

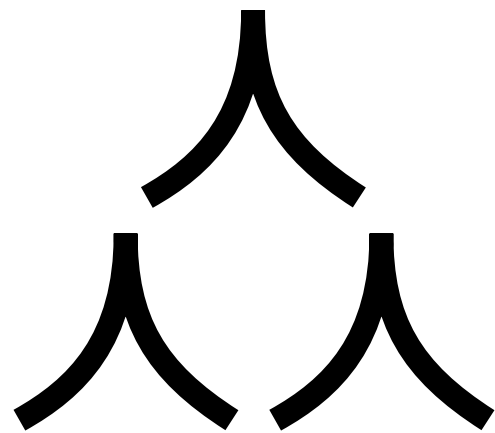
Can Housing Be Affordable and Beautiful?

Innovations in Design and Construction Techniques

James Shen, Principal & Founding Partner, People's Architecture Office

Gerti Axelsen, Head of Building & Development, Lejerbo

Moderator: Ray Demers, Director of Design Leadership Initiatives,
Enterprise Community Partners



People's
Architecture
Office



About Us

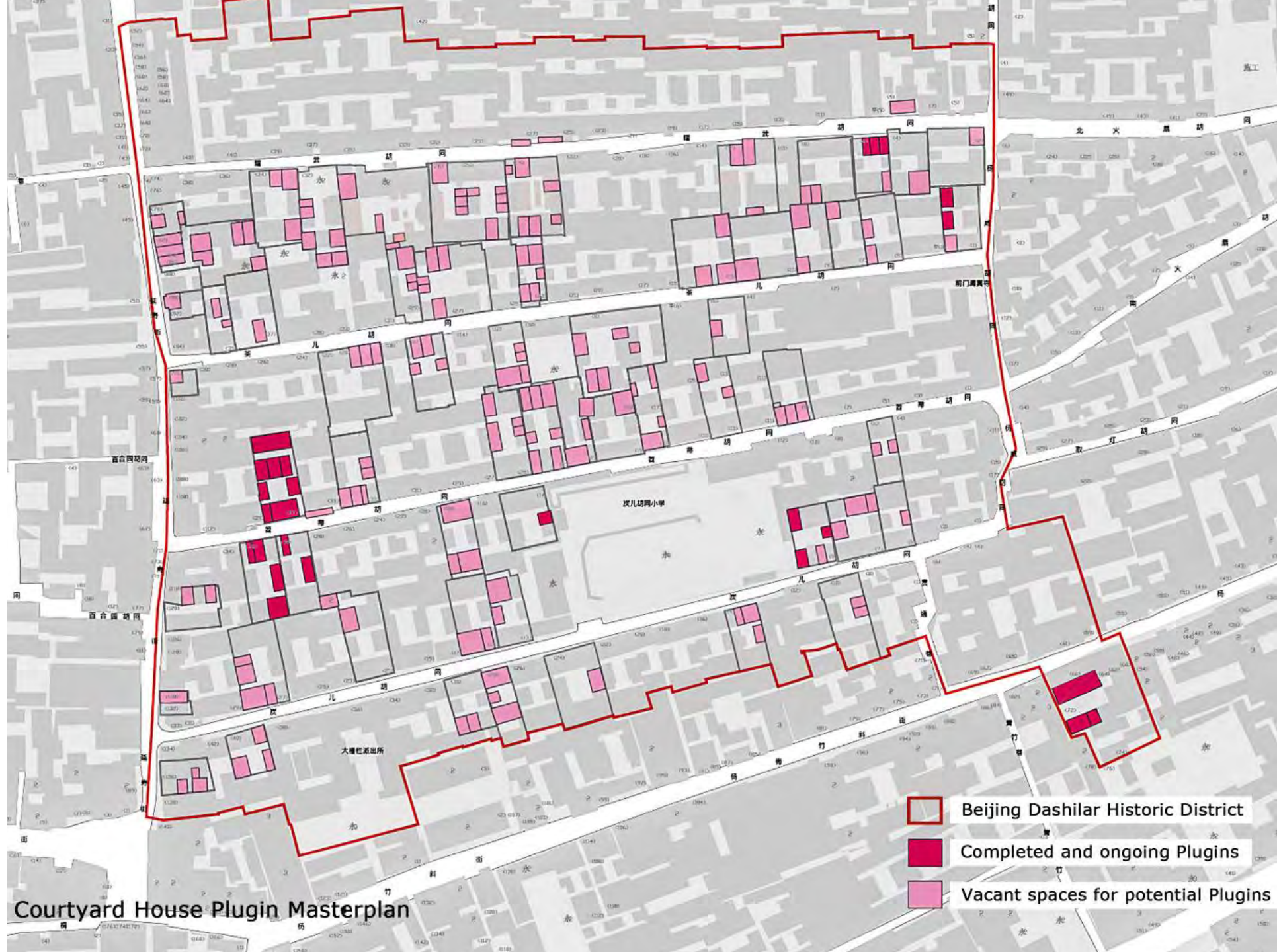
Beijing-based People's Architecture Office was founded by He Zhe, James Shen and Zang Feng in 2010, and consists of an international team of architects, engineers, product designers and urbanists. With the belief that design is for the masses, PAO aims to be conceptually accessible and culturally pragmatic. Our work is always socially motivated and spans across scales and types. The office is located in an historic courtyard house in the center of Beijing and functions as a laboratory for observation, testing, and building.

People's Architecture Office is a Social Enterprise and a certified B-Corp.

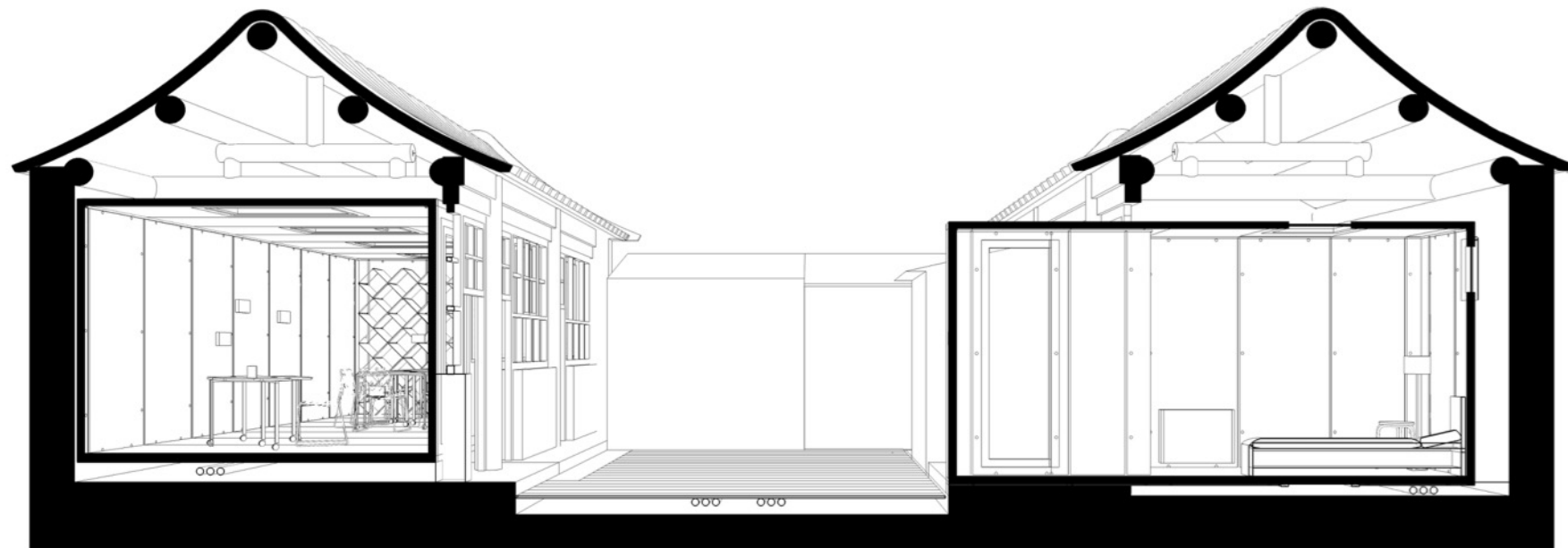








Courtyard House Plugin Masterplan





Before



After













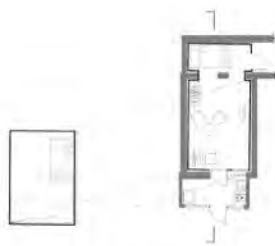
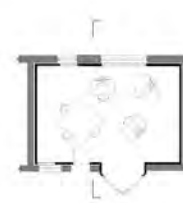
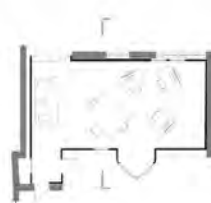
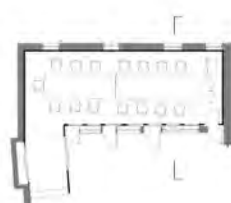












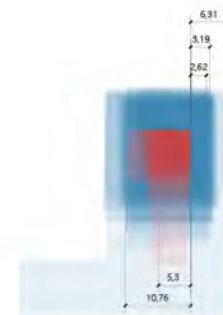


内院大小规则

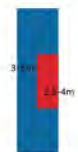
院落尺寸统计



内院尺寸统计

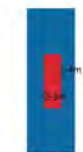


院尺寸范围



7-8m

16个



7-10m

12个



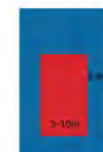
7-12m

38个



9-14m

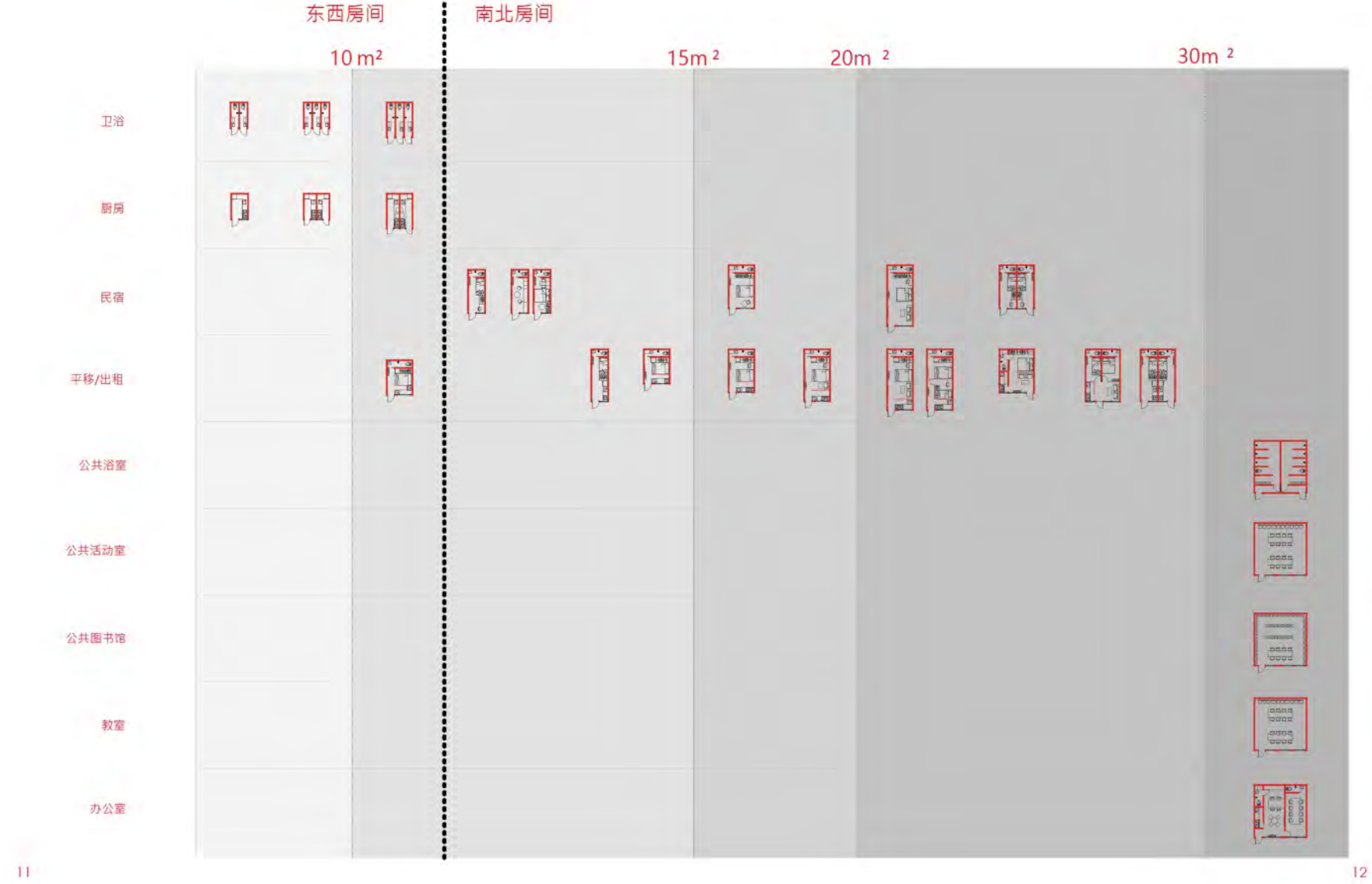
38个



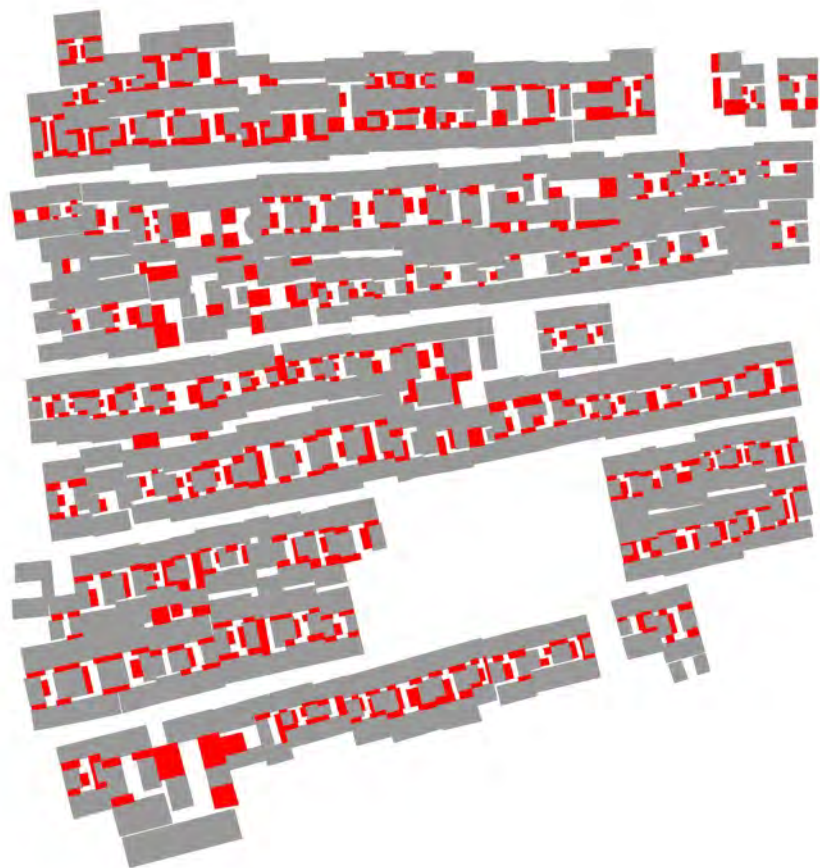
11-20m

26个

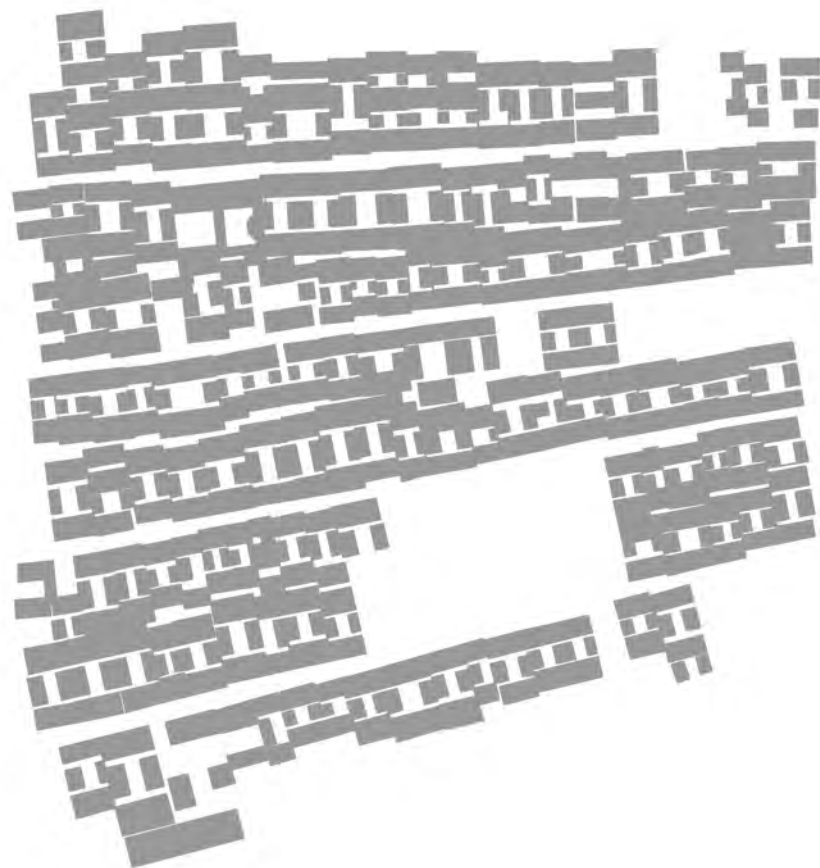
内盒导则2-房间大小与功能适配示例



重现四合院



26778m²



4264m²

22514m²

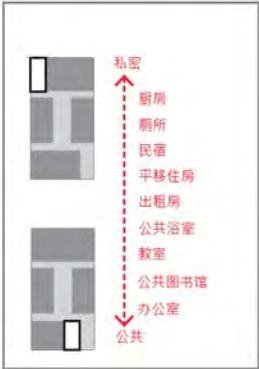
耀武 24 号实验

耀武24号

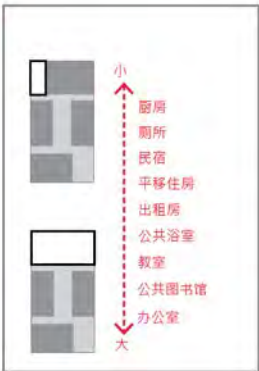


内盒导则1-功能布置原则

位置

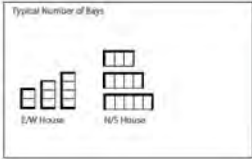

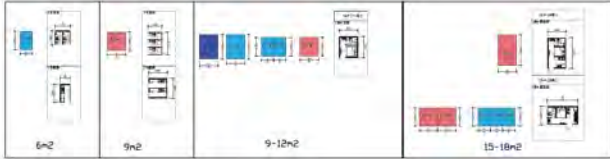
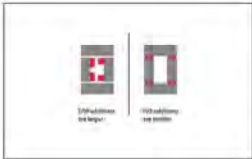
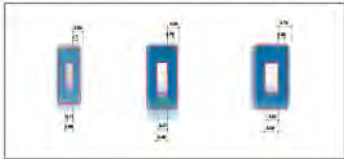
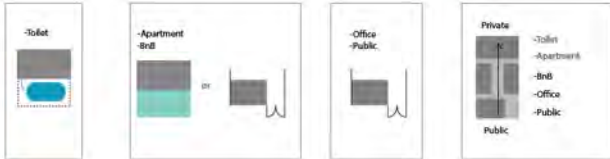
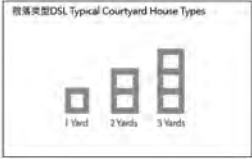
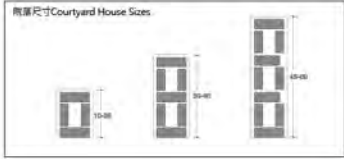
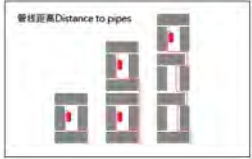
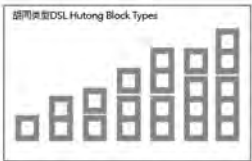
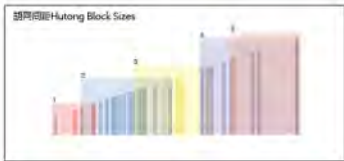



大小

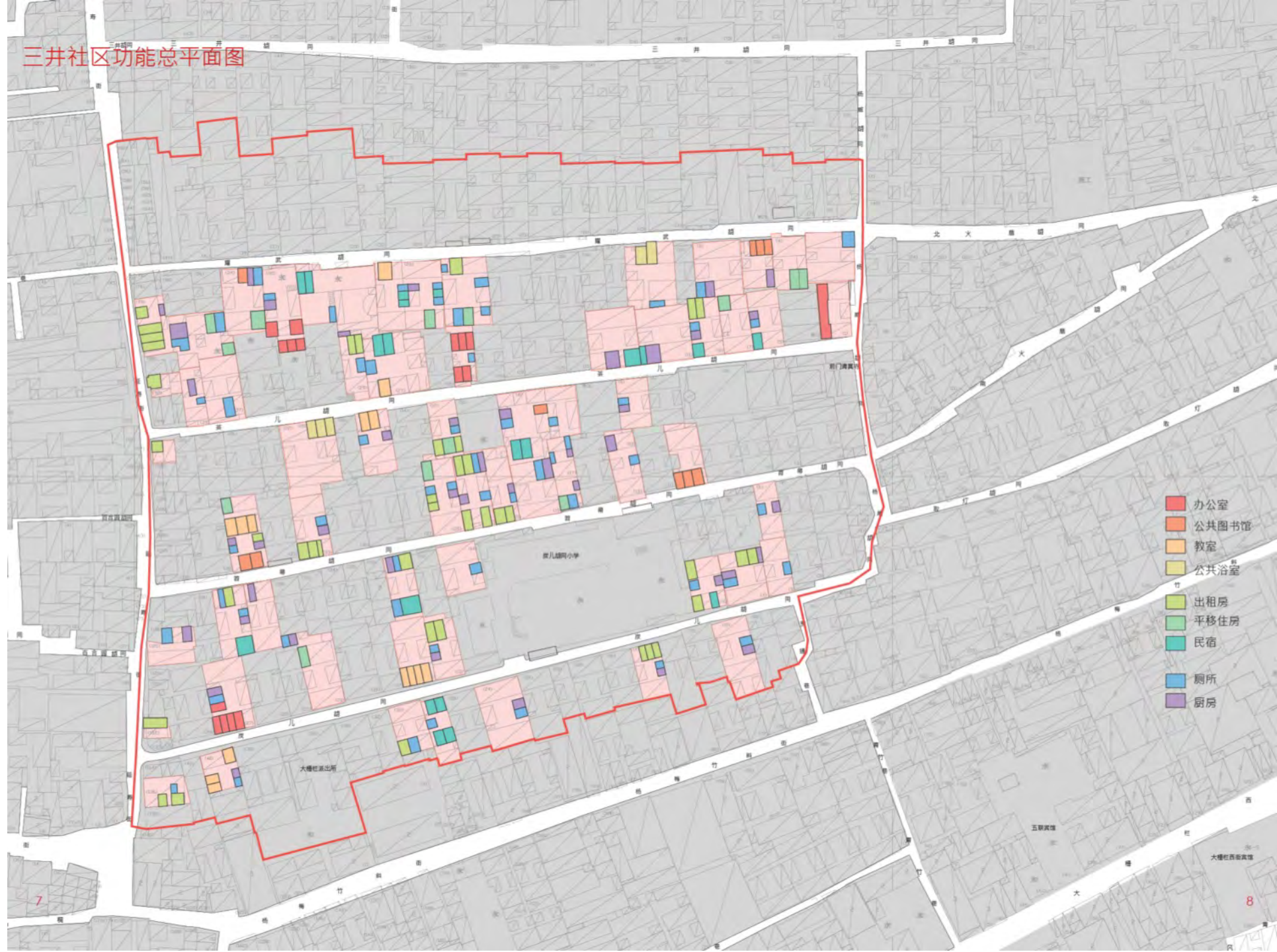


公共

研究结构

	分类TYPES	分析Analysis	导则GUIDELINES AND MODULES
房间House	<p>Typical Number of Bays</p>  <p>E/W House N/S House</p>	<p>Bay Sizes</p>  <p>E/W house bays are shallower N/S house bays are longer</p>	 <p>6m² 9m² 9-12m² 15-18m²</p>
内院Yard	 <p>2m x 2m 10m x 10m</p>	 <p>2m x 2m 2m x 10m 10m x 10m</p>	 <p>Toilet Apartment Office Public</p>
院落Courtyard House	<p>院落类型DSL Typical Courtyard House Types</p>  <p>1 Yard 2 Yards 3 Yards</p>	<p>院落尺寸Courtyard House Sizes</p>  <p>10m x 10m 10m x 20m 10m x 30m</p>	<p>管线距离Distance to pipes</p>  <p>1 Yard 2 Yards 3 Yards</p>
胡同Hutong Block	<p>胡同类型DSL Hutong Block Types</p>  <p>1 Block 2 Blocks 3 Blocks</p>	<p>胡同尺寸Hutong Block Sizes</p>  <p>10m x 10m 10m x 20m 10m x 30m</p>	<p>选地Selecting Areas</p>  <p>Single courtyard block Double courtyard block</p>

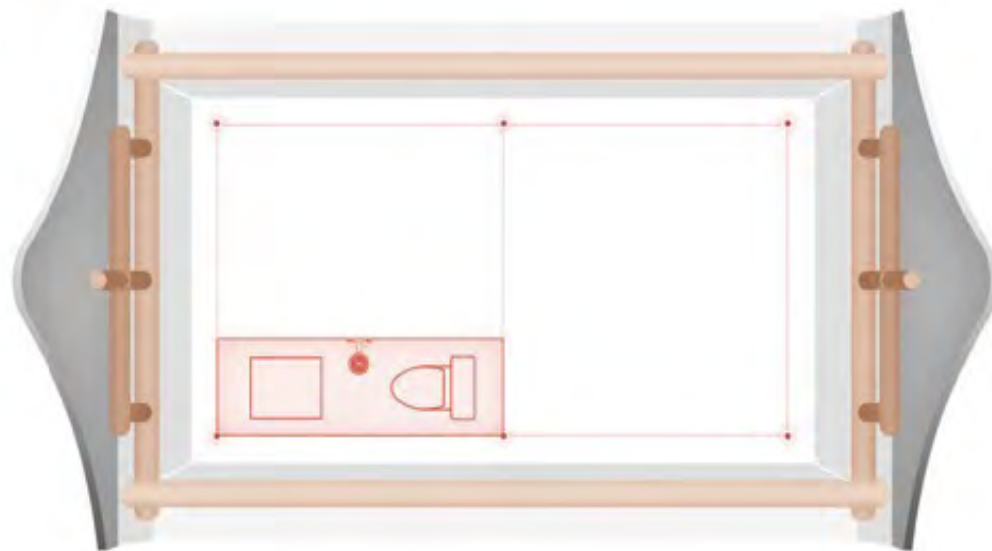
三井社区功能总平面图



- 办公室
- 公共图书馆
- 教室
- 公共浴室
- 出租房
- 平移住房
- 民宿
- 厕所
- 厨房



8米



3.5米

- > 使用篱板 - 56个
- > 使用窗户 - 4个
- > 使用大门 - 1个
- > 厕所 - 1个
- > 厨房 - 1个
- > 卧室 - 1个

用户中心



内盒院基本信息

老王的房子

23平

房屋面积

2个单元格

单元

3.5 × 4

单元格子面积 宽高

综合提高评估: 78%

保温
heat-insulating
property

39% ▲

节约用电
Power saving

56% ▼



造价预算

RMB: 20000

提交图纸

















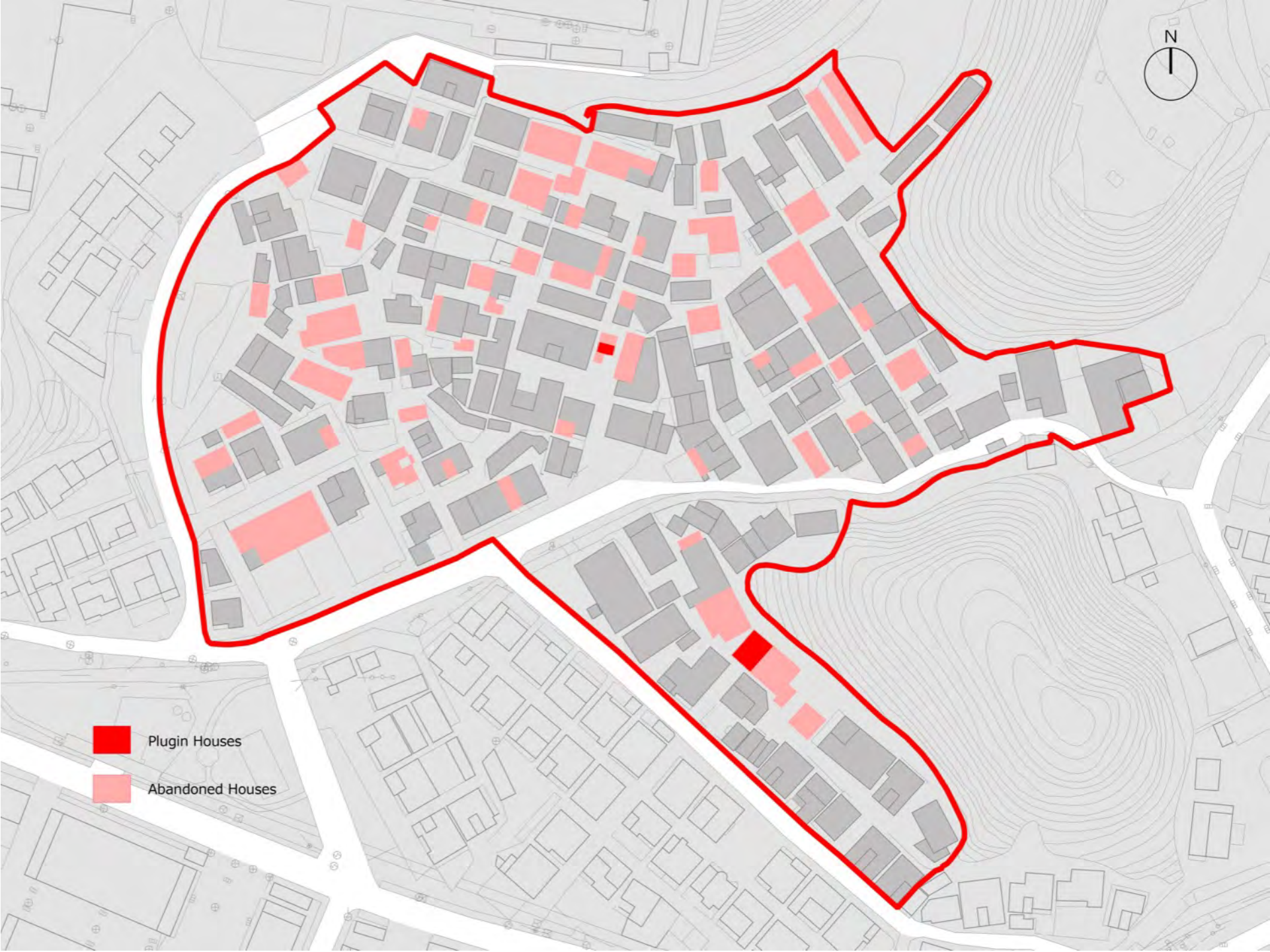












































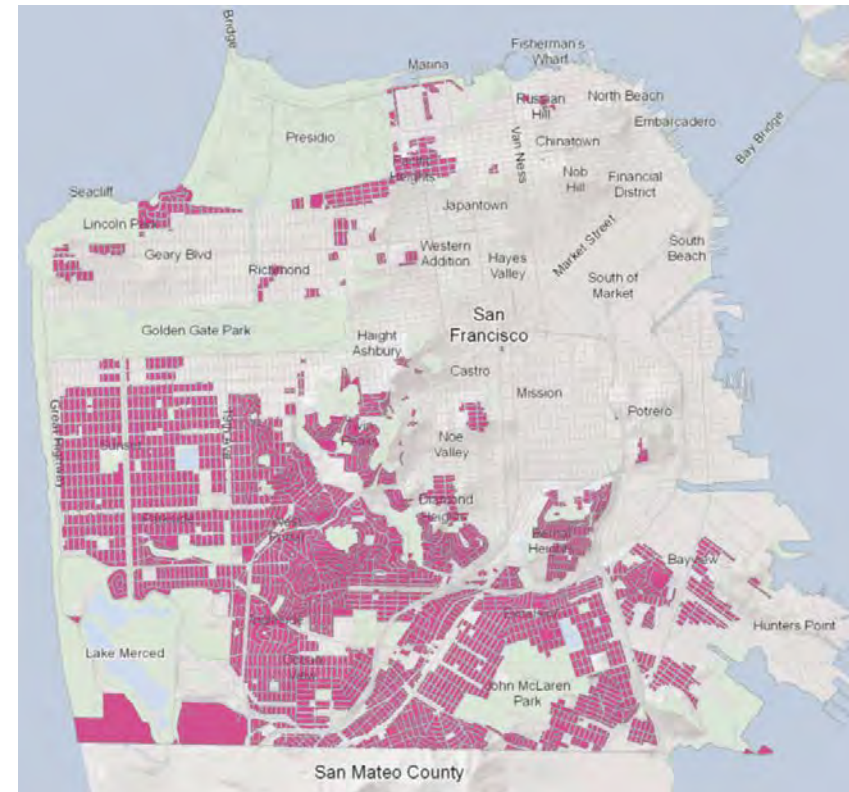






Plugin Houses as Accessory Dwelling Units

- Expensive cities are encouraging home owners to build small backyard homes to increase rental housing stock.









CITY *of* **BOSTON**

The Mayor's
**HOUSING
INNOVATION
LAB**





























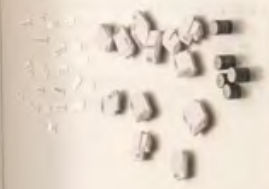




THE PLUGIN HOUSE

There is a movement among local and municipal governments to introduce policy to encourage the construction of small homes in infill areas or even backyards, efforts meant to address the housing crisis faced by many cities. This Plugin House was designed for the US market for use as a backyard home, known in the housing industry as an accessory dwelling unit (ADU).

This prototype was manufactured in China in early March 2018 and delivered to Harvard Yard on April 20th, 2018. The Plugin House structure was built on April 27th, 2018 by a group of local volunteer students with no experience in construction.



PAOpluginhouse.com

NEWSPHOTOGRAPHY/2E.COM

How an ADU's Policy W

A vertical display board featuring a large black outline of the state of California. To the right of the outline, several small, printed cards are pinned, each containing text and a small house icon. The cards appear to be informational or promotional materials related to the Plugin House project.

SIZE?

387 sq feet

12.8 x 11.4 ft

IS IT SUSTAINABLE?

YES, PANELS ARE HIGHLY INSULATED & EFFICIENT

WHAT OTHER QUESTIONS DO YOU HAVE??

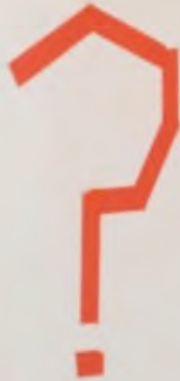
Innovative materials & methods?

of housing?

HOW MUCH DOES IT COST?

AROUND \$150 K

IT'S ALSO CUSTOMIZABLE



WHAT'S THE MATERIAL?

CLOSE-CELL RIGID POLYURETHANE

WHICH IS HIGHLY INSULATED

ELECTRICITY WIRING?

TRAVELS INSIDE PANELS WIRING & DUCTS

CAN I BUY ONE?

NOT YET, BUT COMING SOON

CAN I PUT IT

NOT YET IN BOSTON / YET

IN ADDITION







Can Housing Be Affordable and Beautiful?

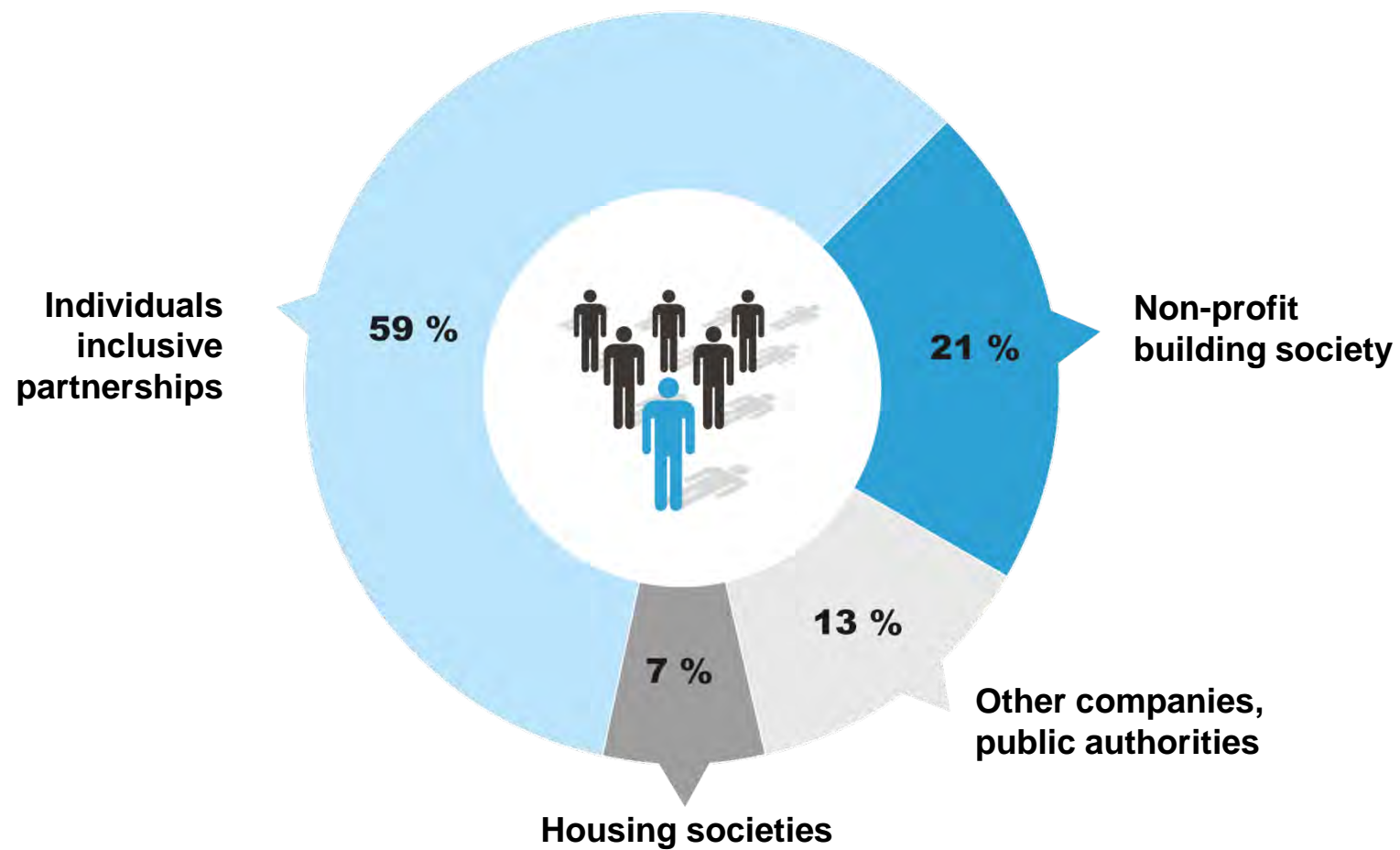


**INNOVATIONS IN DESIGN AND CONSTRUCTION
TECHNIQUES**



Introduction


Gerti Axelsen
Head of Building & Development





Three topics

1. **Affordable housing - What is social housing?**
2. **Why do the high-profile architects wish to collaborate with Lejerbo – and vice versa?**
3. **An example – Circle House**

An aerial photograph of a city, likely Copenhagen, showing a dense urban landscape with numerous buildings, a river, and a bridge. The image is used as a background for the text.

“The purpose of social housing organizations is to provide decent housing for all in need hereof at a reasonable rent and to give residents influence on their own living conditions”.

Our homes

Family housing
Youth housing
Housing for elderly
Housing for disabled people
Nursing homes

as

Terraced houses
Detached houses
Blocks of flats



The economy – The Danish model

NON-PROFIT

Rents equal operating, maintenance and capital costs. The sector is regulated and there is no room for speculation.

No one can earn money from the rent in social housing.



TENANT DEMOCRACY

All housing organizations are managed by tenant democracy, where each individual housing estate elects its own tenant board at a yearly tenant meeting.

At the tenant meeting they also make decisions on whether to approve or alter the budget.



STABLE FINANCE MODEL

Social housing estates are built via public funding.

The National Building Fund enhances self-financing within the sector



Approx. 35,000 homes

Approx. 650 departments - Organized in 51 autonomous organizations

Almost 600 employees

Over 375 million dollars in annual rent bills

Approx. 3,500 vacatings per year

A total property value of more than 6 billion dollars

Affordable housing - Why?

We solve social challenges

**We develop and invent
because of 'need'**

**We are stable, long-term
and solvent developers**



Dortheavej





High-profile architects and affordable housing – how come?

Better homes

- give competitive advantage to Lejerbo
- ensure attractive and leased housing
- give the most value for the used facility investment
- provide operational savings

Better architects

- support us in the development of new housing types
- help us take social responsibility in the built environment
- challenge and develop us as developers in a mutually productive cooperation

Circle House



Circle House

60 new public housings to be designed and built according to the principles of circular economy

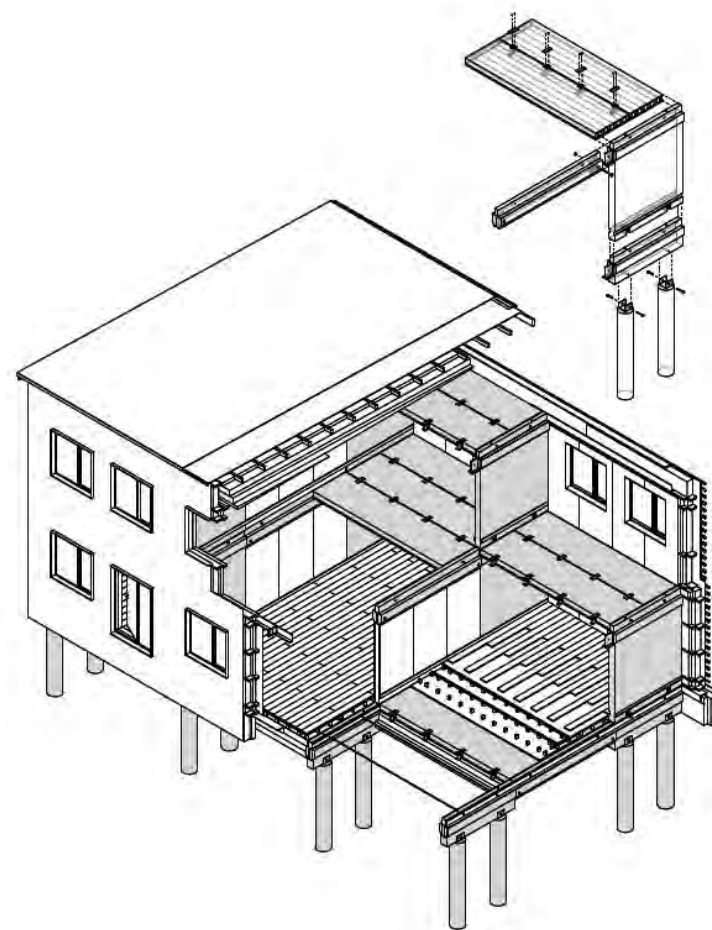
The objective is that up to **90% of the construction can be separated and reused** without losing significant value

The goal is a **scalable circular** lighthouse building offered and performed on **market conditions**

The homes to be built within the **financial framework for public housing**



Circle House



Circle House



Circle House

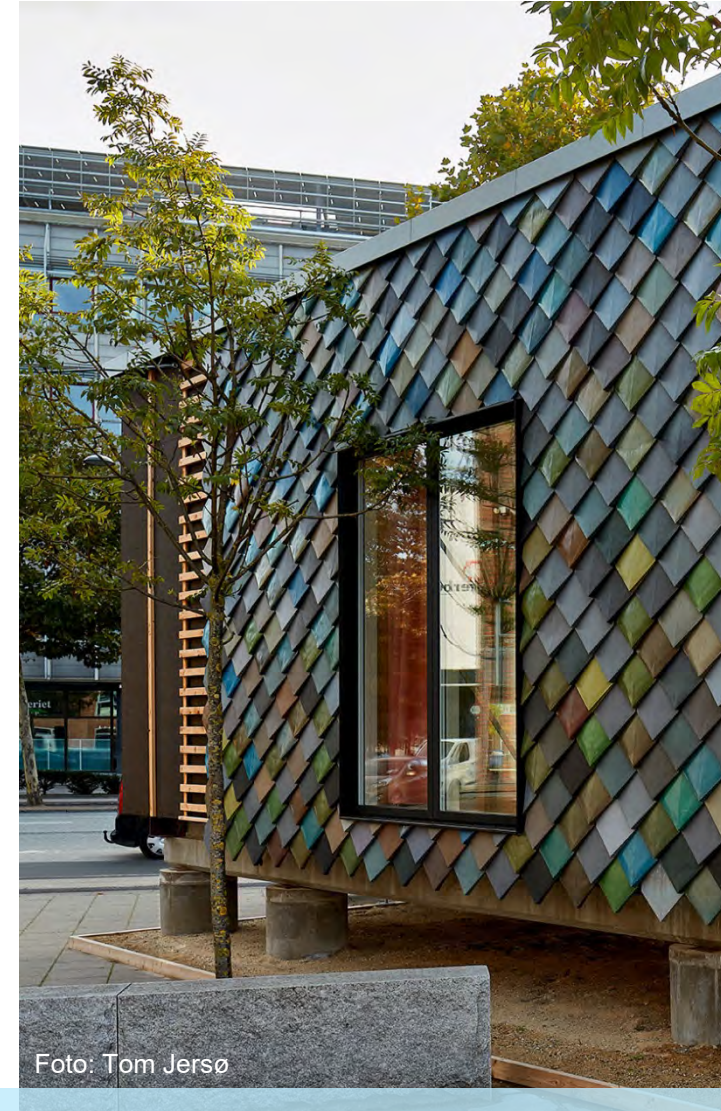


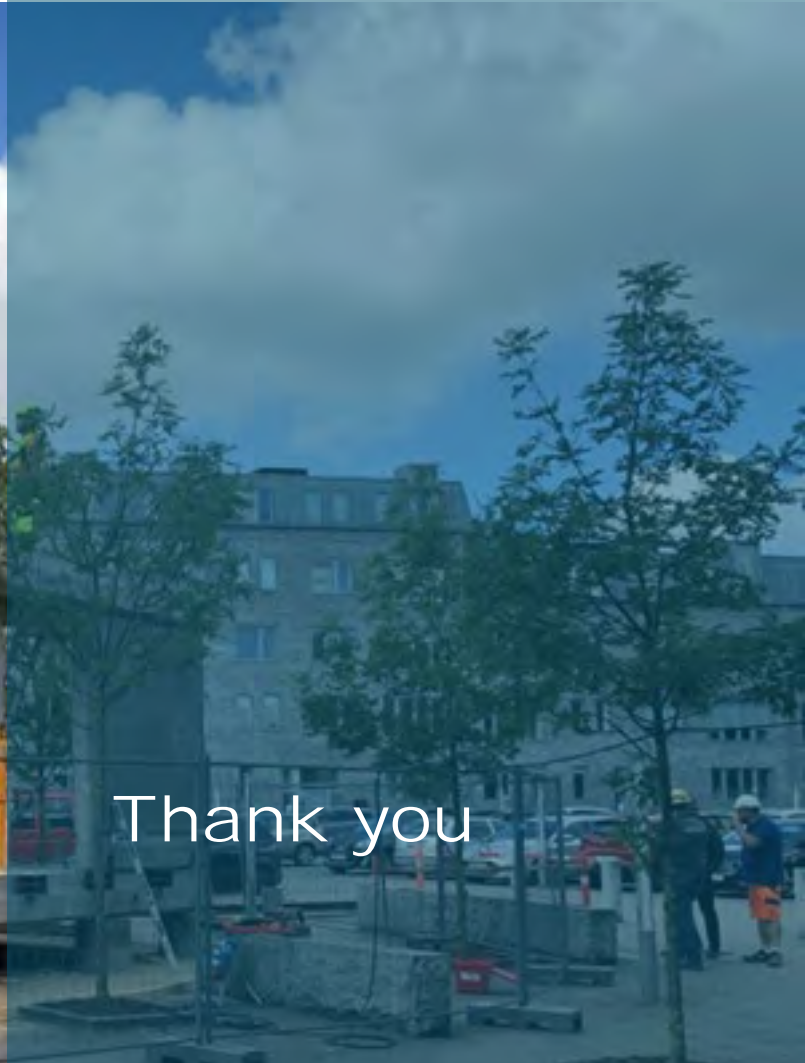
Foto: Tom Jersø

Circle House



Type	Antal	BBR Afrundet
Lejlighed PA	12	108 m ²
Lejlighed PB	6	67 m ²
Lejlighed PC	5	52 m ²
Lejlighed PD	1	78 m ²
Lejlighed PE	1	89 m ²
Rækkehus RA	6	89 m ²
Rækkehus RA1	2	100 m ²
Rækkehus RB	2	89 m ²
Rækkehus RB1	2	95 m ²
Rækkehus RC	8	86 m ²
Rækkehus RC1	6	100 m ²
Rækkehus RD	7	92 m ²
Rækkehus RD1	2	106 m ²
Total	60	5371 m²





Thank you

Financing a new estate – initial set-up

Municipal capital 8-12 %

Municipality loan, interest and installment free

Mortgage on real property 86-90 %

30 years fixed interest nominal mortgage

Tenants' contribution

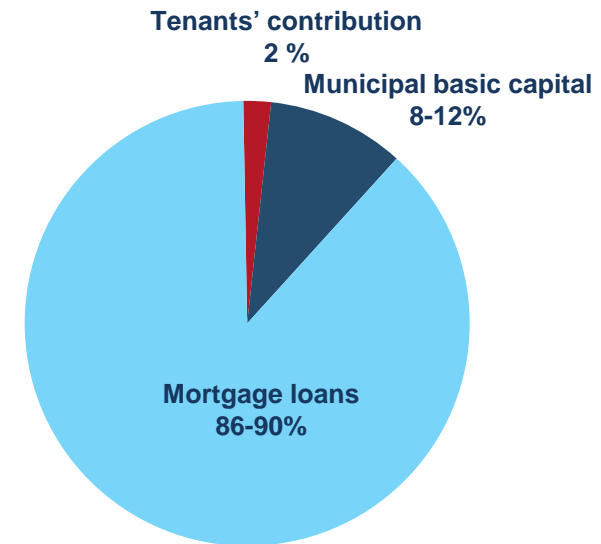
2 %

Is paid by the tenants when taking up residence

Acquisition sum

100 %

Restrictions on the acquisition costs is set by the state and regulated every year.



Dortheavej



