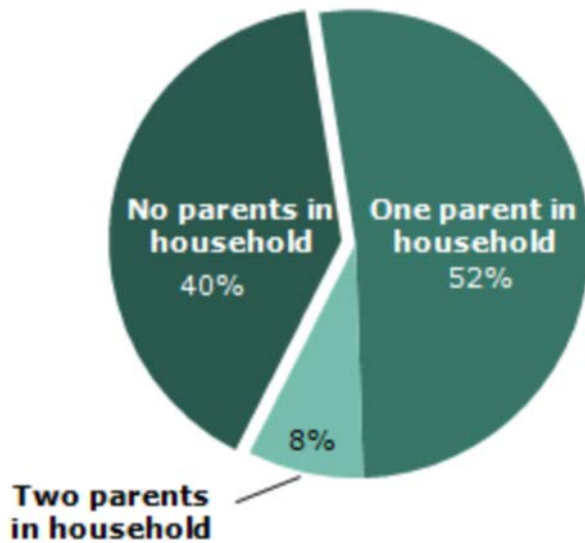
Note: Older adults who are living with a spouse may also be living with children or other relatives or non-relatives. Unmarried adults include those who are separated, divorced, widowed, have never been married or married, but the spouse is absent from the household. Older adults living alone reside in a household. The share living alone is based on the total population ages 65 and older.

Source: Pew Research Center analysis of 1990-2000 decennial censuses and the 2014 American Community Survey (IPUMS)

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Most Children with Grandparent Caregiver Also Live with a Parent

% among children with grandparent caregiver in 2011



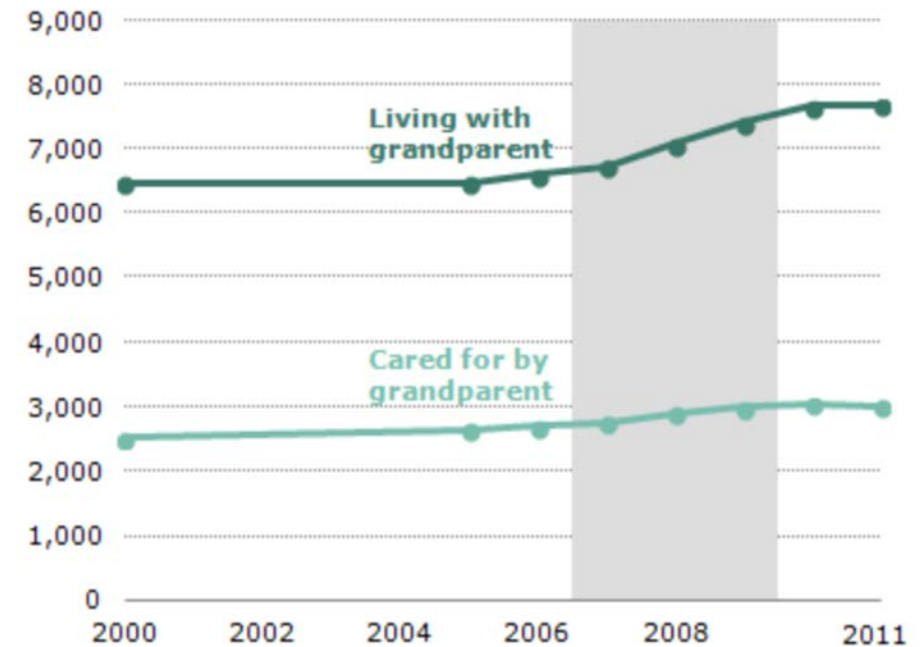
Notes: Children with a grandparent caregiver are those whose co-resident grandparent reports being currently responsible for most of the basic needs of a co-resident grandchild.

Source: Pew Research Center analysis of American Community Survey (IPUMS)

PEW RESEARCH CENTER

Grandchildren Living with and Cared for Primarily by Grandparents Rises then Levels Off

Number of children, in thousands



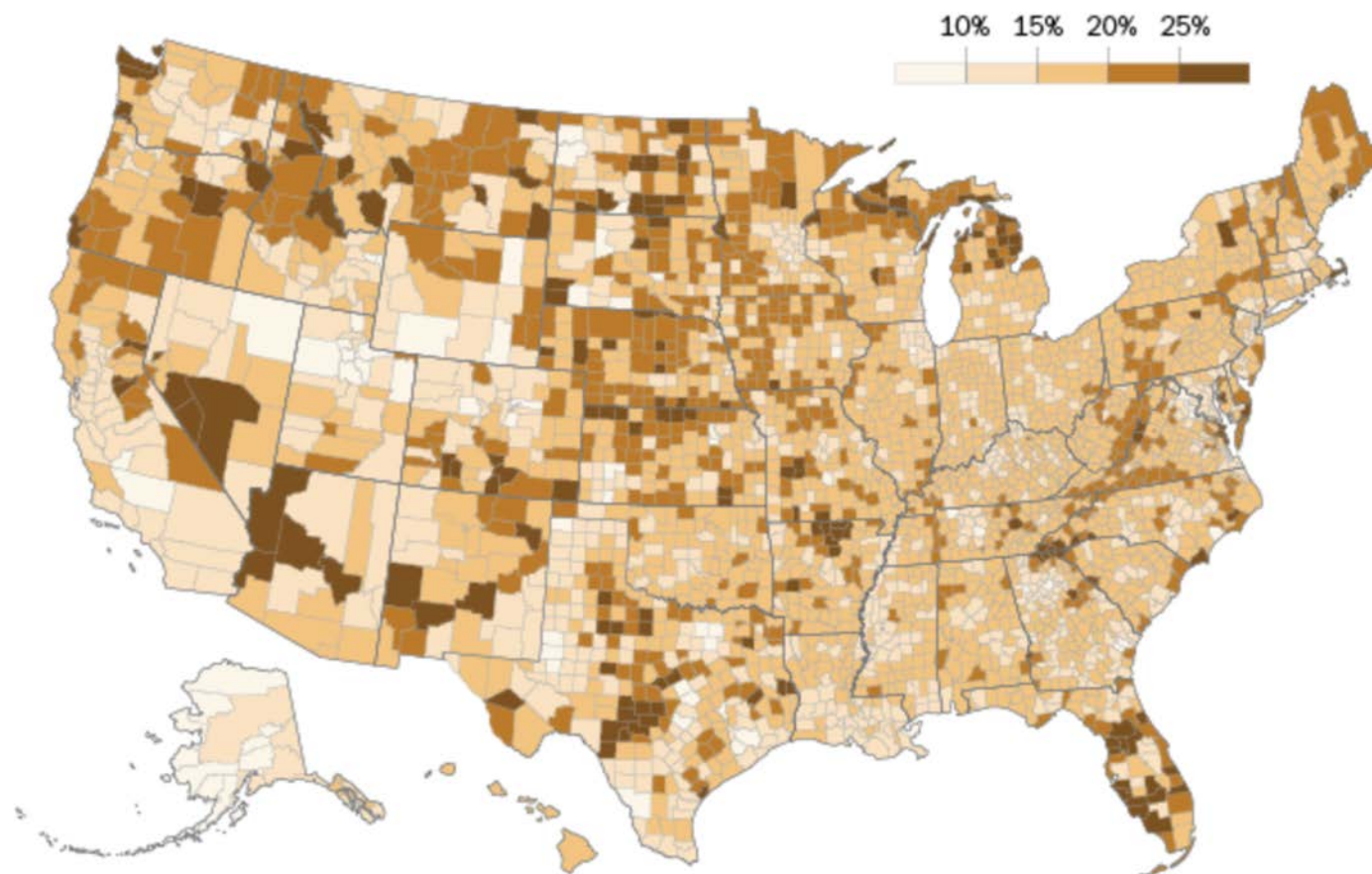
Notes: The shaded area represents the Great Recession. Those "Cared for by grandparent" include those whose co-resident grandparent reports being currently responsible for most of the basic needs of a co-resident grandchild.

Source: Pew Research Center analysis of 2000 Decennial Census and 2005-2011 American Community Survey Integrated Public Use Micro Samples (IPUMS)

PEW RESEARCH CENTER

Counties With the Largest, Smallest Shares of Seniors

% of county population ages 65+



Source: U.S. Census Bureau 2014 population estimates

PEW RESEARCH CENTER

The Grayest Counties in the U.S.

Counties with largest % of population ages 65+

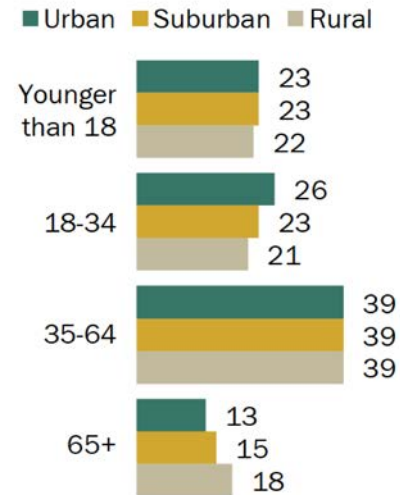
County	State	Total Population	% ages 65+
Sumter	Fla.	114,350	52.9%
Charlotte	Fla.	168,474	37.7
La Paz	Ariz.	20,231	36.1
Citrus	Fla.	139,377	35.2
Lancaster	Va.	11,044	35.2
Catron	N.M.	3,556	35.0
Alcona	Mich.	10,454	34.8
Northumberland	Va.	12,251	34.3
Sierra	N.M.	11,325	34.0
Sarasota	Fla.	396,962	33.9
Llano	Texas	19,510	33.9

Source: U.S. Census Bureau 2014 population estimates

PEW RESEARCH CENTER

Rural counties as a whole have a higher share of older Americans than cities or suburbs

% of total population in each county type



Note: County categories based on the National Center for Health Statistics Urban-Rural Classification Scheme for Counties.

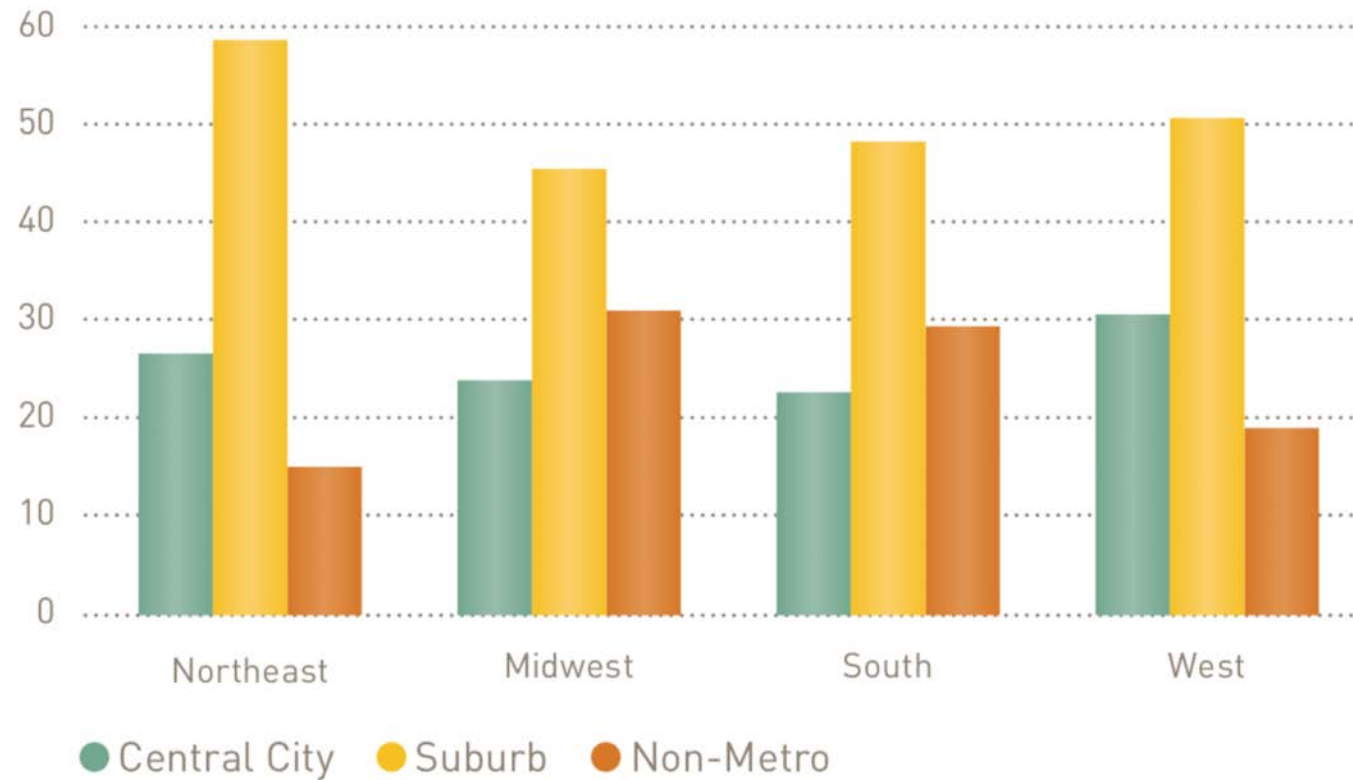
Source: Pew Research Center analysis of 2012-2016 American Community Survey data.

"What Unites and Divides Urban, Suburban and Rural Communities"

PEW RESEARCH CENTER

Most Older Adults Live in Suburban Communities

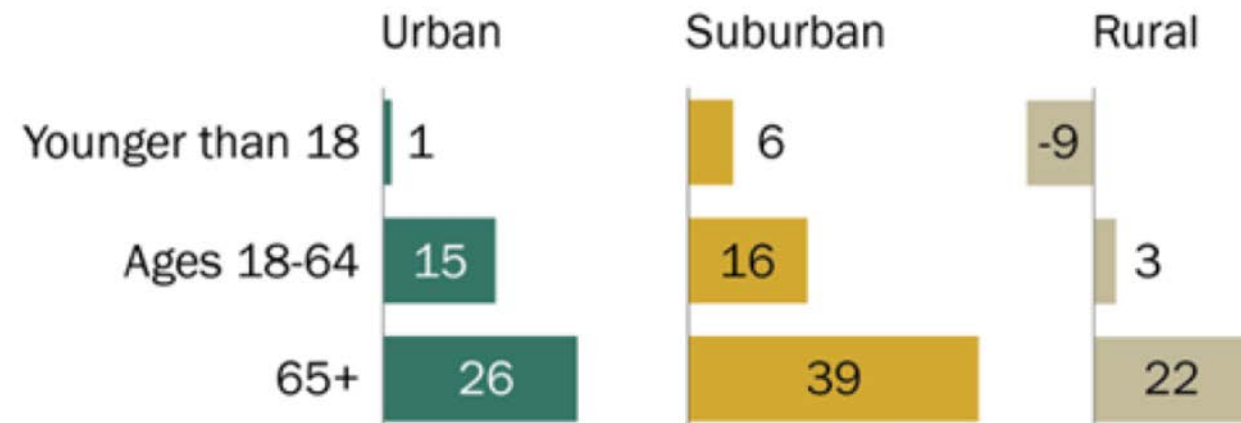
Distribution of Households Aged 50 and Over (Percent)



Source: JCHS tabulations of US Department of Housing and Urban Development, 2011 American Housing Survey.

Suburban counties are graying more rapidly than other types

% change in age group since 2000 by county type



Note: County categories based on the National Center for Health Statistics Urban-Rural Classification Scheme for Counties.

Source: Pew Research Center analysis of 2000 decennial census SF3 data and 2012-2016 American Community Survey data.

“What Unites and Divides Urban, Suburban and Rural Communities”

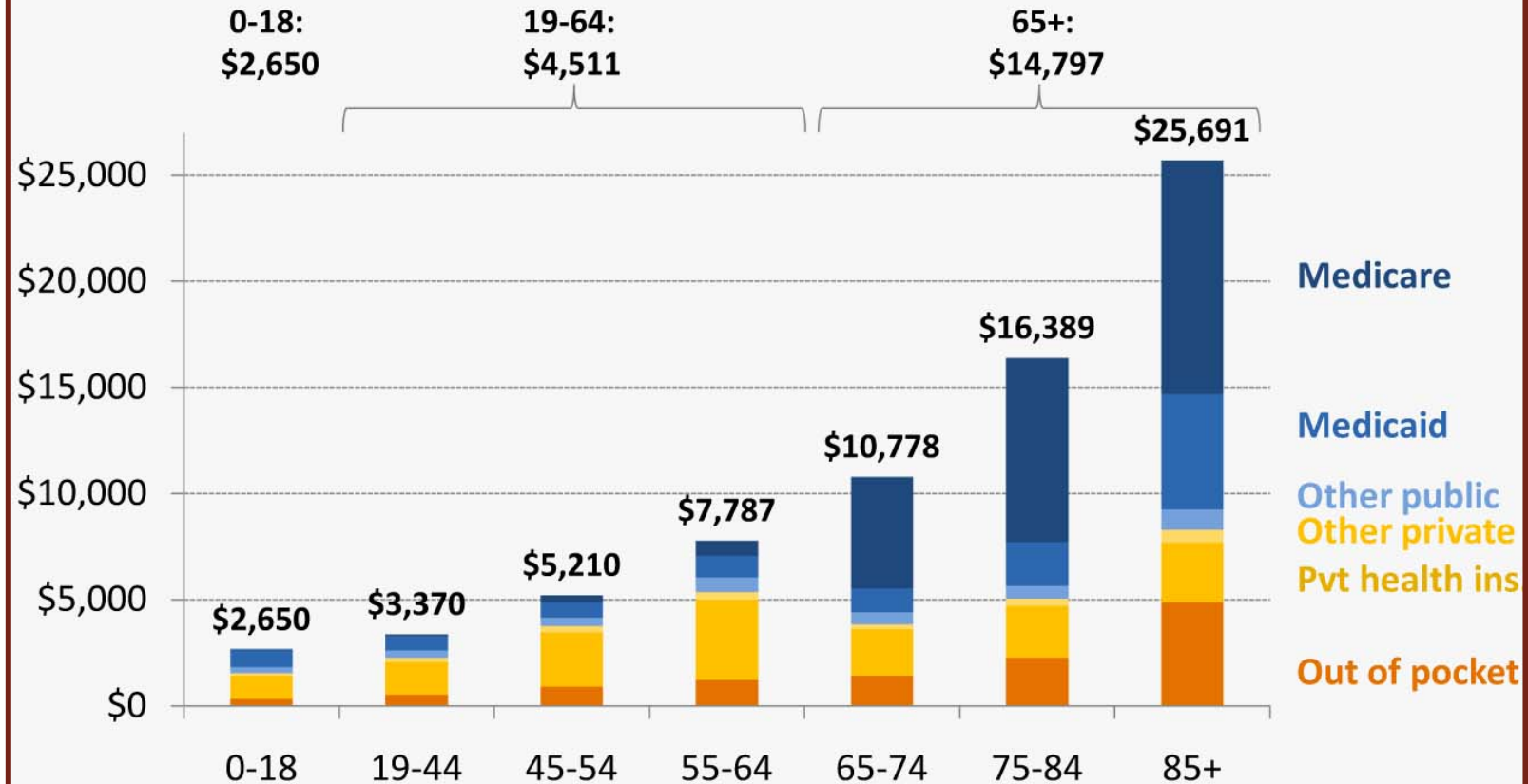
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HOW HEALTHY & ABLE?

Per capita health care spending skyrockets with age.

Per capita health care spending, by age group and source of payment, 2004



Note: Other public: e.g. workers compensation. Other private: e.g. philanthropy.

Source: Centers for Medicare and Medicaid Services, 2009.

H-8

Stanford Center on Longevity

10 Common Chronic Conditions for Adults 65+

Quick Facts

 **80%**
have at least 1 chronic condition

 **68%**
have 2 or more chronic conditions



Hypertension
(High Blood Pressure)
58%



High Cholesterol
47%



Arthritis
31%



Ischemic Heart Disease
(or Coronary Heart Disease)
29%



Diabetes
27%



Chronic Kidney Disease
18%



Heart Failure
14%



Depression
14%



Alzheimer's Disease and Dementia
11%



Chronic Obstructive Pulmonary Disease
11%

Source: Centers for Medicare & Medicaid Services, Chronic Conditions Prevalence State/County Table: All Fee-for-Service Beneficiaries, 2015

BOOMERS' HEALTH Of people 55 to 64 years old:



about 25%
smoke



more than 39%
are obese



more than 55% don't
exercise enough



about 37% don't get
enough sleep



about 75% don't eat enough
fruits and vegetables

Data from the Sightlines Project, Stanford Center on Longevity, 2016

About **2 in 10** adults
live with a **disability**



How Common are Specific Disabilities?



Difficulty walking/climbing stairs

30.6 million



Require assistance of others with everyday tasks

12.0 million



Vision difficulty (partial or total)

8.1 million



Hearing difficulty

7.6 million



Using a wheelchair

3.6 million



Alzheimer's, senility or dementia

2.4 million

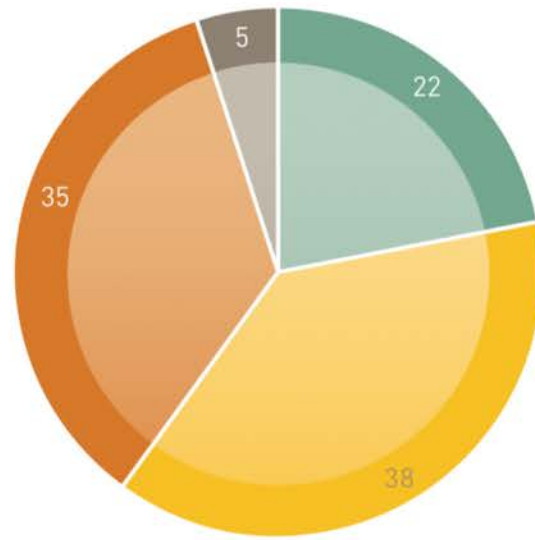
United States
Census
Bureau

U.S. Department of Commerce
Economics and Statistics Administration
U.S. CENSUS BUREAU
census.gov

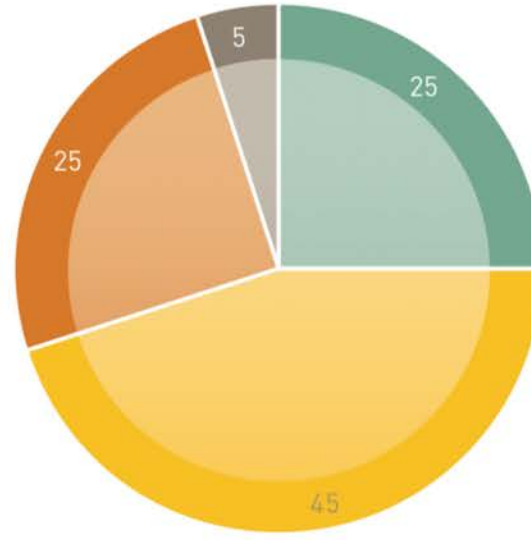
Source: Americans with Disabilities:
2010, from Survey of Income and
Program Participation

Most Older Adults with Disabilities Live in the Community, Many on Their Own

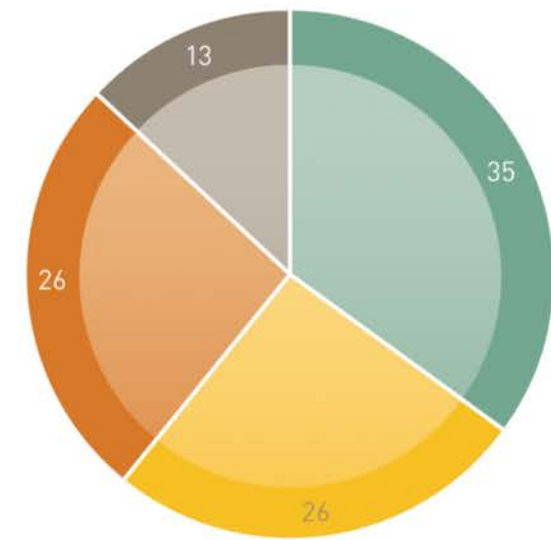
Share of Population with Disabilities by Age Group (Percent)



50-64



65-79



80 and Over

Housing Situation

● Live Alone ● Live with Spouse/Partner Only ● Live with Others ● Live in Group Quarters

Notes: Disabilities include hearing, vision, cognitive, mobility, self-care, and independent living difficulties. Other household members may be anyone other than, or in addition to, a spouse or partner. Group quarters include institutional and non-institutional settings.

Source: JCHS tabulations of US Census Bureau, 2012 American Community Survey.

HOW ACCESSIBLE IS OUR HOUSING STOCK?

Original Accessibility Features in Homes	Percent of All Housing Units
Full Bathroom on Entry Level	87.7%
Bedroom on Entry Level	76.3%
No Steps Between Rooms	65.5%
Wheelchair Accessible Electrical Switches	64.2%
Wheelchair Accessible Electrical Outlets	62.9%
Wheelchair Accessible Countertops	51.0%
Wheelchair Accessible Climate Controls	47.0%
Can Enter Unit Without Steps	42.0%
Wheelchair Accessible Bathroom	39.3%
Wheelchair Accessible Other Kitchen Features	29.9%
Hand Rails/ Grab Bars in Homes	25.9%
Kitchen Trays/ Lazy Susans	18.5%
Hand Rails/ Grab Bars in Bathrooms	17.8%
Wheelchair Accessible Kitchen Cabinets	15.8%
Door Handles Instead of Knobs	11.0%
Built-In Shower Seats	8.3%
Extra-Wide Doors/ Hallways	7.9%
Raised Toilets	6.7%
Hand Rails/ Grab Bars in Other Areas	2.5%
Ramps in Home	1.0%
Elevators in Homes	0.4%

	Level 1: Potentially Modifiable	Level 2: Livable	Level 3: Wheelchair Accessible
All HUs	(33.34%) 148,837	(3.76%) 143,318	(0.15%) 142,665


Level 1: Units have entrance accessible without steps/stairs, bathroom on entry level OR elevator; bedroom on entry level OR elevator

Level 2: L1 +: accessible bathroom with grab bars; no steps between rooms or rails/grab bars along all steps

Level 3: L2 +: extra-wide doors or hallways, no steps between rooms; door handles instead of knobs; sink handles/levels; wheelchair accessible switches, kitchen features, and other features

Summing up.....

- By 2032: more older adults than children and youth
- Many living in suburbs and older homes
- Diversity in health, income/assets, lifestyle
- Living longer while healthcare costs and chronic illnesses skyrocket
- Advances in technology but also in climate change
- Boomers' expectations and experiences
- Ripple effect on all generations



In less than twenty years there will be more people over the age of 65 than under the age of 19 – that is, more older adults than children and teenagers





BUILDING PERFORMANCE FOR OCCUPANT HEALTH

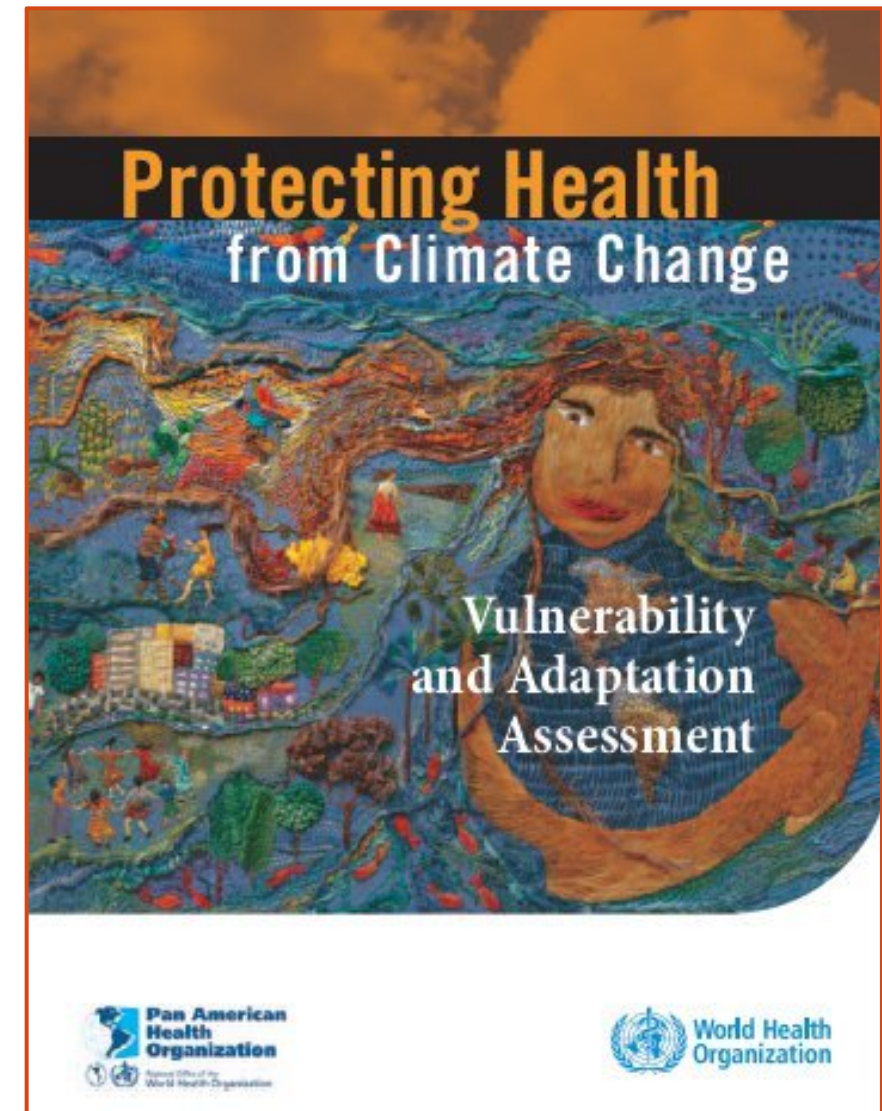
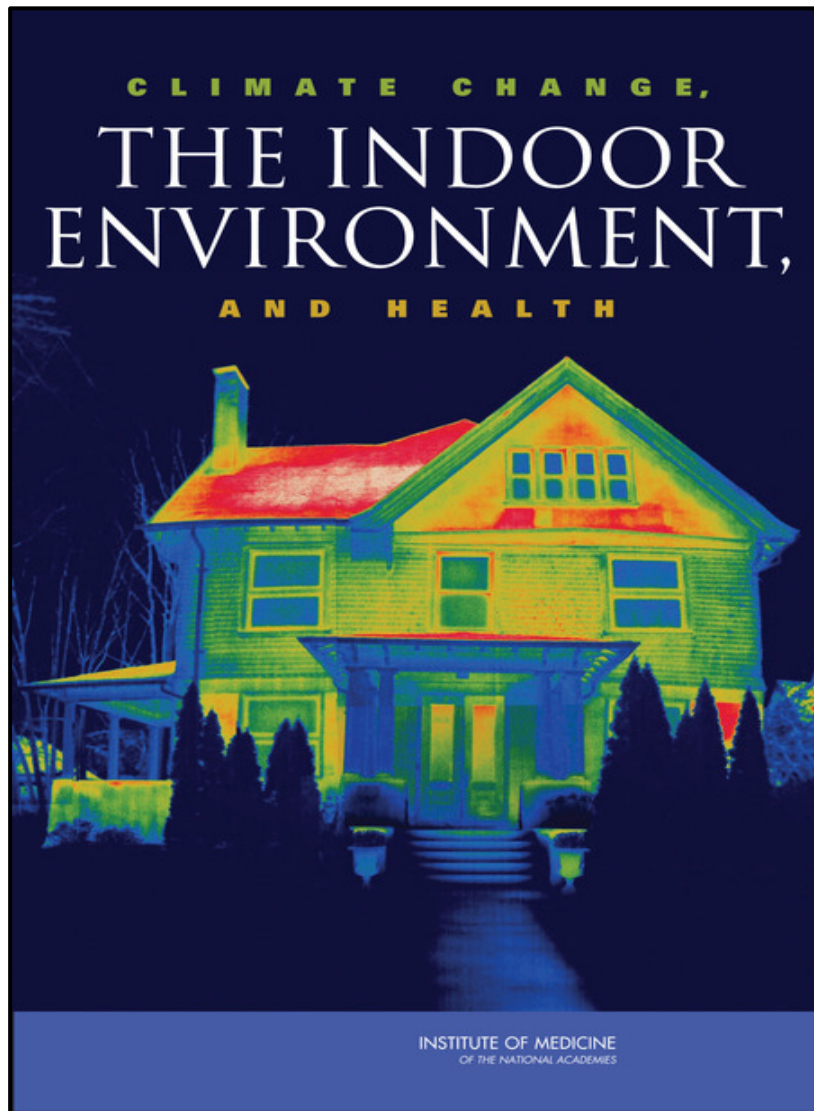
Demographic
Change

The diagram consists of three orange rounded rectangular boxes arranged in a triangle. The top box is labeled 'Demographic Change'. The bottom-left box is labeled 'Healthcare'. The bottom-right box is labeled 'Climate Change'. Black curved lines connect each box to the other two, forming a continuous loop that signifies the interconnected nature of these three global challenges. The background is a satellite image of the Earth, showing cloud patterns and landmasses.

Healthcare

Climate
Change

CLIMATE CHANGE IS A
HEALTH PROBLEM.



RANGE OF DESIGN + BUILDING FACTORS AFFECTING ENVIRONMENTAL SUSTAINABILITY

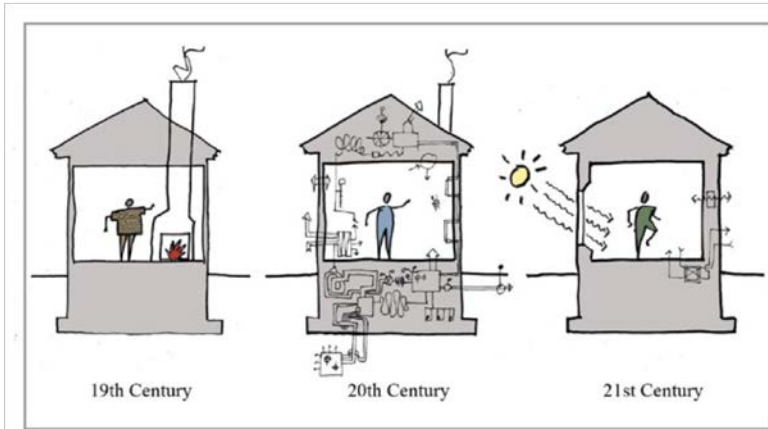
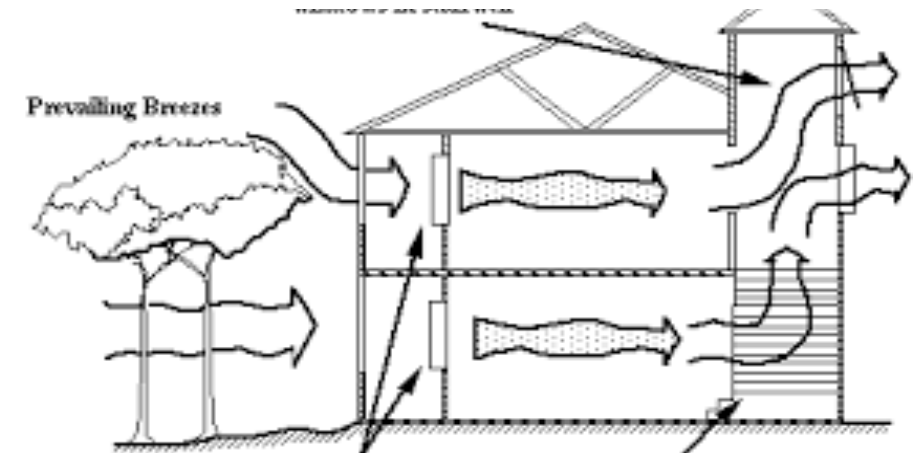
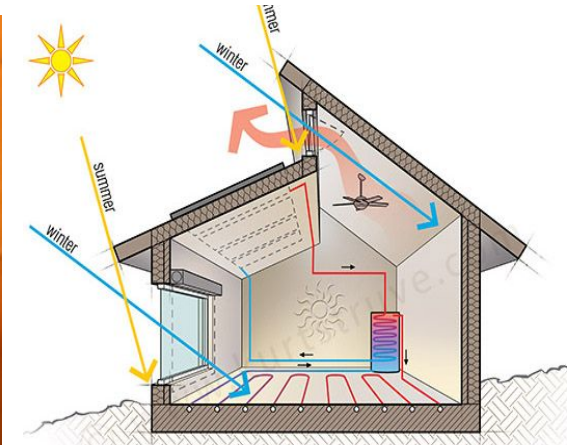
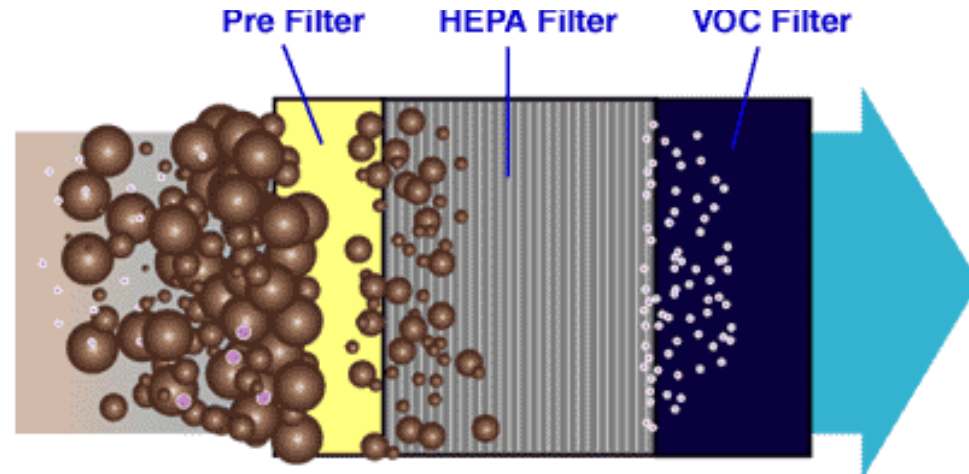
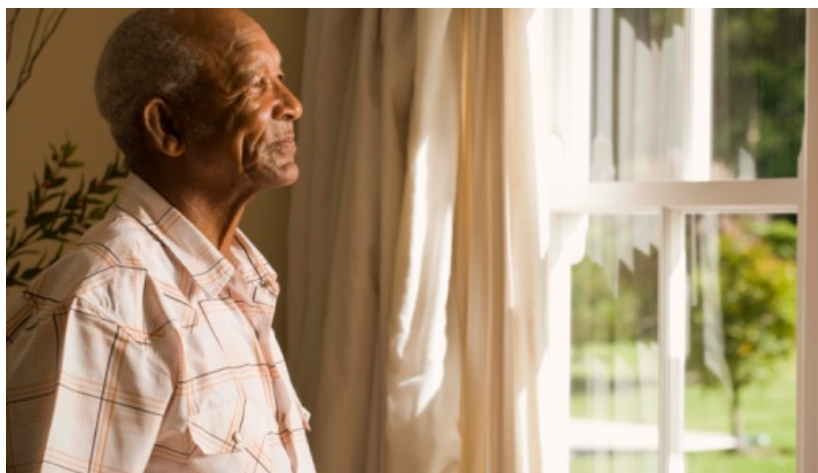


image source: Albert, Richter and Tittmann Architects

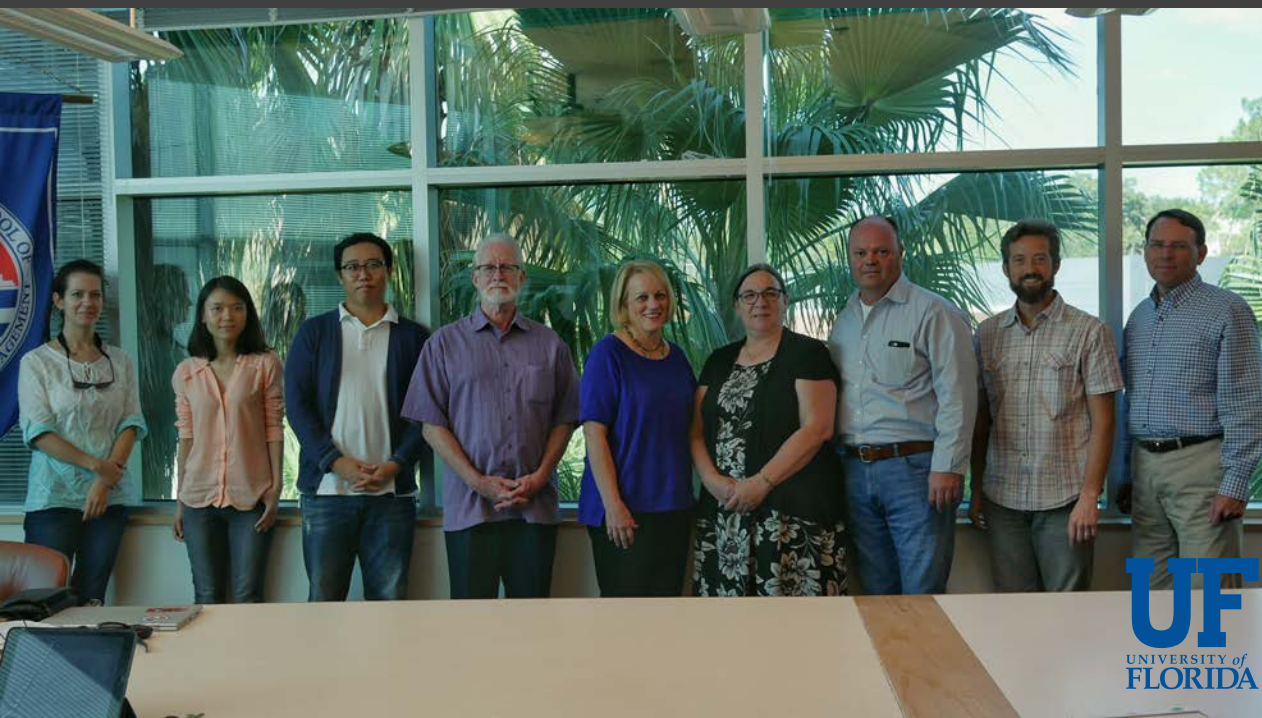


RANGE OF DESIGN + BUILDING FACTORS AFFECTING **OCCUPANT HEALTH**





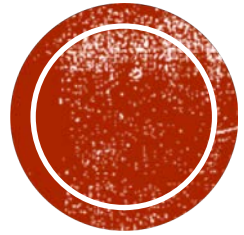






KEY HEALTH BEHAVIORS WHERE DESIGN CAN MAKE A DIFFERENCE

- **Sleep**
- **Sedentary Behavior**
- **Stress**
- **Safety and Access**
- **Social Connectivity**



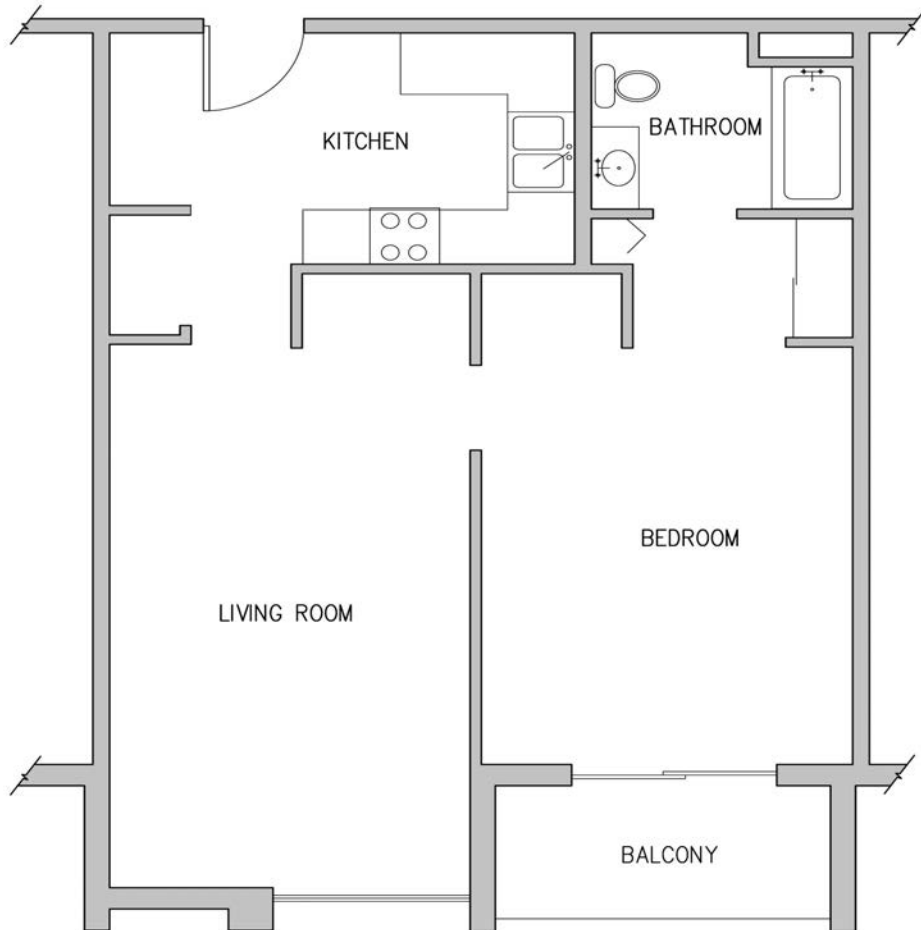
TWO EXAMPLES



IS GREEN HOUSING HEALTHY HOUSING FOR OLDER ADULTS?



KEY RENOVATIONS



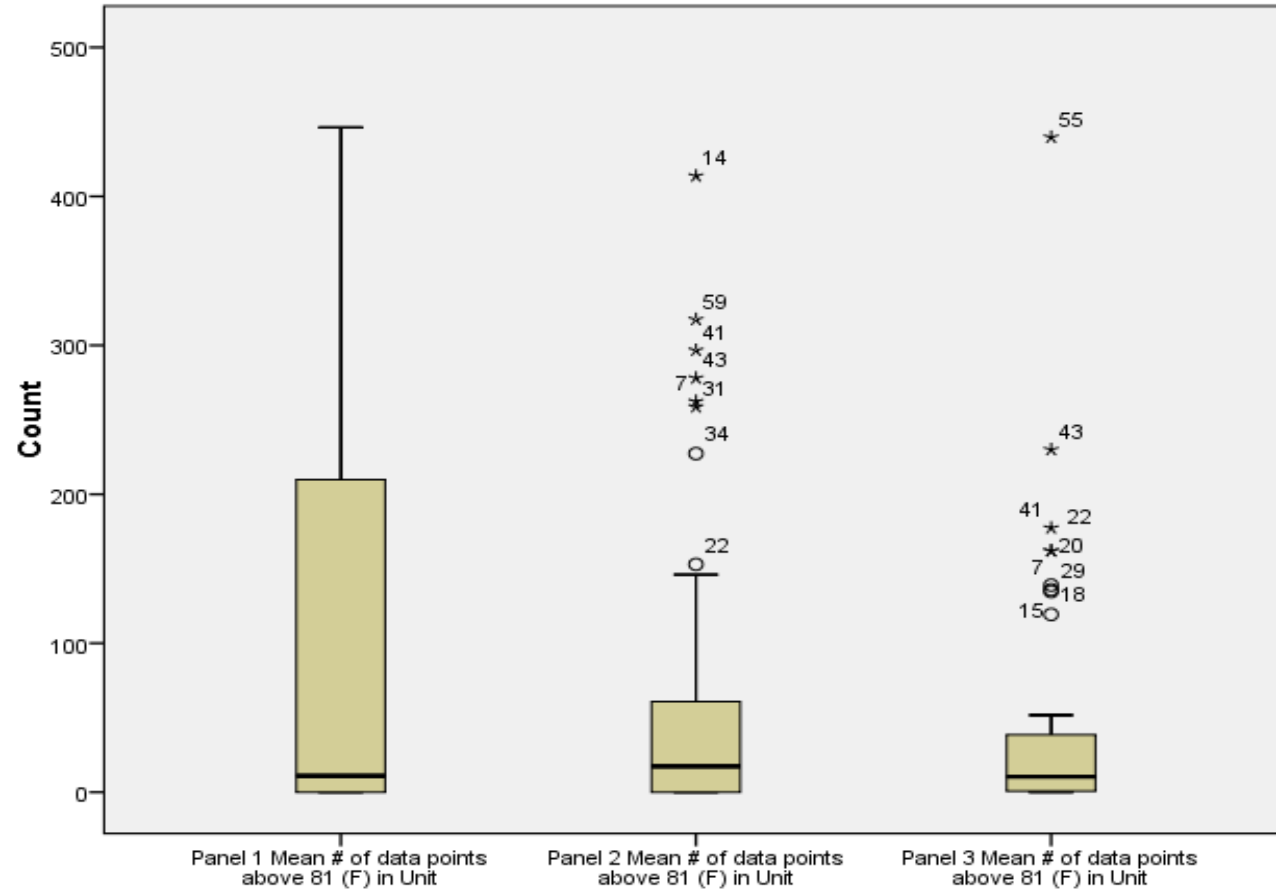
- Insulation and improvement in **building roof**
- **PTAC system upgrades**
- **Energy Star** exhaust fans, appliances
- New bedroom **ceiling fan** with pull-cords
- **Double-pane, low-E sliding** balcony door and window
- Low-flow **plumbing fixtures**
- Complete **kitchen** and **bathroom remodel** with low-VOC materials
- Low-VOC **flooring, paint, adhesives**



- **\$1.7M renovation** from ARRA Green Retrofit Program
- 3-story, 116-unit, each unit 619 SF

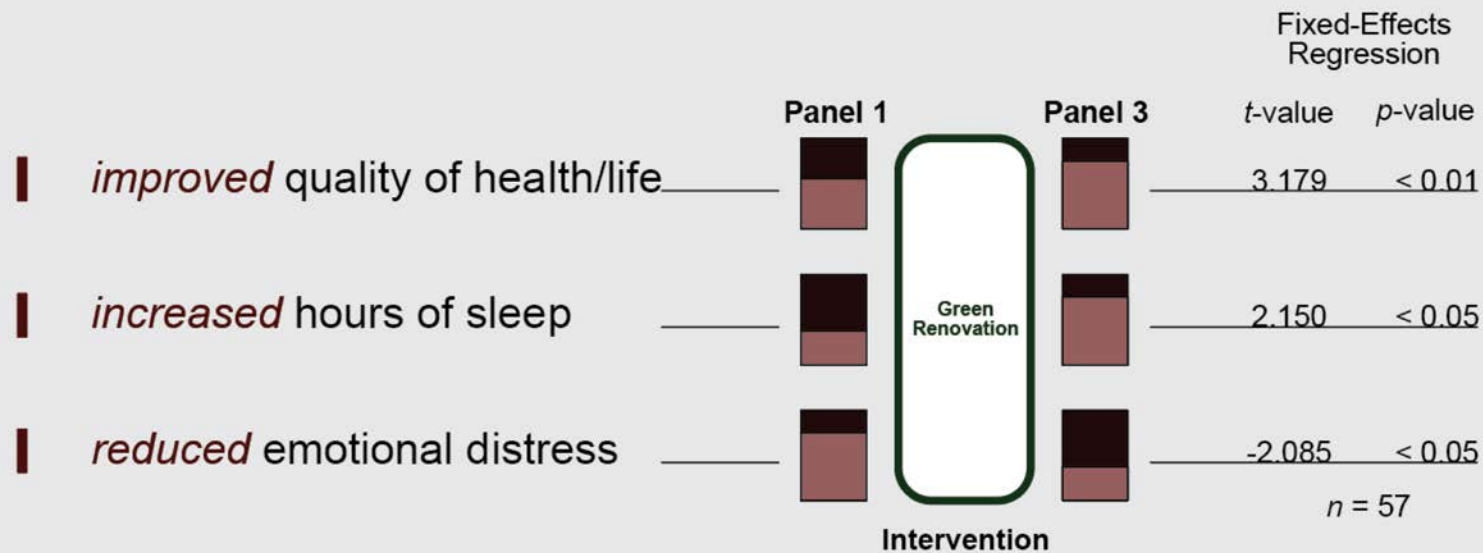


FINDING:
REDUCE # OF HOMES
WITH EXTREME
INDOOR
TEMPERATURES



Count = # of times of 448 data points that indoor temperature exceeded 81°

Reductions in indoor temperatures over 81°F resulted in:



FINDING:
REDUCTION IN
TEMPERATURE “PEAKS”
RELATED TO SELF-
REPORT HEALTH
OUTCOMES OF...

QUALITY OF LIFE/HEALTH
SLEEP
EMOTIONAL DISTRESS



SWEETWATER SPECTRUM: HOUSING FOR ADULTS WITH AUTISM

- Located in Sonoma CA
- Leddy Maytum Stacy Architects, San Francisco





AT HOME WITH AUTISM

DESIGNING HOUSING FOR THE SPECTRUM

KIM STEELE

SHERRY AHRENTZEN



ADVANCING FULL
SPECTRUM HOUSING
Designing for Adults with Autism Spectrum Disorders

ASU

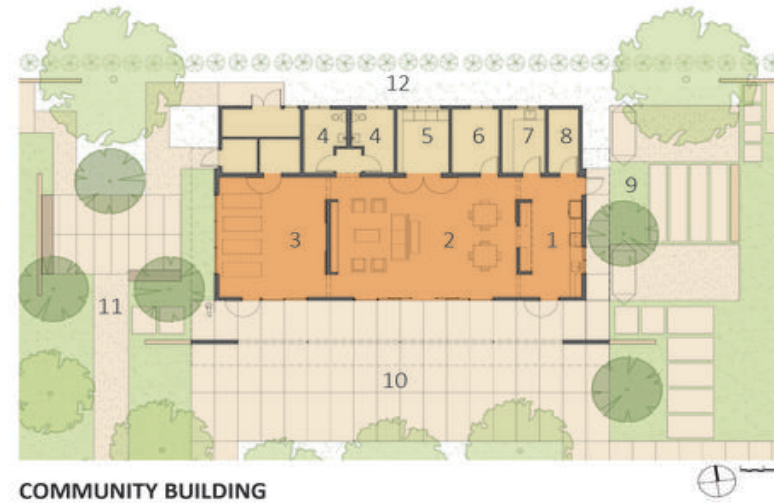


Leddy Maytum Stacy Architects | Photo: Tim Griffith ©



TYPICAL RESIDENCE

- | | | |
|-----------------|-------------------|---------------------------|
| 1. ENTRY COURT | 5. BEDROOM | 9. DINING TERRACE |
| 2. PORCH | 6. BATHROOM | 10. KITCHEN / DINING ROOM |
| 3. ENTRY | 7. LAUNDRY ROOM | 11. LIVING ROOM |
| 4. STAFF OFFICE | 8. STAFF BATHROOM | 12. TERRACE |



COMMUNITY BUILDING

- | | | |
|---------------------|---------------------------|---------------------|
| 1. TEACHING KITCHEN | 5. LIBRARY & QUIET ALCOVE | 9. HAMMOCK GARDEN |
| 2. COMMON AREA | 6. STAFF OFFICE | 10. PLAZA |
| 3. FITNESS CENTER | 7. ART PREP & STORAGE | 11. ACTIVITY GARDEN |
| 4. RESTROOM | 8. PANTRY | 12. BIO-SWALE |



MEASURE 5: LIGHT + AIR





EXPAND HOUSING OPTIONS



RETIREMENT COMMUNITIES **VS** AGING IN PLACE

- **Surveys** show most older adults want to age in their current home or community
- For some, doing so **entails** extensive remodeling or costly in-home personal/household care
- First **age-restricted** retirement community opened in 1954 in Arizona
- The Villages is the largest **active-adult** retirement community in the country
- Over 4,800 **CCRCs**, generating \$27.6B in revenue (Census, 2012)
- **Very rare** are planned affordable retirement communities



THE MIDDLE LANDSCAPE: CO-LIVING

- Live in self-contained private homes or en-suites
- Share common living space, amenities, or home services in a residential complex or neighborhood



UNIVERSITY-BASED CCRC





UNIVERSITY-BASED CCRC

- 100 UBRC (2009), including...
- Penn State University
- The Forest at Duke
- Oak Hammock at UF
- Kendal at Ithaca
- Longhorn Village (UT)
- Kendal at Oberlin
- Kendal at Hanover (Darmouth)
- Vi at Palo Alto (Sanford)
- University of Michigan



VILLAGE MOVEMENT & NORCS

- Grassroots (Village) and government-supported (many NORCs)
- Naturally Occurring Retirement Communities (NORCs) and NORC-SSPs
- Village-to-Village Network: 230 Villages in urban, suburban and rural settings
- [Beacon Hill Village Clip](#)



CO-LIVING COMPLEXES: MILLENNIALS + MORE(?)

- Type of Shared Housing
- Grassroots and For-Profit Firms
 - Common
 - Ollie
 - OpenDoor
 - Properties Management Group
 - WeLive





COHOUSING

- European origins
- In U.S. since late 1980s
- ~160 cohousing communities in US (built and in process)
- Multigenerational and Senior Cohousing



Wolf Creek Lodge, Grass Valley



Sonora Cohousing, Tucson

DEFINING FEATURES

- Generally 13-35 private homes
- Built around a **common house**
- Common house includes community-scale kitchen and eating area; other spaces, as desired
- Residents **collaboratively plan and manage** community, activities
- **Shared** activities and some resources
- **Legal structure** typically a HOA
- First senior-only cohousing in US completed in 2005



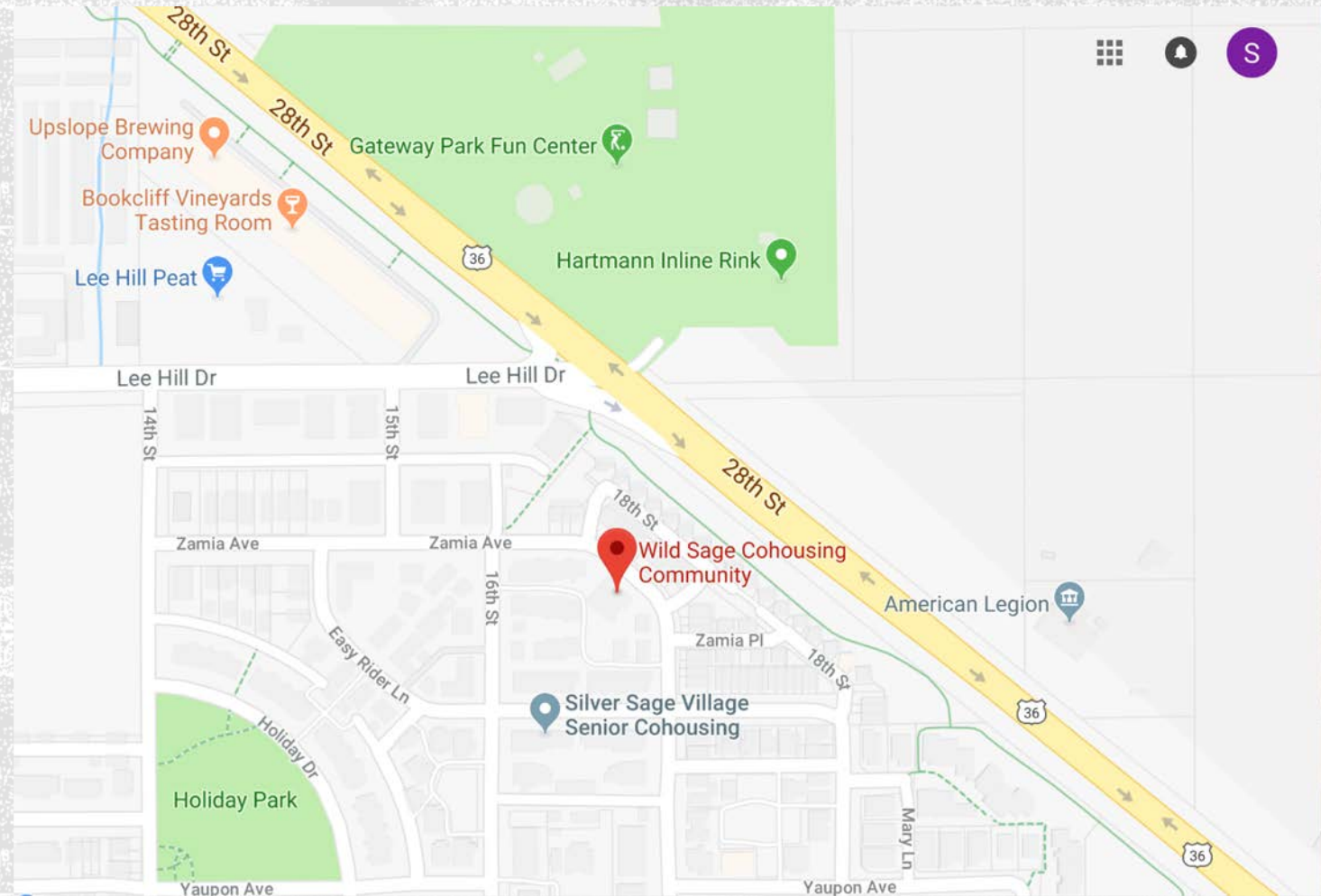
GAINESVILLE COHOUSING SITE PLAN CONCEPT



Durham Central Park Coho
Weinstein Friedlein Architects



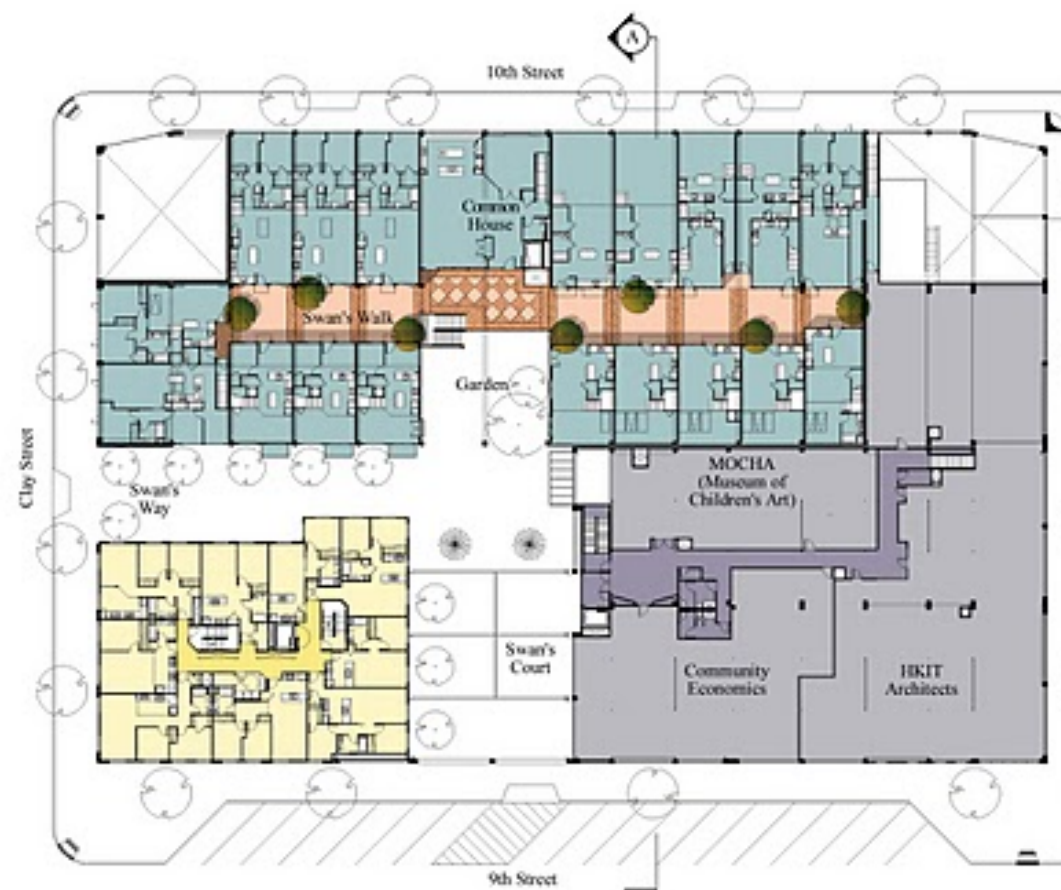
MULTIGEN & SENIOR COHOUSING





COHOUSING IN ADAPTIVE MULTI-USE

Swan's Market
Oakland CA







RETROFIT COHOUSING: SUBURBAN

N Street Cohousing
Davis CA



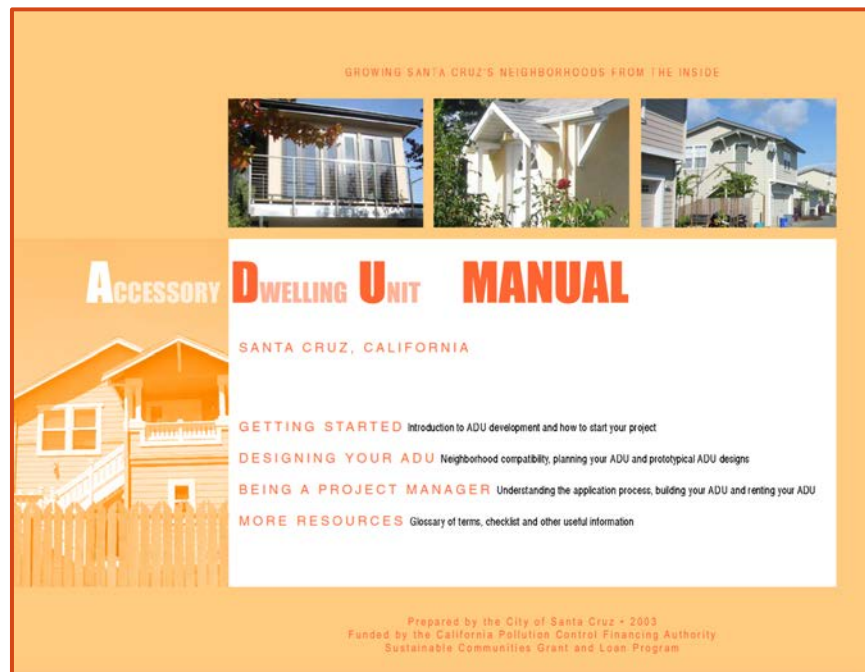
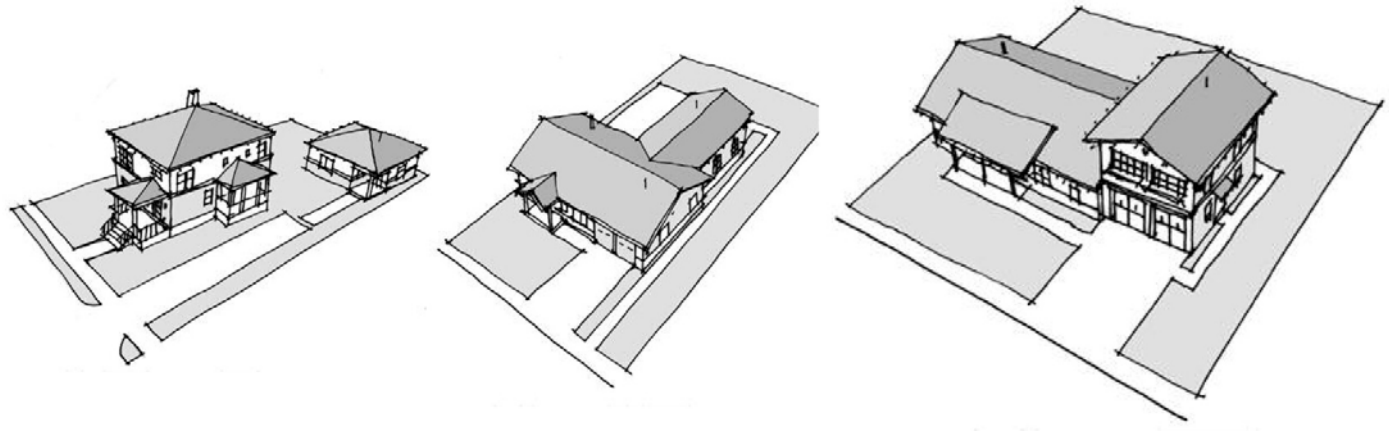


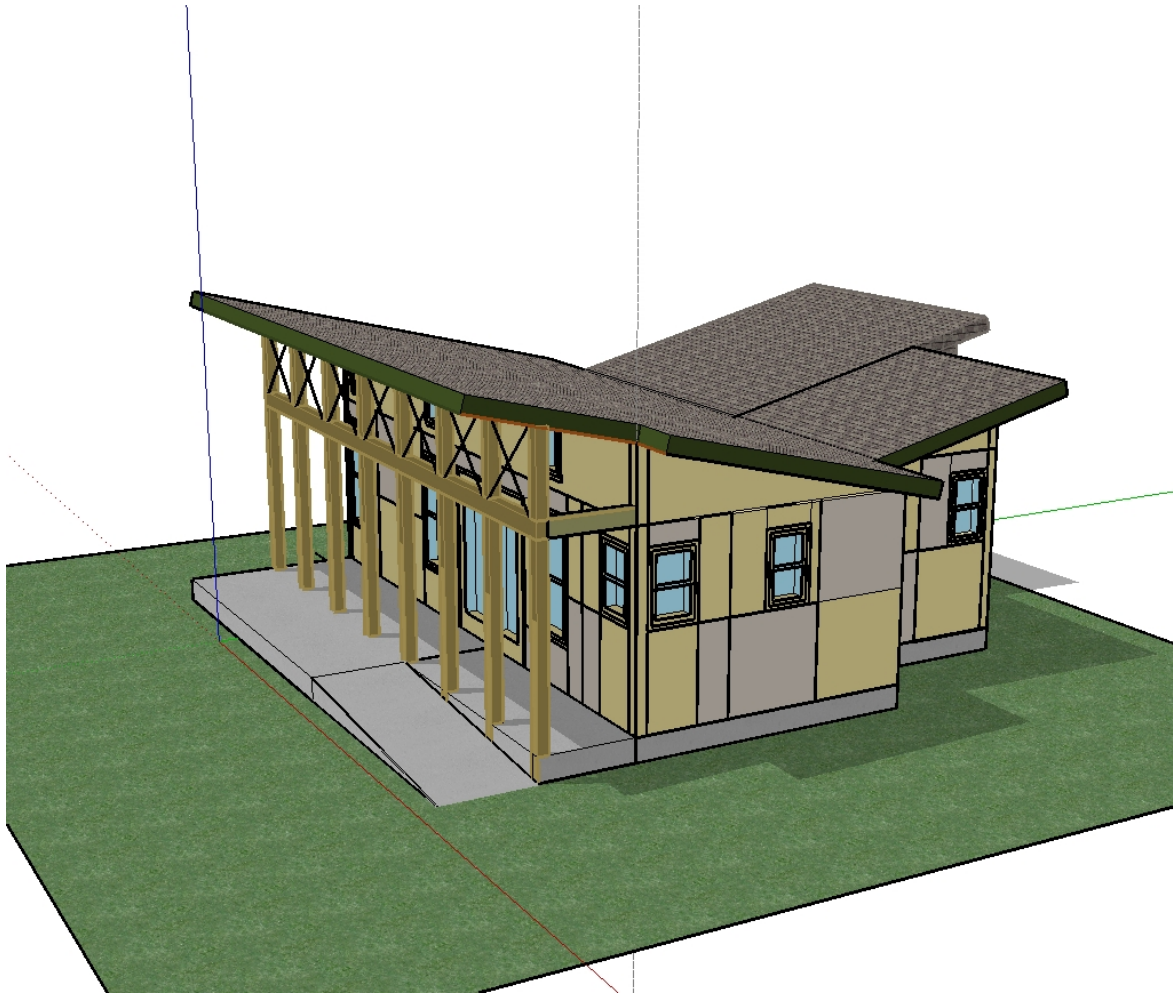
ACCESSORY DWELLING UNITS

- Traced back to 1830s
- AKA Granny Flats, In-Law Units
- Restricted in most communities

SANTA CRUZ, CA

- Provides technical assistance
- Design suggestions/prototypes developed by architects
- Integrative ADU program
- Received planning and environmental awards





David Baker Architects



1719 bay street adu schematic design
city of santa cruz adu program



Kitchen: Would contain a small refrigerator, a microwave and a combined washer-dryer, along with such features as a timed medication dispenser.

Materials: The floor is a single, molded piece of a concrete-like composite that includes a shower drain. Metal studs attach to the floor. The exterior is vinyl siding.

Some potential features



A “virtual companion” that would relay health-related messages (“It’s time to take your medication”) and play music, movies and games.



A video system that would monitor the floor at ankle level, so the patient would have privacy but a caregiver would know if there was a problem.



Pressurized ventilation that can keep airborne pathogens in (if the patient is quarantined) or keep outdoor air out (if a patient has a compromised immune system).



A lift, attached to a built-in track in the ceiling, that would move a patient from bed to bathroom so the caregiver could avoid heavy lifting.

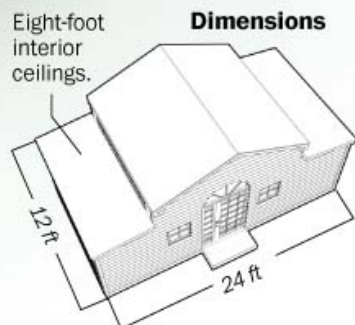


In addition to regular ambient light, **lighting at knee height** would line the walls, illuminating the floor. Tripping over objects on the floor is the most common cause of falls.

Bathroom: Many “smart” devices can be installed, including a toilet that measures a person’s weight, temperature and urine content.

GRANNY POD or MEDCOTTAGE

N2Care LLC
Fairfax County VA



Dimensions

Others in Modular Construction:
FabCab (Seattle-based)
The Home Store (Northeast)



The comfortable, well-lit interior provides ample communication and entertainment options.





MOVING FORWARD

Sherry Ahrentzen PhD: ahrentzen@ufl.edu

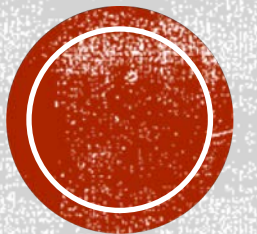


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