Safe neighborhood - how?

1 Nov. 2012

Hiroki Matsuura

Urban “Dangers”

Natural disaster
War
Terrorism
Industrial hazards
Power outage
Crime
Fire
Traffic / Transportation
Information crime
Mental disorder
Civil disorder

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Types of Crime

Intentional Homicide
Arson (setting fire to buildings)
Assault
Sexual violence
Kidnapping
Robbery
Burglary
Theft
Motor vehicle theft
Domestic burglary/housebreaking

Methods of preventing crimes

Reinforcement of criminal law
Reinforcement of policing
Reinforcement of technical devices (CCTV, locks....)
Environmental design / management
Community empowerment (education, neighborhood watch...)
Territorial segregation (gated territory / community...)
Education

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Education

maxwan

architects + urbanists

Causation of crime

A “criminal” is a type of person who is different from you & me.
If you remove its causes, crime will be reduced.
If you banish criminals from your surroundings, you should have a safe environment.

Paradigm shift in 1970’ then finally the reduction of crime started

Environmental criminology - Situational Crime Prevention

A “criminal” is no different from you & me: if given the opportunity, anyone can commit crime.
It is highly difficult to find causes of crime, and even if you suceed, finding “solutions” is more complex.
Reduction of criminal opportunity should be the most effective method in reducing crime.

Osaka School Massacre, Japan 2001

At 10:15 that morning, 37-year-old former janitor Mamoru Takuma entered the school armed with a kitchen knife and began stabbing numerous school children and teachers. He killed 8 children, mostly between the ages of 7 and 8, and seriously wounded 13 other children and 2 teachers

There were 2 gates in this school and both were kept open during the tragedy, and there were plenty of blind spots for surveillance due to the building / planting layout that caused late discovery of the crime

The criminal stated that he simply would not have entered the school if the gates were closed.

CPTED

Crime Prevention Through Environmental Design

1960s

Elizabeth Wood

the first Executive Director of the Chicago Housing Authority

Jane Jacobs

“The Death and Life of Great American Cities” (1961)

Shlomo Angel

“Discouraging Crime Through City planning” (1968)

1970s

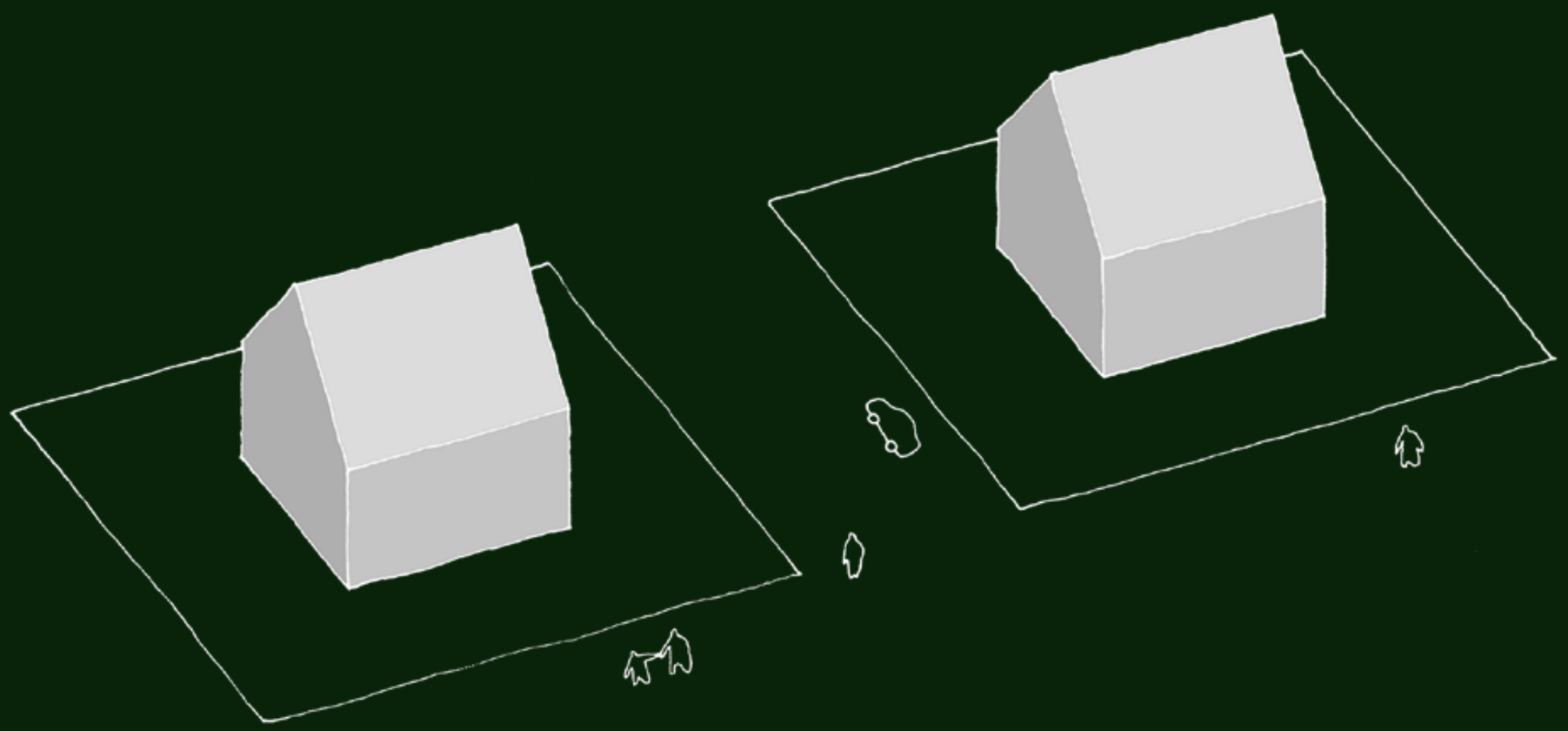
C. Ray Jeffery

“Crime Prevention Through Environmental Design” (1971)

Oscar Newman

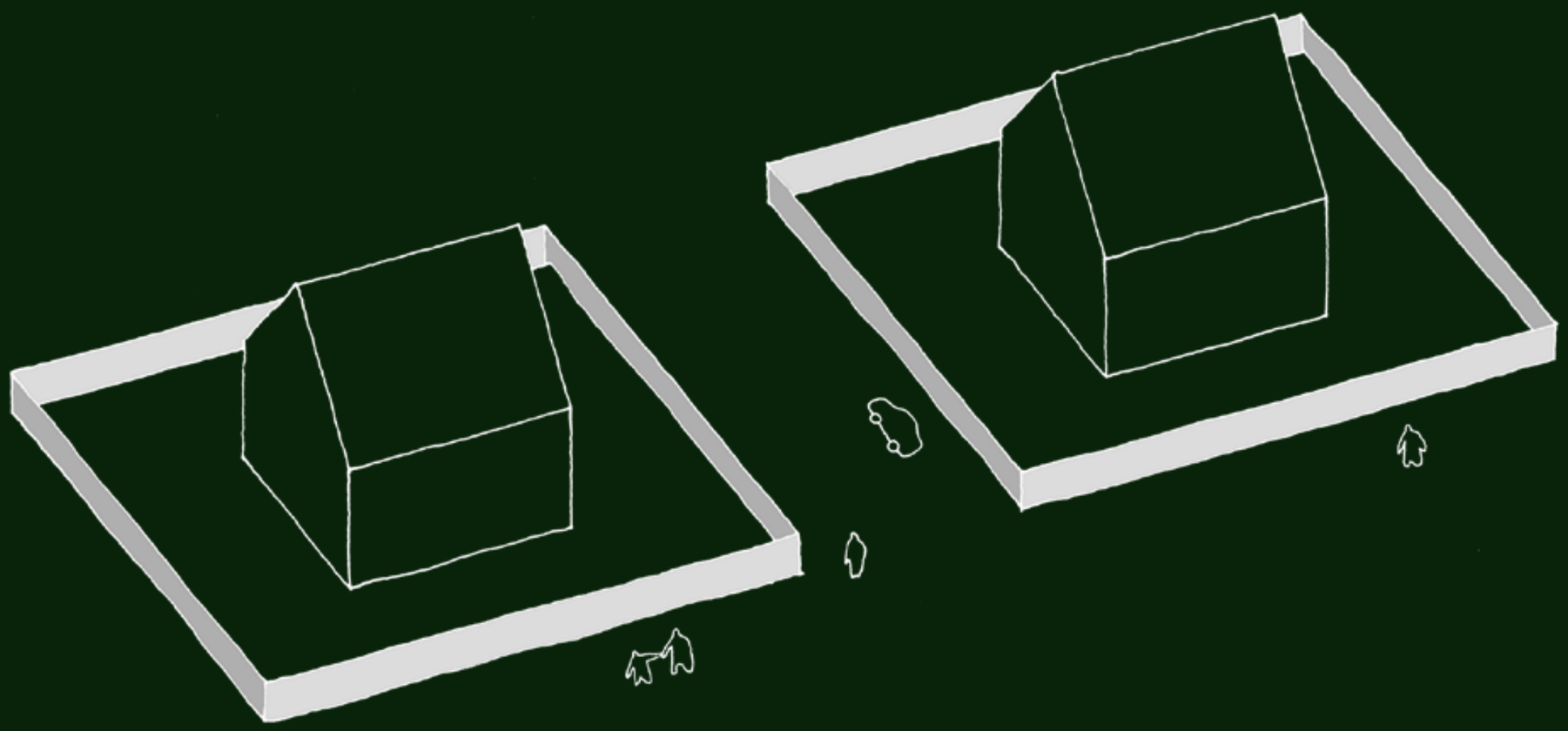
“Defensible Space - Crime Prevention through Urban Design “ (1972)

“Creating Defensible Space” (1996)



Not only about protecting your own territory

Creating a safe environment is not only about considering your own territory. Since any urban environment consists of private and public ground, the achievement of a safe environment requires complementary consideration of “your own” and “your surroundings”.



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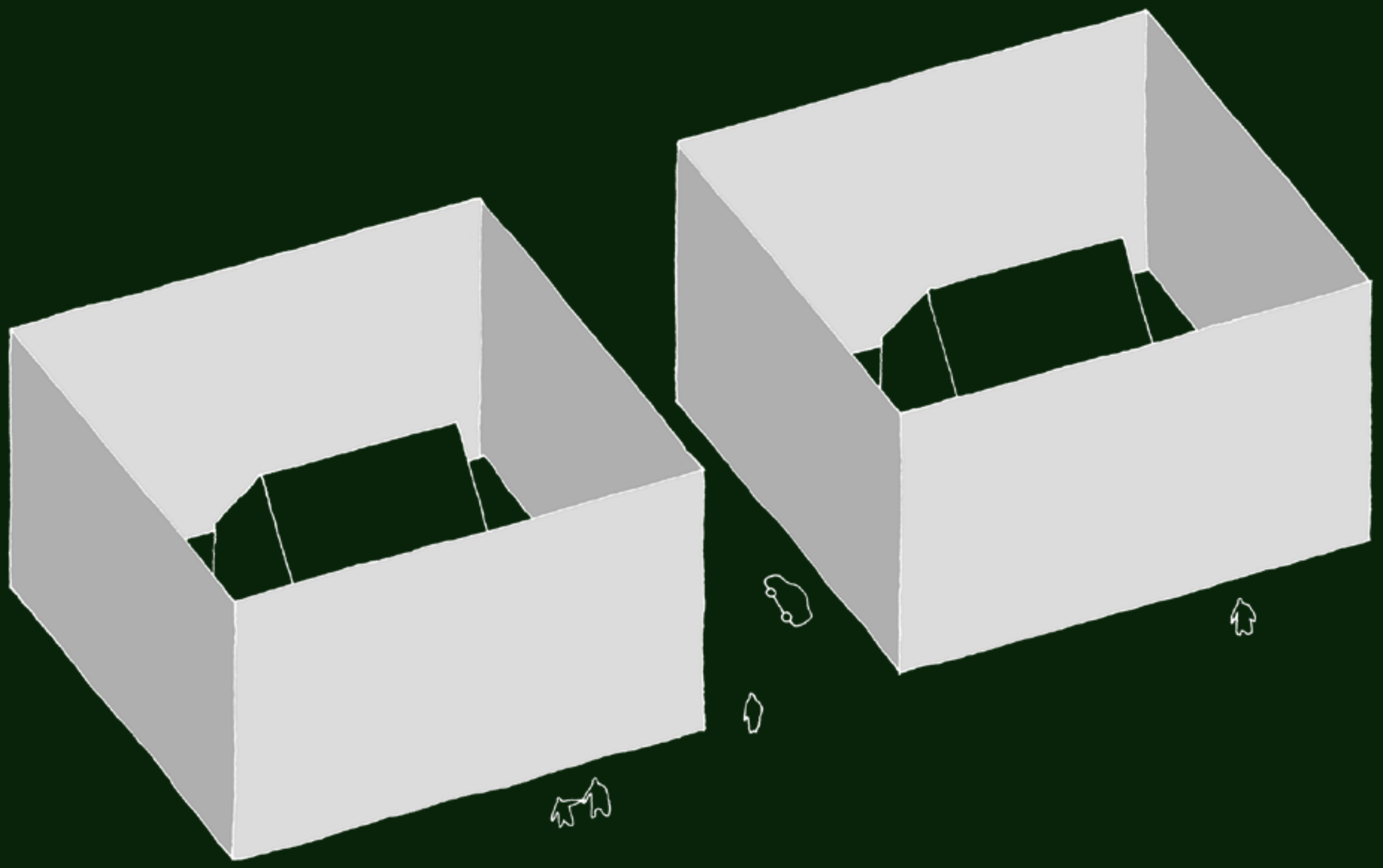

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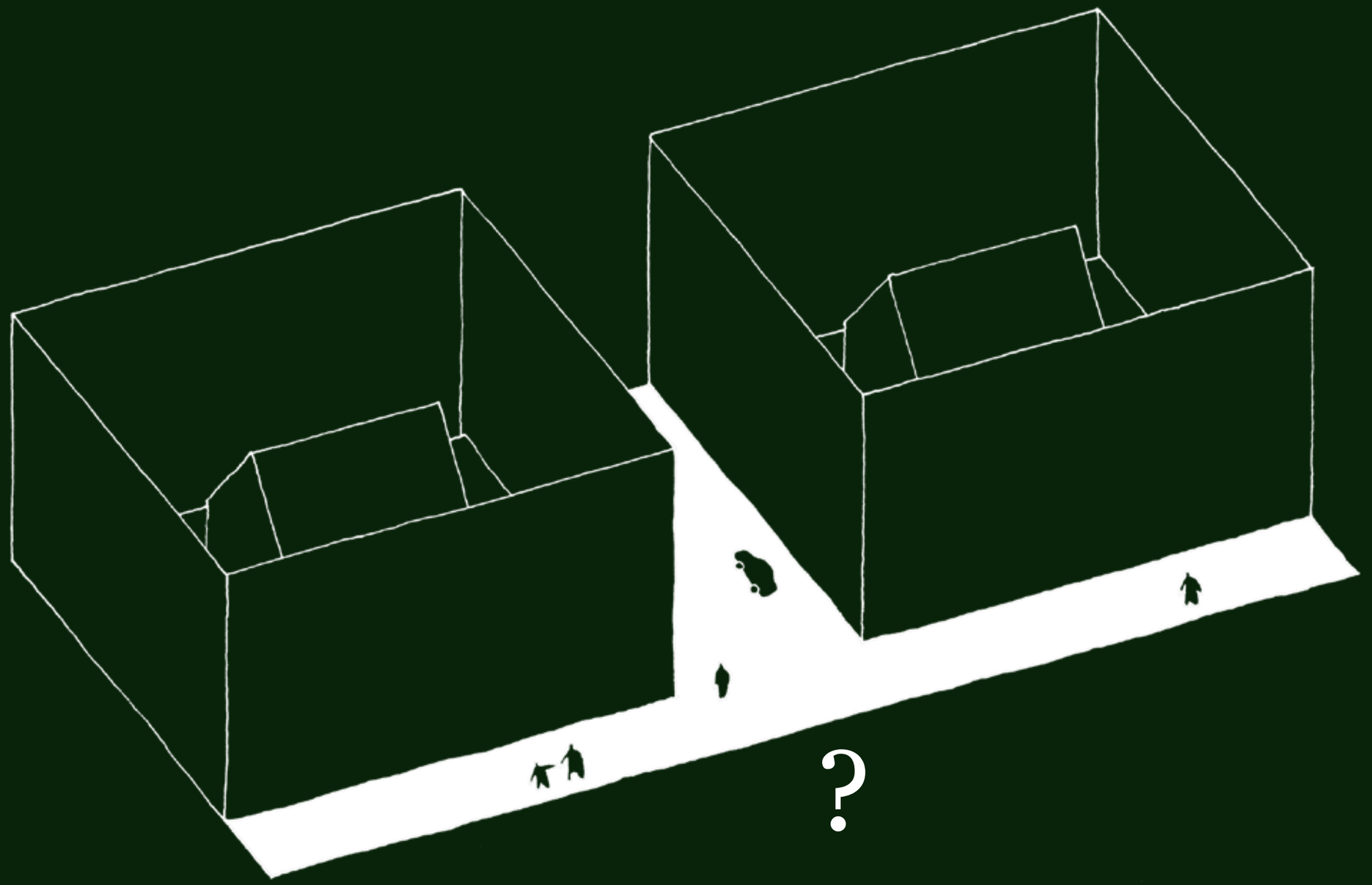

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Buildings

Public / Communal space + Streets

Rome (Nolli Map)

Yin & Yang both fundamental!

Our urban environment consists of two complementary components: “built” (buildings) and “un-built” (public/communal space + streets). Needless to say, urban security needs to cover both entities.

Buildings

Public / Communal space + Streets

Skolkovo, Moscow

Yin & Yang both fundamental!

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Core issues of CPTED

Optimizing Visibility - Natural surveillance

Minimizing Territorial Anonimity - Natural territorial reinforcement, Sense of ownership

Compacting Neighborhood - Natural access control, Compacting community

Management & Maintenance

Smart Planning Tools, Mix

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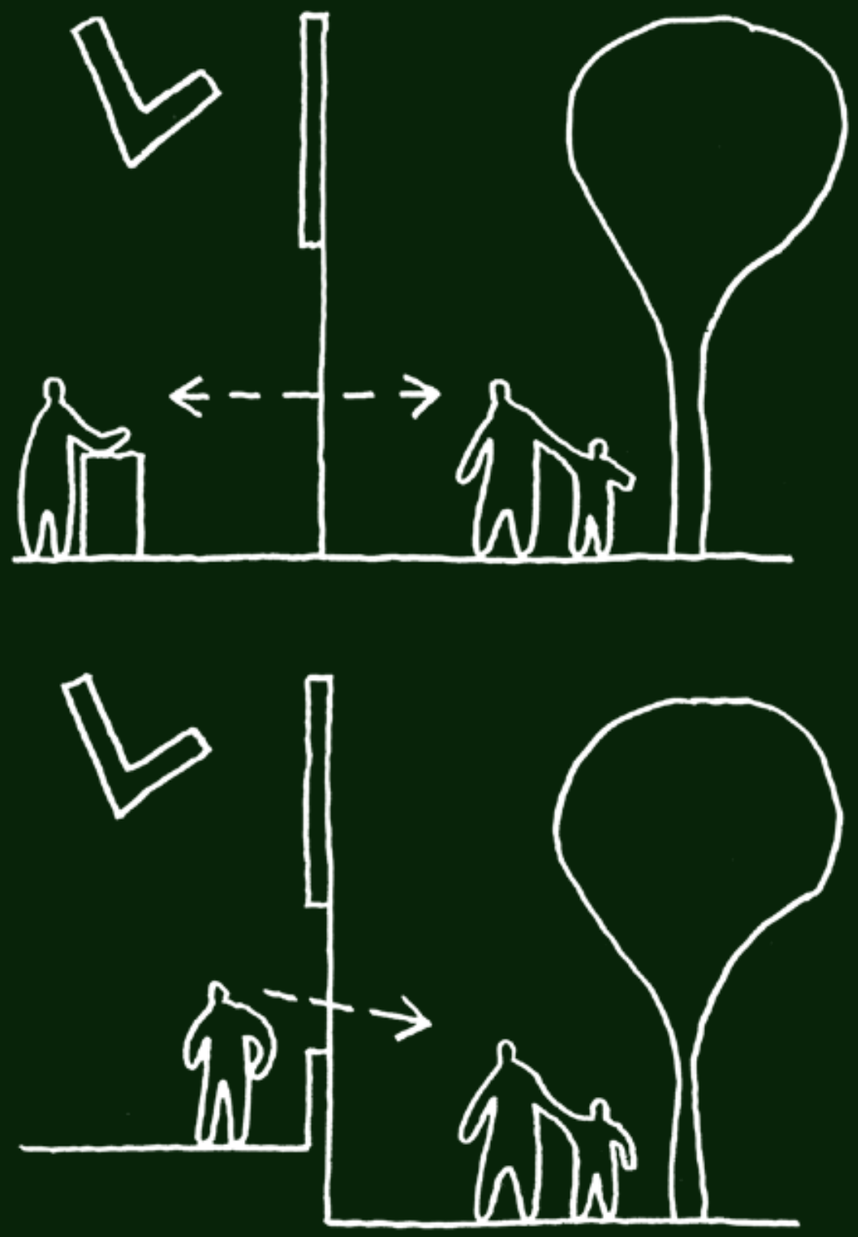
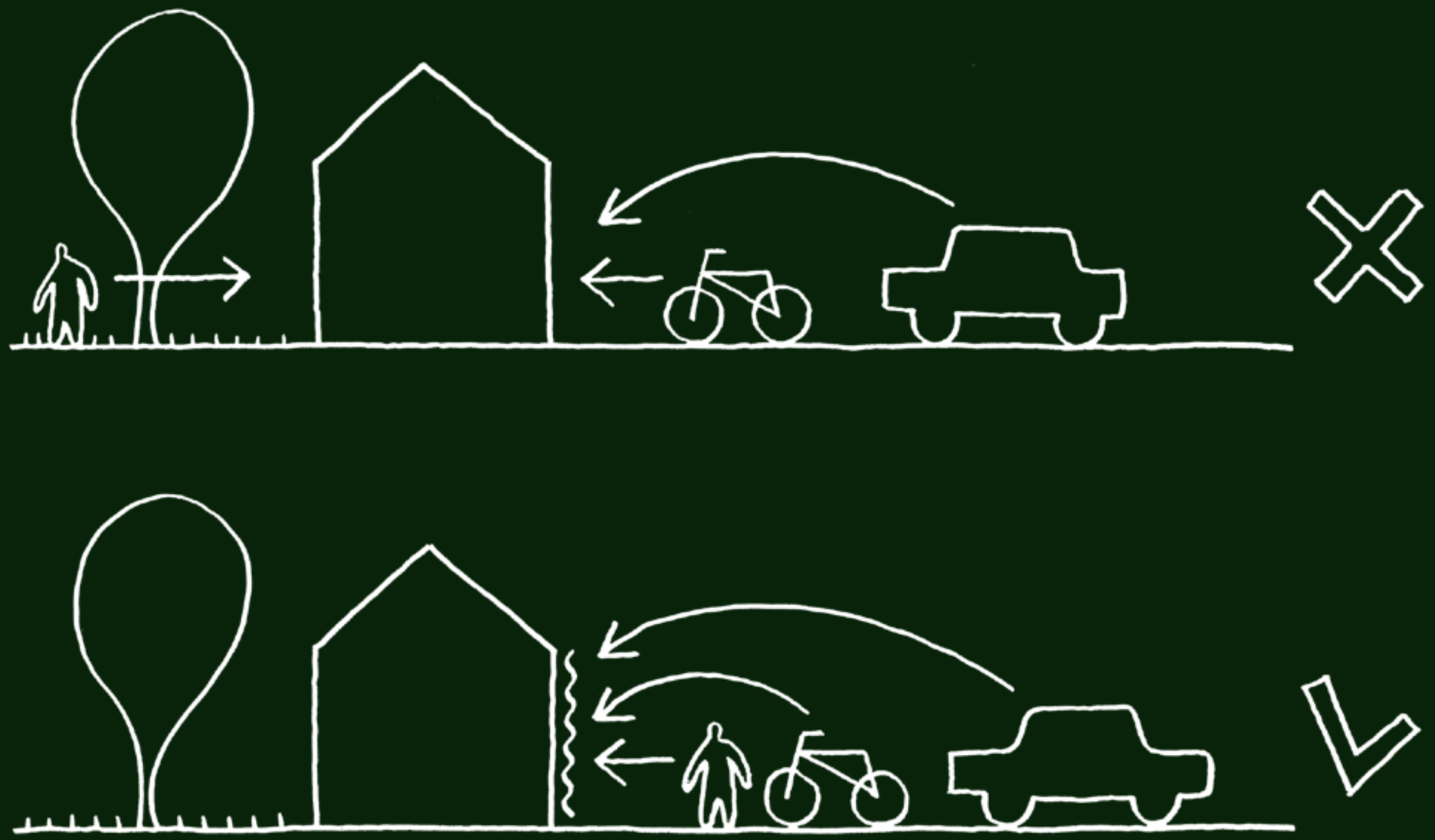


Active frontage

Windows and doors should face onto the street avoiding having a blind facade. The more windows overlooking the street and other public space, the better for the natural surveillance.



Legitimate frontage

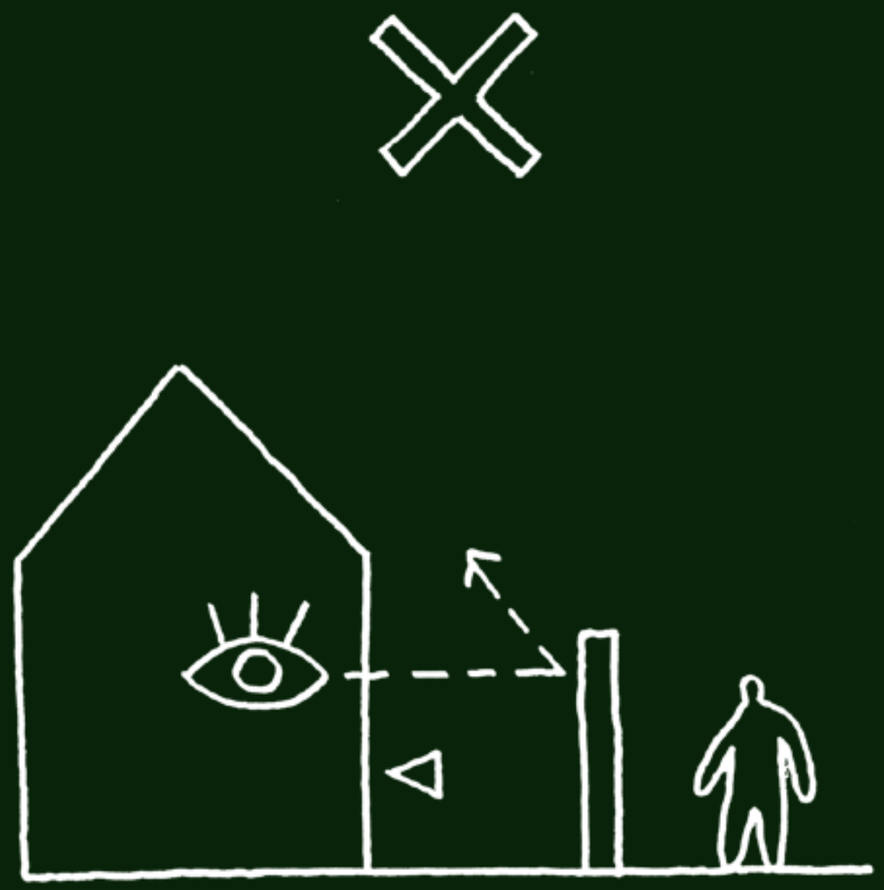
Concentration of access (by foot, bike and car) into the building creates legitimate frontage of the building.

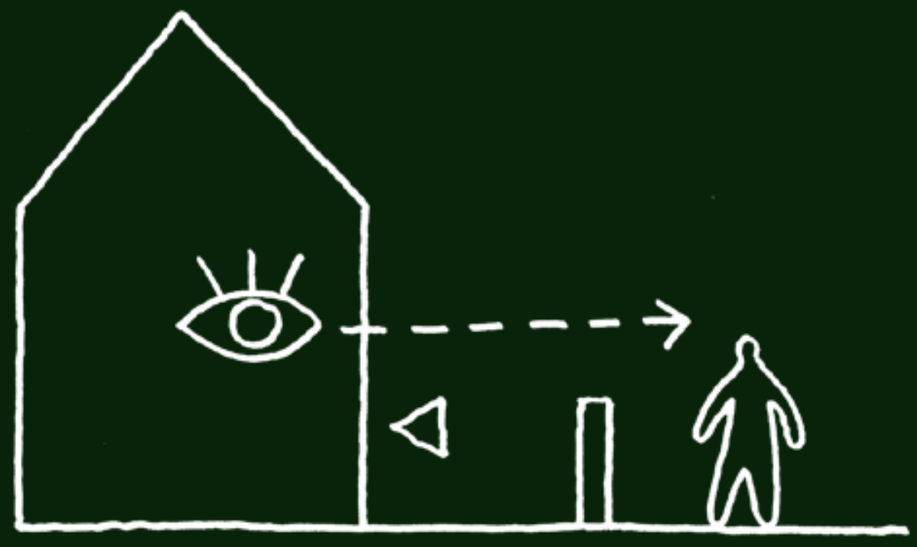
High, but permeable

In case high fences or walls are necessary, the material should allow visual permeability for natural surveillance of both areas as well avoiding creating “hiding” space for criminals.

Active edge between public and private

If houses are adjacent to the public space, it is ideal to create an active edge between private and public space: having legitimate frontage of houses instead of backing onto public space with a high fence/wall. Active edges maintain the level of natural surveillance of both areas and eliminate “dead-ends” of public space.





Higher is not always safer

Having high walls or hedges in front of houses gives the illusion of security for the houses and street. It could backfire and create “hiding” space for criminals. Mutual visibility between dwelling and street should be maintained.

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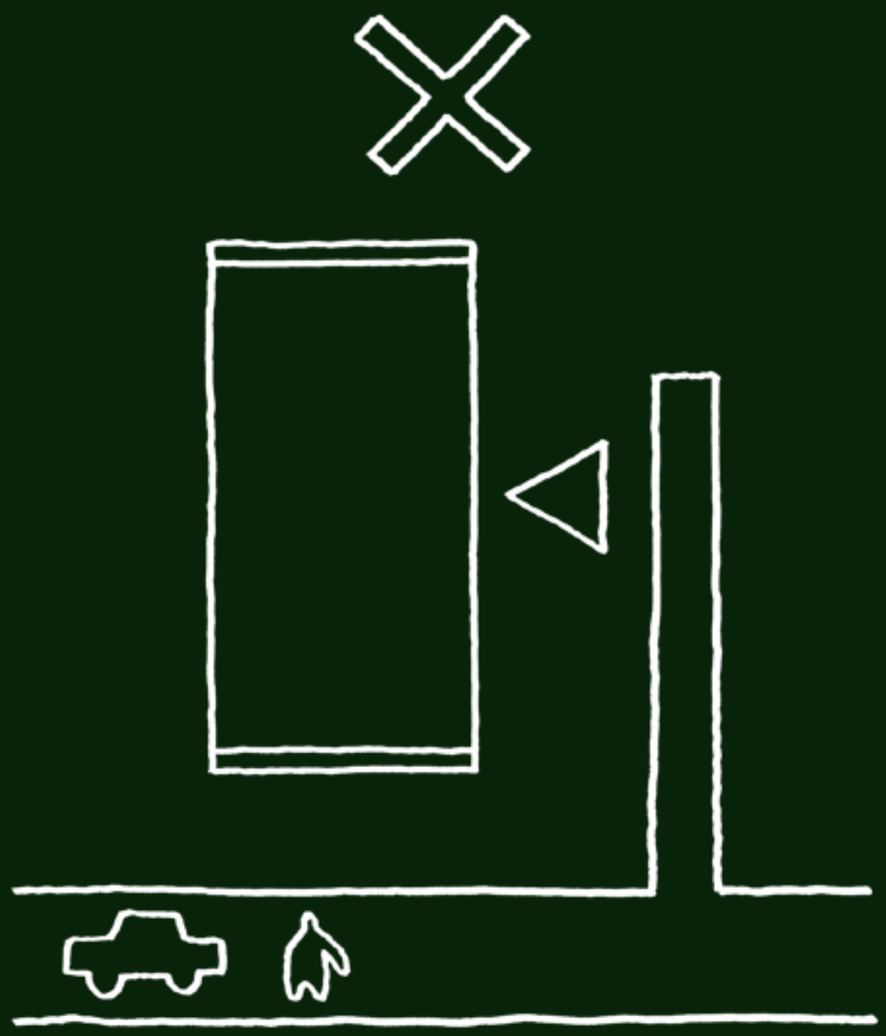
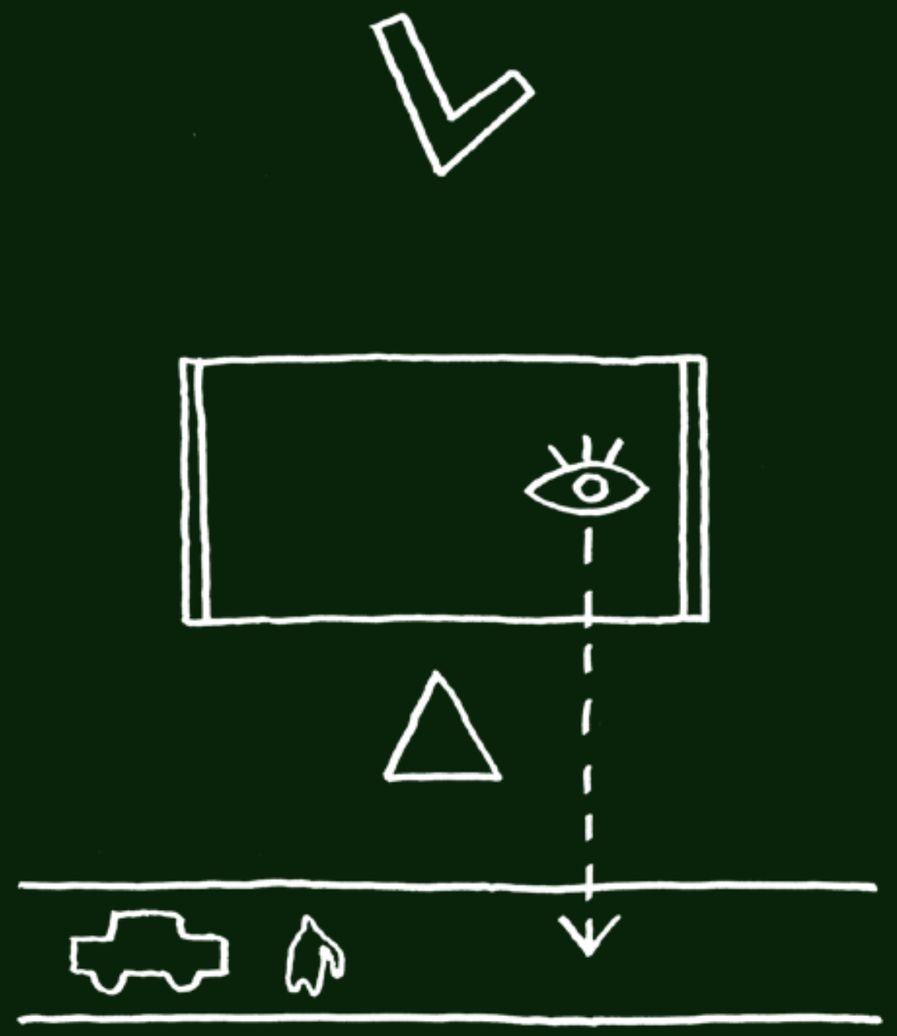
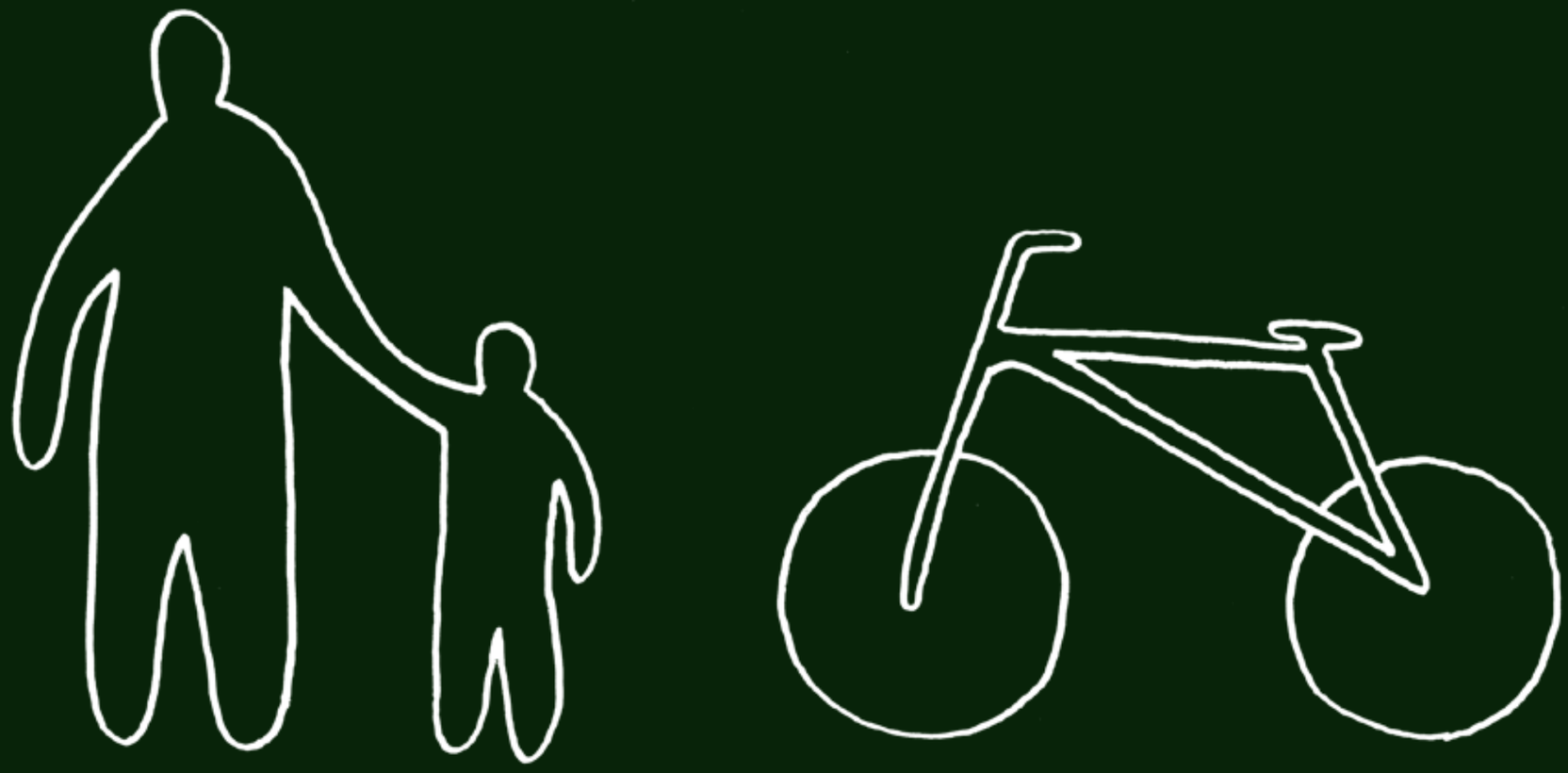




Facing the street

The frontage of building should face the street to optimize natural surveillance of both territories, minimizing access distance and creating an active street.

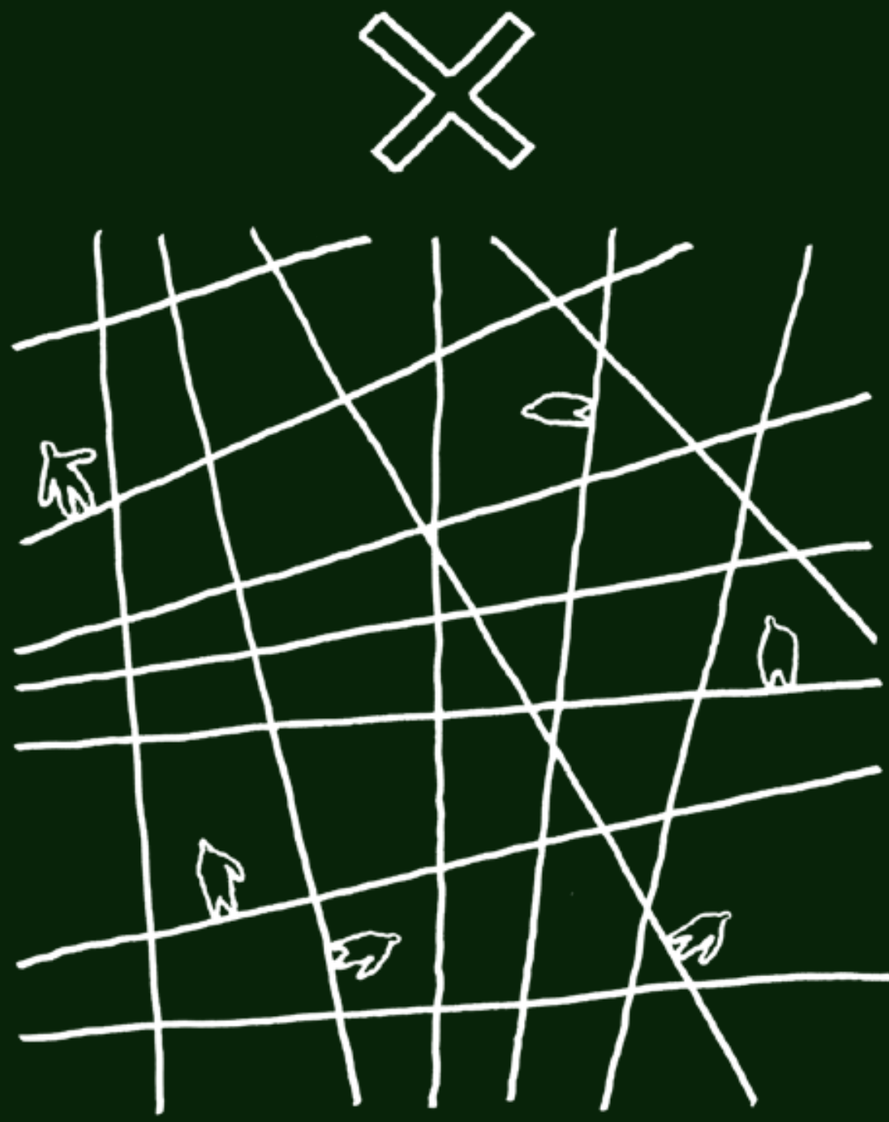


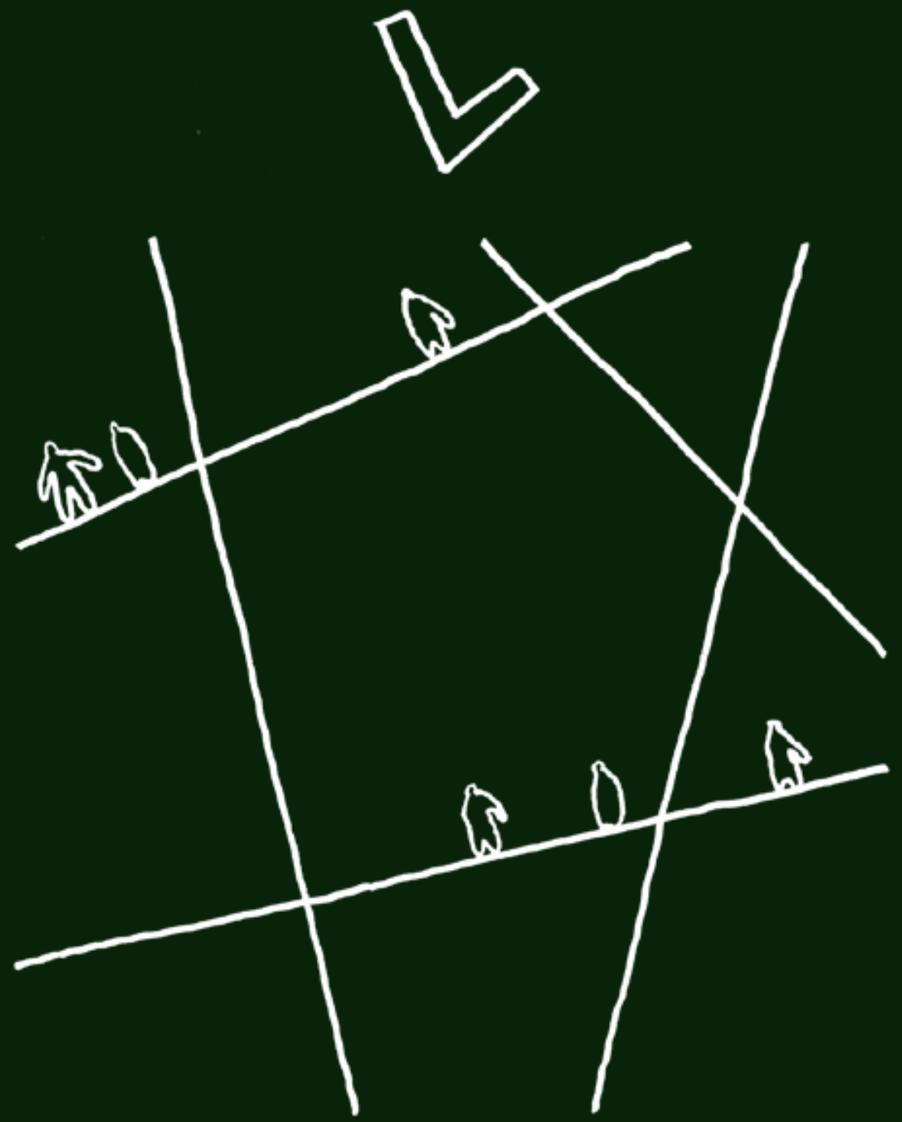
More pedestrians and cyclists

The design of pedestrian- and cyclist-friendly streets not only reduces CO_2 emmissions and car traffic - it also brings more people to the street at different times of the day, optimizing street usage and natural surveillance.

CCTV occasionally

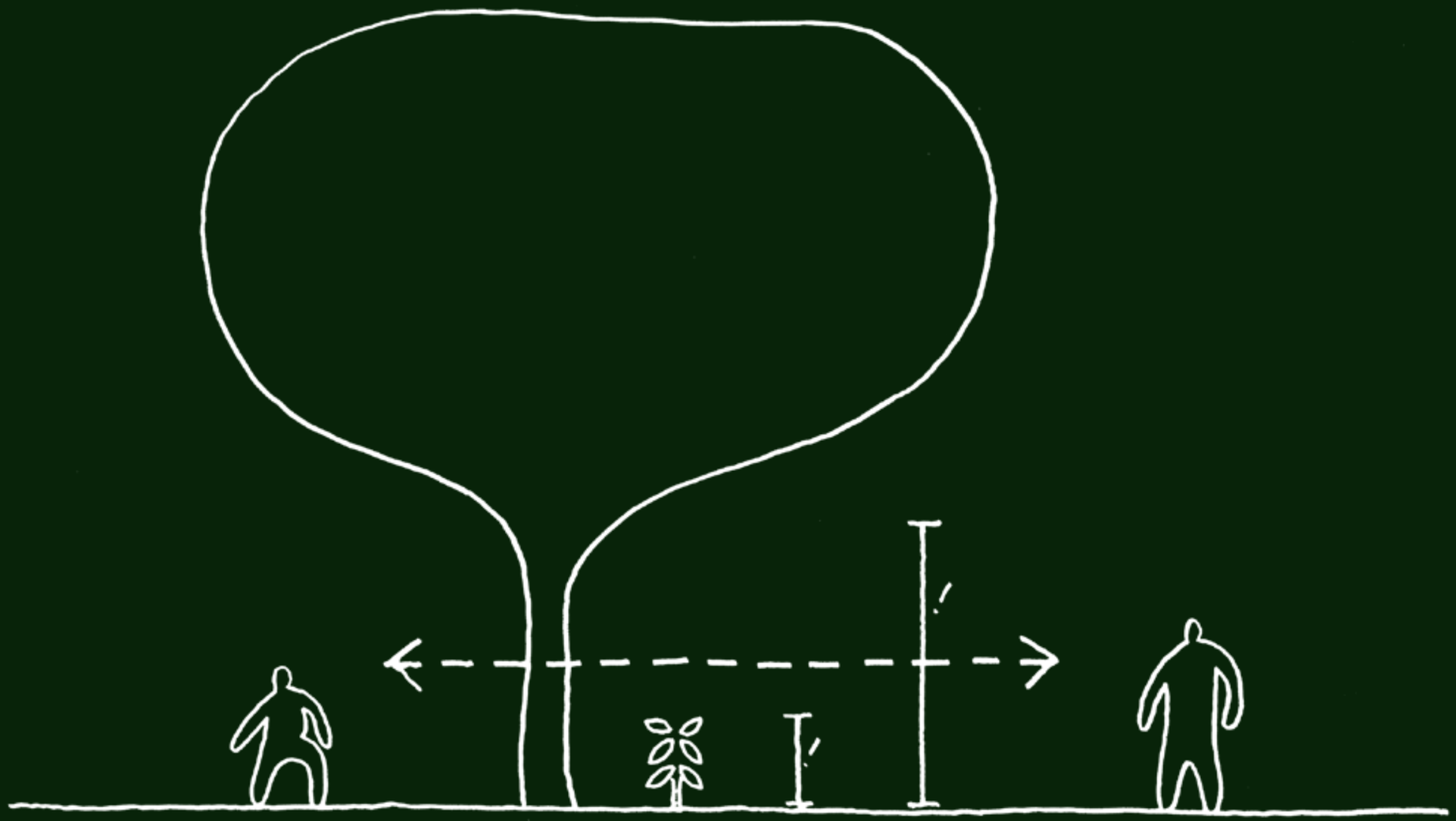
Closed Circuit Television (CCTV) should be considered as a supplementary device for the surveillance of blind spots in public spaces. CCTV is most effective when combined with good lighting, designed to counter specific offences, and supported by management, continuous monitoring and adequate response.





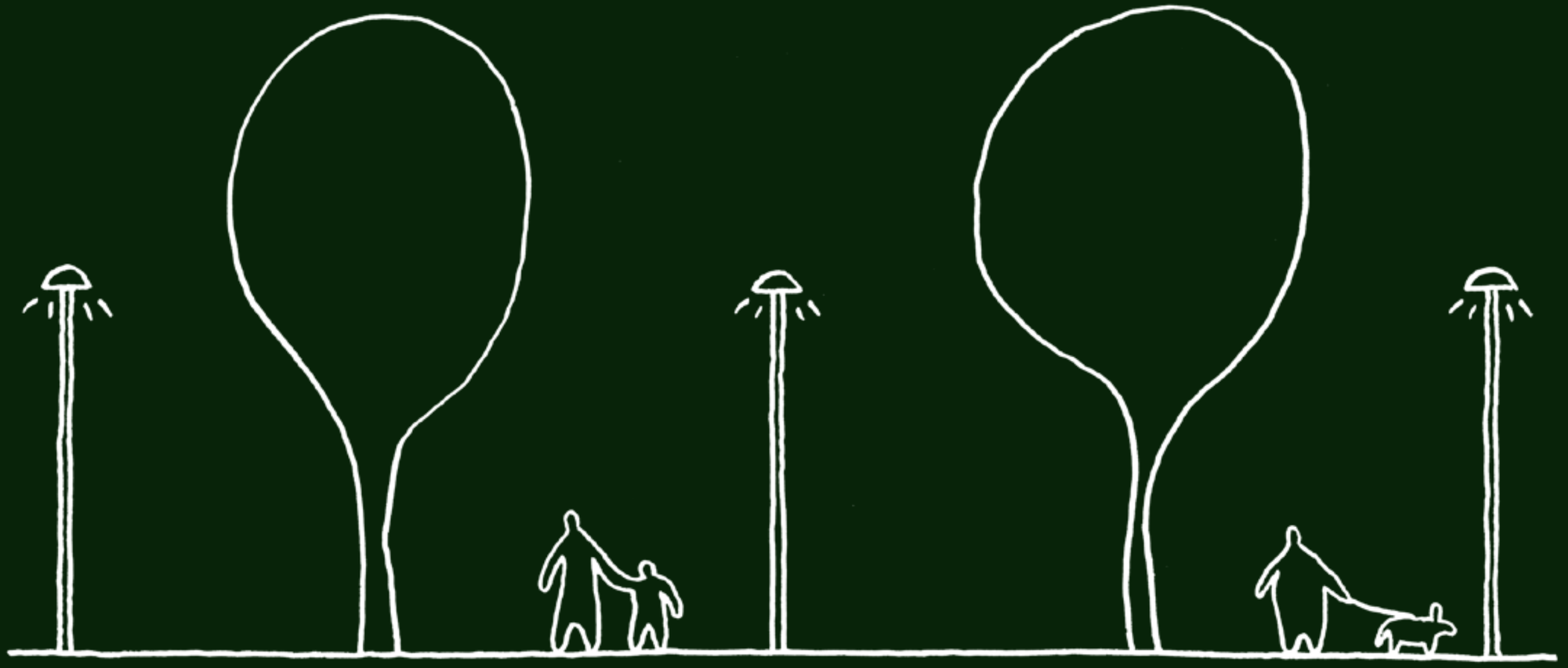
Sufficient but limited number of access routes

Surplus numbers of “access routes” disperse people and activities, creating “access-without-use” spaces. Sufficient but limited number of access routes brings people together, optimizes natural surveillance and minimizes maintenance costs.



No visual blockage by landscape

Where landscape is provided in public open spaces, or adjacent to public open spaces like streets or parks, no plants or shrubs should be planted to block the field of vision between 700mm and 2,000mm above ground level



Lighting

Public lighting should be provided for streets, footpaths, public telephones, public transport stops and any public spaces likely to be well used at night by pedestrians, cyclists and vehicles. The lighting fixtures and columns themselves can also be vulnerable to vandalism, so should be robust and secure.

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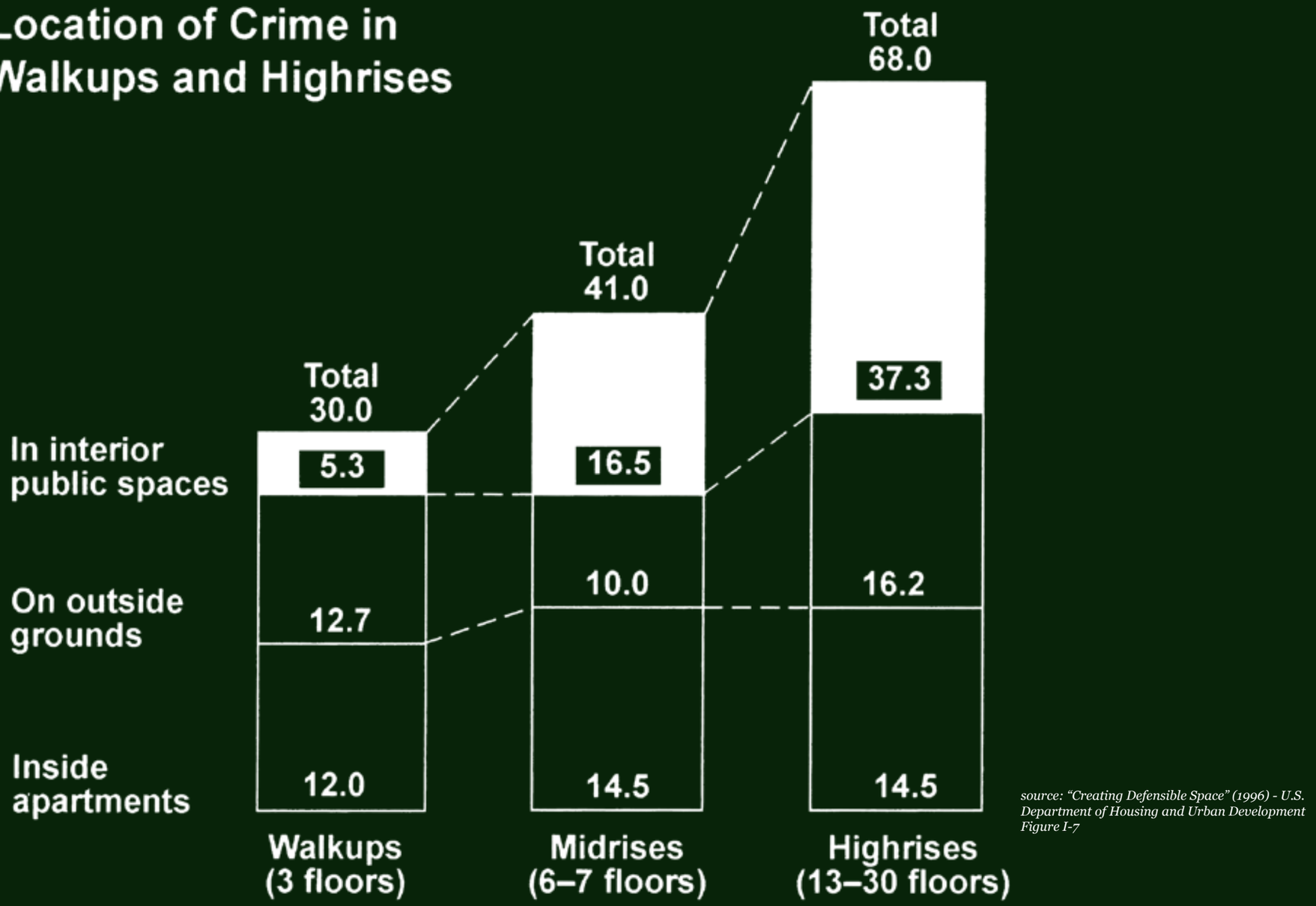


source: "Creating Defensible Space" (1996) - U.S. Department of Housing and Urban Development Figure I-7

More anonymous, More dangerous

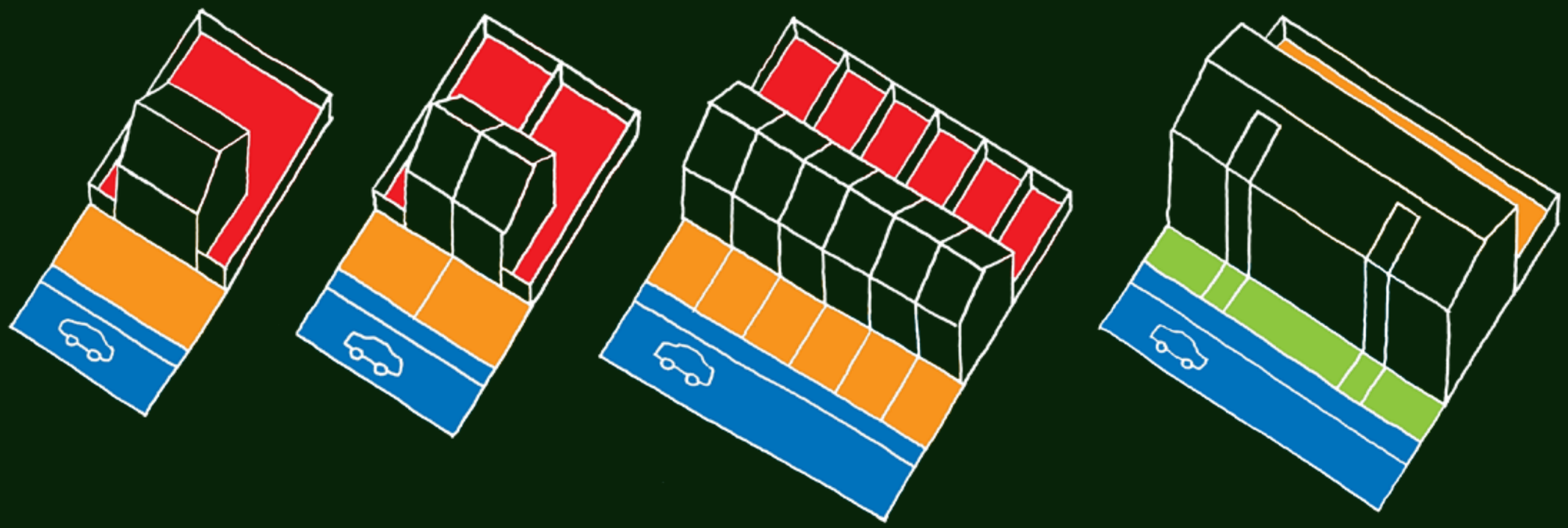
Graph showing the relationship between the increase in crime and increased building height and that crime is mostly located within public areas

Detached house

Semidetached house
(Duplex)

Rowhouse
(Terraced house, Townhouses)

Garden apartments
(Walkups)

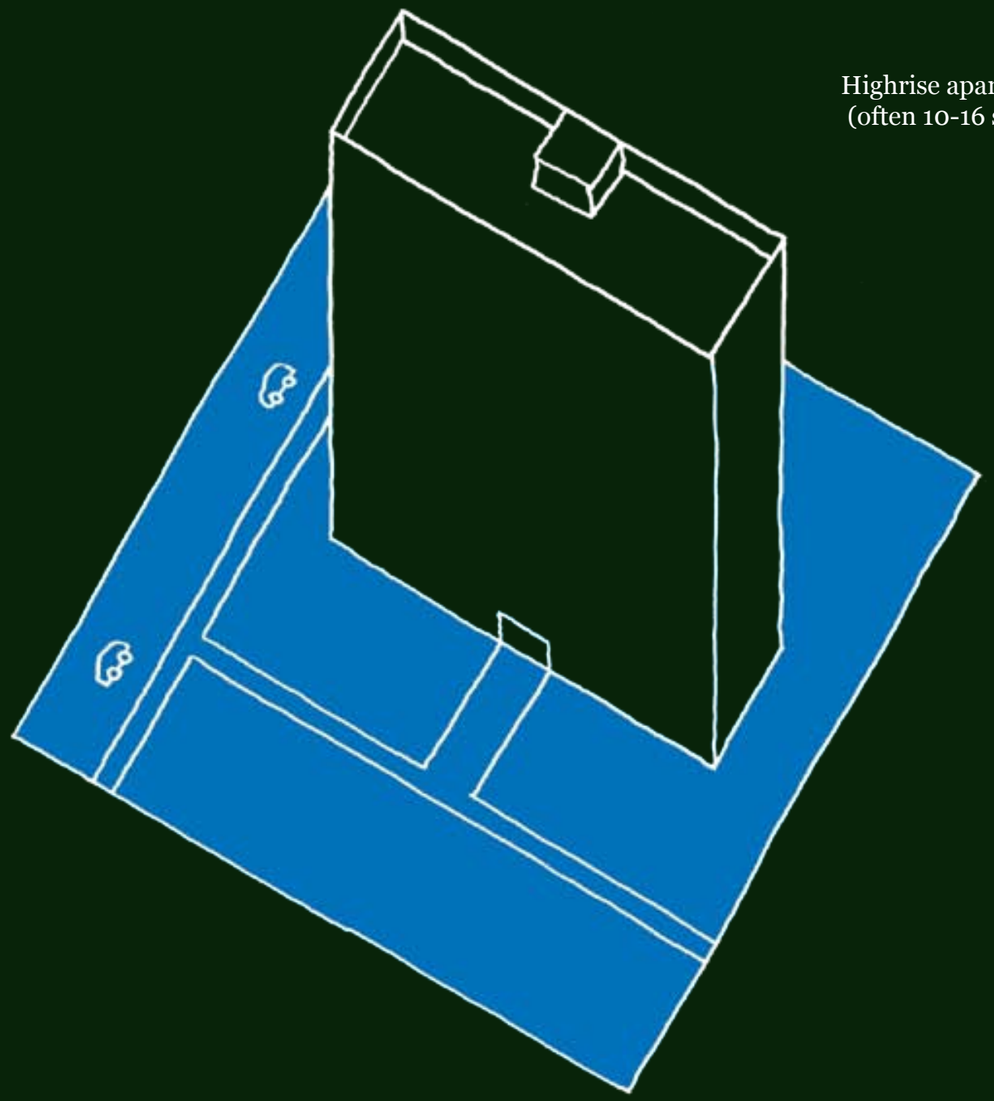


Private
Semi-private
Semi-public
Public

source: "Creating Defensible Space" (1996) - U.S. Department of Housing and Urban Development Figure I-9, 10

Nature of space per typology

The above diagrams show a range of housing typologies and the nature of spaces surrounding them. The three typologies to the left all have semi-private space (however privately owned) along the street, whereas the garden apartments on the right only have semi public space that can lead to a more anonymous character of the street.



Private
Semi-private
Semi-public
Public

source: "Creating Defensible Space" (1996) - U.S. Department of Housing and Urban Development Figure I-11

"For everyone" could mean "For nobody"

The above diagram shows the high rise apartment typology and nature of spaces around it. The main entrance of the building does not face the street so the level of natural surveillance of the street is low. The building is surrounded by an ocean of anonymous space that leads to severe safety risks in the area

Moscow

Moscow

Moscow

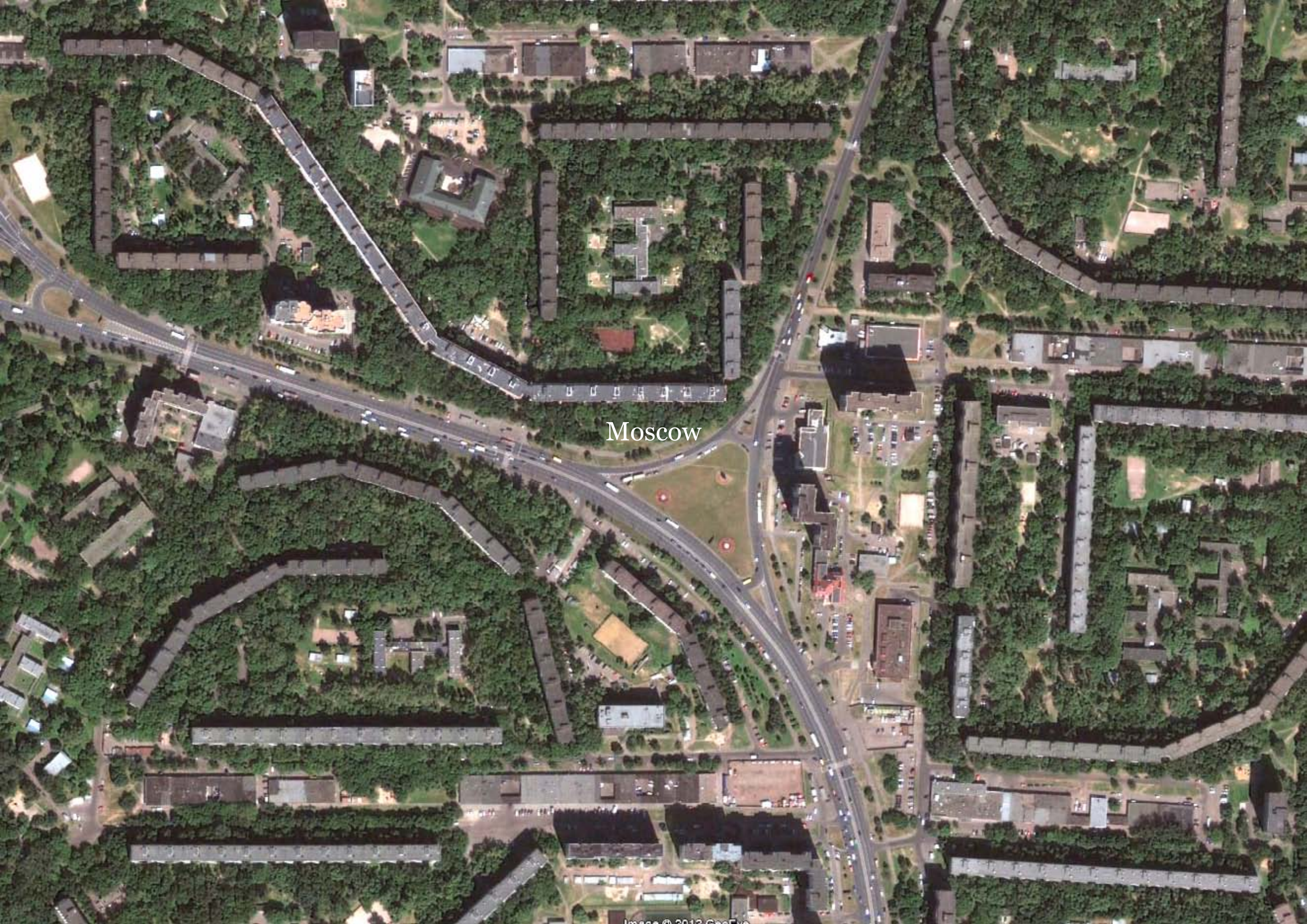
Moscow

Moscow

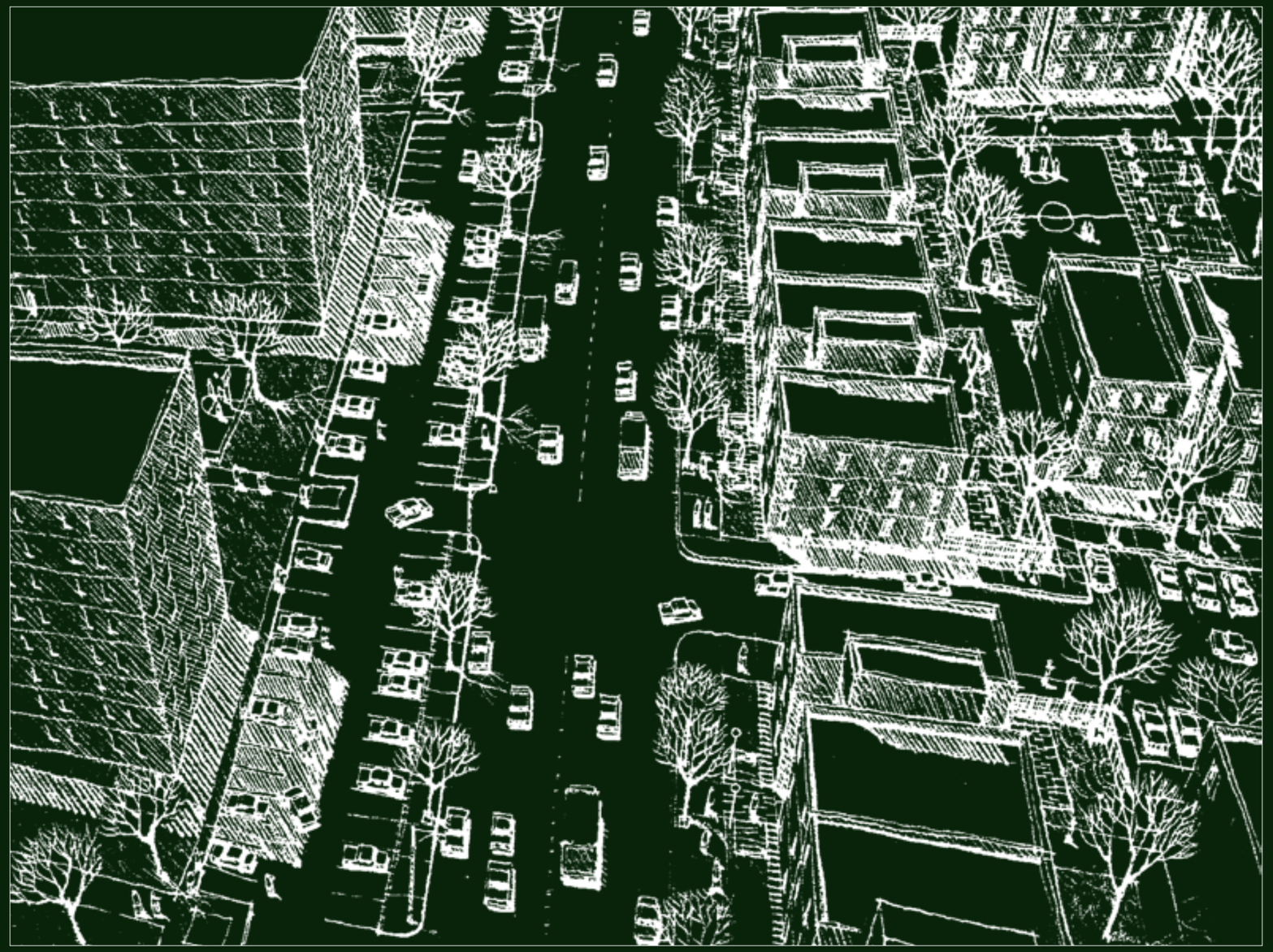
Moscow

Moscow

Moscow


Moscow

Each entry does not faces the street and serves 60 families

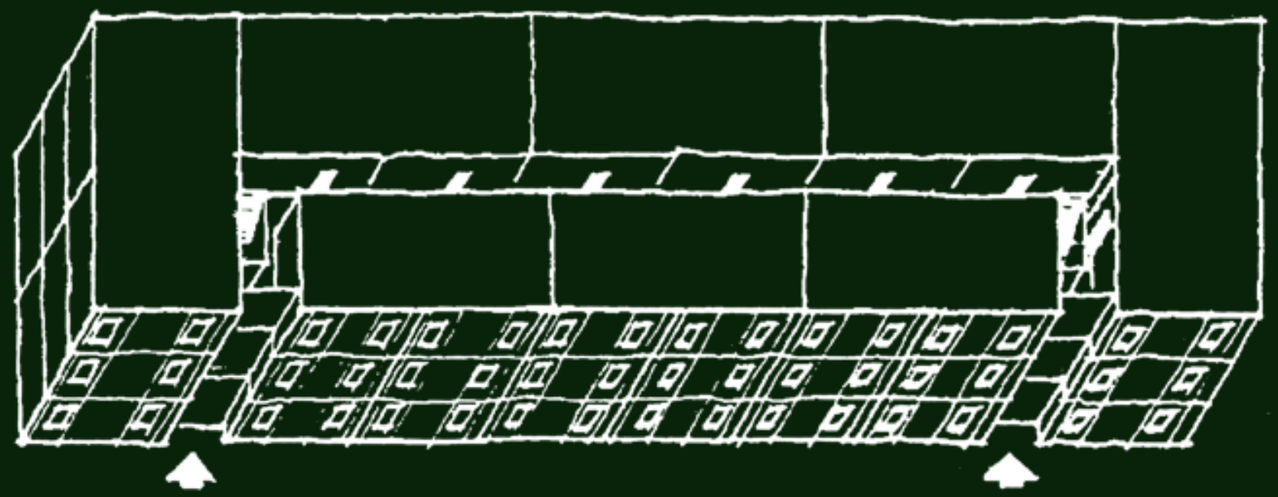


Each entry faces the street and serves only 6 families

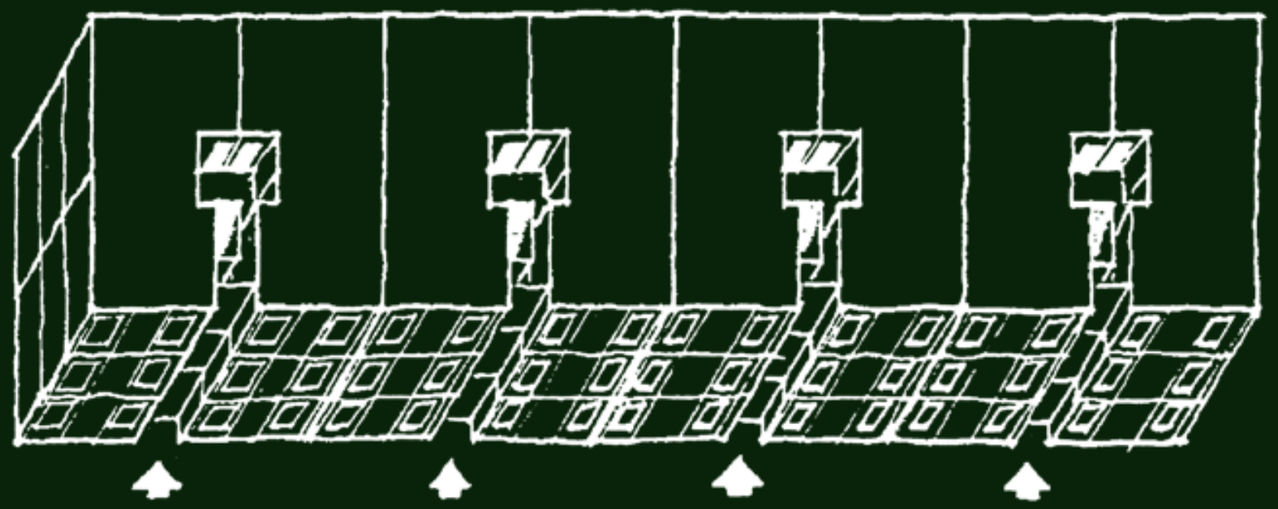
source: “Creating Defensible Space” (1996) - U.S. Department of Housing and Urban Development
Figure I-15

Same density, but...

A highrise (left) and a walkup (right) built at the same residential density. The project on the left is turned in on itself, away from the public street, while the one on the right brings the streets within the control of the residents.



8 families share a common corridor on each floor

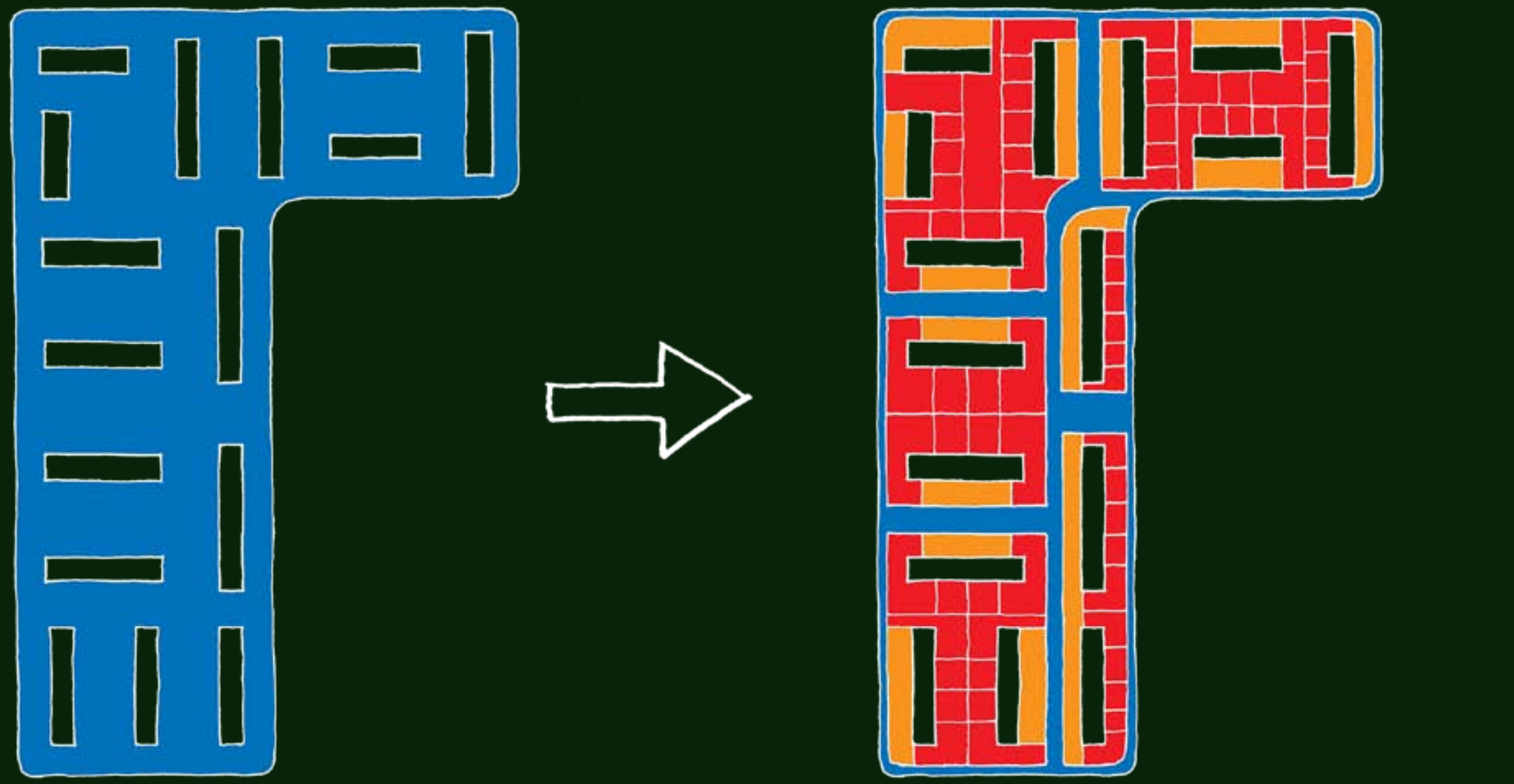


2 families share a common corridor on each floor

source: "Creating Defensible Space" (1996) - U.S. Department of Housing and Urban Development Figure I-16

Same building envelope but...

Comparison of two ways to subdivide the same building envelope to serve the same number of families, but in radically different ways.



Potential hint?

The diagram above shows a part of Clason point Gardens. This is a 400 unit public housing project located in South Bronx, a comparatively high-crime area in NY. Transformation from left hand to right hand resulted in reducing a total 61.5% of crime rate (consisting of burglary, robbery and assault)

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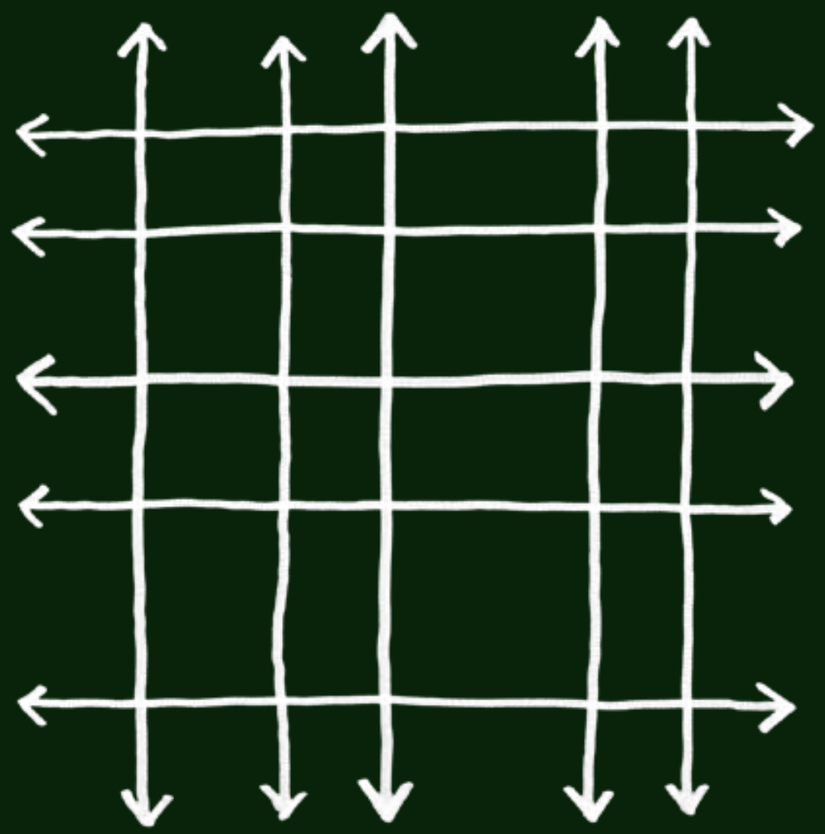
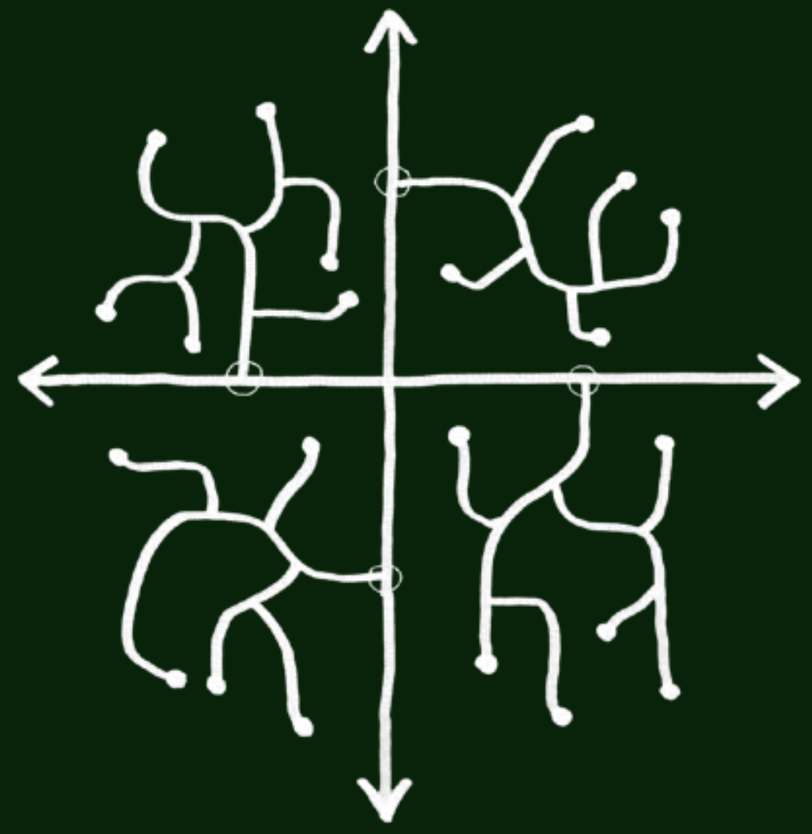
Grid



Cul-de-sacs

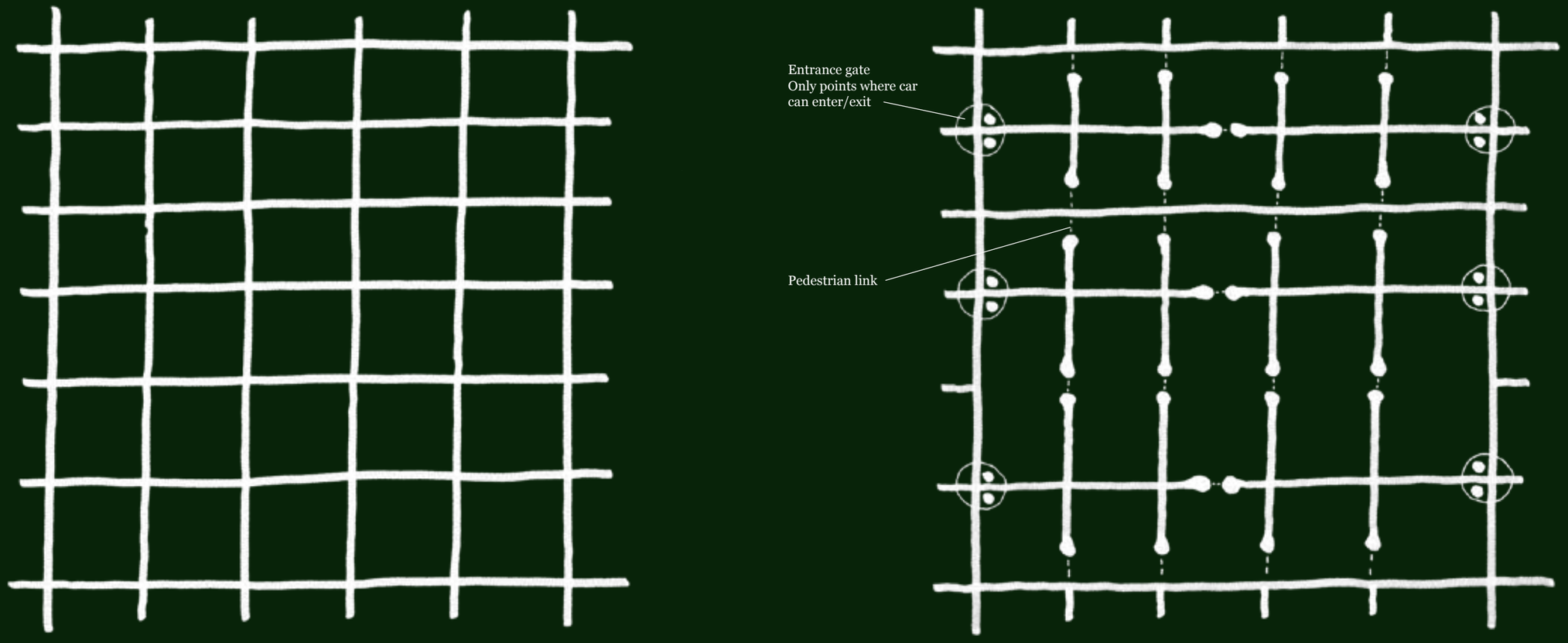


Grid or Cul-de-sacs?

This is the most contraversial isuue on CPTED. Wheather which of street layout of “Grid” or “Cul-se-sacs” is safer than other is ongoing devate already over 4 decades.

Before

After

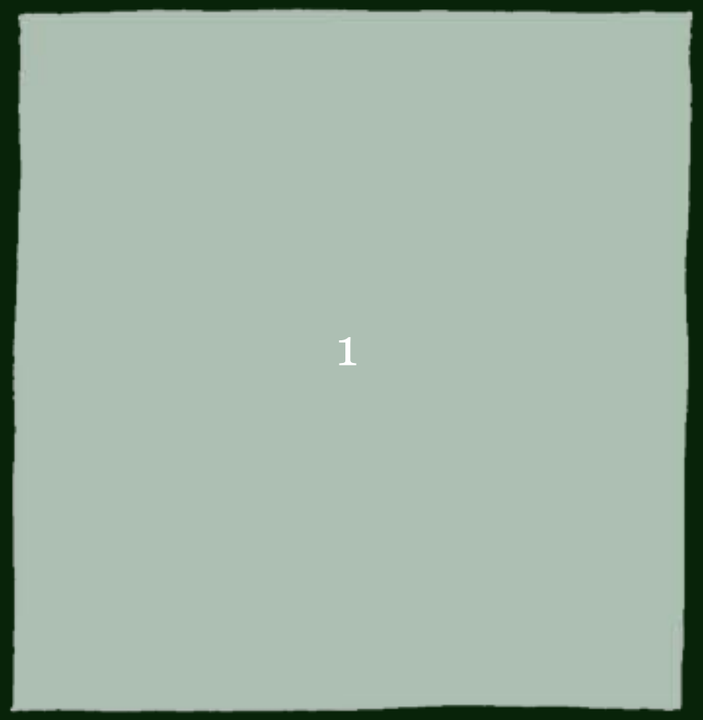


source: “Creating Defensible Space” (1996) - U.S. Department of Housing and Urban Development Figure II-11

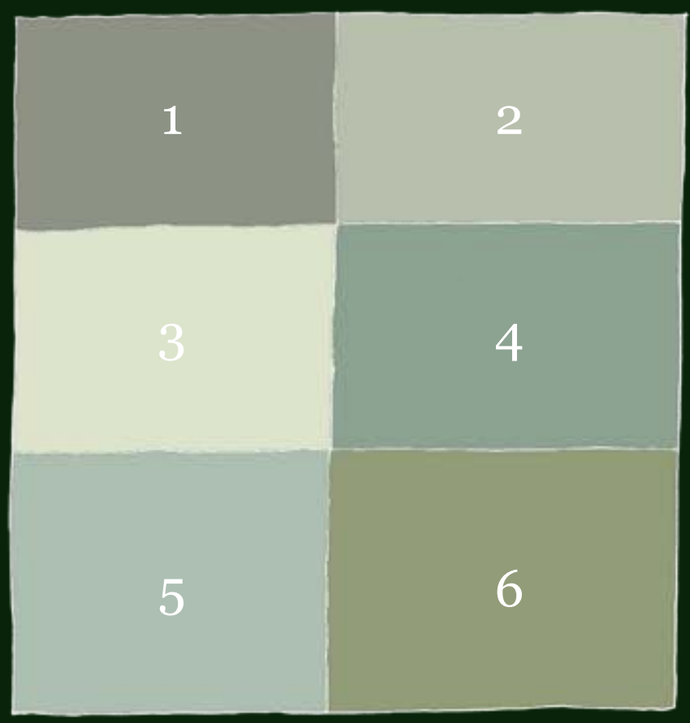
“Grid” is unsafe?

The above diagrams show part of the transformation of The Five Oaks in Dayton, Ohio, US - 130ha containing 2000 households, or about 5000 inhabitants. This neighborhood was known with high crime rate of drug dealing, prostitution, burglary, assault, robbery and vehicle theft. After the transformation from left to right, the overall crime rate had reduced by 26%, violent crime fell by 50% and there was a 55% increase in housing sales.

Before



After



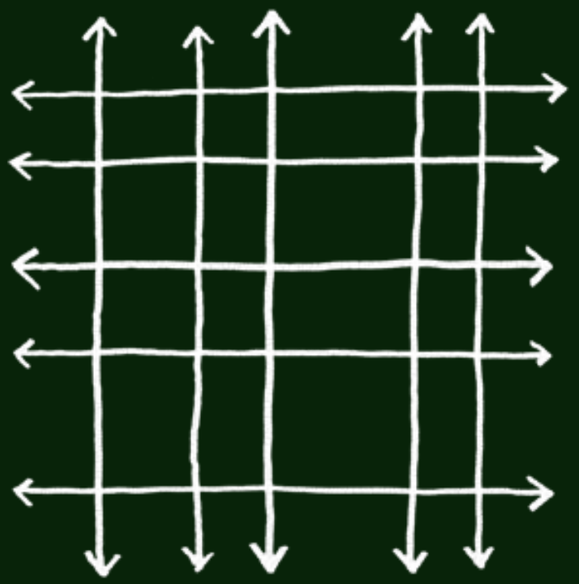
Creation of Mini-neighborhoods

The procedure shown in the previous diagrams was also meant for creating “Mini-neighborhoods”

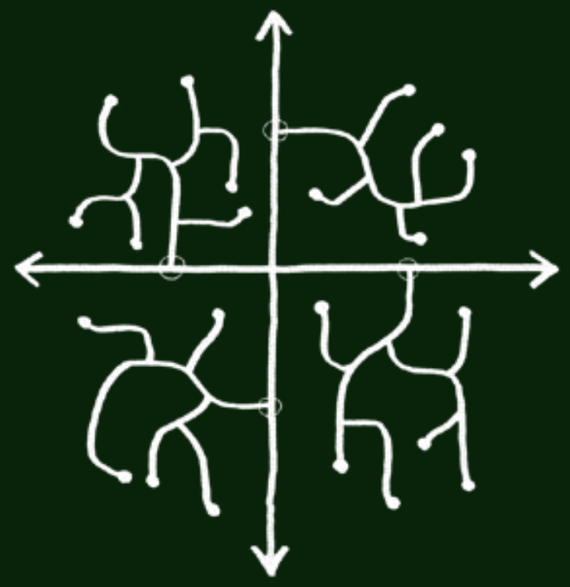
“Grid” is safer?

The above diagram is called an “Axial integration map” and shows the analysis of Space Syntax (University College London). “Integration value” is about how much each line is connected with other lines, In other words, more integrated means more “grid-like”.The most integrated lines are red, then through orange, yellow, green, to blue and deep blue for the least integrated. There is higher rate of crimes found along “colder colored” lines. So this reserch suggests “Grid” is safer.

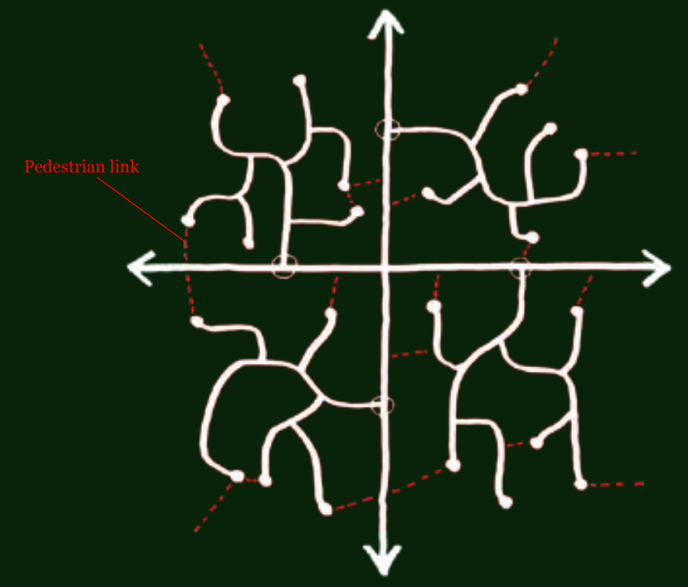
Grid



“Pure” Cul-de-sacs



“Impure” Cul-de-sacs



“Grid” is the safest?

According to the research of Space Syntax, the result is slightly counter-intuitive. Of the 3 approaches shown above diagrams, the “Grid” is the safest. And contrarily, “Pure” Cul-de-sacs is safer than “Impure” Cul-de-sacs with permeable pedestrian networks.

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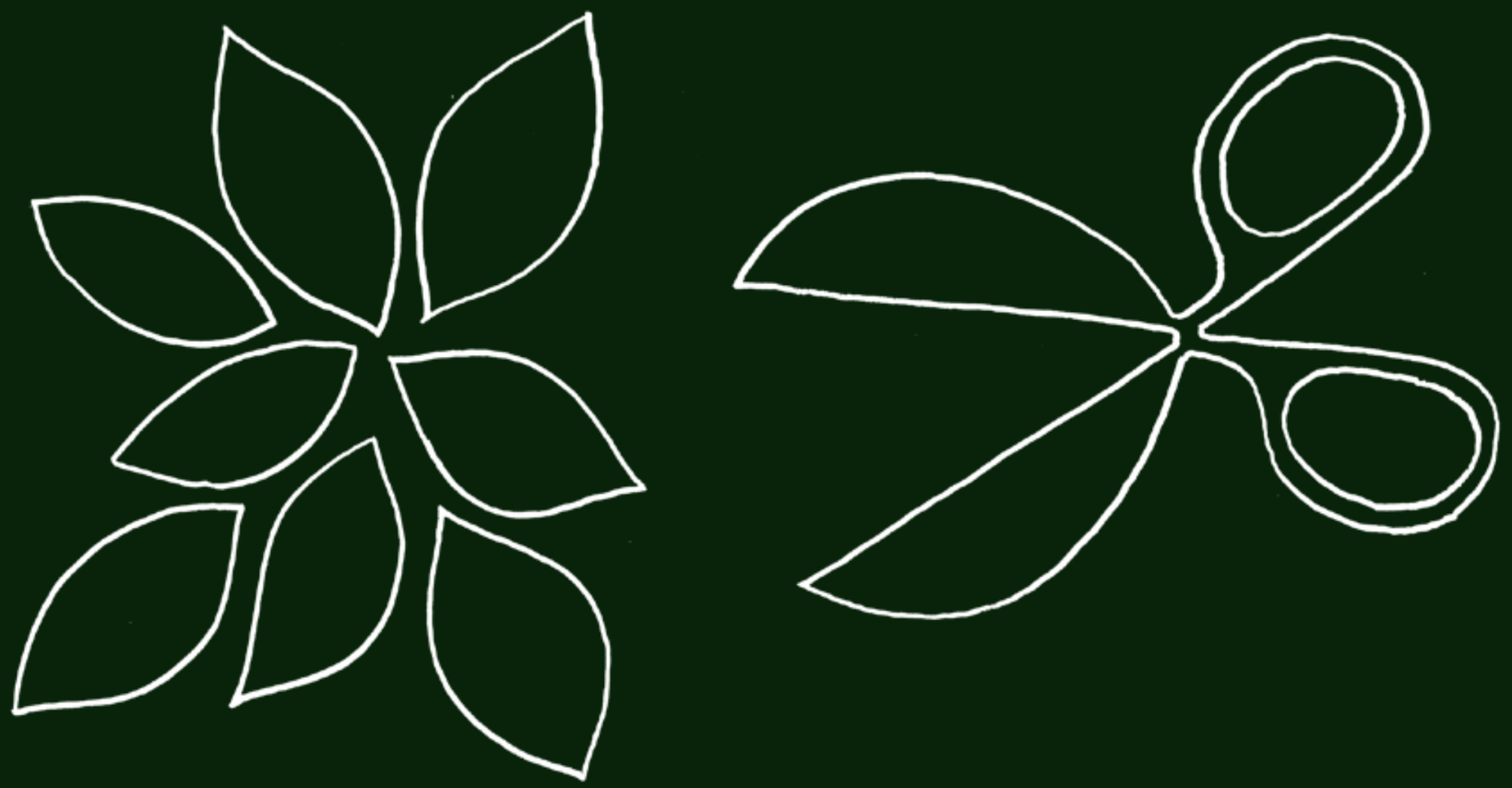
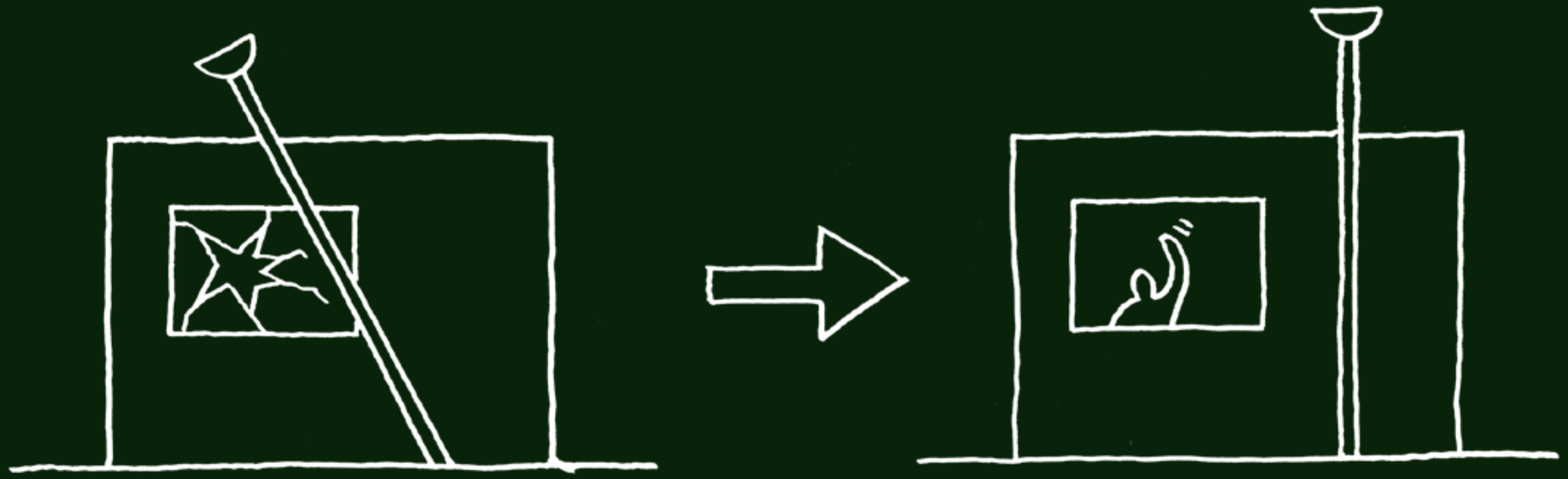


Maintenance of vegetation

Maintenance of vegetation is important for keeping the field of vision clear for natural surveillance of both public and communal space, and for eliminating “hiding” space for criminal activities.

Care of public space

Public spaces that are broken, dirty, vandalised, full of rubbish and generally “looking unloved” are less likely to encourage legitimate active use, let alone a sense of pride and ownership by the community



Repair “Broken windows”

“Broken Window” theory proponents support a Zero-Tolerance approach to property maintenance, observing that the presence of a broken window will encourage vandals to break more windows in the vicinity. The sooner broken windows are fixed, the less likely it is that such vandalism will occur in the future.

Communication, partcipation and education

The sense of “ownership” of the public realm and other parts of the built environment, by the community, is crucial to the success of CPTED and the sustainability of that community. It encourages people to use those spaces and they are in turn much more likely to intervene to maintain the security of other users.

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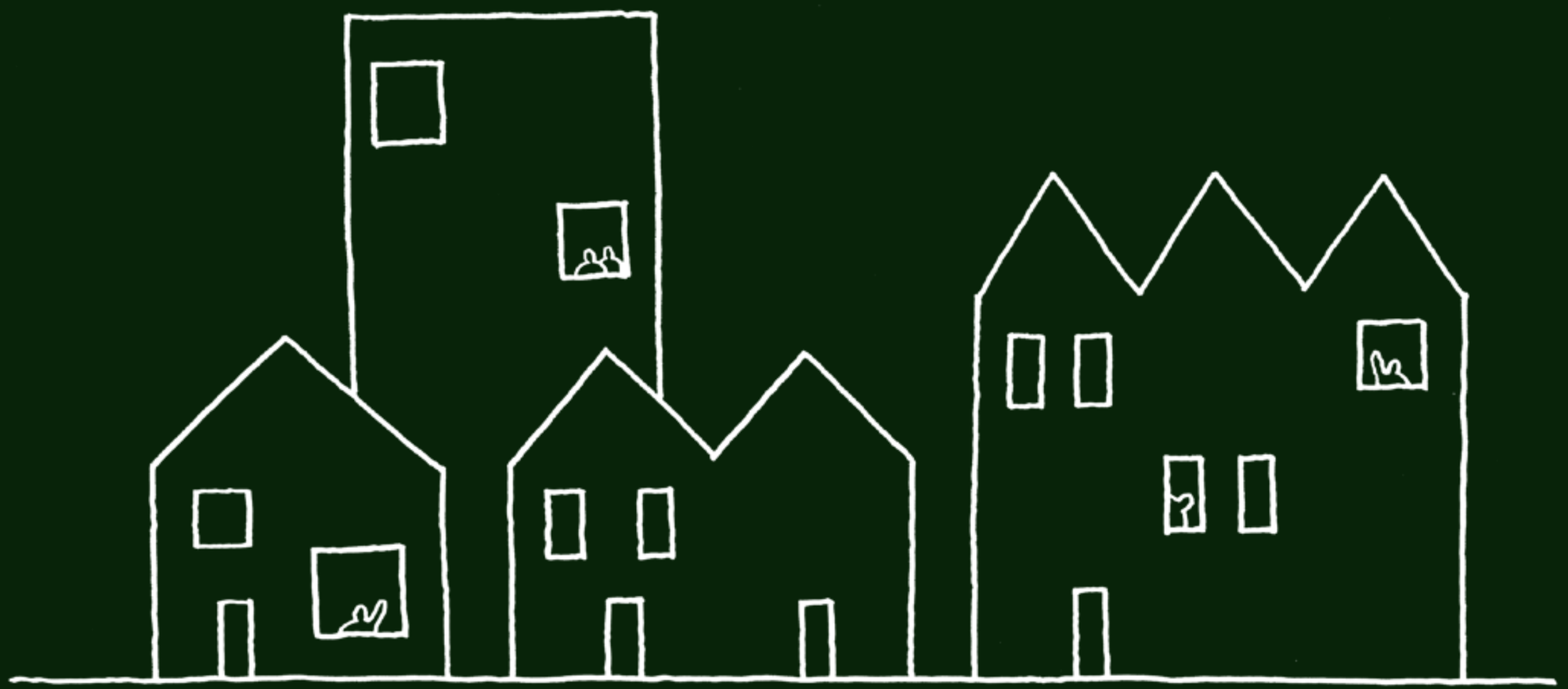
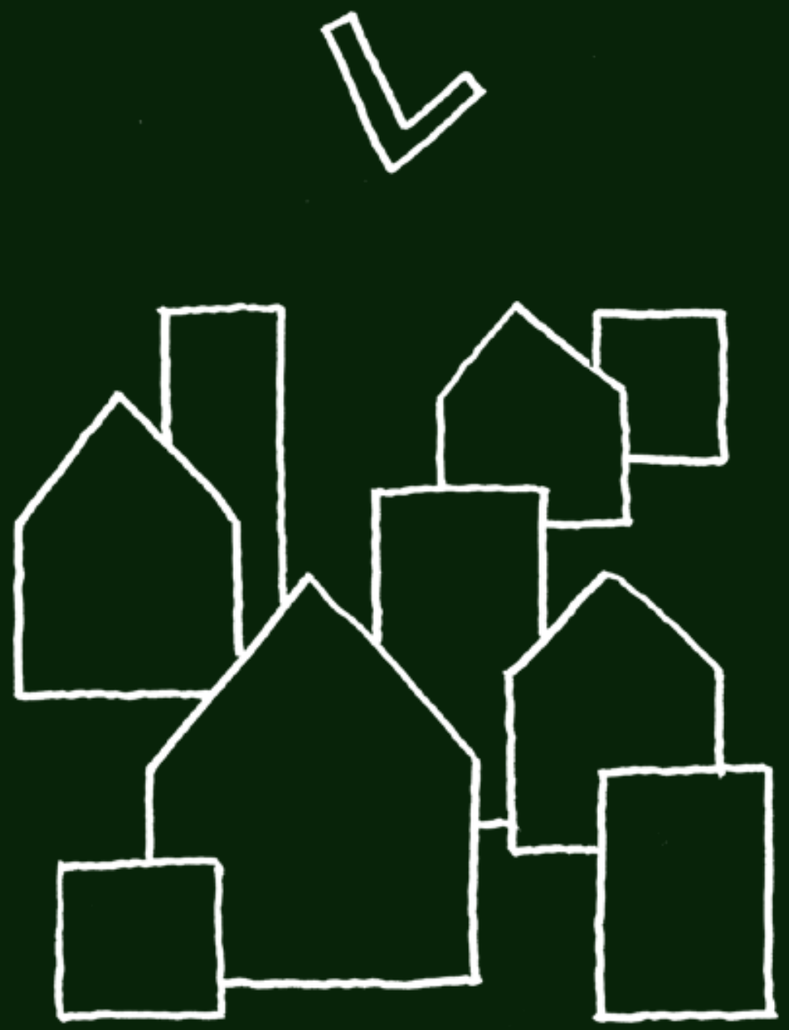
Management & Maintenance

Smart Planning Tools, Mix



Mix of housing types

Having a mix of sizes of housing units and property ownership (owner-occupied, rented) leads a mix of household, income and age groups in the neighborhood. It encourages diverse usage of streets and public spaces at different times of the day. For instance, locating old age pensioners near first time home owners will ensure surveillance during most of the day and night. And this diversity contributes strongly towards the transformation of the neighborhood over time.

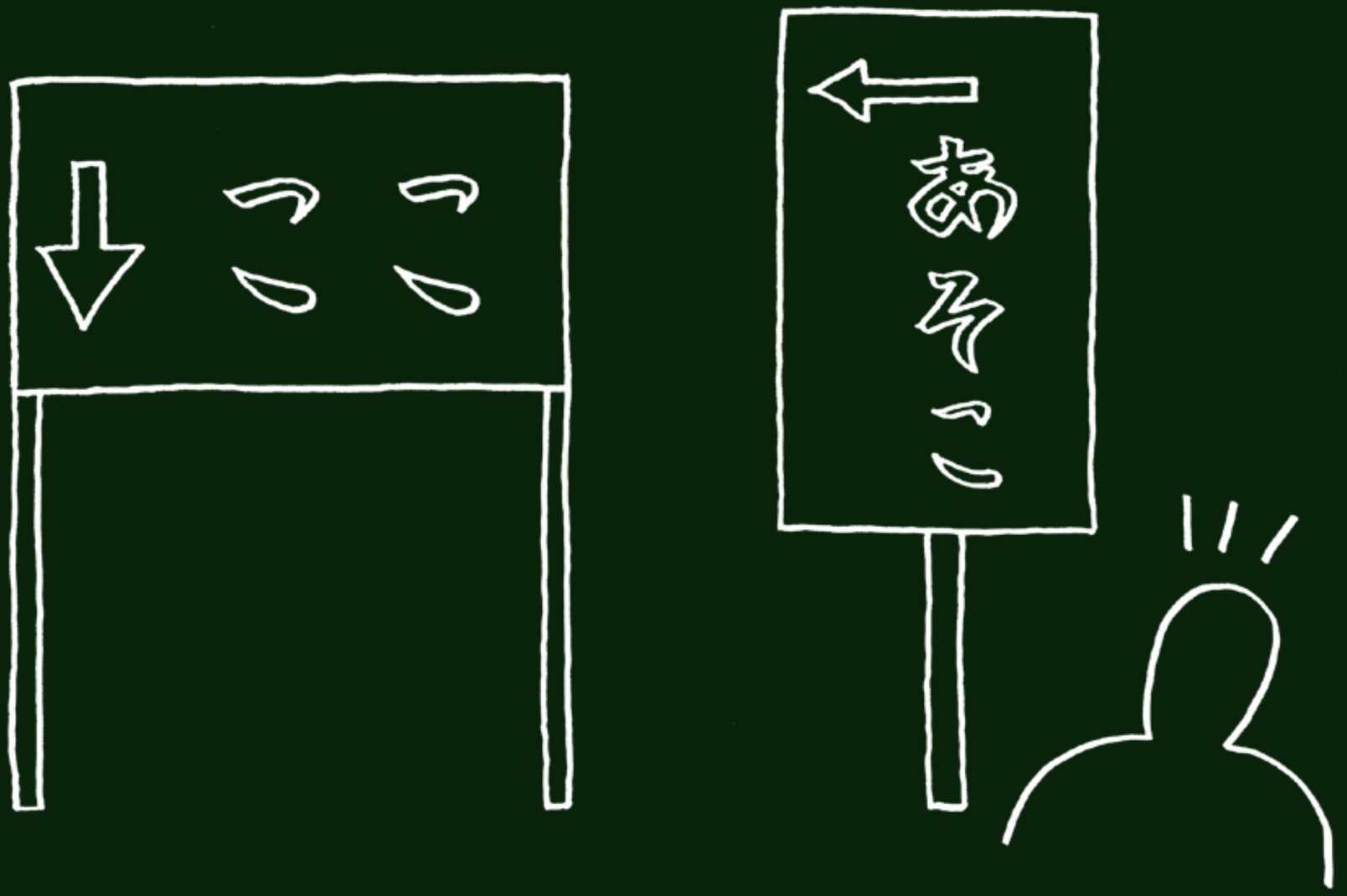


Mixed functions in the neighborhood

Mixed functions such as offices, shops and institutes in a residential neighborhood encourages diverse use of streets and public space during different times of the day and avoids creation of mono-functional “empty in the daytime” residential neighborhoods.

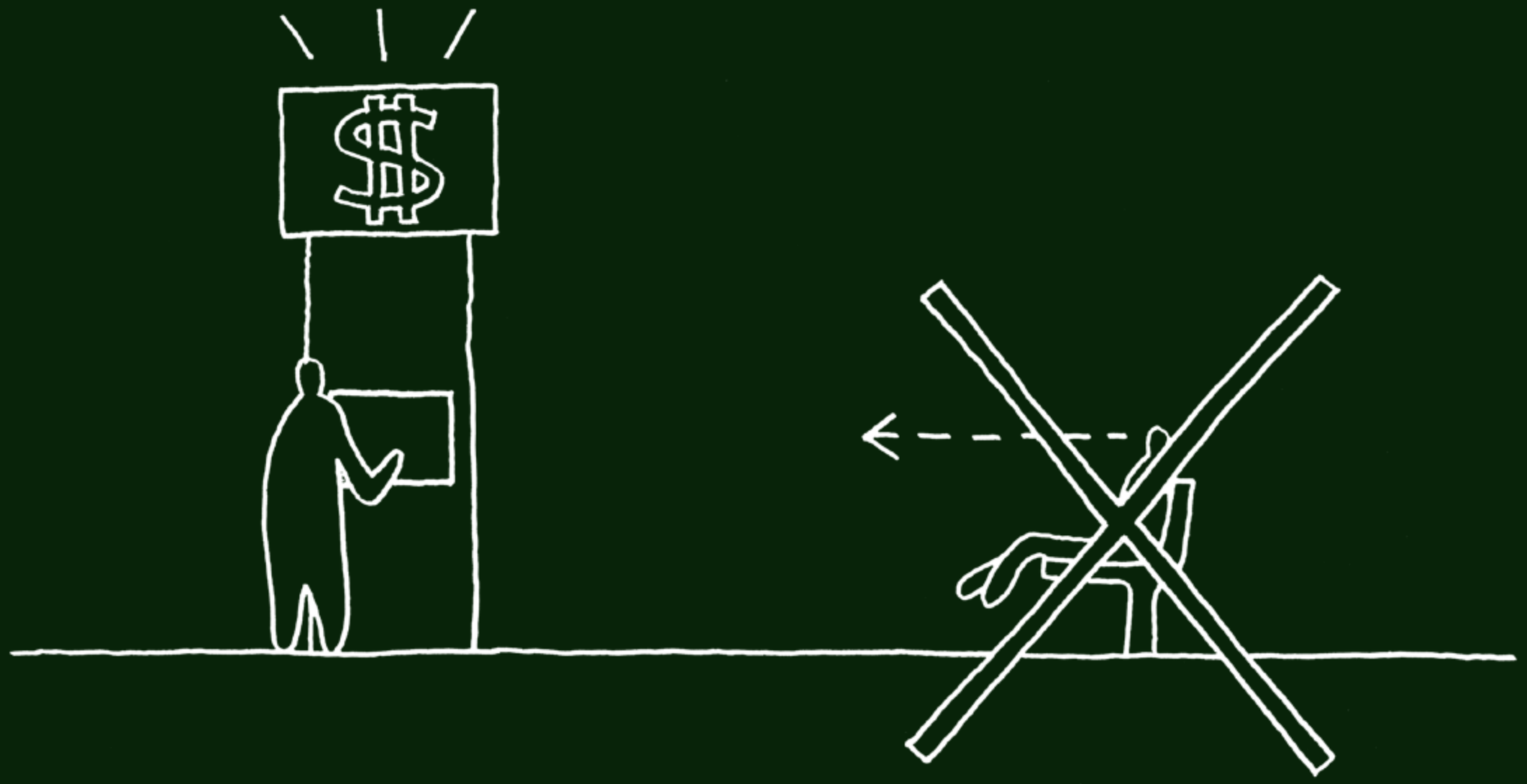
High quality public space

High quality public space not only attracts people to come and gather, but also increases its safety and use and promotes greater respect towards the environment. As a bonus, high quality public space raises the property value of surrounding area. The more active the public space is, the safer it becomes due to a high level of natural surveillance.



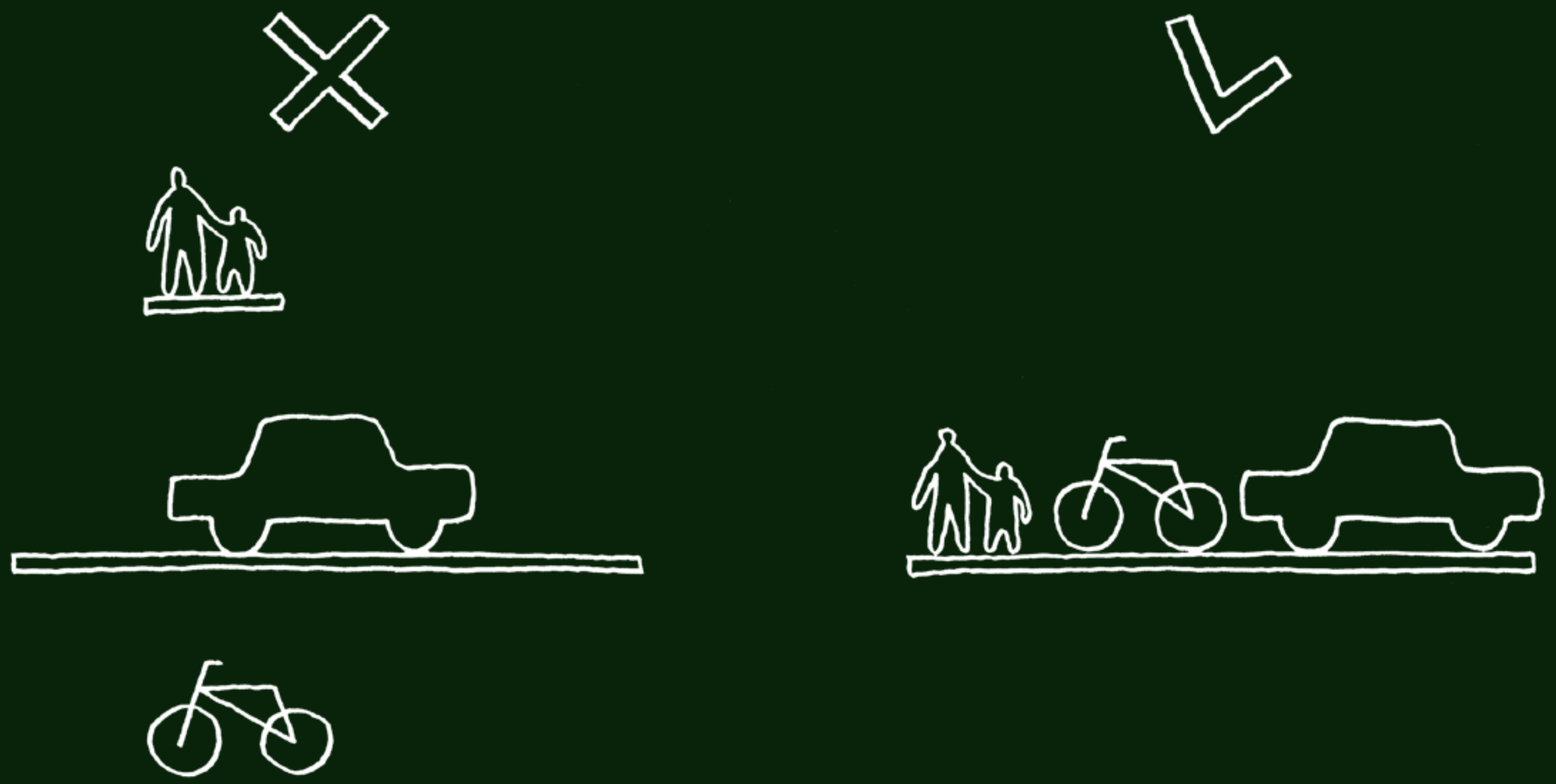
Legitimate signage

Legibility is about “way-finding”. Good signage and points of interst, such as market stalls, places to sit or street art, encourage people to use identified routes and spaces.



No comfortable waiting space for criminals

Placing seating spots, such as benches or low walls near ATMs and public toilet should be avoided. It provides “comfortable” places for potential robbers to loiter waiting for a suitable target.



Concentration of “routes” at the same level

Keeping pedestrians, cyclists and vehicles at the same level avoids creating intimidating spaces such as subways, footbridges, underpasses and areas below viaducts that might lead to deserted, isolated and unsafe environments.

Adaptability over time

Desolate neighborhoods and disused public space are the worst conditions for the safety of residential areas. The design of both building forms and public space should be adaptable and flexible to the change of uses and user groups over time.

Wide range of people

Having a variety of social, ethnic, age, and income groups in the same neighborhood creates a sustainable community in terms of society and life-style over time, and reduces the likelihood of it turning into a run-down neighborhood in the future.

So, what shall we do?

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To be continued...

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