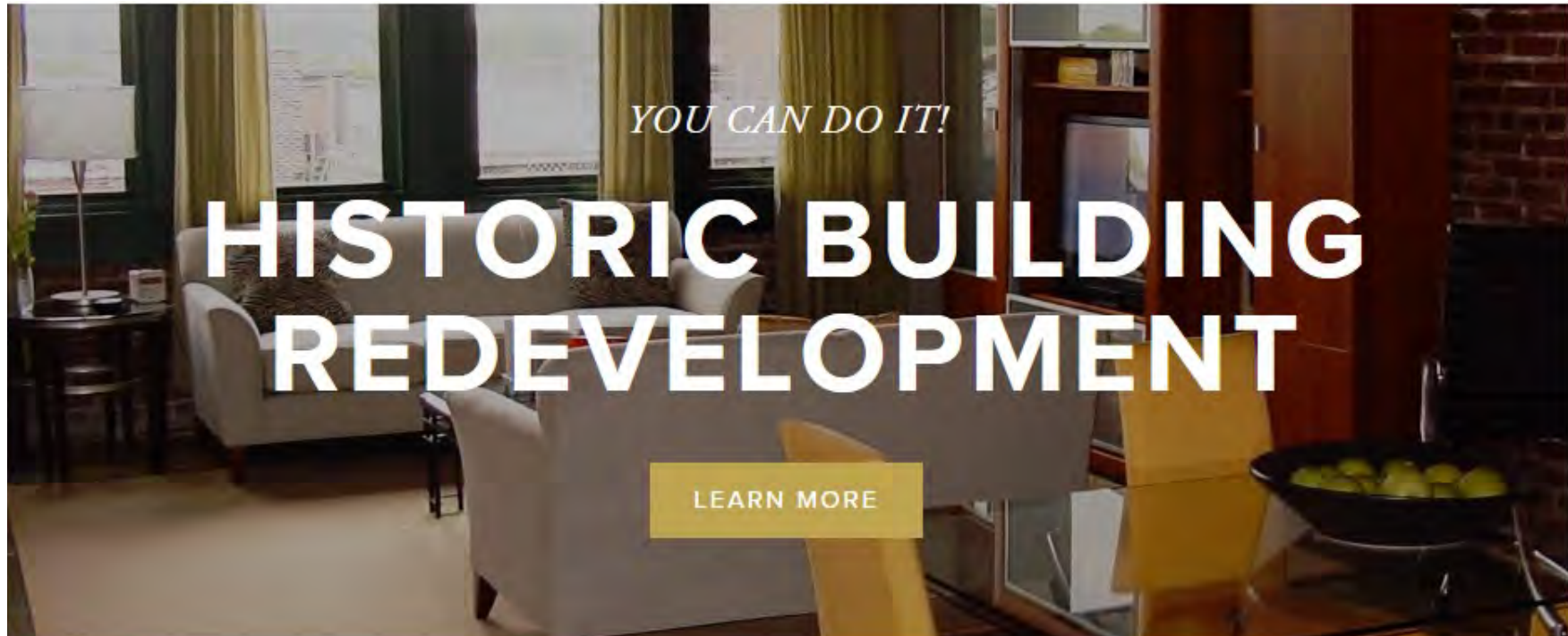
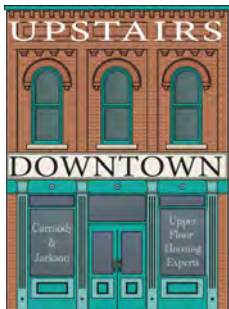


ARCHITECTURAL ASSESSMENT



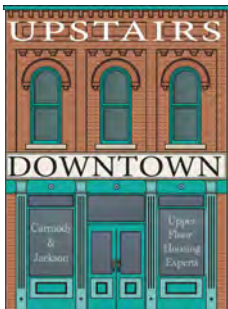
Market Forces
Professional Skills
Building Characteristics
Rules and Regulations



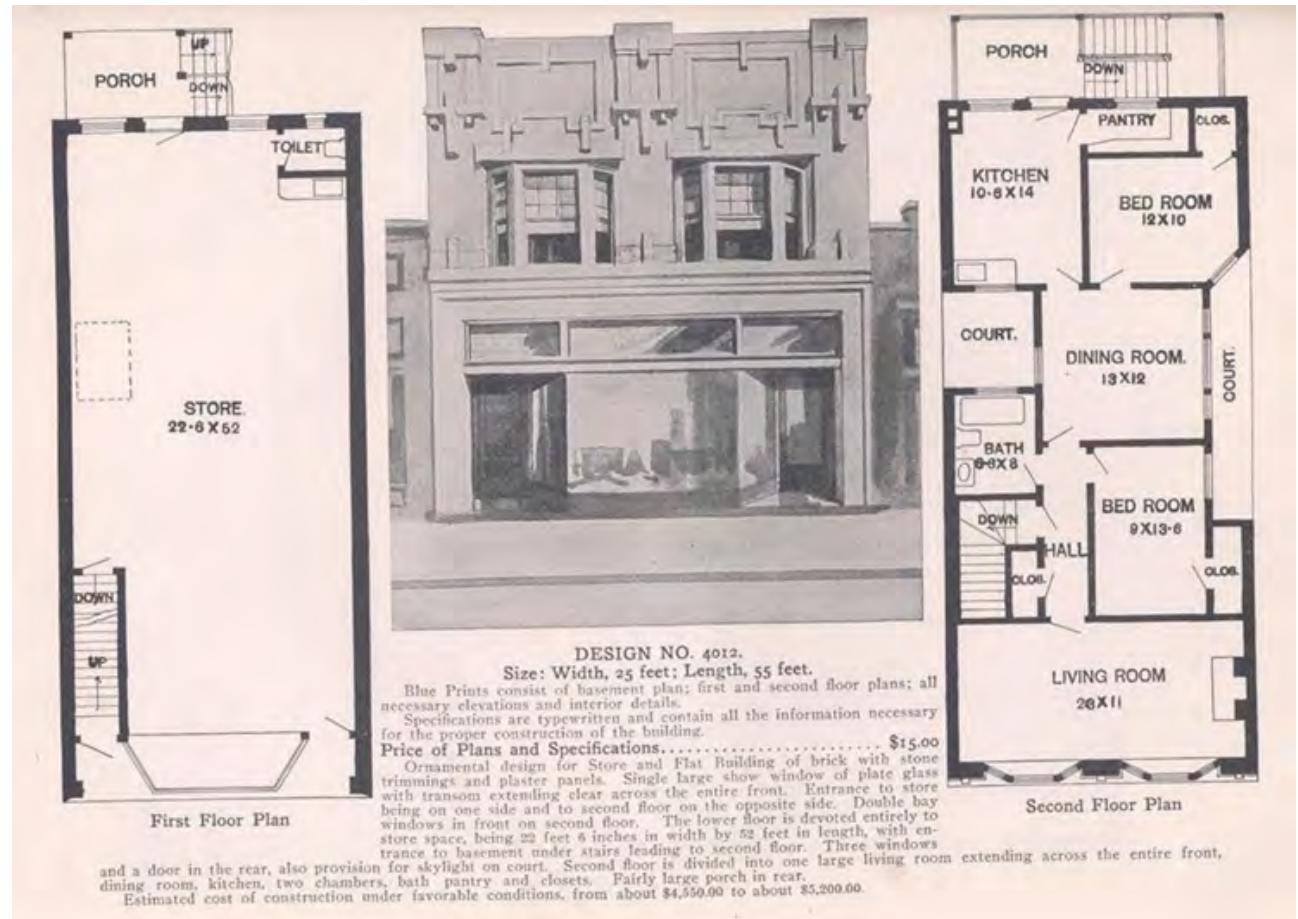
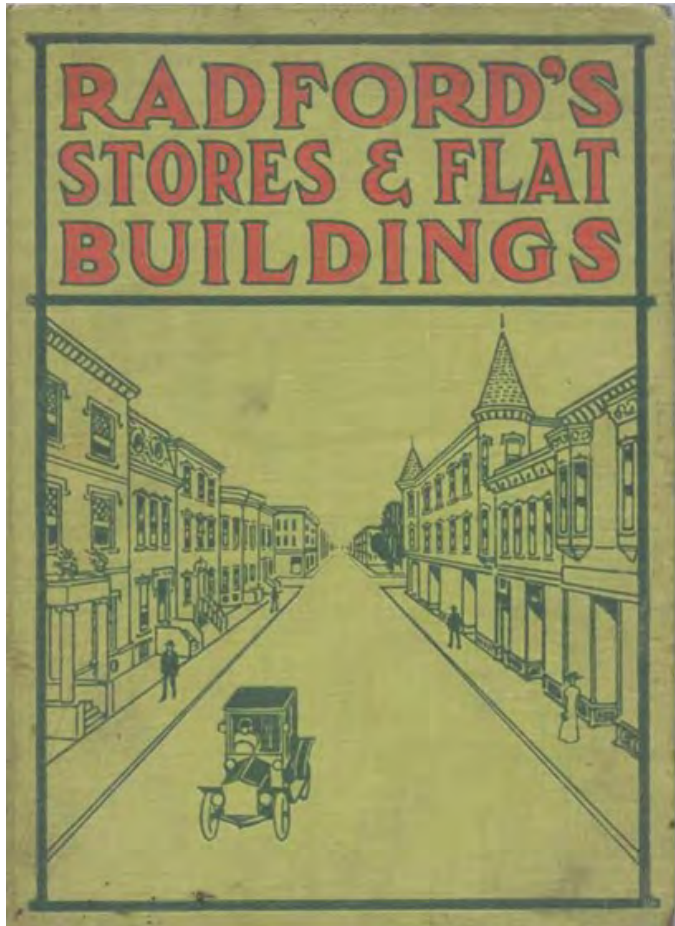
FEASIBILITY

Architectural/Economics

- The architectural, regulatory and fiscal variables that affect feasibility.
- The resources your Main Street program should have to facilitate feasibility studies.

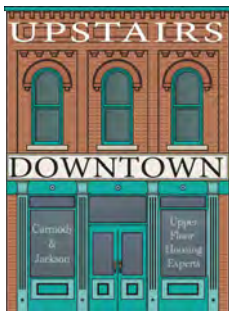


HISTORY LESSON



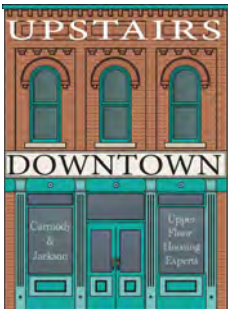
Residential use on the upper story was very common.

<https://archive.org/details/RadfordsStoresAndFlatBuildings>

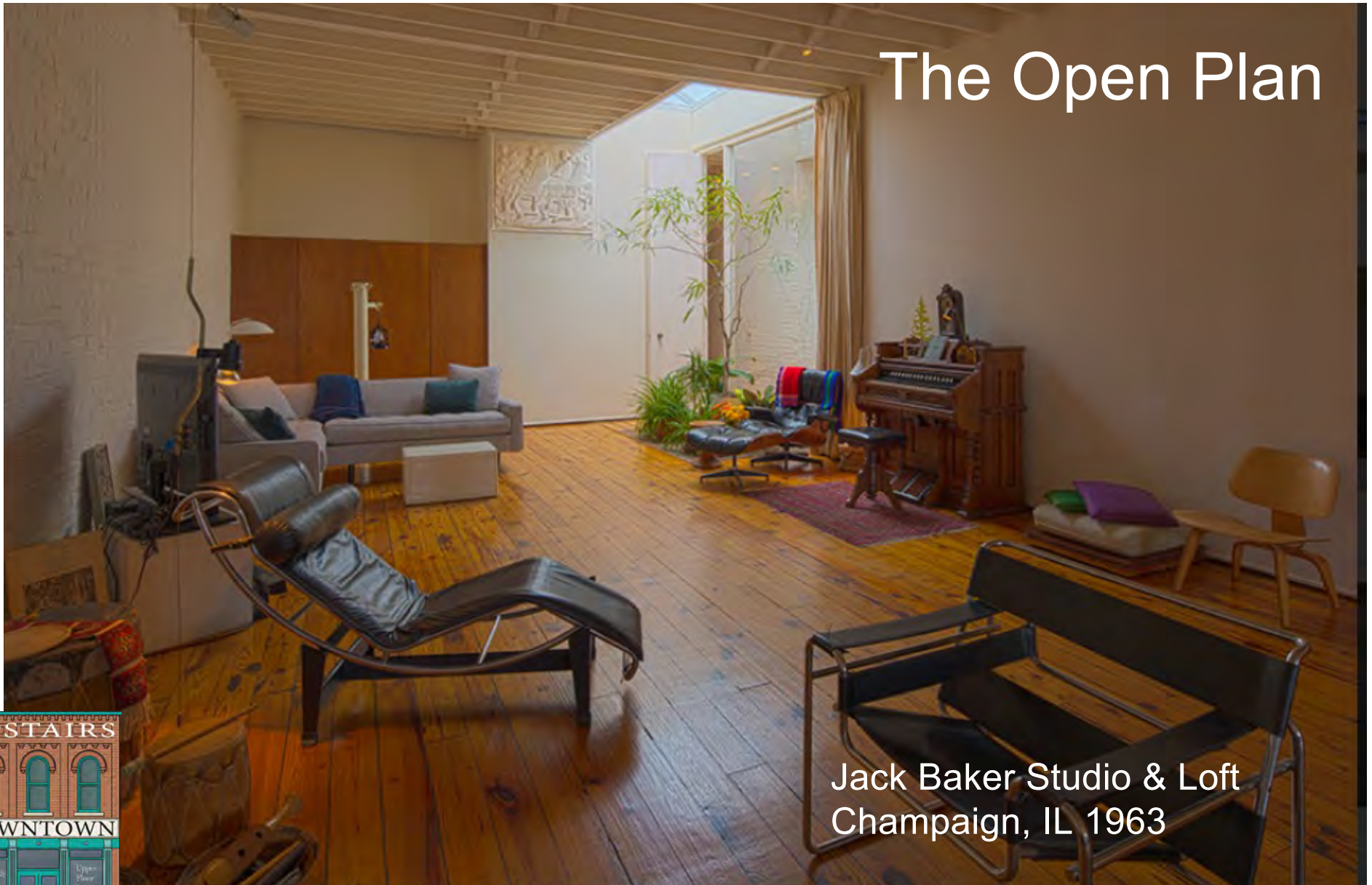


MARKET FORCES: RESIDENTIAL

- One, One+ or Two-Bedroom Units
- Large open floor plan (800-1,200+ sq. ft.)
- Washer and dryer in units
- One+ Large bedroom and study
- Amenities
 - Outdoor balcony or deck
 - Study are storage space
 - Enclosed parking
 - Elevator

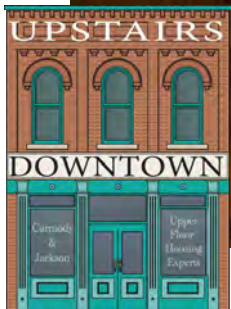


New Housing on Main Street

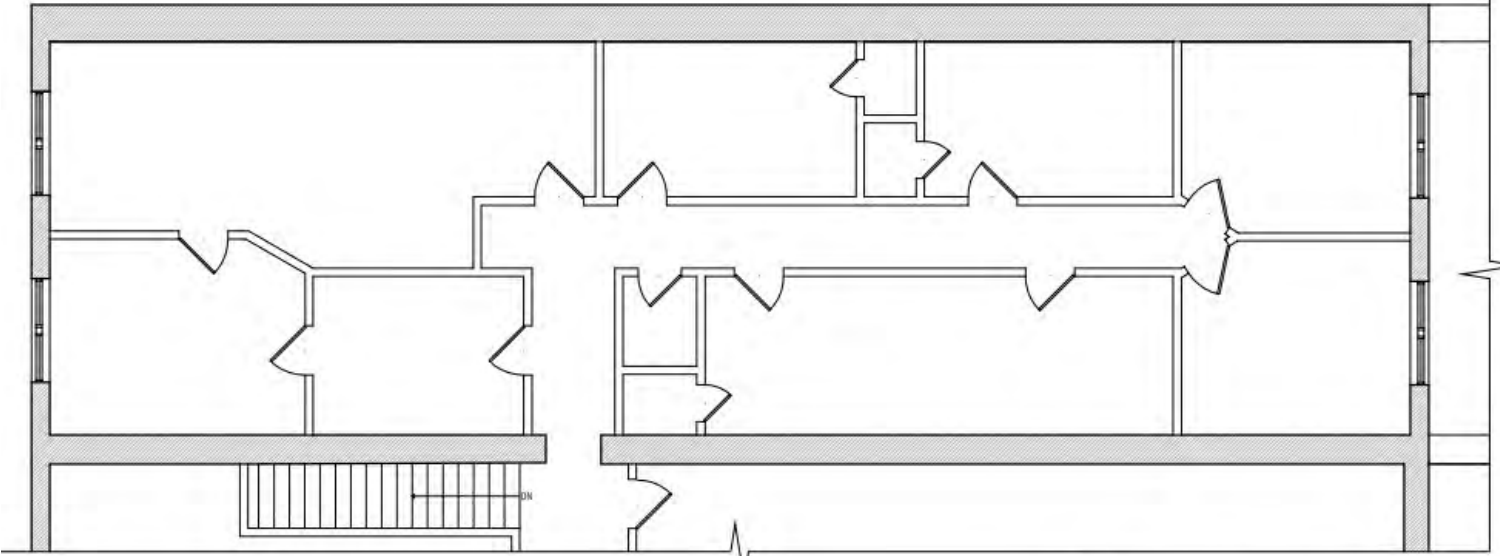


The Open Plan

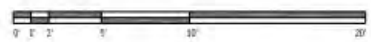
Jack Baker Studio & Loft
Champaign, IL 1963



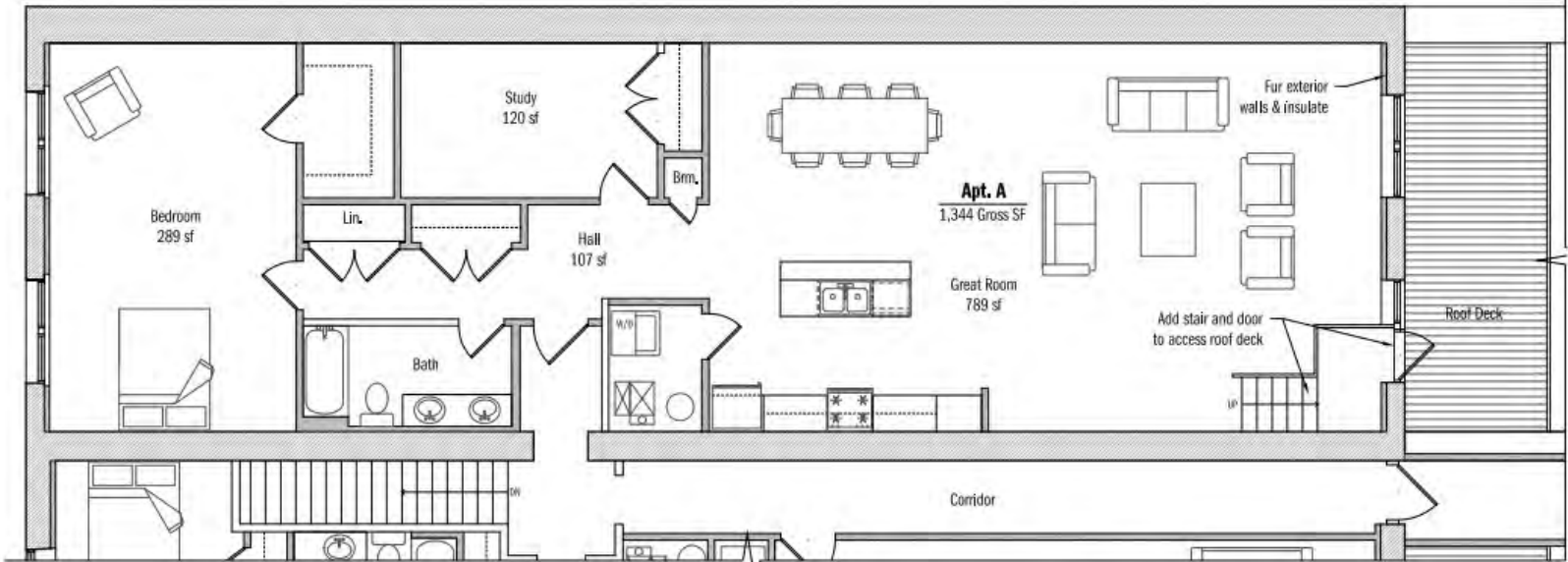
Typical plan



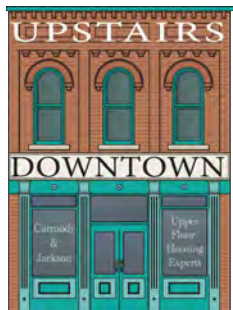
Existing Upper Level Floor Plan



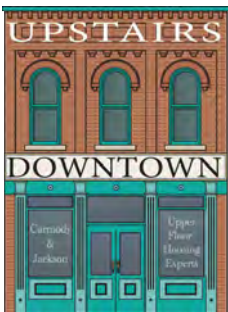
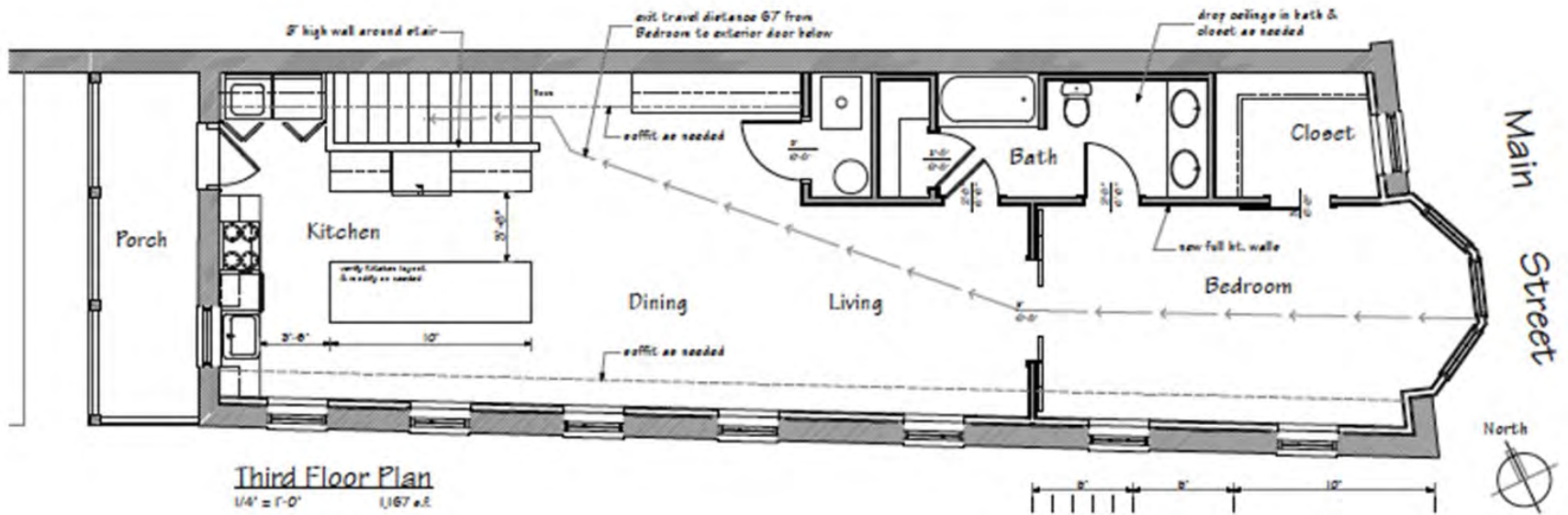
Contemporary Plan



Proposed Upper Level Floor Plan



THE OPEN PLAN UNIT

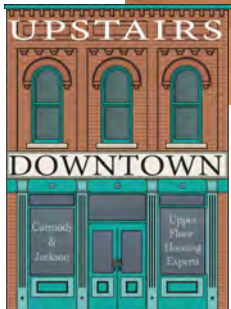


DESIGN MATTERS



- The “Cool” Factor
- **Tall Ceilings**
- Period Trim
- Open Plan
- High Quality

“Error on the side of quality”



OPPORTUNITIES

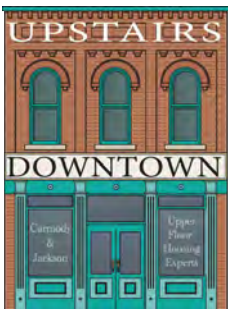
Solid Architectural “bones”

Great Location

Housing with creativity

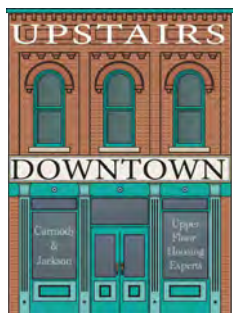
Building upon past success

Promote new opportunities

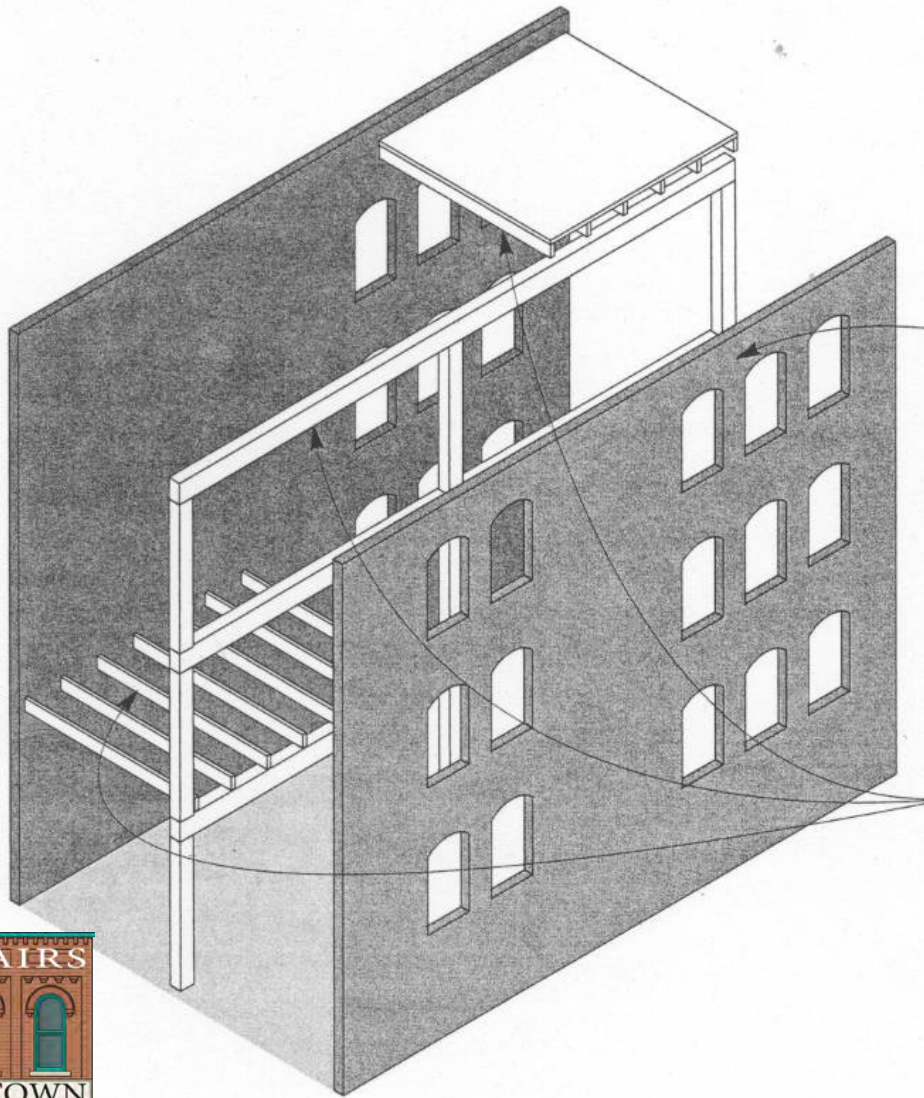


BUILDING CHARACTERISTICS

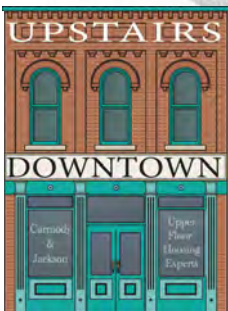
- Size
 - Area
 - Height, 2 story or 3 story +
- Construction type (from building code)
- Structural system (check for adequacy)
- Architectural attributes that are code triggers
 - Number of exits
 - Access to light and ventilation



BUILDING CHARACTERISTICS

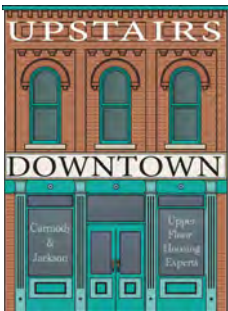


- CONSTRUCTION TYPE (IBC 2000)
 - Type III (based upon fire resistance of building elements)
- Exterior walls are noncombustible materials and interior building elements are of any material permitted by this code.



COST FACTORS

- Accessibility - Elevator
- Structural capacity– Floor load
Life Safety (Building Codes)
 - Sprinklers
 - Extra exit stairs
 - Seismic upgrades
- Environmental



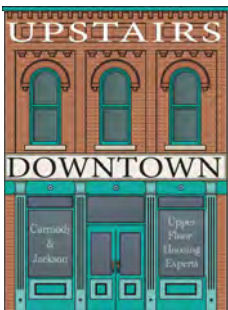
CODES & STANDARDS



Building Codes

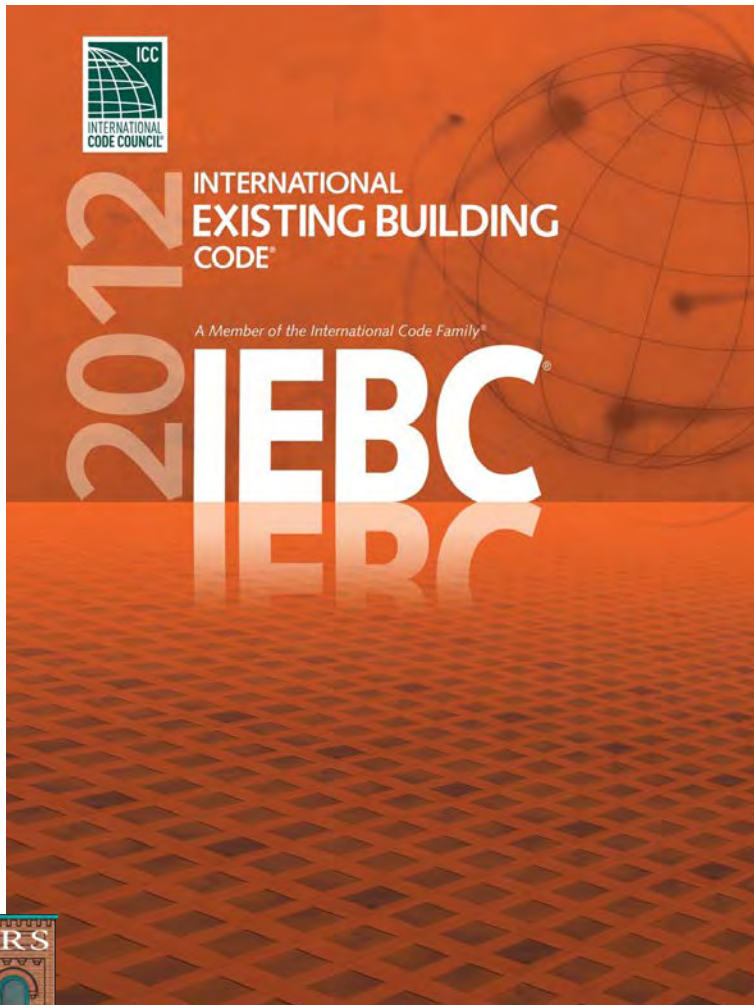
National Models, adopted by gov' t
American with Disabilities Act (ADA)
Secretary of the Interior' s Standards
Code triggers based upon funding
source

Ex: HUD funding and lead paint



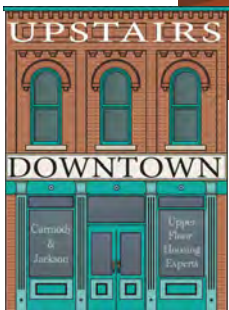
Know your local code officials

EXISTING BUILDING CODE



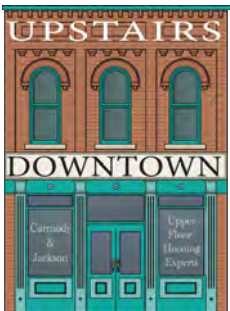
- International Existing Building Code (3 Yr cycle)
- Level of activity

Springfield uses IEBC 2012



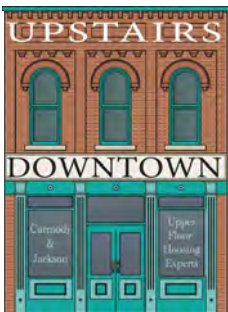
BUILDING USE

- Current use (zoning classifications)
 - First floor
 - Upper floors
- Historic use (city directory, Sanborn map)
 - First floor
 - Upper floors
- Vacant (last known legal use)
- Kitchen and bath indicate residential use



HISTORIC USE

- Sanborn fire insurance maps are a valuable tool to evaluate a building's original fire safety design attributes.
- City directories



Sanborn maps available locally and online

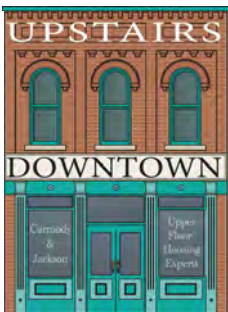
STRUCTURAL CAPACITY

STRUCTURE (IBC 2000)

Residential 40 psf.

Stairs and exits 100 psf.

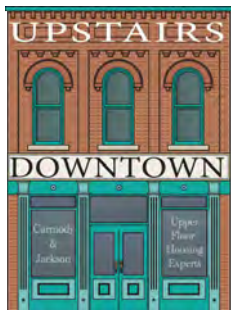
- One & two-family dwelling 40 psf.
- Office 50 psf., Corridor above 1st fl. 80 psf.
 - Lobbies and first floor corridor 100 psf.
- Original design (archaic materials)
- Condition assessment



Most building meet residential loading
Industrial buildings exceed most loads

CODES – FIRE SAFETY

- Fire Districts - Exterior Masonry Walls
- Compartmentalization (time rating factors)
- **Fire Detection and Alarms**
- Fire Suppression (sprinklers)
- Exits



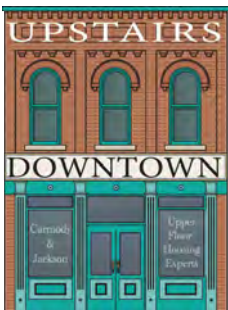
FIRE SAFETY & SPRINKLERS

Always desired

When are they Required?

Change of Use as a trigger
Level of Alteration

Commercial vs Residential systems



Who is the decision maker?

Building Code official
Fire Department

FIRE PROTECTION

Classification of work

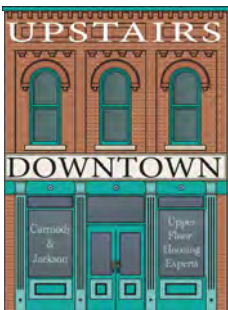
Construction type

Non-combustible ?

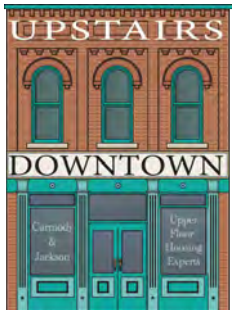
Change of use or not?

Fire separation between floors

When does work on the second floor
affect work on the first floor?



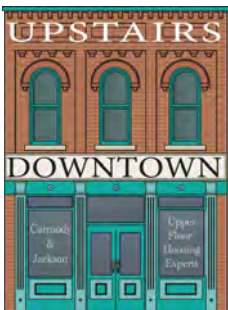
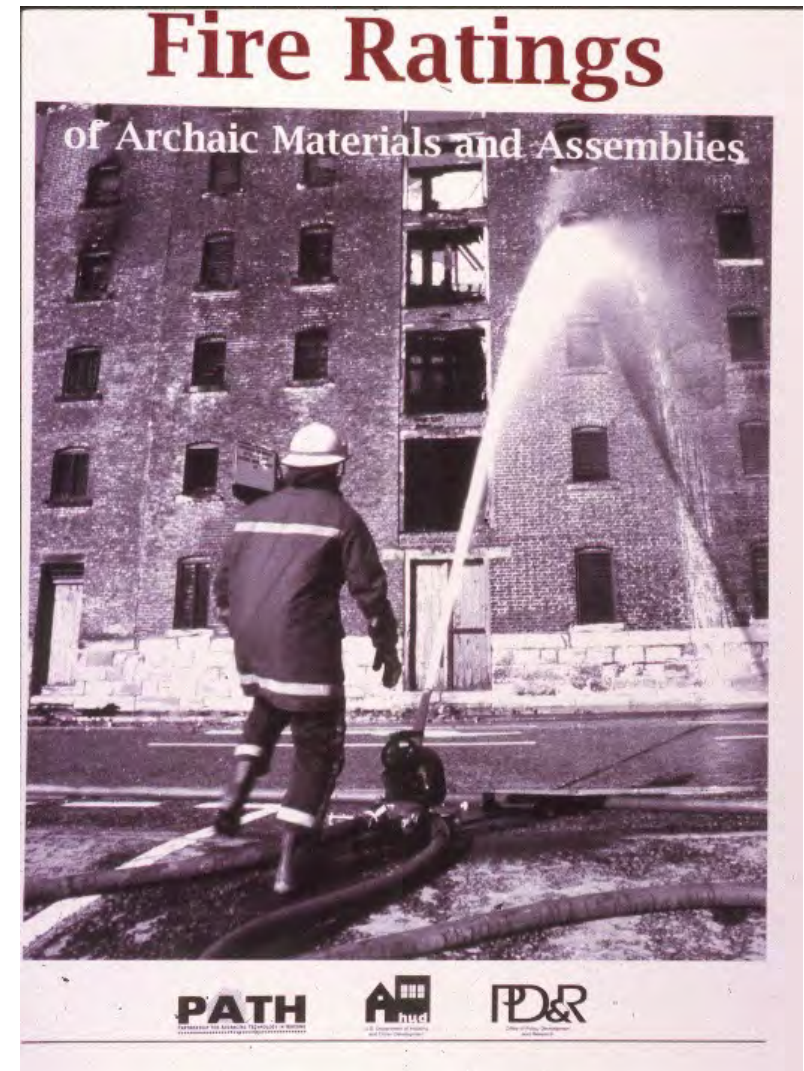
CODES AND TIN CEIINGS



An archaic historic material with a 15-minute fire rating

FIRE RATINGS OLD MATERIALS

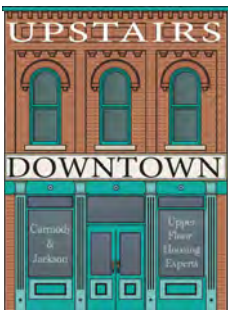
- Fire resistance ratings systems for building materials were the next step in the evolution of fire safety. Many historic and archaic materials were built before the modern rating systems were established.
- IEBC Resource A



www.huduser.org/portal/publications/destech/fire.html

CODE – SPRINKLERS

- IEBC Historic Buildings
- 1005.4 Occupancy separation
 - Occupancy separation of one hour omitted for buildings with approved sprinkler system throughout.



TIN CEILING 2 HR RATING



Figure 4. T & G Flooring as Assembly Unexposed Face



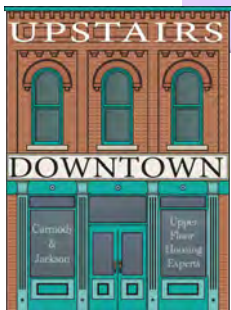
Figure 5. Tin Ceiling and Douglas Fir Frame



Figure 6. Coated Embossed Tin Ceiling as Assembly Exposed Face

1. Remove and reinstall over a new 1Hr rating.
2. Cover with an intumescent paint, 1 + hr separation
3. Increase rating on second floor

www.firefree.com/assembliesdrawings.php#WoodFloorCeiling2Hr



PERFORMANCE COMPLIANCE

IEBC – Chapter 13

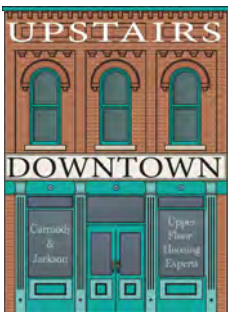
Method of quantifying safety improvement

Less prescriptive

Requires written report by a design professional

The role of the architect

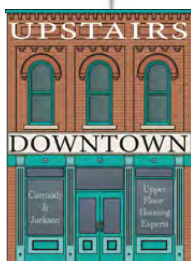
The role of the code official



PERFORMANCE COMPLIANCE

SAFETY PARAMETERS	FIRE SAFETY (FS)	MEANS OF EGRESS (ME)	GENERAL SAFETY (GS)
1301.6.1 Building Height 1301.6.2 Building Area 1301.6.3 Compartmentation			
1301.6.4 Tenant and Dwelling Unit Separations 1301.6.5 Corridor Walls 1301.6.6 Vertical Openings			
1301.6.7 HVAC Systems 1301.6.8 Automatic Fire Detection 1301.6.9 Fire Alarm System			
1301.6.10 Smoke control 1301.6.11 Means of Egress 1301.6.12 Dead ends	**** **** ****		
1301.6.13 Maximum Exit Access Travel Distance 1301.6.14 Elevator Control 1301.6.15 Means of Egress Emergency Lighting	**** ****		
3412.6.16 Mixed Occupancies 3412.6.17 Automatic Sprinklers 3412.6.18 Standpipes 3412.6.19 Incidental Accessory Occupancy		**** + 2 =	
Building score — total value			

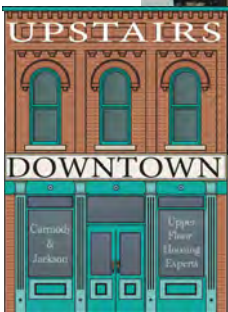
No applicable value to be inserted.



EGRESS REQUIREMENTS

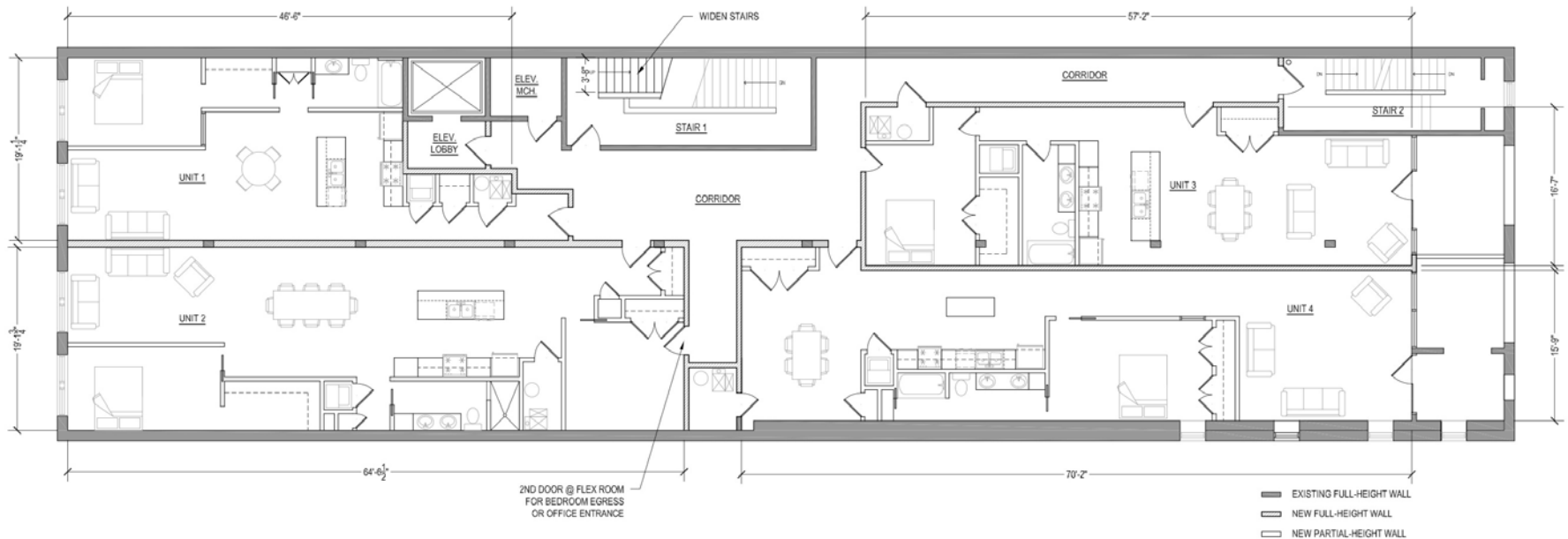


Three-story buildings require two means of egress from the third floor. Exits must have a direct connection to a public right-of-way.

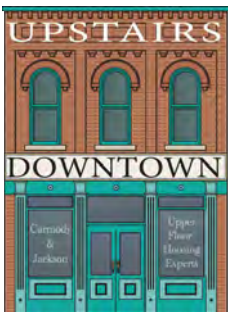


EGRESS REQUIREMENTS

Two-story, single exit permitted for up to 4 units



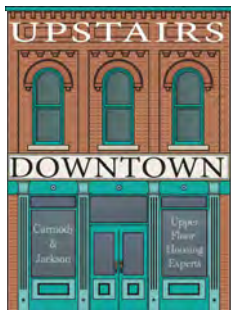
Note: Second staircase at the rear is needed for the third – fifth floors.



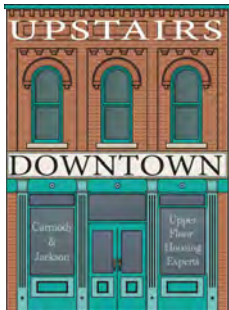
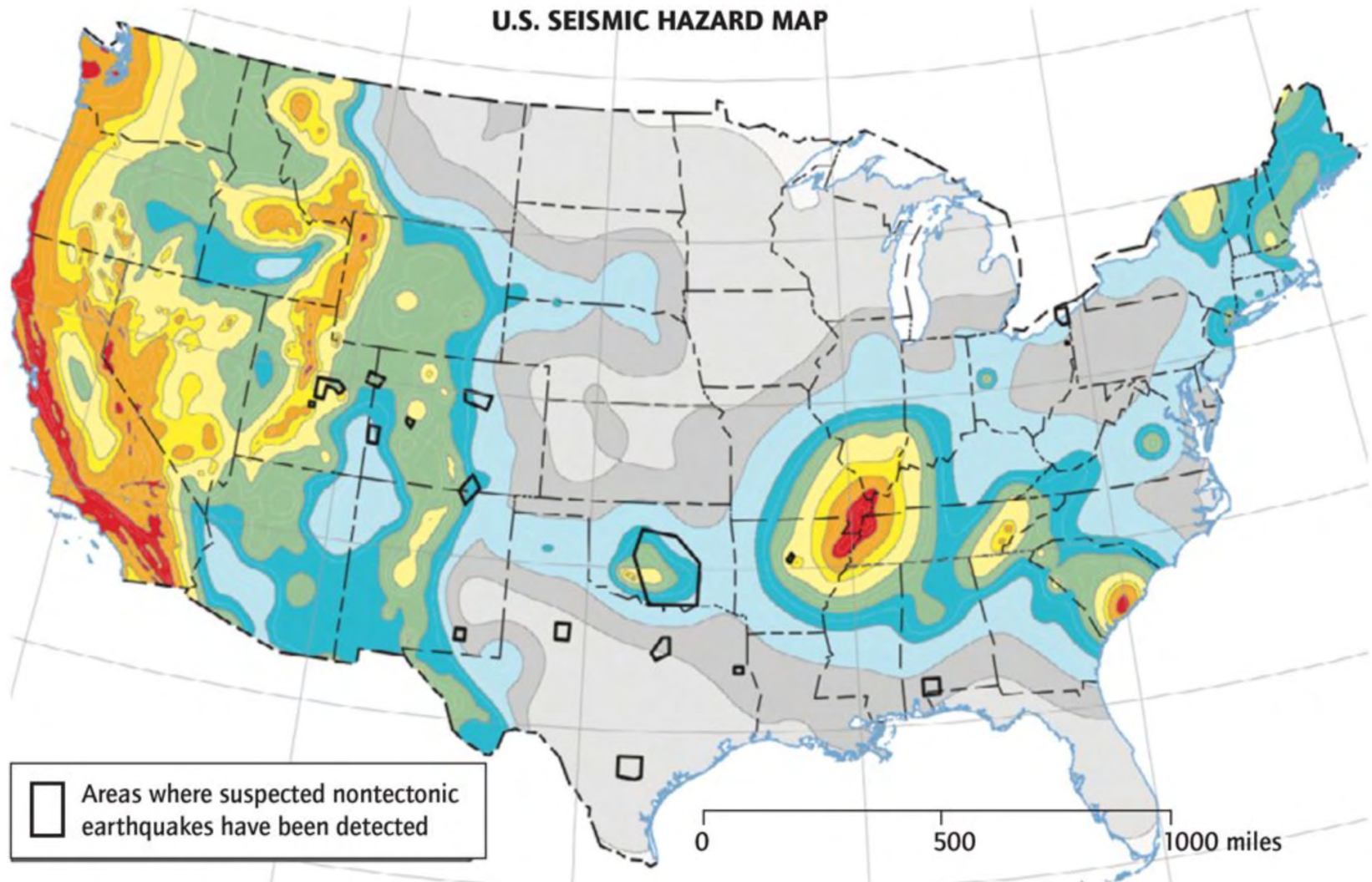
THREE FLOORS, ONE EXIT?



Third floor unit has entry foyer on the second floor (duplex)
Rear balcony as an “area of refuge”



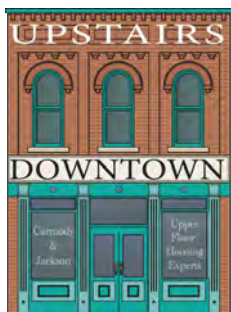
SEISMIC HAZARD MAP



SEISMIC RETROFIT

Structural System Trigger

Expenditures based upon assessed value



Preservation Brief 41

Seismic Retrofit of Historic Buildings

BUILDING ACCESSIBILITY

The Elevator Question

Americans with Disabilities Act (ADA)

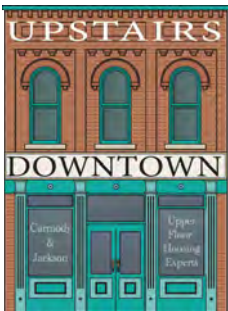
Applies to public accommodations

Is retroactive starting in 1990

Readily achievable test (economics)

State Accessibility Codes

Building Permit “trigger”



BUILDING ACCESSIBILITY

ADA

Elevator **not** required for buildings less than three stories if:

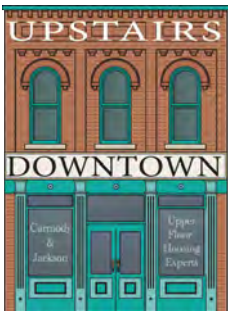
Under 3,000 sq. ft. except for:

Shopping center

Medical office

Transit Facilities

ADA does not apply to housing

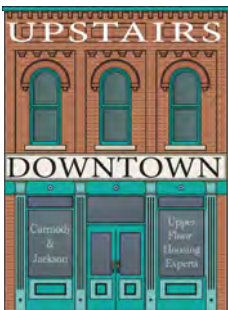


BUILDING ACCESSIBILITY

- Fair Housing Act (1991)

Does not apply to older buildings.

The Act requires all newly constructed multi-family dwellings of four or more units intended for first occupancy after March 13, 1991, to have certain features: an accessible entrance on an accessible route, accessible common and public use areas, doors sufficiently wide to accommodate wheelchairs, accessible routes into and through each dwelling...



BUILDING ACCESSIBILITY

Elevator needed for **marketability** when:

More than three stories

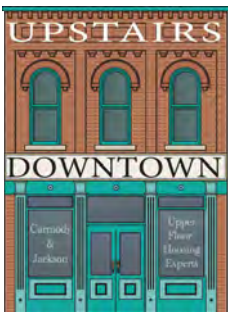
All age marketing

Higher market potential

More than twenty units – ICC

More than ten units – test economics

Two story buildings don't need
an elevator to be competitive



BUILDING ACCESSIBILITY

ICC Codes 2015+

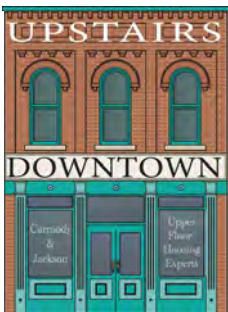
Type A Units, Fully accessible kitchens and baths

Type B Units, Adaptable for conversion to Type A

One Type A unit is required for buildings with 20 or more units.

Type B units are required in buildings where people live where there are four or more dwelling or sleeping units. There are exceptions for multi-story units, buildings with no elevators, steep sites and residential buildings required to be elevated because of flood provisions.

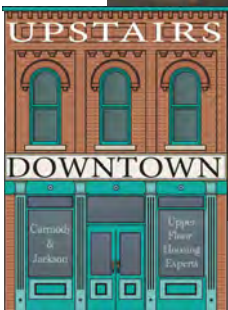
IBC Section 1107.7.1 Structures without elevator service. Where no elevator is provided in a structure, only the units located *on the first floor (if planned) need to be Type B.*



LIGHT & VENTILATION



Building depths greater than 80 feet are more difficult for residential use.



LIGHT & VENTILATION

Natural light requirement – 8% of floor area

Natural ventilation requirement – 4% of floor area

EXAMPLE

WINDOW AREA

3' X 6' = 18 sq. ft. per window
x 3 windows

54 sq. ft. of window glazing

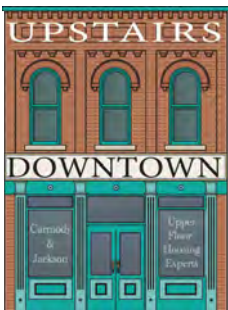
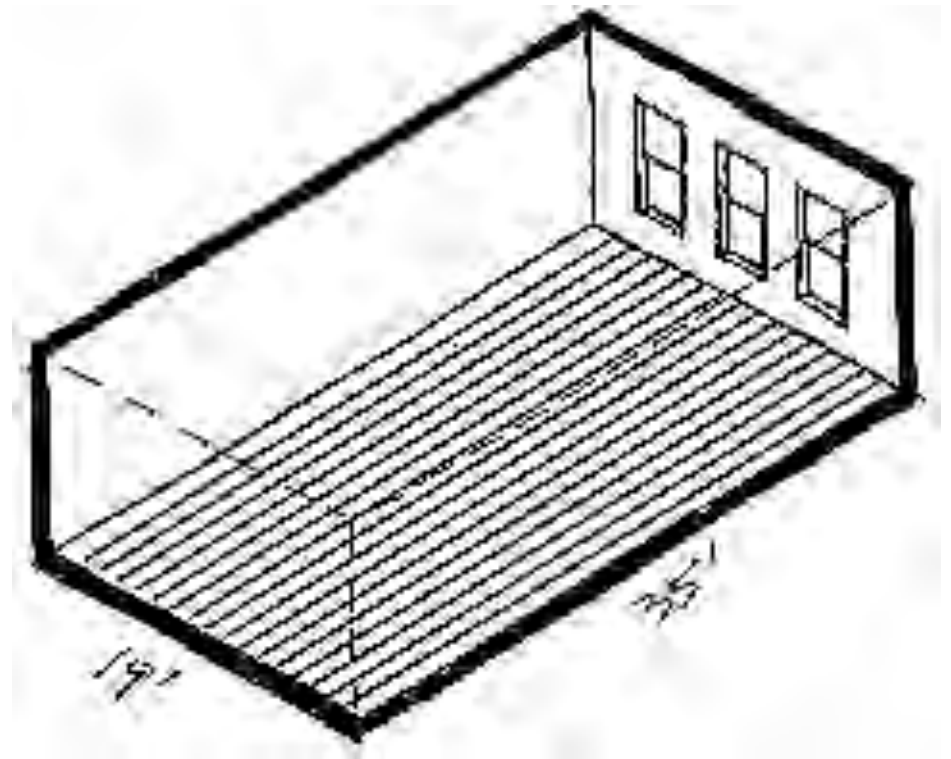
27 sq. ft. of vent opening

MAXIMUM ROOM SIZE

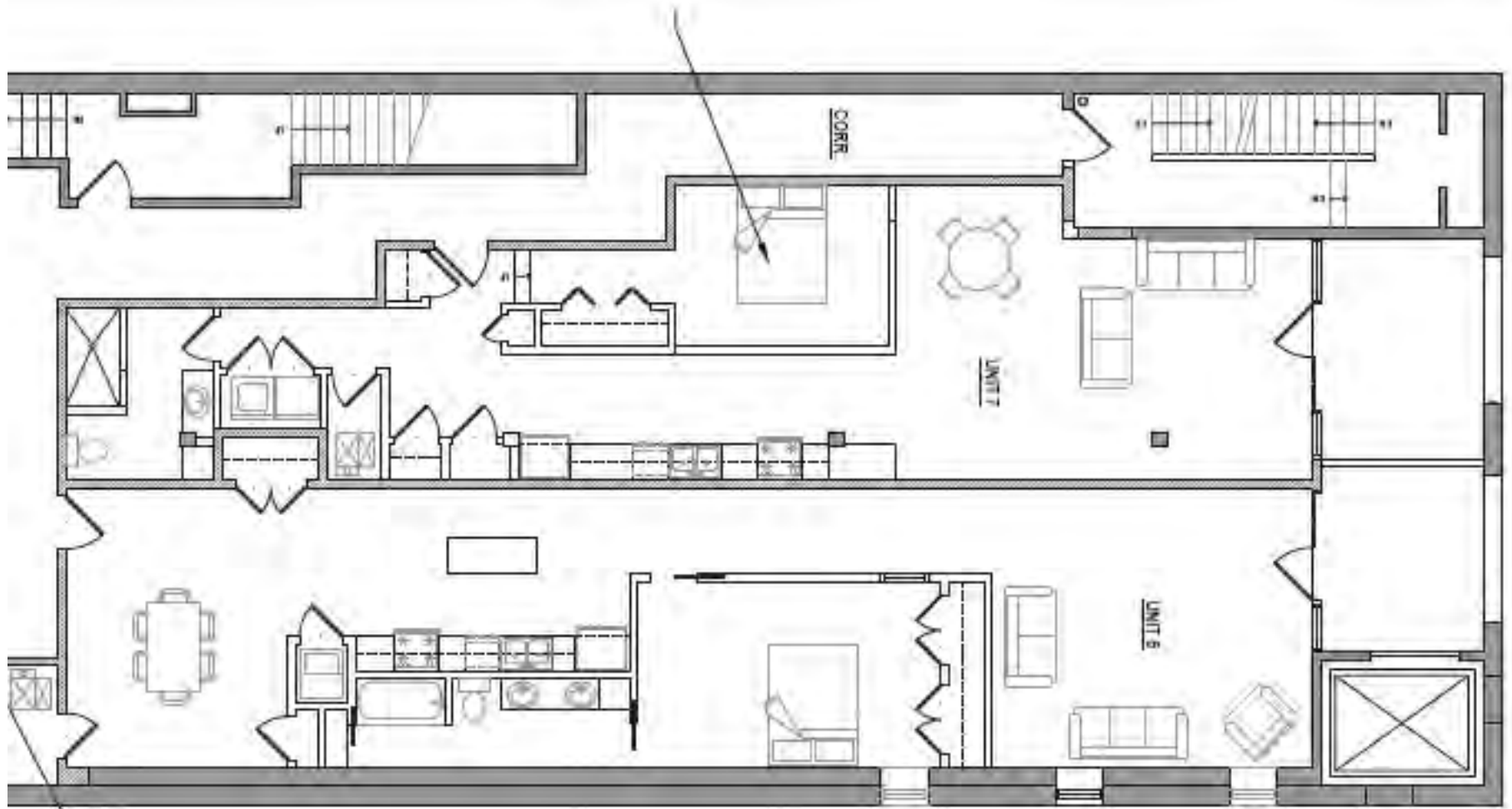
54 sq. ft. is 8 % of
675 sq. ft.

ROOM DIMENSION

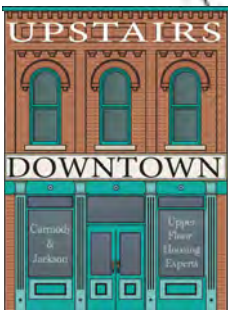
19' wide x 35' long



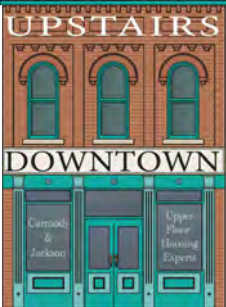
LIGHT & VENTILATION



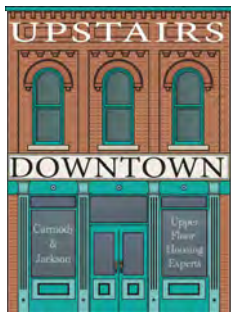
BR Wall open above for “borrowed light and vent.”
Note: This building is fully sprinklered.



Unit with “borrowed light” bedroom

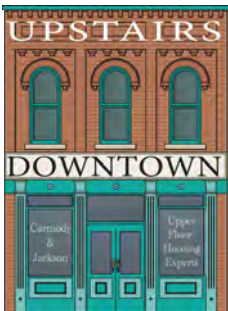


Unit with “borrowed light” living room



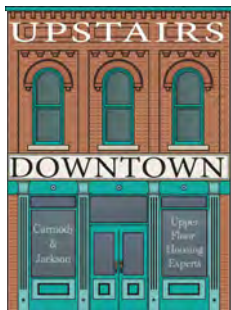
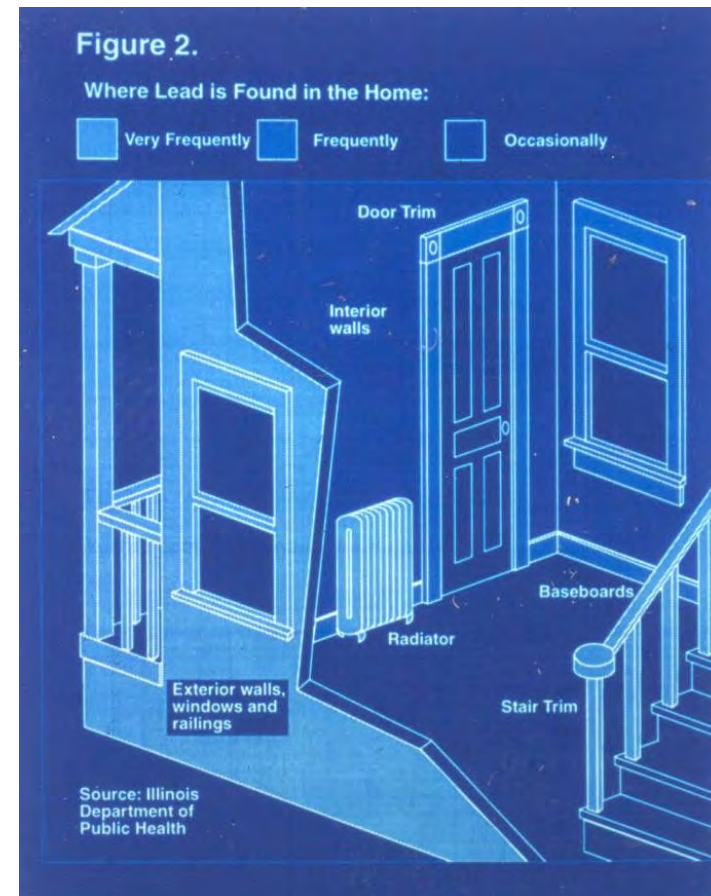
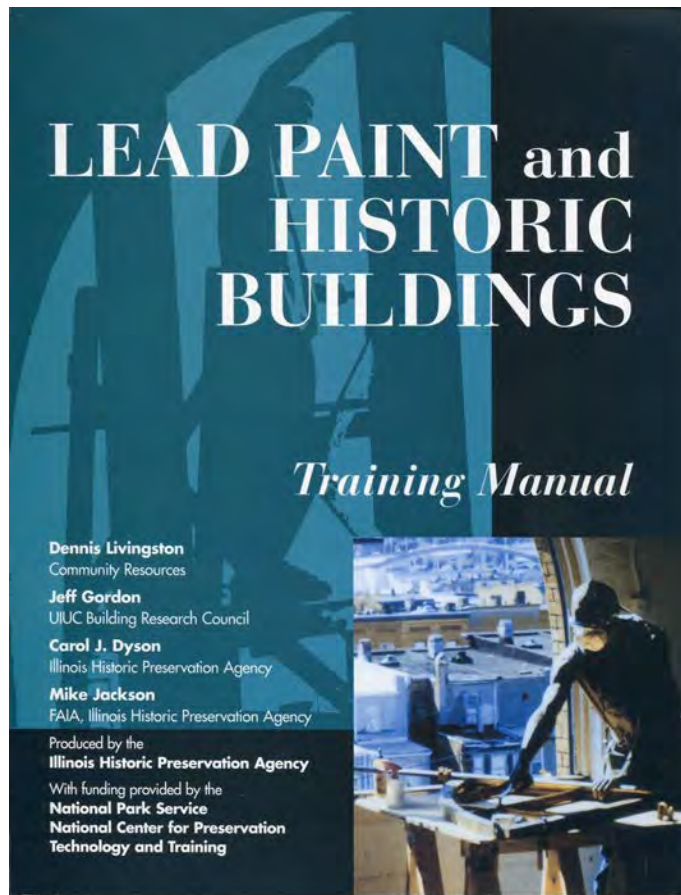
ENVIRONMENTAL ASSESSMENT

- Asbestos
- Lead Paint
- Underground storage tanks
- Other
 - Prior industrial use (Sanborn map, history)
 - Bird droppings
 - Mold



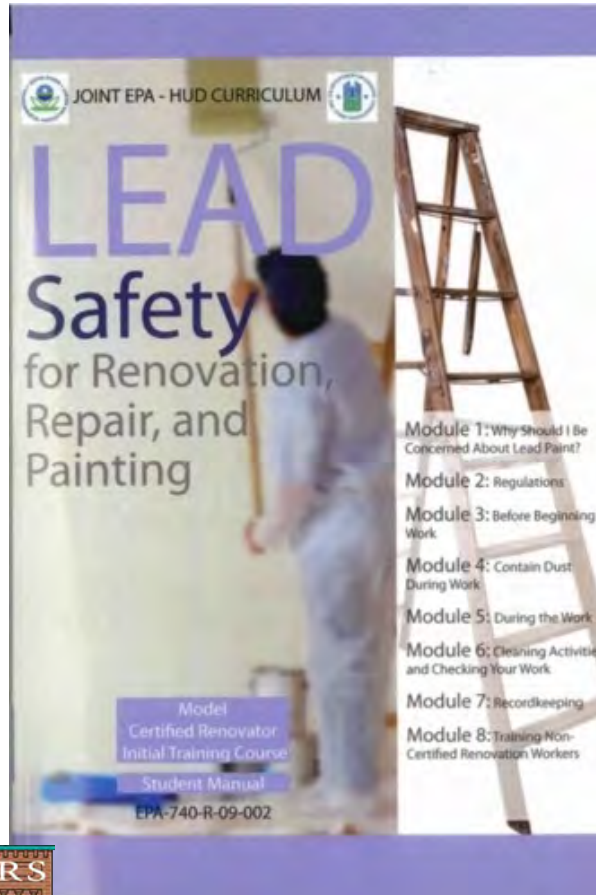
LEAD PAINT

- LEAD PAINT and Historic Buildings



<https://www2.illinois.gov/dnrhistoric/preserve/pages/leadpaint.aspx>

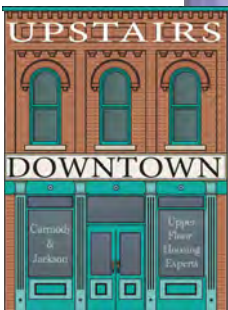
EPA Renovation Repair & Painting



Residential units in
pre-1978 buildings

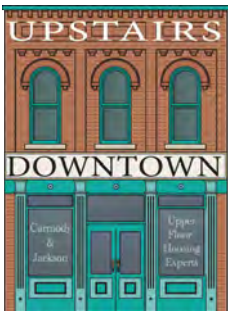
Lead-safe work
practices

Contractor certification

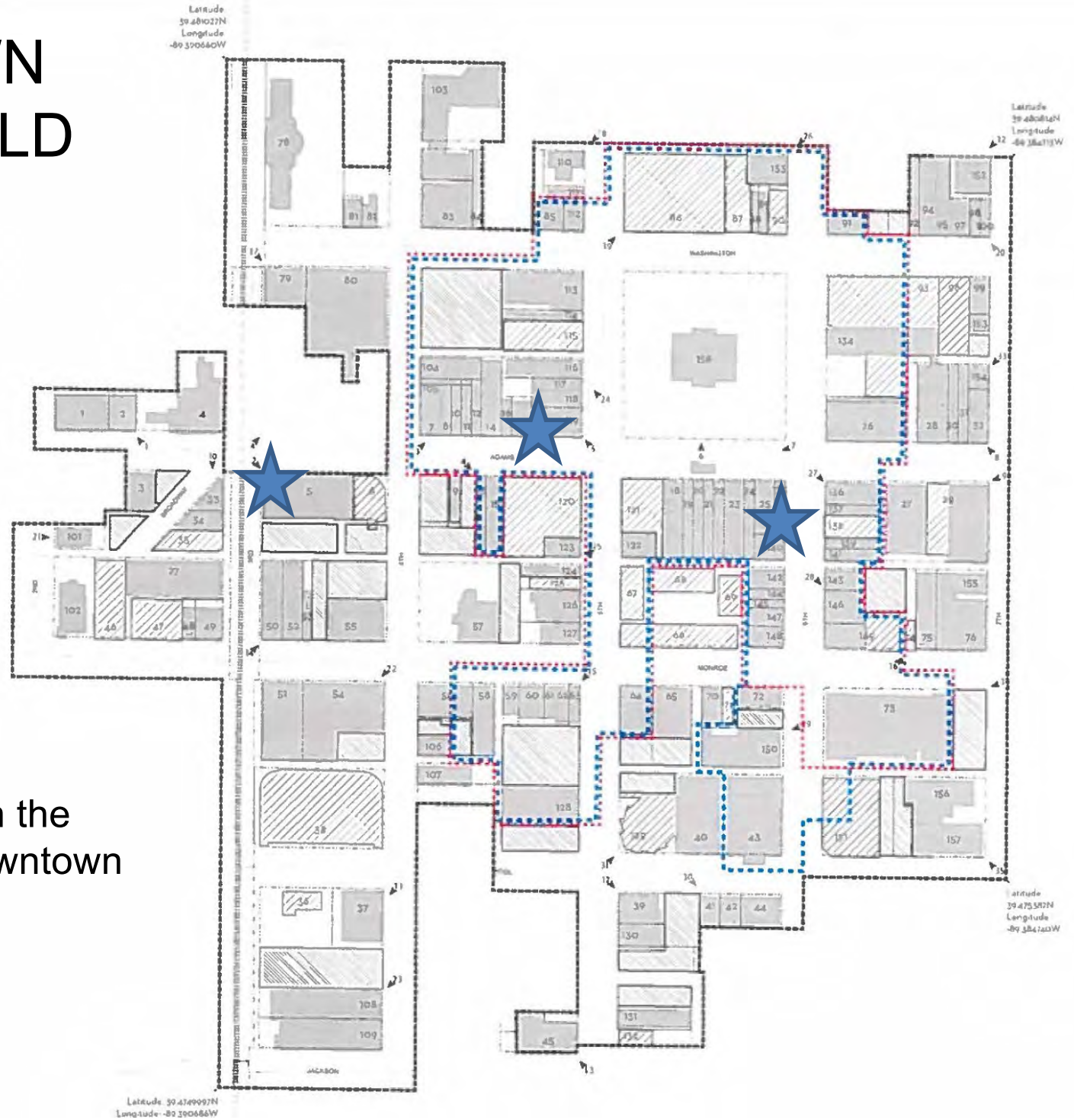


HISTORIC CLASSIFICATION

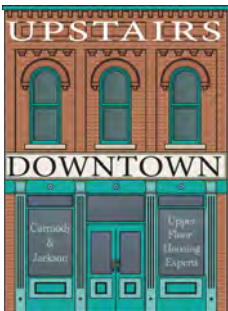
- Historic designation status:
 - National Register of Historic Places
 - Local Landmark
 - Individual listing or
 - Contributing building to a district
 - Eligibility for designation (50 years +)



DOWNTOWN SPRINGFIELD HISTORIC DISTRICT

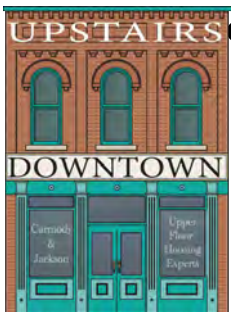


Properties in the
Upstairs Downtown
Study



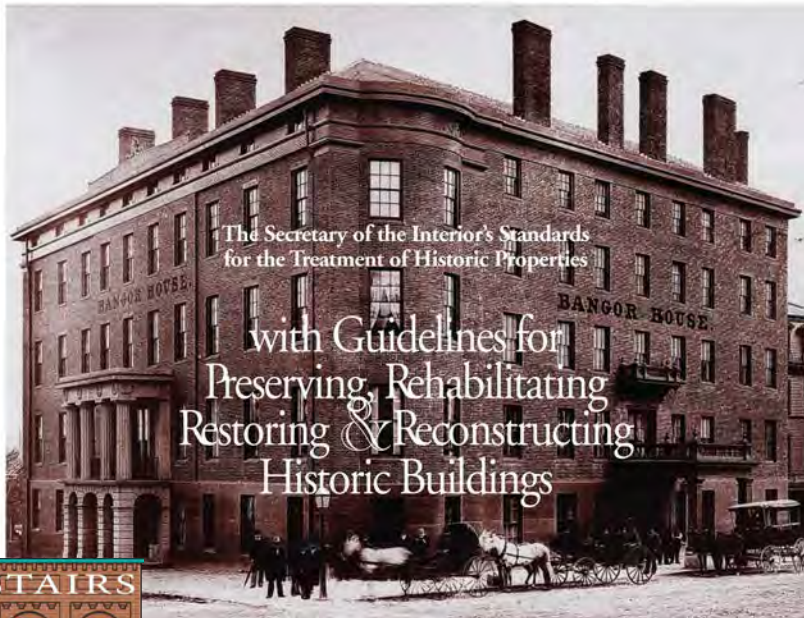
HISTORIC BUILDING & \$\$\$s

- Federal Tax Credits for National Register properties is the largest historic preservation program in the country
- State Tax Credits are really working
- Tax Credits work like a rebate
- Equal to 20% of qualified rehab expenses
- Contact SHPO
- Owner should consult accountant.
- IRS Restrictions apply



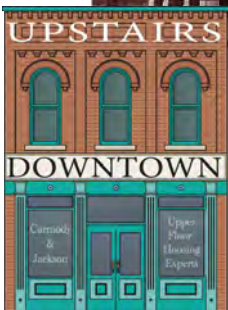
HISTORIC DESIGN REVIEW

- Secretary of the Interior's Standards for Rehabilitation (Historic Building Code)
- Local commissions review of exterior



SHPO review if project has state/federal funding, permits or licensing

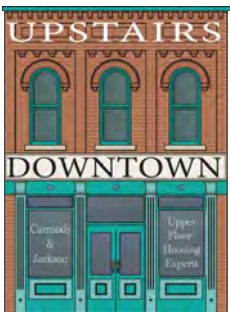
SHPO review of entire building.



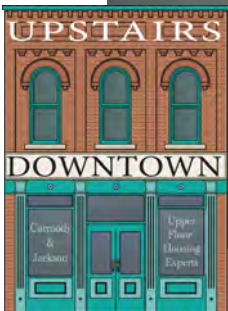
ARCHITECTURAL FEATURES



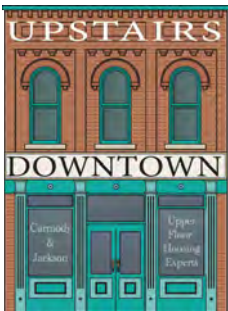
- Architectural elements
- Fireplaces
- High ceilings



HISTORIC INTERIOR

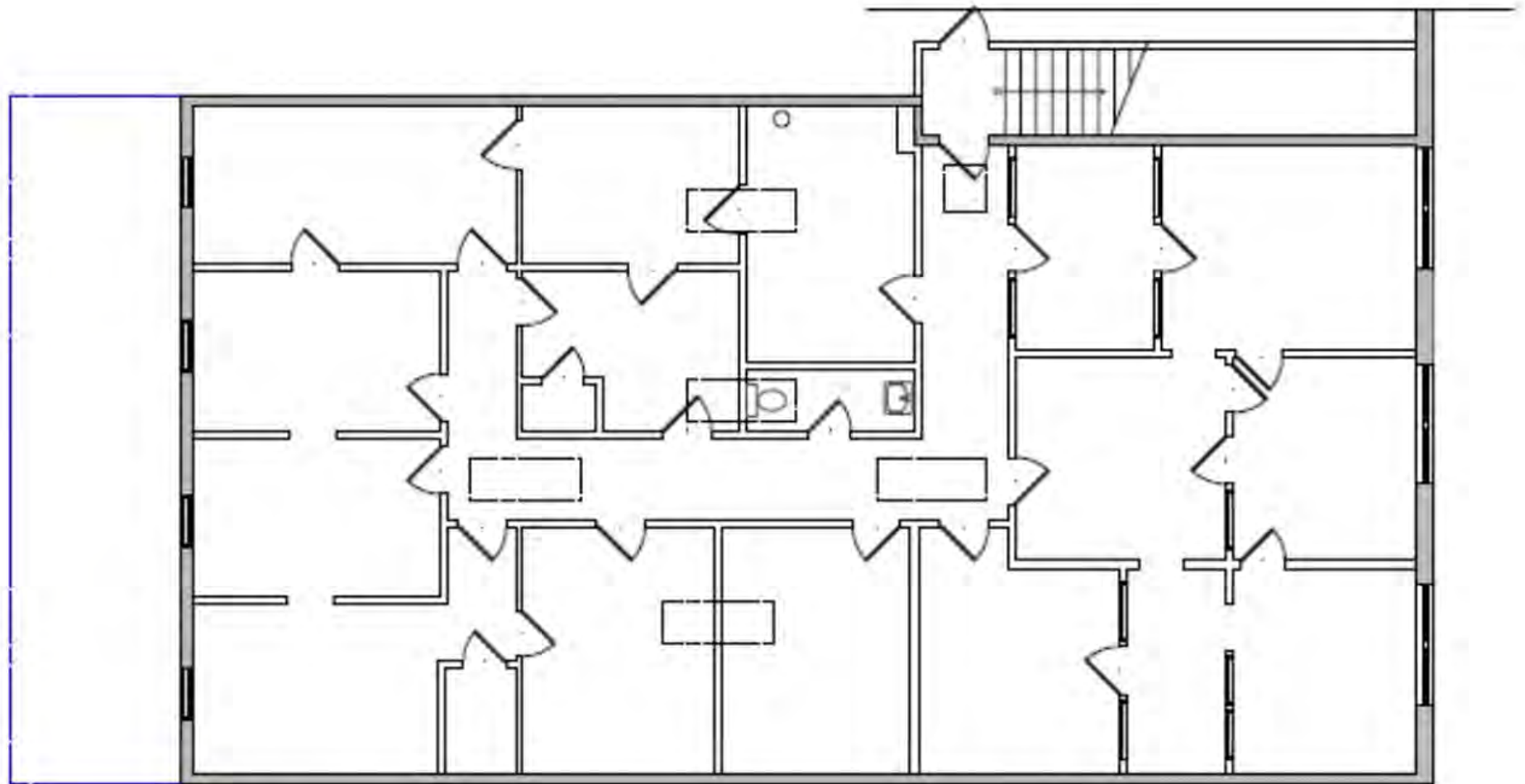


ARCHITECTURAL TREATMENT



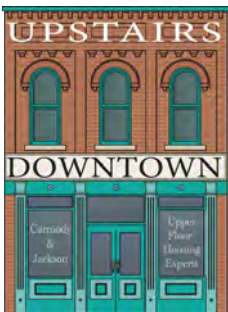
- Exposing the brick in historically finished spaces does not meet Preservation Standards.

OFFICE BLDG CONVERSION

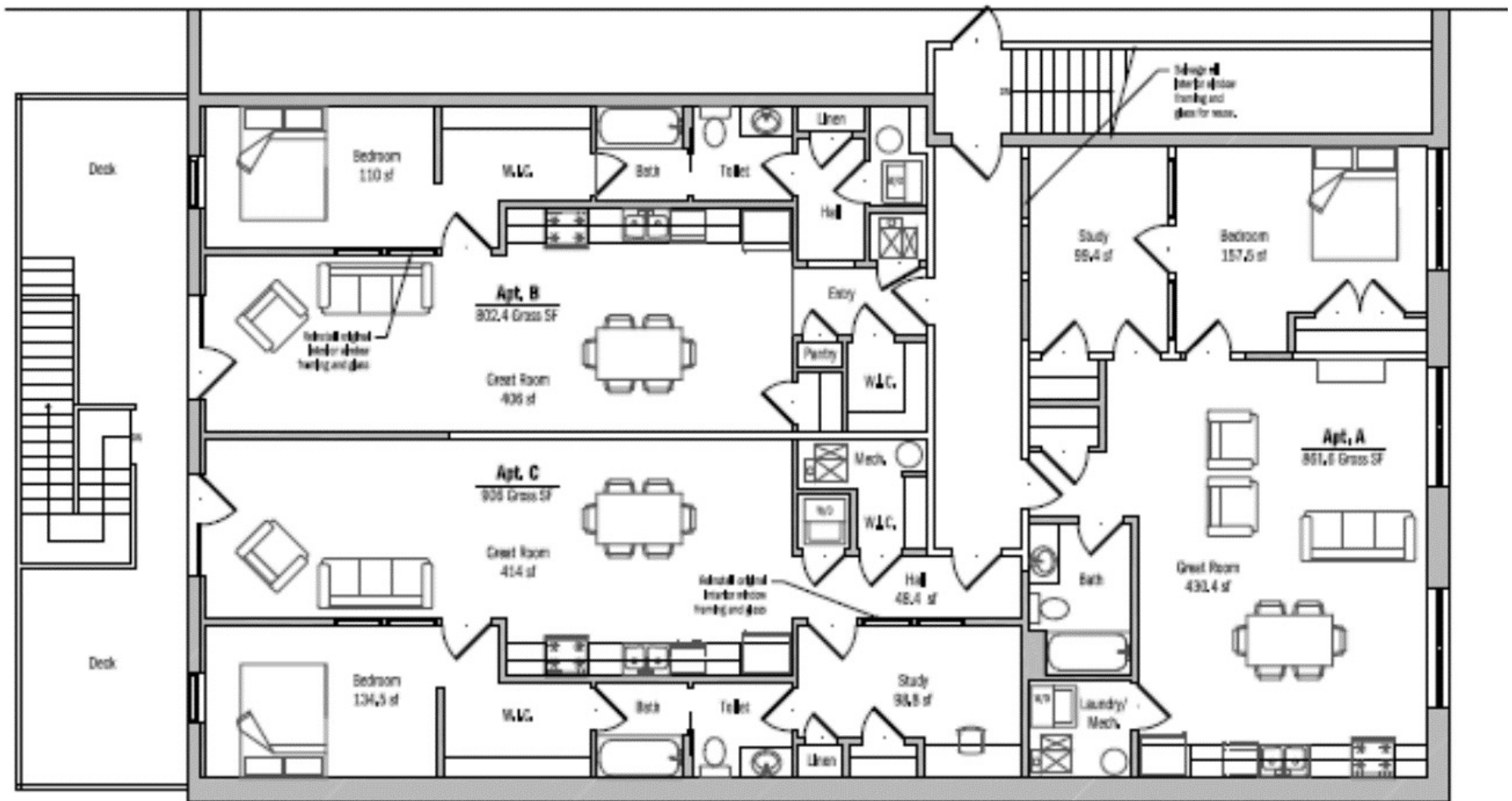


Existing Upper Level Floor Plan

Existing Plan



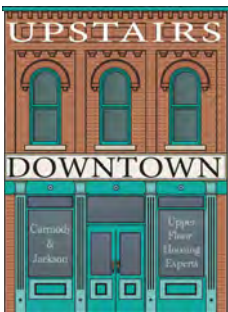
OPEN PLAN CONVERSION



Existing Upper Level Floor Plan



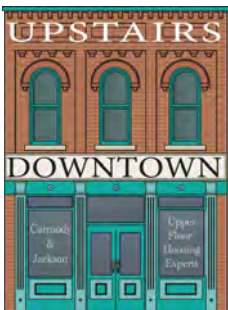
Proposed Plan 3 units plus second stair



LIFE CYCLE ASSESSMENT LCA



Quantifying the Value of Building Reuse
National Trust for Historic Preservation
Preservation Green Lab



LIFE CYCLE ASSESSMENT LCA

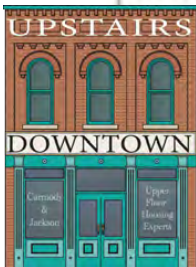
Table 12. Number of Years Required for New Buildings to Overcome Climate Change Impacts from Construction Process

According to this study, it takes 10 to 80 years for a new building that is 30 percent more efficient than an average-performing existing building to overcome, through efficient operations, the negative climate change impacts related to construction. This table illustrates the number of years required for different energy efficient, new buildings to overcome impacts.

Building Type	Chicago	Portland
Urban Village Mixed Use	42 years	80 years
Single-Family Residential	38 years	50 years
Commercial Office	25 years	42 years
Warehouse-to-Office Conversion	12 years	19 years
Multifamily Residential	16 years	20 years
Elementary School	10 years	16 years
Warehouse-to-Residential Conversion*	Never	Never

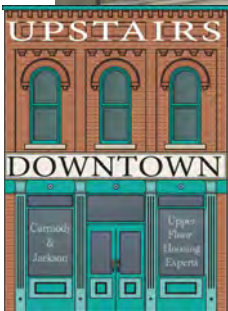
Main
Street
Mixed Use

42 – 80
Years



It's irresponsible to demolish and rebuild
Environmental urgency requires refurbishment and reuse

July 2021

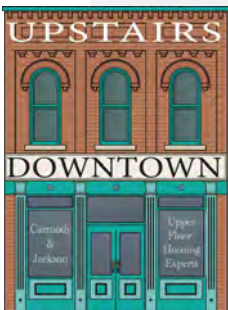


ENERGY EFFICIENCY

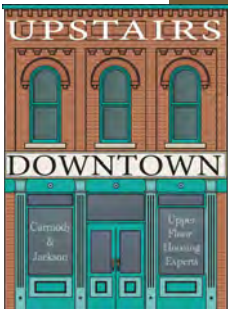
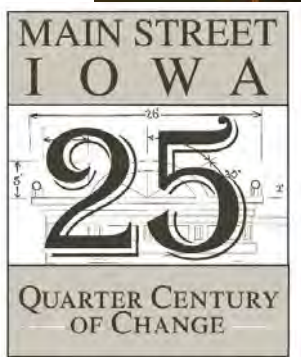
Renovated buildings are just as energy efficient as new construction.



**Parks
Canada
Study**



CREATING ENERGY EFFICIENT MAIN STREETS

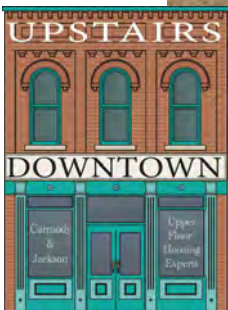


[www.iowaeconomicdevelopment.com/userdocs/documents/ieda /
CreatingEnergyEfficientMainStreets.pdf](http://www.iowaeconomicdevelopment.com/userdocs/documents/ieda / CreatingEnergyEfficientMainStreets.pdf)

Reaching Net Zero

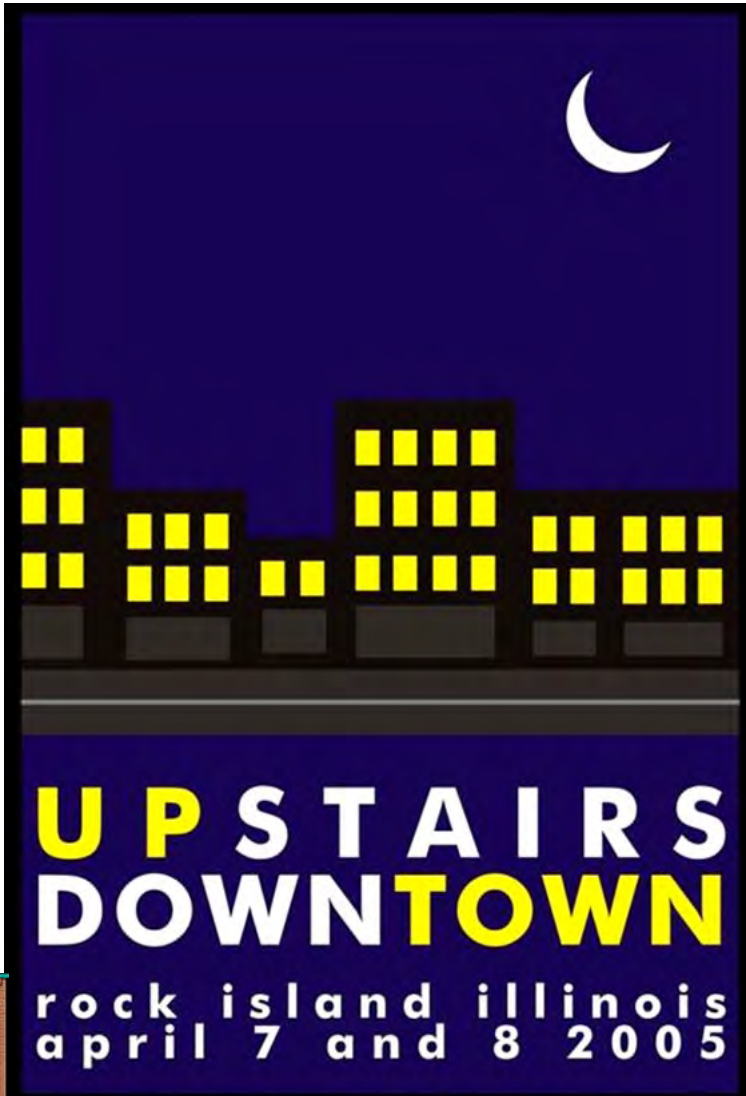
McKeesport PA YMCA Net Zero Renovation

\$ 125 sq. ft.



Eight inches of insulation inside the brick walls.

PROMOTION



U O

Downtown is looking

Downtown Springfield, Inc.
7th Annual Upper Story Tour

Thursday, May 4, 2006
4:30pm to 7:30pm

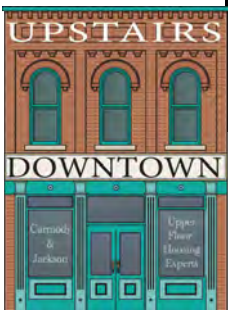
Reception at the Inn at 835
835 S. Second Street

Sponsored by Conn's Catering & Events
Illinois Times

\$5 for members
\$7 for non-members
Tickets available in advance at DSI office
and during the tour at the Buck's Building.

For more information:
217.544.1723
www.downtownspringfield.org

A vertical poster with a black background. At the top, a large white 'U' and 'O' are positioned. The 'O' contains a circular inset image of a street scene with a building and a car. Below the 'U' and 'O', the text 'Downtown is looking' is written in white. The rest of the poster contains event details in white and yellow text.

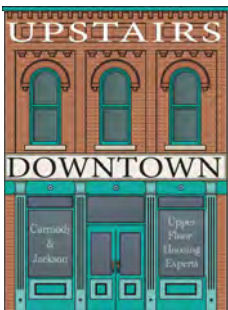


Host an Upstairs Downtown tour

ANNUAL TOUR



Vacant and
Renovated
Properties



www.upstairsdowntown.com