



# DESIGN CHARRETTE REPORT

**Prepared for:**

U.S. Department of Housing and Urban Development  
Office of Policy Development and Research

**Prepared by:**

Project Re-Envision  
University of Florida

Cooperative Agreement # H-21671CA

April 24, 2019

# DESIGN CHARRETTE REPORT

## TABLE OF CONTENTS

1. Introduction and Intent	4
2. Charrette Participants	6
3. Schedule	8
4. Framework	10
5. Work Groups	12
6. Image Input Session	14
7. Breakout Session I	16
8. Group Presentations	18
9. Breakout Session II	20
10. Next Steps	21

## TEAM CONTRIBUTORS

### Principal Investigators

Sherry Ahrentzen, PhD  
Stephen Bender, MArch  
Randall (Randy) Cantrell, PhD  
Sherrilene Classen, PhD, OTR/L  
Erin Cunningham, PhD  
Robert Ries, PhD  
Ravi Srinivasan, PhD  
Linda Struckmeyer, PhD, OTR/L

### Graduate Research Assistants

Elshan Asadi  
Carlyn Ellison  
Jithin Gopinadhan  
Mahshad Kazem Zadeh  
Chunyao Liu  
Xiaojie Lu  
Elianne Sanzone  
Edward K Sun

# INTRODUCTION & INTENT

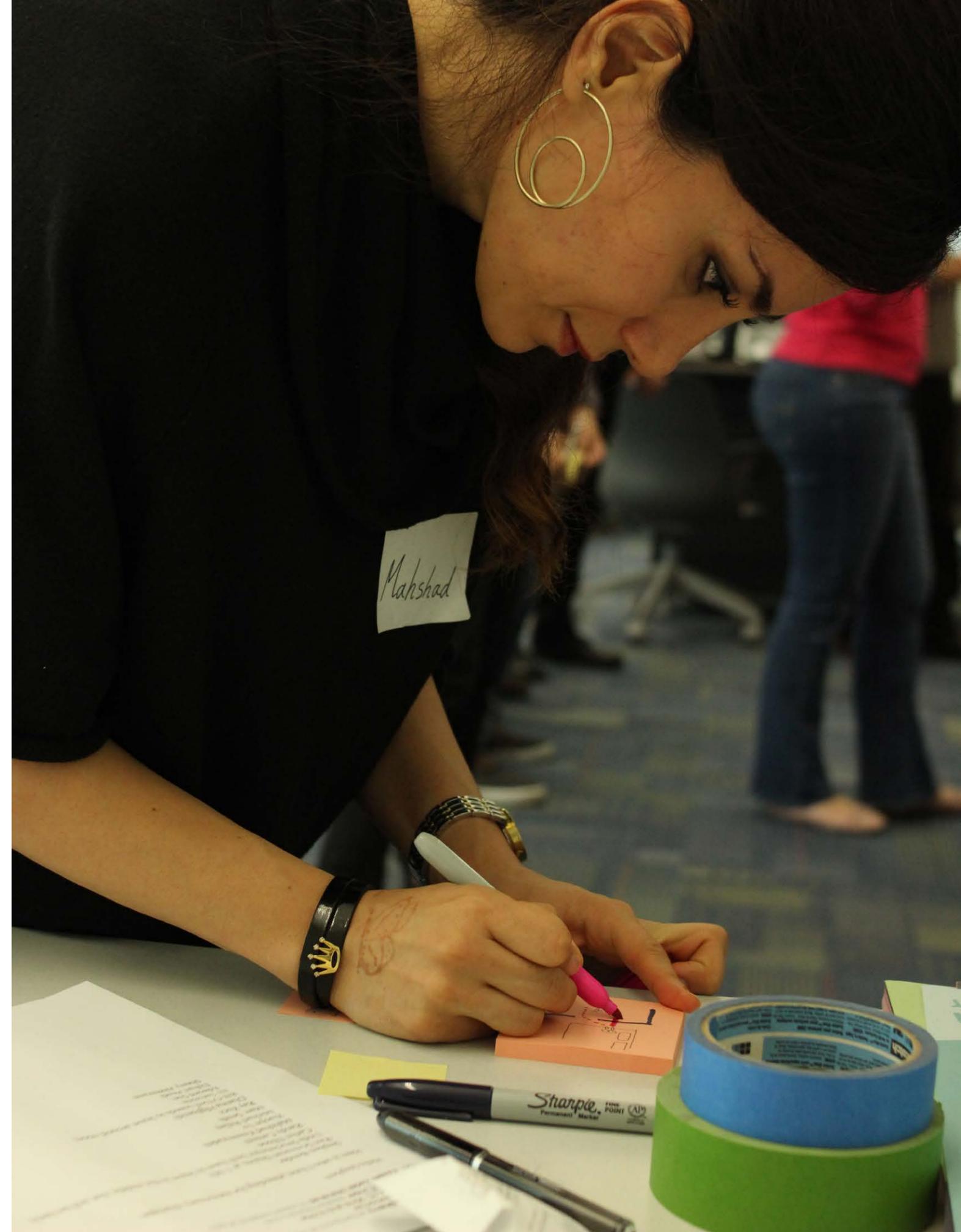
This booklet profiles the Design Charrette that was held on November 16, 2018, as part of Project Re-envision's efforts to analyze accessibility and aesthetic challenges of residential dwellings in small-scale multi-unit complexes of low-income and affordable housing; and to derive ideas for low-cost and repurposed design modifications that could address some of those challenges.

## GOAL FOR CHARRETTE

Generate schematic/conceptual designs (i.e. solution with permutations) of repurposed solution for each of the three target interior areas. Coupled with feedback from [Advisory Council](#) members, these conceptual designs will help establish programmatic criteria and redesign solutions for simulation testing with persons with mobility, visual and functional impairments.

## PROTOCOL FOR DEVELOPMENT OF DESIGN SOLUTIONS

1. Identify and reserve location for design charrette
2. Identify and invite charrette participants
3. Set agenda for design charrette
4. Develop and produce briefing booklet for charrette
5. Plan preparation for day of charrette
6. Design charrette: Generate conceptual designs of repurposed/retrofit spaces and fixtures, for:
  - Bedroom to bathroom transition
  - Kitchen/meal preparation
  - Conversion of first floor space of two-story townhome into studio flat (self-contained living space kitchen/living/bedroom/bathroom)
7. Create conceptual renderings of solutions
8. Advisory council: Review renderings, recommend revisions
9. Revise designs and convert to digitized software for simulation



# CHARRETTE PARTICIPANTS

## CHARRETTE

A charrette is an intensive workshop in which participants divide into small groups to explore and generate ideas and conceptual design solutions to a problem. Generally, the charrette process begins with a general session that establishes the objectives and goal of the problem; then breaks into several small work groups that propose their own ideas and solutions. Each work group presents its strategy and conceptual design to the entire audience, including feedback sessions or subsequent presentations from technical staff or decision makers.

The Project Re-envision charrette was organized and facilitated by UF team members. The participants, an interdisciplinary group with diverse backgrounds and expertise, collaborated to develop solutions to address the priorities previously identified by the focus groups.

## UF TEAM MEMBERS

Sherry Ahrentzen, PhD, Shimberg Professor of Housing Studies, Rinker School of Construction Management

Stephen Bender, AIA, Architect, UF Assistant Program Director, Citylab Orlando

Randall Cantrell, PhD, UF Assistant Professor, Housing and Community Development

William "Bill" O'Dell, MS, Director, Shimberg Center for Affordable Housing

Robert Ries, PhD, Professor Rinker School of Construction Management

Ravi Srinivasan, PhD, Associate Professor Rinker School of Construction Management

Linda R. Struckmeyer, PhD, OTR/L, Clinical Assistant Professor

## GRADUATE ASSISTANTS

Elshan Asadi

Carlyn Ellison

Jithin Gopinadhan

Mahshad Kazem Zadeh

Chunyao Liu

Xiaojie Lu

Elianne Sanzone

Edward K Sun

## ACCESSIBILITY EXPERTS

Dianna Highsmith

Raymond C. Kurz, PhD, Environmental Scientist, ret.

Marc Smith, PhD, Advocate

## BUILDING PROFESSIONALS

William (Bill) Lazar, CRC1329155, Executive Director, St. Johns Housing Partnership

Michael Pellett, AIA, Architect

## EVENT ASSISTANCE

Linda Stanley, Shimberg Center for Housing Studies



# SCHEDULE

## DATE

November 16, 2018, 10 am – 2 pm

## LOCATION

M. E. Rinker, Sr. School of Construction Management  
Room 140  
University of Florida  
Gainesville, FL 32611-5703 USA

## AGENDA

- 10:00 Introductions and Talent Questionnaire (Sherry Ahrentzen)
- 10:15 Review the Day's Agenda and Goal; Highlights of Briefing Book (Stephen Bender)
- 10:30 Tagging Images in Room (Everyone)
- 11:00 Breakout Session 1: Group Deliberations and Initial Solutions
  - a. Announce facilitator and members of each group (Sherry);  
each group assigned one of the three target areas; move to sit at table with group
  - b. Look at tagged comments of images relevant to target area
  - c. Develop ideas/schemes for target area, using tagged comments and briefing book material
  - d. Produce two sketched solutions
- 11:45 Working Lunch
- 12:15 Group Presentations of Initial Solutions; Workshop Feedback (Stephen Bender)
- 1:15 Break-out Session 2: Fine-Tune Solutions (based on feedback)
  - a. Each group revises initial solutions based on feedback
  - b. Submit revised solutions
- 1:45 Adieu and Summary of Next Steps (Stephen Bender)



# FRAMEWORK

## INSTRUCTIONS

Participants were briefed on the charrette process, which aims to generate feasible and creative solutions within a short period of time. The facilitators provided sufficient background information to act as criteria for focusing investigation:

## STATEMENT OF PROJECT PURPOSE

For homes with spatial/structural constraints, one approach to enhancing accessibility is that of repurposing: i.e., replacing or adapting problematic fixtures (i.e. built-in's) or spaces with others that were not originally intended for that purpose (e.g. turning a living room into a bedroom suite). For small-scale (2-4 units) attached housing ("SSAH"), how best to repurpose fixtures and rooms to make them more accessible, affordable and aesthetically appealing?

## PARAMETERS

1. For small attached housing; generally HUD assisted or public housing; older stock
2. With at least one occupant with a disability; our focus is on mobility/ambulatory (not necessarily wheelchair-bound) and visual impairments (but not legally blind)

## FOUNDATIONAL AND BACKGROUND RESEARCH\*

In order to focus the work of the charrette, facilitators highlighted information from the earlier phases of the project for the participants.

## HIGHLIGHTS OF LITERATURE REVIEW OF ADAPTED/REPURPOSED FIXTURES AND SPACES.

The parts of the literature review relevant to this charrette focused on what adaptations, conversions or repurposing of spaces and fixtures have been performed to existing (attached) homes to increase accessibility, and how effective have they been in terms of: access; use or usability; activities (functional activities, ADLs); comfort and satisfaction; and aesthetics? What targeted occupant (i.e. disability) is examined in the research to date in examining adaptive, converted and repurposed spaces.

## HIGHLIGHTS OF FOCUS GROUP INTERVIEWS, RELEVANT TO TARGET INTERIOR AREAS.

Focus groups viewed vetted images depicting features or spaces in the home that were repurposed to address the accessibility needs of individuals with low vision and/or functional mobility limitations. The focus group's concerns regarding accessibility, affordability and attractiveness were:

1. Accessibility: high contrast, height, doors, and flooring.
2. Affordability: Do-it-yourself (DIY) approaches.
3. Attractiveness: less overt solutions, dual-purpose items, subjective.

Focus groups identified that client-centered or individualized solutions are needed.

## INTERIOR SPATIAL TYPOLOGIES OF SSAH.

Using Public Housing Authority and United States Department of Agriculture plans, HUD typologies were established and analyzed. They are of two basic types, flat and townhouse. Within these types there are a variety of sizes; one, two and three bedroom units, with a different space arrangements. The pattern book illustrates these, then focuses on the three areas that the Project Re-Envision team identified as critical to creating accessible units:

1. The transition from bedroom to bathroom
2. Kitchen and eating area
3. The conversion of the first floor of a townhouse into a suite

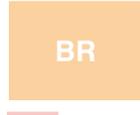
\*Text in this section is summarized from the team's earlier work/publications:

Ahrentzen, S, ed. Campbell, N. Kazemzadeh, Struckmeyer, M.L. Morgan-Daniel, J. Srinivasan, R. Lu, X. Gopinadhan, J. [Three Rapid Research Reviews of Research Literature Pertaining to Immersive Simulation Technologies, Effectiveness Assessment Tools, and Residential Adaptations/Repurposing Studies for People with Disabilities and Functional Limitations.](#)

Struckmeyer, M.L. Ellison, C. Campbell, N. Ahrentzen, S. Classen, S. [Perspectives on the Accessibility, Affordability, and Attractiveness of Home Modifications.](#)

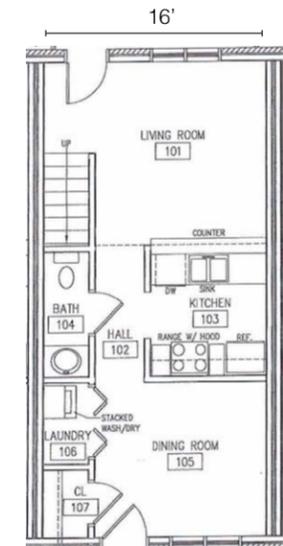
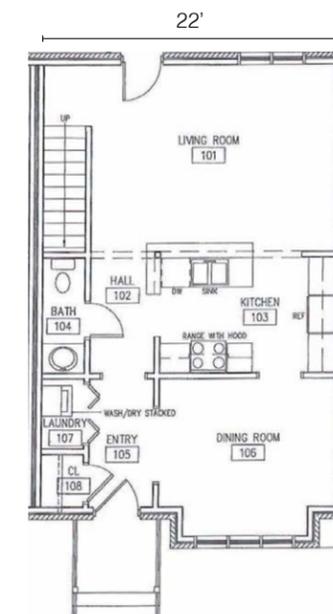
Cunningham, E. Chunyao, L. [Pattern Book of Small Attached Housing.](#)

## UNIT LEGEND & DIMENSIONS

Room	Color	Abbr.	Length Range		Width Range	
			Min.	Max.	Min.	Max.
Kitchen		K	10'	14'3"	7'	11'3"
Living Room		L	13'	18'	10'6"	12'7"
Bedroom		BR	10'	15'8"	8'7"	11'5"
Bathroom*		B	7'	8'6"	5'	5'6"
Hallway		H	—	—	3'	5'4"

## UNIT LAYOUTS: SPACE ARRANGEMENT

### • Type T-C



# WORK GROUPS

The charrette participants were introduced to the project then divided into three groups, each formed of a variety of members with diverse skill sets and background.

Each group focused on an area identified by the Re-Envision team as critical for creating accessible units:

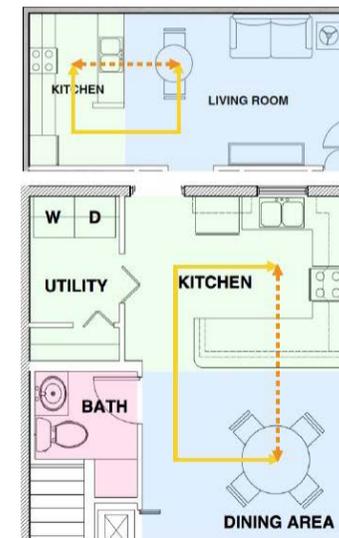
1. The transition from bedroom to bathroom
2. Kitchen and eating area
3. The conversion of the first floor of a townhouse into a suite

The groups were provided access to the Interior Spatial Typologies in the "Pattern Book of Small Attached Housing," created by the UF team during the previous phase of work. This section includes a sample of the materials provided.

## KITCHEN AND EATING AREA

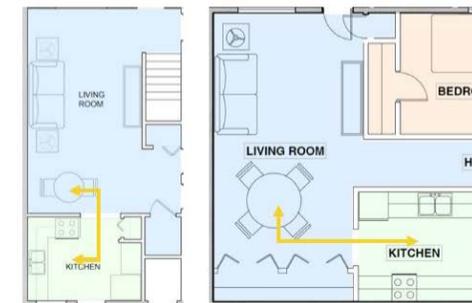
### 8 Dining Area

Analysis of visual & physical connection between kitchen & dining area



1. Visual connection but no direct physical connection

2. Direct physical & visual connection



3. Obstructed visual & physical connection



## TRANSITION BETWEEN BEDROOM & BATHROOM

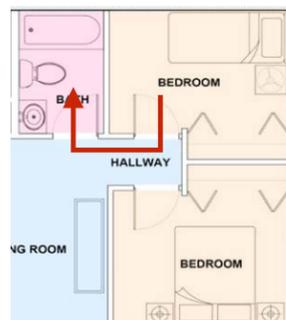
### 5 Turns

(From BR. to bathroom)

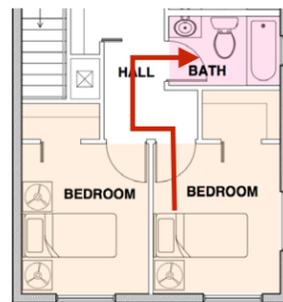
\*One turn equals 90 degree



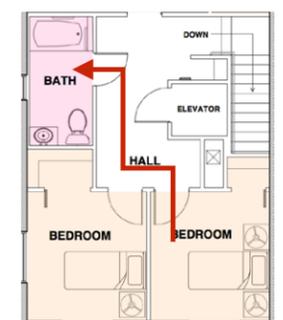
• 1 Turn



• 2 Turns



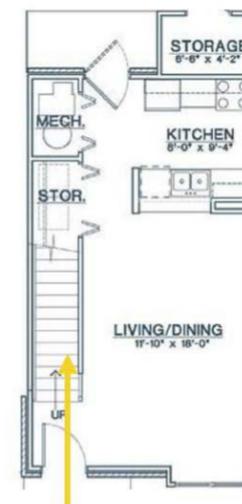
• 3 Turns



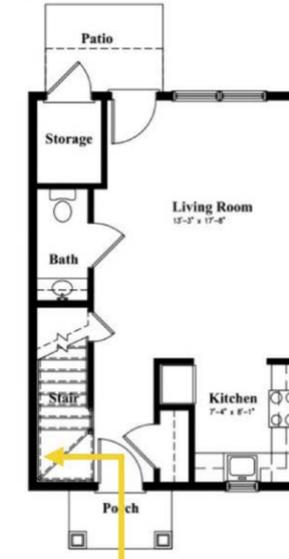
## CONVERSION OF FIRST FLOOR

### 10 Unit Analysis

- Directly access

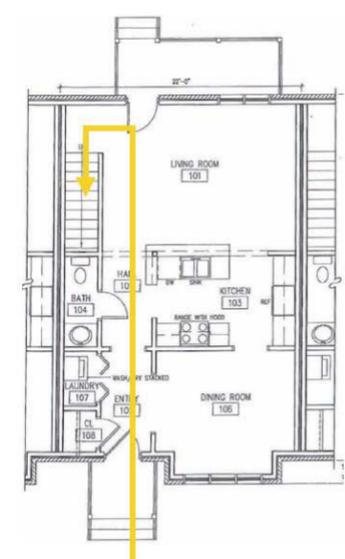


- Indirect access to door



### Stair/Entrance Relationship

- Far from door, More than 1 turn



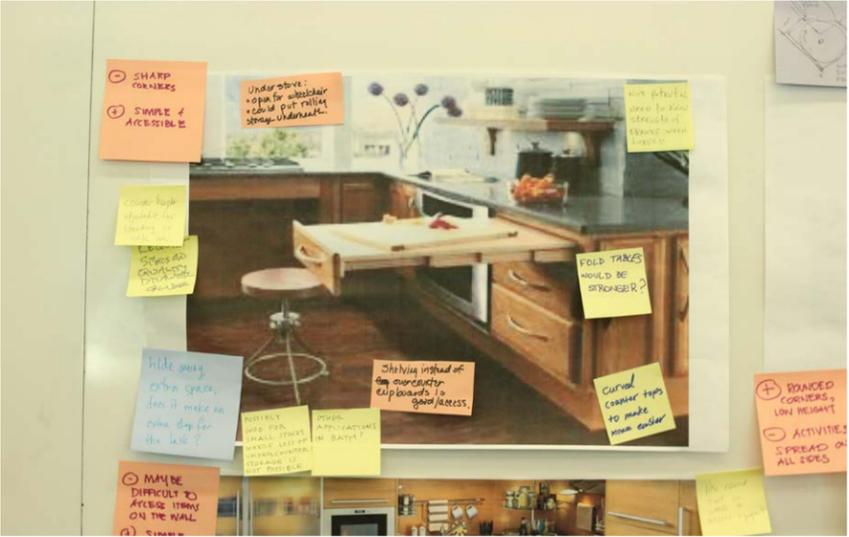
# IMAGE INPUT SESSION

## TAGGING IMAGES

**SETUP:** This session utilizes select images from the [focus group](#) work along with new images derived from the grant team's understanding of successful adaptation of elements and spaces.

**ACTIVITY:** Everyone in room gathers to look at posted images, uses post notes to comment, discusses with each other.

**GOAL:** The session creates active engagement of participants with imagery and with each other. The activity leaves traces of ideas through post note tags, that can inspire the following charrette activities and provide future reflection opportunities for the team's use.



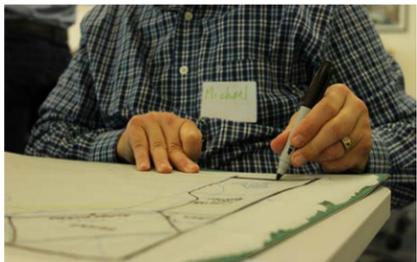
# BREAKOUT SESSION I

## GROUP DELIBERATIONS AND INITIAL SOLUTIONS

**SETUP:** Participants sat with their designated groups and were provided sample plans, trace, markers, pens, pencils, a large easel and paper.

**ACTIVITY:** Groups collaborated on developing ideas/schemes for their target area, using the tagged comments and charrette briefing book material.

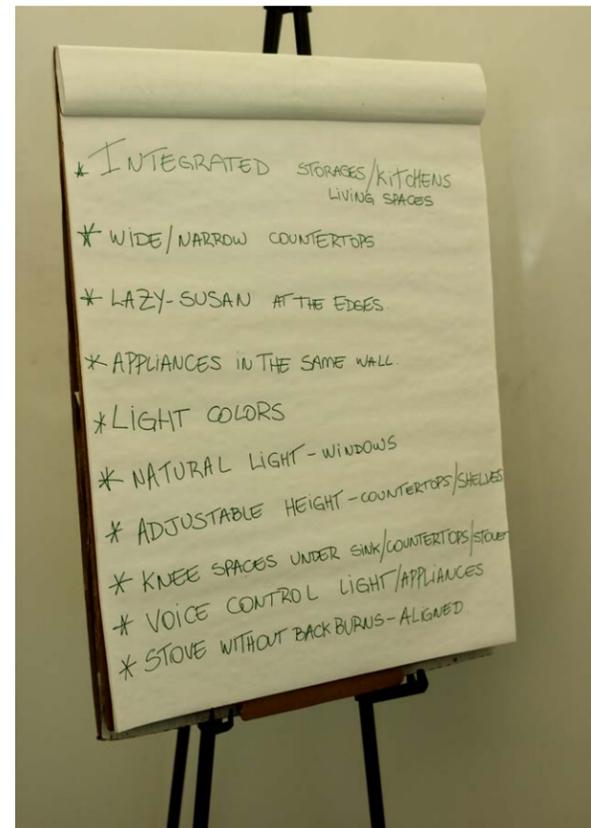
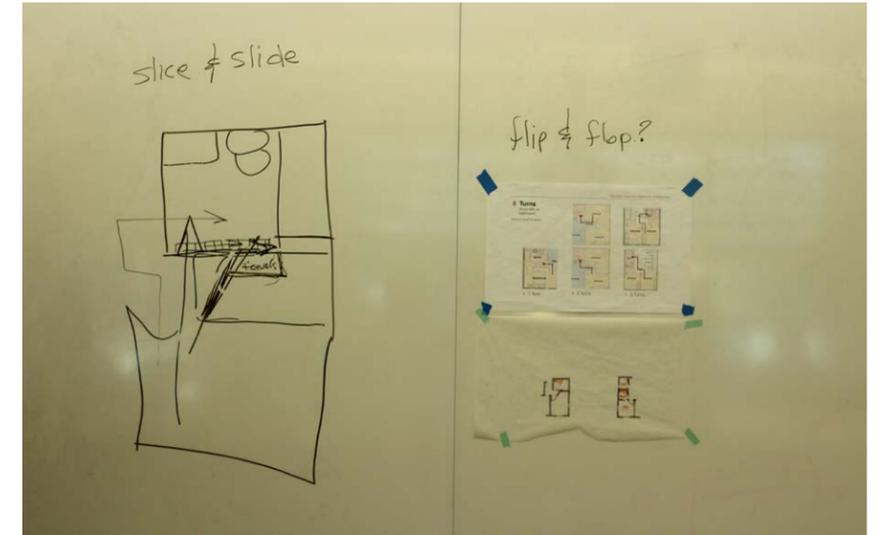
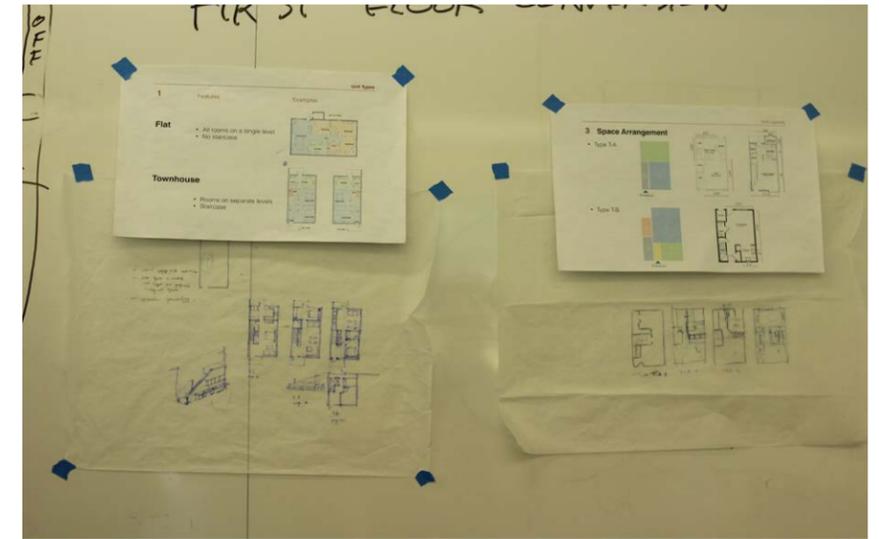
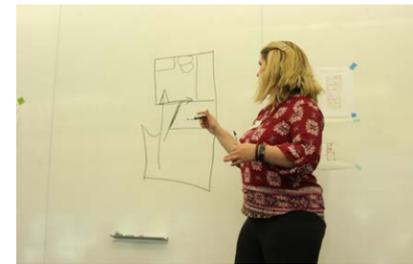
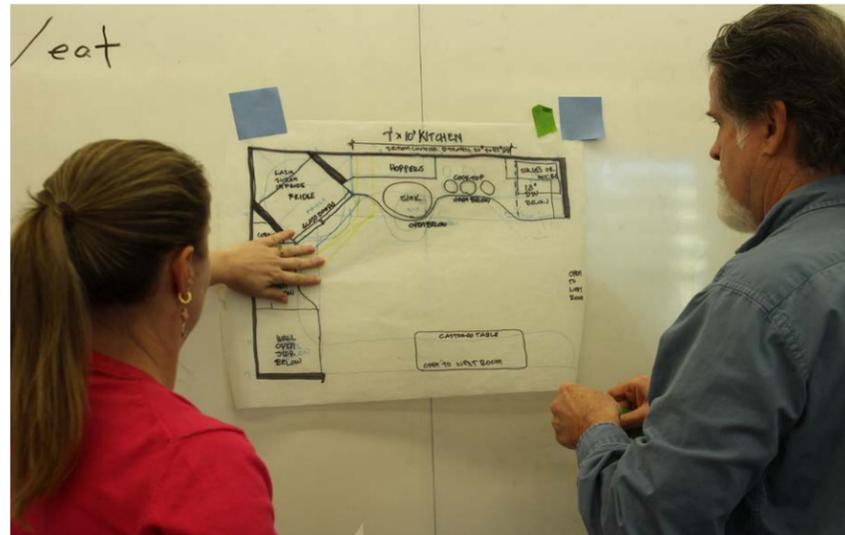
**GOAL:** Each group developed two sketched solutions (either an entirely new sketch, or a revised image from board) to present to the room.



# GROUP PRESENTATIONS

ACTIVITY: Groups post and present their solutions to all participants.

GOAL: Gather feedback from audience on proposed solution.



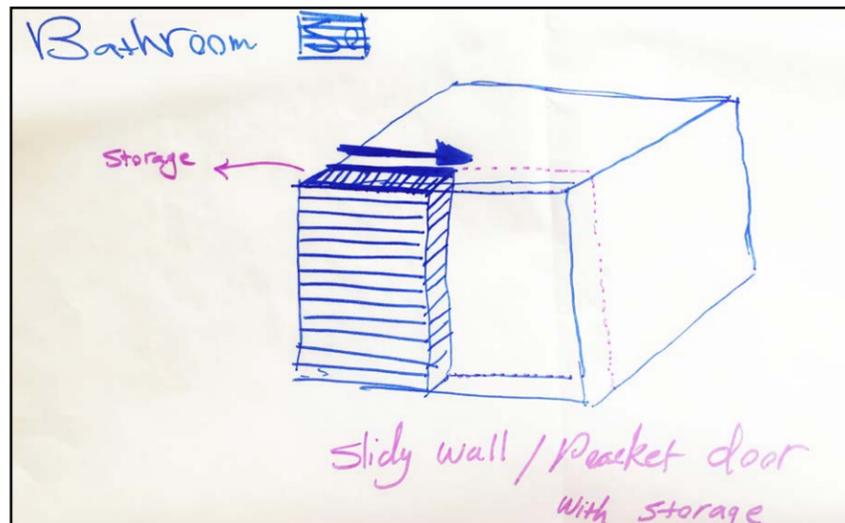
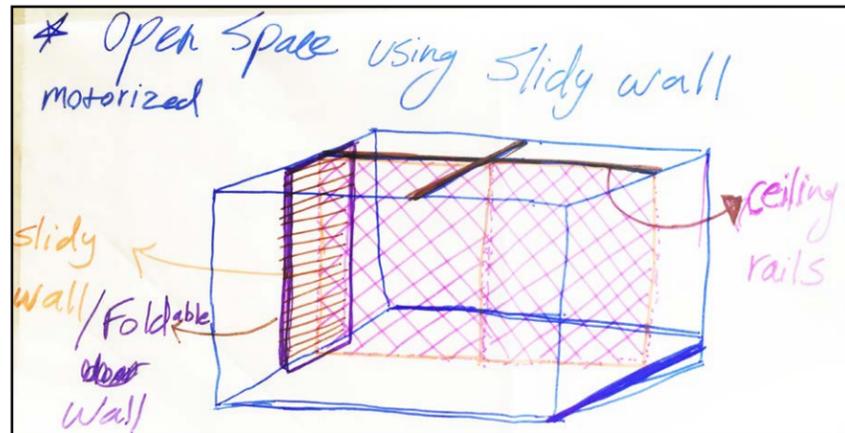
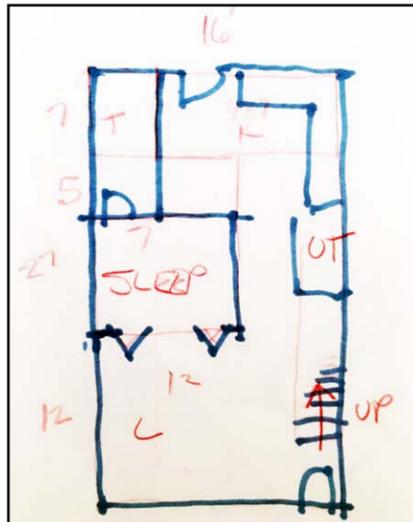
# BREAKOUT SESSION II

## FINE-TUNING DESIGNS

SETUP: Participants returned to their groups with knowledge gained from presentation and discussion.

ACTIVITY: Groups revised initial sketched solutions based on feedback from audience.

GOAL: Groups fine-tune solutions.



# NEXT STEPS

The fine-tuned solutions provided by each group were submitted to the UF team by the end of the charrete. These days work will be presented to the Advisory Council for design review, assessment of meeting project goals, and recommendations for moving forward with a proposed design for each target area. Designs for each target area will be developed into a digital simulation format for participant testing.

