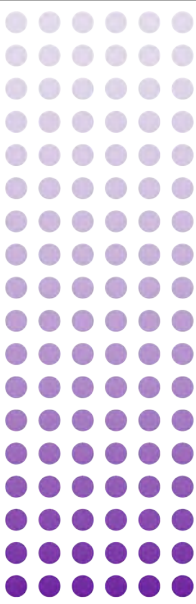


Wheeling in the City- Accessibility and Environmental Considerations Across the Globe

Rusk Rehabilitation

Elaine V. Toskos MAOTR/L, ATP, CAPS
Clinical Specialist
Seating & Mobility Program

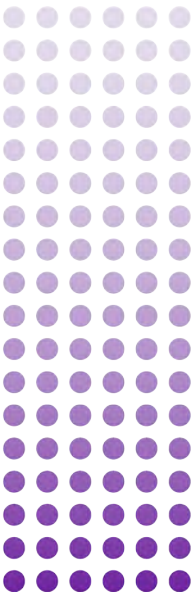


1

Rusk Rehabilitation Specialty Programs

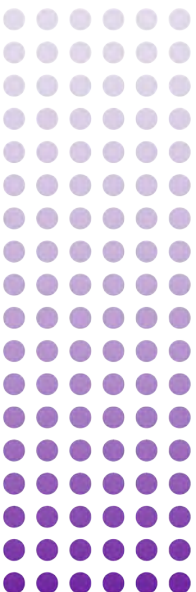


Capturing the Momentum of Rehabilitation Medicine at NYU Langone Medical Center



2

Rusk Rehabilitation Specialty Programs- Seating & Mobility



3

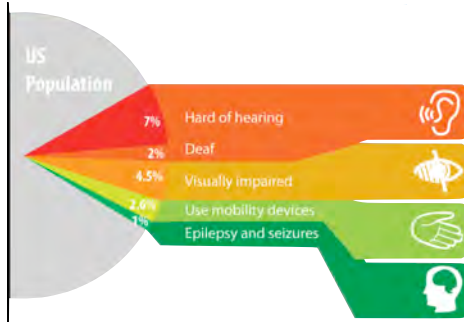


Source: Accessible Icon Project

The Centers for Disease Control and Prevention estimated that:

- One in five Americans—about 53 million people—has a disability of some kind.
- 33 million Americans have a disability that makes it difficult for them to carry out daily activities; some have challenges with everyday activities, such as attending school or going to work, and may need help with their daily care.
- 2.2 million people in the United States depend on a wheelchair for day-to-day tasks and mobility.
- 6.5 million people use a cane, a walker, or crutches to assist with their mobility.

Last Updated Date: 11/30/2012
www.nichd.nih.gov



www.w3.org



**ISO International Symbol of Access
 Accessible Icon Project**



“More than 45 years after it was first created, the handicap symbol is getting a significant redesign, at least in New York” (July 2014)

www.washingtonpost.com

**Accessible Icon Project
 The Icon Graphic Elements**



Head Position

1 Head is forward to indicate the forward motion of the person through space. Here the person is the “driver” or decision maker about her mobility.

Arm Angle

2 Arm is pointing backward to suggest the dynamic mobility of a chair user, regardless of whether or not she uses her arms. Depicting the body in motion represents the symbolically active status of navigating the world.

Wheel Cutouts

3 By including white angled knockouts the symbol presents the wheel as being in motion. These knockouts also work for creating stencils used in spray paint application of the icon. Having just one version of the logo keeps things more consistent and allows viewers to more clearly understand intended message.

Limb Rendition

4 The human depiction in this icon is consistent with other body representations found in the ISO 7091 - DOT Pictograms. Using a different portrayal of the human body would clash with these established and widely used icons and could lead to confusion.

Leg Position

5 The leg has been moved forward to allow for more space between it and the wheel which allows for better readability and cleaner application of icon as a stencil.



Source: Accessible Icon Project

International Classification of Functioning, Disability and Health (ICF)

The International Classification of Functioning, Disability and Health, known more commonly as ICF, is a classification of health and health-related domains.

As the functioning and disability of an individual occurs in a **context**, ICF also includes a **list of environmental factors**.



ICF puts every person in a context: functioning and disability are results of the **interaction** between the health conditions of the **person and their environment**.

www.who.int/classifications

International Classification of Functioning, Disability and Health (ICF)

The International Classification of Functioning, Disability and Health, known more commonly as ICF, is a classification of health and health-related domains. As the functioning and disability of an individual occurs in a context, ICF also includes a list of environmental factors.



ICF puts every person in a context: functioning and disability are results of the interaction between the health conditions of the person and their environment.

- The International Classification of Functioning, Disability and Health (ICF) is a framework for organizing and documenting information on functioning and disability (WHO 2001). It conceptualizes functioning as a 'dynamic interaction between a person's health condition, environmental factors and personal factors.'
- The ICF provides a common language for disability. The international framework standard to describe and measure health and disability.
- It recognizes the role of environmental factors in the creation of disability, as well as the role of health conditions (Ustun et al. 2003).
- Functioning and disability are understood as umbrella terms denoting the positive and negative aspects of functioning from a biological, individual and social perspective.
- ICF clarifies that we cannot, for instance, **infer participation in everyday life from medical diagnosis alone**. In this sense ICF is etiology-neutral: if a person cannot walk or go to work it may be related to any one of a number of different health conditions. By shifting the focus from health condition to functioning, the ICF places all health conditions on an equal footing, allowing them to be compared, in terms of their related functioning, via a common framework.

For instance, arthritis has been found to have very high frequency among people in Australia with a health condition and with a disability; that is, arthritis accounts for much of the disability in the population. In contrast, conditions such as autism, dementia, Down syndrome and cerebral palsy are much higher ranked in terms of the likelihood of severe disability (AIHW 2004).

- **The ICF covers the entire life span.**
- Health has been defined in the WHO Constitution as 'a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity' (Constitution of the World Health Organization, WHO 1948).
- The ICF provides a scientific, operational basis for describing, understanding and studying health and health-related states, **outcomes** and determinants.

www.who.int/classifications

The Human Activity Assistive Technology (HAAT) model has four components:

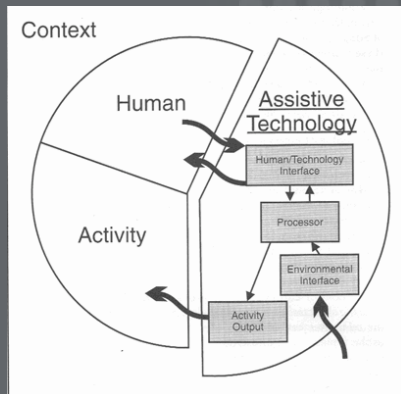
Human
Activity
Assistive Technology
Context

The activity is the fundamental element of the HAAT model

The three integrated factors exist within the context

Activities are categorized within three basic performance areas:

- ADL
- Work and productive activities
- Play & leisure activities



Cook and Hussey's Assistive Technologies: Principles and Practice
By Albert M. Cook, Janice Miller Polgar

The Human Activity Assistive Technology (HAAT) model has four components:

- Human
- Activity
- Assistive Technology
- Context

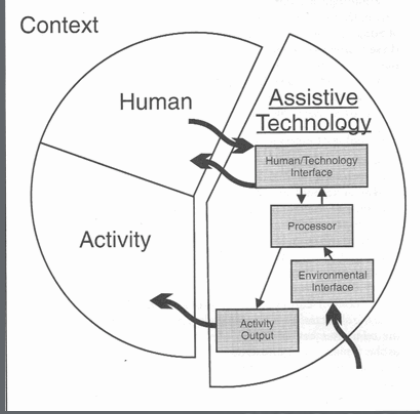
The **activity** is the fundamental element of the HAAT model

The three integrated factors exist within the **context**

Activities are categorized within three basic performance areas:

- ADL
- Work and productive activities
- Play & leisure activities

Occupational competence gives a **dynamic context** to the understanding of human abilities and how a person changes and adapts his or her engagement in **activity** in response to **environmental demands** and his or her own **abilities**



Cook and Hussey's Assistive Technologies: Principles and Practice
By Albert M. Cook, Janice Miller Polgar



10



11

MTA 1904

Of 468 stations in NYC subway system only 82 can be accessed by wheelchair users
www.mta.info

New York City Subway
Accessibility and Universal Connections

The MTA is committed to providing accessible transit services for all passengers, including those with disabilities. This includes wheelchair accessible vehicles, ramps, elevators, and accessible stations. The map shows the extensive subway network across the five boroughs of New York City, with specific stations marked as wheelchair accessible.

12

Subway



500,000

people in NYC
have some form
of physical
disability.

18%

of NYC subway
stations have
accessible elevators



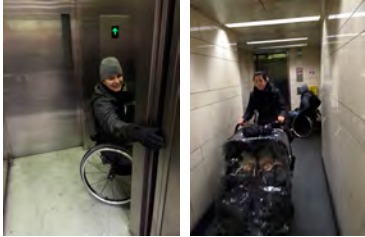
13

Subway

AutoGate



Atlanta



14

Subway



15

Subway



16

Subway

"Rumble strips" along the platform edge are required by ADA.



17

Subway

Courtesy campaign



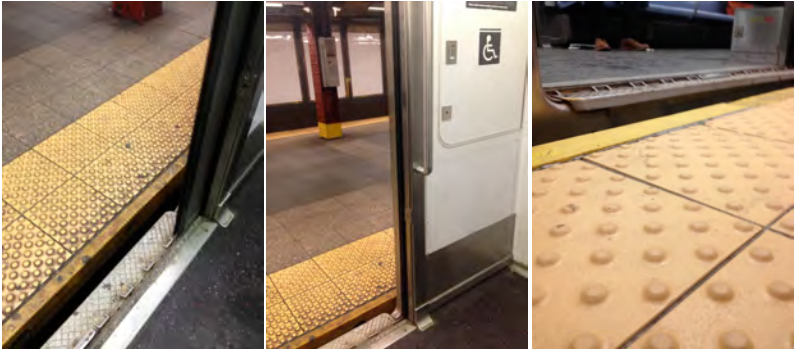
18

Subway



Subway

Gaps between platform and cars are wide and uneven.



Subway

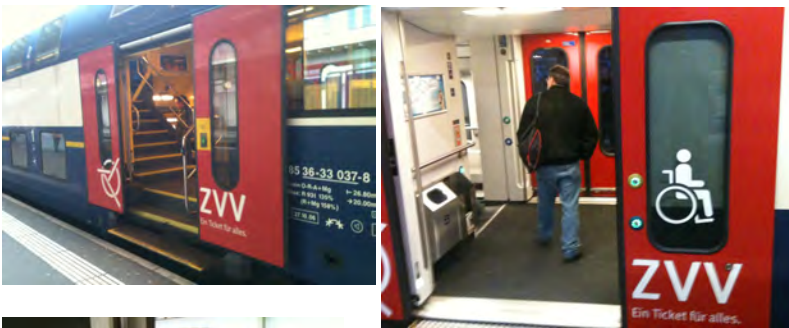


Subway/Railway

Switzerland- MobiLift

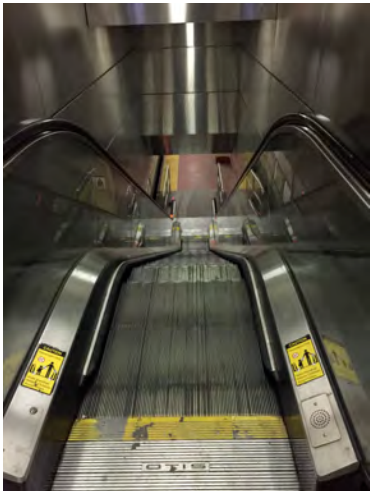


22



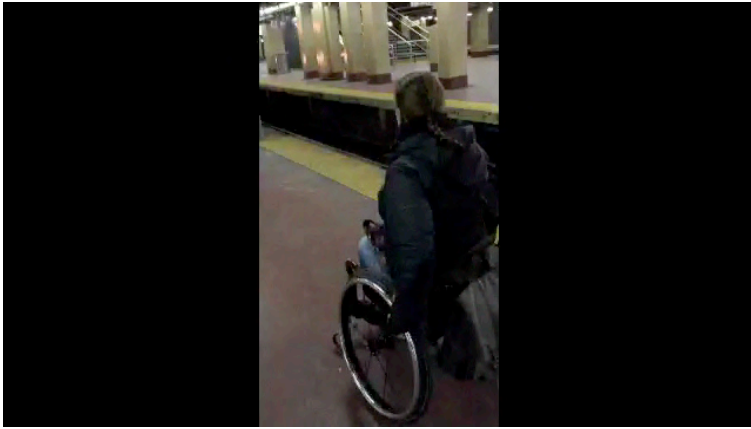
23

Subway/Railway



24

Subway/Railway



25

Taxi

There are 572 yellow taxis and 809 green borough NYC taxis that can take wheelchairs That is just 4.2% and 14% of the fleets, respectively.

London has 100% wheelchair-accessible taxis including landmark BlackTX4 & swivel seat transfer assist.

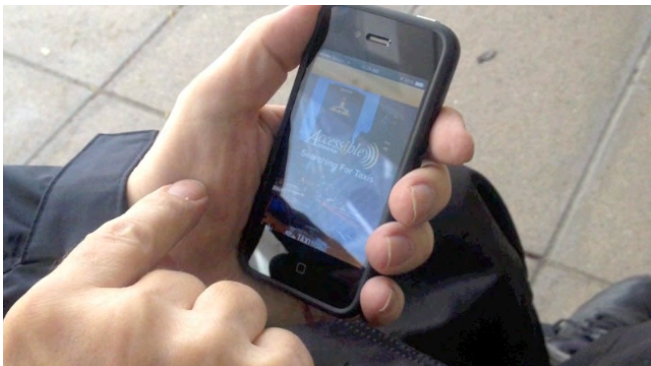
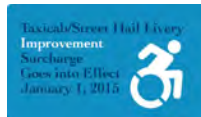


26

Taxi

The \$0.30 surcharge to each trip in a yellow taxi to assist in achieving the City's goal of a 50% wheelchair accessible taxi fleet by the year 2020.

No matter the question, the answer is always money!



27

Taxi



28

Taxi



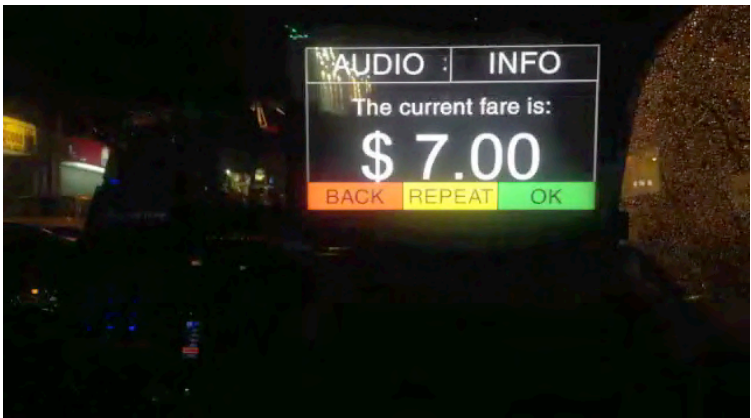
www.EZlitecruiser.com



29

Taxi

Taxi with meter for low vision



30

Bus

All MTA buses are fully ADA-compliant.



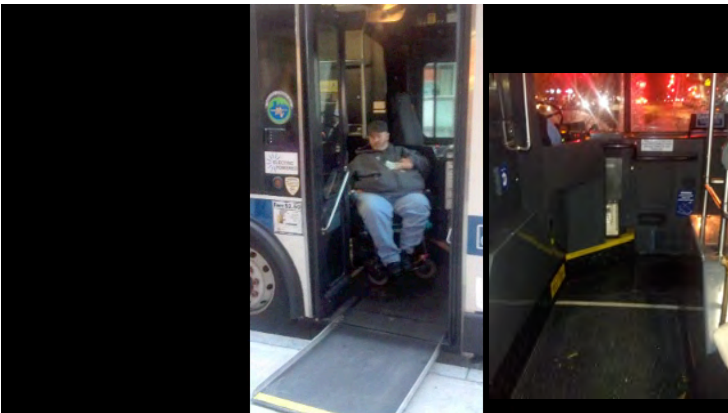
31



Zurich- Tram

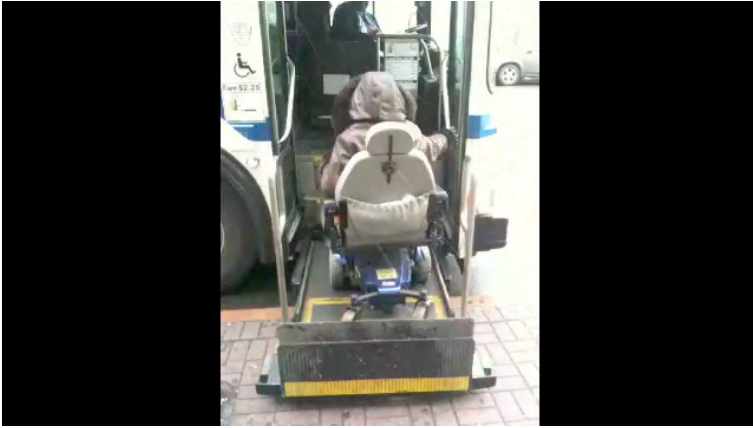
32

Bus



33

Bus



34

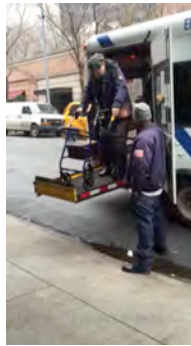
Access-a-Ride

The MTA offers a door-to-door option for disabled persons, Access-A-Ride.



35

Access-a-Ride



36

Access-a-Ride

Appropriate equipment *may* or *may not* be complex.

Appropriate equipment is the *right* equipment for that person for the activity.



Grand Prix Classic
www.troxelhelmets.com



Stand N Ride
www.evrider.com



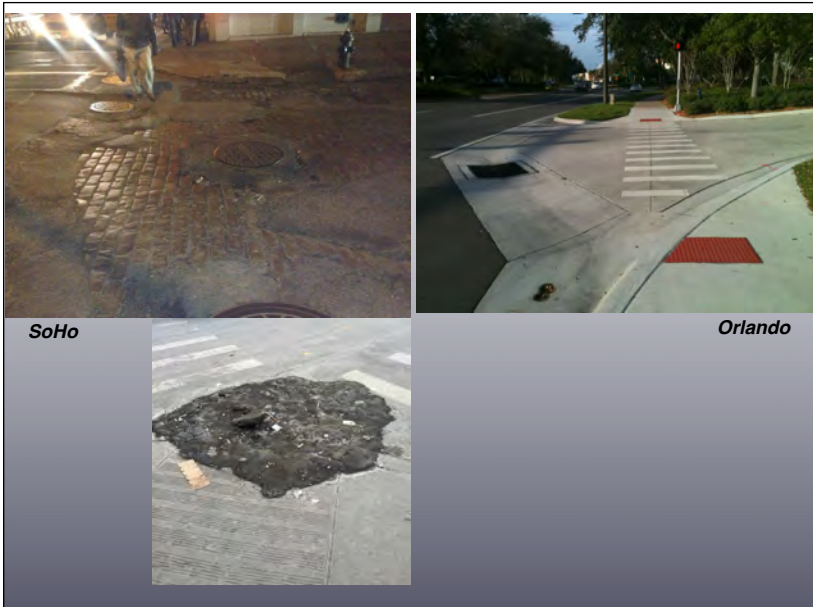
37

Wheeling in the city

Pavements, Curb cuts & City streets



38



SoHo

Orlando

39

City Strong



40

Wheeling in the City

Seating Functions needed to augment mobility



41

Low Vision

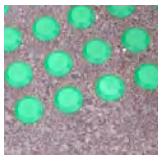
Tactile Guidance Pavements



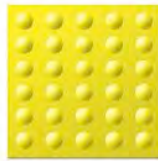
42

Low Vision

Used to provide tactile input thru the feet.
Vibration and sound thru a walking cane.
Friction & vibration thru wheelchair wheels.



Block indicates "Go"



Block indicates "Stop"



43

Guidance Pavements

Who does it Better?



Japan

The paving was first introduced in a street in Okayama city, Japan, in 1967.

44



Greece

Don't need to speak it to decipher the comments in red!

45

Guidance Pavements



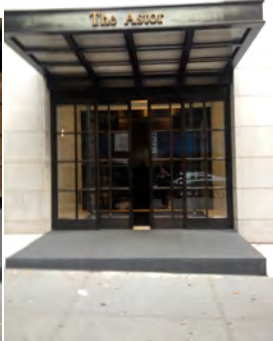
Indianapolis



46

Ramps

- Ratios**
- 1:12 ADA- Public & Government Buildings
 - 2:12 Private & Residential
 - 3:12 Unoccupied



47

Ramps

Pre War Buildings



48



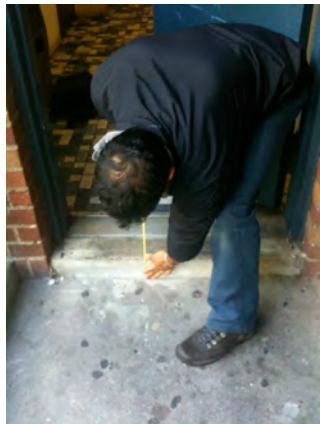
49

Ramps



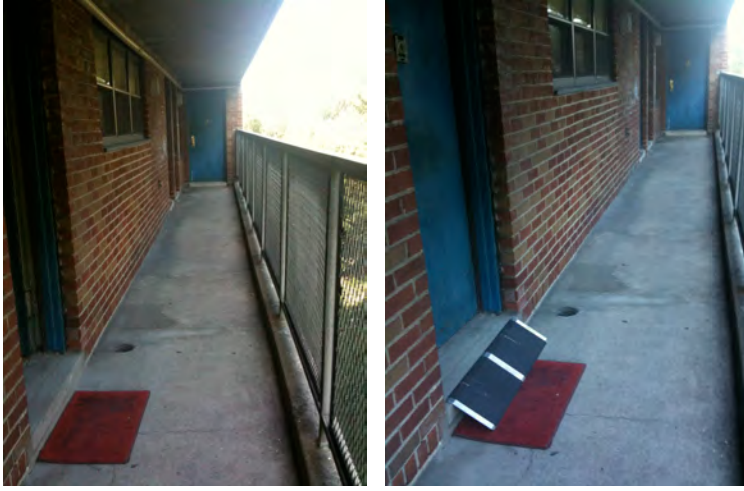
50

Ramps



51

Ramps



52



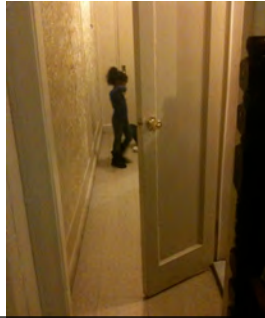
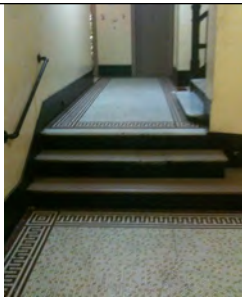
Ramps

53

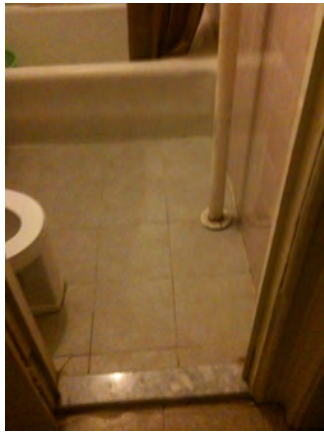


54

Bathing



55



Sliding Transfer Bench with Swivel Padded Seat
Sammons Preston

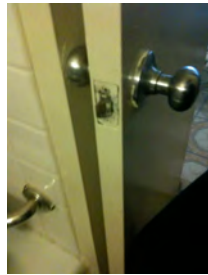
56

Bathing



MultiChair 6000- Nuprodix

57



MultiChair 6000 w/tilt - Nuprodz

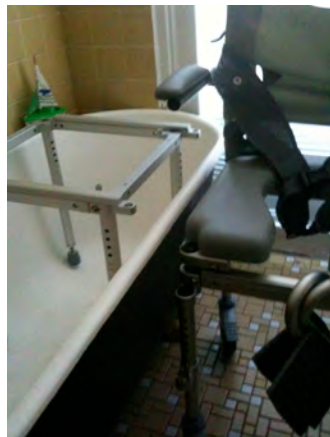
Tub Transfer System- Shower Buddy

58

Bathing



59



Custom iBar MultiChair 6000- Nuprodz

60

Accessibility



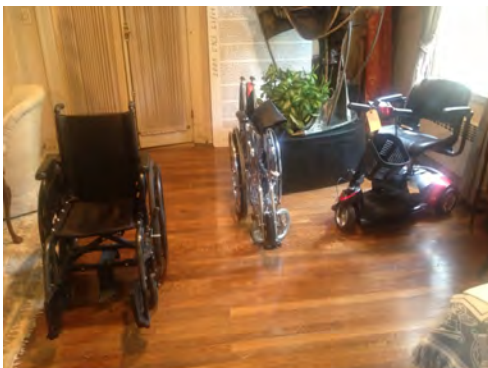
61

Accessibility



62

Travel



63

Travel



SeQual Eclipse concentrator pack
www.oxygenconcentratorstore.com



wheelchair caddy
<http://mywheelchaircaddy.com>



64

Travel



The next
best thing!



65

Travel



66

City moms



67

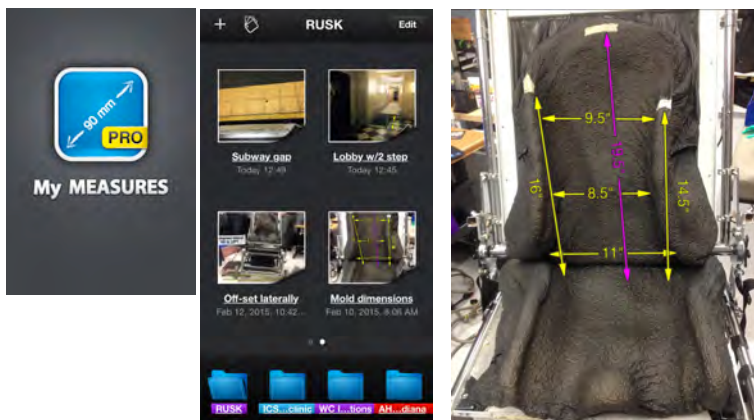
Activity 24/7 Perspective



NYU Langone
MEDICAL CENTER

68

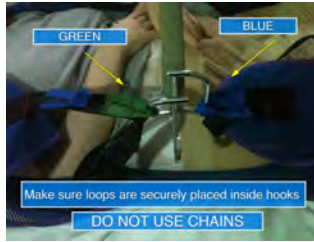
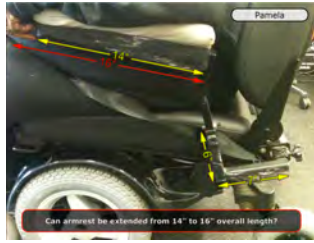
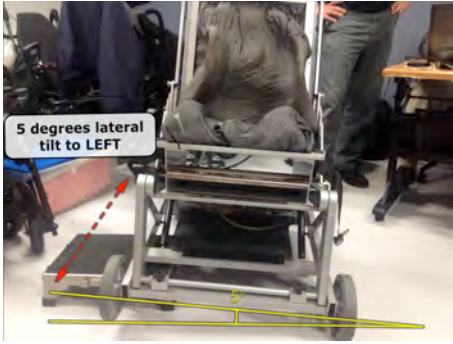
My favorite things...



69

My favorite things

Repairs



Instructions

70

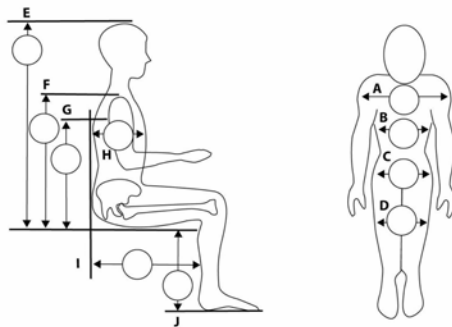
My favorite things

- A - Shoulder Width
- B - Chest Width
- C - Hip Width
- D - Width at Knee
- E - Seat to Top of Head
- F - Seat to Top of Shoulder (L,R)
- G - Seat to Axilla (L,R) Armpit
- H - Chest Depth (L,R) Back to Tip of Chest
- I - Seat Depth (L,R) Actual - 2-3 Fingers
- J - Seat to Footplate (L,R)



Client Measurements

(write measurements inside of circle)



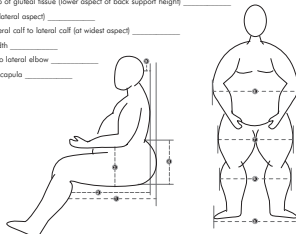
71

My favorite things

ADDITIONAL MEASUREMENTS FOR BARIATRIC CLIENTS

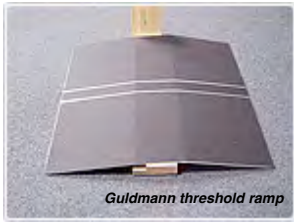
Current weight: _____ Weight history: _____

1. Back of knee/calf to back of buttocks (seat pan depth) _____
2. Back of knee/calf to thoracic-lumbar trunk (for seat depth) _____
3. Seat pan to under forearm (armrest height) _____
4. Seat pan to top of gluteal tissue (lower aspect of back support height) _____
5. Width at knee (lateral aspect) _____
6. Width from lateral calf to lateral calf (at widest aspect) _____
7. Overall hip width _____
8. Lateral elbow to lateral elbow _____
9. Back of head scapula _____

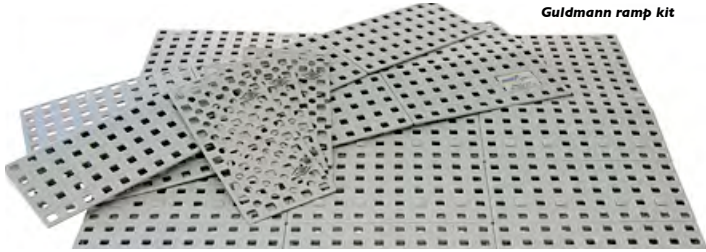


72

My favorite things



Guldmann threshold ramp

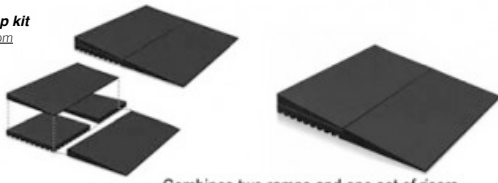


Guldmann ramp kit

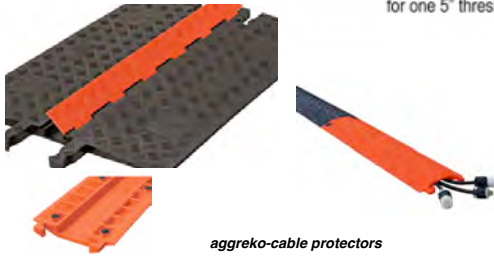
73

My favorite things

Rubber 5"rise ramp kit
www.1800wheelchair.com



Combines two ramps and one set of risers for one 5" threshold ramp



aggreko-cable protectors

74

My favorite things



Guldmann portable ramp



75

My favorite things

PVI Slide Rule

PVI Slope Length Rise Chart

INSTRUCTIONS:
 1. Use bar on desired Slope Ratio.
 2. Read Length Needed opposite Slope on adjacent bar.

PVI Portable Ramps

Slope	Length
1:12	12"
1:15	15"
1:20	20"
1:25	25"
1:30	30"
1:40	40"
1:50	50"
1:60	60"
1:80	80"
1:100	100"

PVI Modular System

Slope	Length
1:12	12"
1:15	15"
1:20	20"
1:25	25"
1:30	30"
1:40	40"
1:50	50"
1:60	60"
1:80	80"
1:100	100"

Triangle View Industries, Inc.
 775 N. 10th St. • P.O. Box 1000
 Eau Claire, WI 54601 • Phone: (715) 754-4000



DecPac mini



76

My favorite things

Carabiner clips



77

My favorite things



zip ties



kwikwist
www.kwiktwist.com

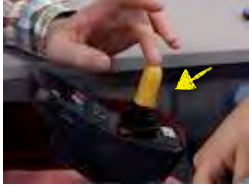
Schwalbe Marathon Reflective-Kevlar City Tire
www.wiggle.com



78

My favorite things

Self-Fusing Tapes
www.amazon.com



Sugru
www.amazon.com

79

My favorite things



gloves for life
<http://glovesforlife.com>

80

My favorite things



Detecto portable wc scales
www.detecto.com/

81

My favorite things



Hoyer
Invacare
Medline



Medline Disposable 6-Point U-Slings
www.1800wheelchair.com

82

My favorite things

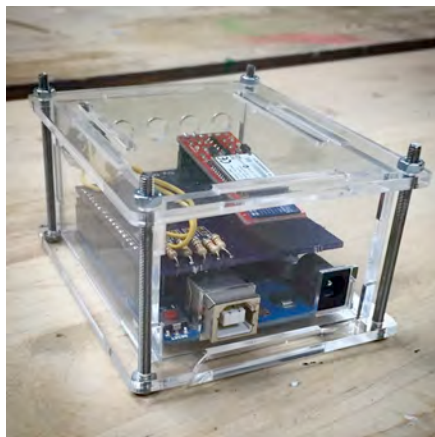


Prism Comfort recline sling
www.prismmedical.ca

83

My favorite things

Capacita-
The Accessible Game Controller
www.DIYAbility.org



84

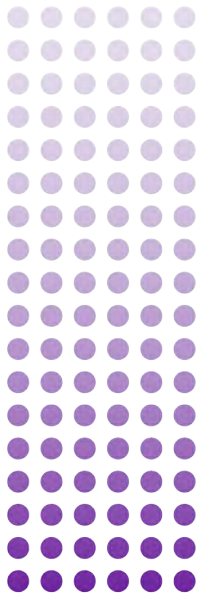


Acknowledgments

85



Questions?

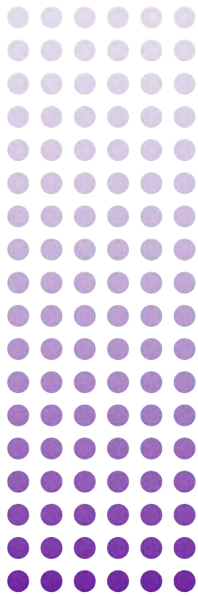


86



Thank You!

elaine.toskos@nyumc.org



87