



# Public Spaces

## First

## Buildings

## Second



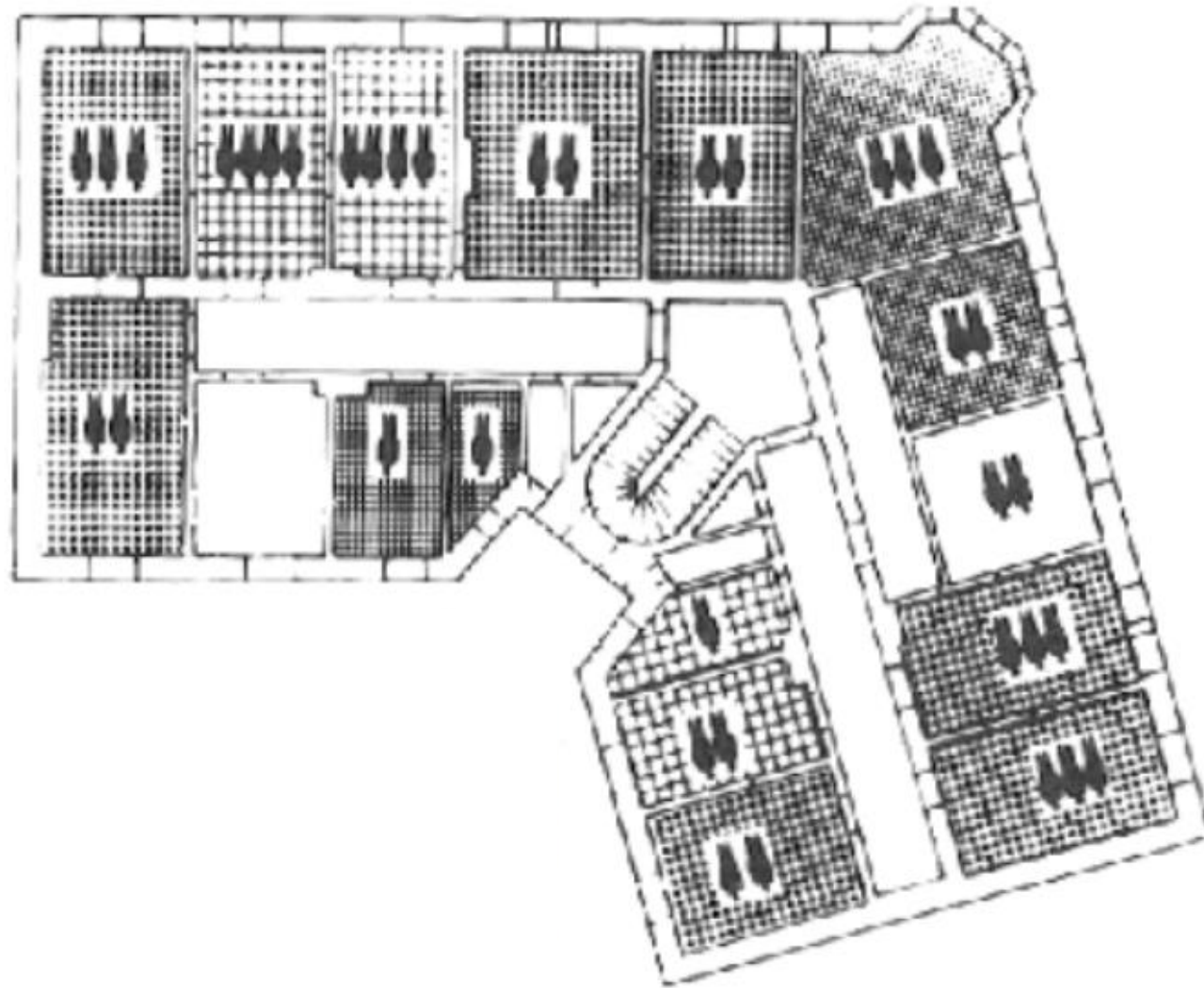
# The right amount



Kowloon Walled City (1989)  
[https://de.wikipedia.org/wiki/Kowloon\\_Walled\\_City#/media/Datei:Kowloon\\_Walled\\_City\\_-\\_1989\\_Aerial.jpg](https://de.wikipedia.org/wiki/Kowloon_Walled_City#/media/Datei:Kowloon_Walled_City_-_1989_Aerial.jpg)



	Residents per sq. km	# Residents	Land area (sq. km)	# Quarters (80 hectares)
Kowloon Walled City	1,269,231	33,000	.03	.03
Dharavi (Mumbai)	700,000	292,887	2.4	3.0
Kowloon	48,030	2,257,393	47.0	58.8
Manhattan	28,475	1,694,251	59.5	74.4
City of Paris	20,503	2,161,000	105.4	131.8
Barcelona-Eixample	35,854	268,189	7.5	9.4
Choa Chu Kang	31,435 45,974	192,070 280,900	6.1	7.6
Sengkang	23,548 36,412	192,070 385,600	10.6	13.2



Cramped living (37 residents in 1910 versus 7.5 residents in 2010) – Wohnungsenquête München, 1904/07 (Munich housing survey)

Clemens Wischemann, 'Familiengerechtes Wohnen – Anspruch und Wirklichkeit in Deutschland vor dem Ersten Weltkrieg', in Hans Jürgen Teuteberg, ed., *Homo habitans: zur Sozialgeschichte des ländlichen und städtischen Wohnens in der Neuzeit* (Münster: Coppenrath, 1985), 169-98, here 175.



Cramped living – Kreuzbergstraße 49, 1911, Wohnungsenquête Berlin (housing survey carried out by the Berlin statutory sick fund)  
Gesine Asmus, ed., *Hinterhof, Keller und Mansarde: Einblicke in Berliner Wohnungselend 1901-1920* (Reinbek: Rowohlt, 1982).



Riehmers Hofgarten (Großbeerenstraße, Yorkstraße, Hagelberger Straße)  
[https://commons.wikimedia.org/wiki/File:In\\_Riehmers\\_Hofgarten.jpg#/media/Datei:In\\_Riehmers\\_Hofgarten.jpg](https://commons.wikimedia.org/wiki/File:In_Riehmers_Hofgarten.jpg#/media/Datei:In_Riehmers_Hofgarten.jpg)



	Living space per person	Gross floor area per person
1910	9 sqm (97 sq. ft.)	14 sqm (151 sq. ft.)
2010	40 sqm (431 sq. ft.)	62 sqm (667 sq. ft.)



	Living space per person	Gross floor area per person	# Residents per sq. km
1910	9 sqm (97 sq. ft.)	14 sqm (151 sq. ft.)	91,100
2010	40 sqm (431 sq. ft.)	62 sqm (667 sq. ft.)	20,500

4.5 times the population density in Berlin, Munich, Vienna and Zurich – 1910 versus 2010

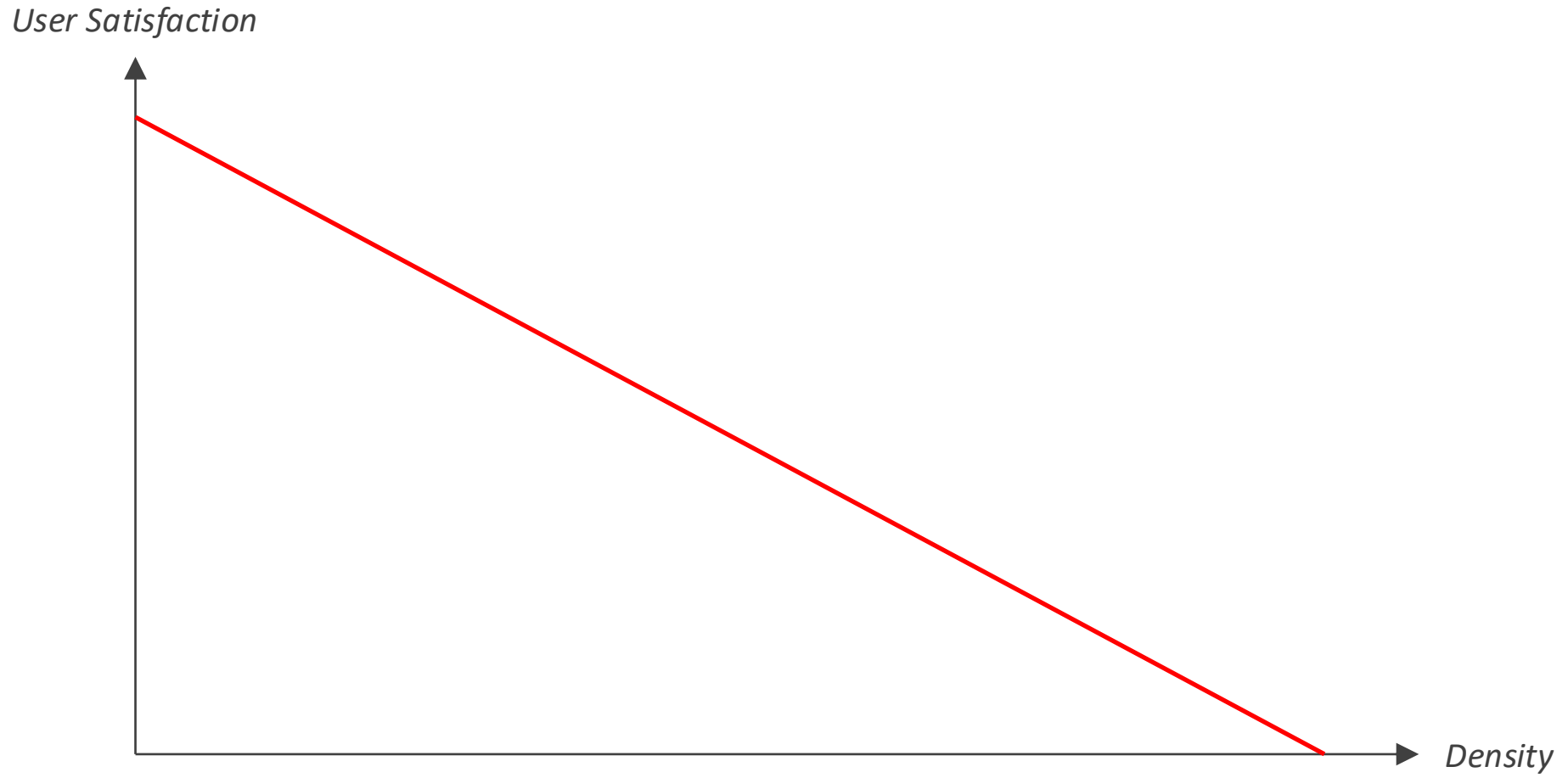


Sun, space, verdure  
Le Corbusier and Francois de Pierrefeu, *The Home of Man* (London: Architectural Press, 1948).

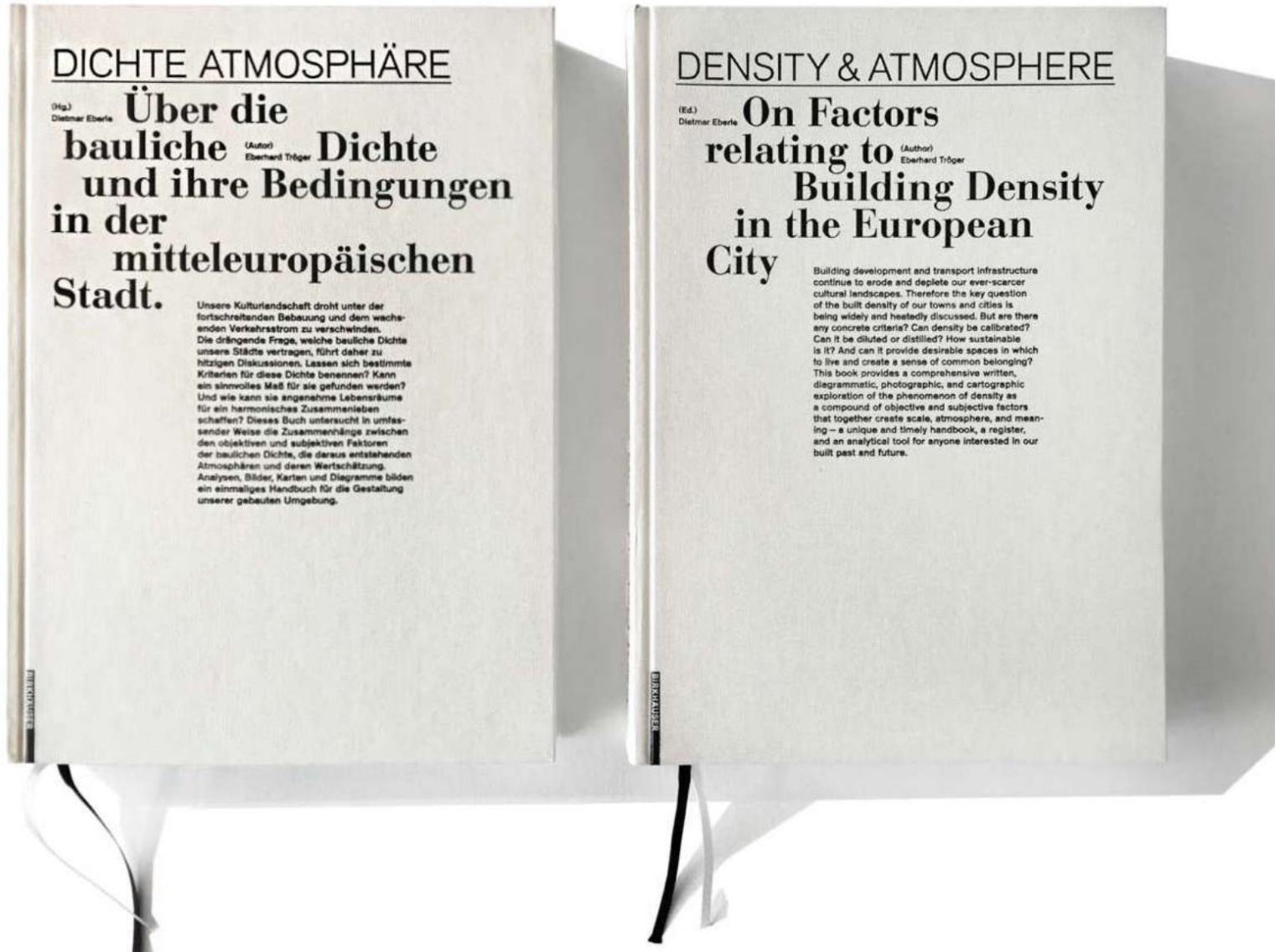


# Dichtestress

Density-related stress



Commonly alleged perception of user satisfaction in relation to density



**DICHTe ATMOSPHERE**  
(Hg.)  
Dietmar Eberle **Über die**  
**bauliche** (Autor)  
Eberhard Tröger **Dichte**  
**und ihre Bedingungen**  
**in der**  
**mitteleuropäischen**  
**Stadt.**

Unsere Kulturlandschaft droht unter der fortschreitenden Bebauung und dem wachsenden Verkehrsstrom zu verschwinden. Die dringende Frage, welche bauliche Dichte unsere Städte vertragen, führt daher zu hitzigen Diskussionen. Lassen sich bestimmte Kriterien für diese Dichte benennen? Kann ein sinnvolles Maß für sie gefunden werden? Und wie kann sie angenehme Lebensräume für ein harmonisches Zusammenleben schaffen? Dieses Buch untersucht in umfassender Weise die Zusammenhänge zwischen den objektiven und subjektiven Faktoren der baulichen Dichte, die daraus entstehenden Atmosphären und deren Wertschätzung. Analysen, Bilder, Karten und Diagramme bilden ein einmaliges Handbuch für die Gestaltung unserer bebauten Umgebung.

**DENSITY & ATMOSPHERE**  
(Ed.)  
Dietmar Eberle **On Factors**  
**relating to** (Author)  
Eberhard Tröger **Building Density**  
**in the European**  
**City**

Building development and transport infrastructure continue to erode and deplete our ever-scarcer cultural landscapes. Therefore the key question of the built density of our towns and cities is being widely and heatedly discussed. But are there any concrete criteria? Can density be calibrated? Can it be diluted or distilled? How sustainable is it? And can it provide desirable spaces in which to live and create a sense of common belonging? This book provides a comprehensive written, diagrammatic, photographic, and cartographic exploration of the phenomenon of density as a compound of objective and subjective factors that together create scale, atmosphere, and meaning – a unique and timely handbook, a register, and an analytical tool for anyone interested in our built past and future.



*User Satisfaction*



Actual user satisfaction in relation to density:  
Very low as well as very high built densities predispose neighbourhoods with high user satisfaction, whereas medium built densities predispose neighbourhoods with poor user satisfaction



# Quarter Density

Quarter density = Sum of floor area of all buildings / 80 hectares  
A quarter is defined as an area with a radius of 500 metres, which equals approx. 80 hectares (198 acres)

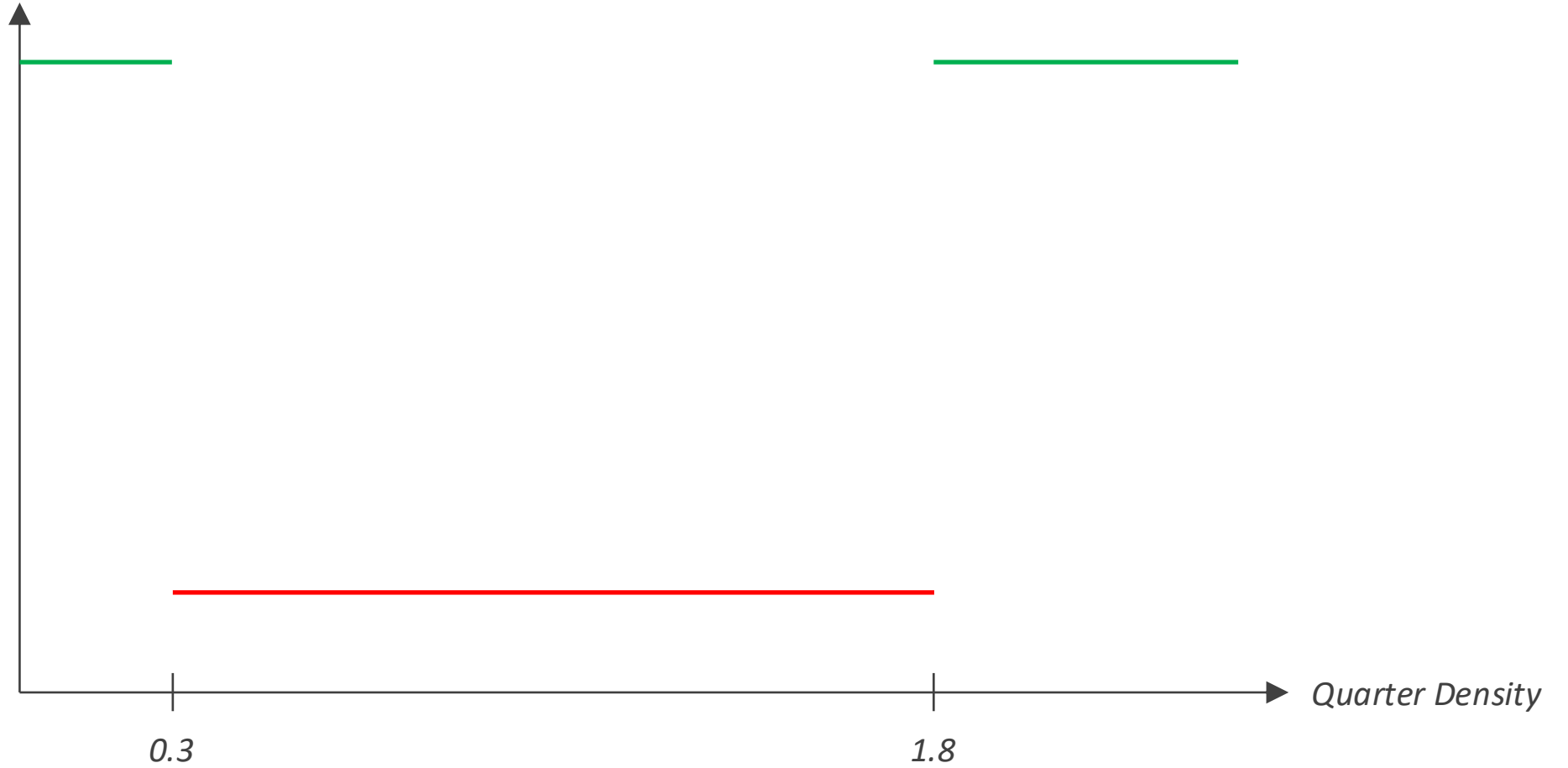


Quarter density	= 2.0	
Quarter	= 80 hectares	= 198 acres
Total floor area	= 1,600,000 sqm	= 17,222,257 sq. ft.
Net building land	= 52 hectares	= 128 acres
Average FAR	= 3.1	

A quarter density of 2.0 (with a 65% ratio of net building land versus 35% of public space) means an average floor area ratio of 3.1 throughout the quarter.



*User Satisfaction*



User satisfaction in relation to quarter density



Berlin, Privatstraße (0.23)



Vienna, Schipergasse (0.31)



Munich, Waldstraße (0.36)



Zurich, Im Heimgärtli (0.30)

Density category 1



Berlin, Christburger Straße (2.12)



Vienna, Fockygasse (1.96)



Munich, Pariser Platz (2.02)



Zurich, Kanzleistraße (1.96)

Density category 7



Density category 7



**10,000 + 5,000**

To provide its users with essential amenities, a quarter (80 hectares) needs a minimum of 10,000 inhabitants and 5,000 jobs (in full-time equivalents).



**Vienna, Hahngasse (2.49)**

Density Category 8: Streets have a spatial quality – they are framed by the street facades of buildings that stand close to each other



**Vienna, Prinzgasse (1.01)**

Density Category 4



Vienna, Prinzgasse (1.01)

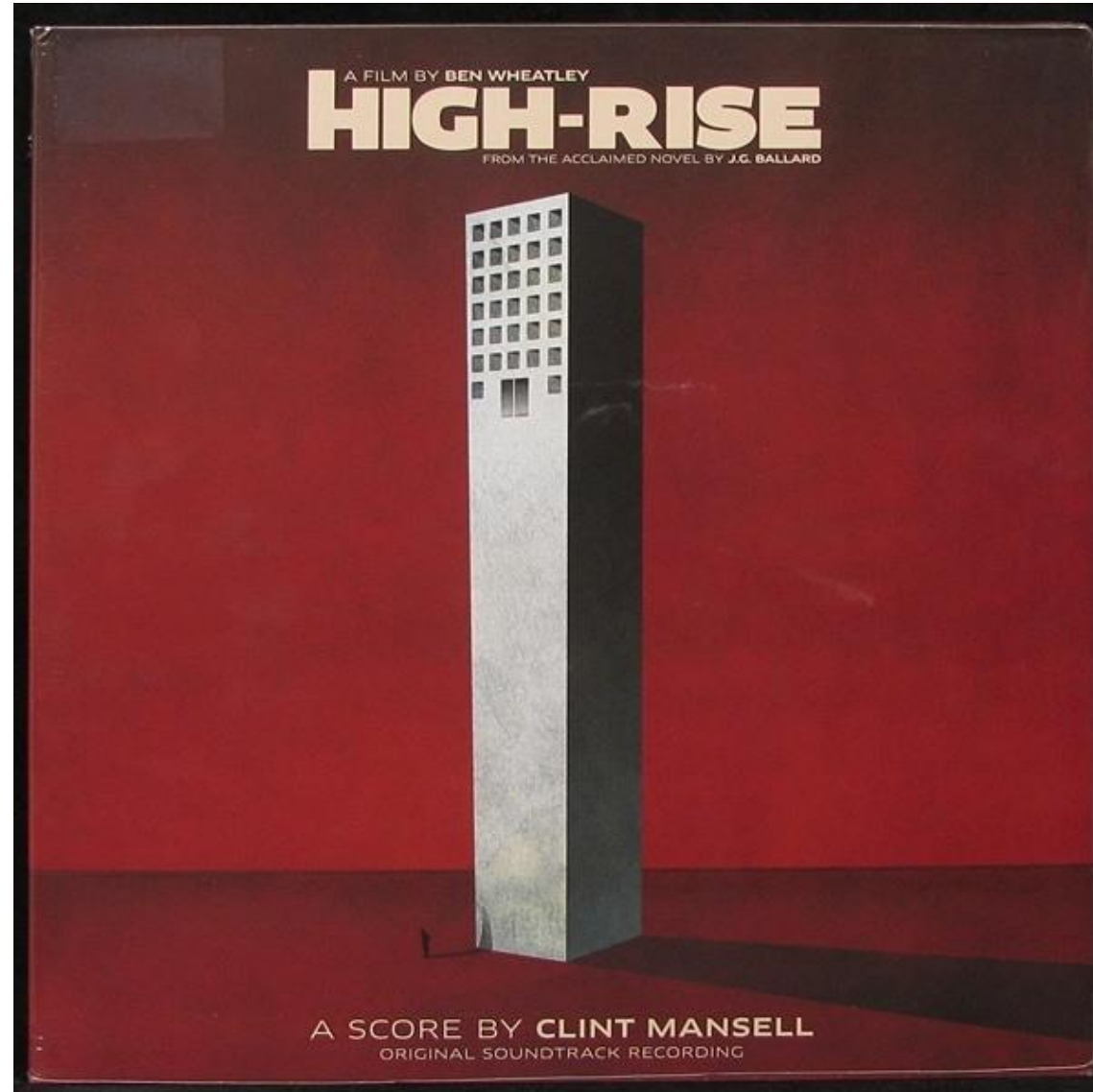


Vienna, Hahngasse (2.49)

Density Category 4 versus 8 (figure-ground plans)



The space occupier versus the space definer (Unité d'Habitation versus Uffizi)  
Colin Rowe and Fred Koetter, *Collage City* (Cambridge: MIT Press, 1978), here 69.  
Copyright: Robert Mehl and [https://de.wikipedia.org/wiki/Uffizien#/media/Datei:Galleria\\_degli\\_Uffizi.jpg](https://de.wikipedia.org/wiki/Uffizien#/media/Datei:Galleria_degli_Uffizi.jpg)



The 'sculptural', detached, free standing building



Reliance Building, Chicago, September 2015 (John Root, Charles B. Atwood, 1895)



Reliance Building, Chicago (John Root, Charles B. Atwood), 1895  
Copyright: Chicago Architecture Center



Reliance Building, Chicago (John Root, Charles B. Atwood), 1895  
Copyright: James Peters



Prudential (Guaranty) Building, Buffalo (Louis Sullivan, Dankmar Adler), 1896  
Copyright: Gene Avallone (M/E Engineering)



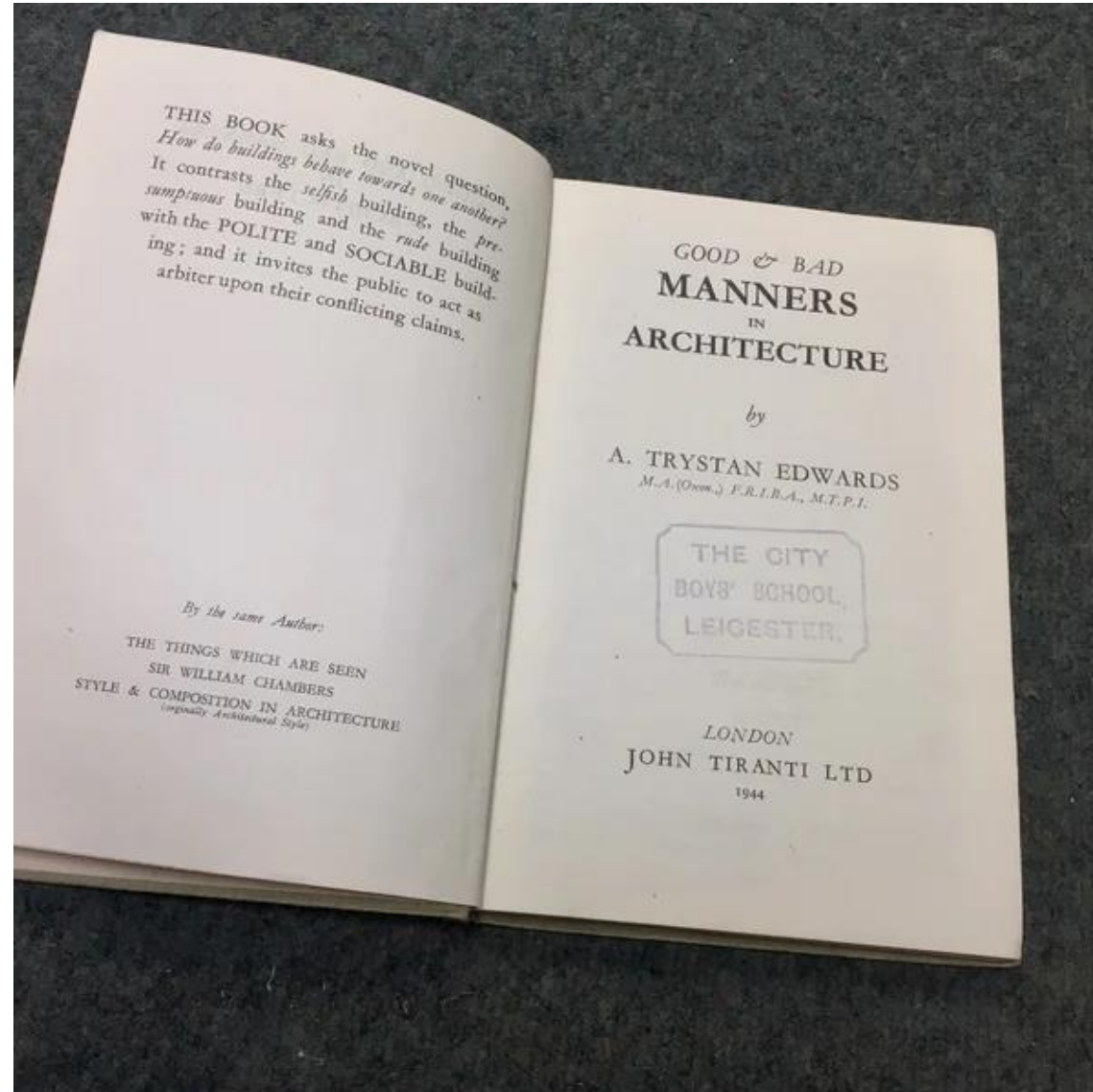
Prudential (Guaranty) Building, Buffalo (Louis Sullivan, Dankmar Adler), 1896  
Copyright: Nick Stanley (ArchEyes)



Prudential (Guaranty) Building, Buffalo (Louis Sullivan, Dankmar Adler), 1896  
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Prudential (Guaranty) Building, Buffalo (Louis Sullivan, Dankmar Adler), 1896  
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Arthur Trystan Edwards, *Good & Bad Manners in Architecture* (London: Sidney Press, 1924).  
Copyright: Shelter Scotland Edinburgh Morningside



Plaza Mayor Madrid: the buildings take the form that is necessary to shape public spaces that make sense