

# **Pattern Book of Small Attached Housing:** Opportunities and Challenges for Accessibility Improvements



**PROJECT RE-ENVISION**

**UNIVERSITY OF FLORIDA**

08/10/2020

## **Acknowledgements**

This booklet is compiled by Erin Cunningham, Chunyao Liu and Sherry Ahrentzen, on behalf of the Project Re-Envision Research Team. This booklet is supported by the United States Department of Housing and Urban Development (HUD), Office of Policy Development and Research. The Cooperative Agreement Number is H21672CA.

Alongside HUD and the United States Department of Agriculture, we would like to thank the following people for providing floor plans:

Randall Cantrell, University of Florida  
Thomas Flynn, Flynn Developments Corporation  
Ernesto Fonseca, Hacienda CDC  
Greg Hyson, Nelson & Associates, INC.  
Peter Meyer, Gorman  
Gloria Munoz, Housing Authority of Maricopa County  
Deborah Pierce, Pierce Lamb Architects

Copyright 2020. All rights reserved.

---

## Table of Contents

### **Section 1: Project Re-Envision**

Acknowledgement.....	1
Table of Contents .....	2
Project Statement .....	3

### **Section 2: Basic Unit Types — Layouts and Dimensions**

Legend and Unit Dimension.....	5
Unit Types .....	6
Space Arrangement .....	7

### **Section 3: Transitions of Bedroom to Bathroom**

Hallway .....	15
Turns.....	17

### **Section 4: Kitchen and Eating Area**

Kitchen Layouts .....	20
Dining Area .....	21
Kitchen - Enclosure.....	22
Kitchen - Accessibility.....	23

### **Section 5: Conversion from 1st Floor Townhouses to Suites**

Common Layouts.....	25
Space under the Staircase.....	26
Stair/Entrance Relationship .....	27

# Project Statement

Using a selection of floor plans from Public Housing Authorities across the United States as well as from the United States Department of Agriculture in Florida, this booklet provides an analysis of unit layouts of small attached housing (townhouses, duplexes, three and four-plexes). These units are the focus of Project Re-envision, a four-year research, design and demonstration project funded by the Office of Policy Development and Research, US Department of Housing and Urban Development. Specifically, the booklet 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

Using graphics and text, the following pages illustrate basic spatial patterns and dimensions, as well as highlight possible issues (number of turns, and physical and visual obstructions) as well as opportunities (space under stairs) that could be crucial in the repurposing of these units. Repurposing includes replacing or adapting problematic fixtures, or adapting existing spaces for a new purpose (e.g. converting a living room into a bedroom suite).

# **Basic Unit Types**

## Layouts and Dimensions

## Legend and Unit Dimension

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'	15'	3'	5'4"

\*Didn't include the handicap unit

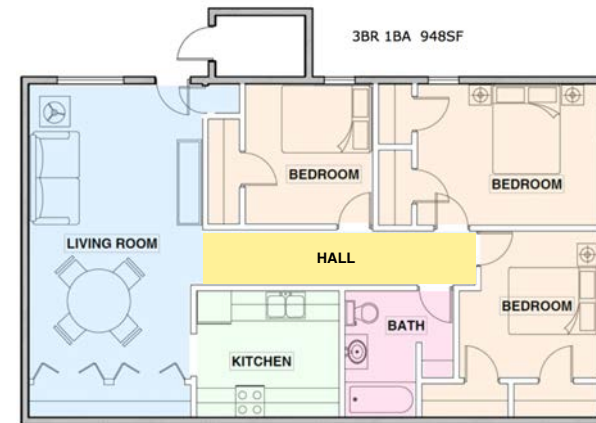
# Unit Types

## Features

## Examples

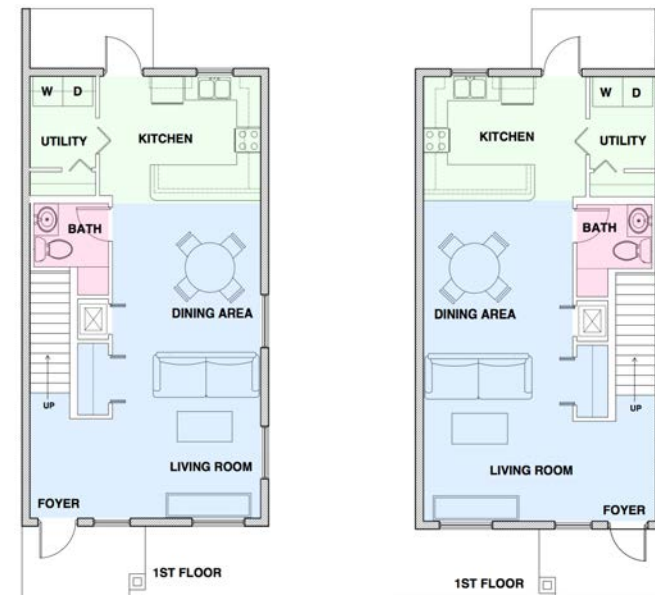
### Flat

- All rooms on a single level
- No staircase



### Townhouse

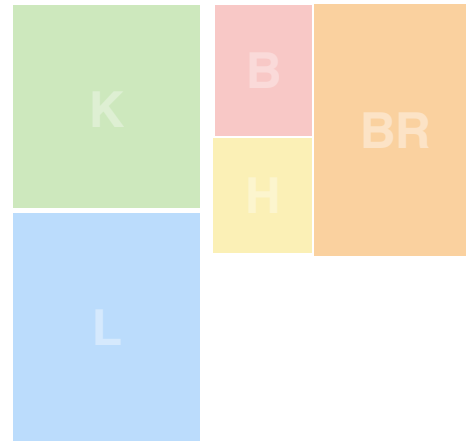
- Rooms on separate levels
- Staircase



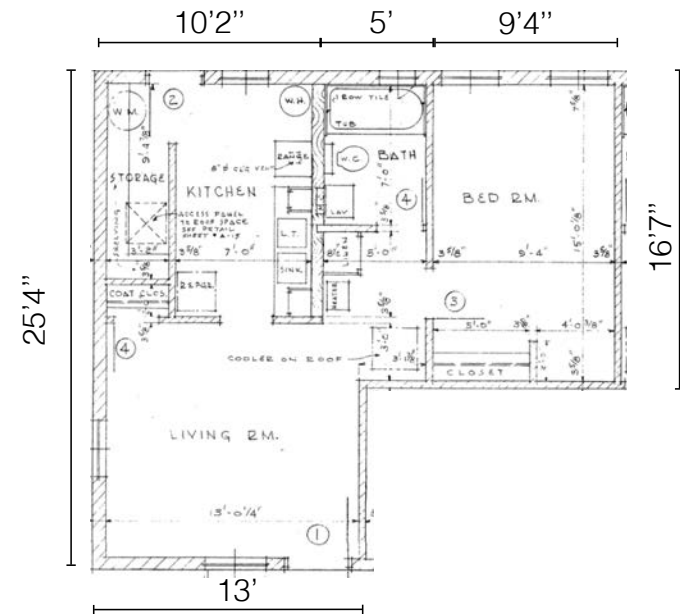
# Space Arrangement

- Type 1-A  
1-bedroom apartment - A

## 1 Bedroom

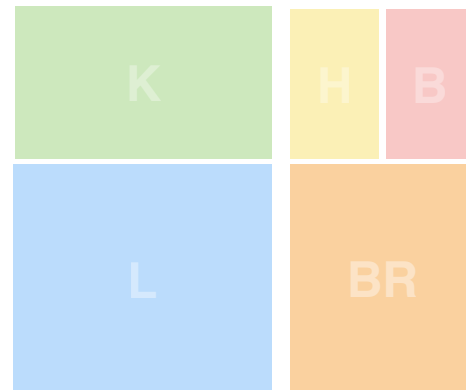


Note: Units illustrated show a right hand layout

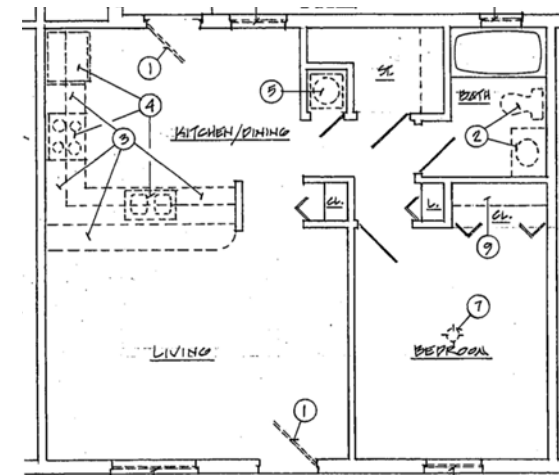


- Type 1-B  
1-bedroom apartment - B

## 1 Bedroom



Note: Units illustrated show a right hand layout

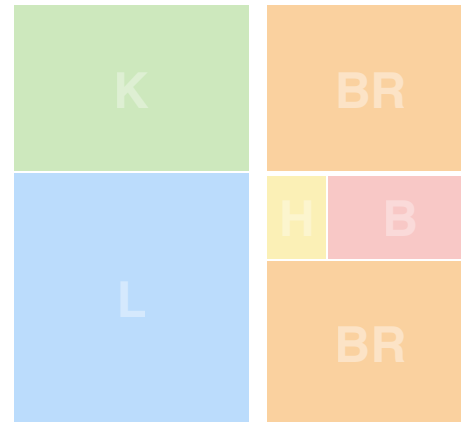




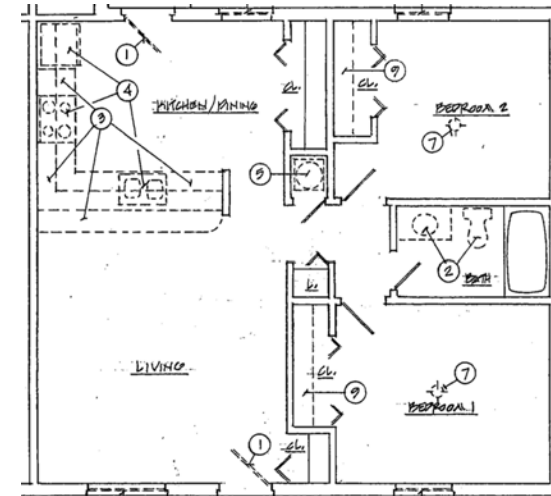
# Space Arrangement

- Type 2-A  
2-bedroom apartment - A

## 2 Bedroom

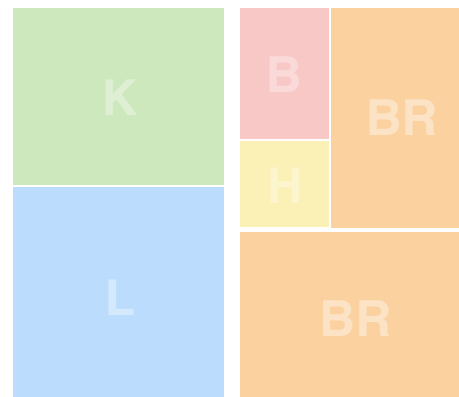


Note: Units illustrated show a right hand layout

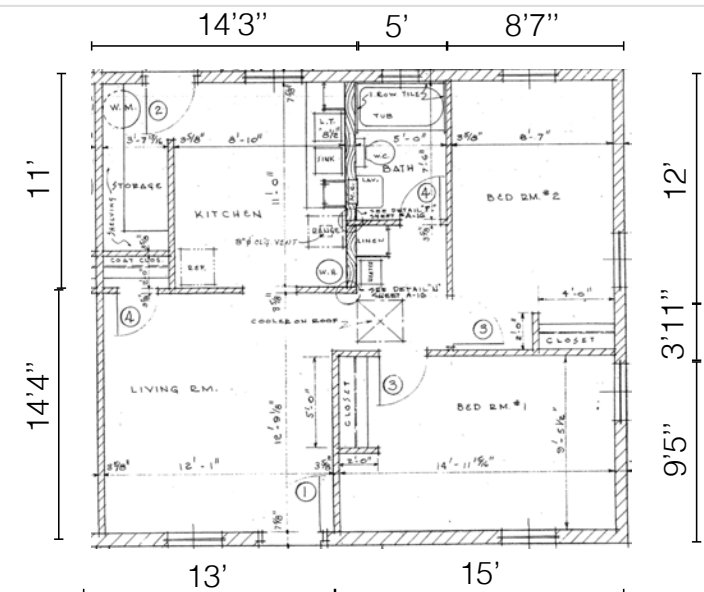


- Type 2-B  
2-bedroom apartment - B

## 2 Bedroom



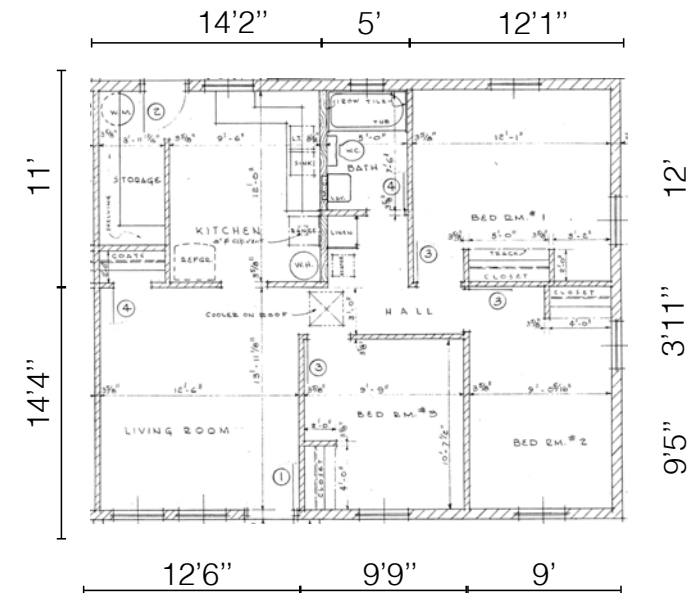
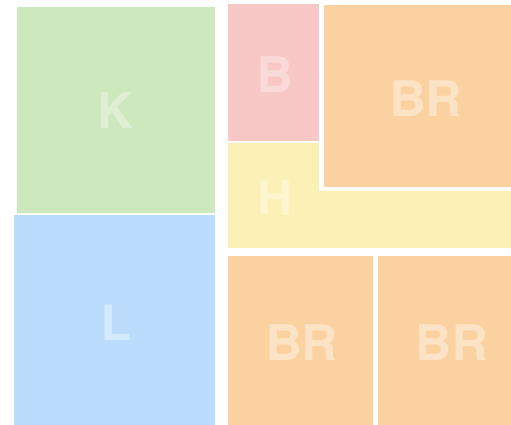
Note: Units illustrated show a right hand layout



# Space Arrangement

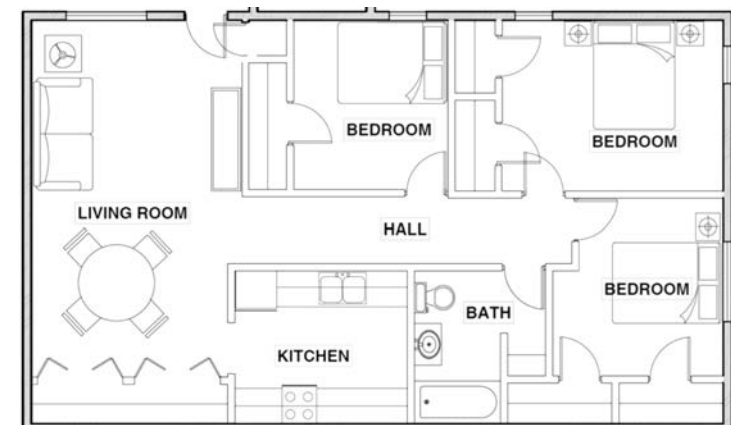
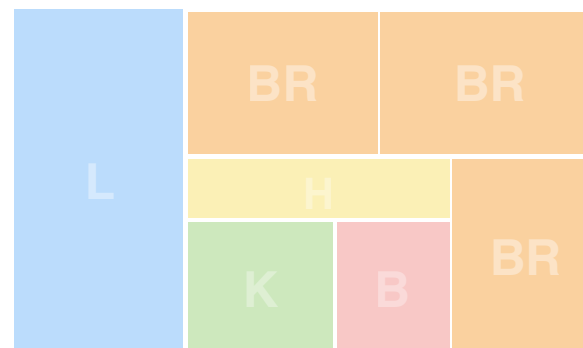
- Type 3-A  
3-bedroom apartment - A

## 3 Bedroom



- Type 3-B  
3-bedroom apartment - B

## 3 Bedroom

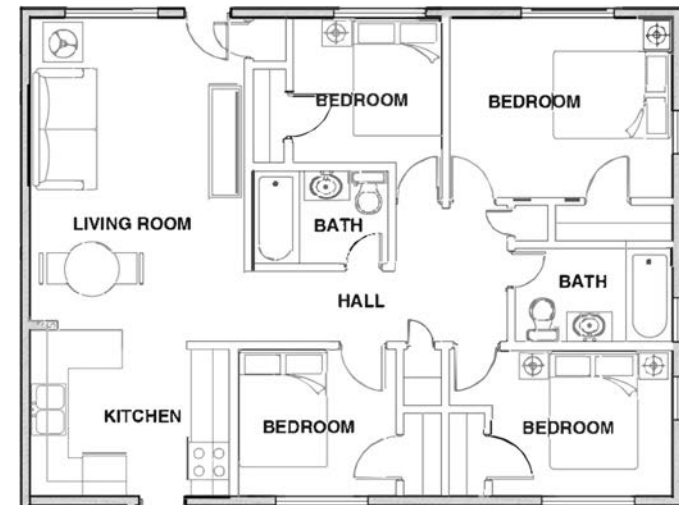
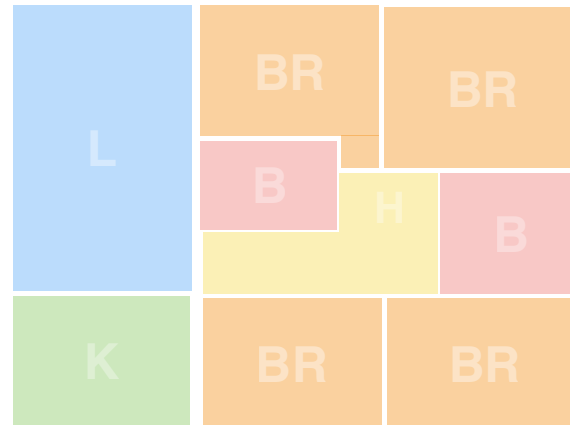


Note: Units illustrated show a right hand layout

# Space Arrangement

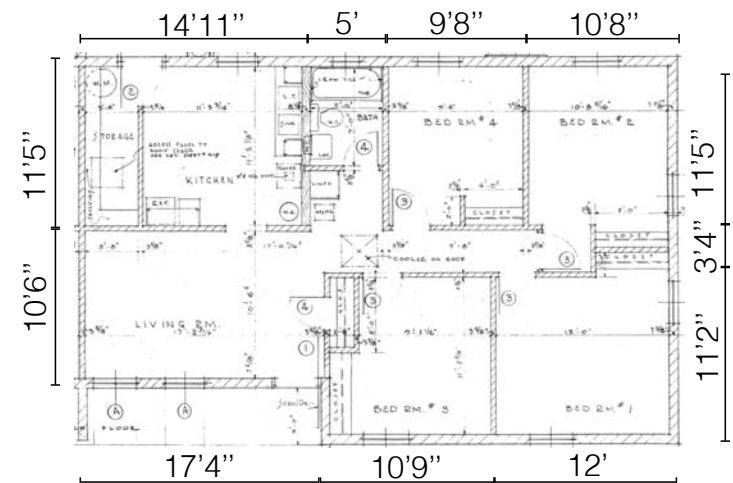
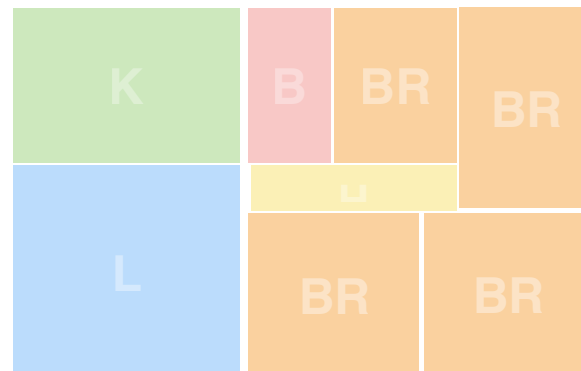
- Type 4-A  
4-bedroom apartment - A

4 Bedroom



- Type 4-B  
4-bedroom apartment - B

4 Bedroom

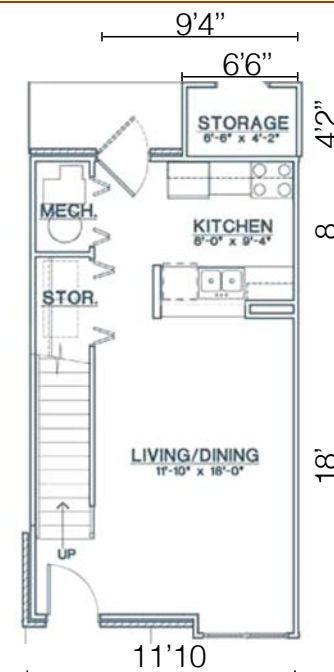
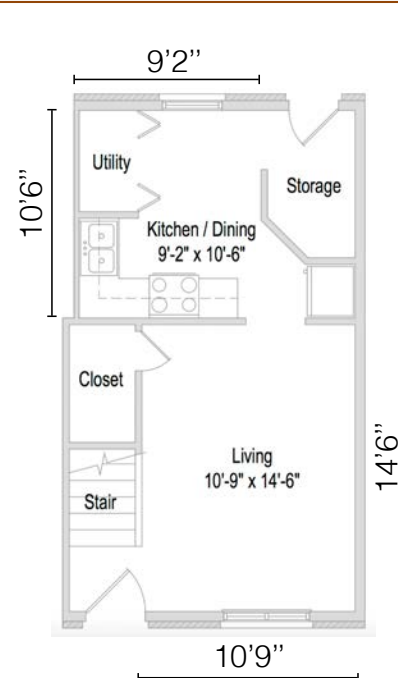
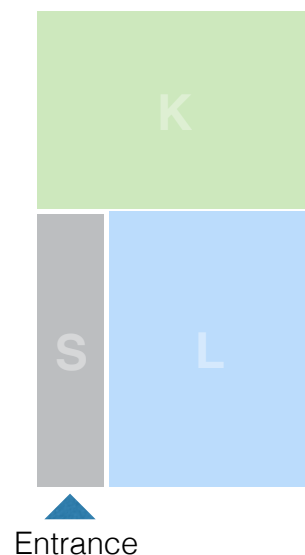


Note: Units illustrated show a right hand layout

# Space Arrangement

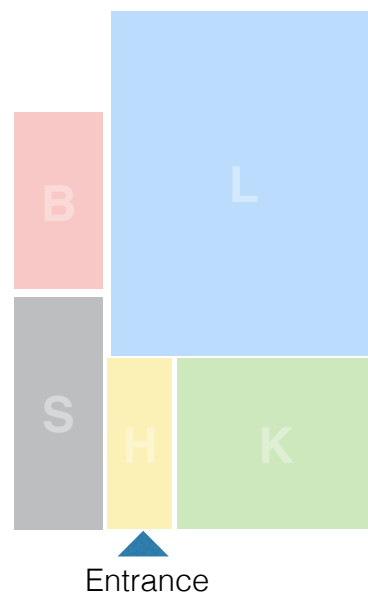
- Type T-1-A

Townhouse - 1st floor - Type A

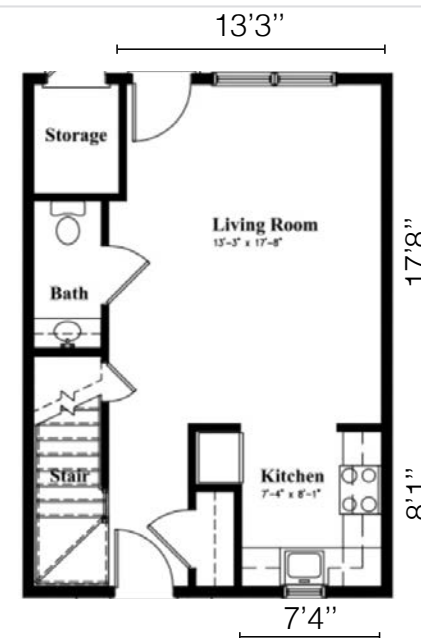


- Type T-1-B

Townhouse - 1st floor - Type B



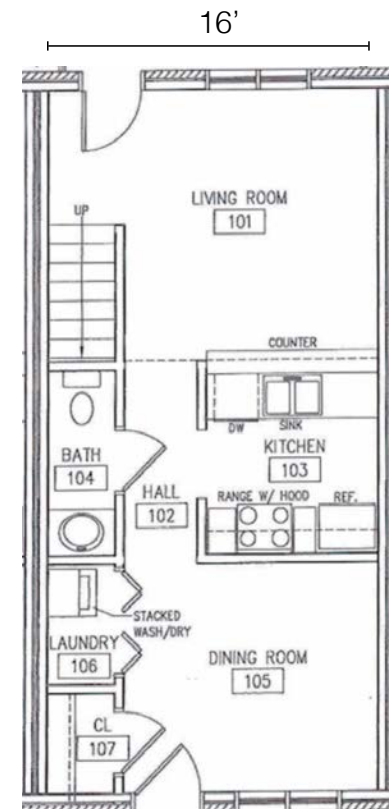
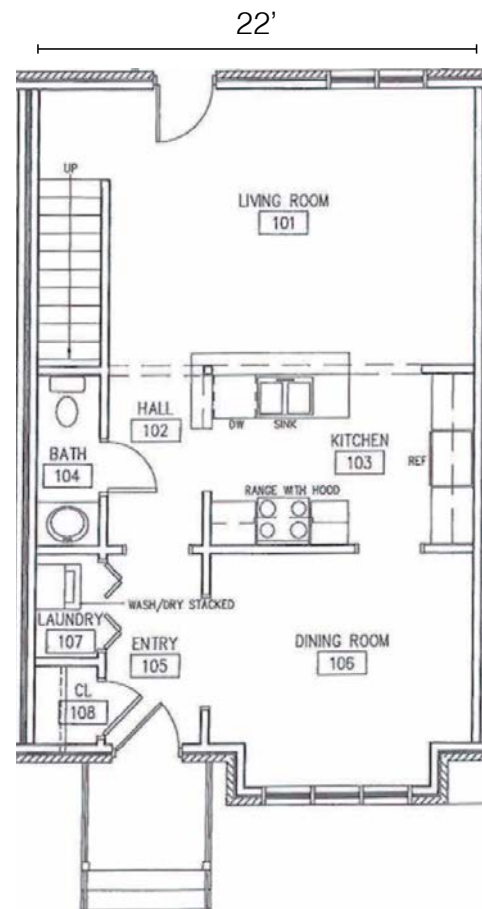
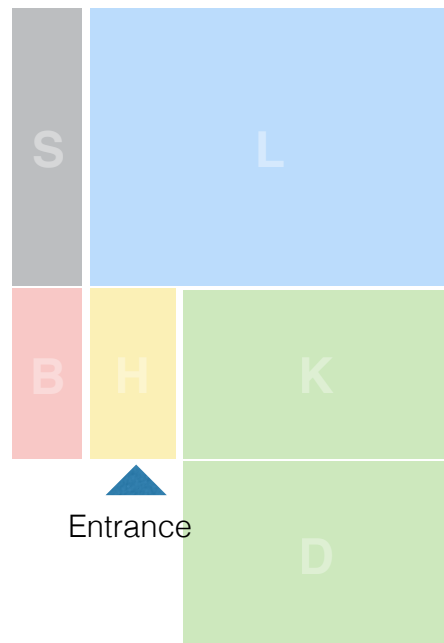
Note: These are the first floors of townhouses



# Space Arrangement

- Type T-1-C

Townhouse - 1st floor - Type C

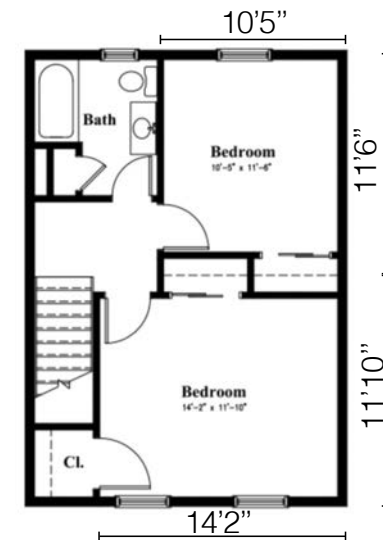
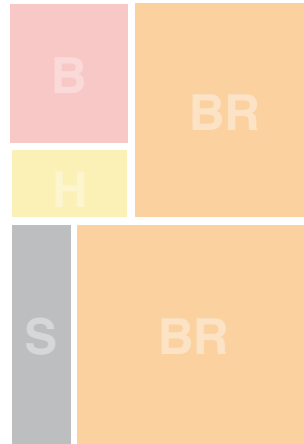


Note: These are the first floors of townhouses

## Space Arrangement

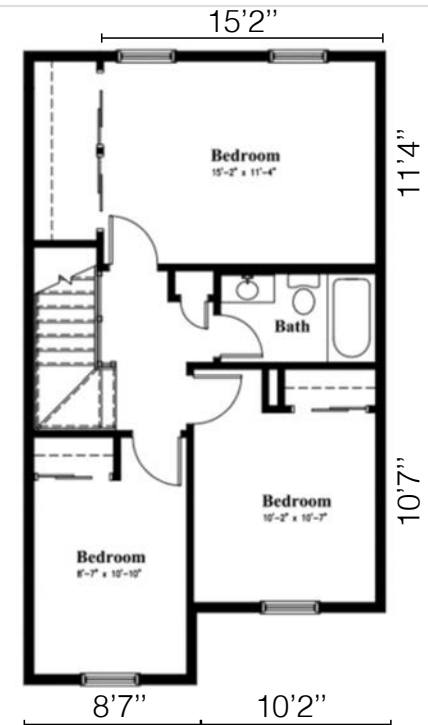
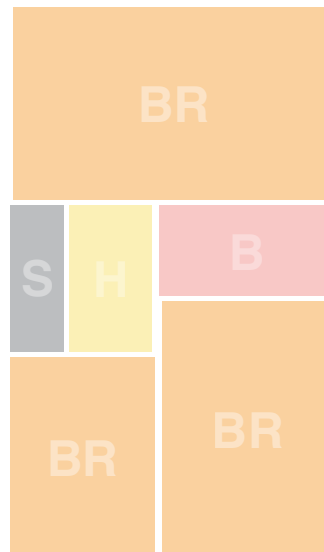
- Type T-2-2

Townhouse - 2nd floor -  
2 bedrooms



- Type T-2-3

Townhouse - 2nd floor -  
3 bedrooms



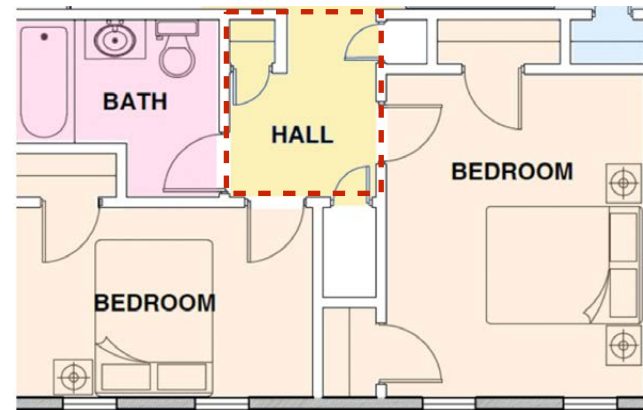
Note: These are the second floors  
of townhouses

# Transitions of Bedroom to Bathroom

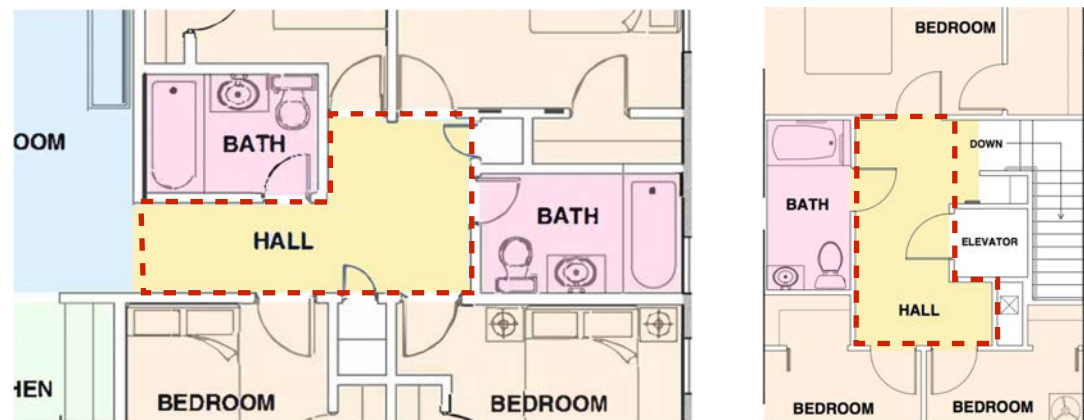
# Hallway

(From bedroom to bathroom)

- Square Shaped Hallway



- L-Shaped Hallway

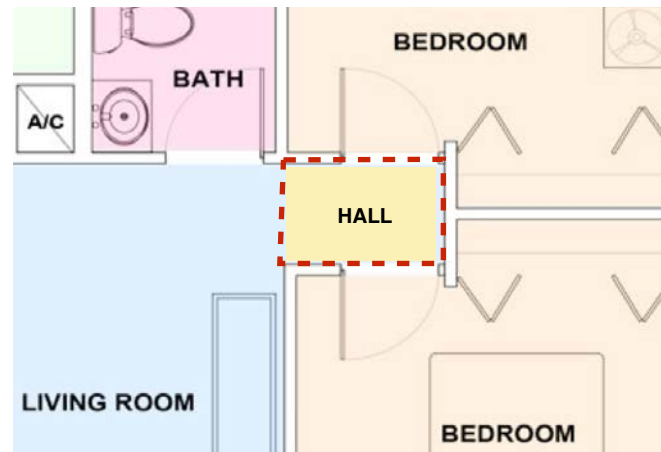




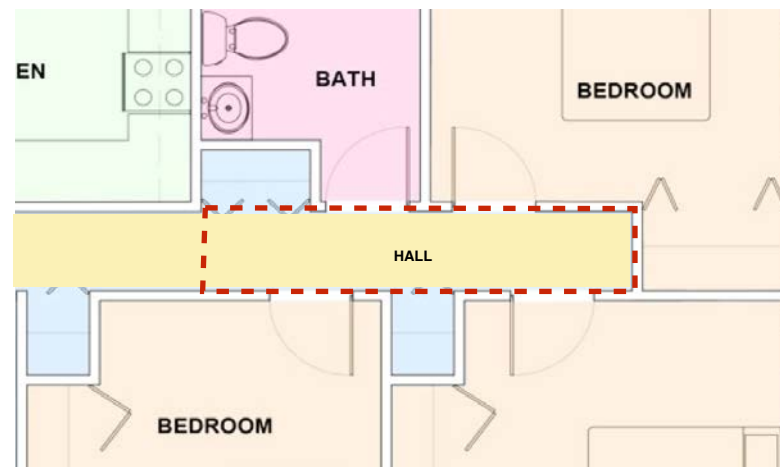
# Hallway

(From bedroom to bathroom)

- Short Hallway



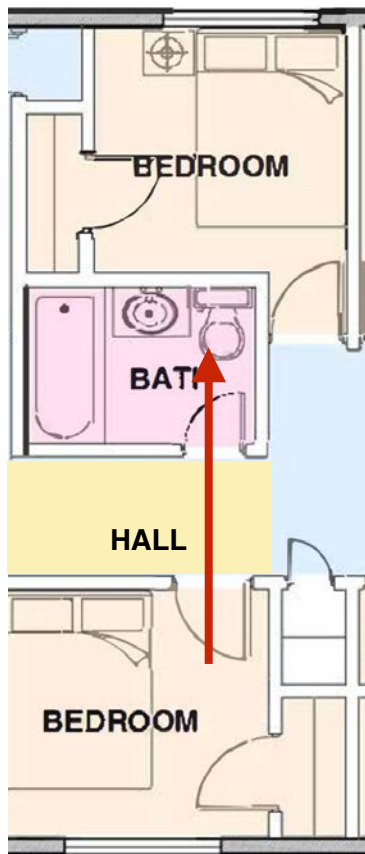
- Long Hallway



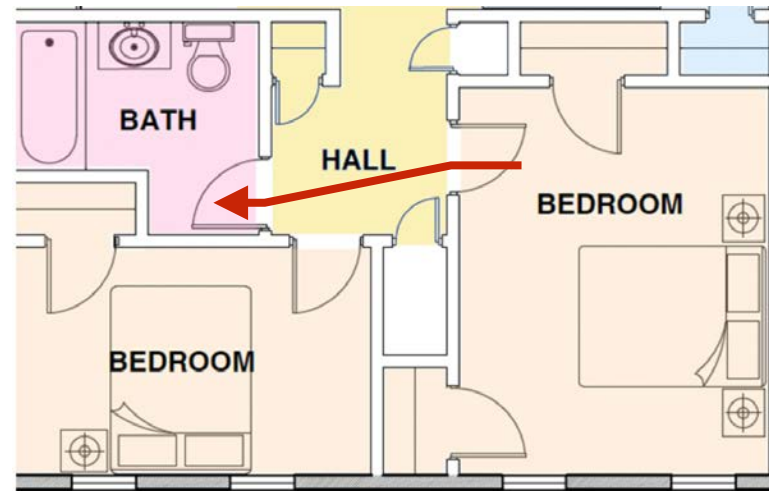
# Turns

(From bedroom to bathroom)

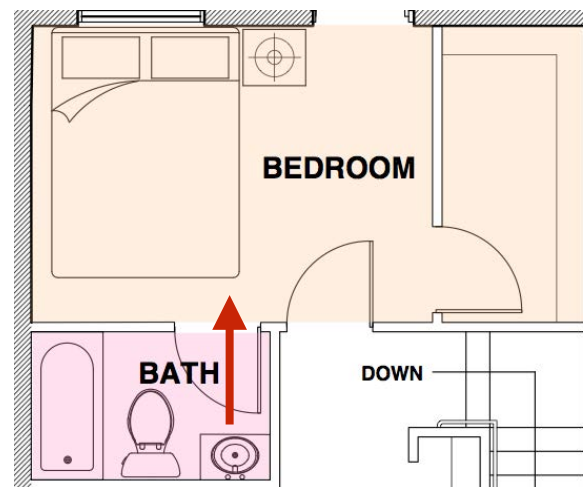
\*One turn equals 90 degree



- 0 Turns—Direct



- 0 Turns—Indirect



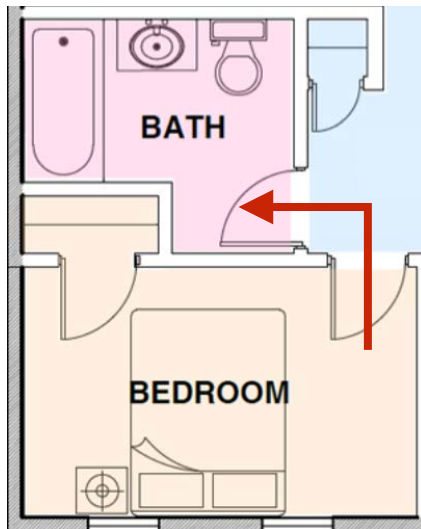
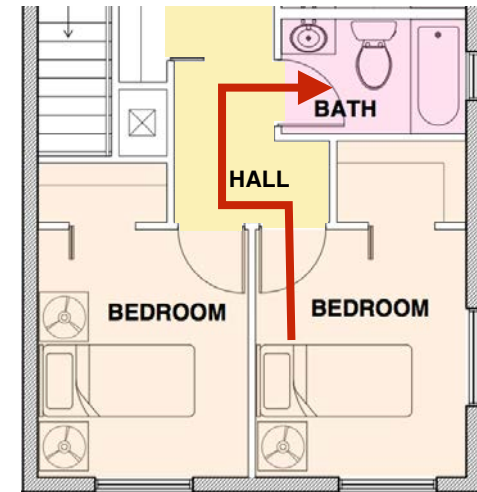
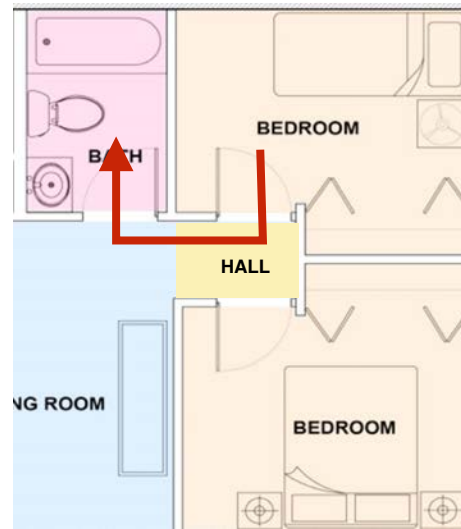
- 0 Turns—Connected



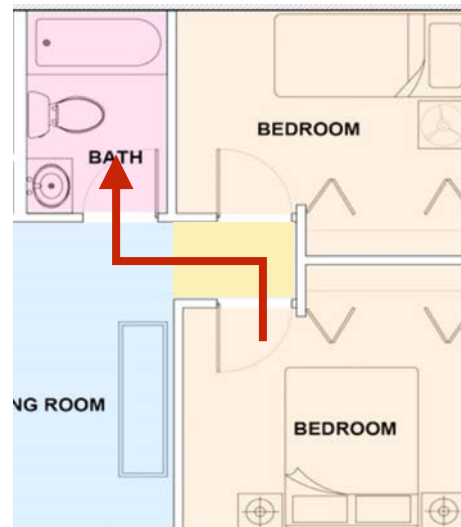
# Turns

(From bedroom to bathroom)

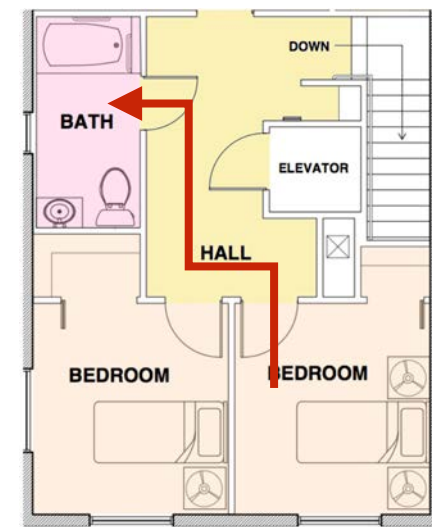
\*One turn equals 90 degree



- 1 Turn



- 2 Turns

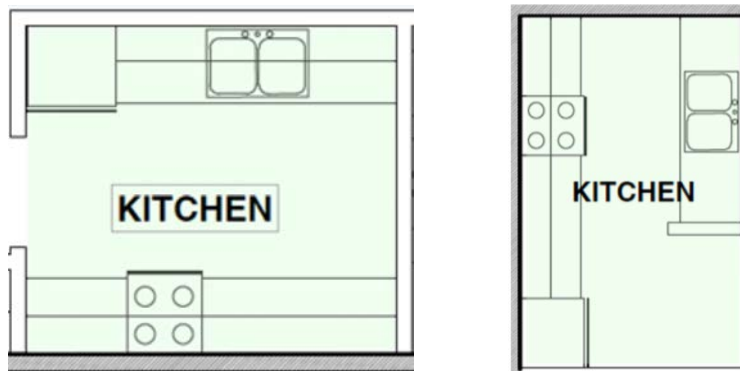


- 3 Turns

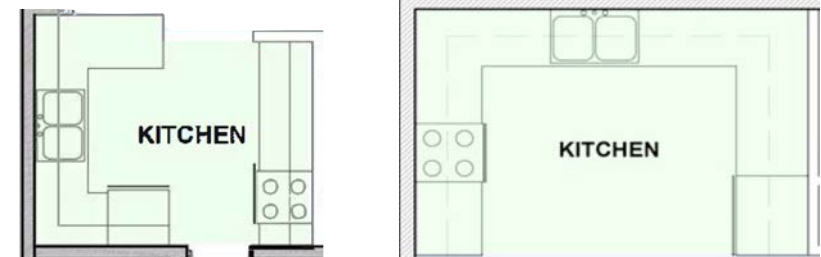
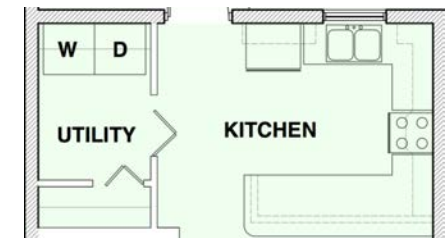
## **Kitchen** and **Eating Area**

# Kitchen Layouts

- Galley (Parallel)



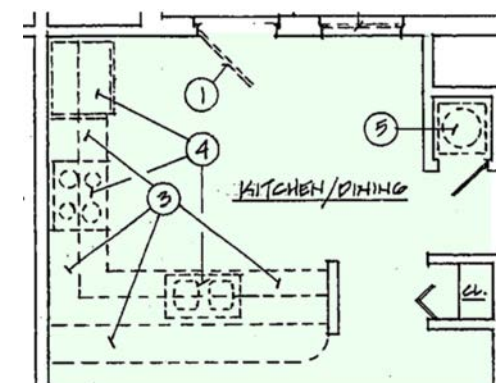
- U-Shape



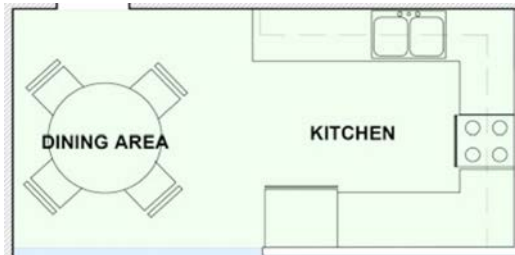
- Single Line



- L-Shape



## Dining Area



- Designated Dining Space open to Kitchen



- Designated Dining Space open to Living Room



- Dining Area within Kitchen



- Dining Area within Living Room

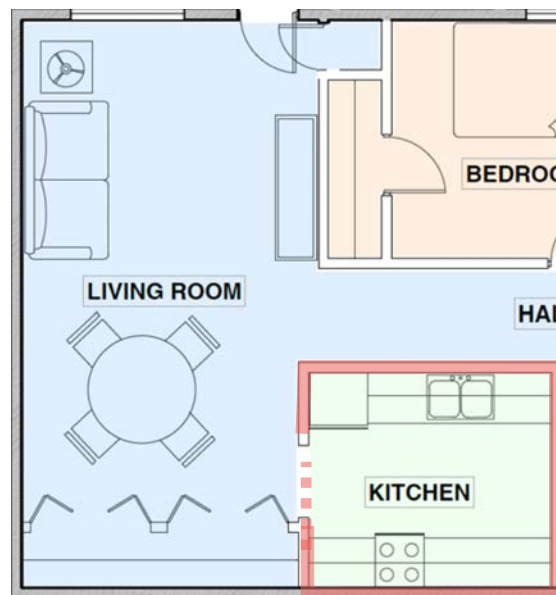
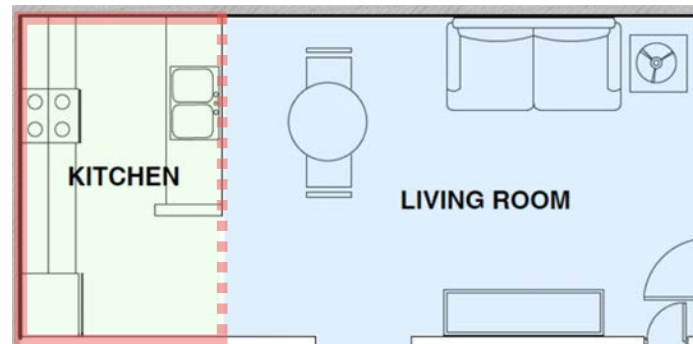


- No designated dining area

# Kitchen - Enclosure

Physical Connection between kitchen & living room

- Open Kitchen



- Closed Kitchen

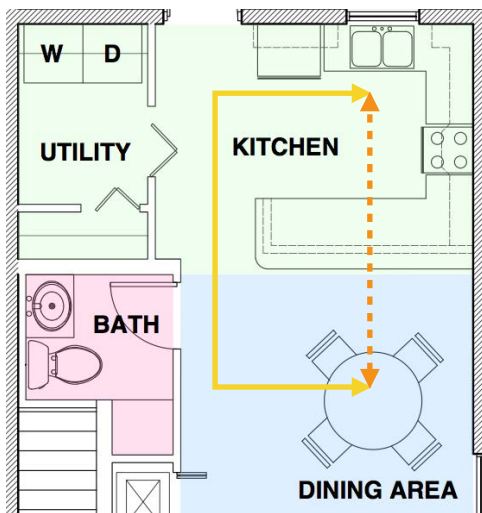
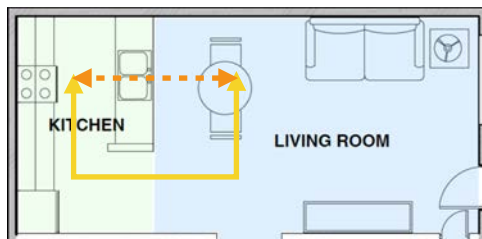


- Semi-open Kitchen



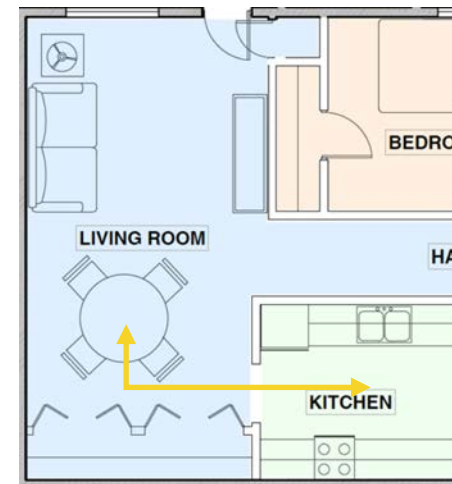
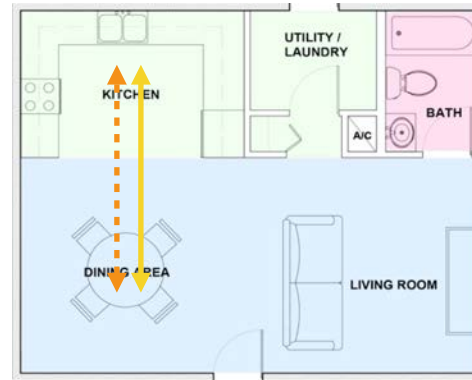
# Kitchen - Accessibility

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

Visual connection

Physical connection

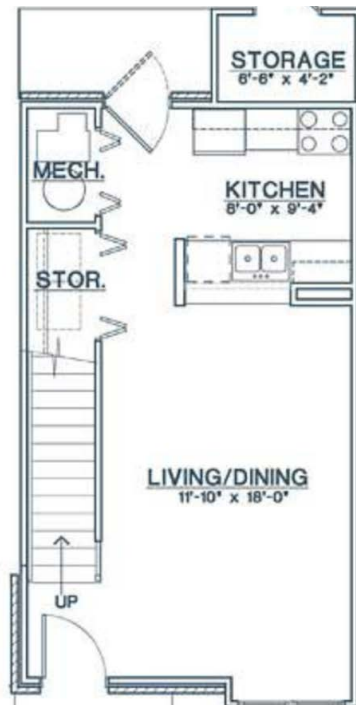


## **Conversion** from 1st Floor **Townhouses** to **Suites**

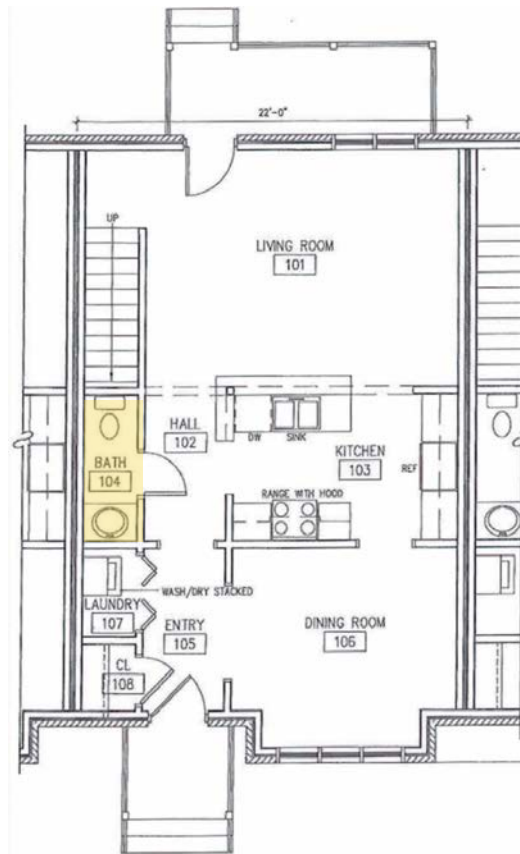
# Common Layouts

## Townhouse 1st Floor

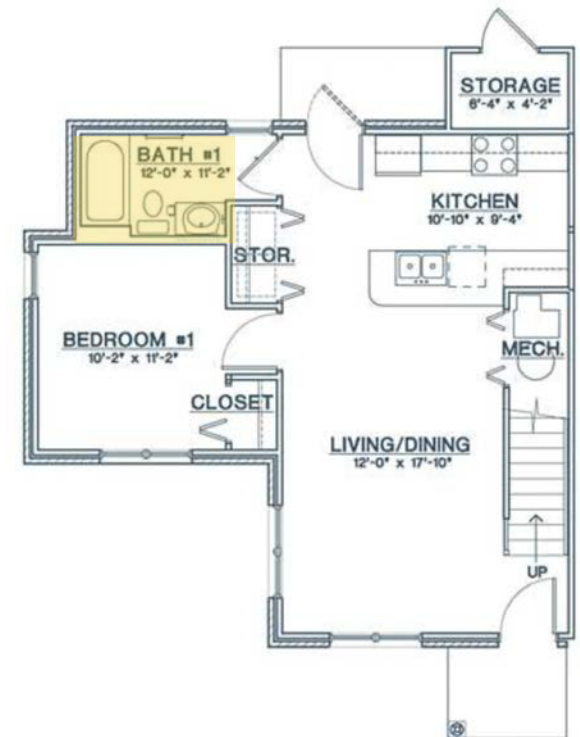
- No Bathroom



- Half (1/2) bathroom



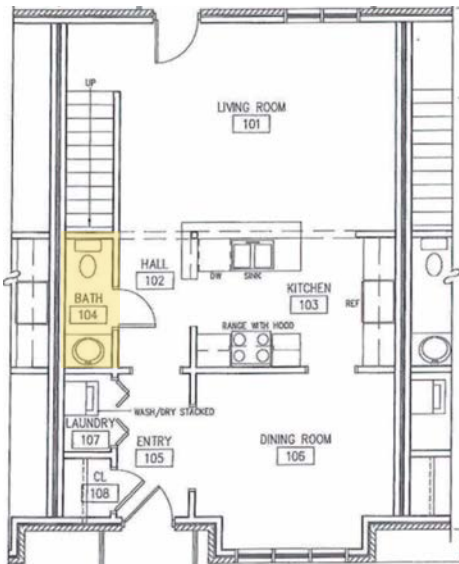
- Full Bathroom



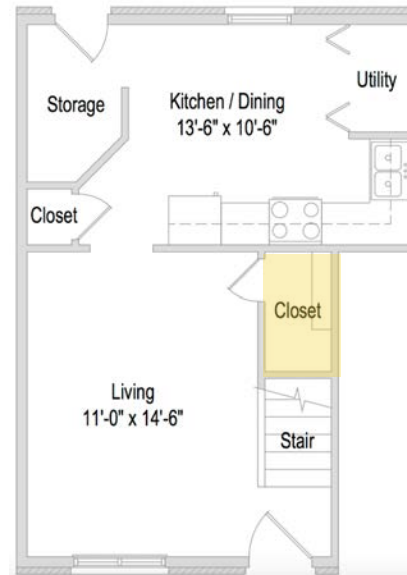
Note: Full bathroom is not common in units that are not renovated

## Space under the Staircase

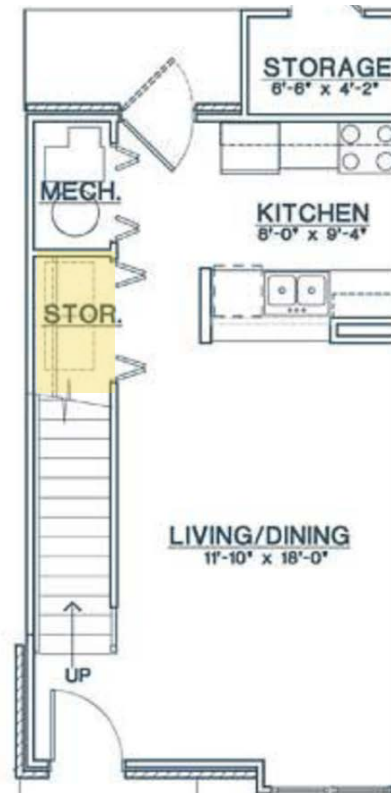
- Bathroom



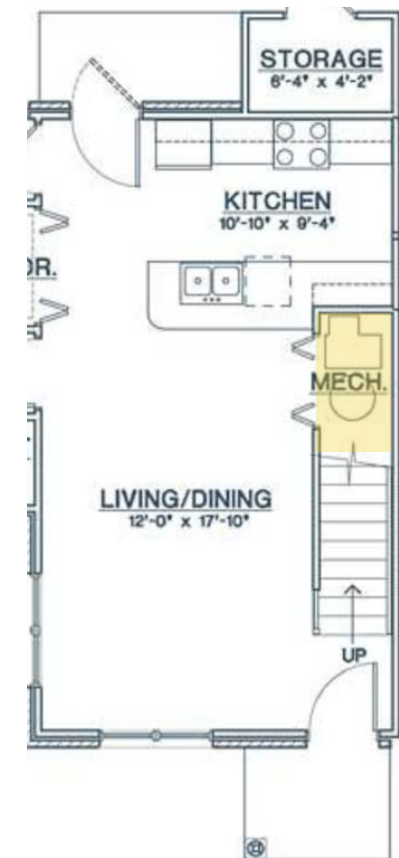
- Closet



- Storage

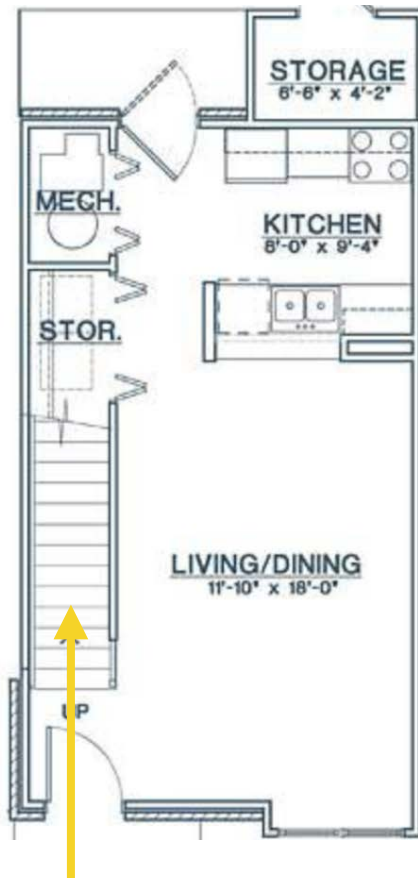


- Mechanical Room

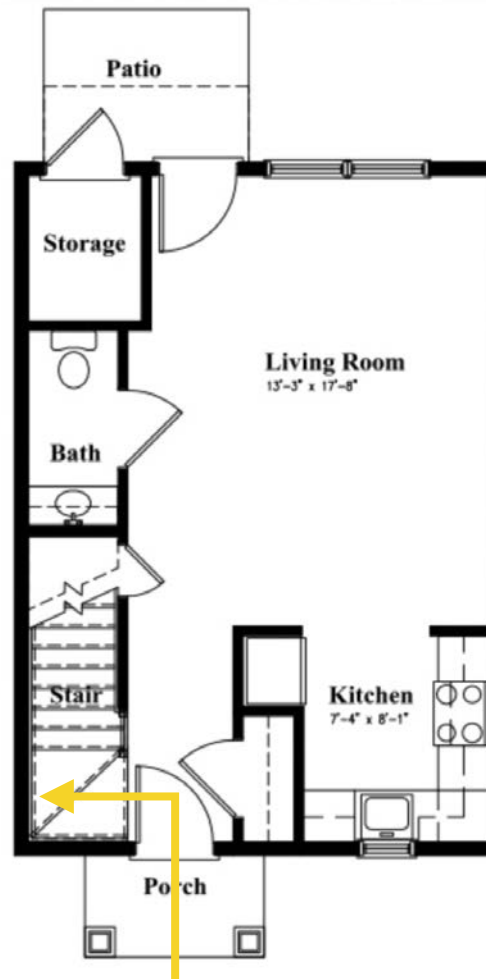


## Stair/Entrance Relationship

- Direct access



- Indirect access to door



- Far from door,  
More than 1 turn

