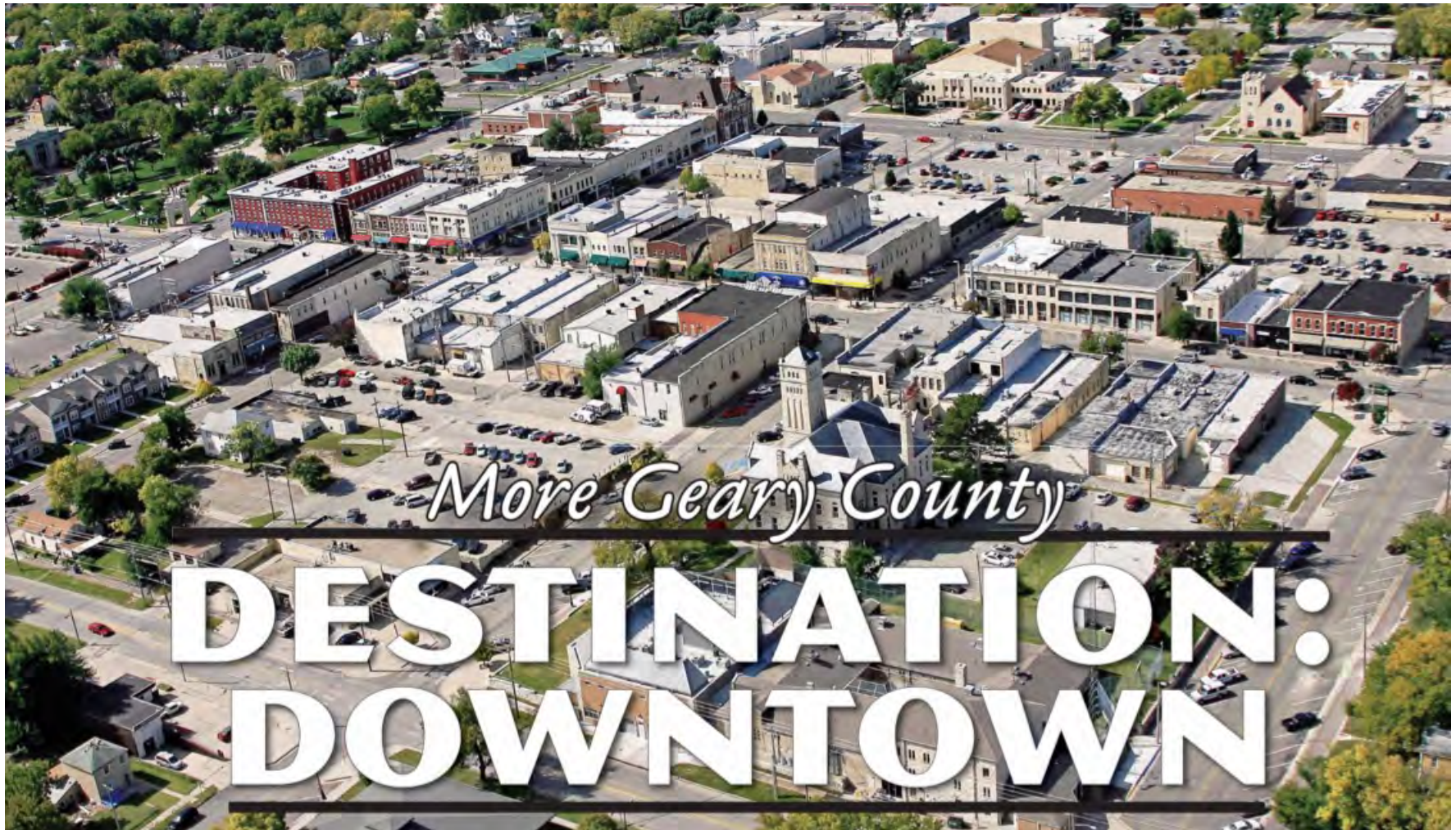
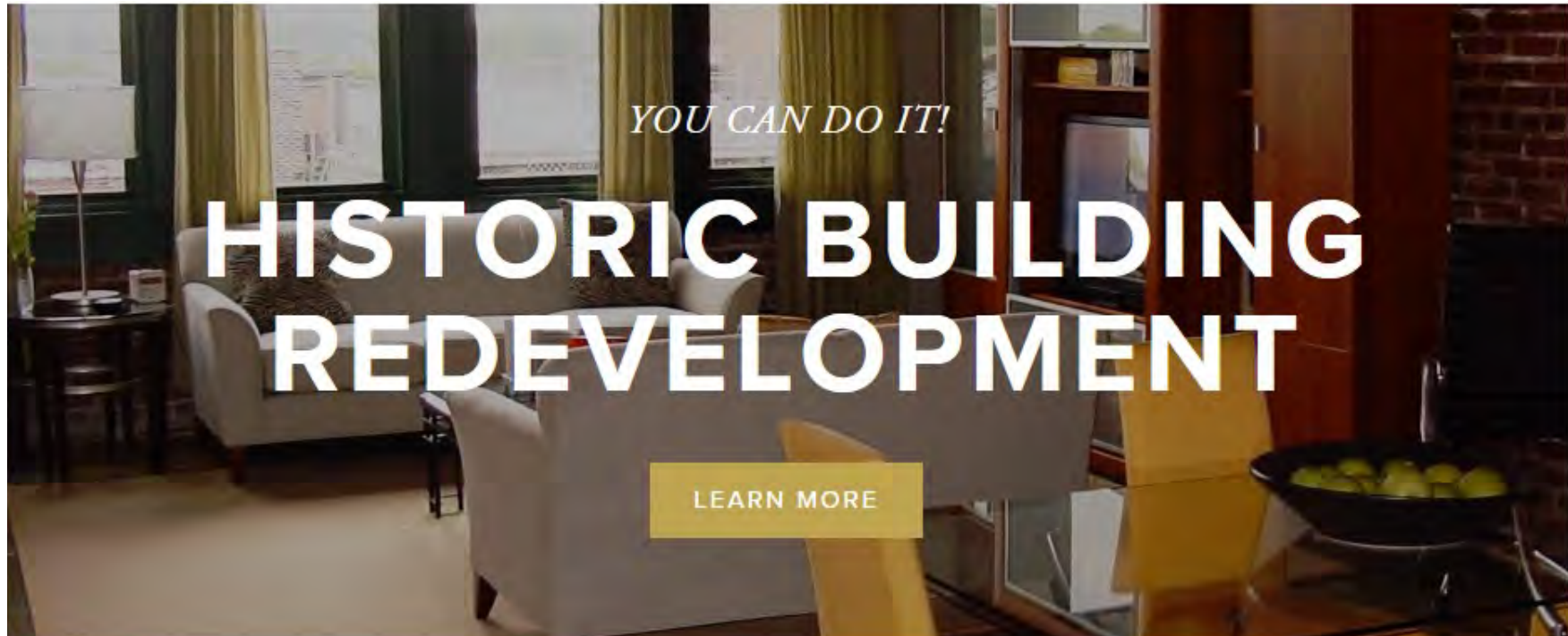


ARCHITECTURAL ASSESSMENT



Junction City KS

ARCHITECTURAL ASSESSMENT



Market Forces
Professional Skills
Building Characteristics
Rules and Regulations

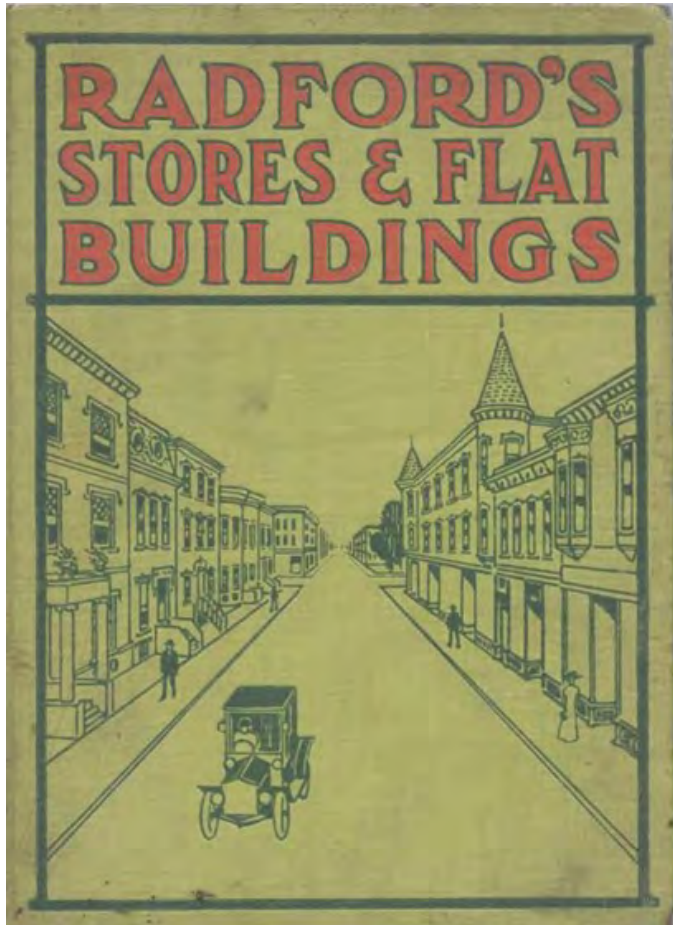
FEASIBILITY

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



First Floor Plan

PORCH UP DOWN
TOILET
STORE 22-6 X 62

Second Floor Plan

PORCH DOWN
PANTRY CLOS.
KITCHEN 10-6 X 14
BED ROOM 12 X 10
COURT.
DINING ROOM 13 X 12
COURT.
BATH 6-6 X 8
DOWN
HALL
BED ROOM 9 X 13-6
CLOS.
LIVING ROOM 26 X 11

DESIGN NO. 4012.
Size: Width, 25 feet; Length, 55 feet.

Blue Prints consist of basement plan; first and second floor plans; all necessary elevations and interior details.
Specifications are typewritten and contain all the information necessary for the proper construction of the building.

Price of Plans and Specifications..... \$15.00

Ornamental design for Store and Flat Building of brick with stone trimmings and plaster panels. Single large show window of plate glass with transom extending clear across the entire front. Entrance to store being on one side and to second floor on the opposite side. Double bay windows in front on second floor. The lower floor is devoted entirely to store space, being 22 feet 6 inches in width by 52 feet in length, with entrance to basement under stairs leading to second floor. Three windows and a door in the rear, also provision for skylight on court. Second floor is divided into one large living room extending across the entire front, dining room, kitchen, two chambers, bath, pantry and closets. Fairly large porch in rear.

Estimated cost of construction under favorable conditions, from about \$4,550.00 to about \$5,200.00.

Residential use on the upper story was very common.

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

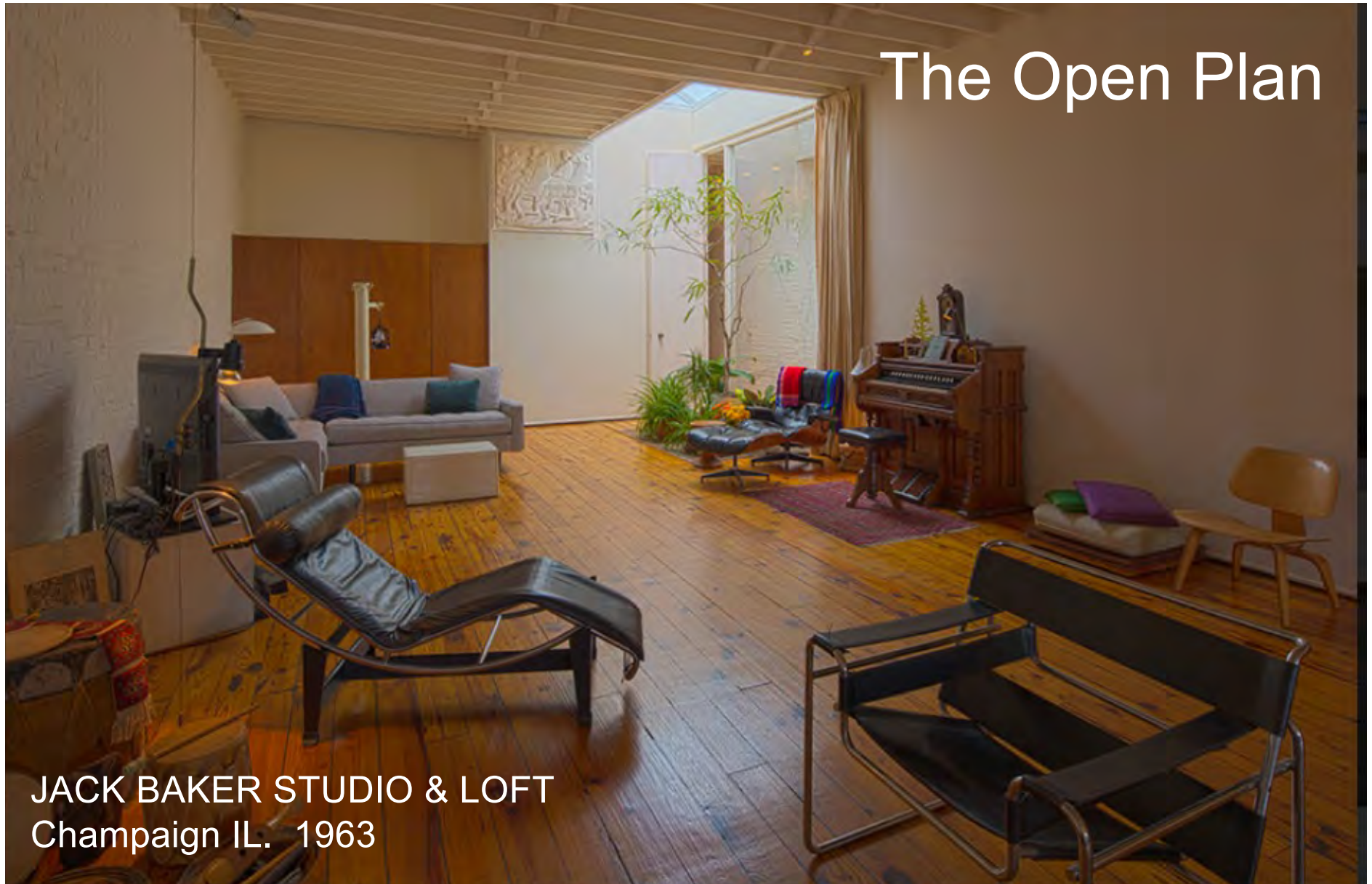
What U.S. president was born Upstairs Downtown?



MARKET FORCES: RESIDENTIAL

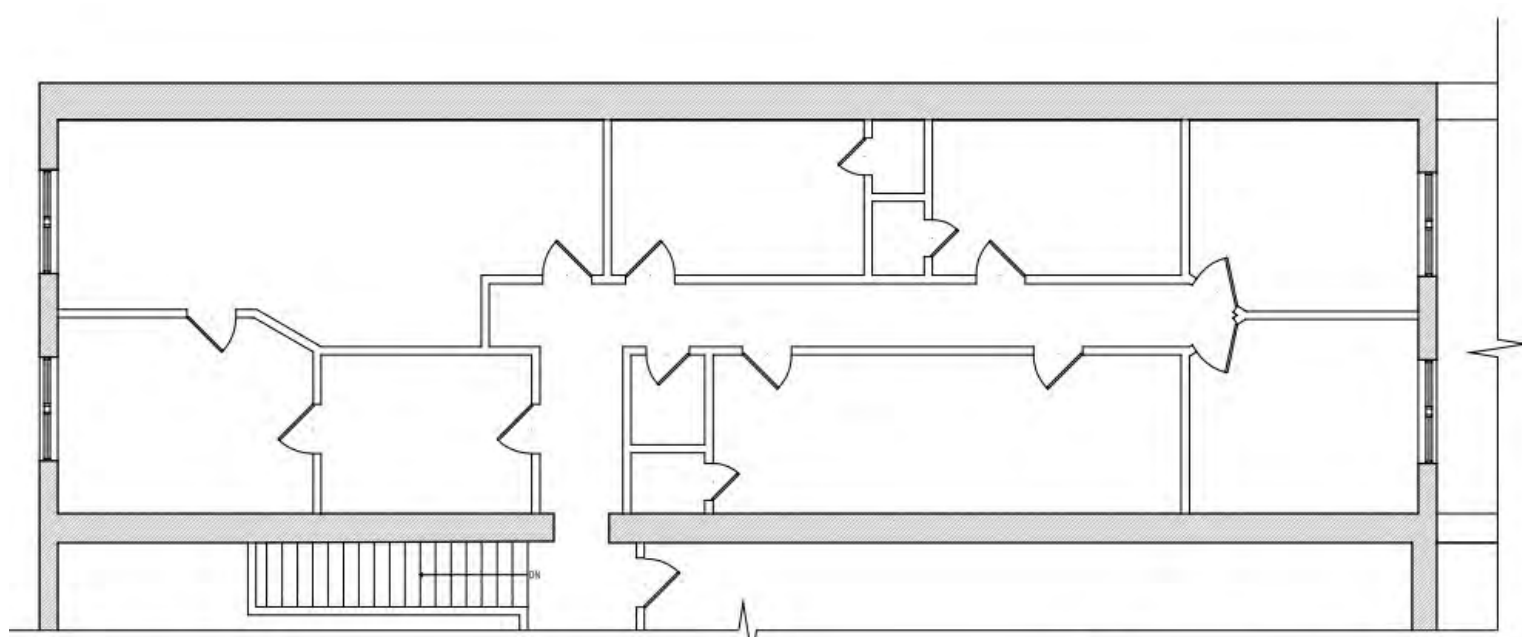
- One, One+ or Two-Bedroom Units
- Large open floor plan (800-1,200+ sq. ft.)
- Washer and dryer in units
- High speed internet
- Amenities
 - Outdoor balcony or deck
 - Study and storage space
 - Enclosed parking
 - Elevator

New Housing on Main Street



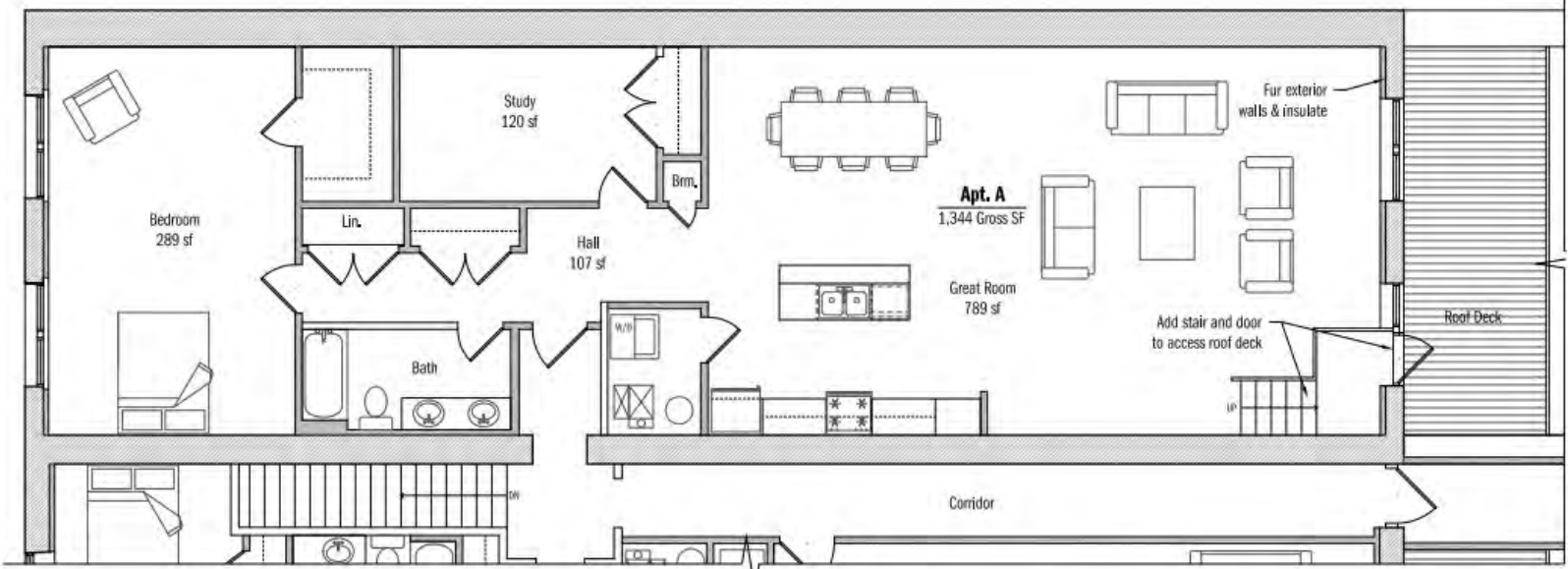
The Open Plan

JACK BAKER STUDIO & LOFT
Champaign IL. 1963



Existing Upper Level Floor Plan

Typical plan

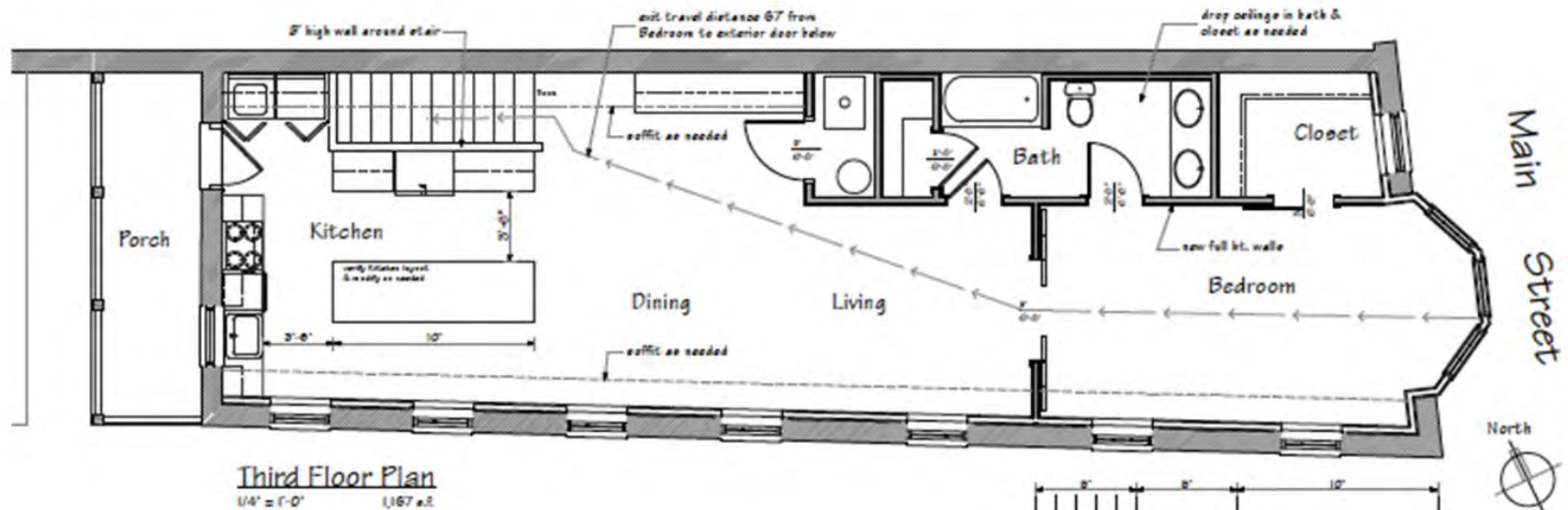


Proposed Upper Level Floor Plan

Contemporary 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”

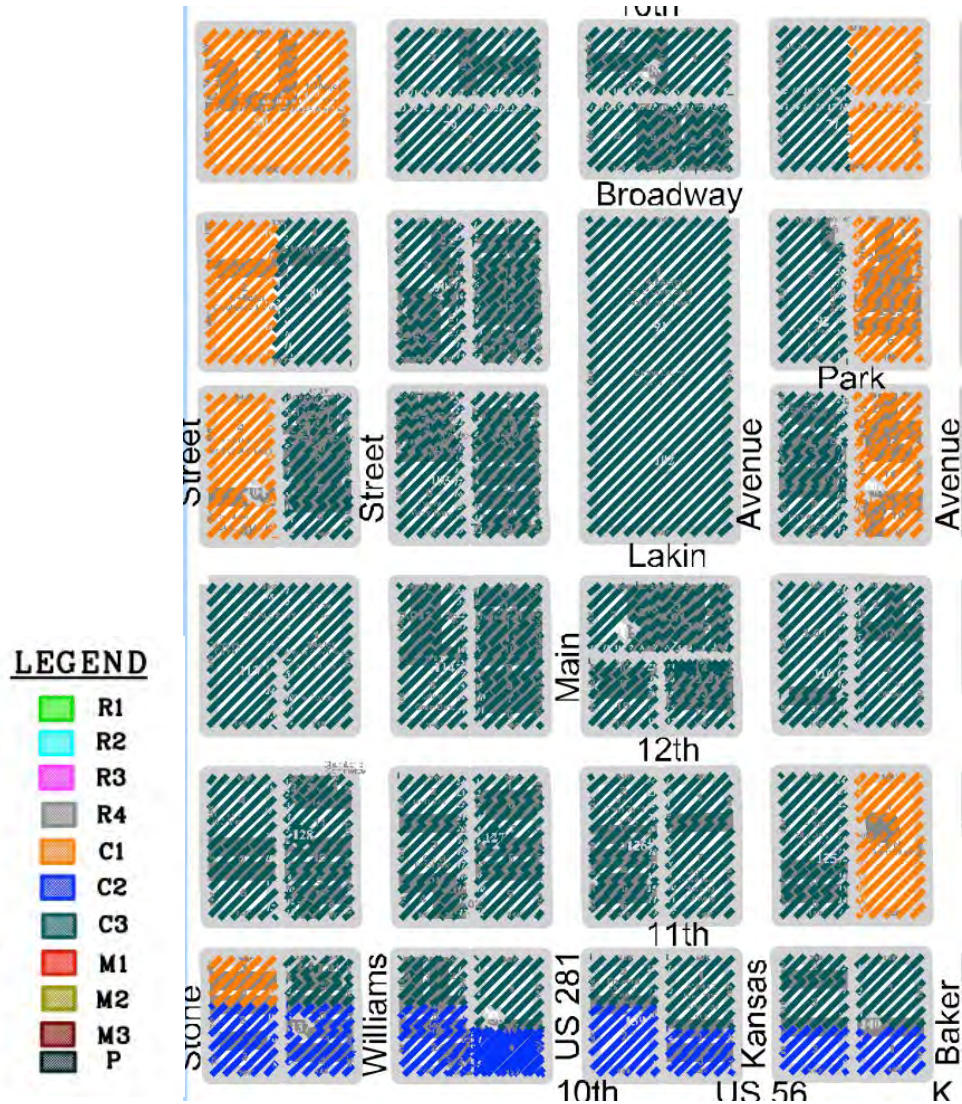
Great Location

Housing with creativity

Building upon past success

Promote new opportunities

SITE CHARACTERISTICS



Zoning

Zero lot line” development
 Virtually all non-industrial uses permitted
 No on-site parking needed

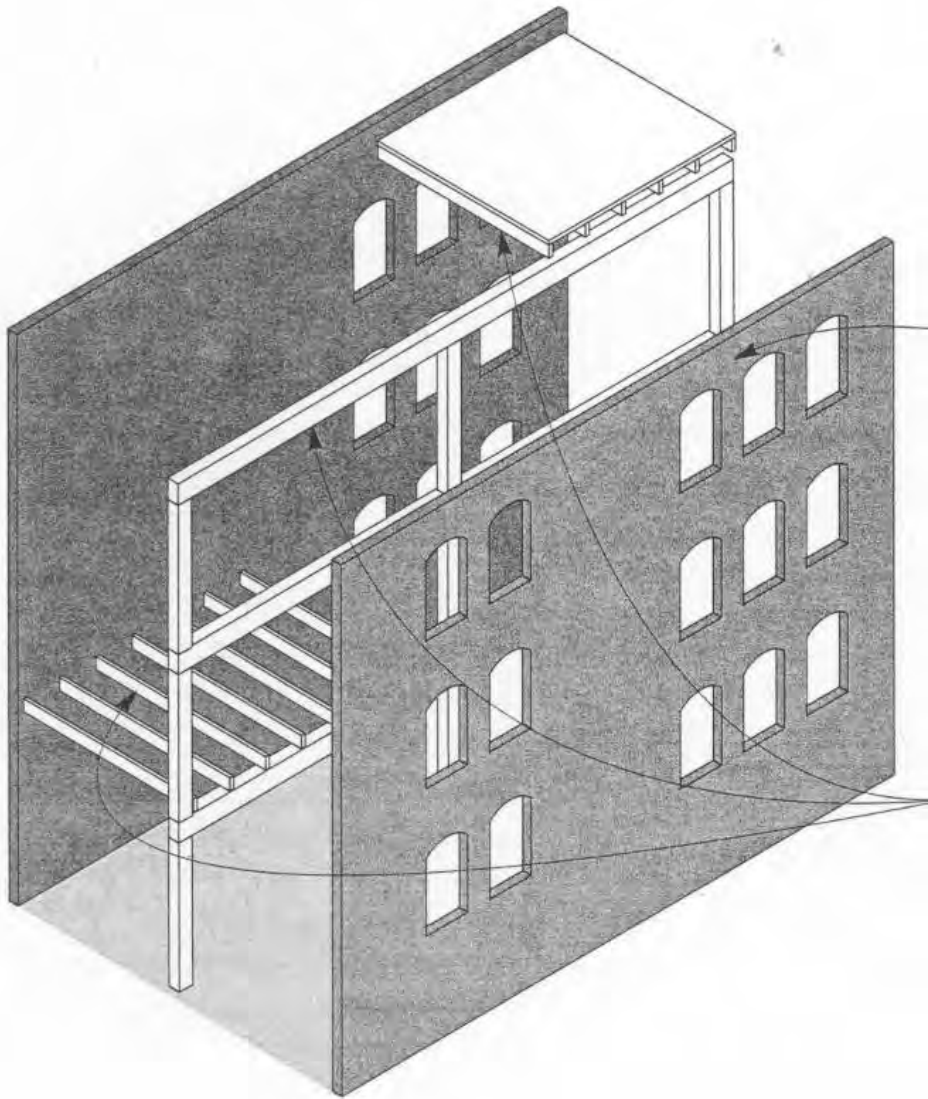
Parking

Always desired, not required
 Small projects don’t generate much demand
 Downtown residents don’t always work downtown
 Higher demand for higher priced units and condos
 City permit process for downtown residents

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)**
 - 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 work
and/or funding source

Ex: HUD funding and lead paint

Know your local code officials

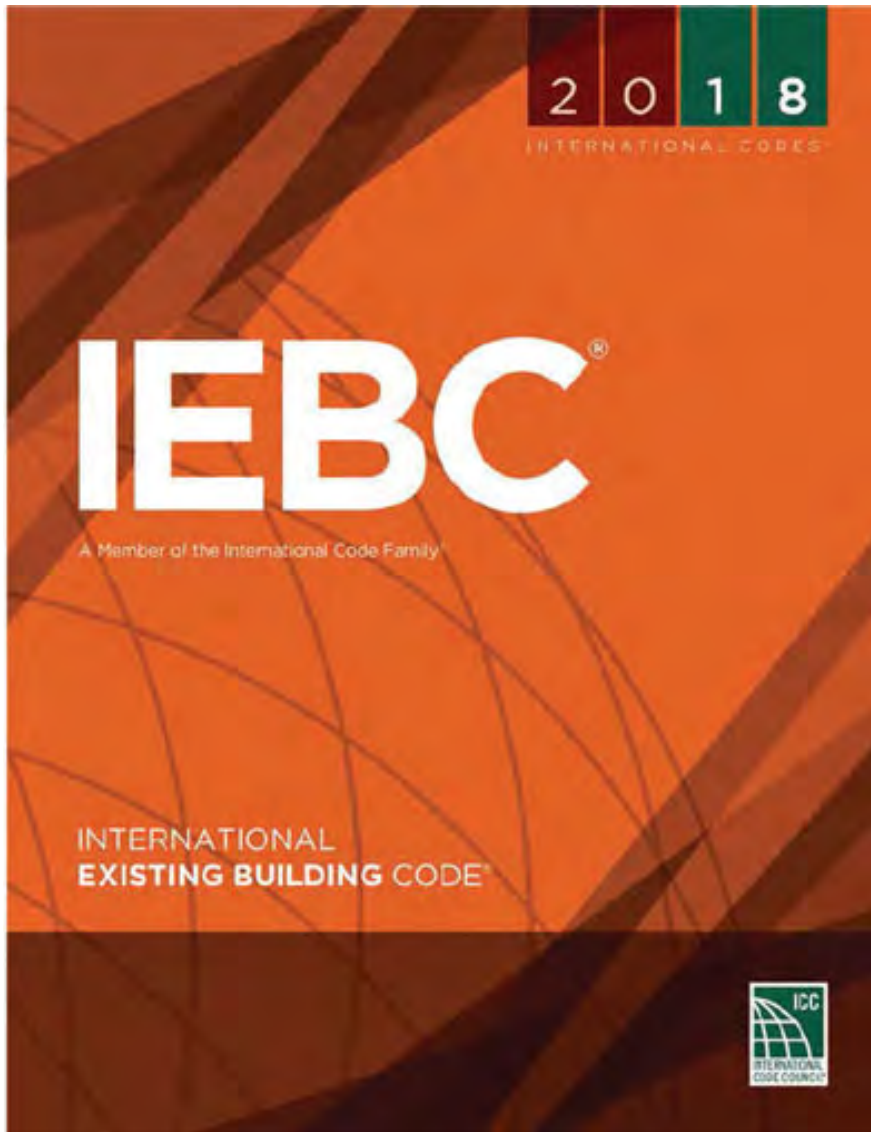
EXISTING BUILDING CODE



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

Kansas uses IEBC 2018 with no amendments

EXISTING BUILDING CODE



Three Code Paths

Prescriptive

Work Area

Repairs

Alteration 1

Alteration 2

Alteration 3

Change of Use

Performance

BUILDING OCCUPANCY IBC 2018

1. Assembly (see Section 303): Groups A-1, A-2, A-3, A-4 and A-5.
2. Business (see Section 304): Group B.
3. Educational (see Section 305): Group E.
4. Factory and Industrial (see Section 306): Groups F-1 and F-2.
5. High Hazard (see Section 307): Groups H-1, H-2, H-3, H-4 and H-5.
6. Institutional (see Section 308): Groups I-1, I-2, I-3 and I-4.
7. Mercantile (see Section 309): Group M.
8. Residential (see Section 310): Groups R-1, R-2, R-3 and R-4.
9. Storage (see Section 311): Groups S-1 and S-2.
10. Utility and Miscellaneous (see Section 312): Group U.

R BUILDING OCCUPANCY IBC 2018

R-1 Hotels, Motels, Boarding houses (10+), Congregate living (10+)

R-2 Apartments

Congregate living facilities with more than 16 occupants

Boarding houses (non transient)

Convents

Dormitories

Fraternities and Sororities

Monasteries

Hotels (non transient)

Live/work unit Motels (non transient)

Vacation timeshare properties

R-3 Buildings with no more than two dwelling units

Congregate facilities (non transient) with 16 or fewer occupants

Lodging houses with five or fewer guest rooms (B&B)

R-4 Residential facilities with 24 hr staff care, 16 or fewer

BUILDING OCCUPANCY

- Current use (zoning classification)
 - 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
- * Identified historic use (**California**)

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
- Compartmentazation (time rating factors)
- **Fire Detection and Alarms**
- Fire Suppression (sprinklers)
- Exits



CODES – FIRE SAFETY

Whole
Building
Alarm
System

Wireless
Detectors

Pull Station



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

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

Code Path

Construction type

Non-combustible ?

Change of use or not?

Fire separation between floors

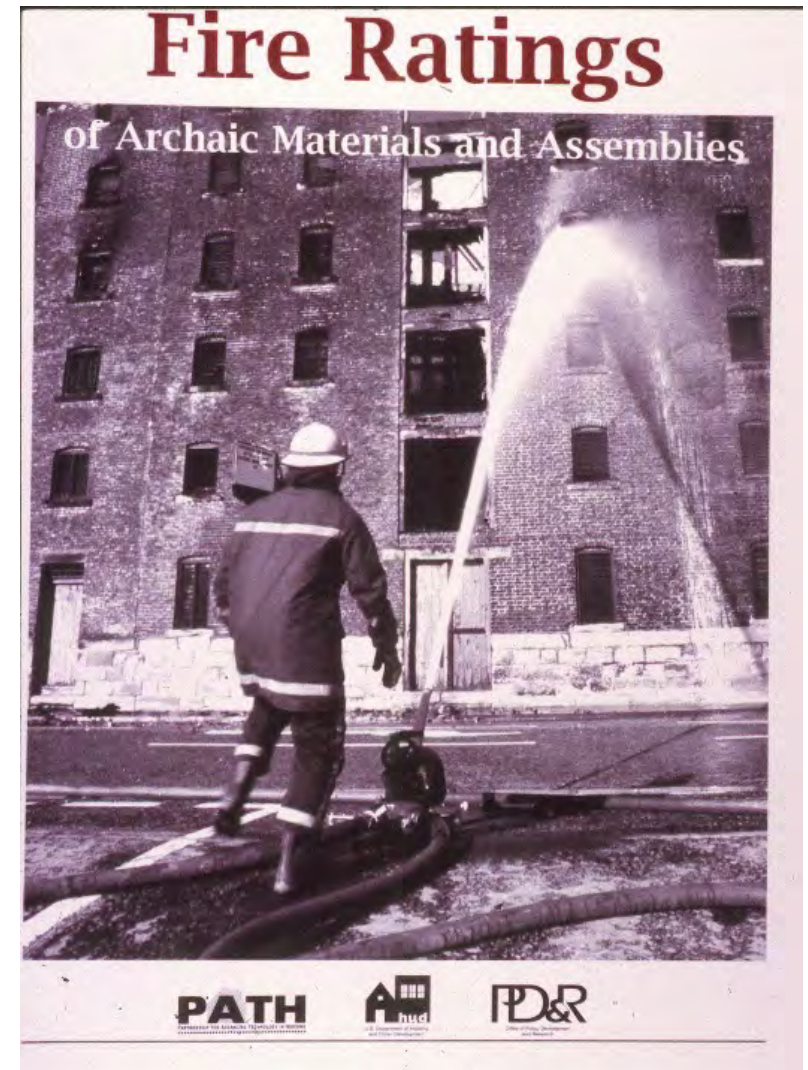
CODE – SPRINKLERS

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



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



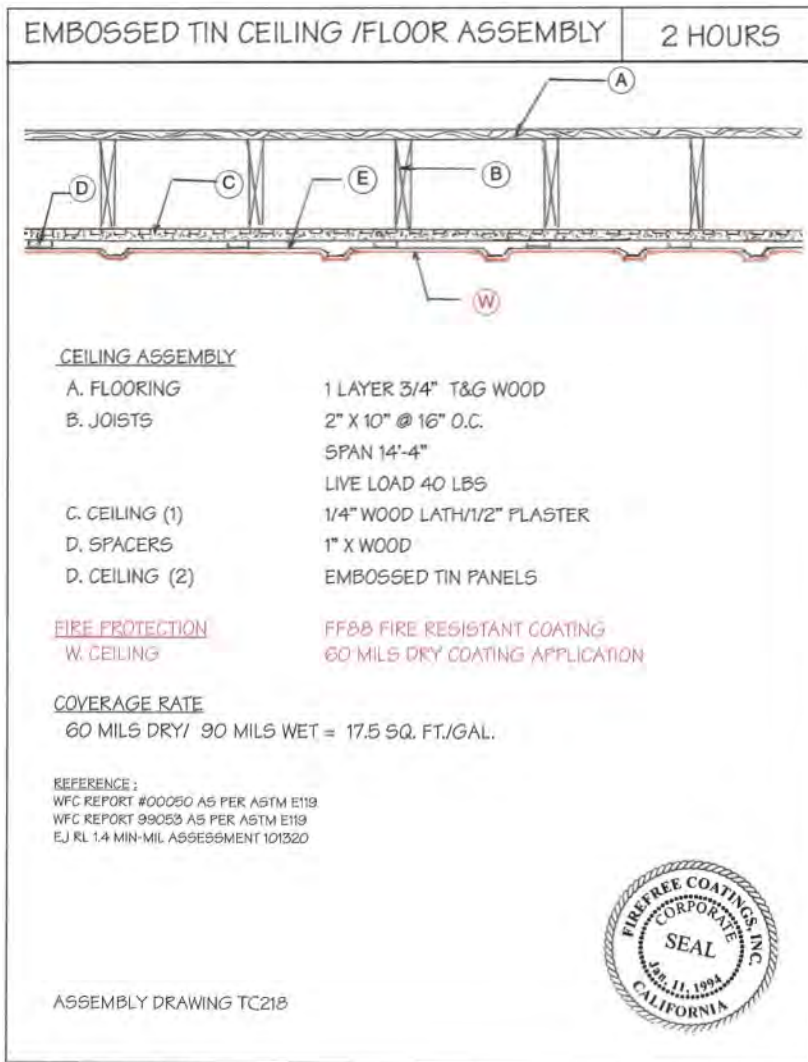
www.huduser.org/portal/publications/destech/fire.html

CODES AND TIN CEIINGS



An archaic historic material with a 15-minute fire rating

TIN CEILING 2 HR RATING



1. Remove and reinstall over a new drywall
2. Use an intumescent coating
3. Increase rating on second floor
4. Install insulation between joists

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

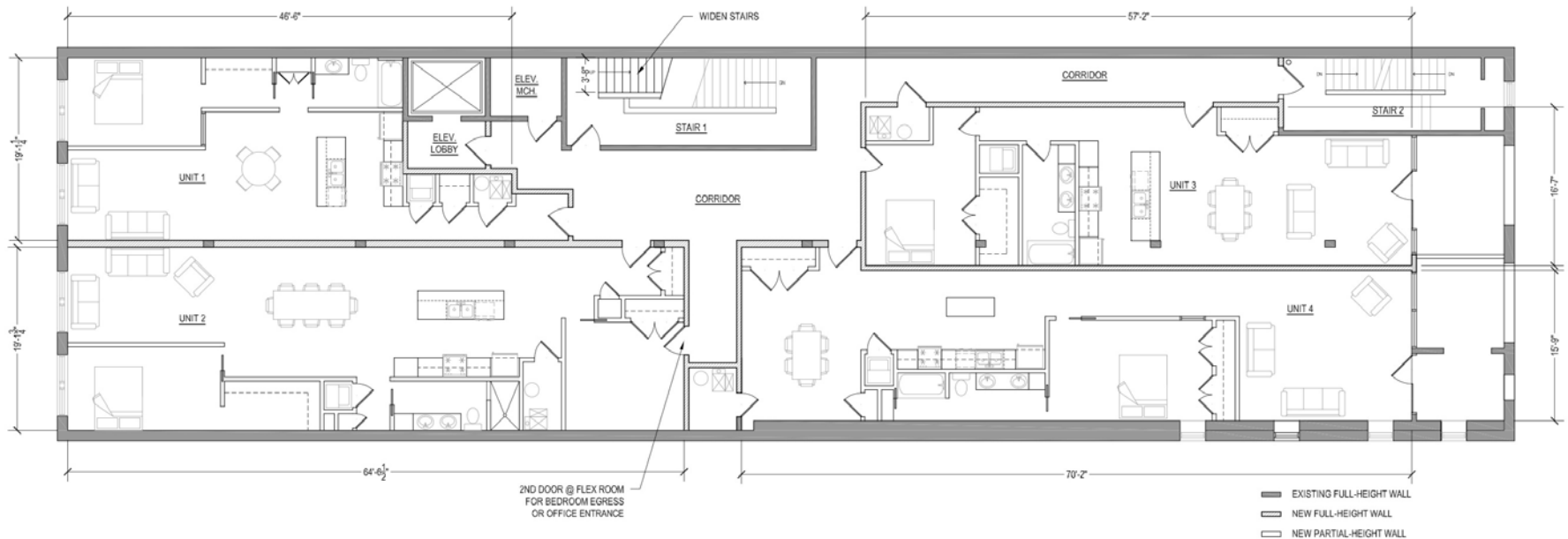


Prescriptive & Work Area Code Path

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?

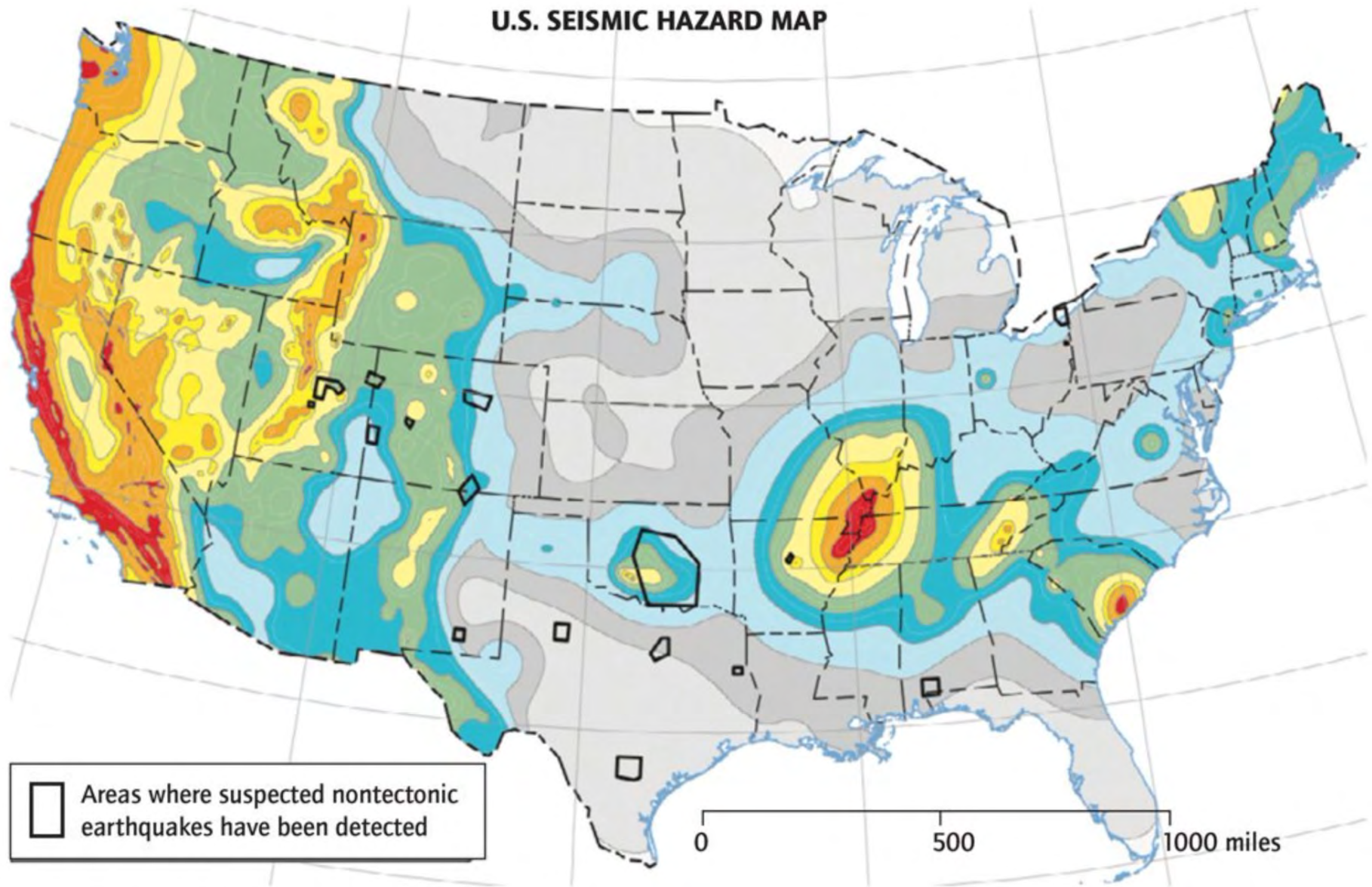


Third floor unit has entry foyer on the second floor (duplex)
Rear balcony as an “area of refuge”



Area of refuge balcony added to the rear

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

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

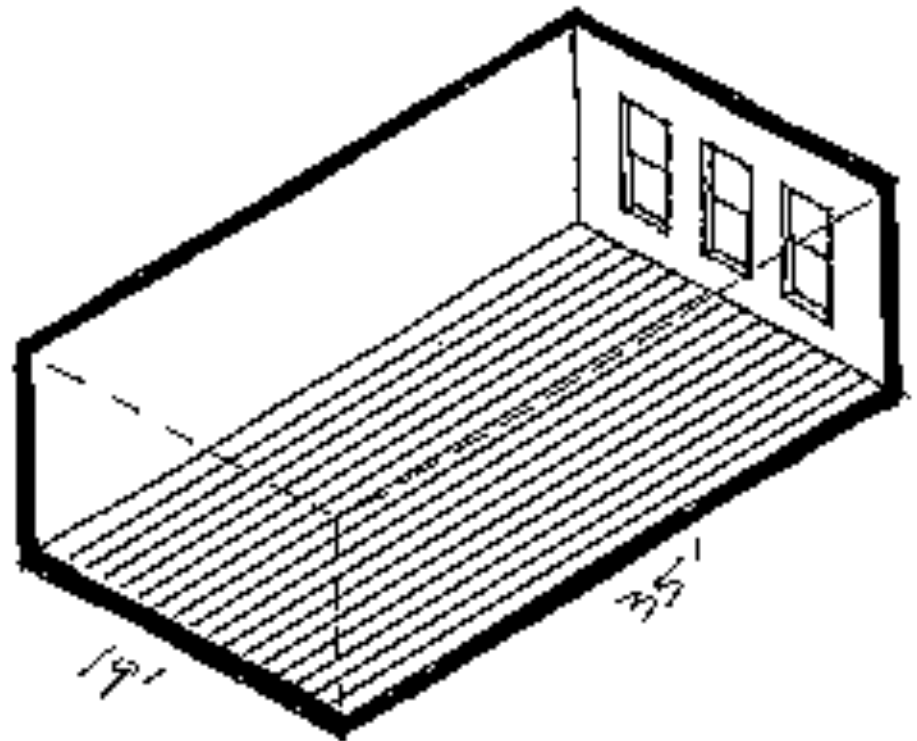
27 sq. ft. of vent opening

MAXIMUM ROOM SIZE

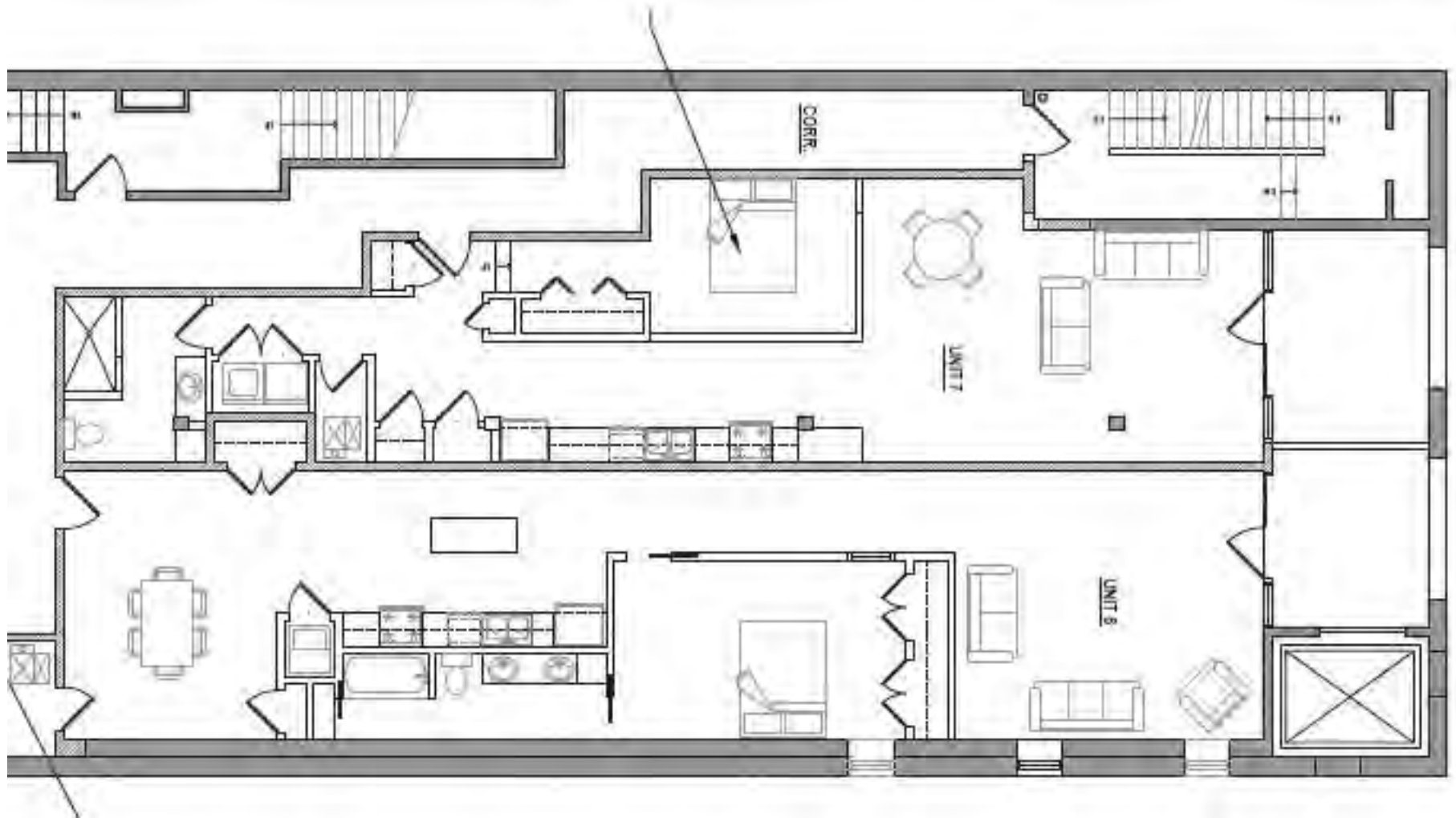
54 sq. ft. is 8 % of
675 sq. ft.

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



Bedrooms with "borrowed light"



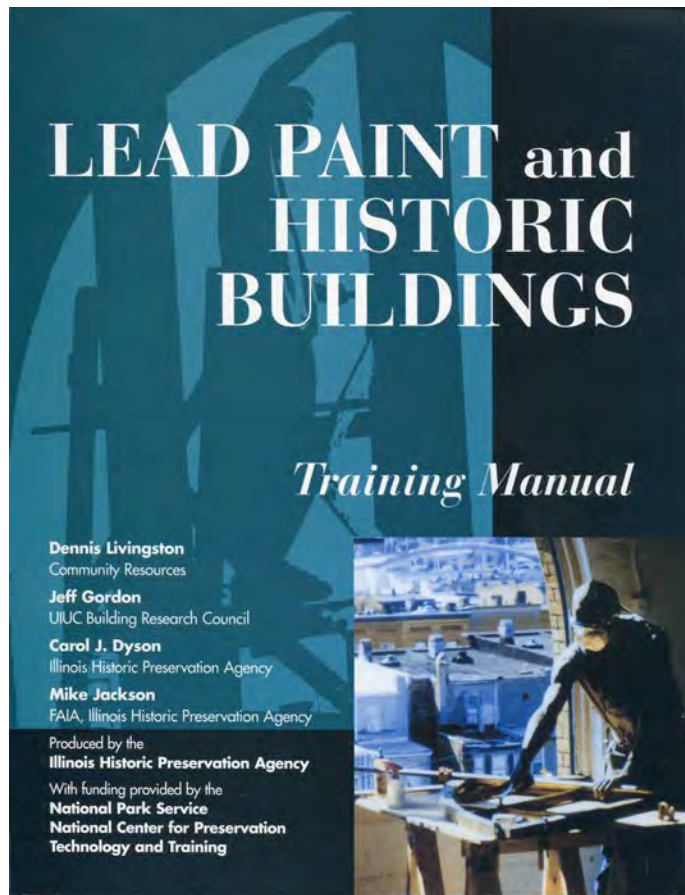
Tracy Lofts, Billings MT. High Plains Architects
Fully sprinklered building

ENVIRONMENTAL ASSESSMENT

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

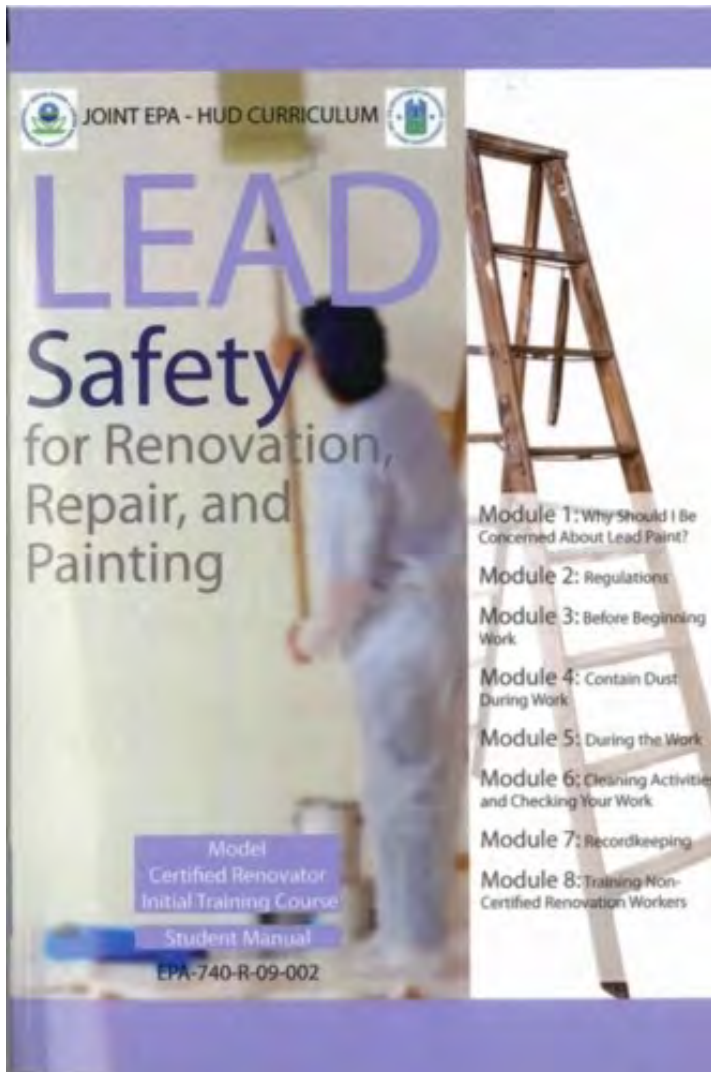
LEAD PAINT

- 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 +)

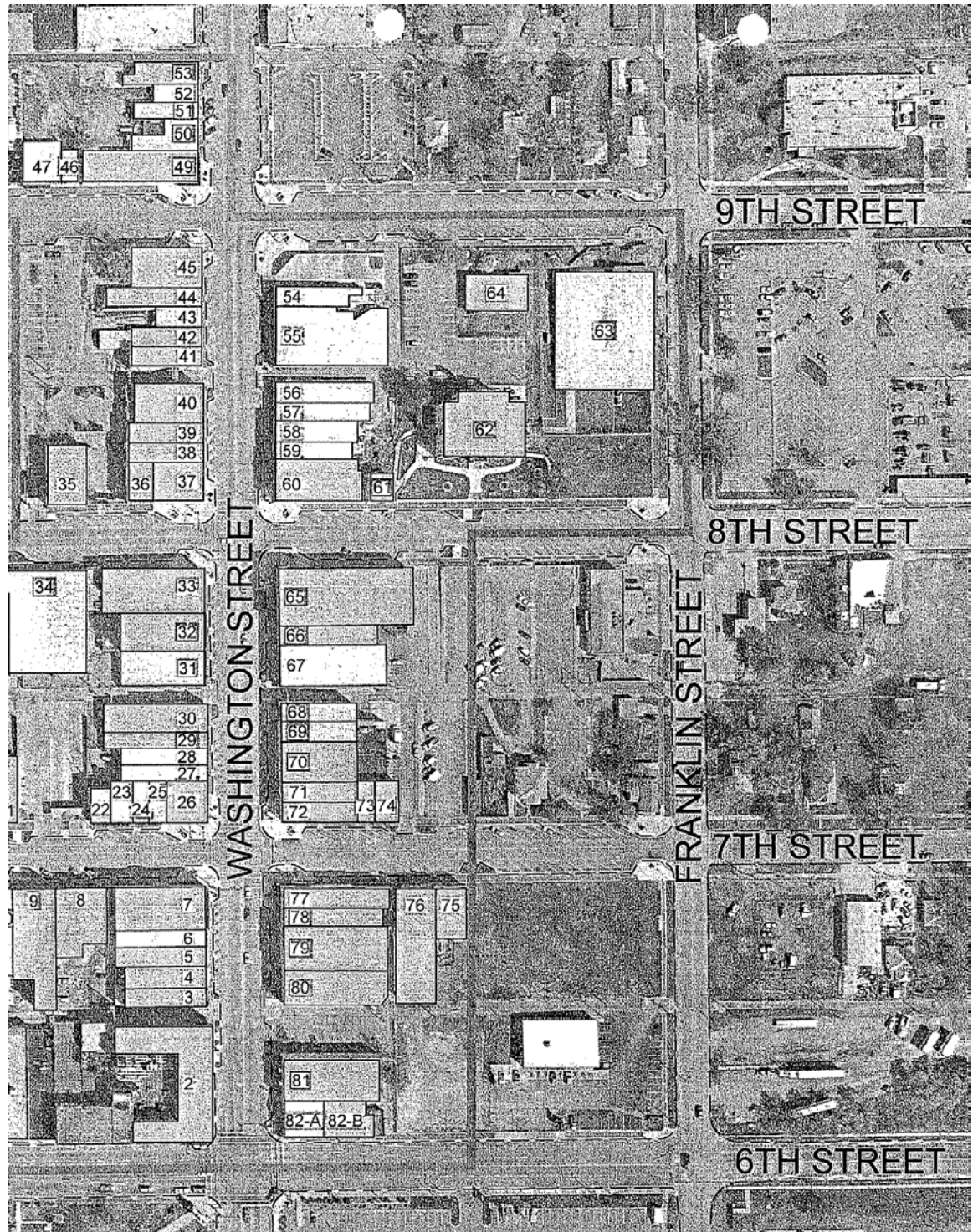
HISTORIC BUILDING & \$\$\$s

- 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

Junction City Downtown Historic District

Listed 2006

55 contributing
Period
1880 - 1955

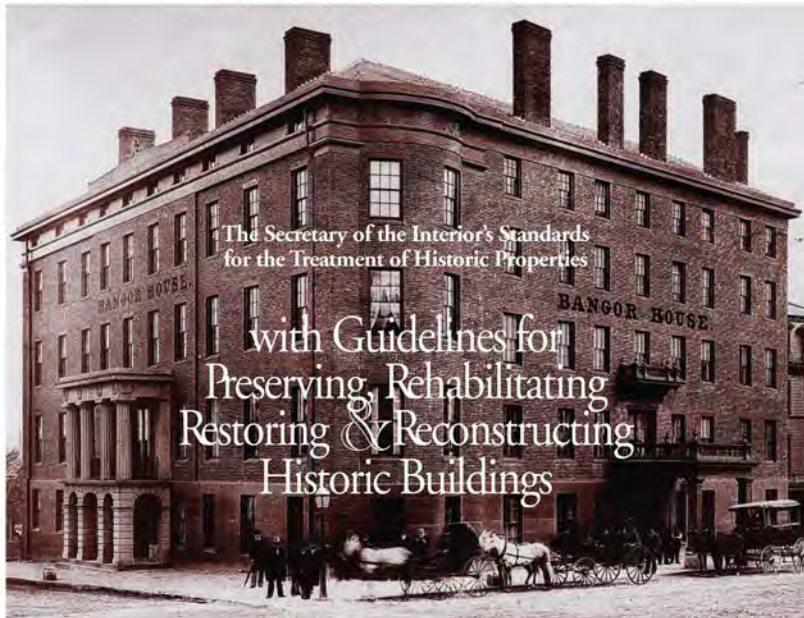




Junction City KS. Downtown Façade & Streetscape Project
BBN Architects

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

ARCHITECTURAL TREATMENT

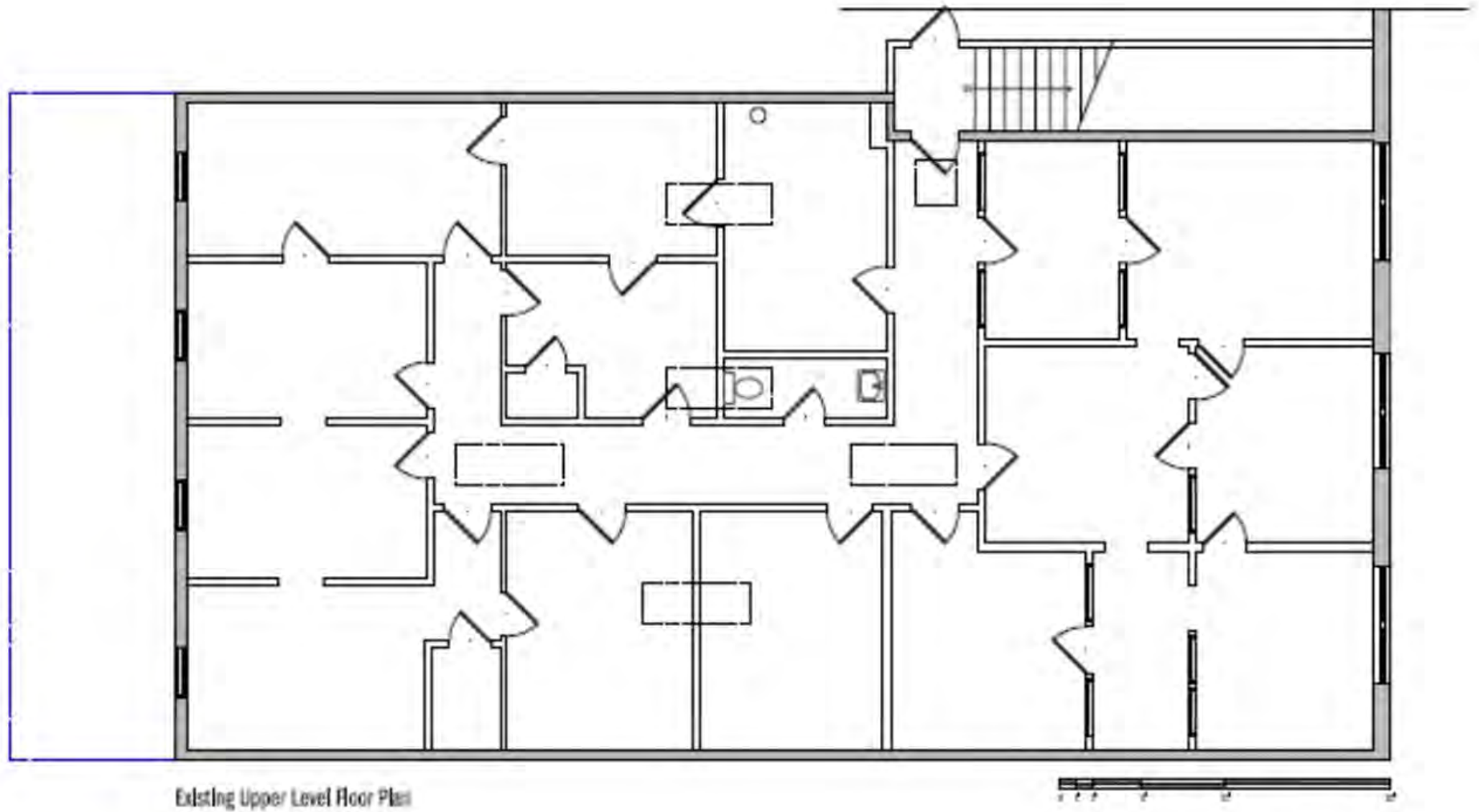


- Exposing the brick in historically finished spaces does not meet Preservation Standards.

HISTORIC INTERIOR

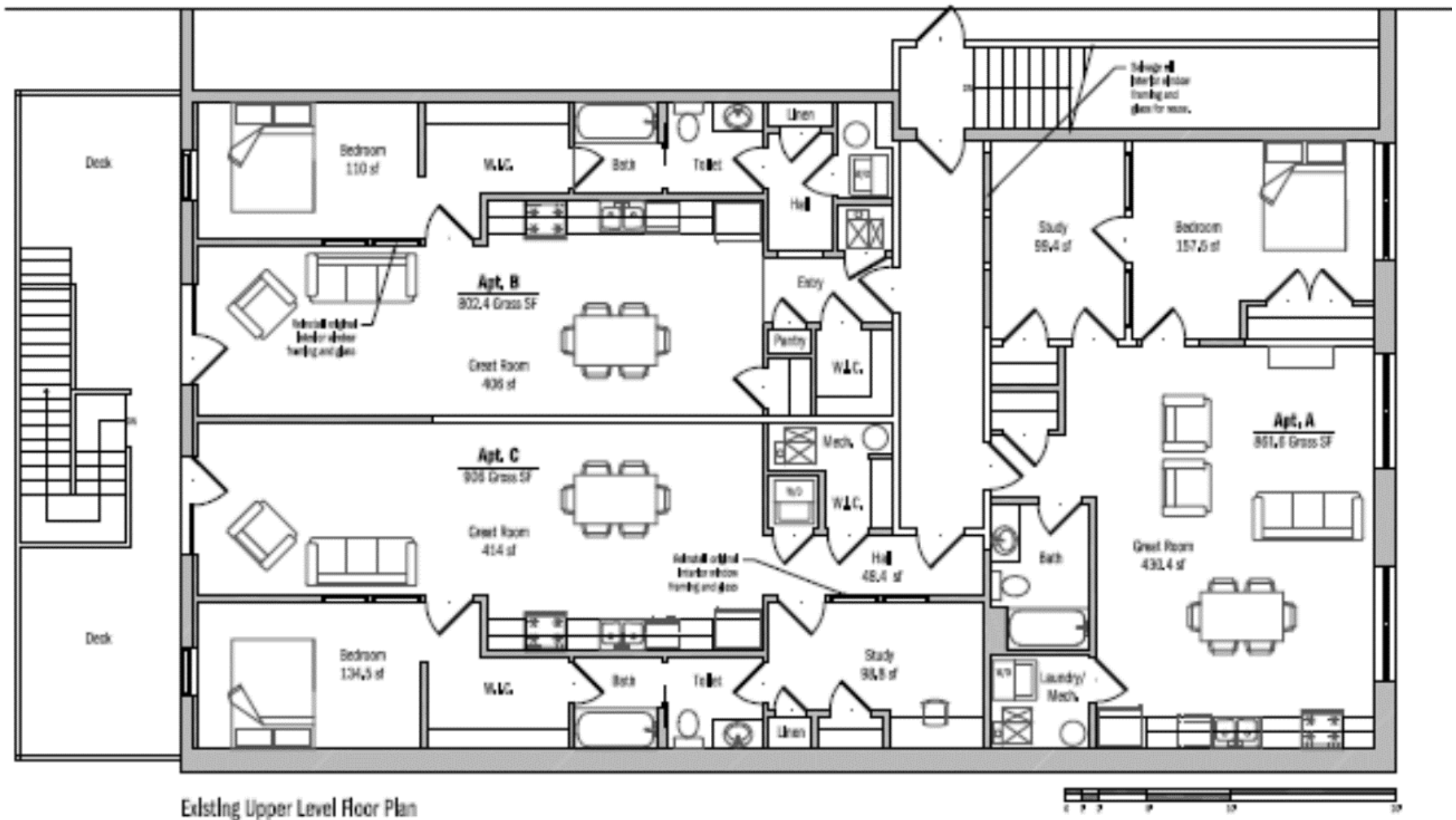


OFFICE BLDG CONVERSION



Existing Plan

OPEN PLAN CONVERSION



Proposed Plan 3 units plus second stair
Under four units only needed one 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

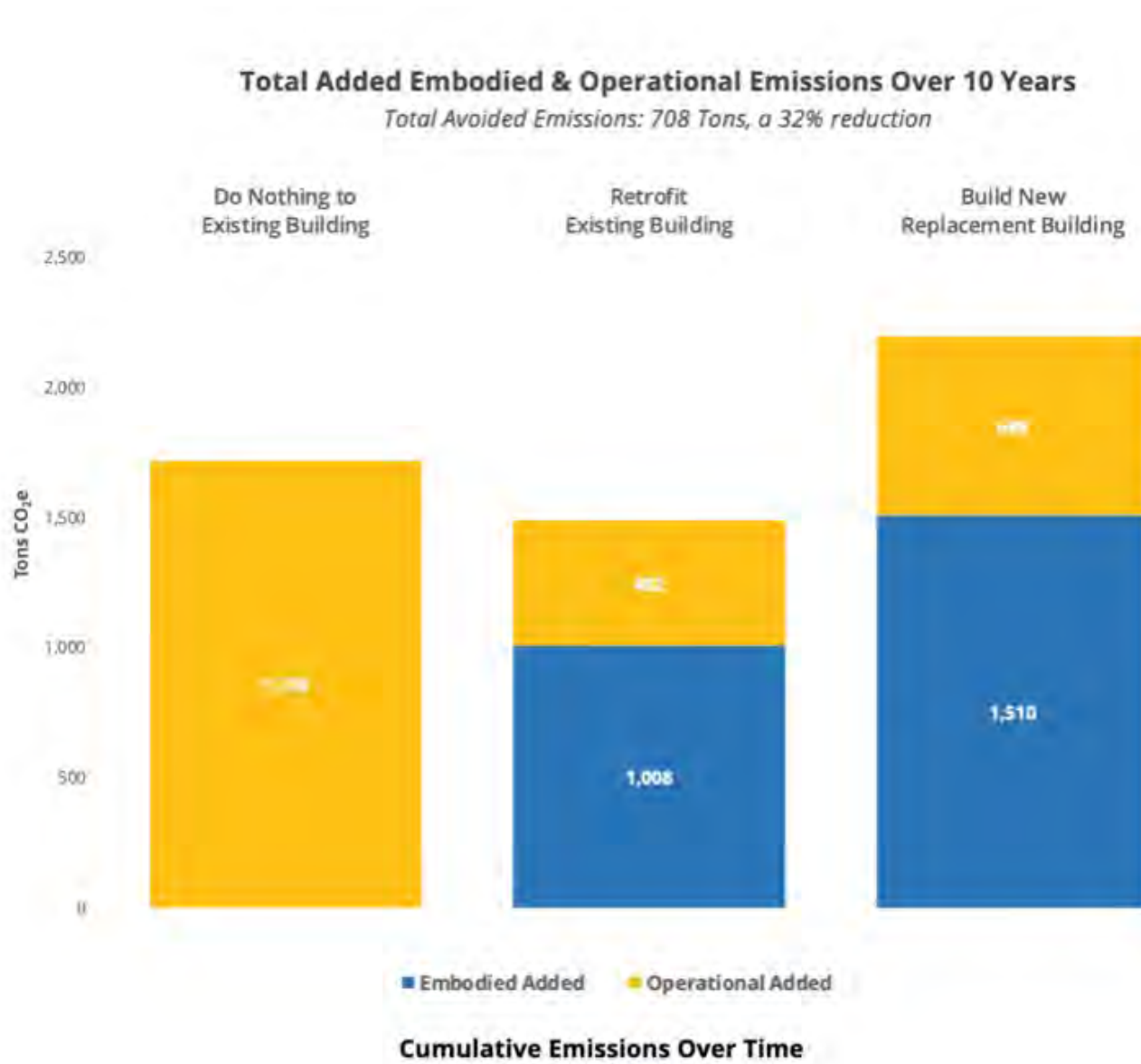
According to this study, it takes 10 to 80 years for a new building that is 30 percent more efficient than an average-performing existing building to overcome, through efficient operations, the negative climate change impacts related to construction. This table illustrates the number of years required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

Carbon Avoided Retrofit Calculator



<https://architecture2030.org/caretool/>

ENERGY CONSERVATION



Energy Conservation codes are getting more stringent.

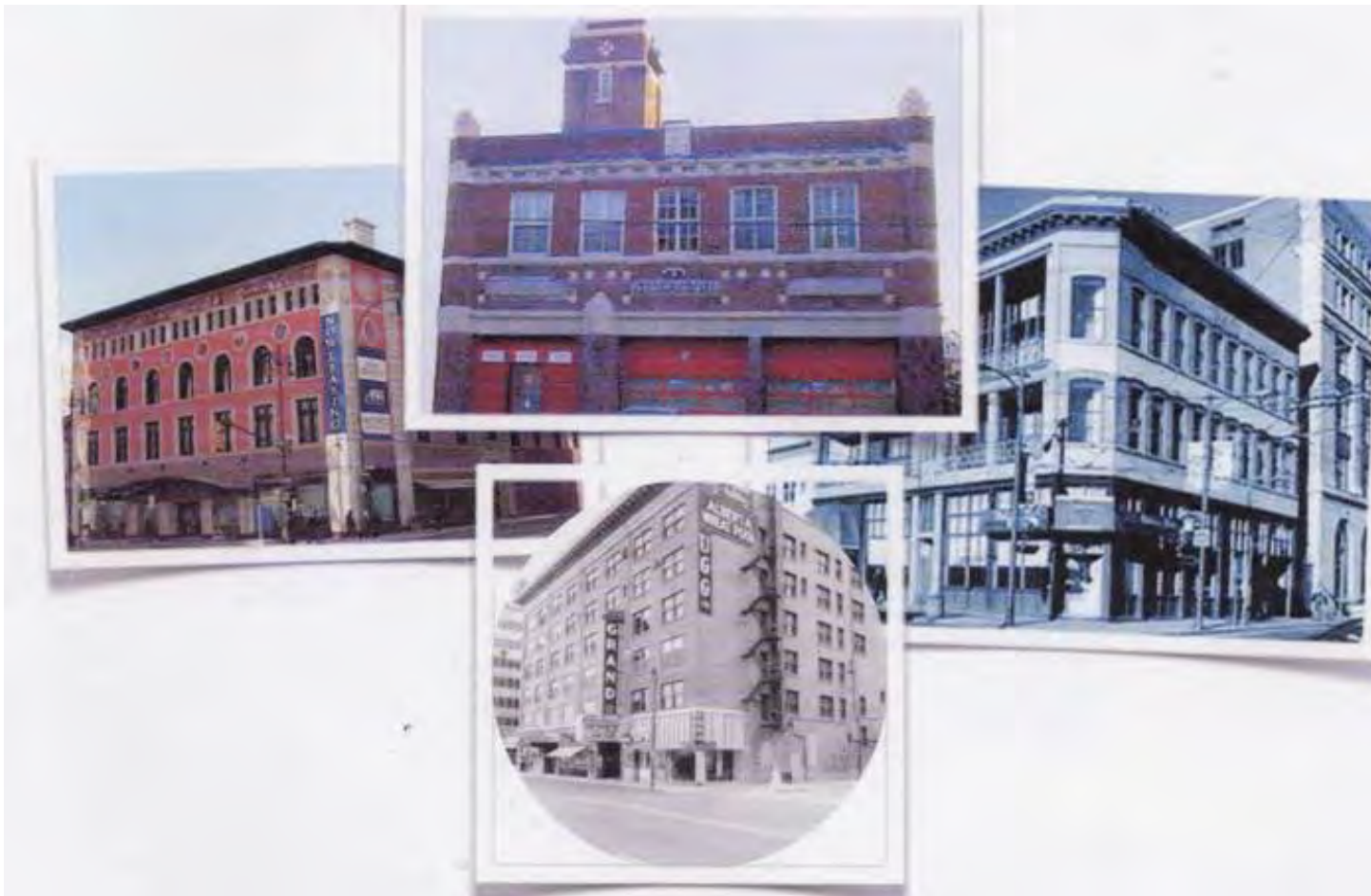
Higher efficiency equipment is needed.

Energy codes require existing buildings to perform better.

Change of
Occupancy trigger

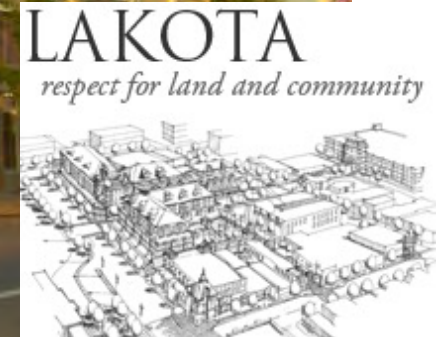
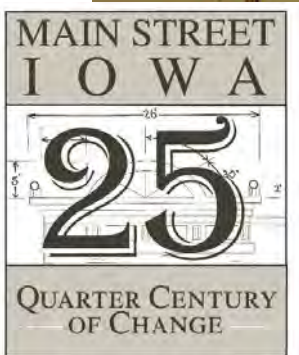
ENERGY EFFICIENCY

Renovated historic 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

REACHING NET ZERO

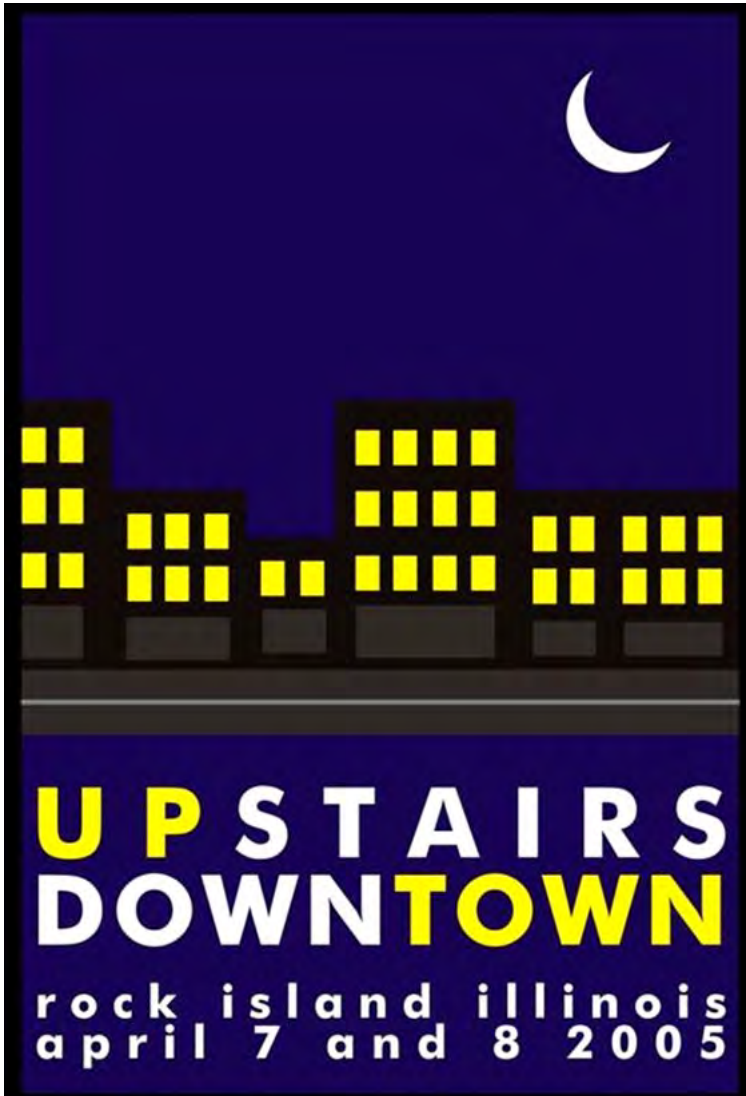
McKeesport PA YMCA Net Zero Renovation

\$ 125 sq. ft.



Eight inches of insulation inside the brick walls.

PROMOTION



A vertical poster with a black background. At the top, the letters 'UP' are written in large, white, stylized font. To the right of the 'P' is a circular inset image showing a view from a high vantage point looking down at a street with buildings and a car. Below the 'UP' text, the text 'Downtown is looking' is written in white. Further down, 'Downtown Springfield, Inc. 7th Annual Upper Story Tour' is written in orange. Below that, 'Thursday, May 4, 2006' and '4:30pm to 7:30pm' are written in orange. Then, 'Reception at the Inn at 835 835 S. Second Street' is written in orange. Below that, 'Sponsored by Conn's Catering & Events' and 'Illinois Times' are written in white. At the bottom, '\$5 for members' and '\$7 for non-members' are written in white. Below that, 'Tickets available in advance at DSI office and during the tour at the Buck's Building.' is written in white. At the very bottom right, 'For more information: 217.544.1723 www.downtownspringfield.org' is written in white.

Host an Upstairs Downtown tour

ANNUAL TOUR



Showcase
successes
Present
opportunities



OPPORTUNITIES



THANK YOU