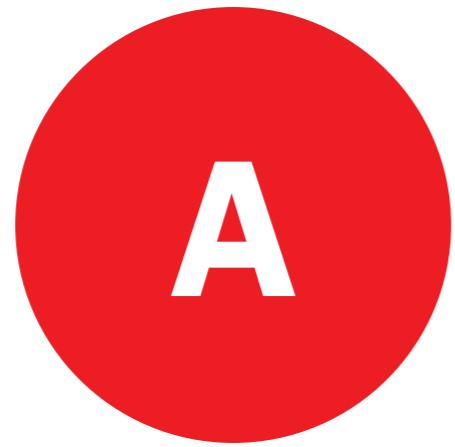
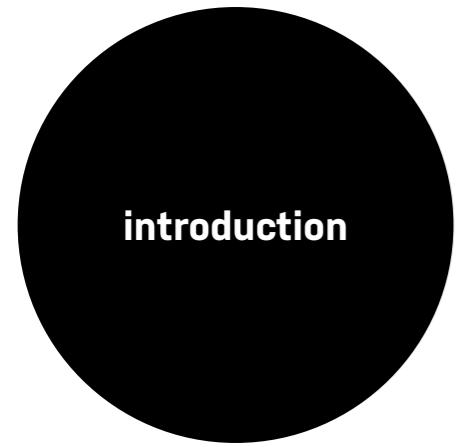




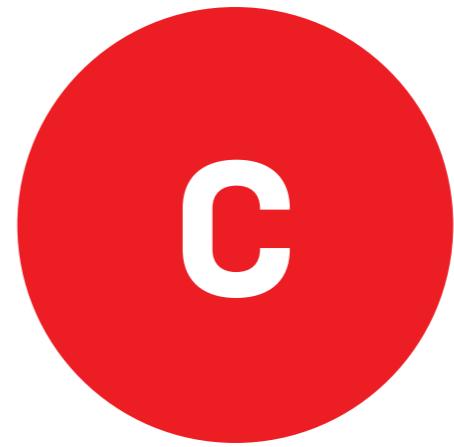
**architect-developer  
house on a house**



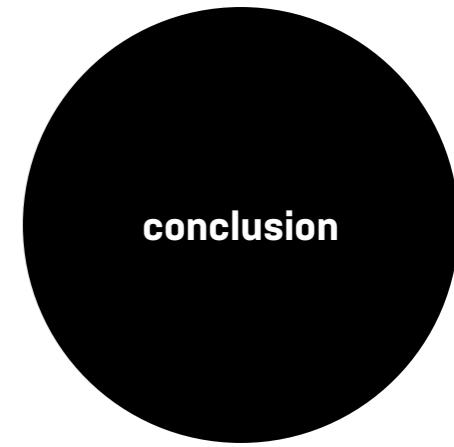
**research**



**research by design**

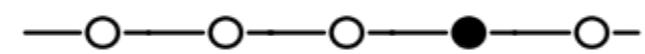


**design**





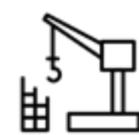
introduction  
global

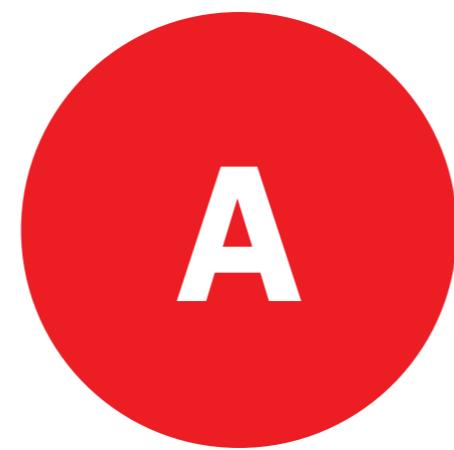




?







research



**Czech Republic**

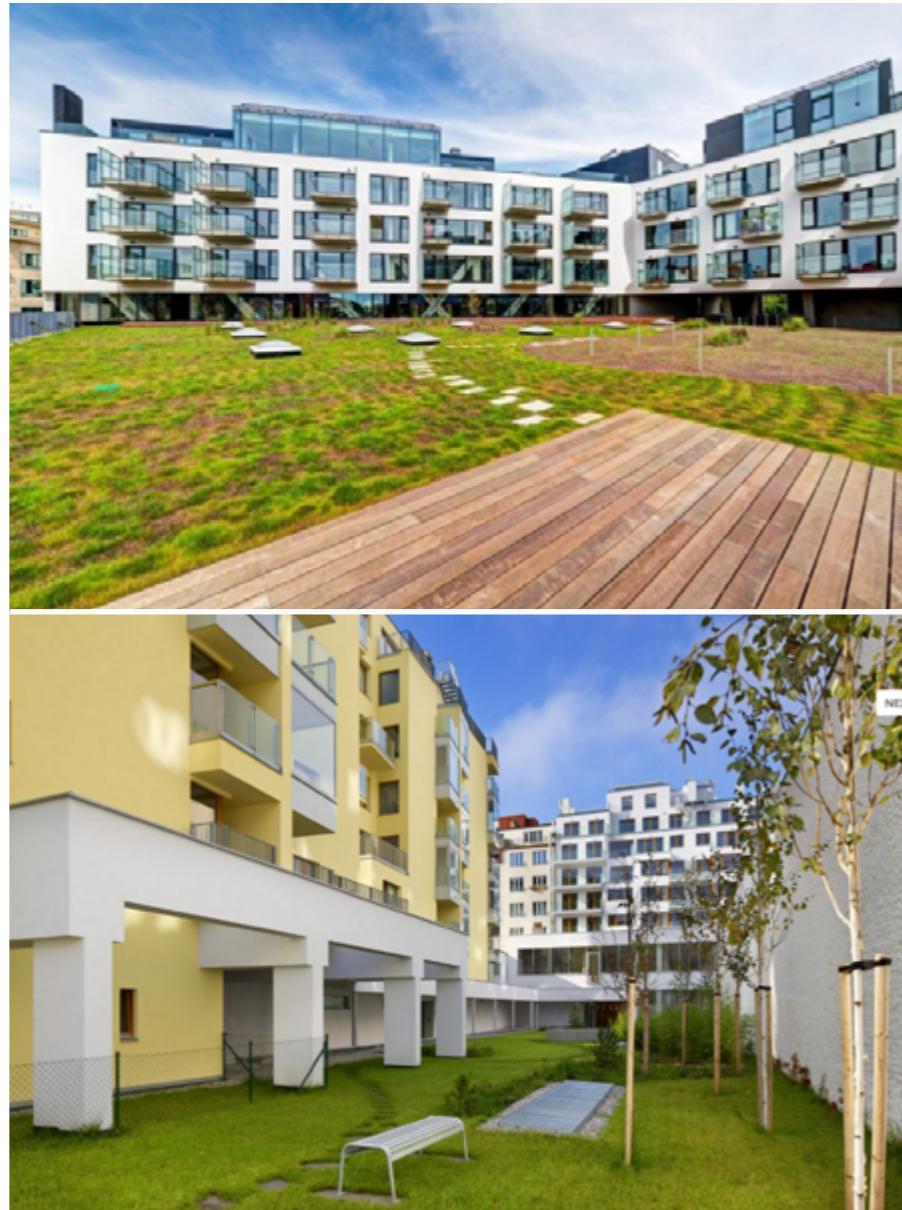


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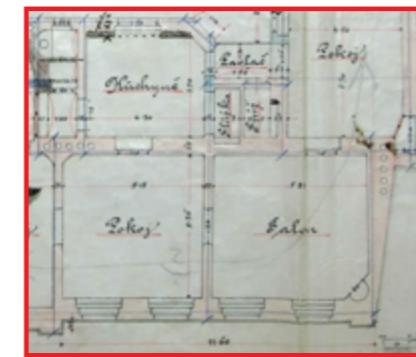
*involvement of architect*



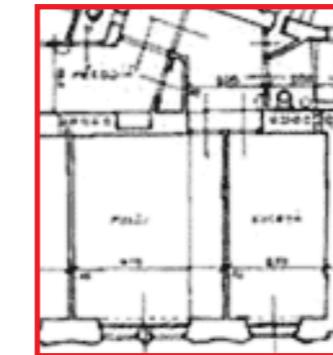
*obsolete zoning law*



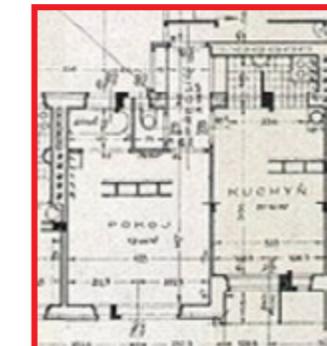
*poor dweller's demands = poor common spaces*



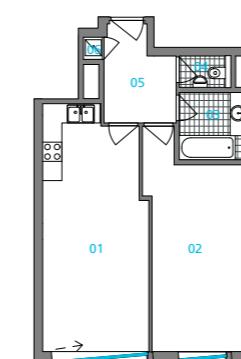
floorplan from 1887 | Václav Sigmund, Na Kocandě, Praha 1



floorplan from 1914 | Josef Chochol, rental apartments Hodek, Praha 2



floorplan from 1928 | Evžen Linhart, rental apartments, Praha 3



floorplan from 2016 | Jubileum House, Praha 7

*no progress in typology*



*marketing x reality*

■ ■ ■



How meaningful is the figure of the architect-developer in the building process in the Czech Republic?

Find out if and how is it possible to merge high quality architecture which can contribute to the built environment with the economical feasibility of such architectural project?

*research question & design goal*



research by design

## initial building phase

◆ inception of the idea / location idea

site & market research

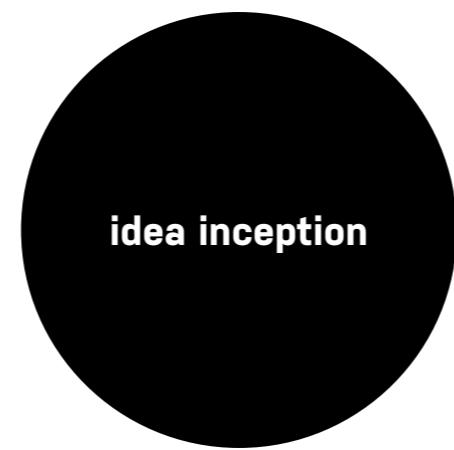
feasibility study

◆ site acquisition

function, program, volume

◆ site acquisition

design



◆ inception of the idea / location idea

site & market research

feasibility study

◆ site acquisition

*function, program, volume*

◆ site acquisition

design



◇ inception of the idea / location idea

site & market research

feasibility study

◇ site acquisition

*function, program, volume*

◇ site acquisition

design

- . constrains and challenges
- . unexpected location (refurbishment, narrow gap, noise, ...)
- . mix of functions
- . mix of private/public ownership and interest
- . potential for positive contribution of the building to the city life and environment
- . potential to create a profit

+

- . smallness of the development
- . rather low financial resources

*site selection specifics for the architect-developer*

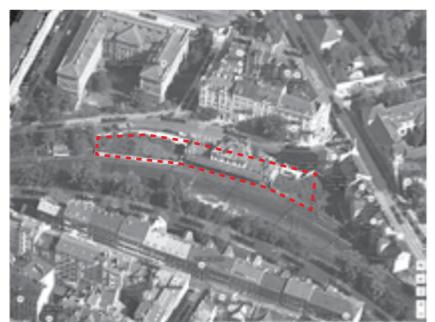


*Prague, Czech Republic*

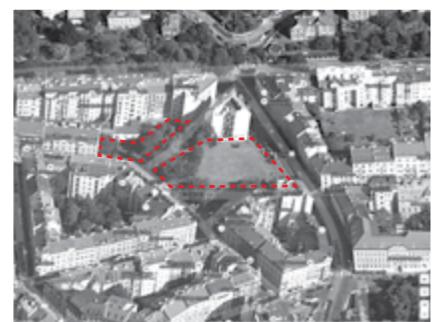




former substation



former train station



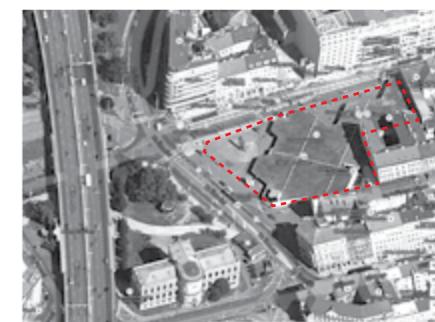
vacant lot



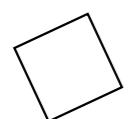
square which is  
a supermarket



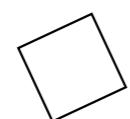
tram depot



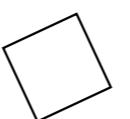
metro hub



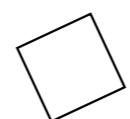
$340 \text{ m}^2$



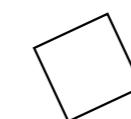
$2 180 \text{ m}^2$



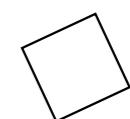
$3 144 \text{ m}^2$



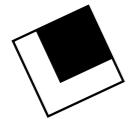
$1 600 \text{ m}^2$



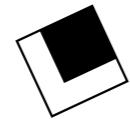
$8 330 \text{ m}^2$



$6 540 \text{ m}^2$



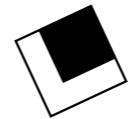
$340 \text{ m}^2$



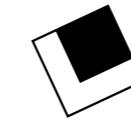
$1 040 \text{ m}^2$



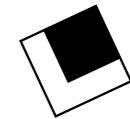
$1 665 \text{ m}^2$



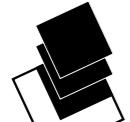
$1 600 \text{ m}^2$



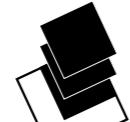
$5 610 \text{ m}^2$



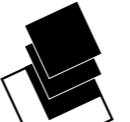
$4 850 \text{ m}^2$



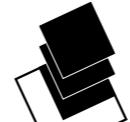
6



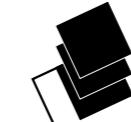
3



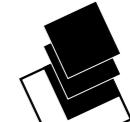
5



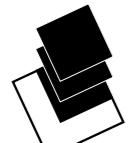
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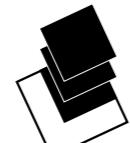
3



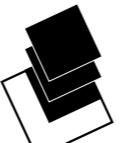
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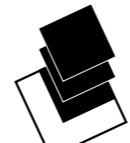
$2 040 \text{ m}^2$



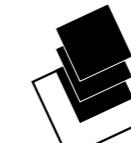
$3 120 \text{ m}^2$



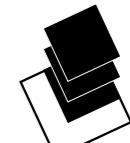
$8 325 \text{ m}^2$



$9 600 \text{ m}^2$



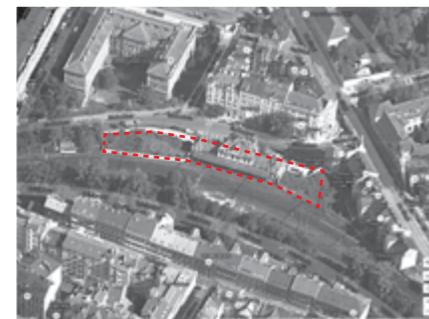
$16 830 \text{ m}^2$



$38 800 \text{ m}^2$



former substation



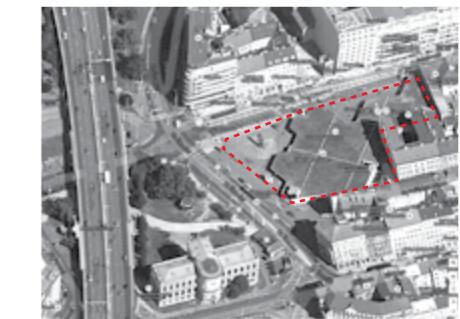
former train station



vacant lot

square with  
a supermarket

tram depot



metro hub



2 689 000 €



12 437 000 €



24 194 000 €



18 933 000 €



54 060 000 €



115 290 000 €

**3 489 000 €**

9 778 000 €



29 595 000 €



24 439 000 €



59 830 000 €



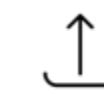
101 694 000 €

**800 000 €**

- 2 659 000 €



5 401 000 €



5 506 000 €



5 770 000 €



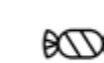
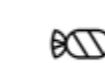
- 13 594 000 €

**30 %**

- 21 %



22 %

**29 %**

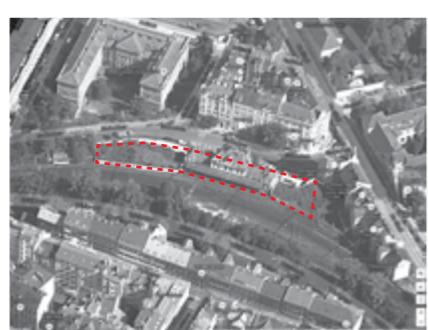
11 %



-12 %



former substation



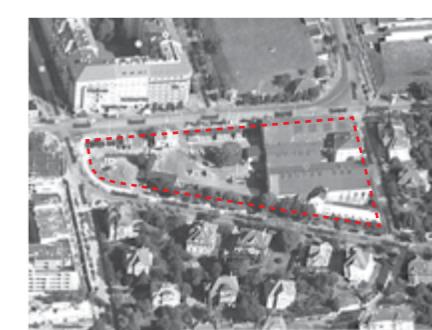
former train station



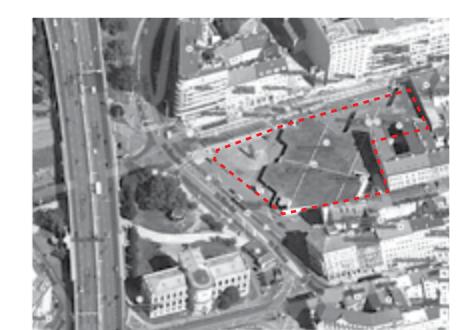
vacant lot



square with  
a supermarket



tram depot



metro hub

*reasonable size*

*strong heritage*

*still too big*

*too attractive site*

*too big*

*too big*

*old x new*

*not suitable  
for dwelling*

*too little  
challenging*

*ownership issues*

*mostly dwelling*

*office district  
location*

*mix of functions*

*hard to  
mix functions*

*hard to  
mix function*

*no revenue*

*no revenue*





◆ inception of the idea / location idea

site, building & market research

feasibility study

◆ site acquisition

*function, program, volume*

◆ site acquisition

design

built: 1960's  
owner: City of Prague



former substation

recent use [until 2012]: experimental theater



experimental theater group "Farm in the Cave"

- . the building needs renovation in order to host any program
- . desire to maintain the public [cultural] non-profitable use from the municipality and the users (the theater group and the public)
- . missing finances
- . possible higher running costs while in need to combine more functions under "one roof"

*conflict*

. mix **public [cultural] non-profitable use** [the theater] with **commercial, private or any other use** which would allow to finance the redevelopment of the property

*opportunity*



◇ inception of the idea / location idea

site & building research

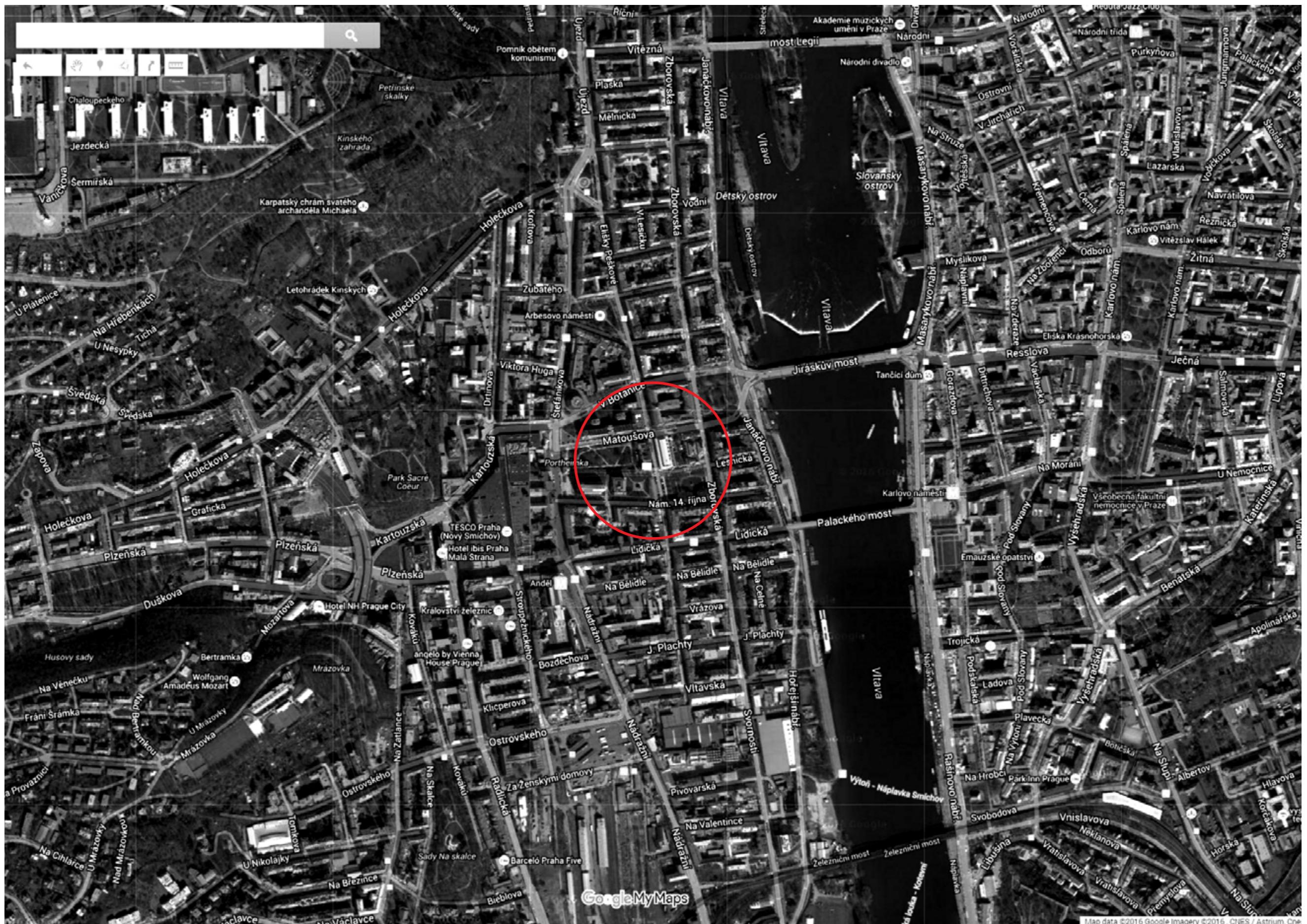
feasibility study

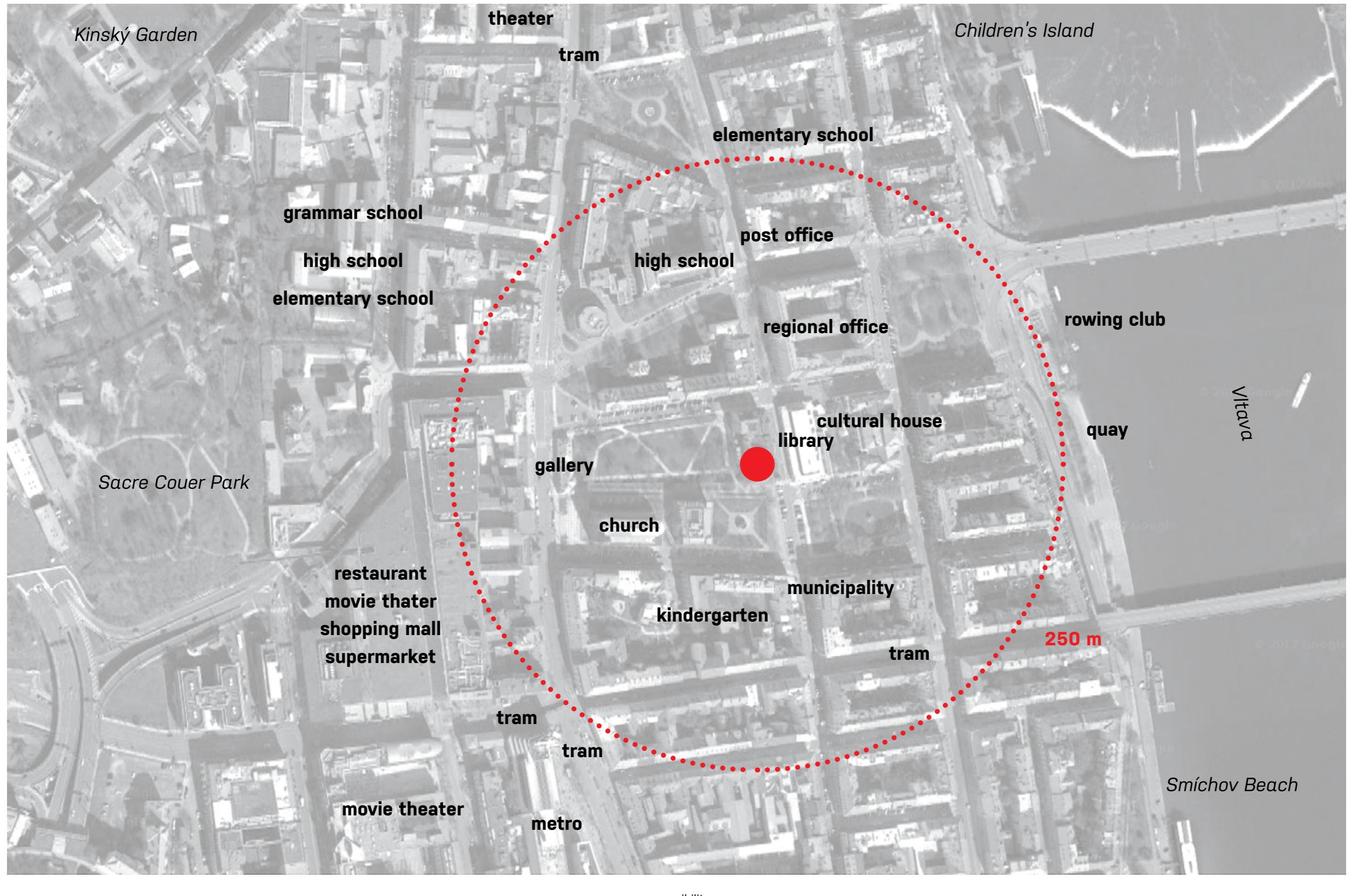
◇ site acquisition

*function, program, volume*

◇ site acquisition

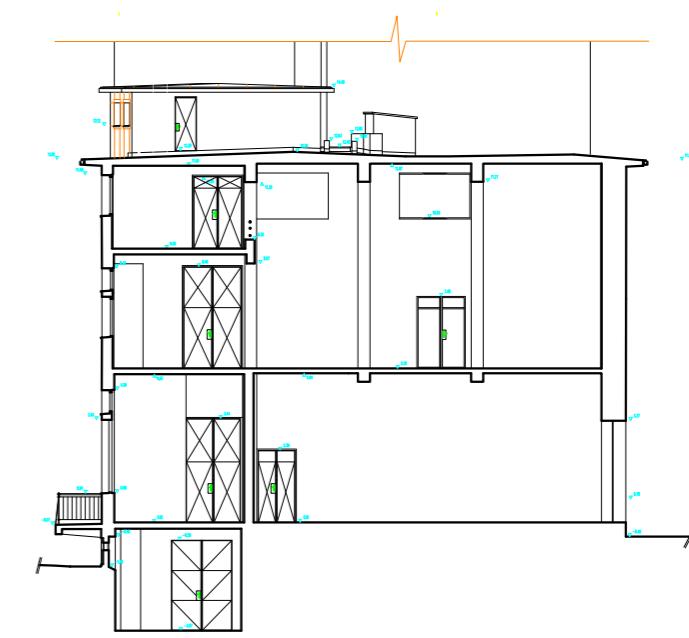
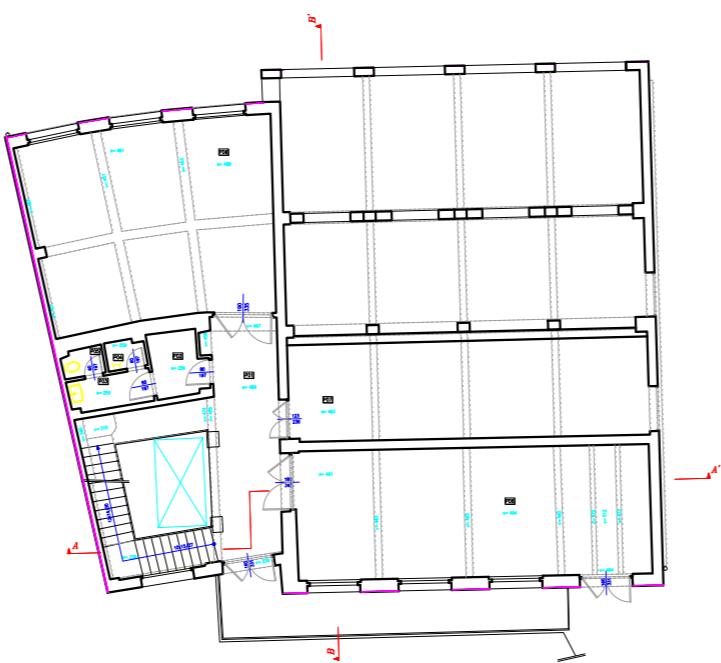
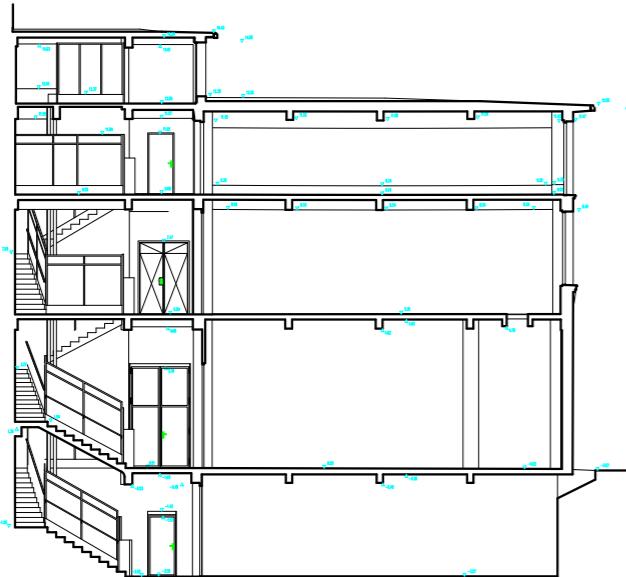
design





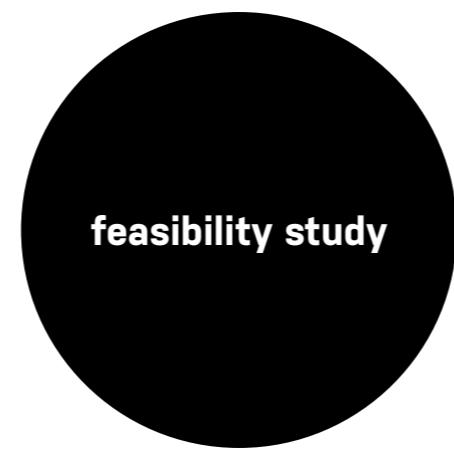






substation





◇ inception of the idea / location idea

site, building & market research

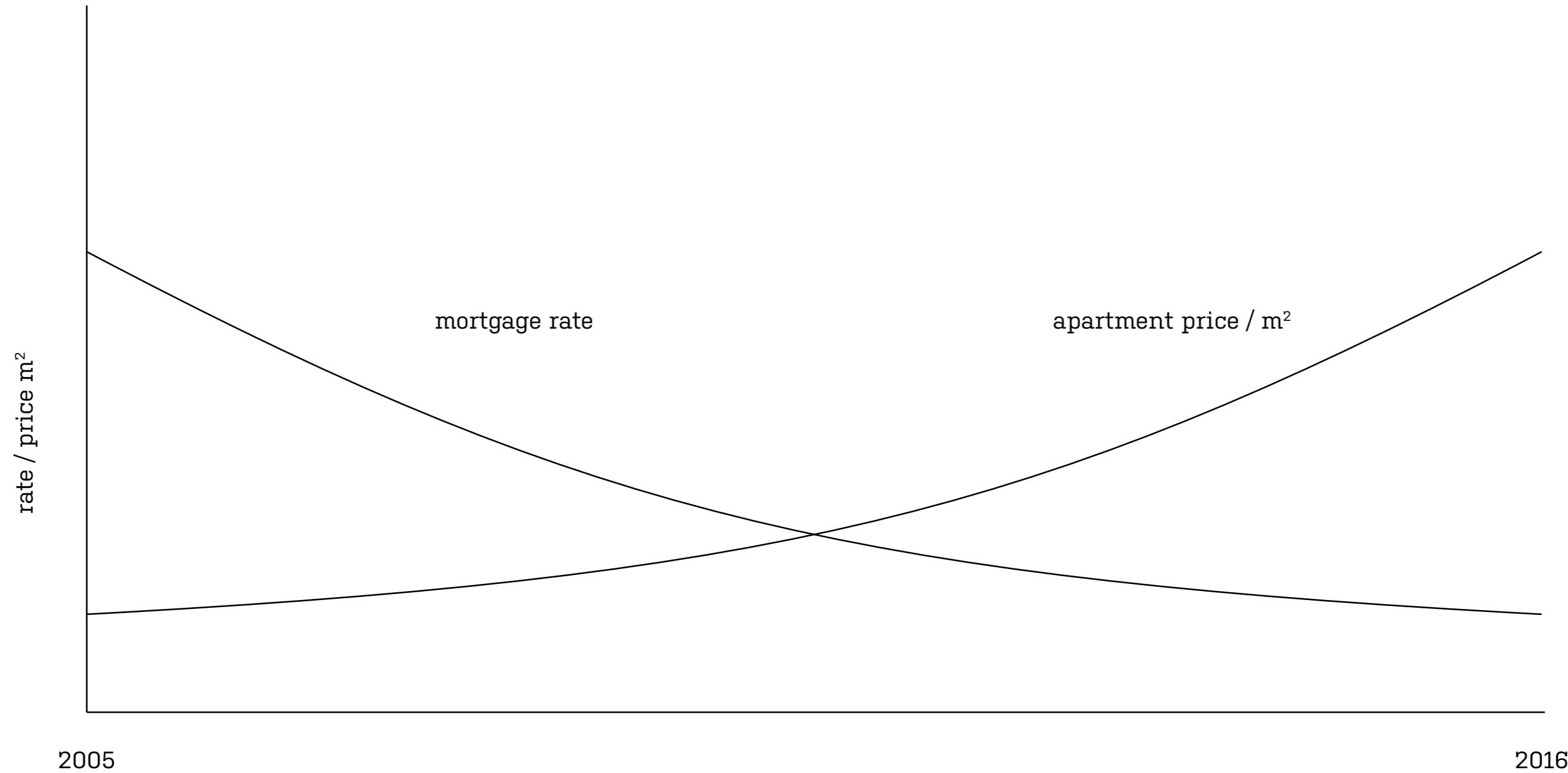
feasibility study

◇ site acquisition

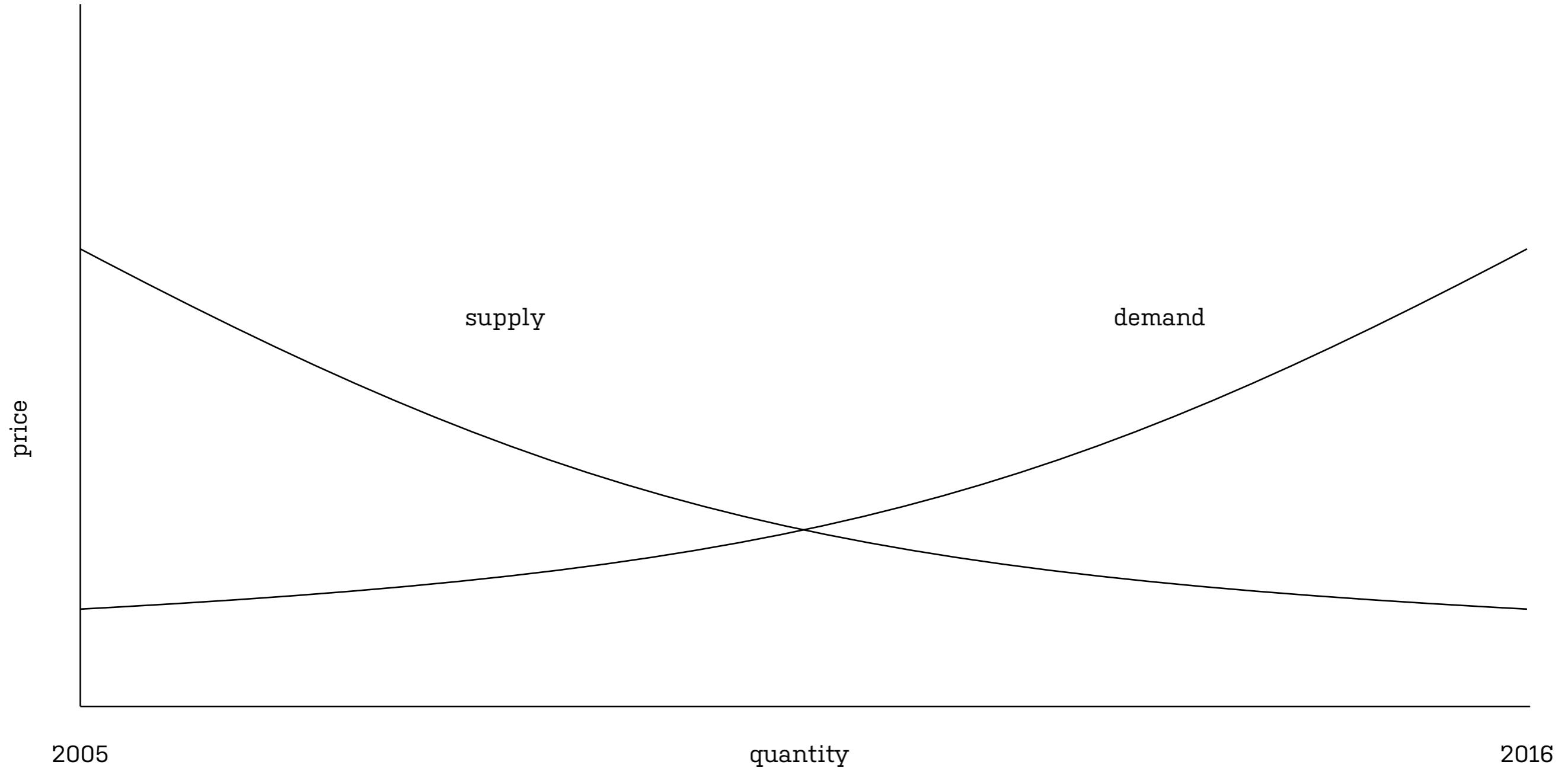
*function, program, volume*

◇ site acquisition

design

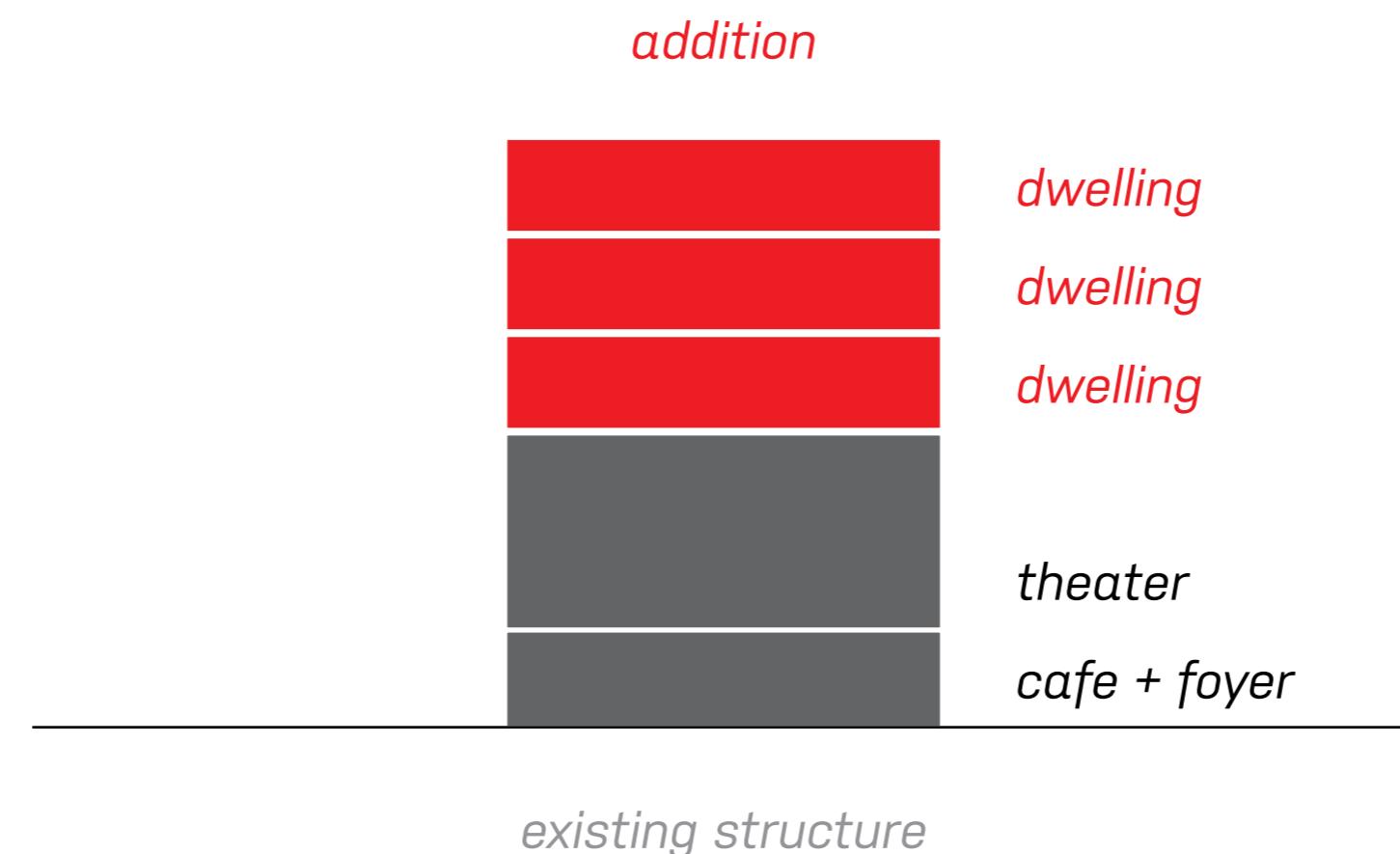


residential real estate market: mortgage rates x apartment prices



residential real estate market: supply x demand

*initial building program*



*municipality provides the site for development*

+

*theater + cafe participation on the running costs and maintenance*

+

*3 floors*

*720 m<sup>2</sup> NIA [UFA]*

*80 000,- Kč/m<sup>2</sup> [ 3 000,- €/m<sup>2</sup> ]*

+

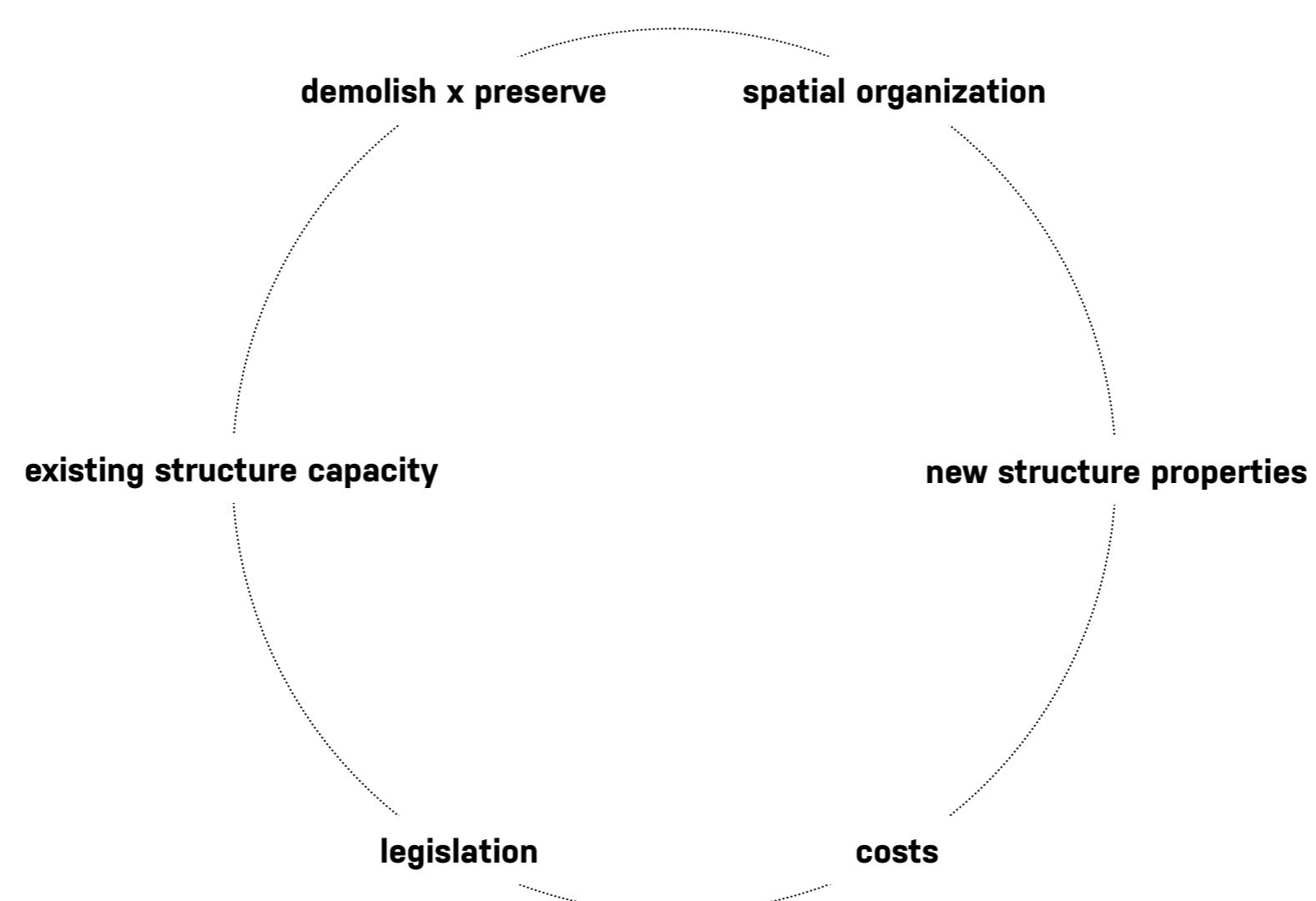
*renovation of the existing building*

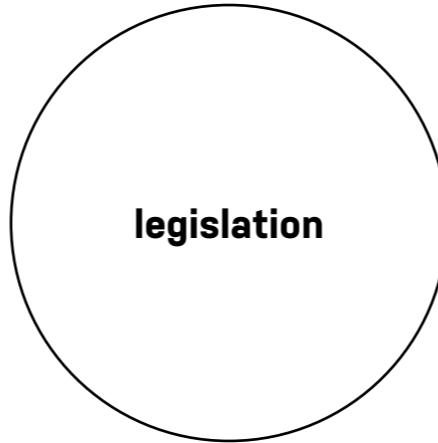
*and adaptation into theater, cafe and foyer*

---

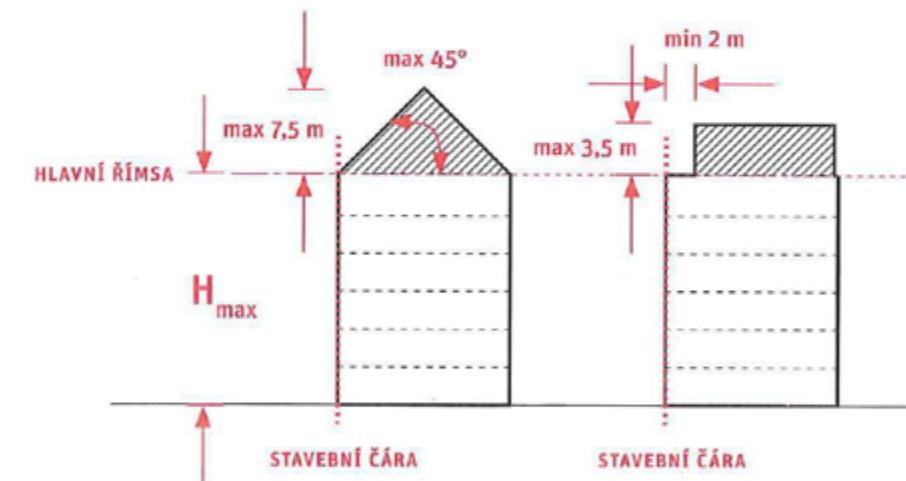
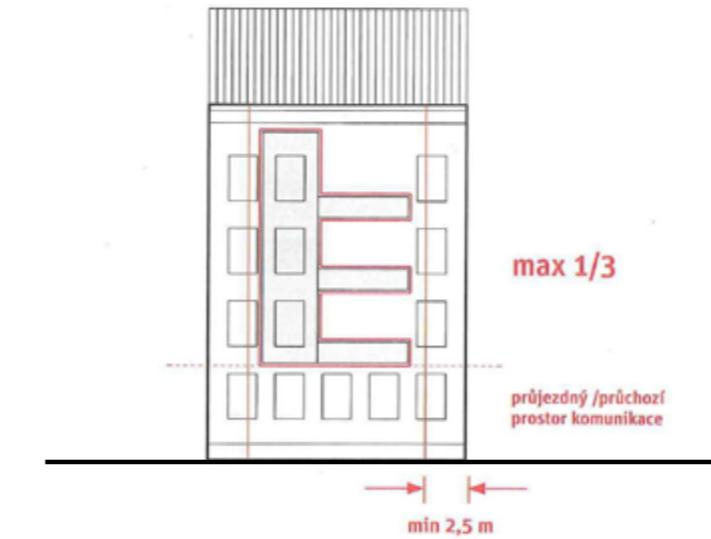
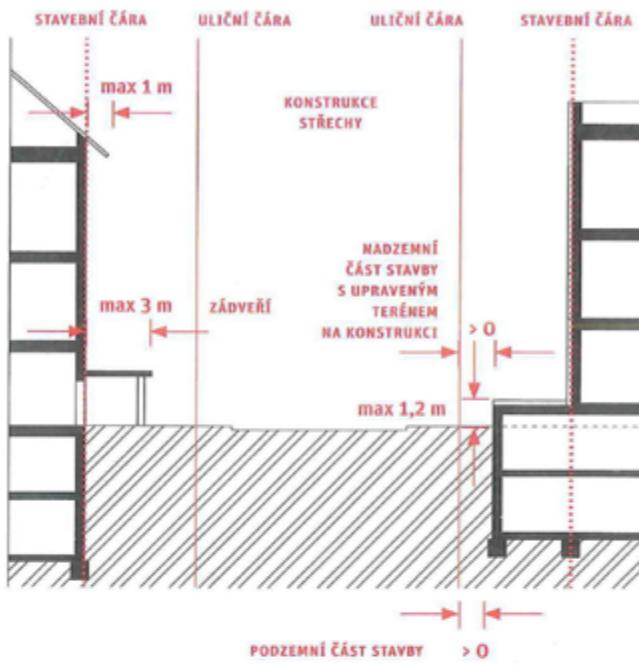
*19 % revenue*

*initial financial feasibility check*



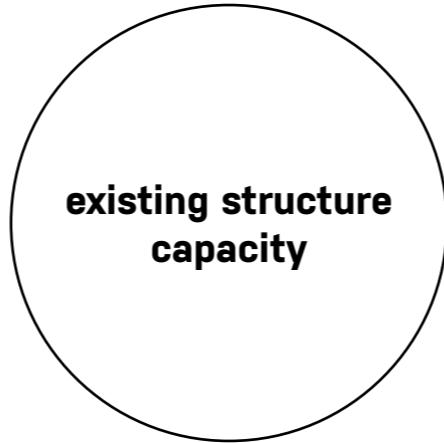


**legislation**



*building line x street line x property line, height regulation [Pražské stavební předpisy]*

How to maximize the volume [profit] of the building and remain within the building code boundaries?



**existing structure  
capacity**

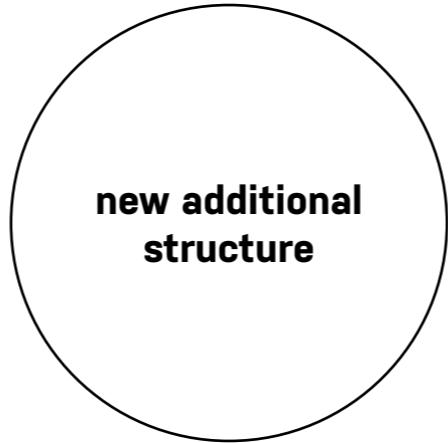
*addition*



*MAX + 1 1/2 floor*

*existing structure*

*carrying capacity of the existing load bearing structure*



**new additional  
structure**

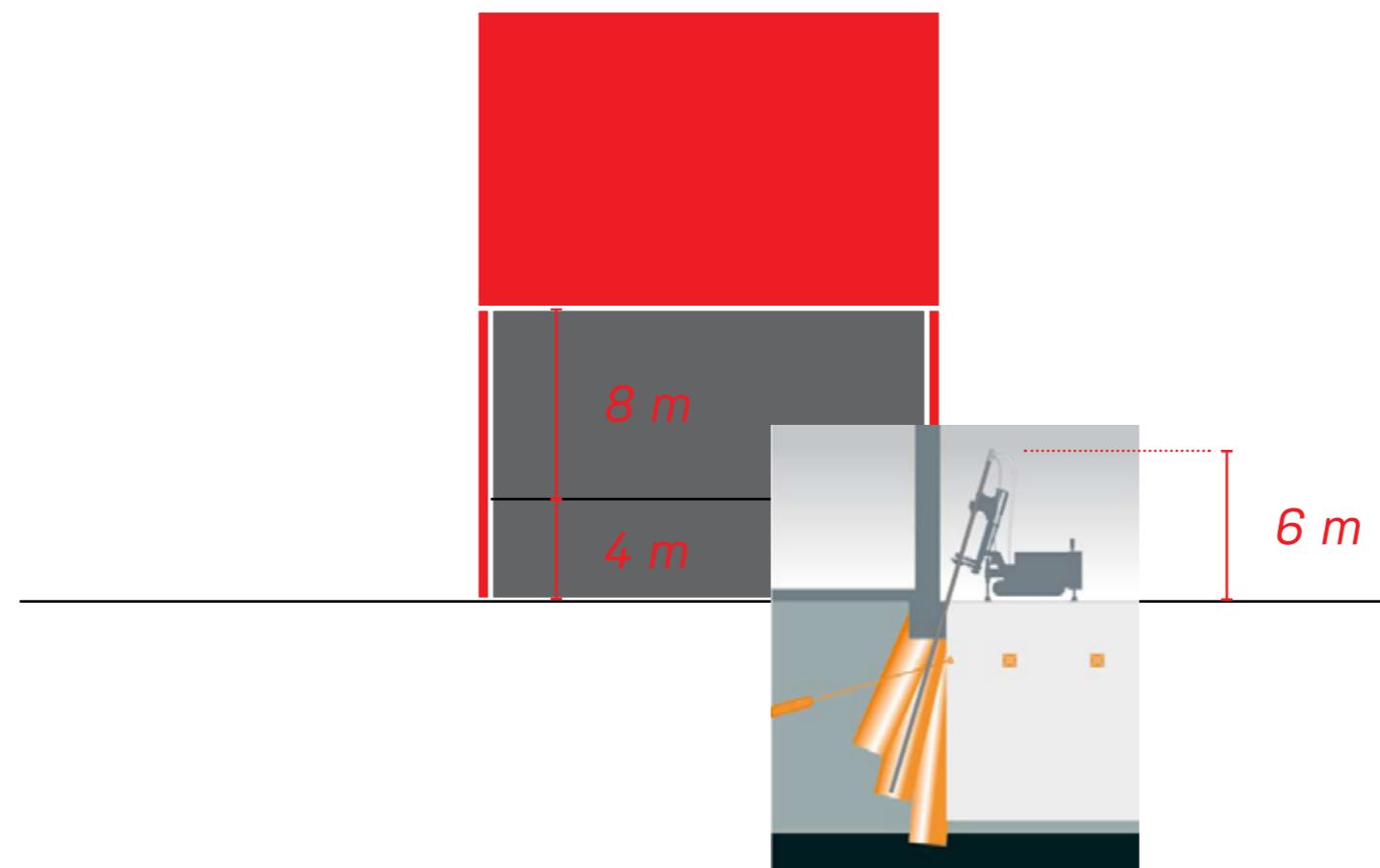
*addition*



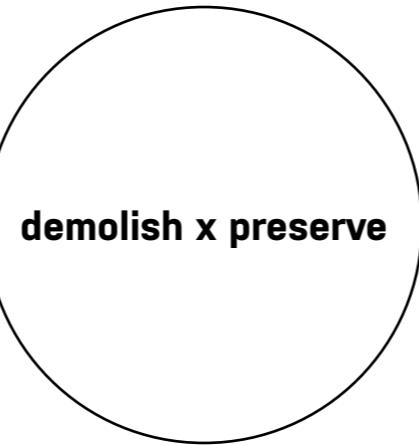
*existing structure*

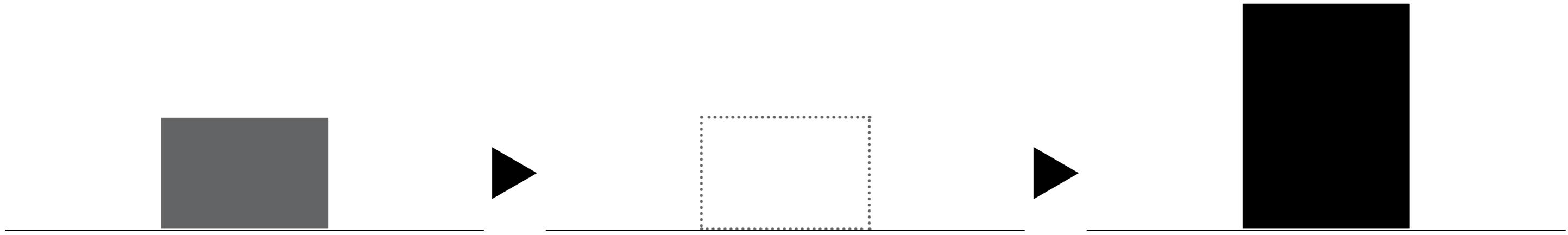


*new load bearing structure outside of the existing building*

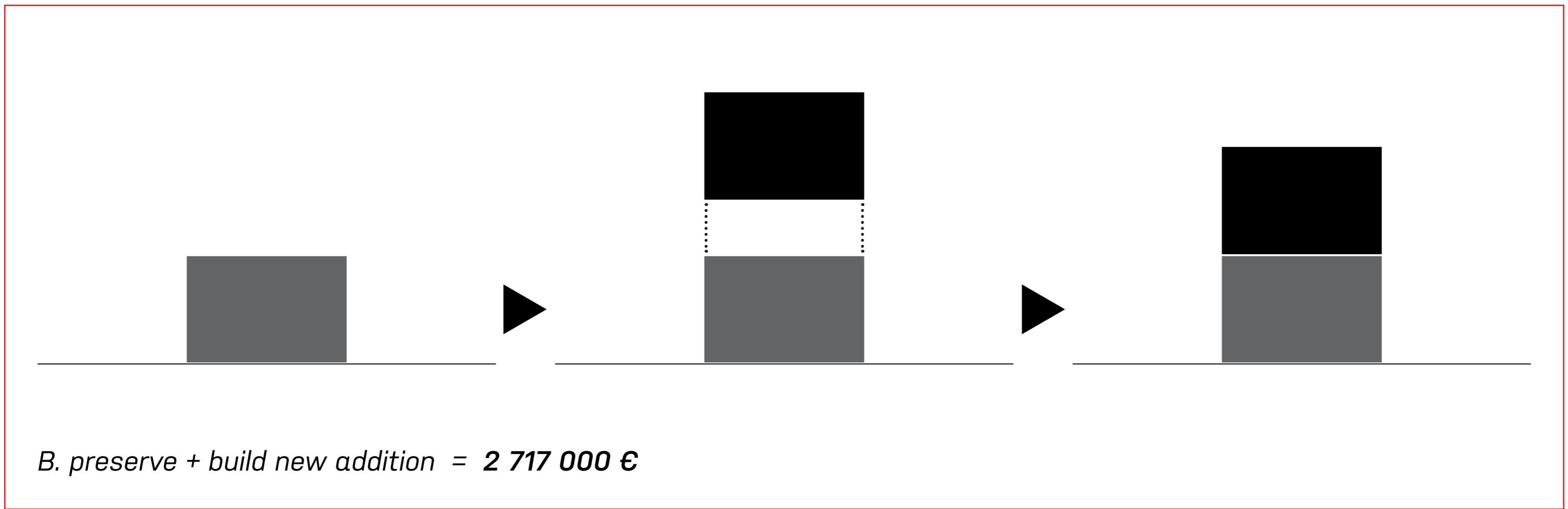


*new load bearing structure outside of the existing building*

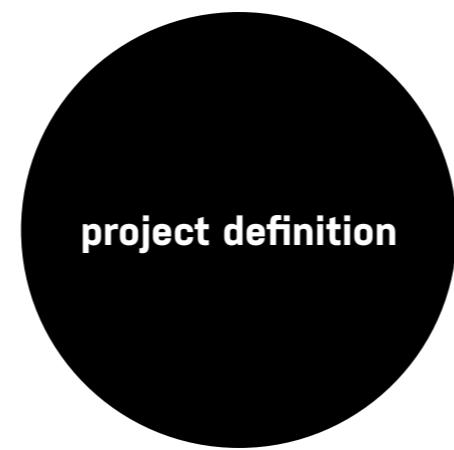




A. *demolish + build all new building* = 3 065 000 €



B. *preserve + build new addition* = 2 717 000 €



◇ inception of the idea / location idea

site, building & market research

feasibility study

◆ site acquisition

*function, program, volume*

◆ site acquisition

design

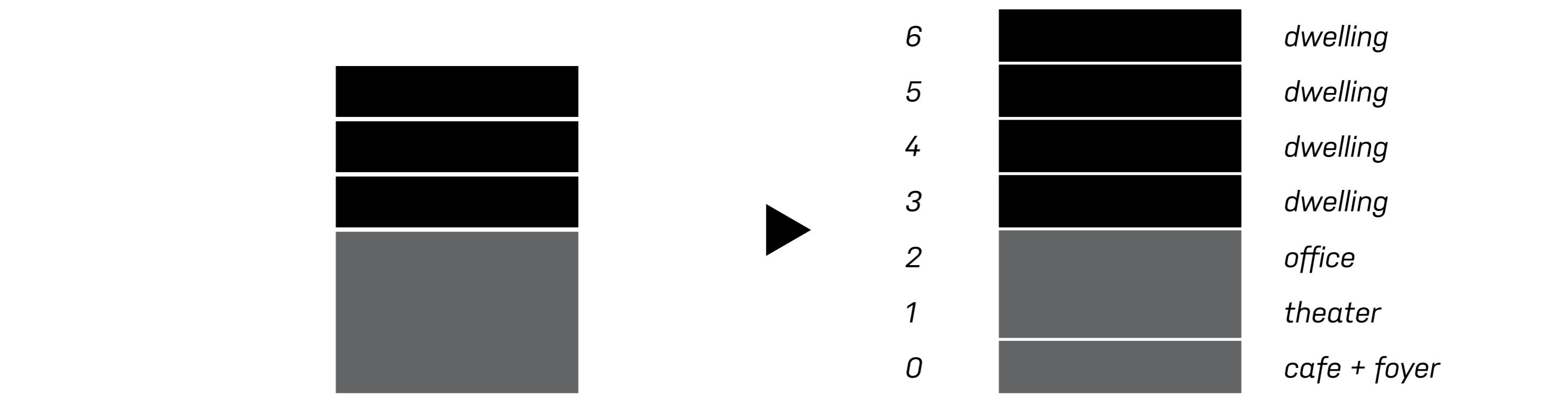
*dwelling's profile*

1 room: 18 %  
2 room: 36 %  
3 room: 28 %  
4 room: 12 %

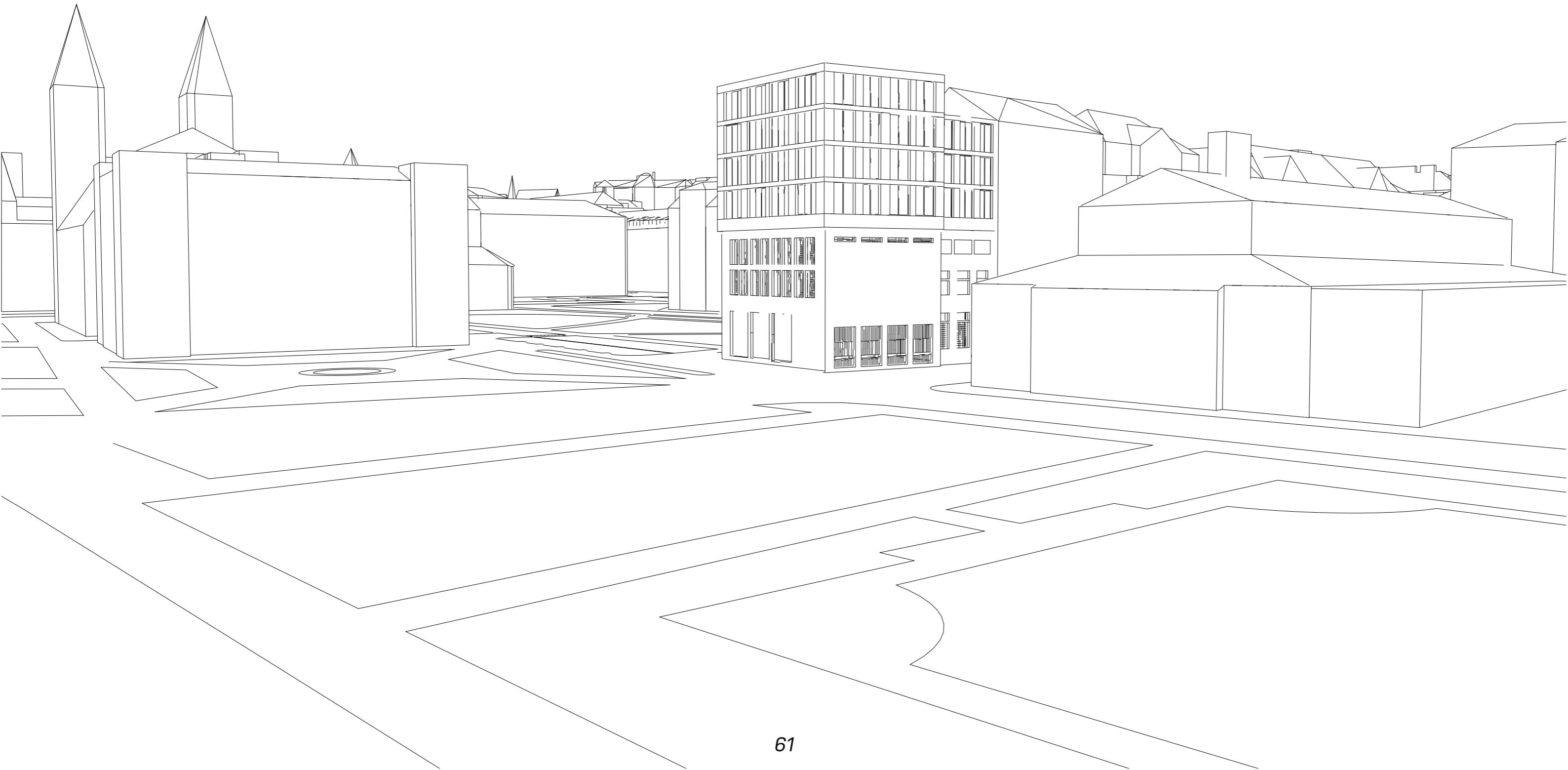
1 room: 35 m<sup>2</sup>  
2 room: 58 m<sup>2</sup>  
3 room: 85 m<sup>2</sup>  
4 room: 107 m<sup>2</sup>

*dwelling's size*

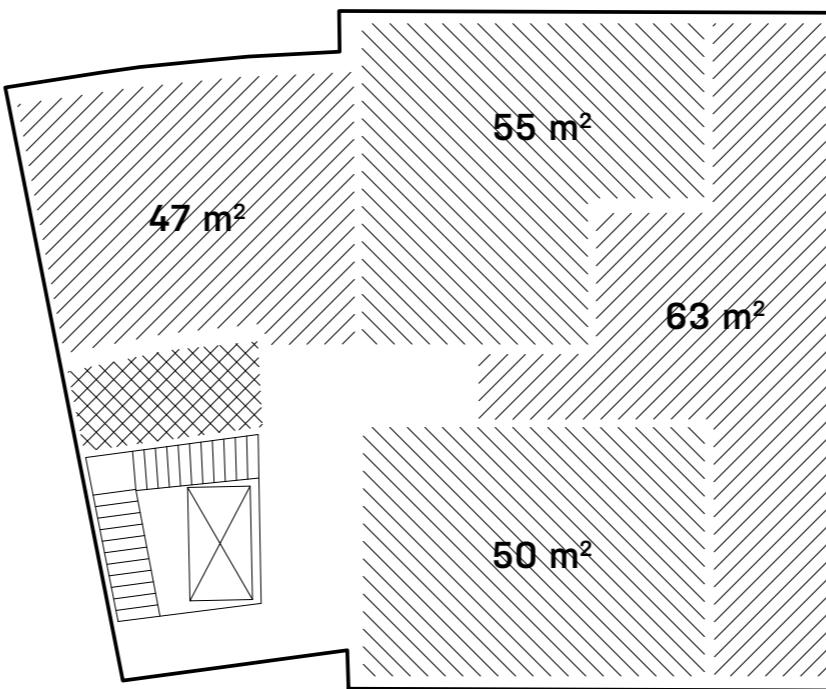
Additional structure around the building requires another floor of apartments.



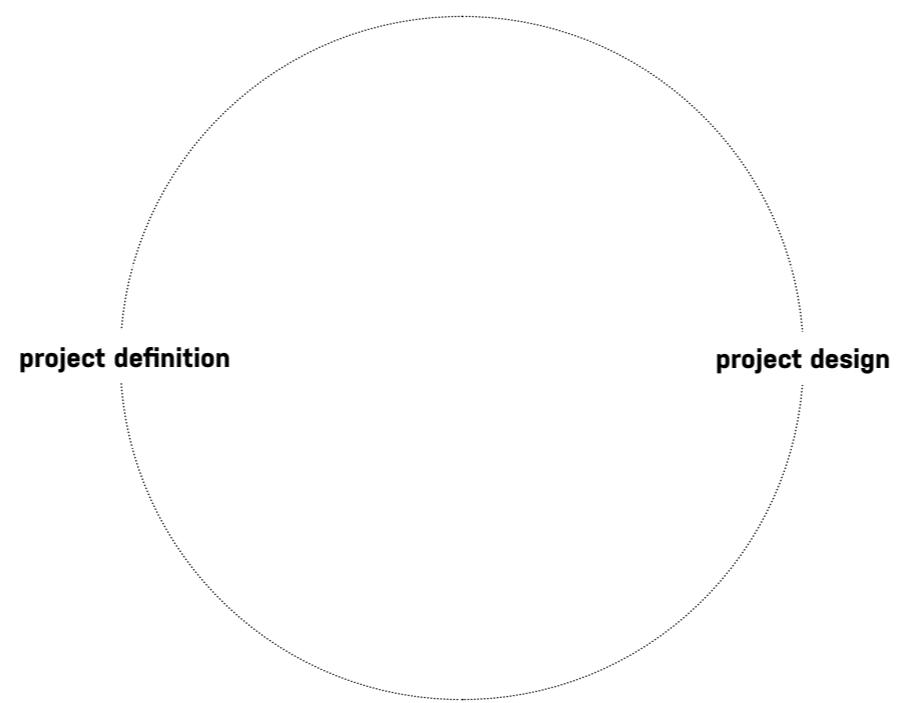
*program*



apartments total usable floor area [4 floors]: 813 m<sup>2</sup>



*apartments initial estimate*

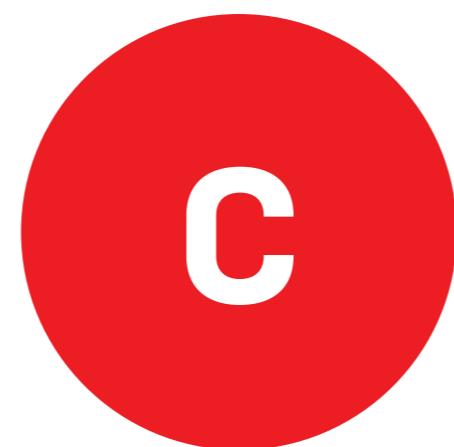


- . location of functions within the building
- . volume based on an legislation, aesthetics, economics and program
- . idea of the appearance of the building and its typologies

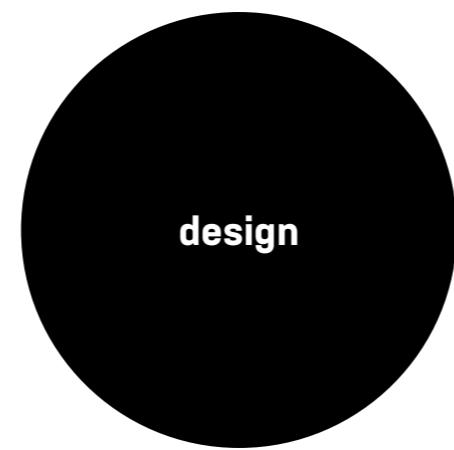
target group:

[because of the type of mix use, size of the building, central location]

young professionals, young families, culture and city life lovers



design



◇ inception of the idea / location idea

site, building & market research

feasibility study

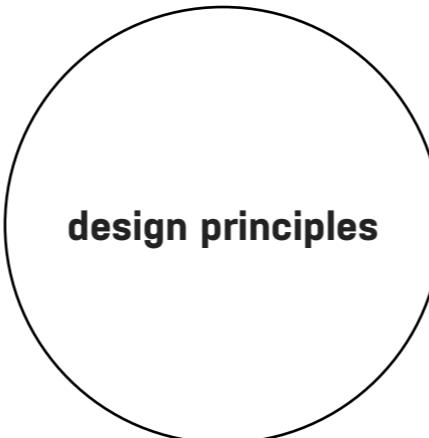
◇ site acquisition

*function, program, volume*

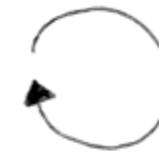
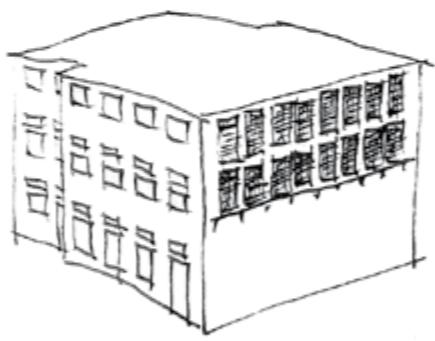
◇ site acquisition

design

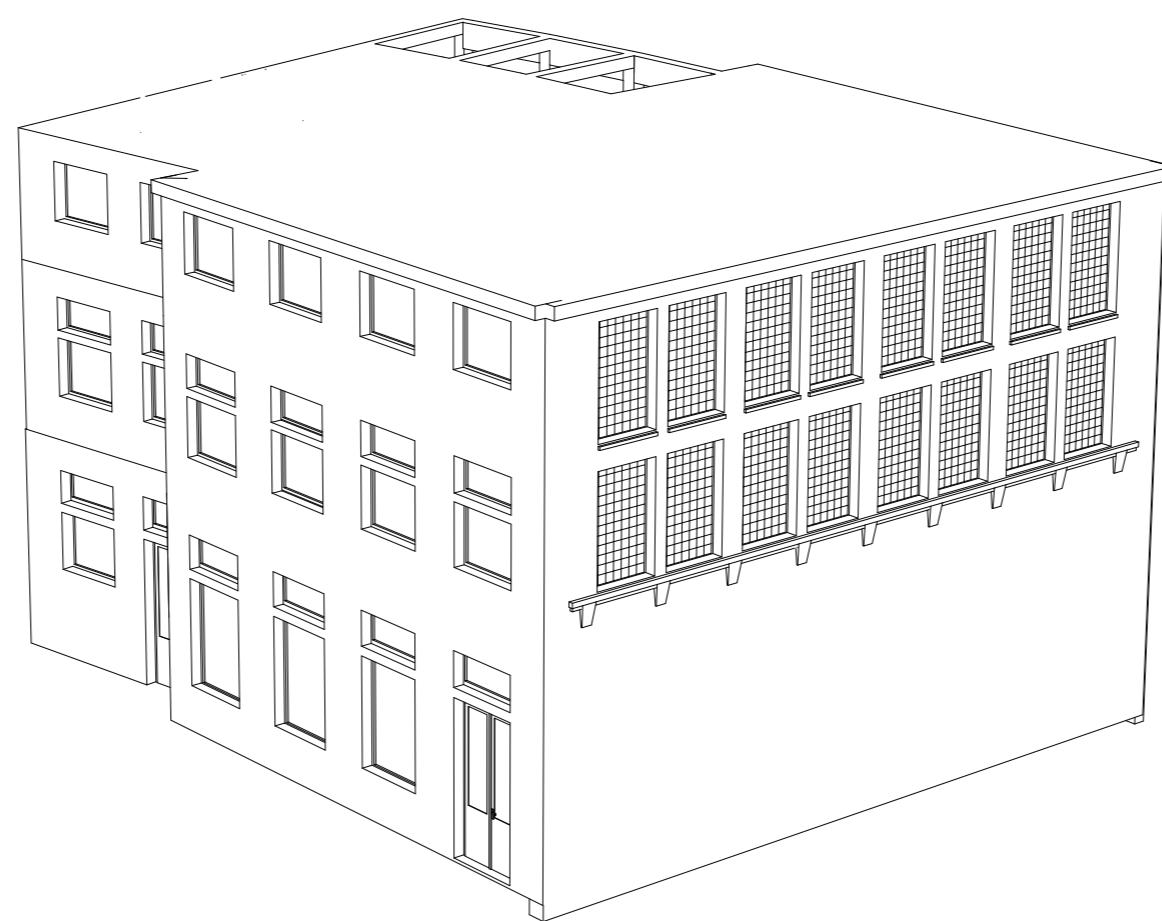


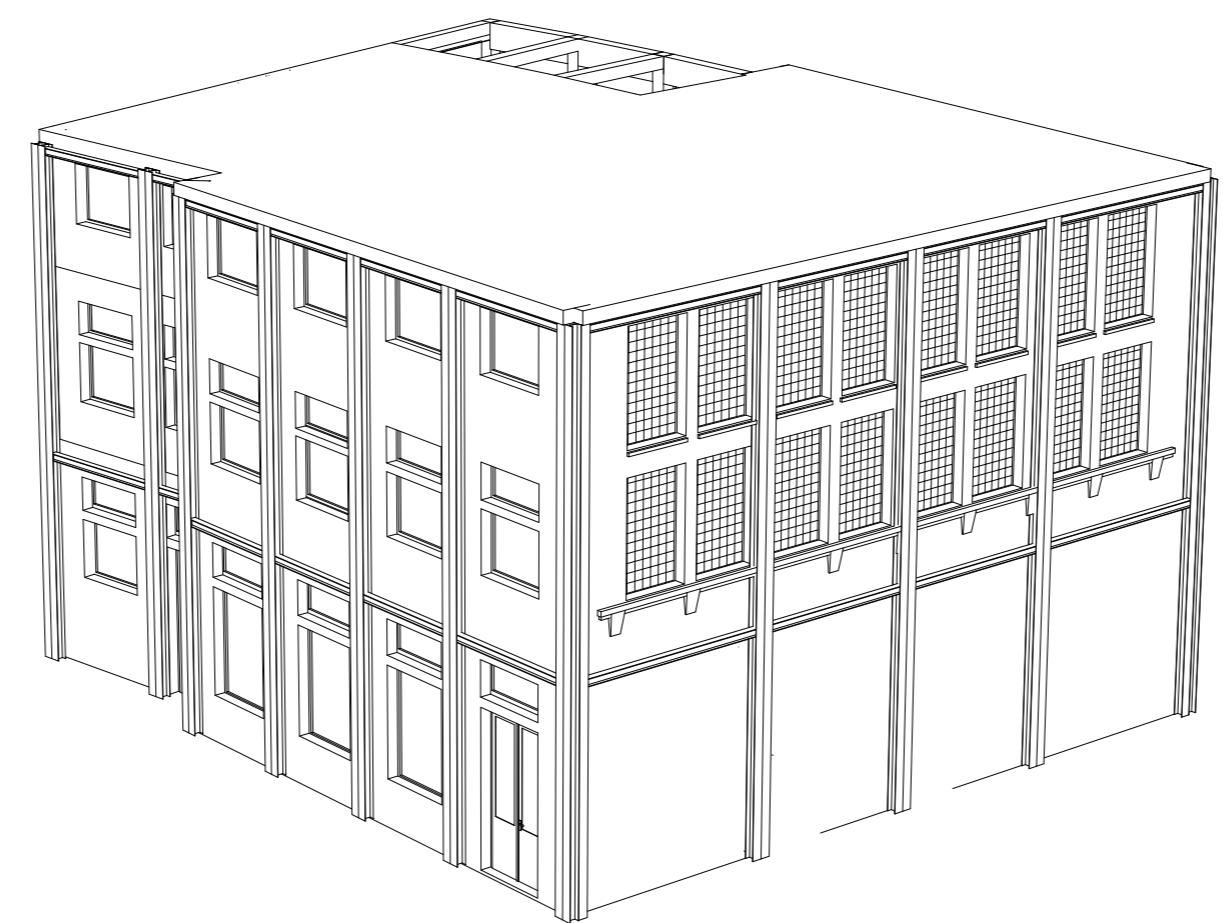


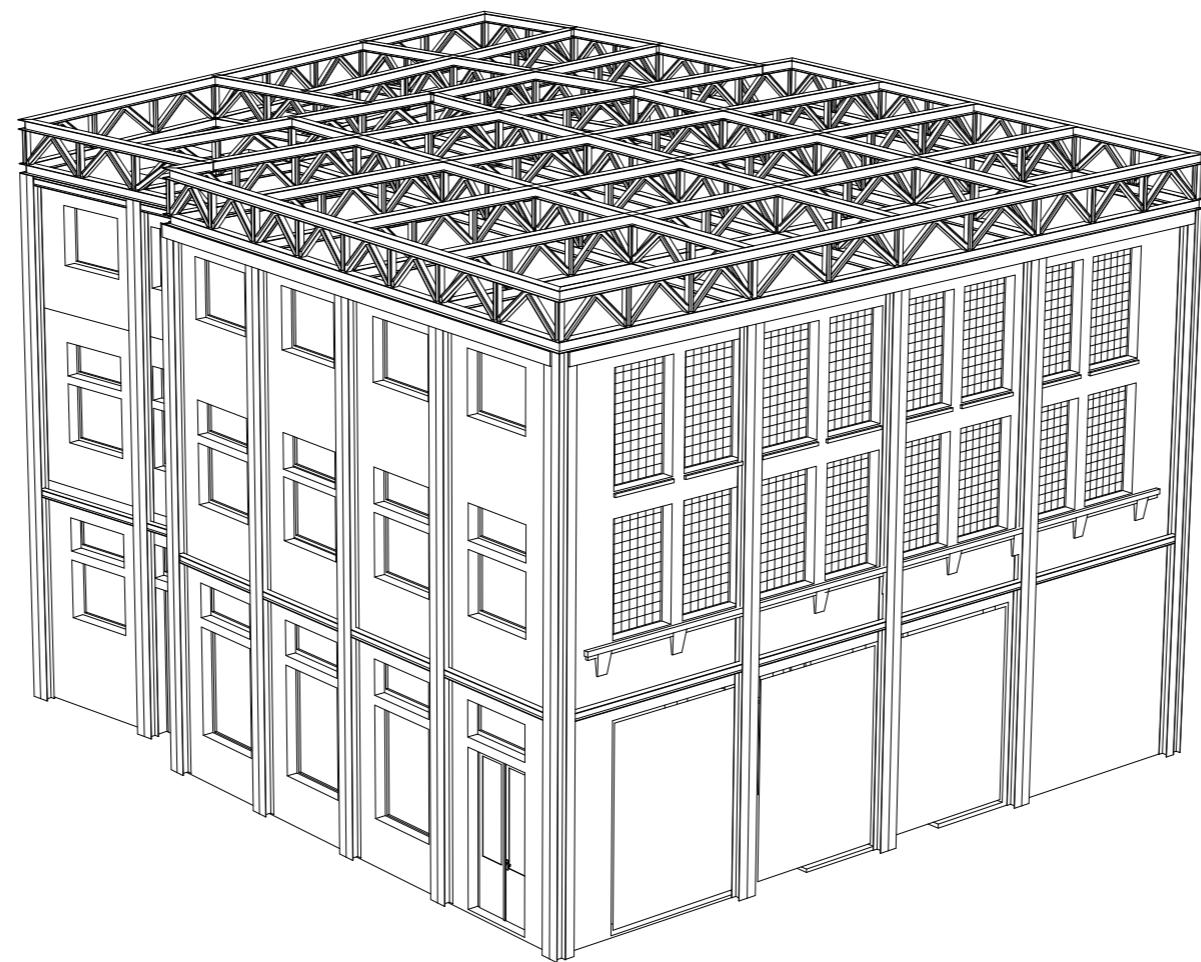
**design principles**

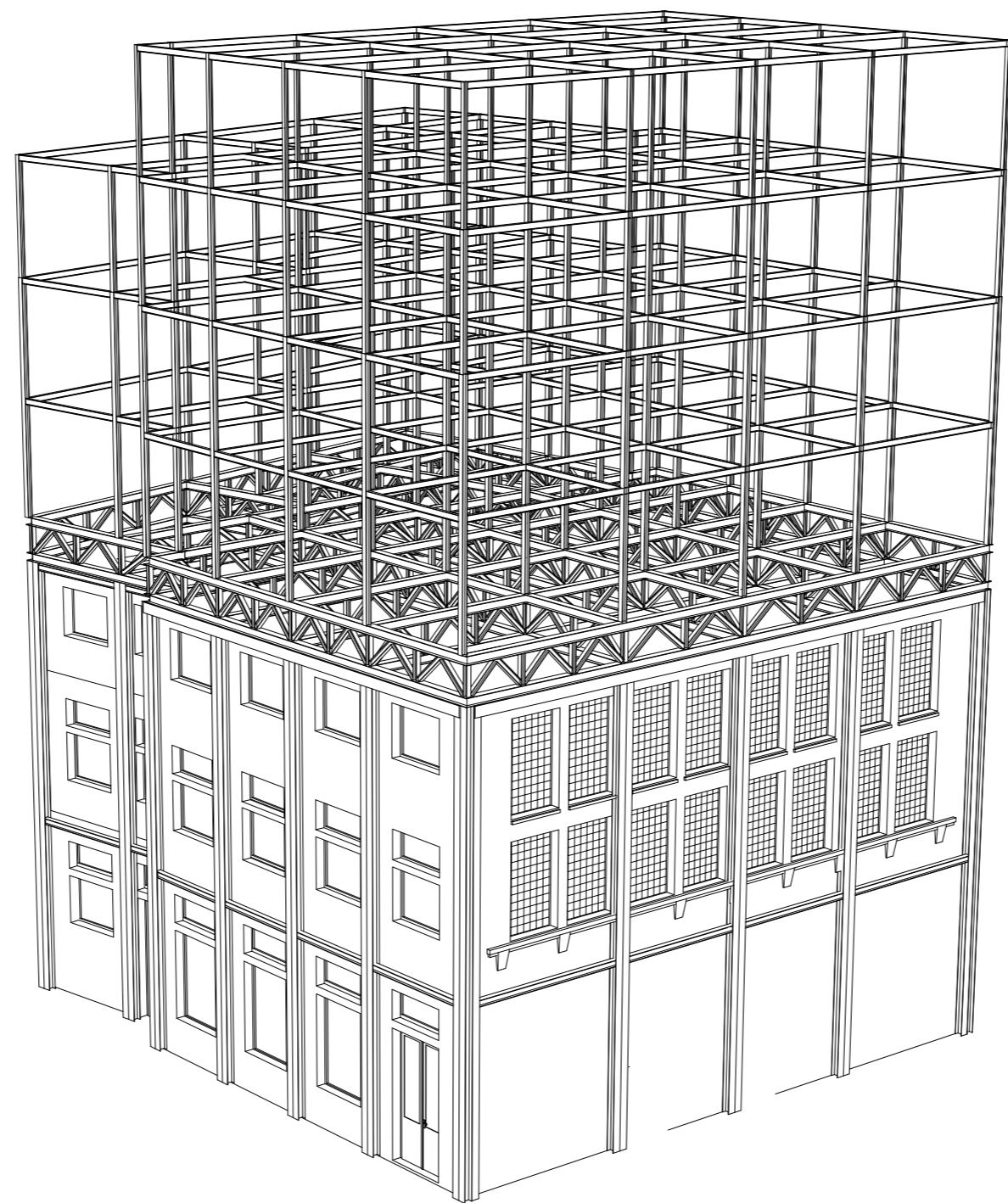


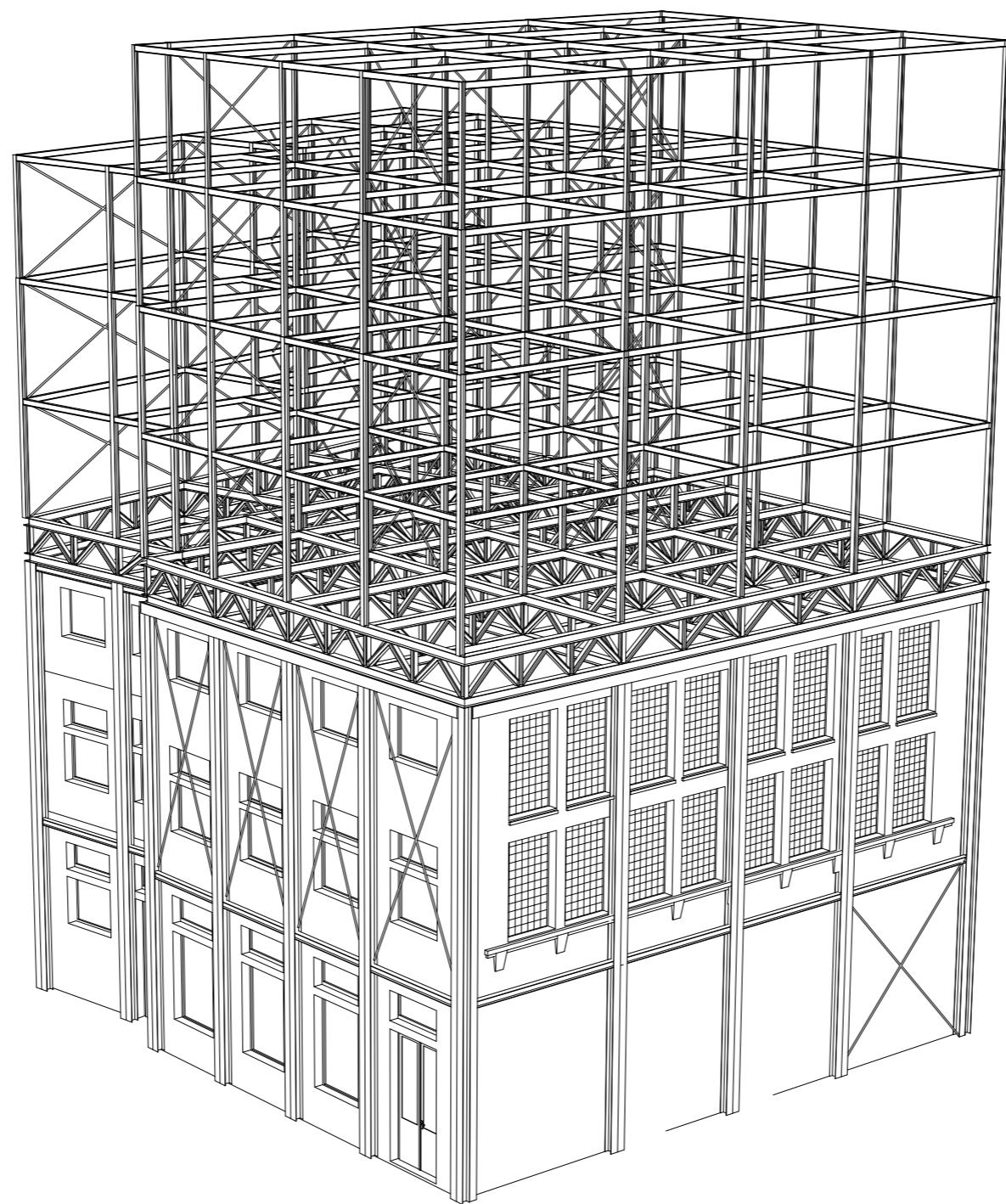
*re-use*

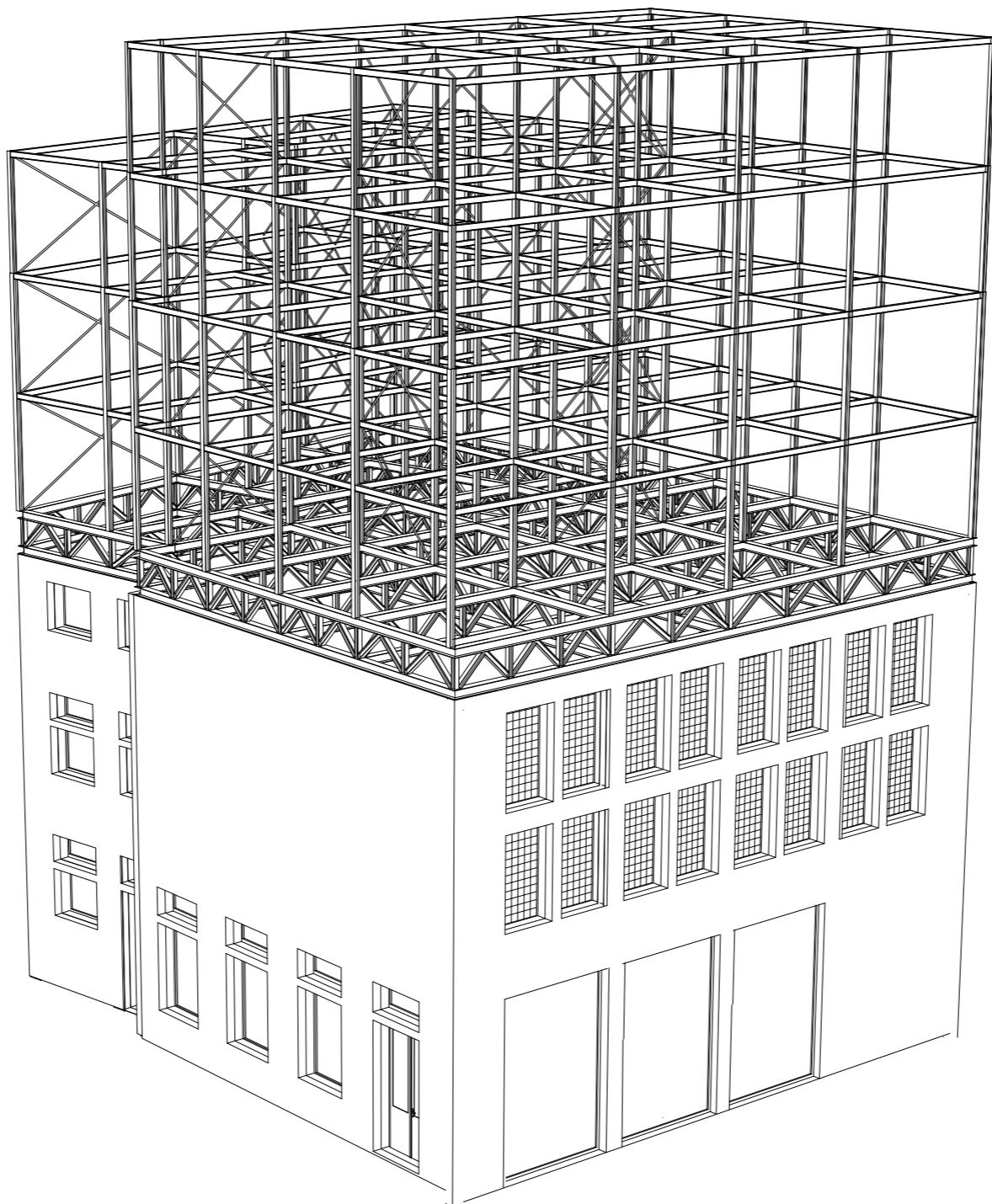


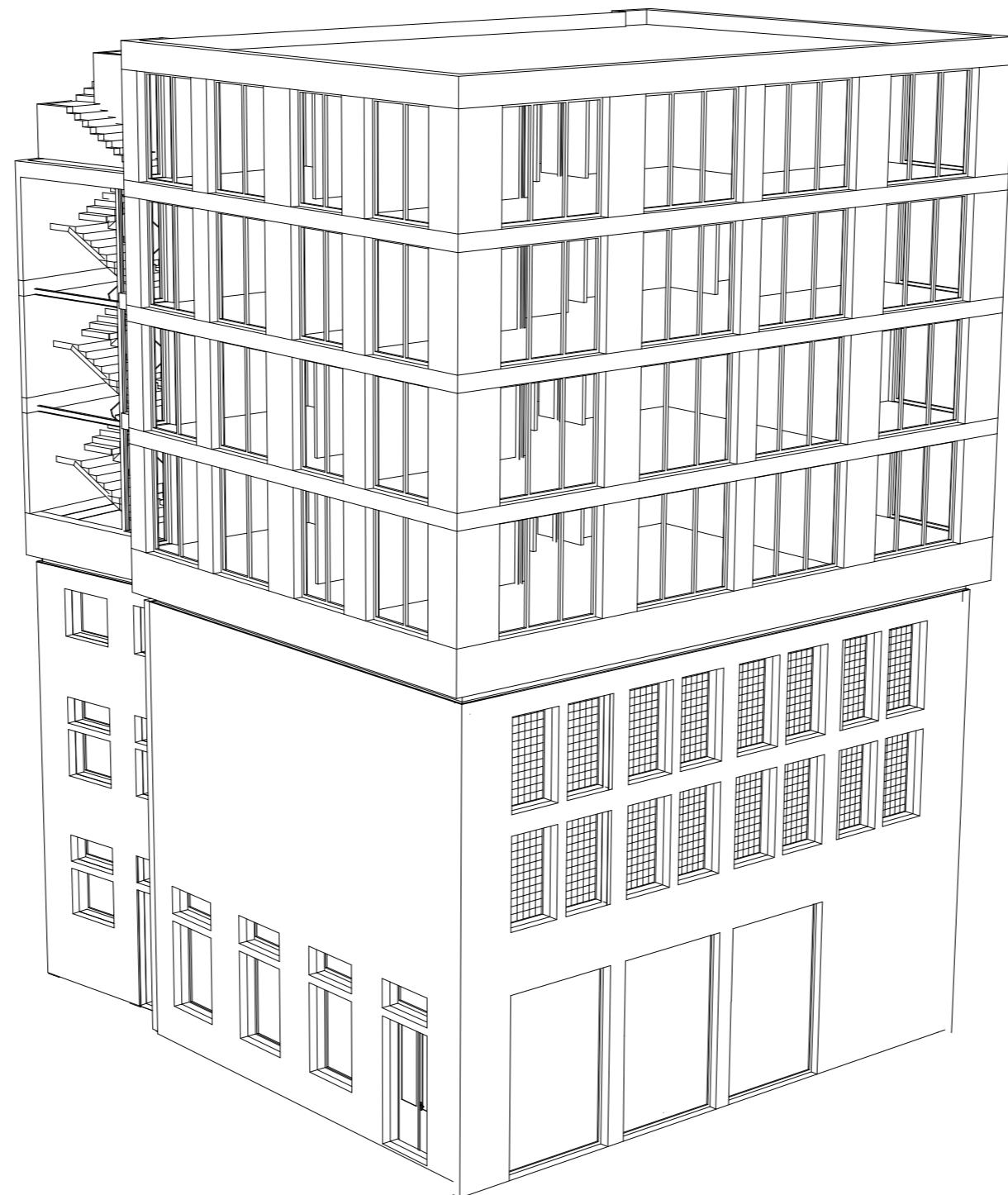


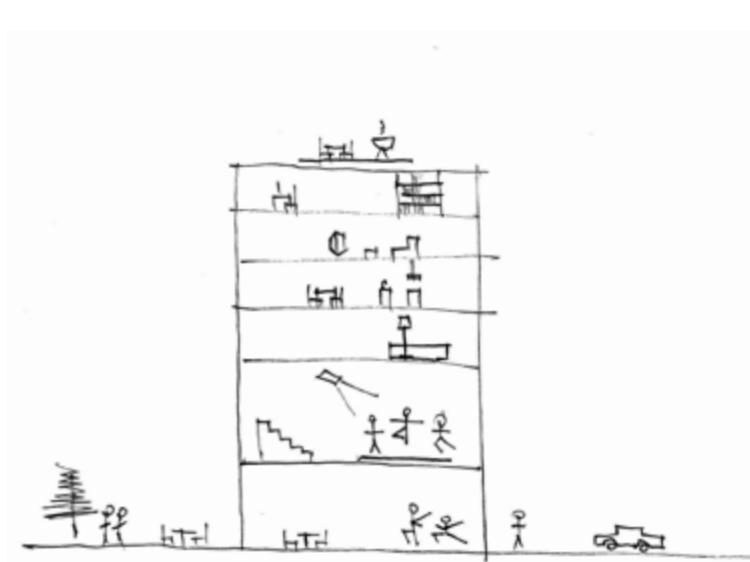








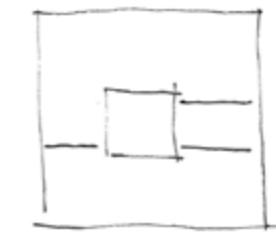
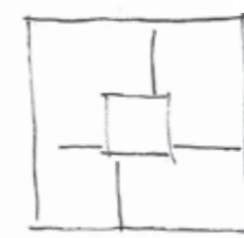
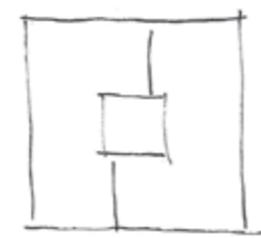
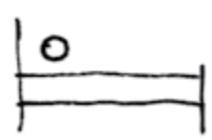




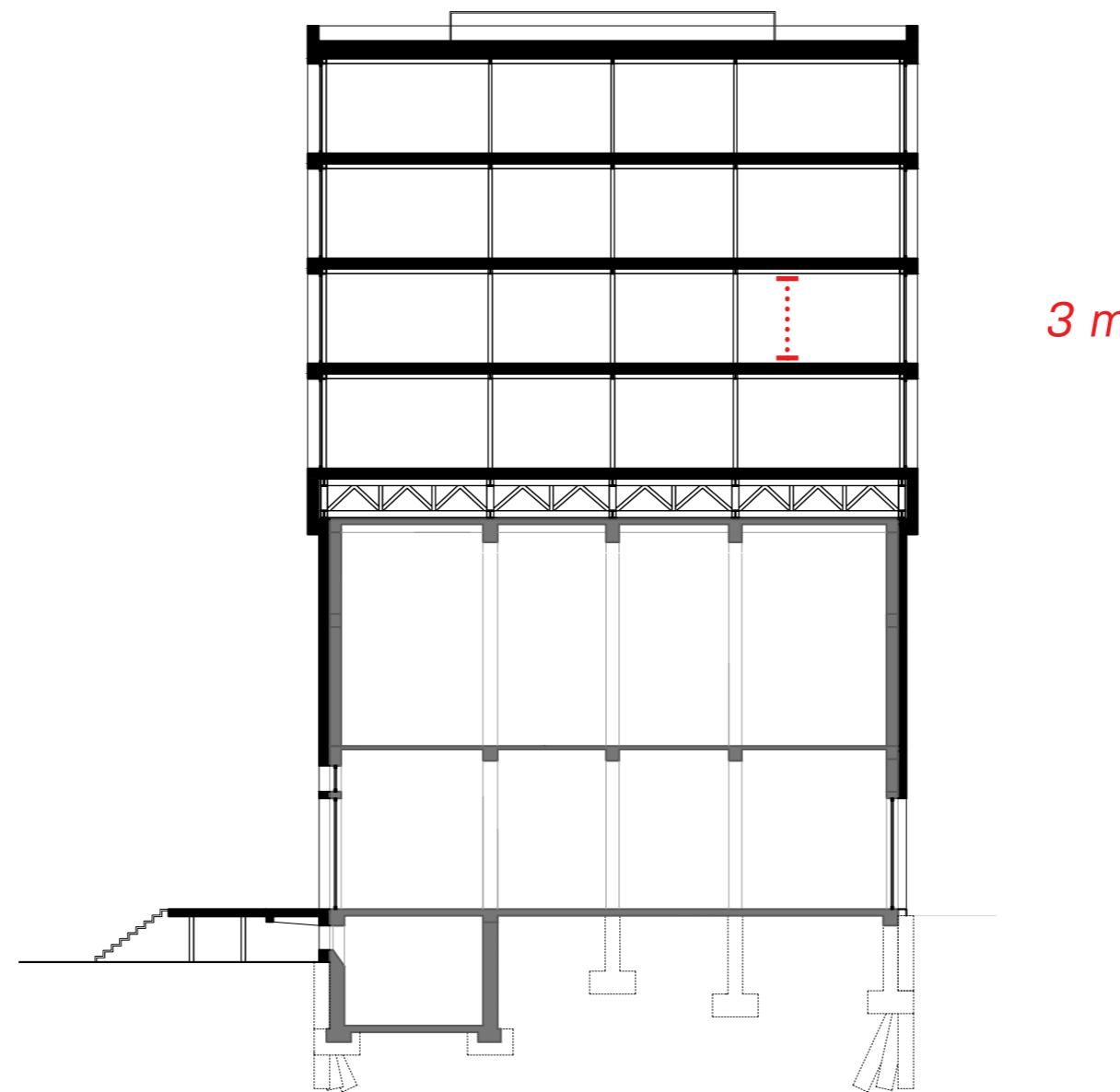
*layering of functions*



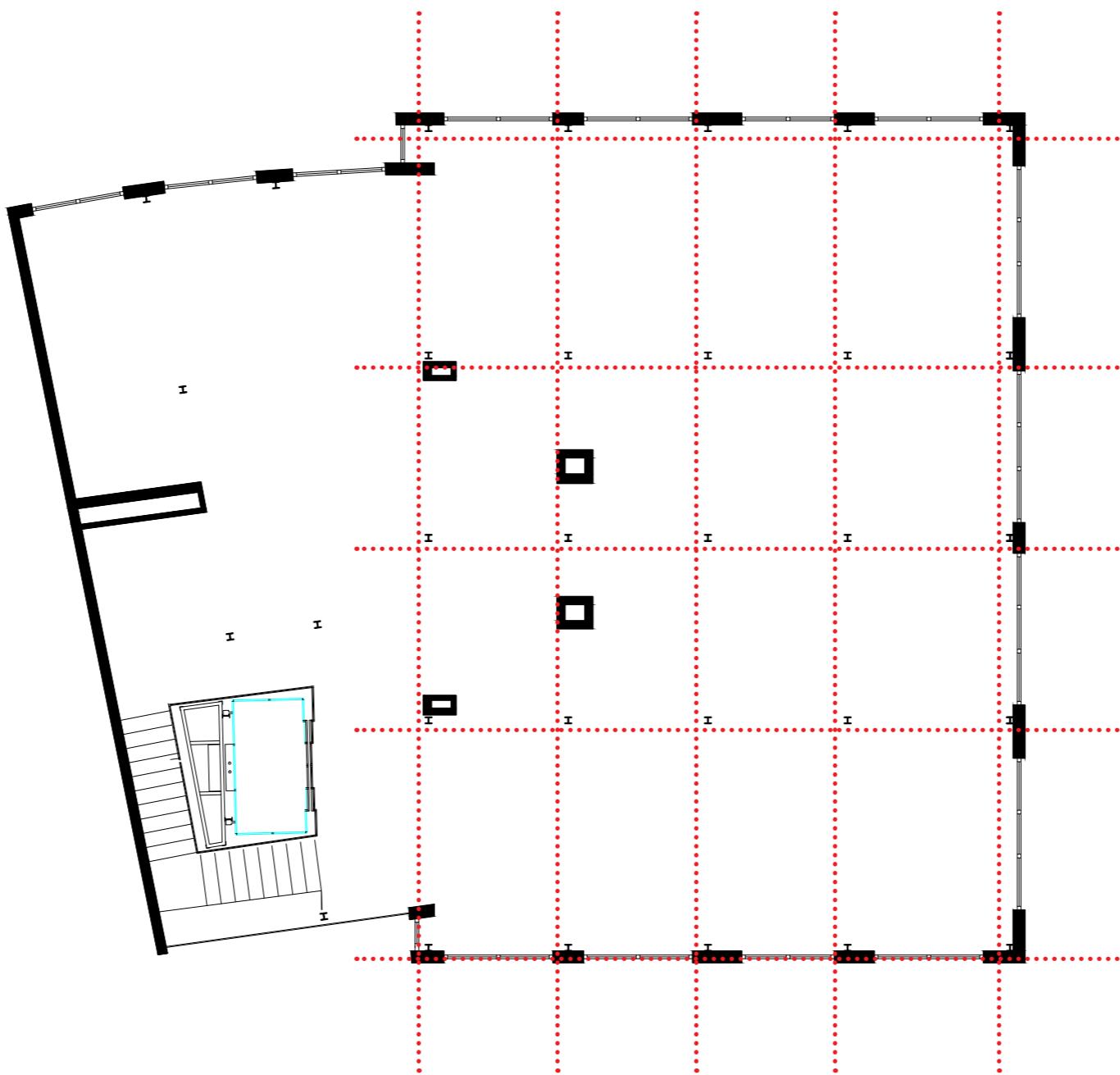




*adaptability: functional & spatial*

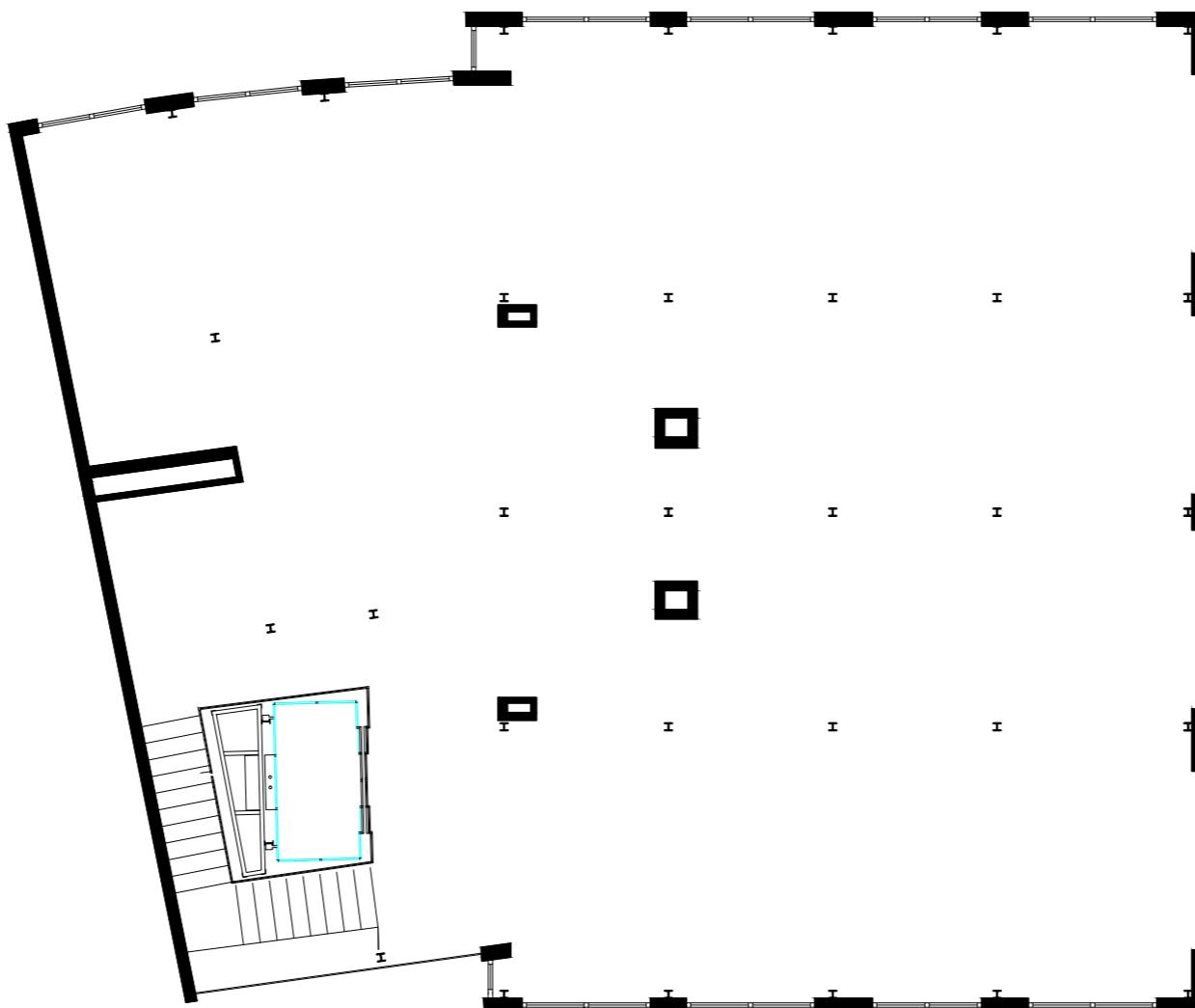


*adaptability: functional & spatial*



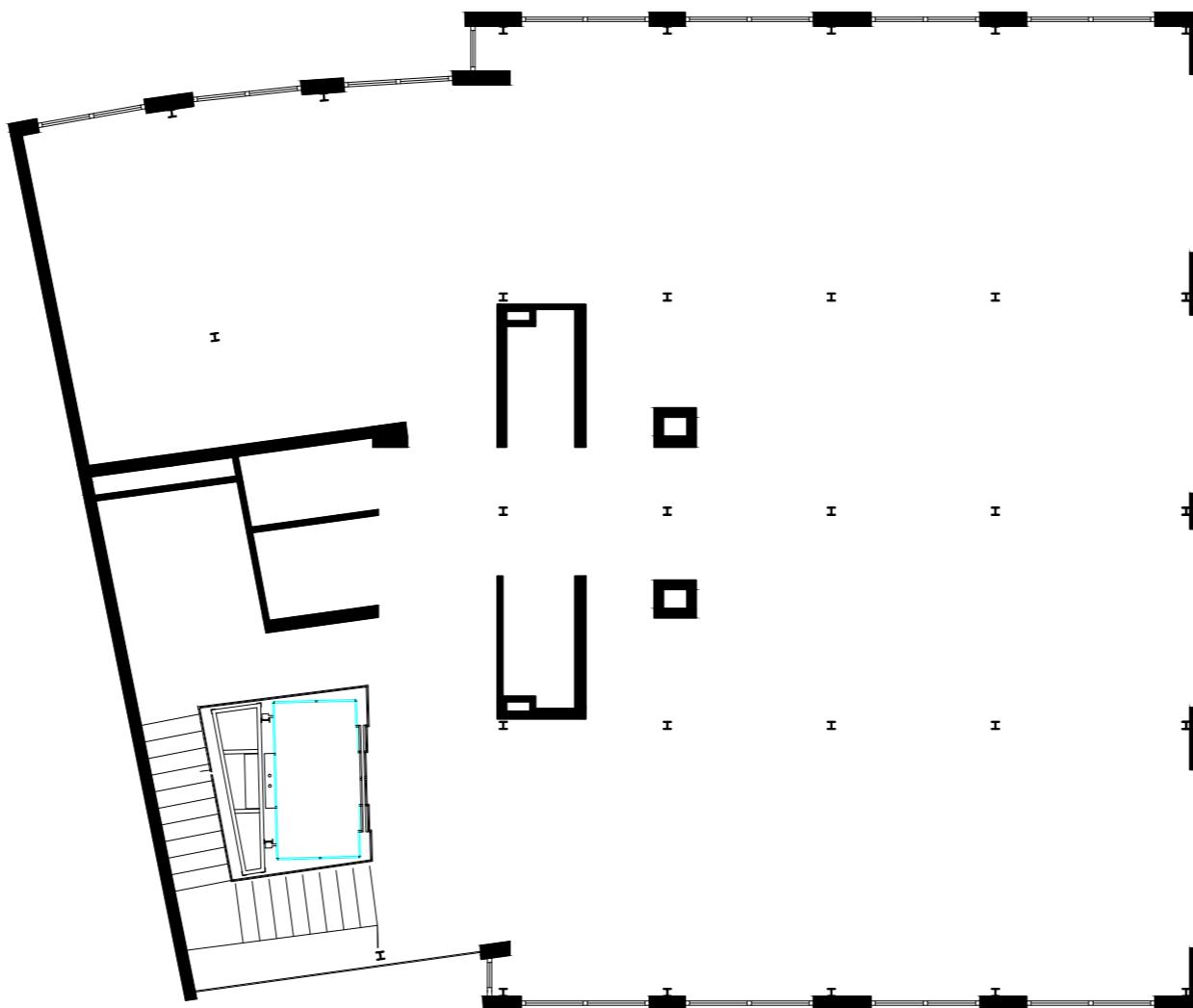
*adaptability: functional & spatial*

*dwellings*



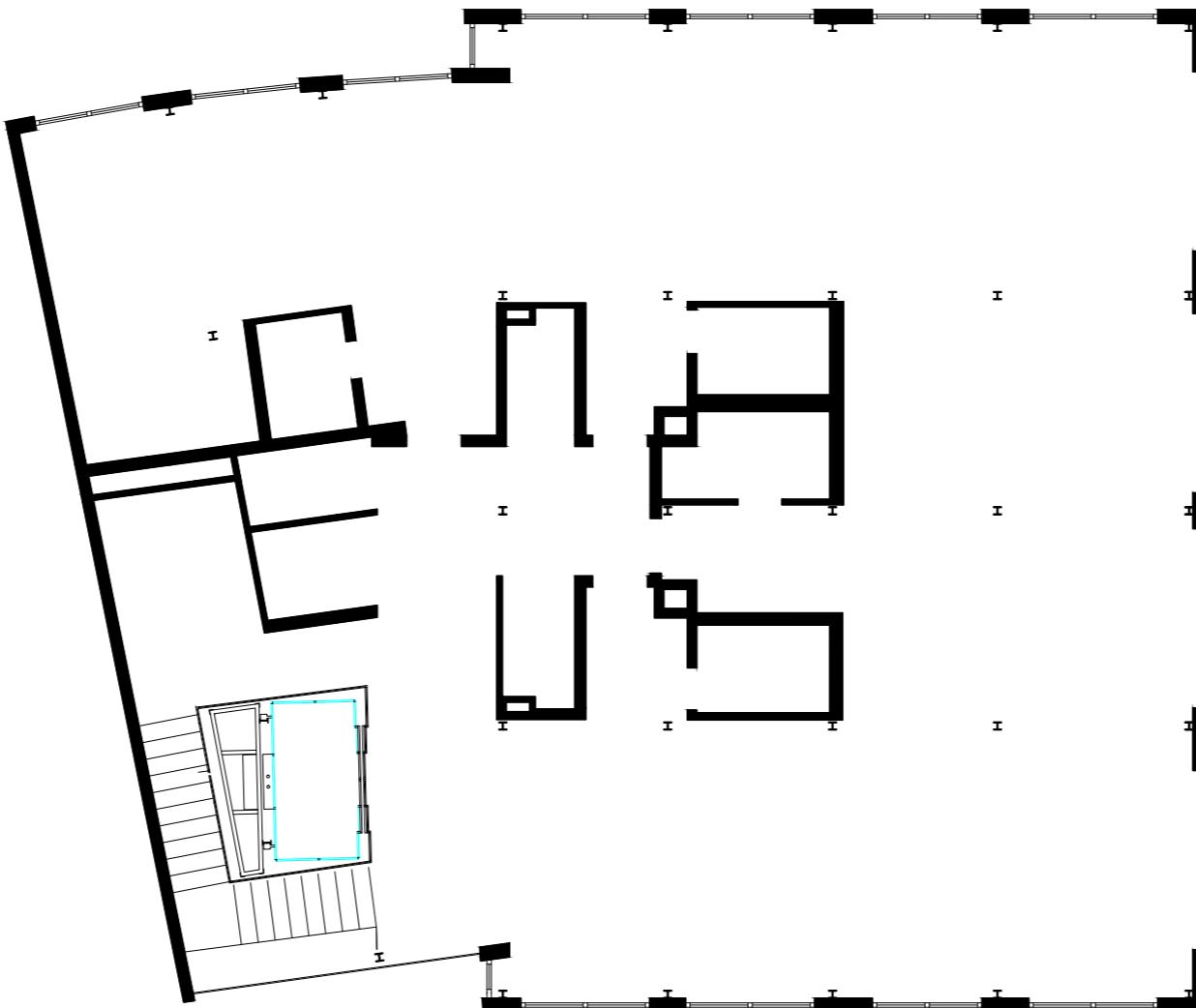
*organization: vertical shafts*

*dwellings*



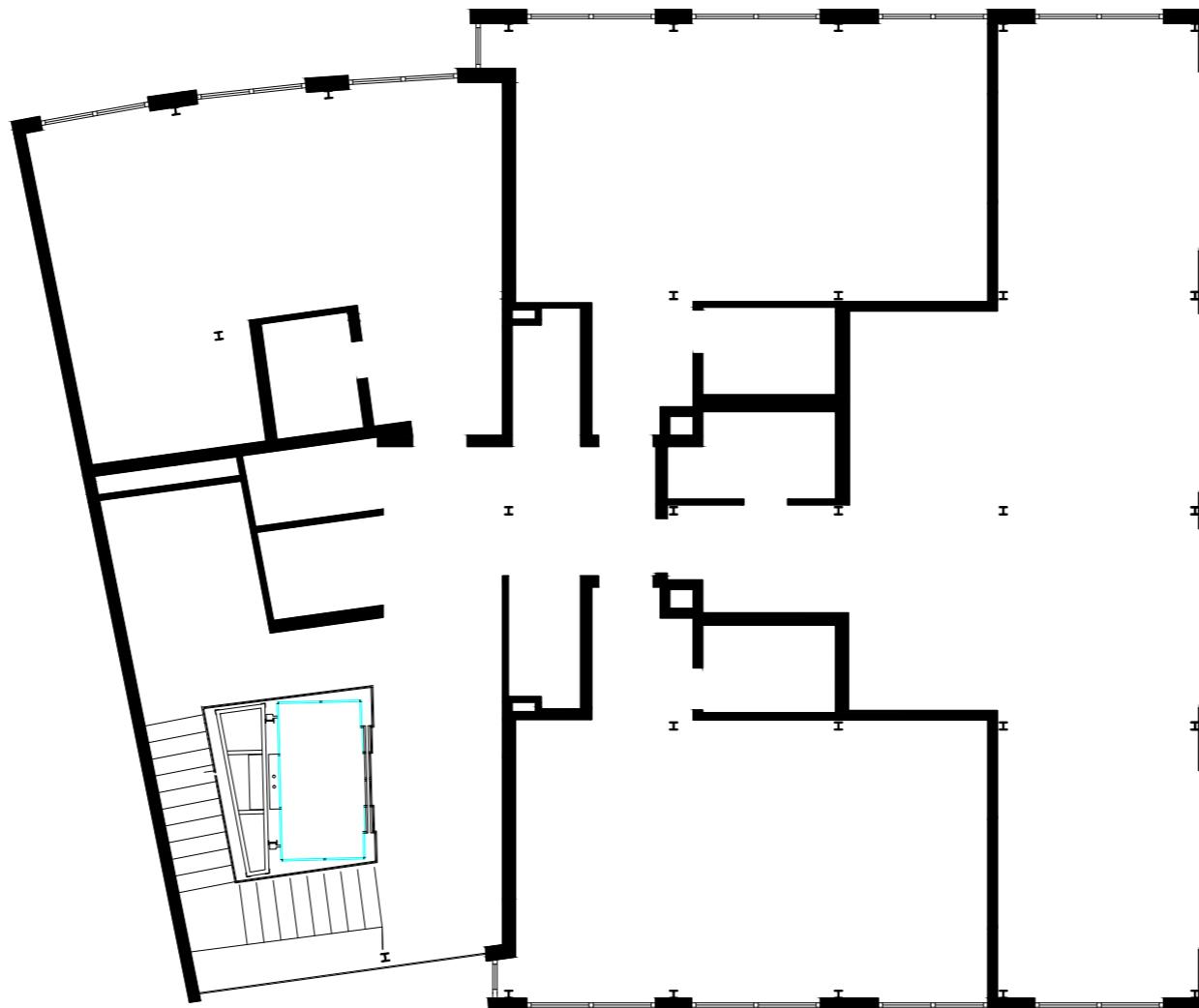
*organization: vertical shafts + storage & common areas*

*dwellings*



*organization: vertical shafts + storage & common areas + cores*

*dwellings*

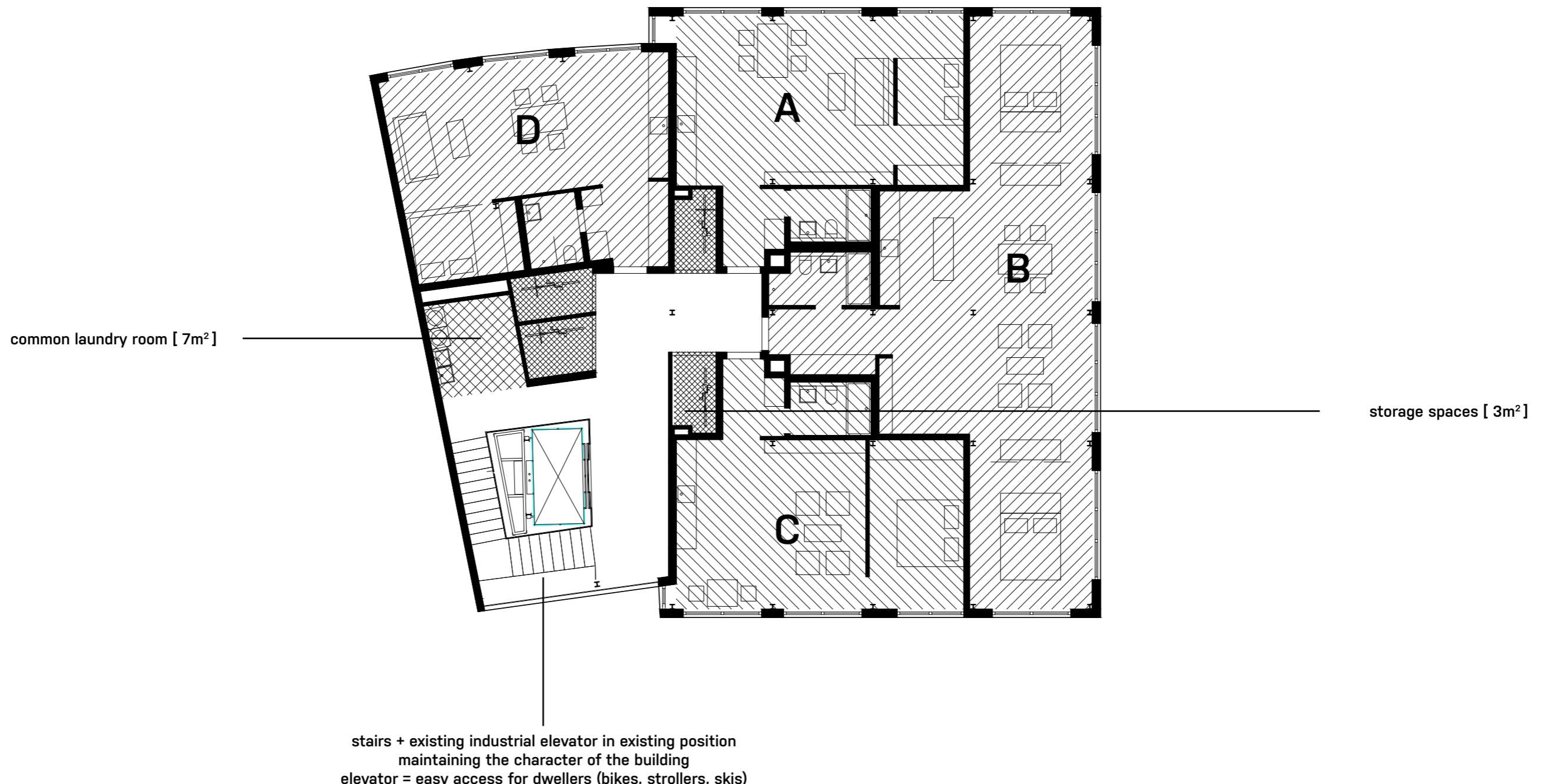


*organization: vertical shafts + storage & common areas + cores + apartment partitions*



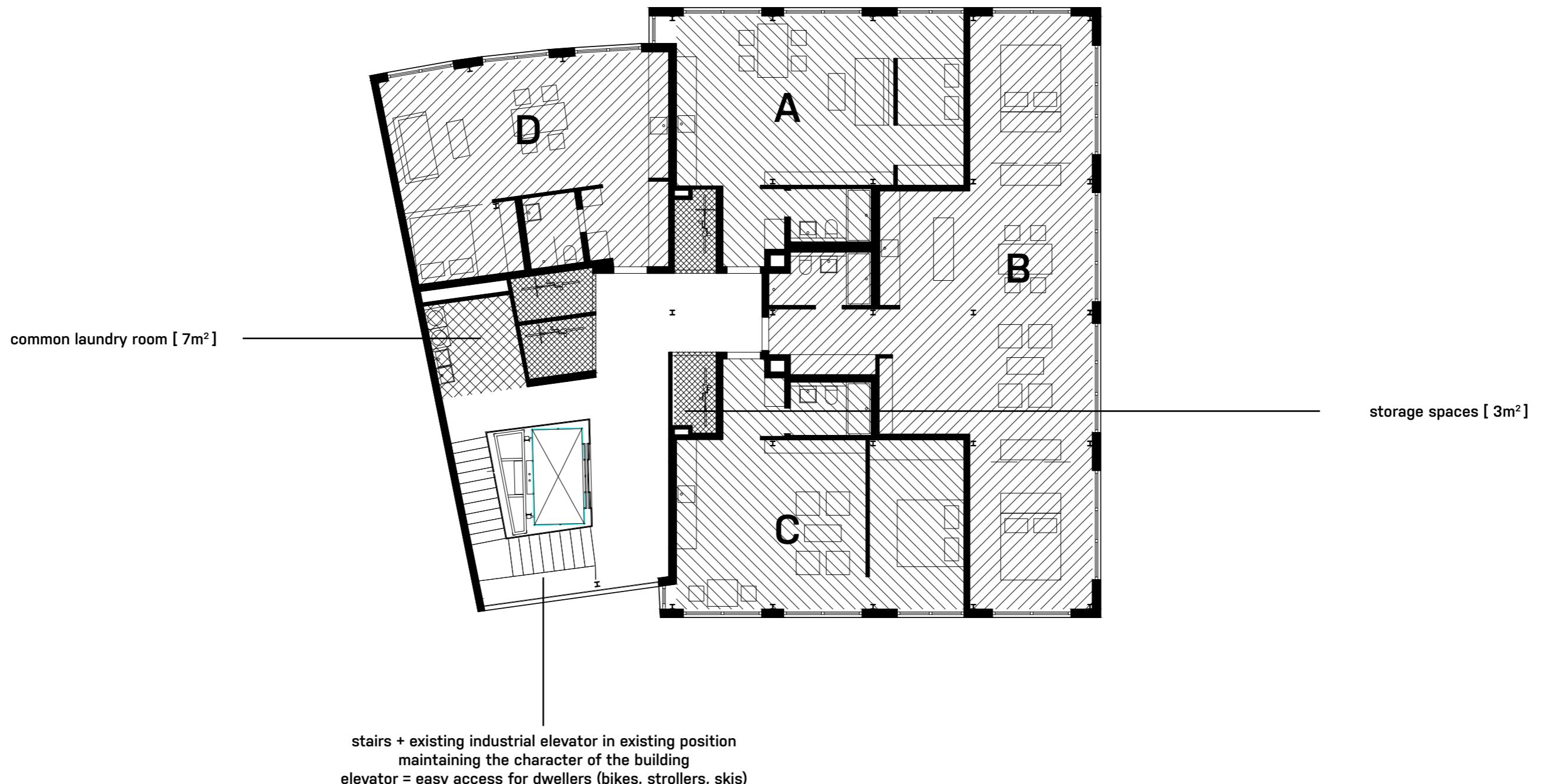
*organization: vertical shafts + storage & common areas + cores + apartment partitions + interior elements*

apartments	1 011 m <sup>2</sup>
storage spaces [ 15 x 3 m <sup>2</sup> ]	45 m <sup>2</sup>
common areas [ 3 x 7 m <sup>2</sup> ]	27 m <sup>2</sup>
<b>total usable floor area</b>	<b>1038 m<sup>2</sup></b>



## apartments floor areas variability

- A: 40, 52, 76 m<sup>2</sup>
- B: 76, 96, 110 m<sup>2</sup>
- C: 41, 52, 76 m<sup>2</sup>
- D: 51, 102 m<sup>2</sup>



31+

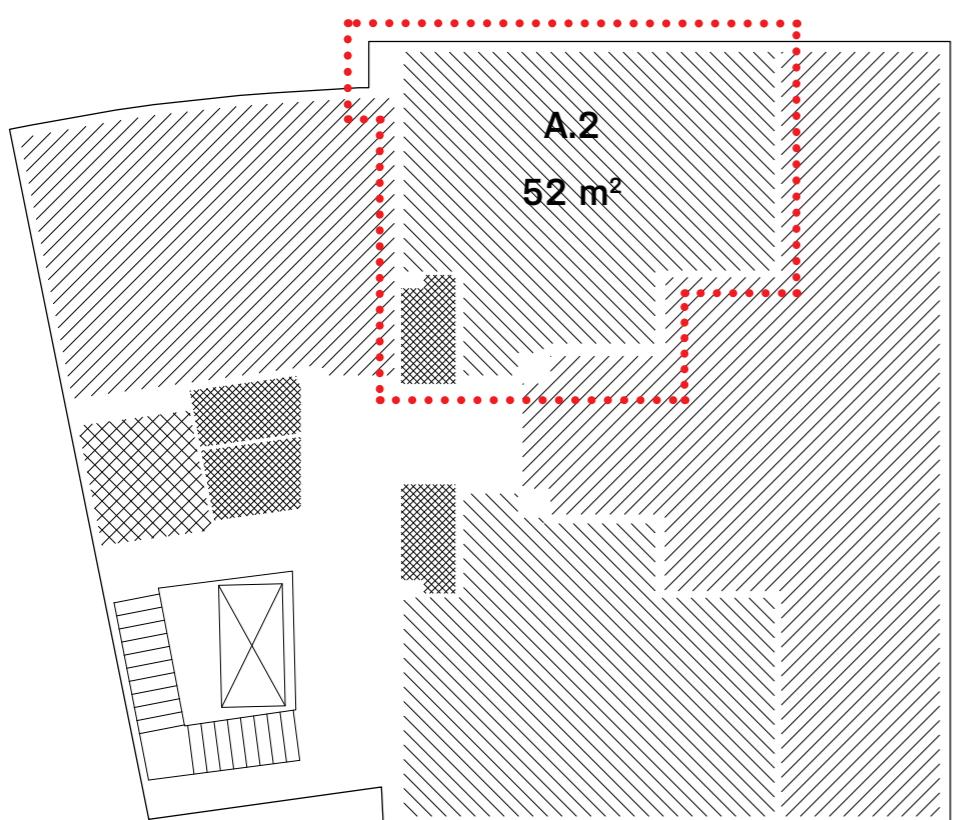
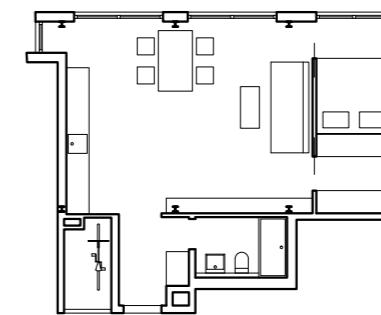


*apartment types*

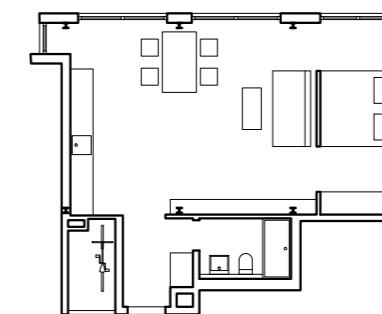
## *apartment A.2*

m<sup>2</sup>: 52  
room: 2  
bathroom: 1  
floor: 3 4 5 6  
light: N E

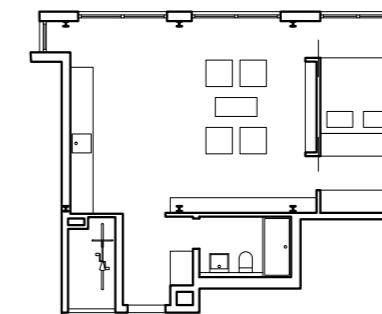
A.2.1



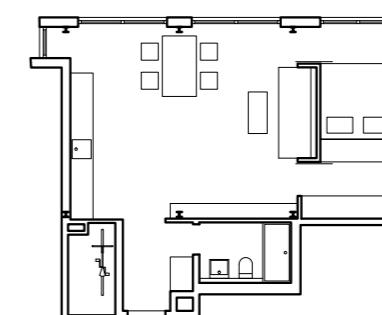
A.2.2



A.2.3

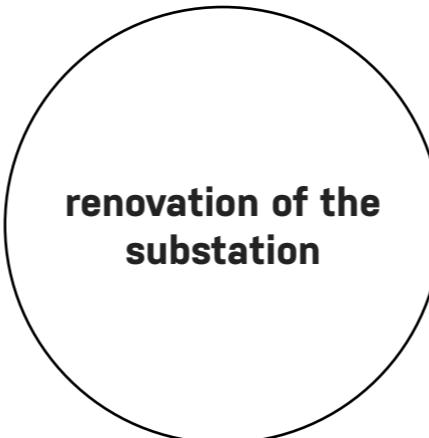


A.2.4



*apartment catalogue*





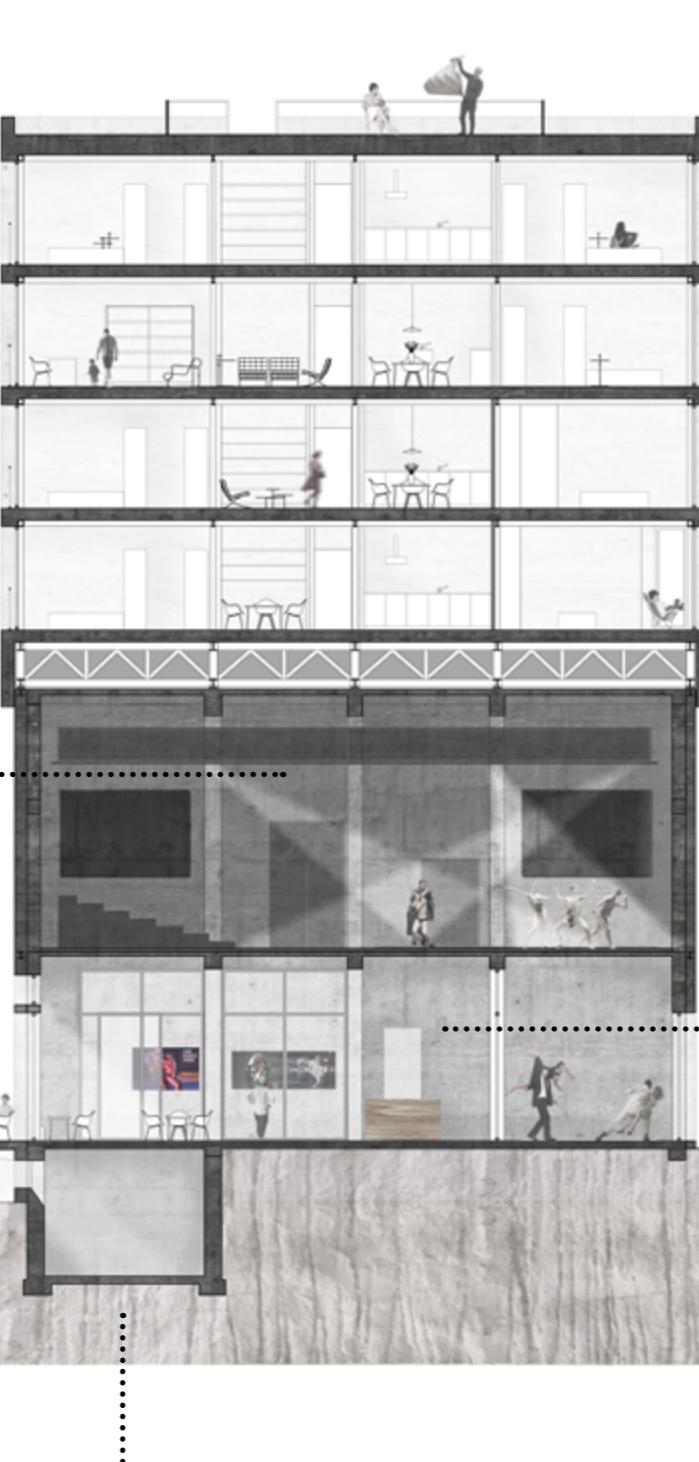
**renovation of the  
substation**



- . space stripped to the original state
- . exposed concrete
- . renovated stage
- . heraklith acoustic panels
- . black curtains
- . technical ramp
- . exterior thermal insulation
- . renovated glass block



jet grouting foundation reinforcement

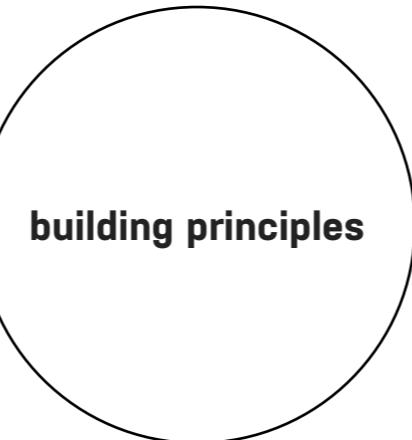


. street - interior - park

. space stripped to the original state

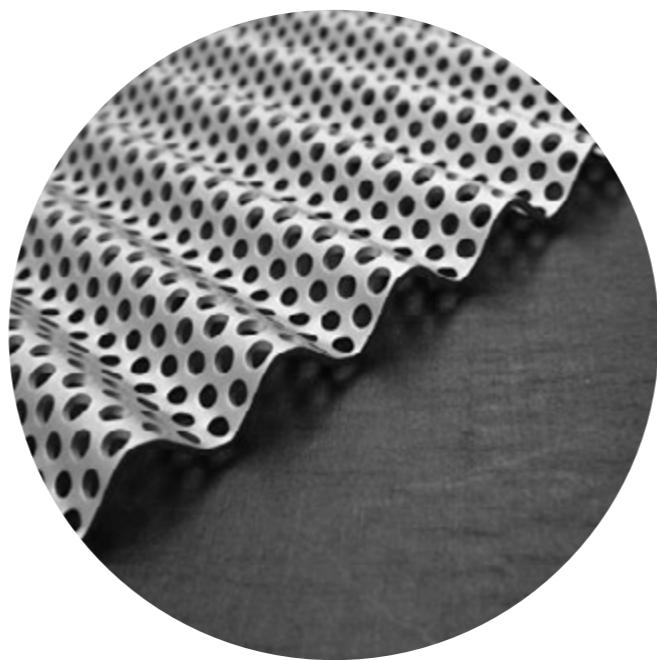
. exposed concrete

. exterior thermal insulation

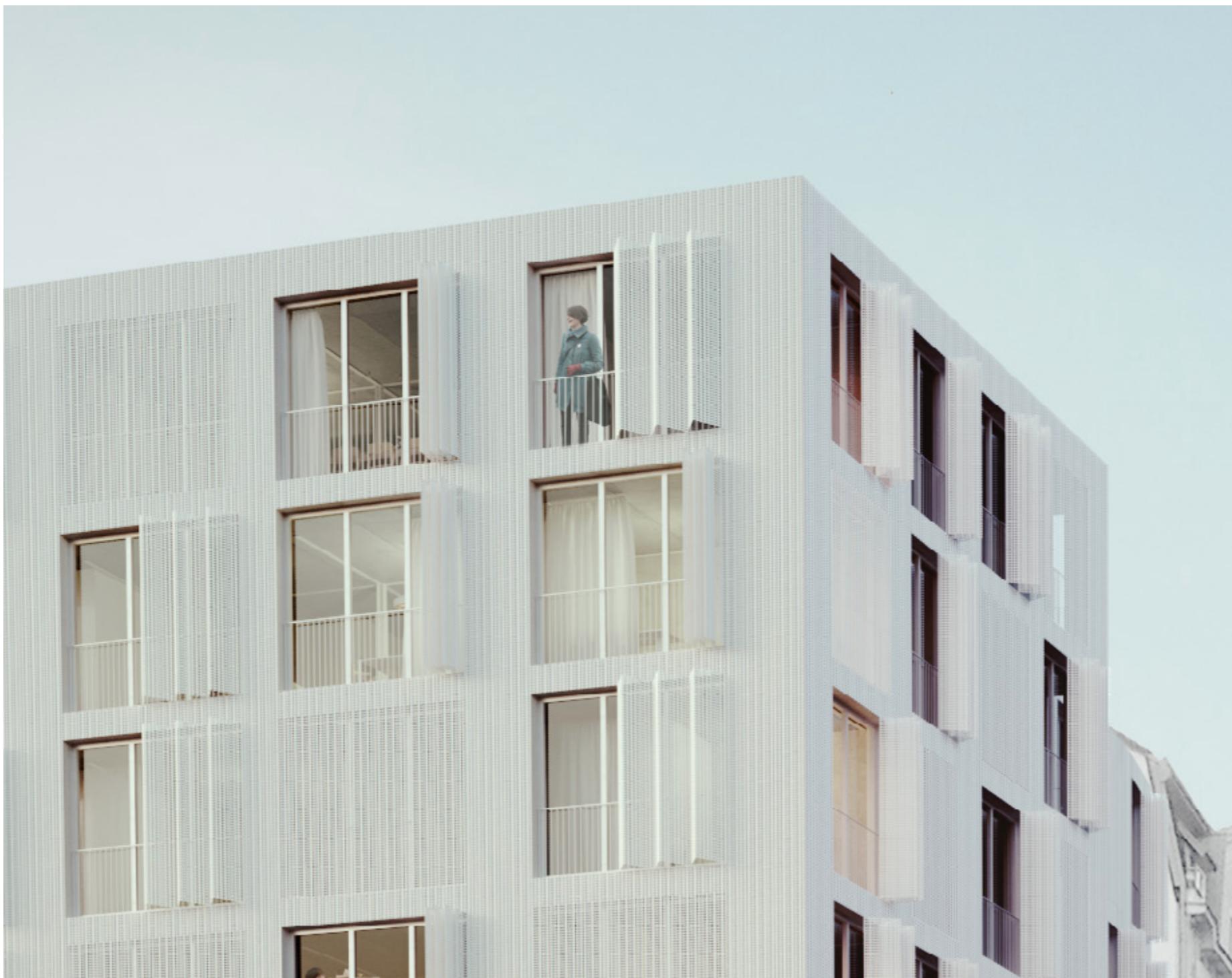




*facade*



*facade material*



*facade permeability*



*material durability*



*exposed materials*

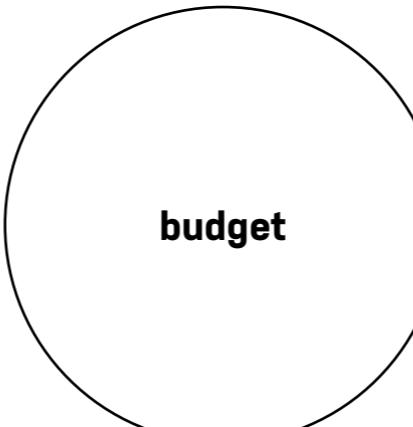


*exposed materials*

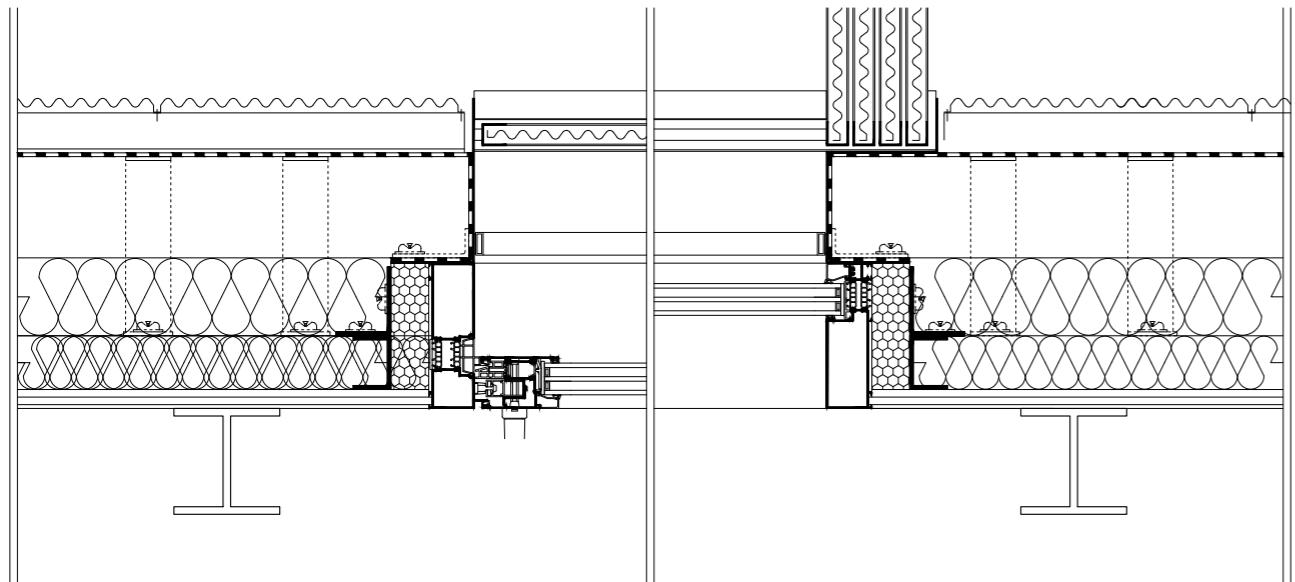


*appropriation*





**budget**

**EXT****INT****façade new**

	width [mm]	CZK/m <sup>2</sup>	€/m <sup>2</sup>
plaster	5	110	4
underlayer with weave net	5	180	7
Fermacell board with aluminium profiles 2x10 mm	20	755	28
thermal insulation mineral fibre	250	345	13
windstop - dekten fassade		175	6
façade grid	50	1170	43
perforated corrugated aluminium	20	480	18
<u>scaffolding</u>	120	4	
		<b>3335</b>	<b>124</b>

fundermax board  
glassfibre concrete polycon board  
cement fibre board  
polycarbonate

	width [mm]	CZK/m <sup>2</sup>	€/m <sup>2</sup>
	1800	67	
	1500	56	
	460	17	
	300	11	

**aluminium HS windows**

fixed parts  
sliding parts

width [mm]	CZK/m <sup>2</sup>	€/m <sup>2</sup>
8000	296	
12000	444	

**sun shading**

roller blinds  
vertical louvers  
perforated corrugated aluminium shutters

width [mm]	CZK/m <sup>2</sup>	€/m <sup>2</sup>
1200	44	
1650	61	
2100	78	

**railing**

railing

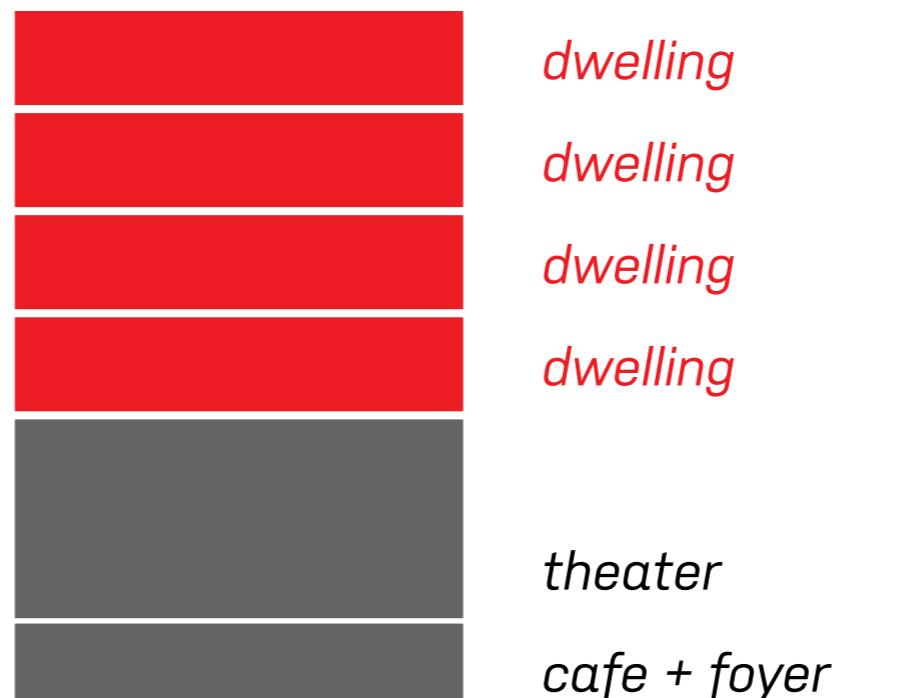
CZK/m	€/m
2000	74

*detail 06: window jambs new building [ 1:5 ]*

	<b>m2</b>	<b>CZK</b>	<b>€</b>
facades	117	390195	14452
glass fix	51	510000	18889
glass openable	42	588000	21778
window shutters	51	107100	3967
floor	340	926500	34315
partitions between apartments	65	72475	2684
partitions bathroom	14	13622	505
partitions in apartment	30	29190	1081
roof 1/4	85	276250	10231
<b>TOTAL</b>		<u>2913332</u>	107901
	15%	<b>3350332</b>	124086
technologies		2913332	107901
	15%	<b>3350332</b>	124086
steel strucure		<b>2327000</b>	86185
<b>TOTAL</b>		<b>9027664</b>	<b>334358</b>

*price / floor*

*addition*



*final building program*

*municipality provides the site for development*

*+*

*theater + cafe participation on the running costs and maintenance*

*+*

*4 floors*

*1040 m<sup>2</sup> NIA [UFA]*

*90 000,- Kč/m<sup>2</sup> [ 3 300,- €/m<sup>2</sup> ]*

*+*

*renovation of the existing building*

*and adaptation into theater, cafe and foyer*

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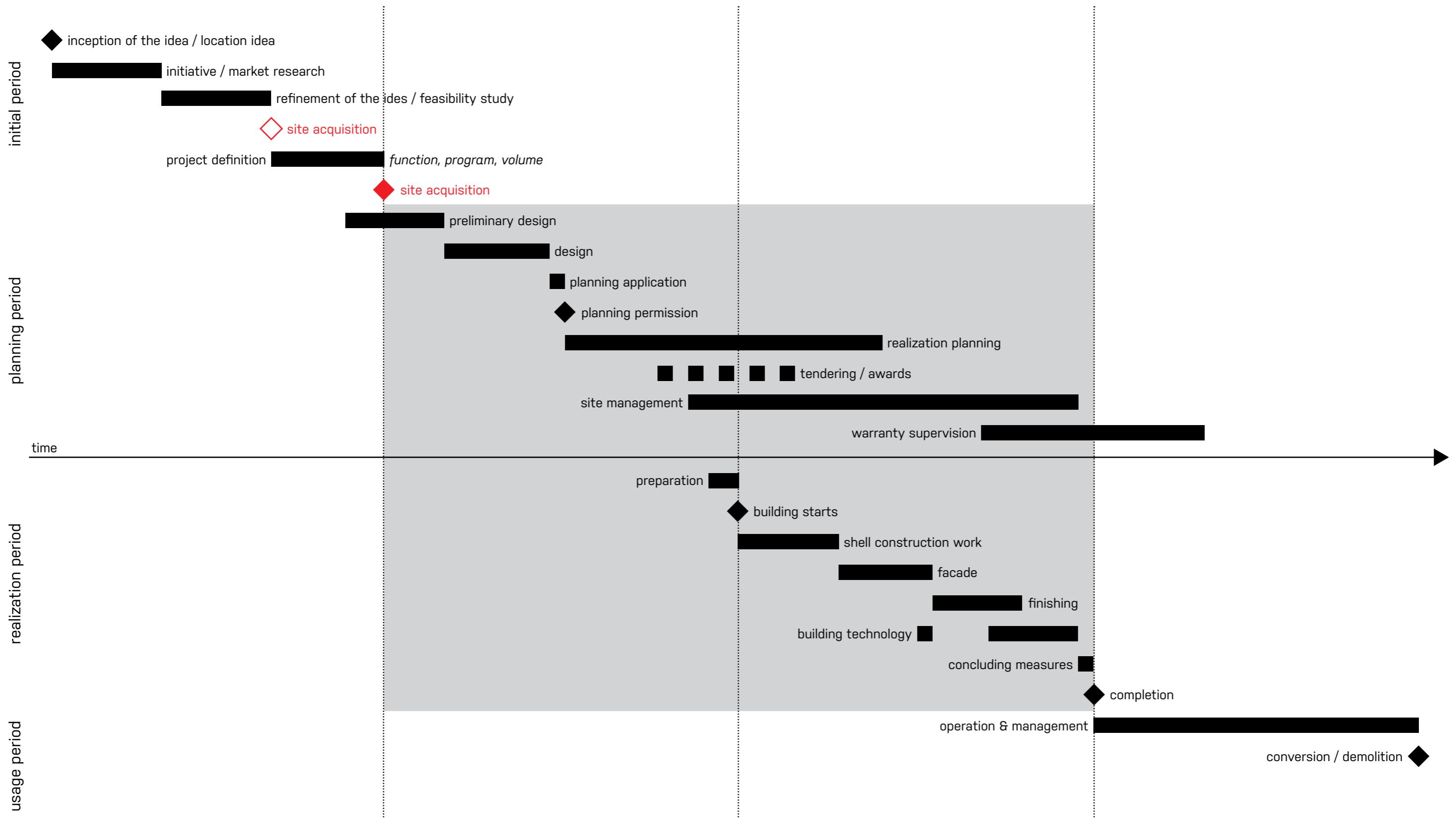
*18 % revenue*

*project profitability*

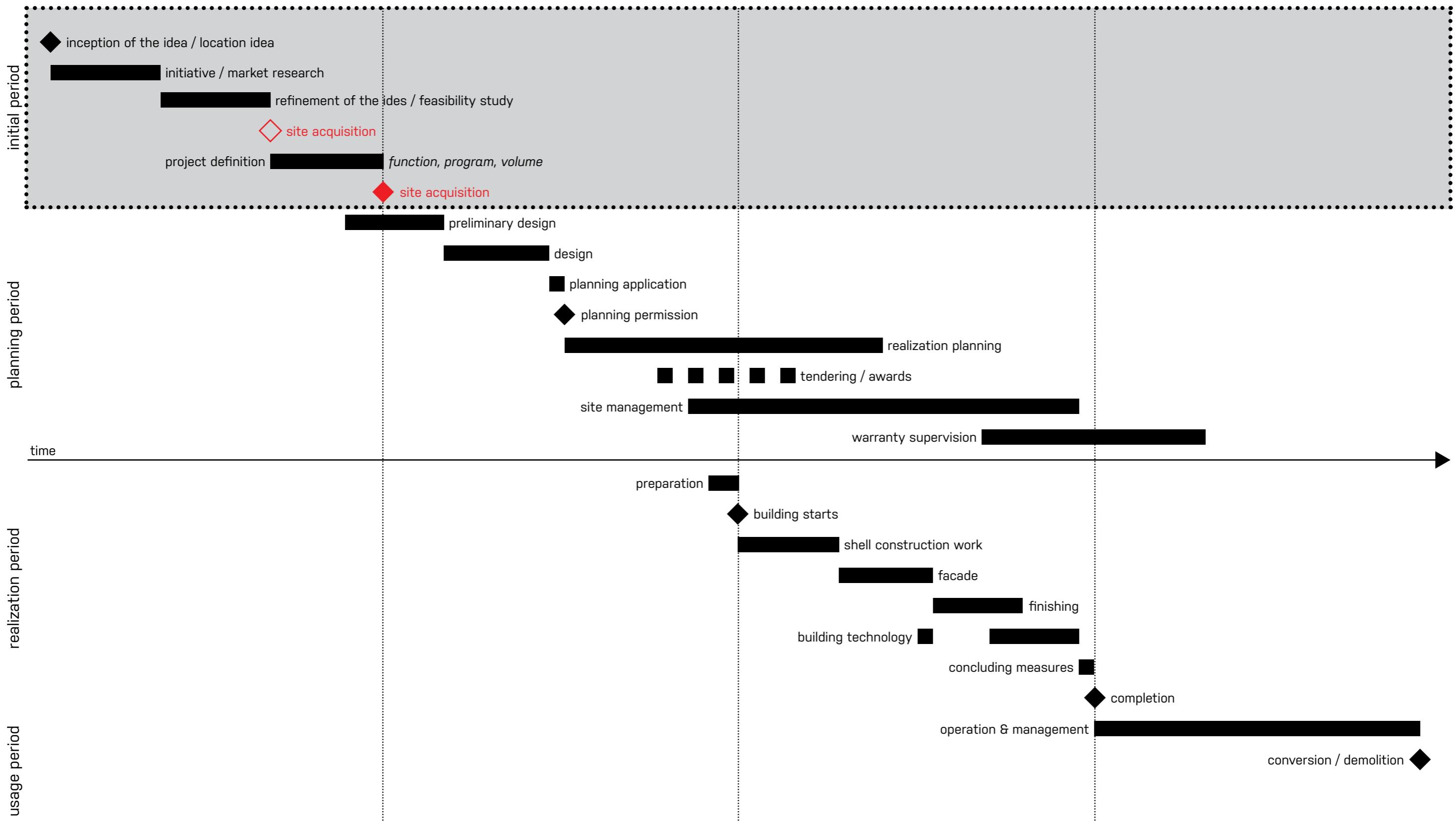


**architect-developer  
conclusion**

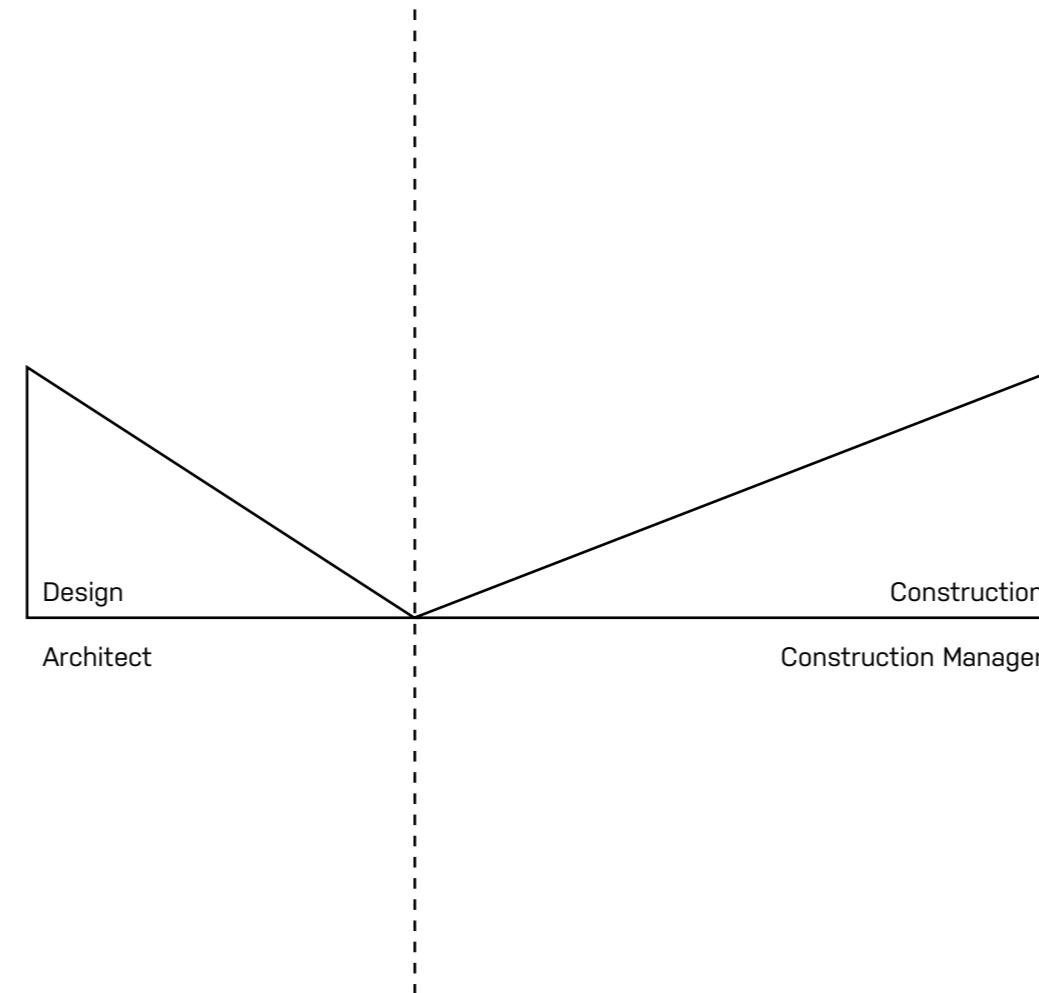
# building process



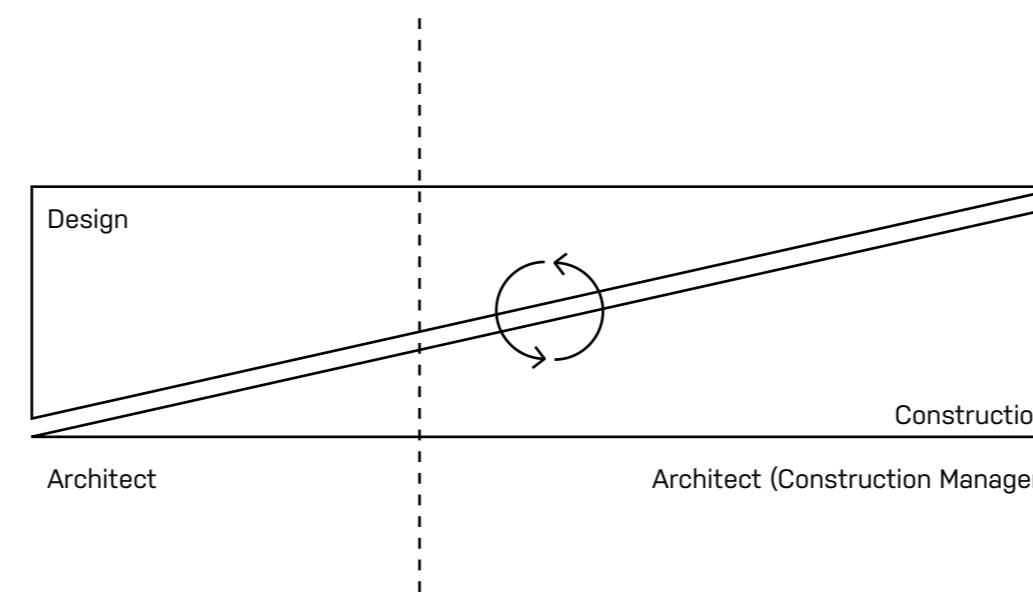
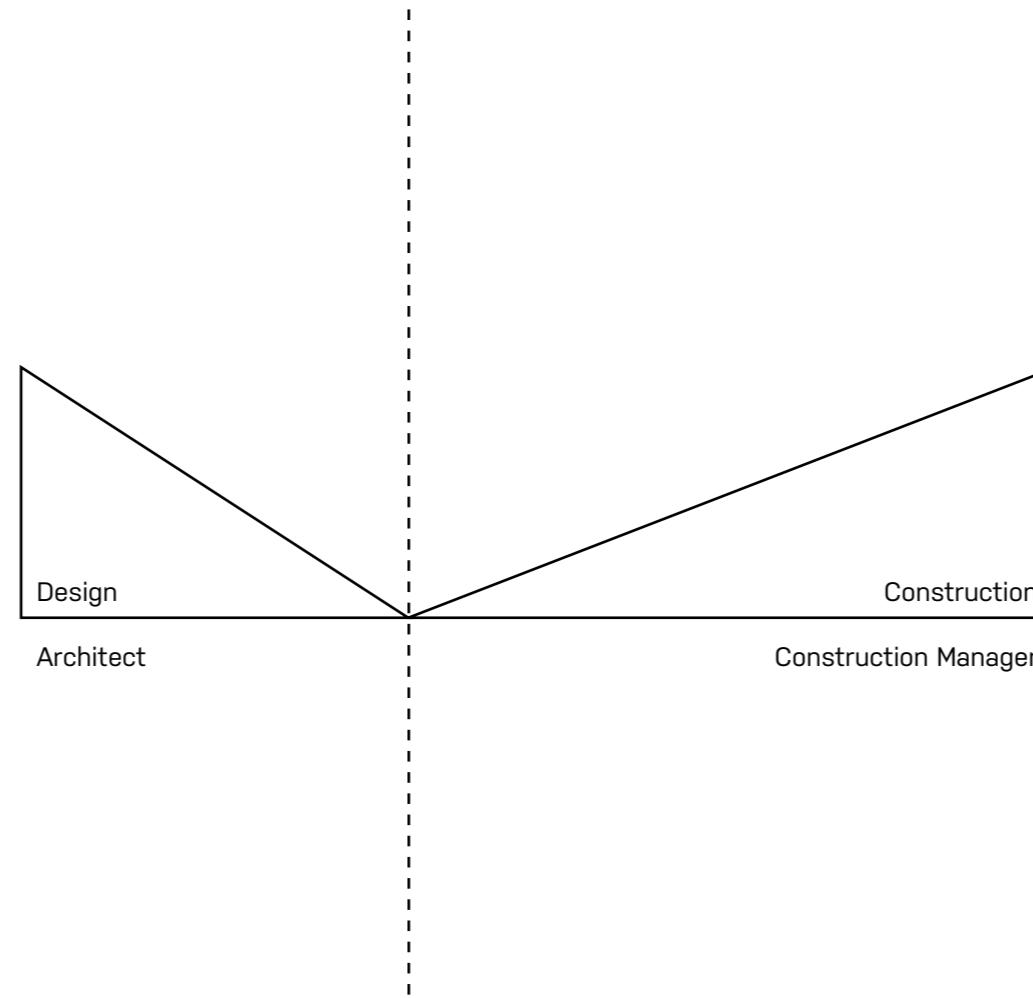
# building process



*traditional design-build scheme*



*traditional design-build scheme*



*architect-led design-build scheme*



house on a house  
by  
architect-developer

