



**Better homes and climate adaptation
amidst a housing crisis, public health
crisis, and a loneliness epidemic...
with Point Access Blocks.**

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Larch Lab
13 June 2023

Climate Crisis



- + Wildfire smoke season
- + Heat Dome
- + Flooding
- + US industry unprepared
- + No Passivhaus mandates
- + Few cooling centers

Foto: James Taylor

Urban Morphology, and planning for the heat



Abbildung 23: Nächtliches Temperaturfeld in einem Ausschnitt des Stadtgebiets Basel mit beispielhaften Werten verschiedener Nutzungsstrukturen in der Zukunftssituation

Development Patterns: Frederiksberg, DK



Perimeter Block Housing
(continuous, semi-permeable)

4-6 story buildings
Inhabited attics
Tree-lined streets
Tree-filled communal courtyards
Walkable
Bike-friendly
Low-carbon living

Foto: google earth

Development Patterns: Frederiksberg, DK



Much like Seattle, many smaller buildings...

They're just much thinner...

And taller.

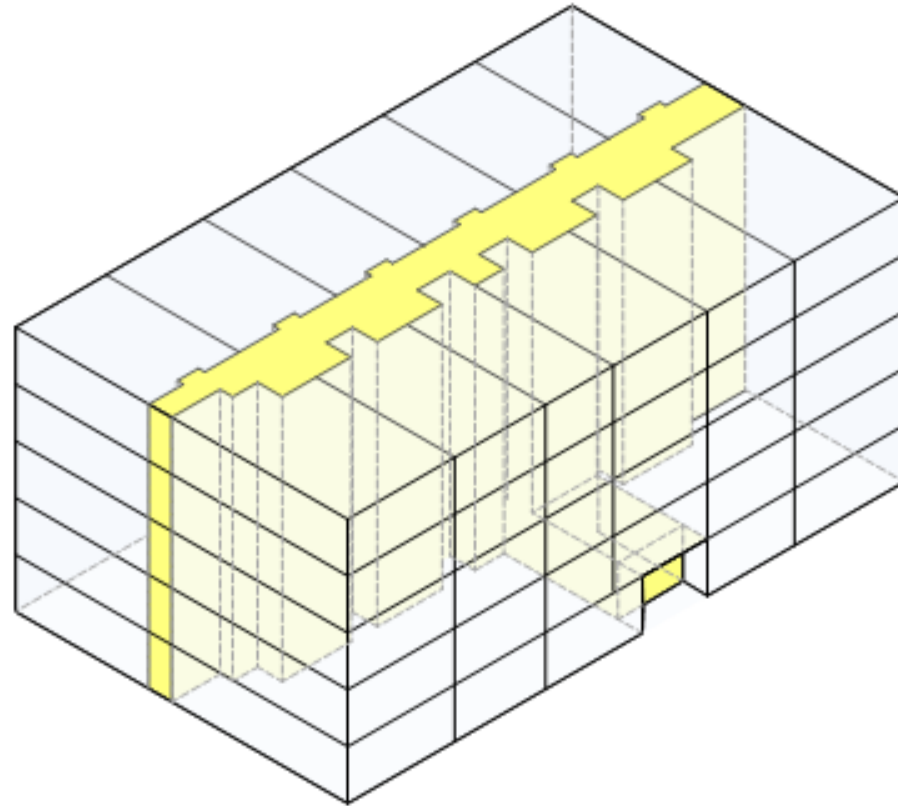
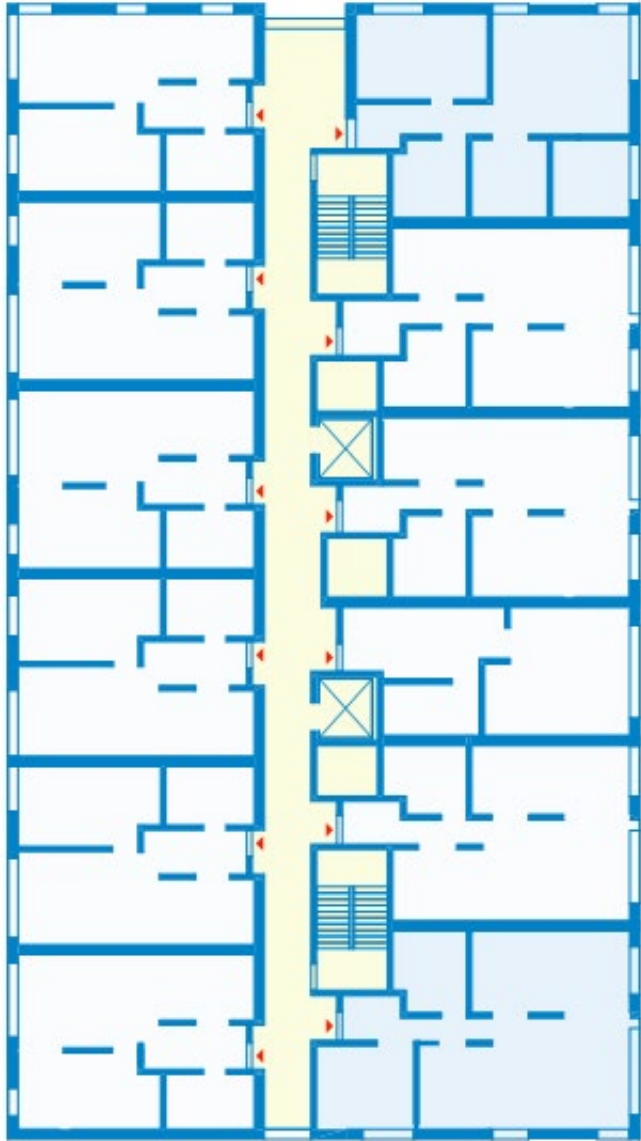
This building is almost non-existent outside the US



- + Modulation
- + Majority of units studios/1BRs
- + Process 6 mos – 3 years
- + Massive development
- + Parcel Assemblage
- + Double loaded corridor

Building Access = Community Influencer
(or, why I loathe corridors)

Double Loaded Corridor



- 87% efficient floor plate
- primarily small units
- no cross-ventilation
- no daylight on multiple sides
- little respite from urban noise

floor plan (left) and axonometric drawing (right), Larch Lab

Double Loaded Corridor

FLOOR PLAN - LEVEL 4 + 5

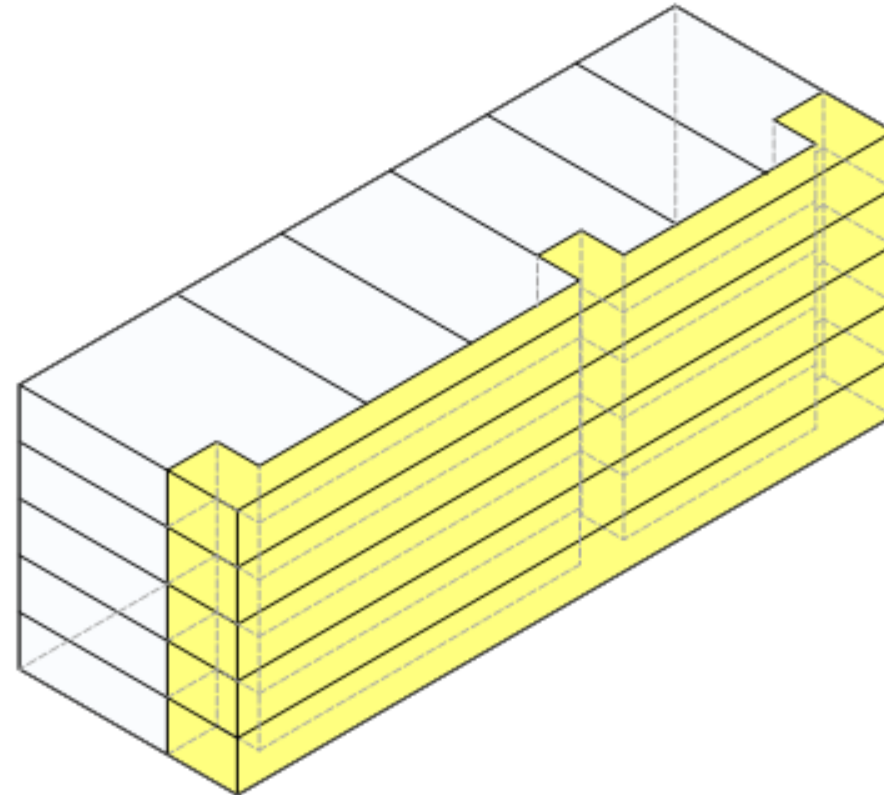
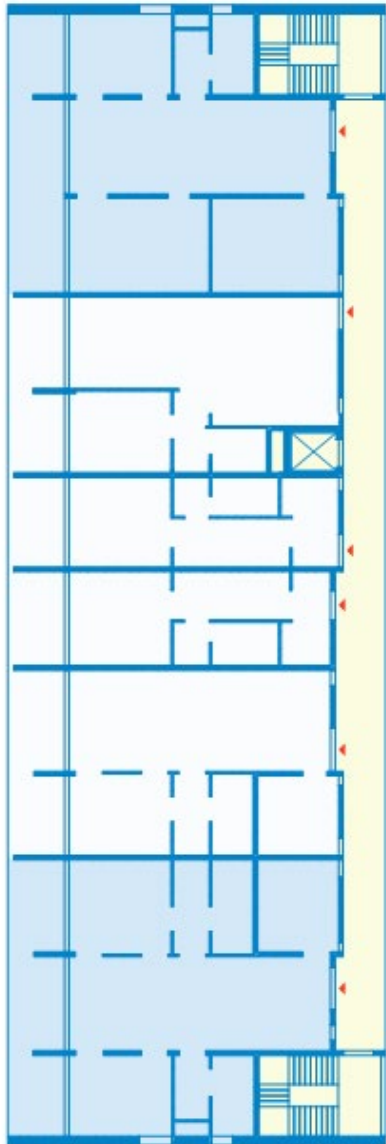


GRAND AVE MIXED USE APARTMENTS
FAIRFIELD RESIDENTIAL | SEPTEMBER 24, 2018

DESIGN REVIEW LU 18-191719 DZ C20

Grand Ave Apts, Courtesy Ankrom Moisan

Single Loaded Corridor



- 84% efficient floor plate
- diversity of unit sizes
- cross ventilation possible
- daylight on multiple sides

floor plan (left) and axonometric drawing (right), Larch Lab

Single Loaded Corridor

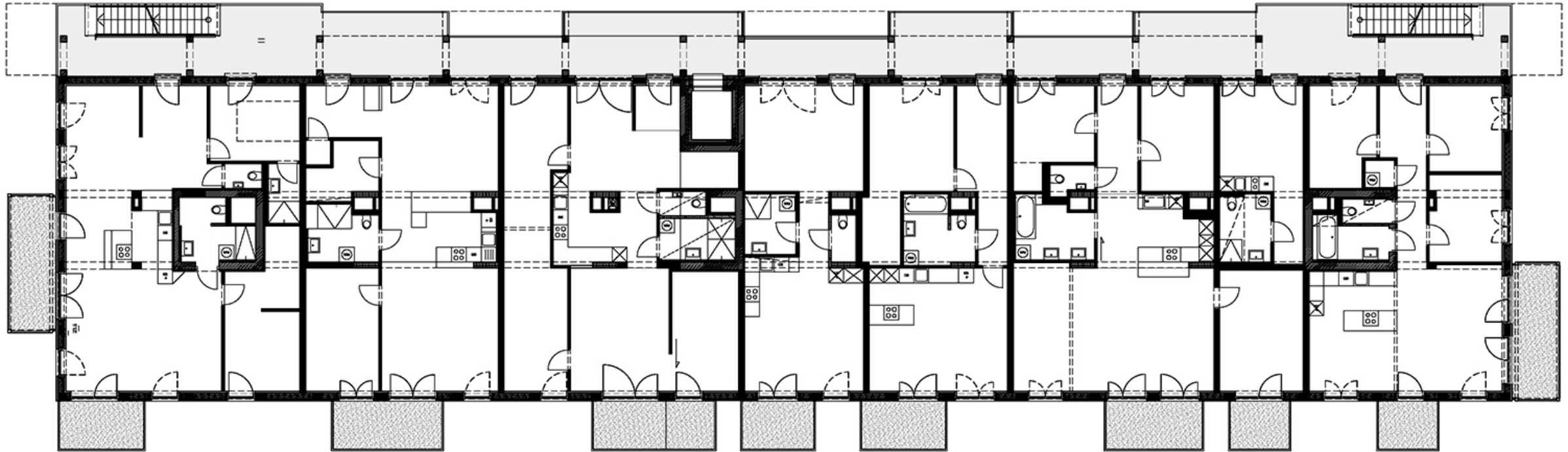
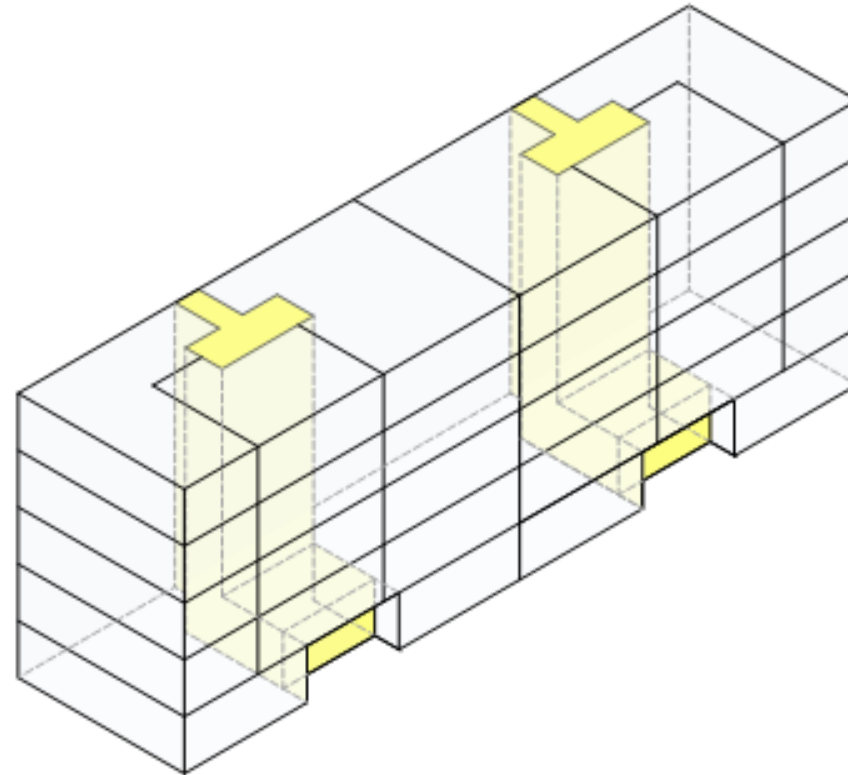
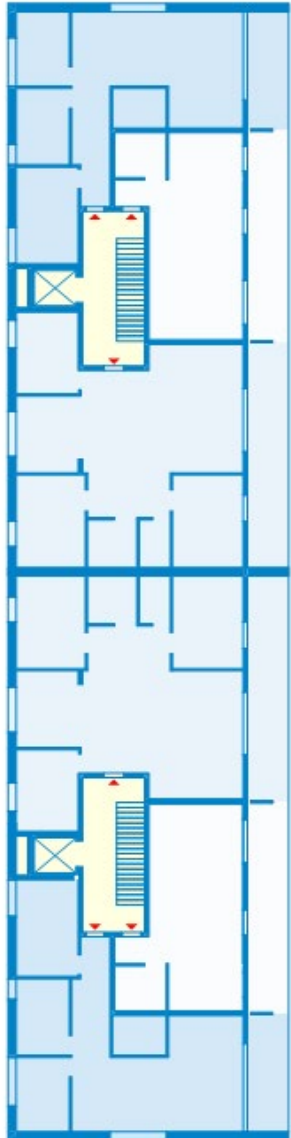


Foto: Einzueins

Point Access Block (single stair building)



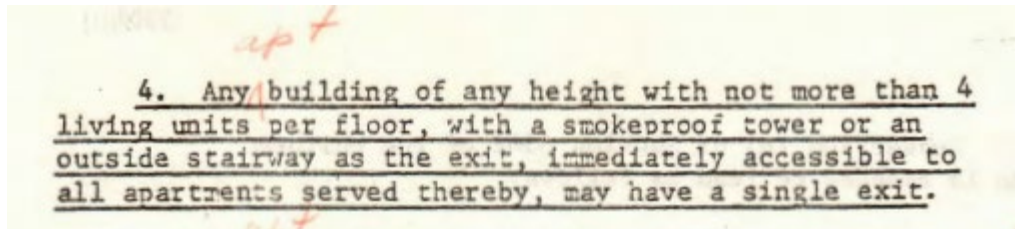
- compact layout
- 93,5% efficient floor plate
- diversity of unit sizes (1- to 3BRs)
- cross ventilation for most units
- daylight on multiple sides
- bedrooms on quiet side of building

floor plan (left) and axonometric drawing (right), Larch Lab

Seattle's History of Point Access Blocks

1977 Seattle Building Code:

4. Any building **of any height** with not more than 4 living units per floor, with a smokeproof tower or an outside stairway as the exit, immediately accessible to all apartments served thereby, **may have a single exit.**

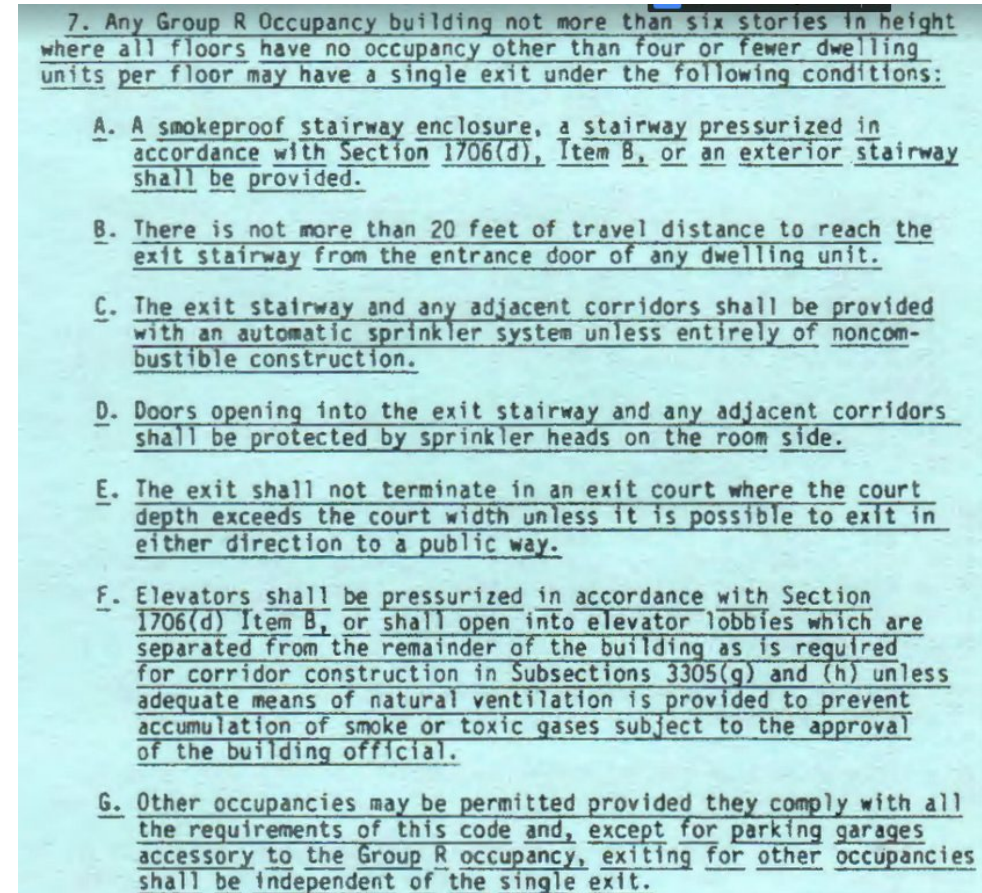


4. Any building of any height with not more than 4 living units per floor, with a smokeproof tower or an outside stairway as the exit, immediately accessible to all apartments served thereby, may have a single exit.

Source: Seattle Municipal Archives

1985 Seattle Building Code:

Reduced to 6 floors in height, 4 dwelling units per floor, **may have a single exit.**

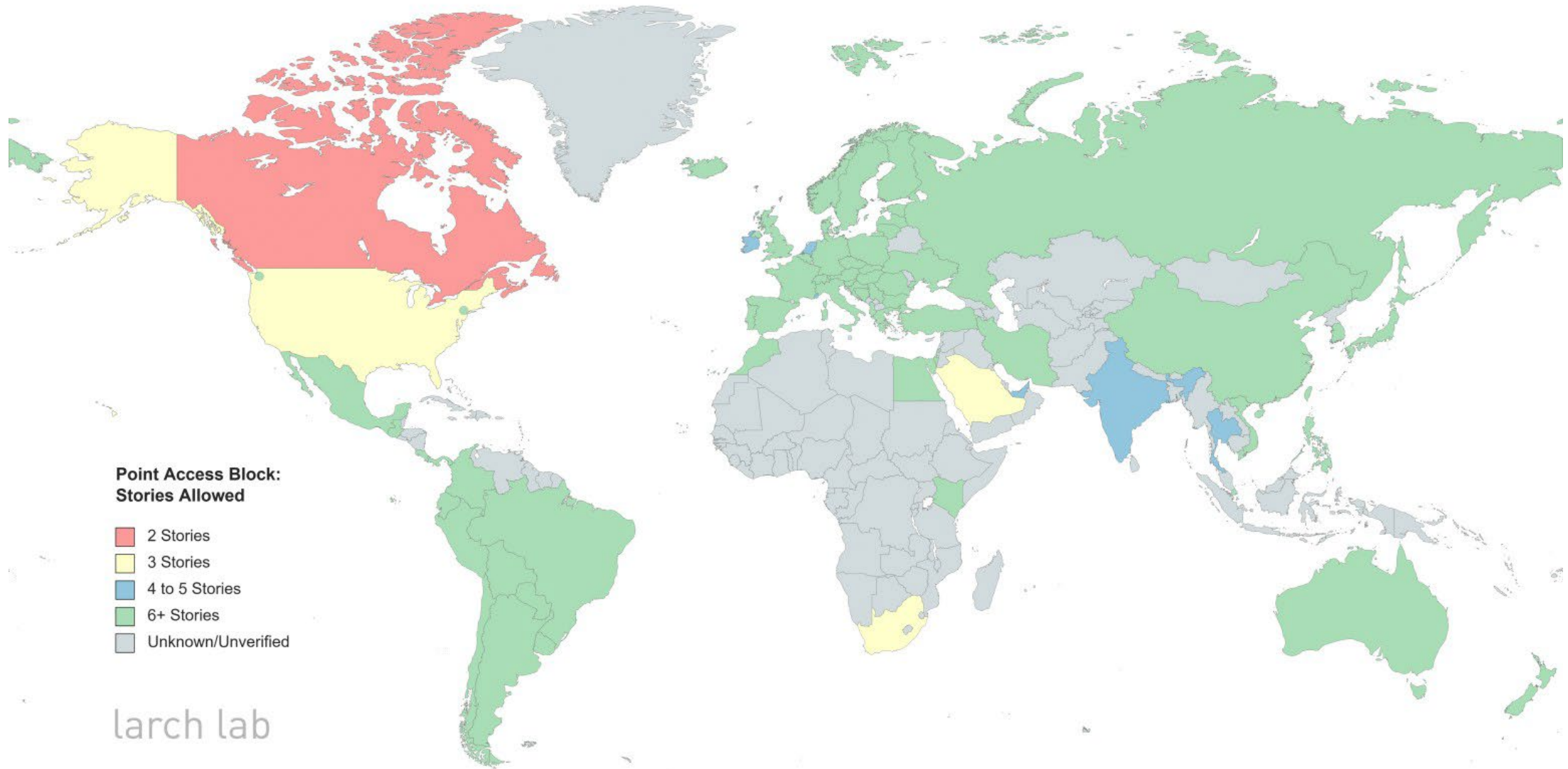


7. Any Group R Occupancy building not more than six stories in height where all floors have no occupancy other than four or fewer dwelling units per floor may have a single exit under the following conditions:

- A. A smokeproof stairway enclosure, a stairway pressurized in accordance with Section 1706(d), Item B, or an exterior stairway shall be provided.
- B. There is not more than 20 feet of travel distance to reach the exit stairway from the entrance door of any dwelling unit.
- C. The exit stairway and any adjacent corridors shall be provided with an automatic sprinkler system unless entirely of noncombustible construction.
- D. Doors opening into the exit stairway and any adjacent corridors shall be protected by sprinkler heads on the room side.
- E. The exit shall not terminate in an exit court where the court depth exceeds the court width unless it is possible to exit in either direction to a public way.
- F. Elevators shall be pressurized in accordance with Section 1706(d) Item B, or shall open into elevator lobbies which are separated from the remainder of the building as is required for corridor construction in Subsections 3305(g) and (h) unless adequate means of natural ventilation is provided to prevent accumulation of smoke or toxic gases subject to the approval of the building official.
- G. Other occupancies may be permitted provided they comply with all the requirements of this code and, except for parking garages accessory to the Group R occupancy, exiting for other occupancies shall be independent of the single exit.

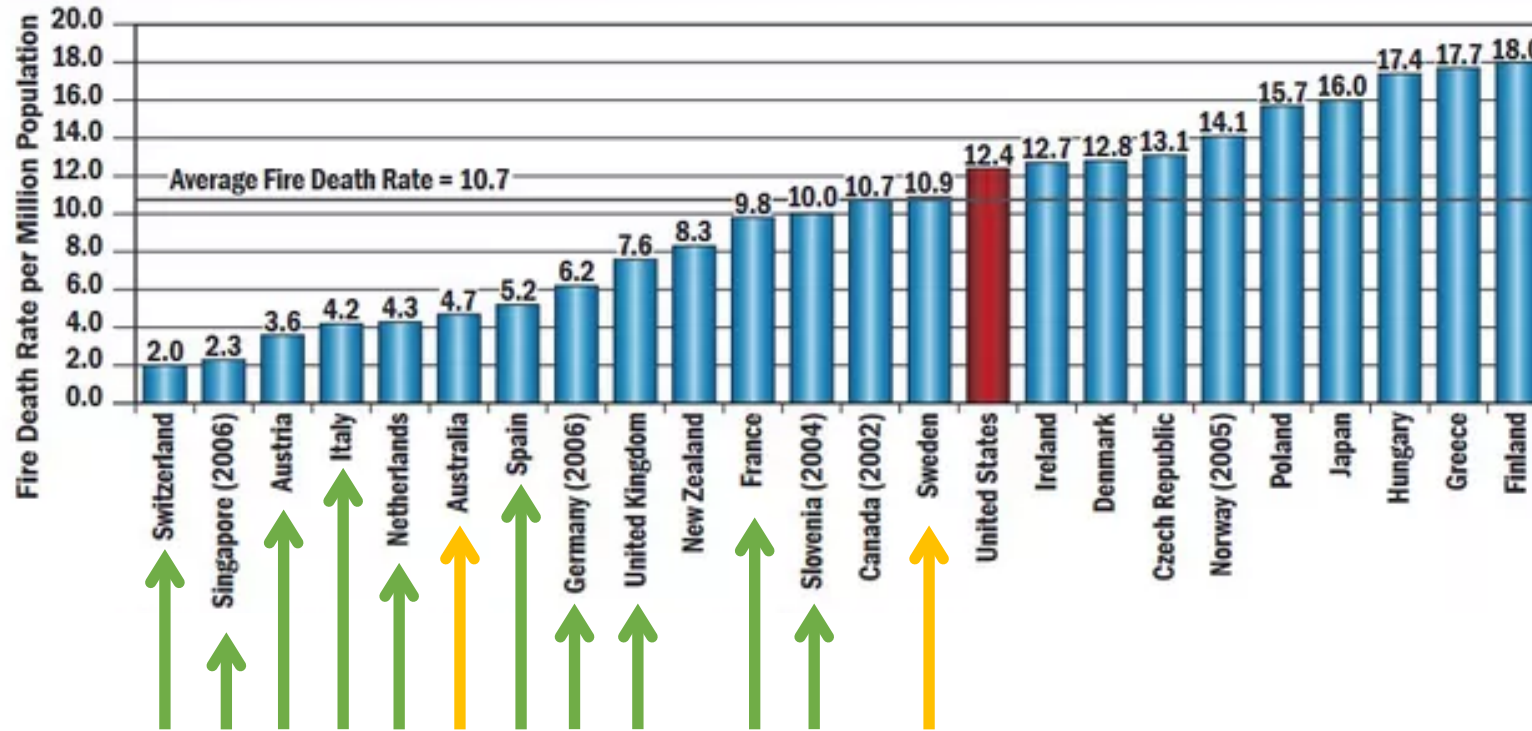
Source: Seattle Municipal Archives

Does fire burn differently in the U.S. and Canada?



Safety considerations

Figure 1. 2007 International Fire Death Rates per Million Population



“For most of history buildings were short enough that stairs provided for access were sufficient for rapid egress in the event of fire. ***Even in single stair (mostly residential) buildings, experience showed that this stair was sufficient for fire egress as long as the fire did not expose or block access to the stair.***”

-Richard Bukowski, research fire protection engineer

Light, Cross Ventilation, Unit Mix

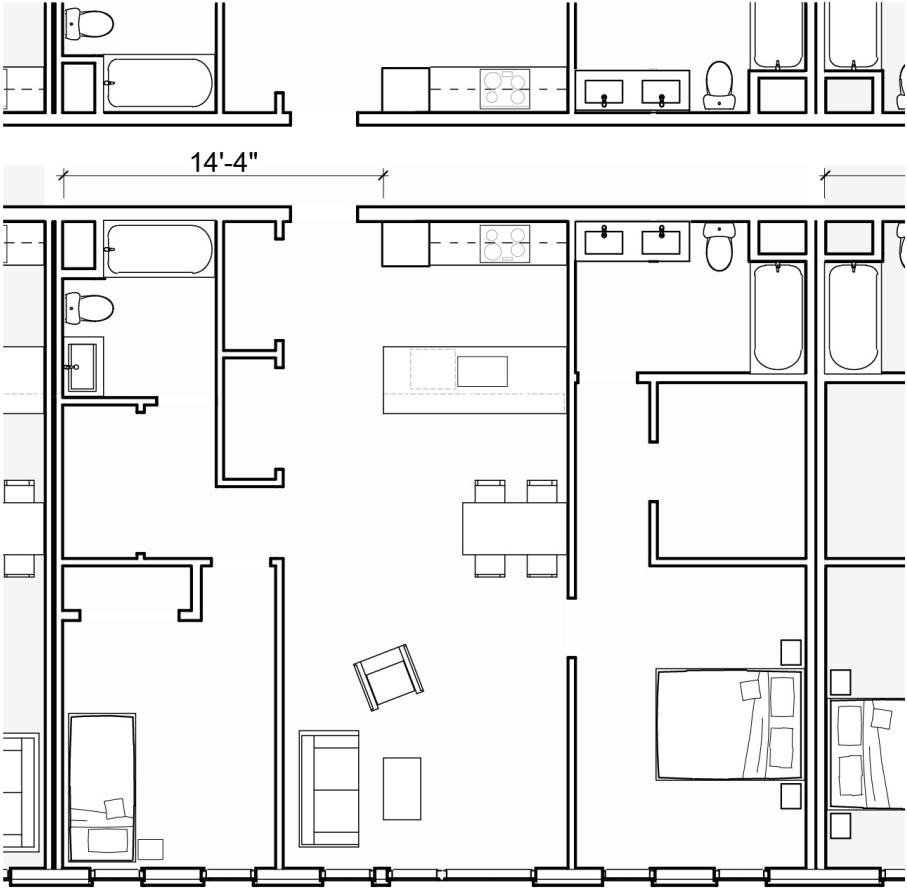


- + Light on 3 sides possible
- + Cross Ventilation for most units
- + ~ 95% Floor efficiency
- + Larger units or more Amenities

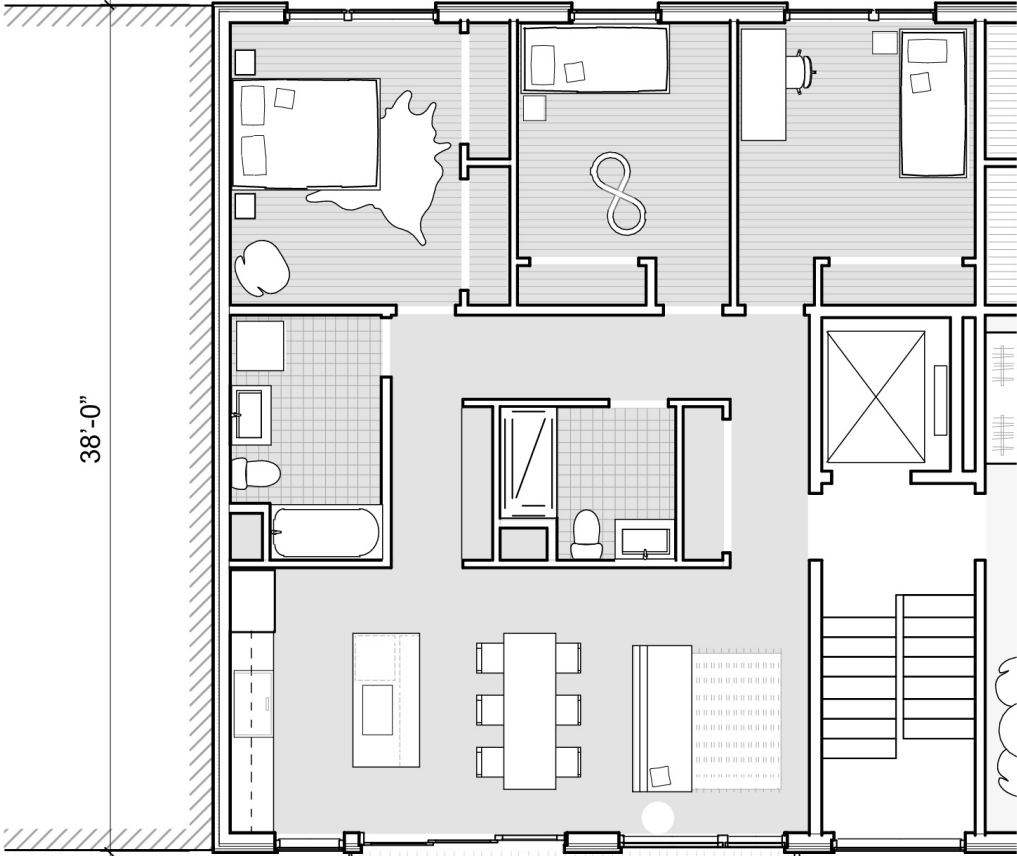


Grundriss: GWJ Architektur

US: Large units. Wasted space. Poorer quality of life...

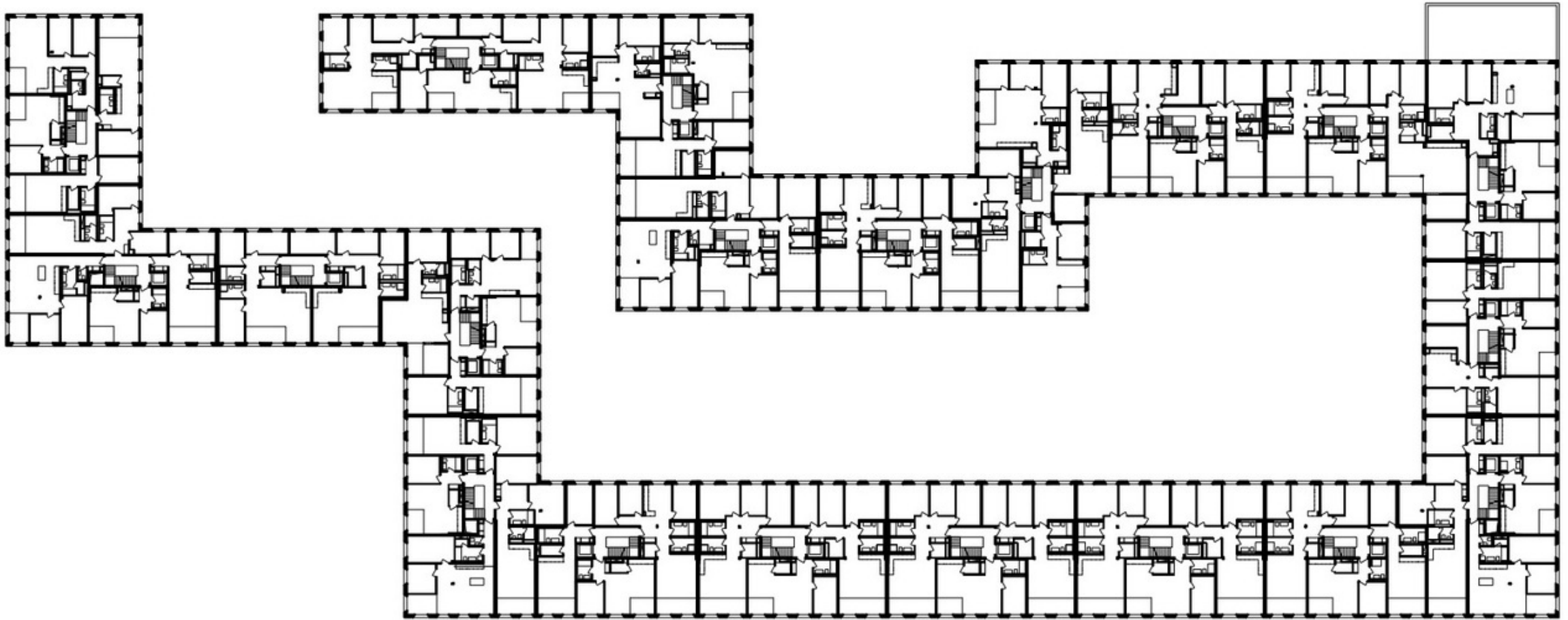


2-Bedroom/2 Bath
970 s.f.
60 s.f. (1/2 hall)



3-Bedroom / 2 Bath
1,040 s.f.

Sue&Til, Winterthur.



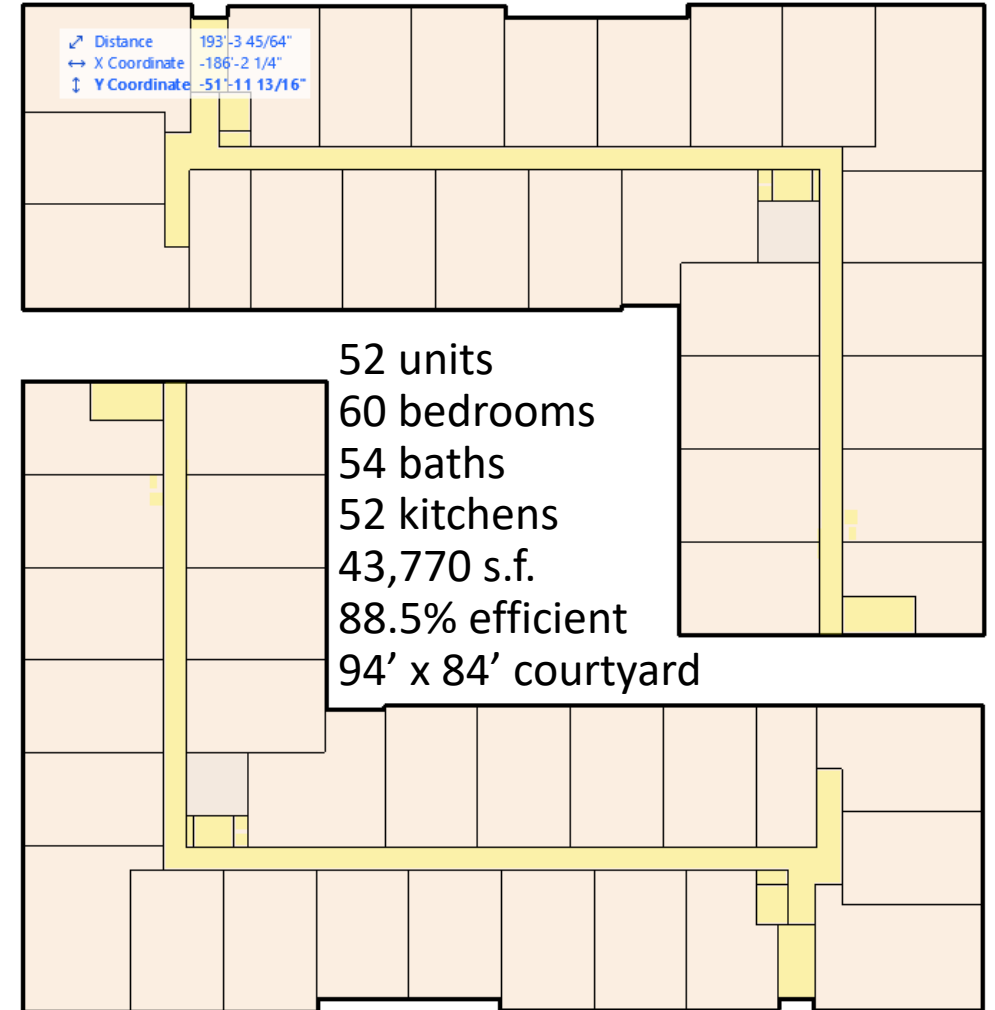
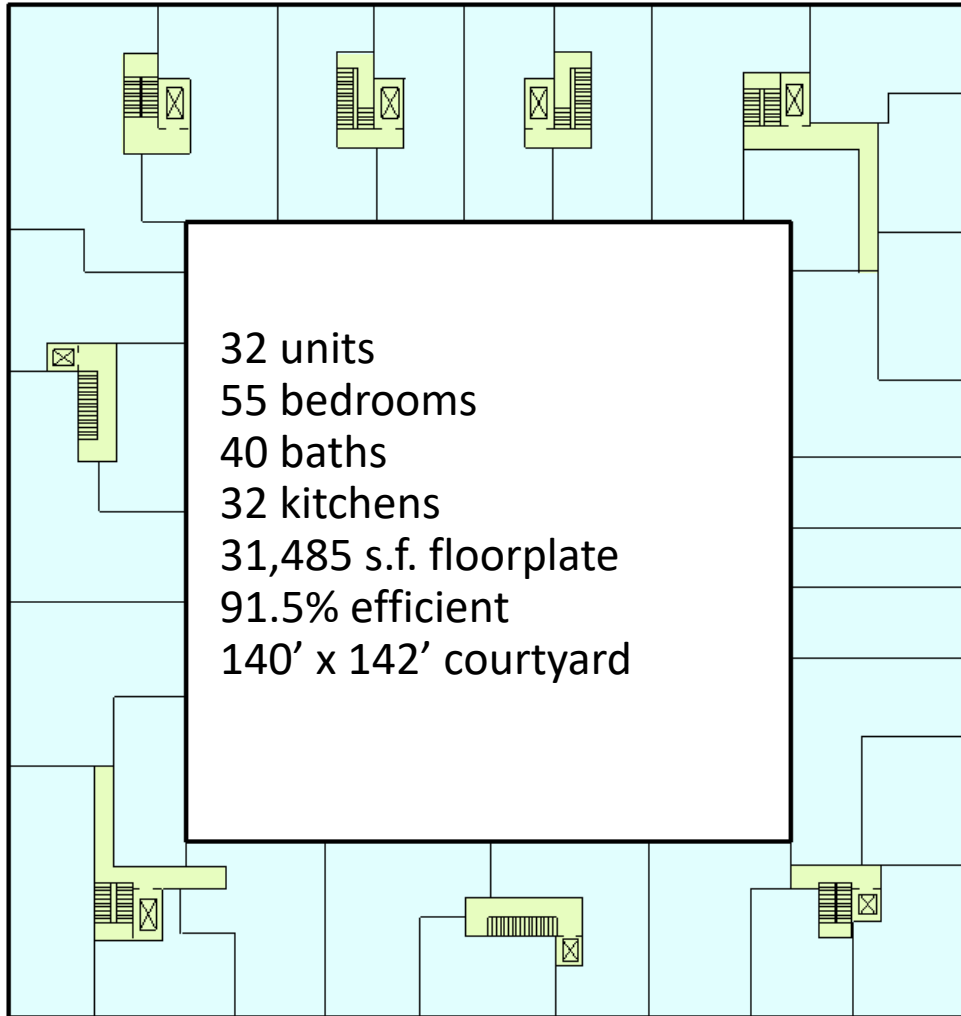
Source: weberbrunner architekten + soppelsa architekten

Sue&Til, Winterthur. TWENTY connected PABs

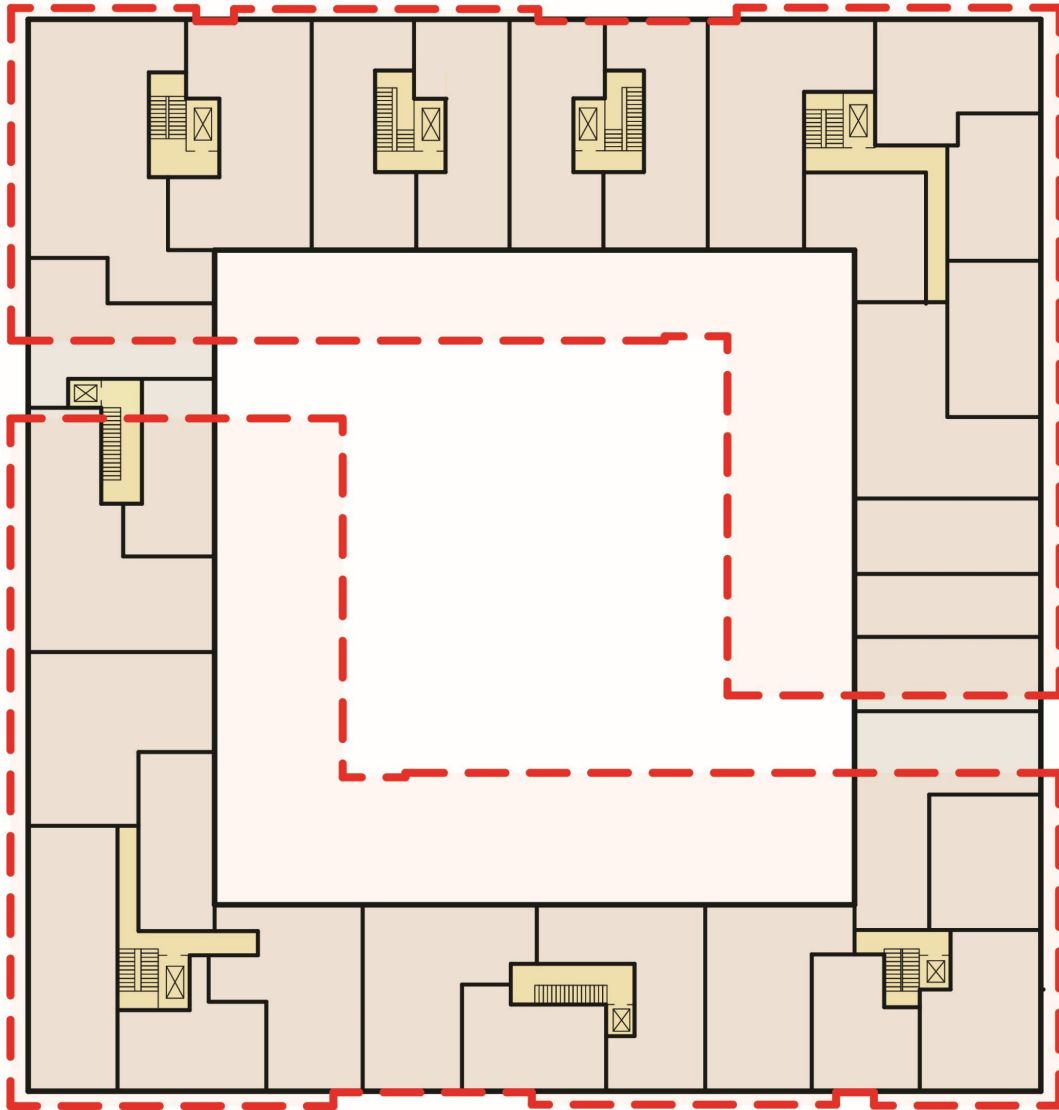


Source: weberbrunner architekten + soppelsa architekten

Floor Plate Width: Hamburg v. Seattle



Point Access Block: Thinner buildings, more green!



Seattle requires 12,885 s.f. for 5 more bedrooms

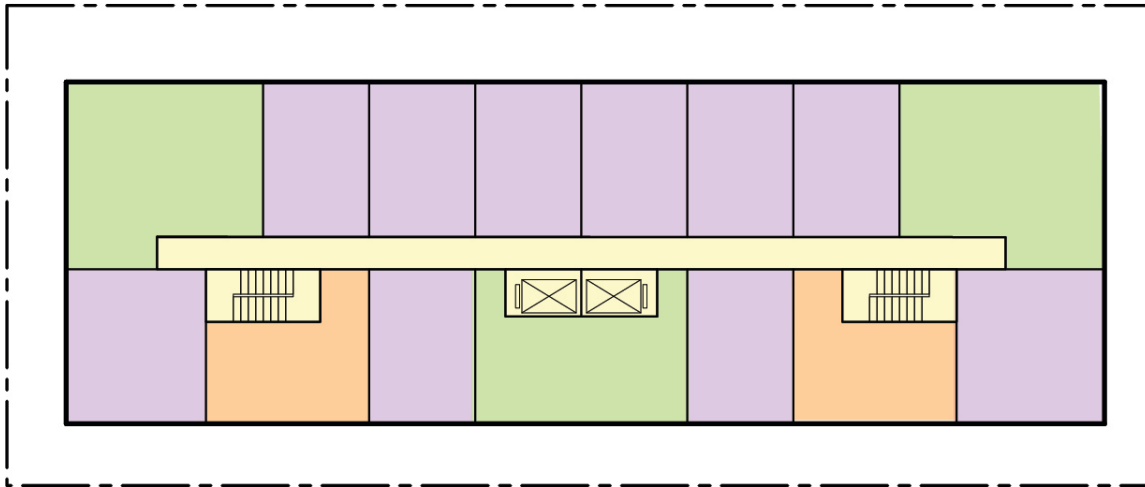
Construction cost:
 $\$375/\text{s.f.} * 12,285 \text{ s.f.} = \4.6M

PAB savings over 6 floors: \$27.6M

Hamburg's courtyard: 150% larger

Embodied carbon effects as well

Larix: Mass Timber Passivhaus Baugruppe

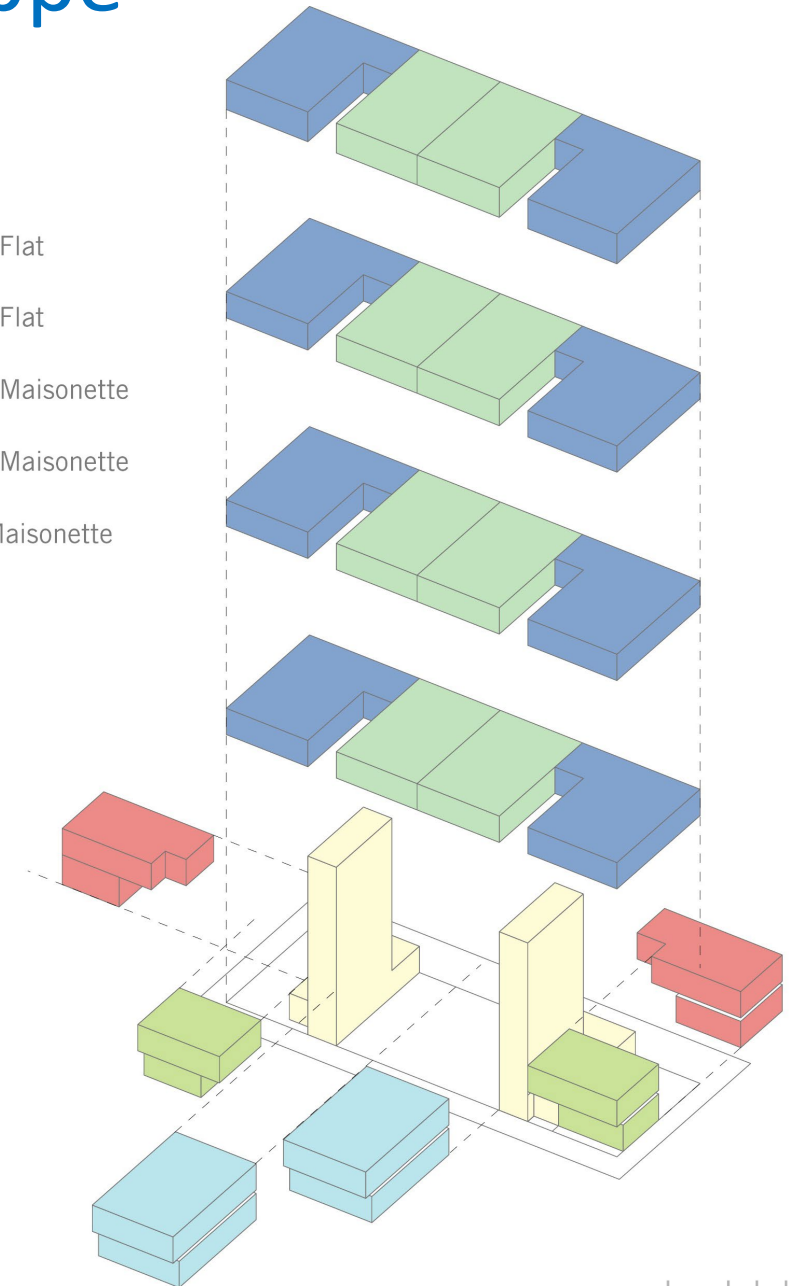


Typical Development Floor Plan

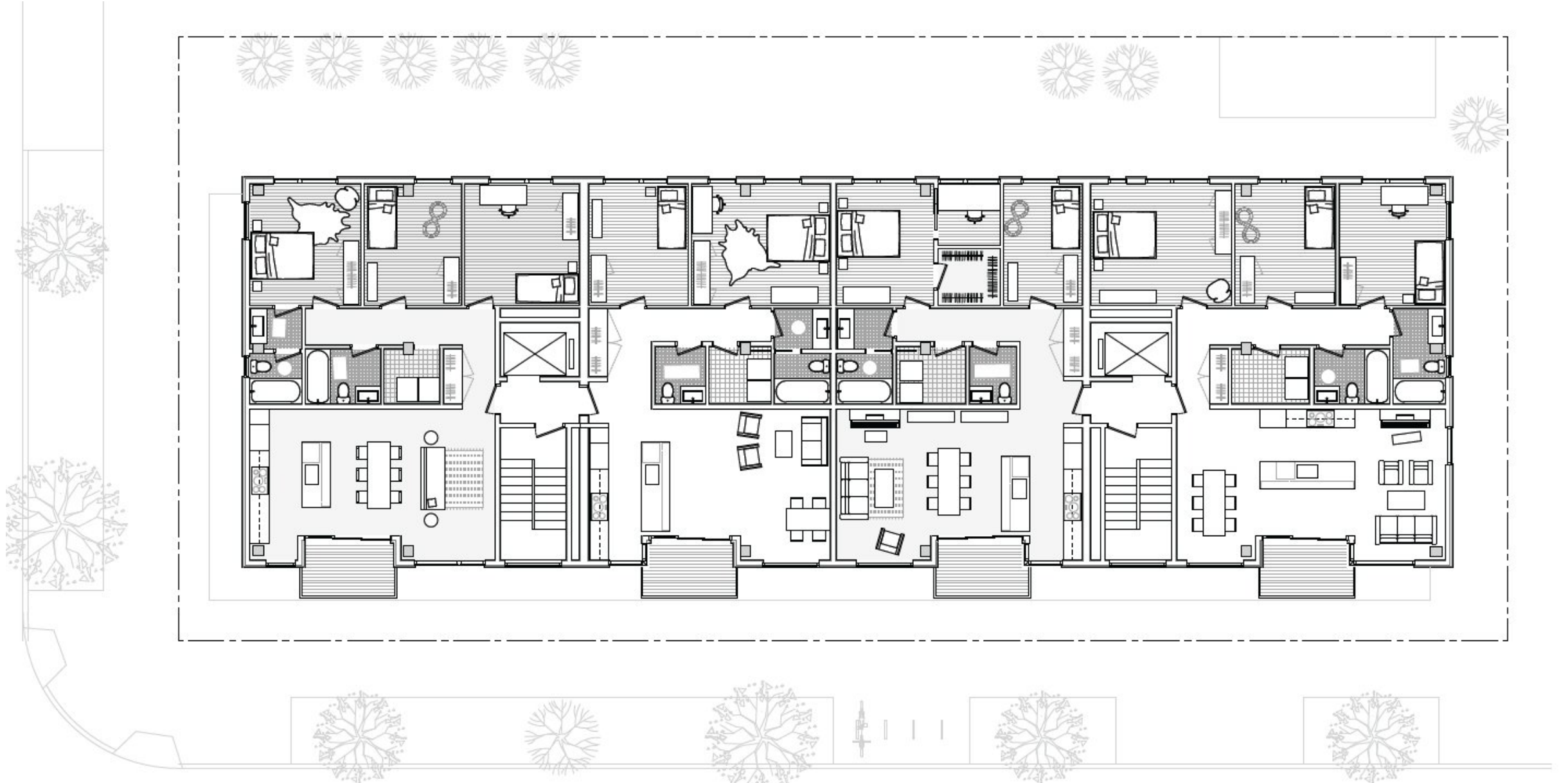


Larix Typical Floor Plan

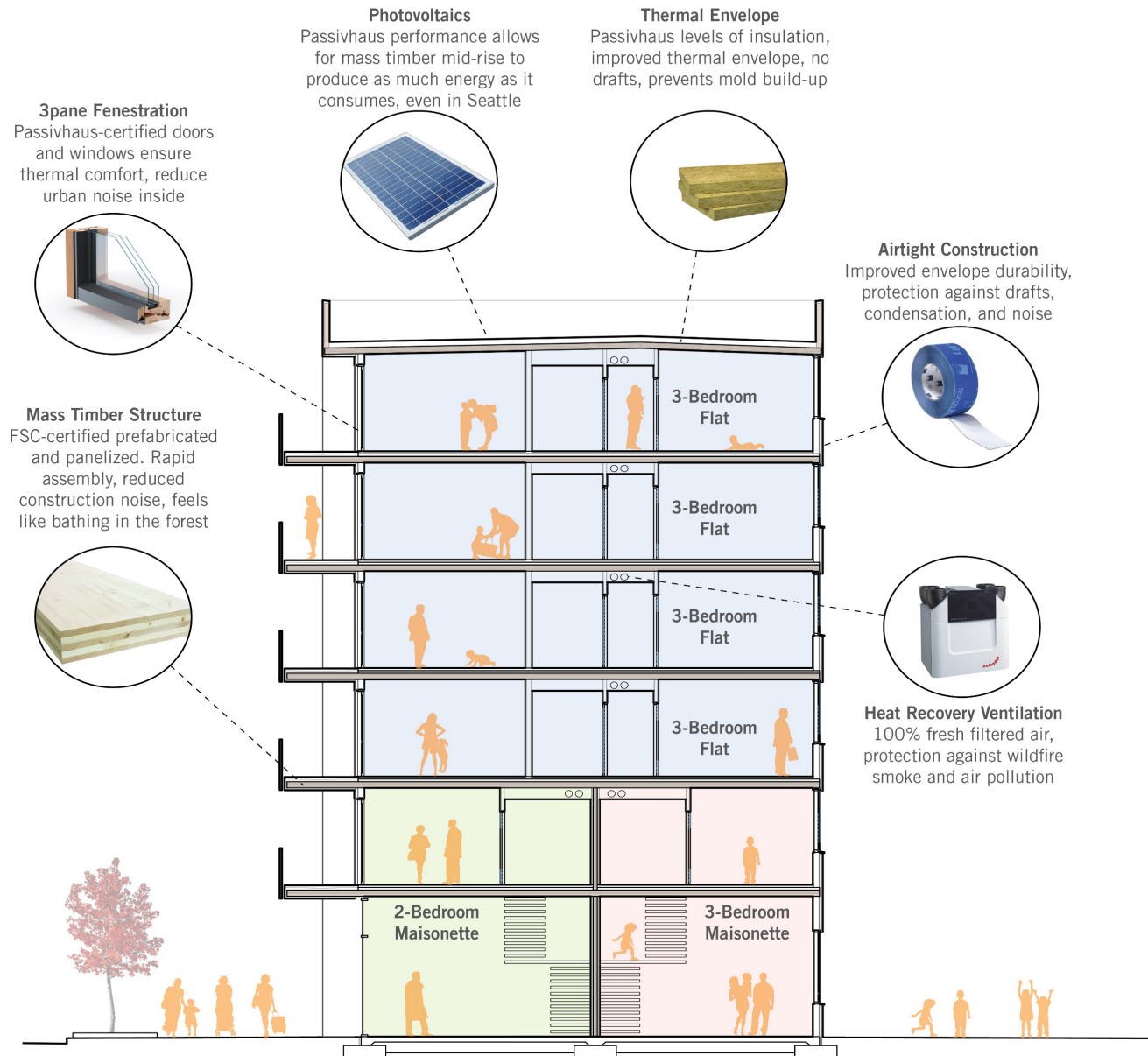
- 3-Bedroom Flat
- 2-Bedroom Flat
- 3-Bedroom Maisonette
- 2-Bedroom Maisonette
- Live-Work Maisonette
- Circulation



Twinned Point Access Blocks



Passivhaus + Mass Timber: Climate Adaptation?



Low-rise to Mid-rise: Seattle has 'Sausage Flats'



Foto: google earth

Prinz Eugen Park, Munich



Foto: google earth

Building Circulation Effects

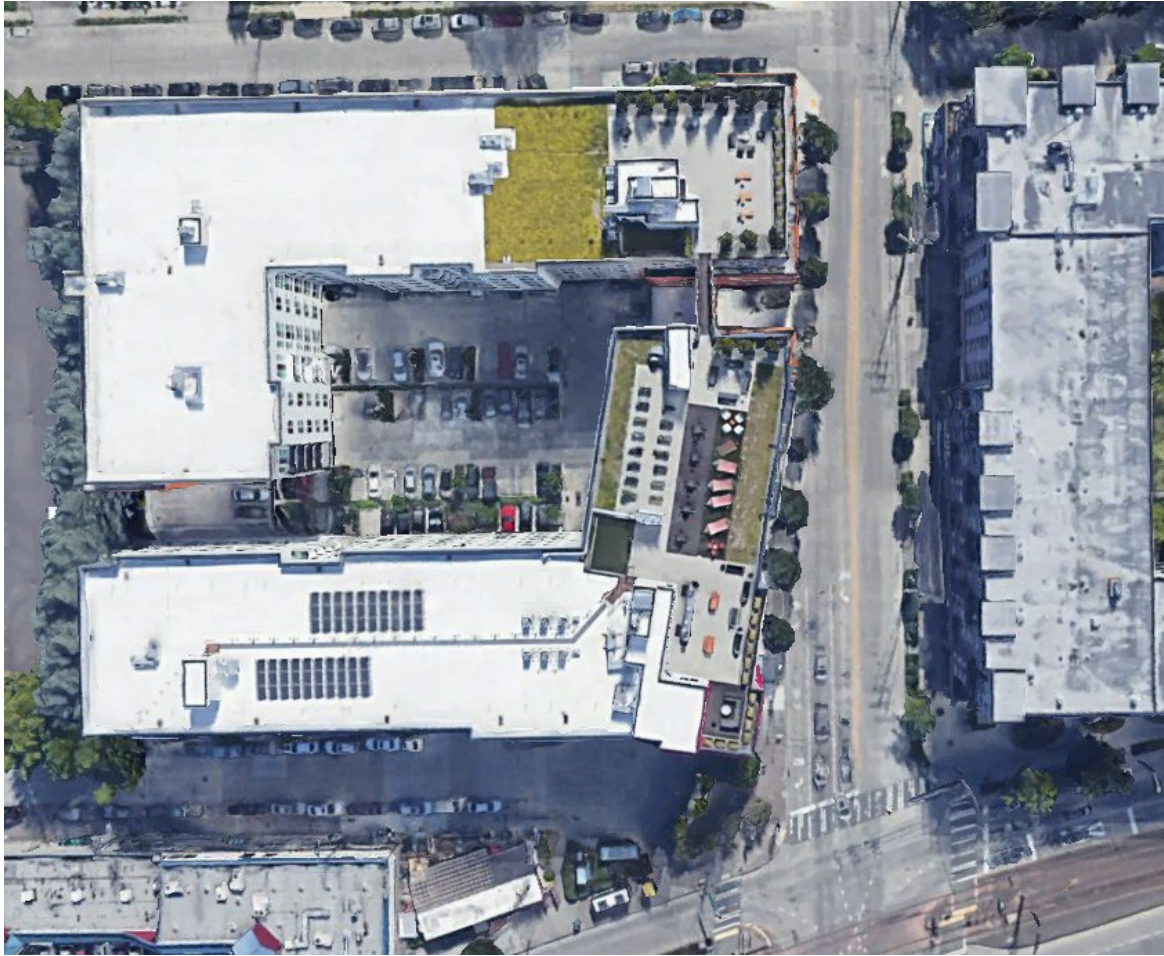


Foto: google earth

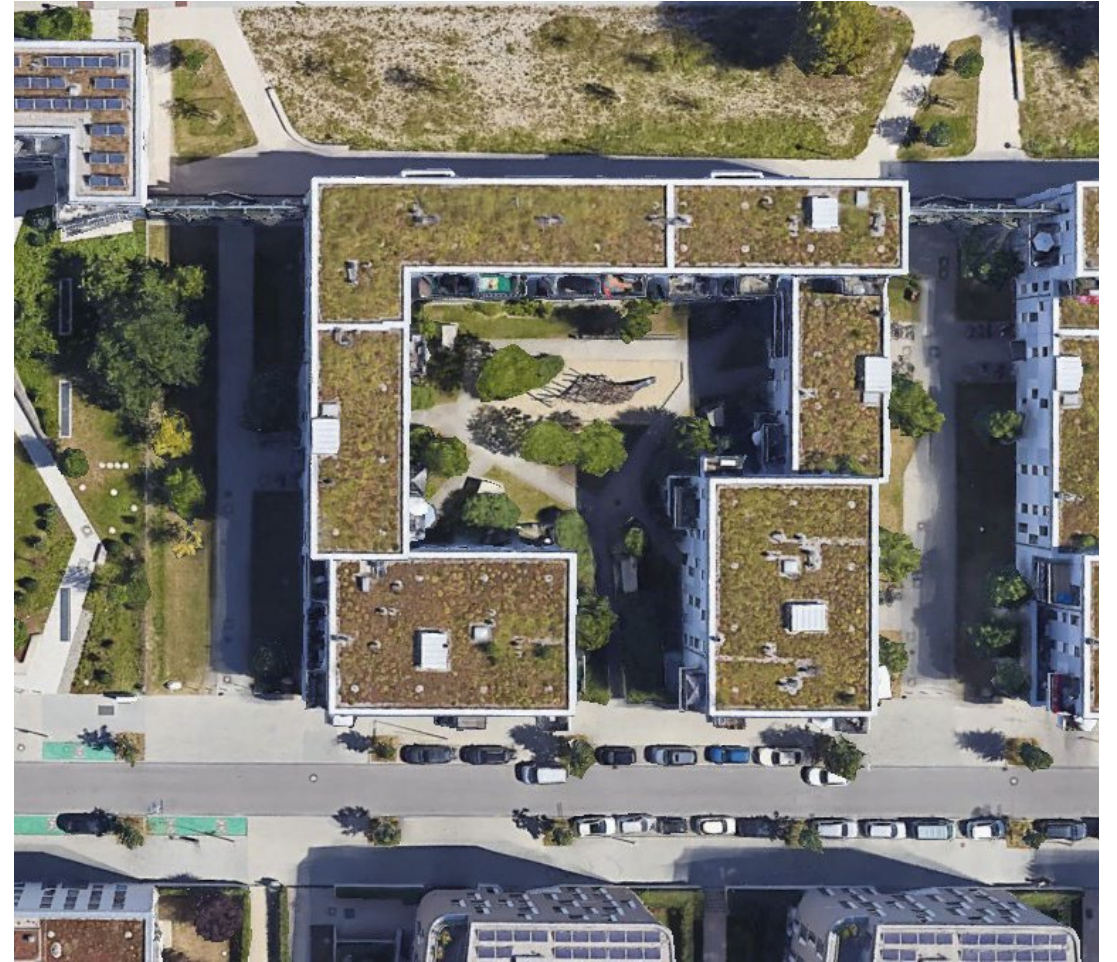


Foto: google earth

How do our codes affect quality of life?



Foto: Allstar/Warner Bros

What if Communicative Stairways were legal?



These buildings look different... Because they are!



Source: Woehr Autoparksysteme GmbH

Questions?

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