Crime prevention through environmental design

犯罪を防ぐ環境デザイン

渋谷センター街（東京）

Failure of the Pruitt-Igoe housing complex

プルーイット・アイゴー団地の失敗

Completed in 1956
完成
Demolished in 1972
爆破解体
http://www.defensiblespace.com/book/illustrations.htm

The Pruitt-Igoe complex in St. Louis was designed by a famous architect who was selected in a design competition, but the entire complex was demolished by the city government less than 20 years later. The reason for the demolition of the complex was that the architectural design was judged to be the cause of the high crime rate in the area.

This event is often cited as a clear evidence that architectural space can influence human behavior, and was the impetus for the study of crime prevention through environmental design

Then, what kind of built environment induces or prevents crime?

2

The architect's vision of how the 3rd floor communal corridor in Pruitt Igoe would be used

3階共用廊下の利用方法に関する建築家の構想

The 3rd floor communal corridor as it actually turned out, and the vandalism that ensued.

3階の共用廊下で実際に起こった破壊行為

http://www.umsl.edu/~keelr/010/pruitt-igoe.htm

What was wrong with Pruitt-Igoe housing complex?

プルート・アイゴー団地の何が問題だったのか？

- Common spaces and exterior corridors with many blind spots
  → May encourage crime

  死角の多い共用スペースや外廊下の存在など → 犯罪を助長させかねない

- Boundary between open space and residential space is not clear
  → Intruders can easily access

  オープンスペースと住居スペースの境界が明確でない→ 第三者が立ち入りやすい

Pruitt-Igoe in the 1960s (photo: U.S. Geological Survey)

3

Relationship between number of crimes and building height (1969)

犯罪件数と建物高さの関係

The number of crimes correlates so cleanly with the height of the buildings. The reason why higher-rise apartments have a higher crime rate is that strangers can easily access each house.
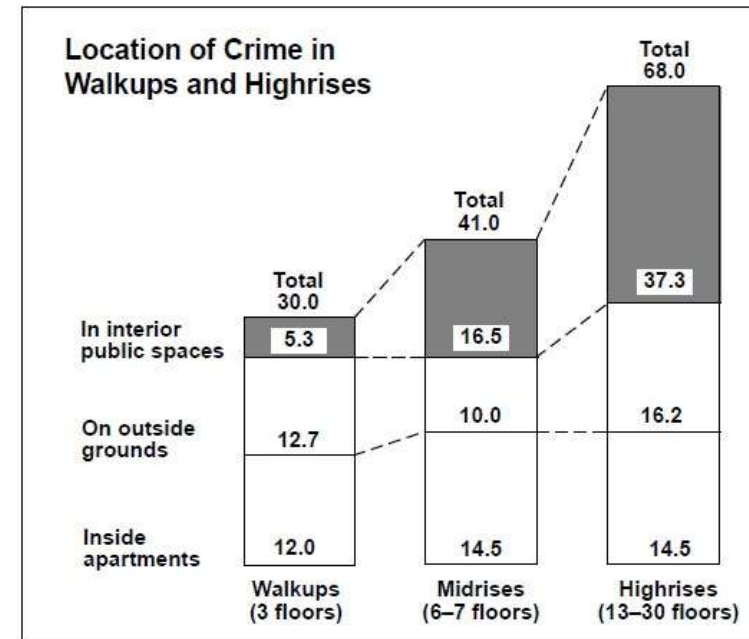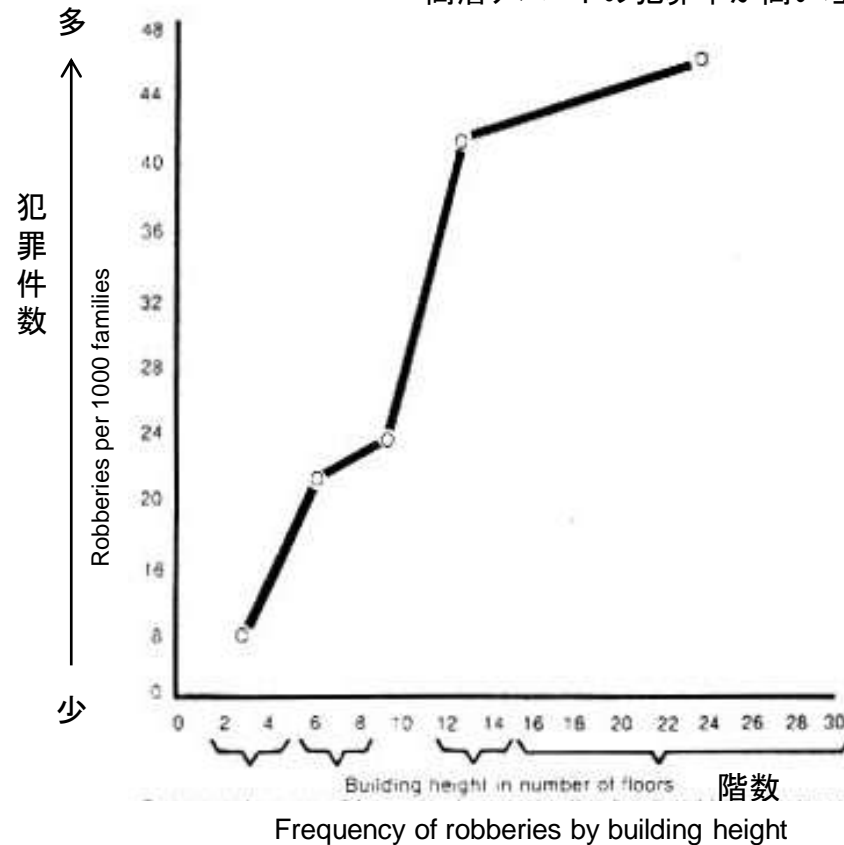
高層アパートの犯罪率が高い理由は、見知らぬ人が住棟に入りやすいこと

多 ↑

犯罪件数

Robberies per 1000 families

Building height in number of floors 階数

少

Frequency of robberies by building height

Location of Crime in Walkups and Highrises

	Walkups (3 floors)	Midrises (6–7 floors)	Highrises (13–30 floors)
Total	30.0	41.0	68.0
In interior public spaces	5.3	16.5	37.3
On outside grounds	12.7	10.0	16.2
Inside apartments	12.0	14.5	14.5

Figure I–7:
Graph showing the relationship between the increase in crime and increased building height and that crime is mostly located within public areas.

4

Sauce: New York City Housing Authority Police Statistics 1969
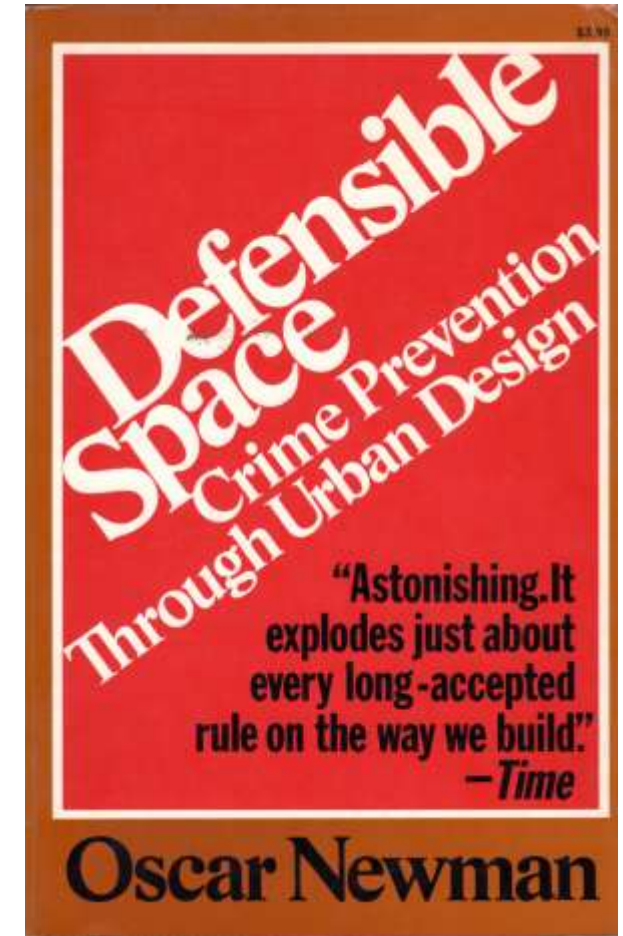
Newman's theory

ニューマンの理論

Newman suggested following three points to prevent crime through environmental design:

ニューマンが示した環境デザインを通じて犯罪を防ぐための3つのポイント

(1) Territoriality テリトリー性

(2) Natural surveillance 自然監視

(3) Image of the building and milieu 建物と周囲環境のイメージ

This point about the bad image of public housing may not be applicable in countries other than the United States.

公営住宅のイメージが悪いというこの指摘は、アメリカ以外の国では当てはまらないので扱わない

Defensible Space
Crime Prevention Through Urban Design
"Astonishing.It explodes just about every long-accepted rule on the way we build." —Time
Oscar Newman

(1) Territoriality テリトリー性

- **Territory hierarchy (public --- private)**
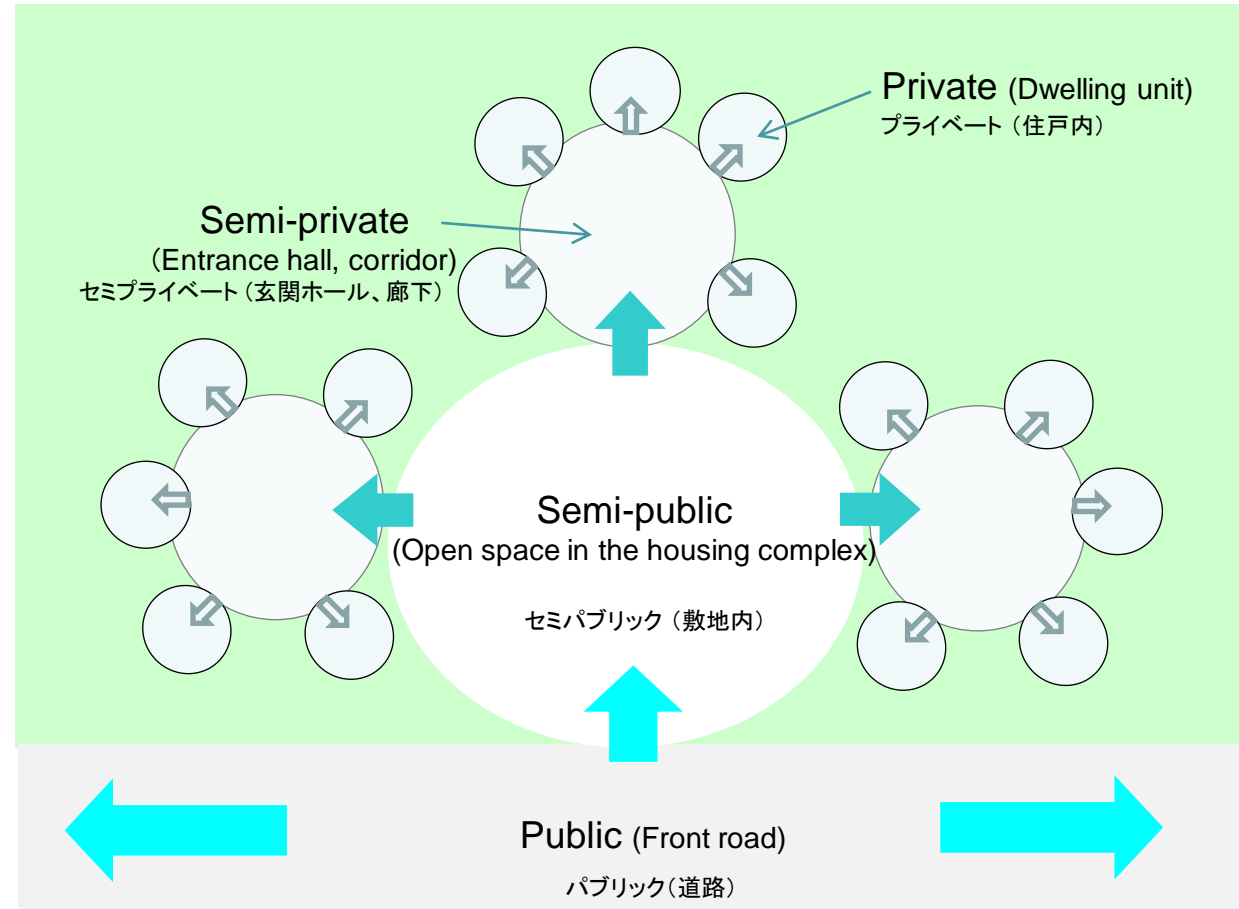 テリトリーの階層性（公 --- 私）

- Clarification of territory markers
  テリトリー・マーカーの明示

- Clarification of control over space through maintenance
  空間のメンテナンスによる関心と支配の明確化

As animals protect their habitats, we human beings have a hierarchical domain that extends from the public street, where everyone can enter, to the private family dwelling.

動物がなわばりを張ってすみかを守るように，私たち人間もだれもが入ることのできる公的な表通りから私的な家族の住戸まで，階層的な領域をめぐらせている。

Private (Dwelling unit)
プライベート（住戸内）

Semi-private
(Entrance hall, corridor)
セミプライベート（玄関ホール、廊下）

Semi-public
(Open space in the housing complex)
セミパブリック（敷地内）

Public (Front road)
パブリック（道路）

Territory hierarchy of the housing complex
集合住宅におけるテリトリーの階層

(1) Territoriality   テリトリー性

- Territory hierarchy (public --- private)
  テリトリーの階層性（公 --- 私）

- **Clarification of territory markers**
  テリトリー・マーカーの明示

- Clarification of control over space through maintenance
  空間のメンテナンスによる関心と支配の明確化

The awareness of the group territory shared by the residents of the housing complex, and the explicitly marked boundaries of the group territory, has the effect of reducing the access of intruders.

団地の住民が共有するグループ・テリトリーを意識し，その境界を明示することで侵入者の接近を抑える効果がある。

(1) Territoriality テリトリー性

- Territory hierarchy (public --- private)
  テリトリーの階層性（公 --- 私）

- Clarification of territory markers
  テリトリー・マーカーの明示

- **Clarification of control over space through maintenance**
  空間のメンテナンスによる関心と支配の明確化

Maintenance of common spaces in apartment complexes, such as well-kept plantings and cleanliness, is important as a means to strongly demonstrate residents' concern for and territoriality of the area.

よく手入れされた植栽など，団地内の共用空間のメンテナンスがそこに対する住民の関心とテリトリー意識を強く示す手段として重要である
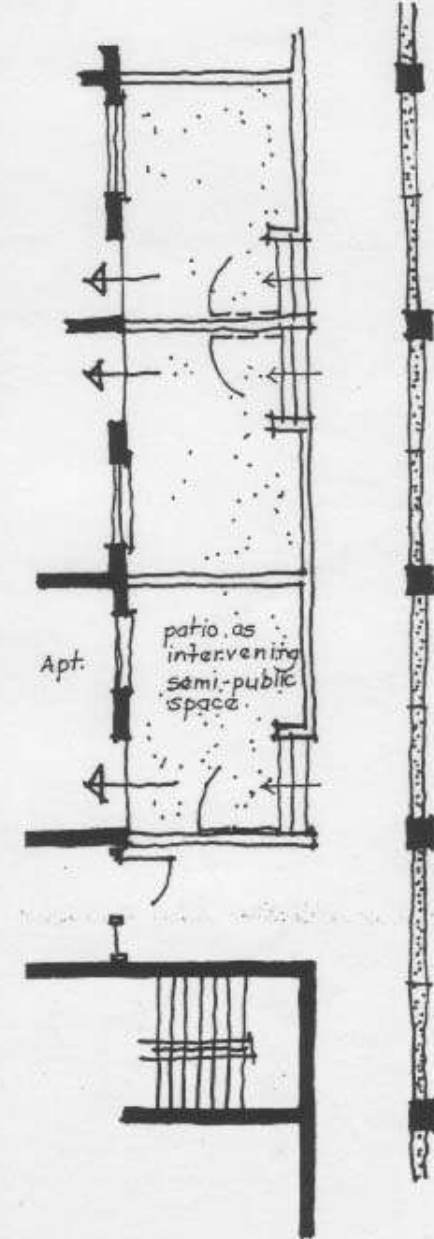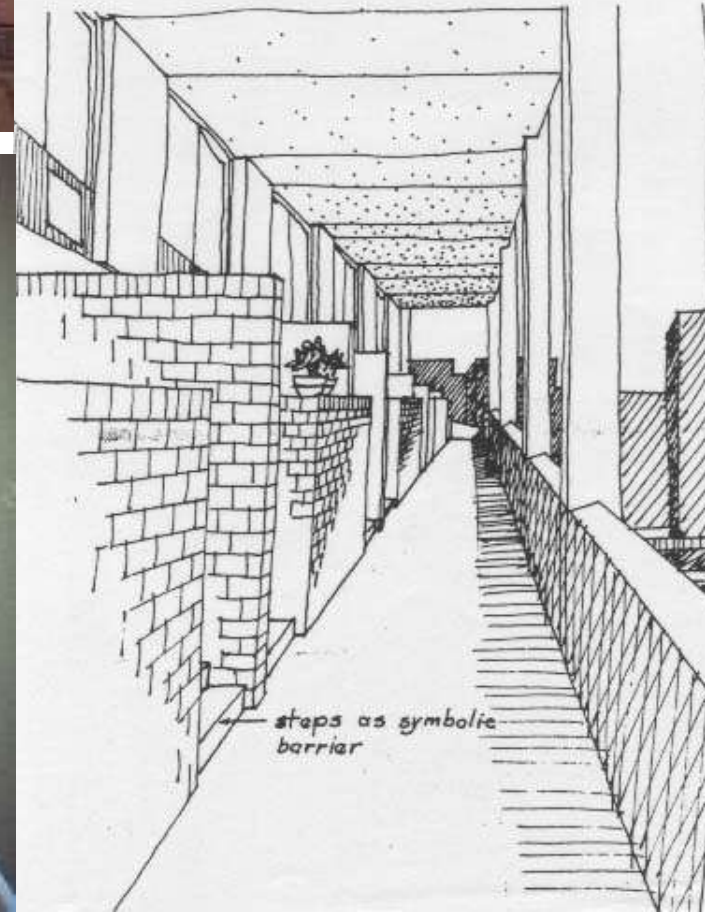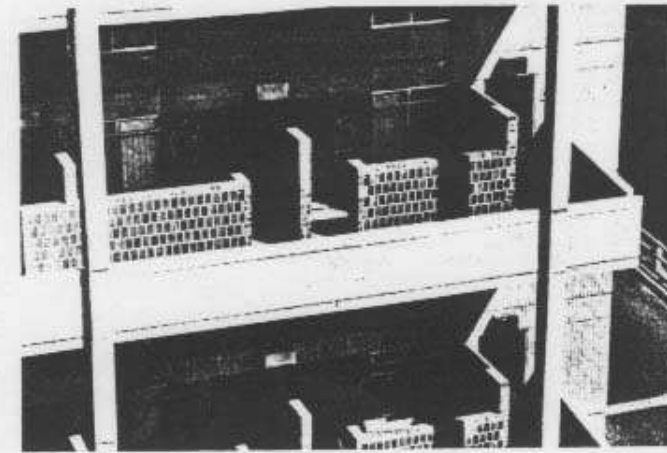
8

Buffer zone validity

バッファゾーンの有効性

Private
（私的）

⇩

Buffer zone

⇧

Semi-private
（半私的）

Photos: Robert Gray

Apt.

patio as intervening semi-public space

steps as symbolic barrier

(2) Natural surveillance   自然監視

Natural surveillance" is the idea that crime is prevented when residents look out for each other. This idea goes back to the architectural journalist J. Jacobs, who pointed out in her book "The Death and Life of Great American Cities" that the interaction of people on the streets made the city safe by providing eyes on the street to watch for crime.
「自然監視」は，住民どうしが互いに見守ることによって犯罪の発生が抑止されるとするものである。

Architectural design for natural surveillance requires consideration of window placement and floor plan so as not to create blind spots where there is no visibility.
In particular, it is effective to make elevator halls and corridors, which are less visible to the public and prone to crime, visible from the outside and to ensure good sight lines.
自然監視のための建築のデザインとしては，見通しのきかない死角となる場所をつくらないよう，窓の配置や平面計画を考えることが求められる。

Lights leaking from houses along the street at night give pedestrians a sense of security that they are being watched over, more than the effect of being brightly lit by them.
夜間、通り沿いの家から漏れる明かりは、歩行者に見守られているという安心感を与える。

Elevator hall with view from outside   外から見通せるEVホール

Lights from houses along the greenway ease anxiety

Crime prevention through environmental design（C. Ray Jeffrey, 1971）

環境デザインを通した防犯

The concept, based on the book "Crime Prevention Through Environmental Design" by C. Jeffrey (1971), is called CEPTED and is widely known and practiced in the United States and Europe.

While the Newman's principles mentioned above focused on providing physical design guidelines for crime prevention in architectural spaces, especially in housing complexes, the CEPTED approach differs in that it looks at crime prevention over a wider area and emphasizes active actions by people, such as maintenance, to create a crime-resistant situation, rather than the territoriality associated with a location.

Regarding surveillance, Newman emphasized natural surveillance that takes into account physical factors such as the placement of windows, whereas the effectiveness of organized surveillance by guards and other personnel and mechanical surveillance by cameras and other equipment is emphasized.

Situational crime prevention （Ronald V. Clarke, 1997）
状況的犯罪予防

R. Clark's situational crime prevention, which aims at tactical crime prevention against specific crimes in specific places, is basically based on the " Routine activity theory" and "Rational choice theory" of offenders.

It focuses on offenses in specific places and situations, rather than seeking causes in the individual offender's general psychological and sociocultural background and motivations, as traditional criminology has been doing.

従来の犯罪学がそうであったように，犯罪者個人の一般的な心理学的，社会文化的背景や動機に原因を求めるのではなく，特定の場所と状況における犯行に焦点を当てている。

- **Routine activity theory** 日常行動理論(opportunity theory)
Crime opportunities depend on everyday movements of activity – Offenders and targets shift according to routine activities.
犯罪の機会は日常的な活動の動きに左右される - 犯罪者とターゲットは日常的な活動によって変化する。
- **Rational choice theory** 合理的選択理論
Offenders weigh the benefits and costs of their crimes and make rational decisions.
犯罪者は犯行で得られる利益とコストとを天秤に掛けて合理的に判断する

● **Routine activity theory**

日常行動理論(opportunity theory)

The theory of everyday behavior considers that offenders, like us, operate on a daily schedule and find the targets of their crimes within that schedule.

日常行動理論は，犯罪者も私たちと同様に日常的なスケジュールのなかで行動していて，そのなかで犯行対象を見つけていると考える。

Therefore, we can read the geographic distribution of crime locations, patterns of frequency of crimes, adjacency to specific facilities preferred by offenders, and temporal characteristics of crimes by the offenders' activity areas.

したがって，犯罪者の行動圏によって，犯行場所の地理的な分布や犯行頻度のパターン，犯罪者が好んで利用する特定の施設との隣接性，犯行の時間的特性などを読むことができる。

This suggests that we can avoid contact with offenders and avoid criminal attacks if we appropriately schedule our use of locations.

これにより，私たちが場所の利用スケジュールを適切にすれば，犯罪者との接触を避け，犯罪による被害を回避することができる

13

● Rational choice theory　　合理的選択理論

Rational choice theory holds that offenders rationally decide whether or not to commit a crime under certain situations by weighing the benefits to be gained by doing so against the costs (risk of being arrested).

合理的選択理論は，犯罪者がある状況下で犯行に及ぶか否かは，それによって得られる利益とコスト（逮捕されるリスク）とを天秤にかけて合理的に判断していると考える。

Thus, for example, ① reducing the profit gained from stealing by promoting the use of prepaid cards so that more cash is not left in vending machines, ② increasing the time and effort required to commit a crime by making defenses more robust, and ③ increasing the risk of arrest by installing security cameras would be effective in preventing crime.

したがって，例えば自動販売機などに多くの現金を残さないようにプリペイドカード化を進めて盗みで得られる利益を減らしたり，防御を堅牢にして犯行に必要な時間と労力を増やしたり，監視カメラを設置して逮捕のリスクを増やしたりすることが犯罪防止に効果があることになる。

① ② ③

14

Some Criticisms against the Theory of Crime Prevention Design of the Environment

環境の防犯設計理論に対する批判

There is a critical view of natural surveillance that the presence of sentient people does not necessarily guarantee safety, as they may be visible but unnoticed, and crimes continue to occur even on busy streets.

自然監視については，見えていても気づかれない場合や，にぎわう通りでも犯罪が絶えないことなど，衆人の存在が必ずしも安全を保証しないとする批判的見方がある。

Whether natural or machine surveillance, there are criticisms against the invasion of privacy by such measures.

自然監視にせよ機械監視にせよ，それによるプライバシーの侵害に対する批判がある。

The landscape will be damaged if trees in parks and streets are cut down excessively as an obstacle to natural surveillance.

公園や街路の樹木が自然監視の邪魔になるとしてやたらに切られれば景観が損なわれる。

It is necessary to understand that there is a trade-off between crime prevention and other residential amenities, and to consider the balance between the two in each specific situation.

犯罪防止と他の住環境のアメニティとは両立しないトレード・オフの関係にあることを理解し，個々の具体的な状況においてバランスを考えながら，実践してゆく必要がある。
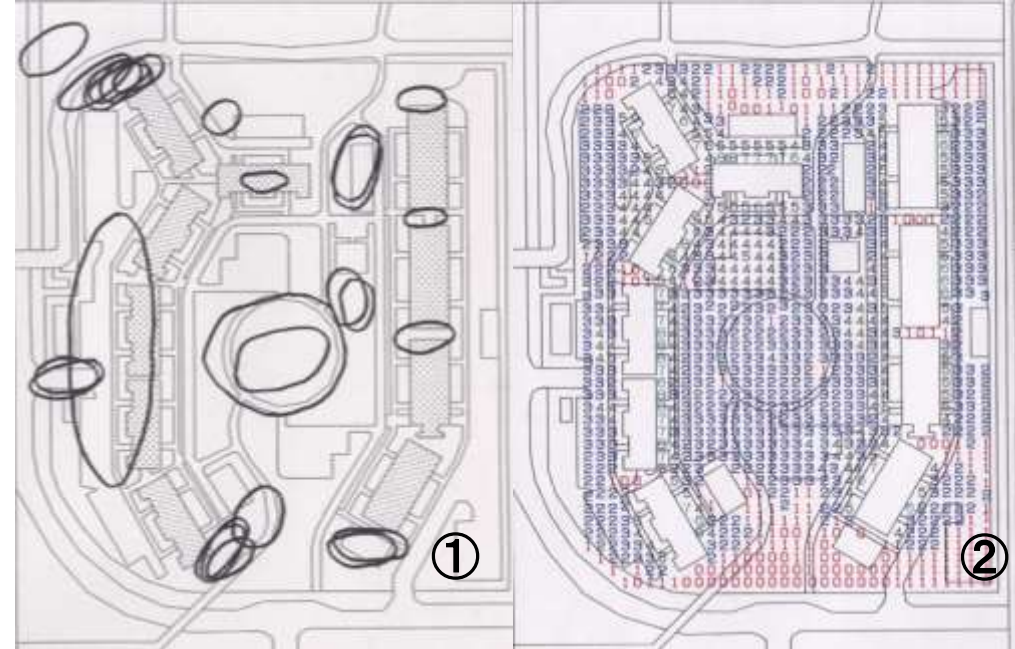
■ Planning for crime prevention in housing complexes

集合住宅の防犯・安全性の計画

This is the result of a study that attempted to determine the relationship between the location of crime concerns in the outdoor space of a high-rise apartment building and the amount of natural surveillance that could be cast from the windows of surrounding buildings at that location.

高層集合住宅の屋外空間で不安に感じる場所と，その地点に周辺の建物の窓から注がれ得る視線（自然監視）の多少との関係を求めた研究結果

Comparing the results of the questionnaire survey on locations where residents feel insecure (②) with the distribution map of line-of-sight radiation within the site (③), it is clear that residents tend to feel insecure in locations with insufficient line-of-sight radiation, indicating the validity of discussing security based on natural surveillance.
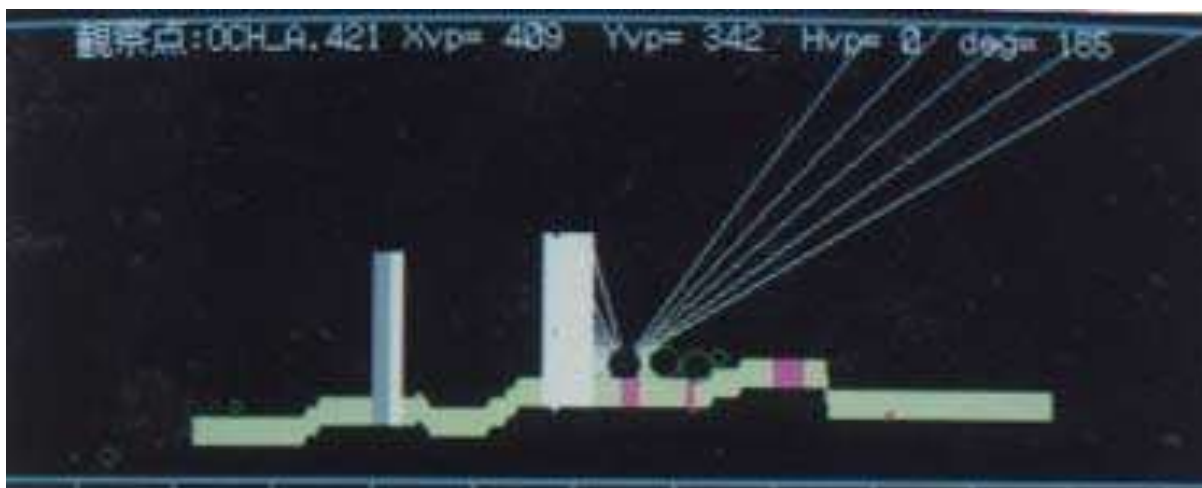
Measurement of line-of-sight radiation 視線輻射量の計測

Site plan data 入地図データ

Terrain data 地形データ

Measurement process 計測過程

The measurement of line-of-sight radiation is an application of the program for measuring visible surfaces of the environment.

Such studies are needed to assist in the planning of safe housing complex layouts through the measurement of the physical conditions of the environment.

17

Security design of detached houses

戸建住宅の防犯設計

Among these houses, determine the order in which they are least likely to be burglarized.

これらの住宅のなかで、泥棒が入りにくいと思われる順を判断してください
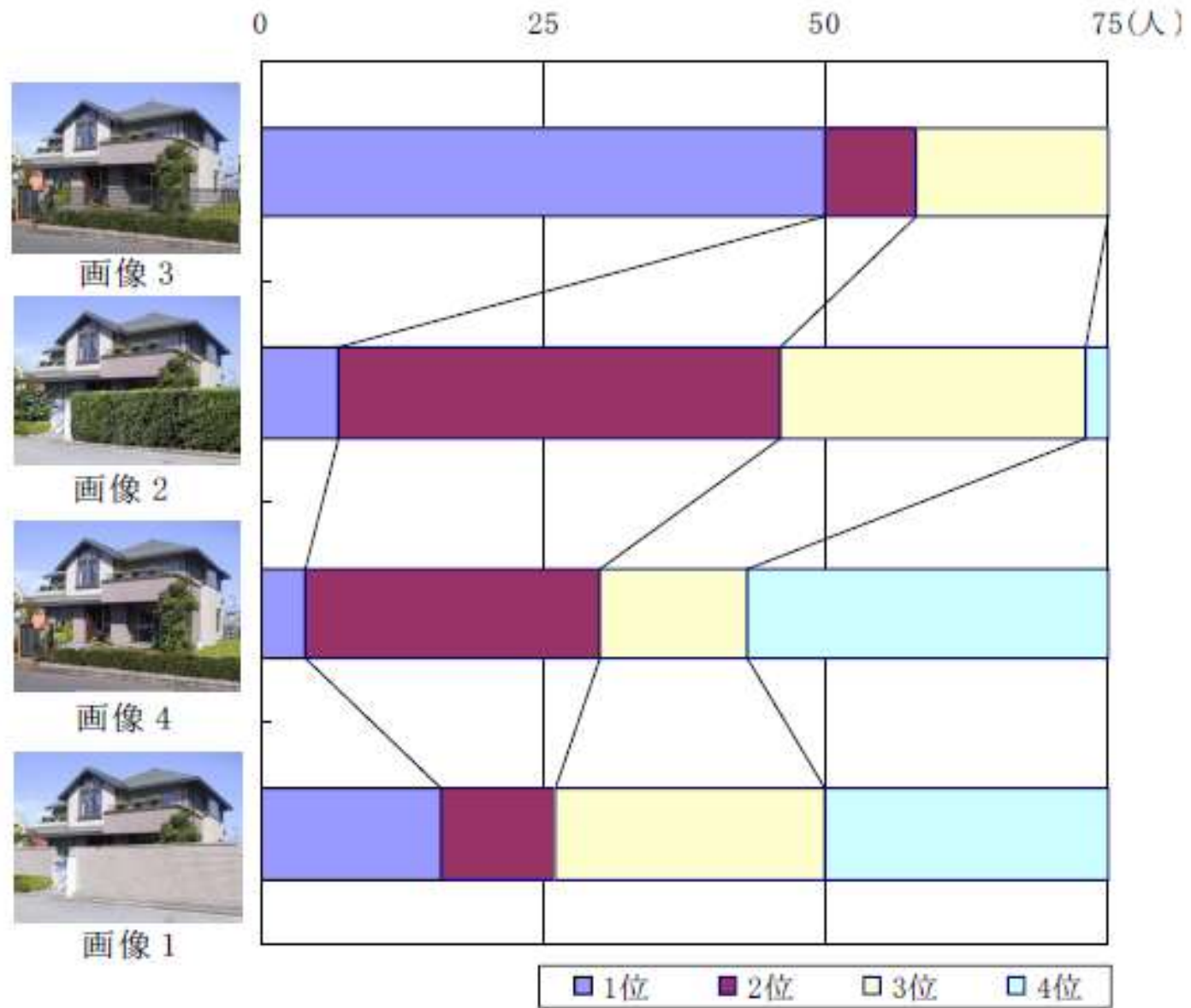
① High wall
高い塀

② High hedges
高い生垣

③ Low hedge + fence
低い生垣＋フェンス

④ Low hedge
低い生垣

Security Rating (Results of 75 responses)

防犯性の評価（75人の回答結果）

Combination of hardware and software in crime prevention

防犯におけるハード面とソフト面のコンビネーション

We have been considering how crime can be prevented through the design of the physical built environment, but for this to function well, cooperation with human activities is indispensable.

ここまで，物理的な構築環境の設計によっていかに犯罪を防止できるかを考えてきたが，それがうまく機能するには人的な活動との協働が不可欠である。

It has been a long time since it was said that human interaction with neighbors in urban areas has become less and less common, but it is hoped that crime-free, safe and secure community activities will be the first step toward the revitalization of the community.

都市において，近隣との人的な交流が希薄になってきているといわれて久しいが，犯罪のない安全で安心できるまちづくり活動が，逆にコミュニティ再生の第一歩となることが期待される。

"Children's SOS House" sign posted at a house where children can jump in anytime they feel in danger

Safe and Secure Environment = Physical Crime Prevention Design + Human Activities

安全・安心な環境   物理的な防犯設計   人的な活動

Graffiti Problems

落書き（グラフティ）の問題

One report showed that the reoccurrence rate was considerably lower when graffiti was erased within 48 hours, compared to leaving graffiti for more than three months.
In other words, it is better to erase graffiti as soon as possible after it is found. This can be explained by the so-called "broken window theory".

ある報告によると、落書きを3カ月以上放置した場合と比べ、48時間以内に消した場合は再発率がかなり低い。
つまり、落書きは見つかってからできるだけ早く消したほうがいいのである。これはいわゆる「割れ窓理論」で説明できる。

町内会の掲示板

案内図

駅前

廃屋

郵便ポスト

落書き禁止のポスター

Broken Windows Theory

割れ窓理論

The theory of environmental criminology that crimes including violent crimes can be deterred if minor crimes are thoroughly cracked down.

軽微な犯罪も徹底的に取り締まることで凶悪犯罪を含めた犯罪を抑止できるとする環境犯罪学上の理論。

The idea of American criminologist George Kelling, "If you leave a broken window in a building, it becomes a symbol that no one is paying attention, and eventually all the other windows will be broken."

アメリカの犯罪学者ジョージ・ケリングが考案した。「建物の窓が壊れているのを放置すると、誰も注意を払っていないという象徴になり、やがて他の窓もまもなく全て壊される」との考え方からこの名がある。

If there is garbage, the garbage will be thrown away more and more

ゴミが放置しているとゴミが捨てられる

Summary
まとめ

■ Defensible space （Oscar Newman, 1972）

   守りやすい空間

■ Crime prevention through environmental design （C. Ray Jeffrey, 1971）

   環境デザインを通した防犯

■ Situational crime prevention（Ronald V. Clarke, 1997）
   状況的犯罪予防

■ Some Criticisms against the Theory of Crime Prevention Design of the Environment
   環境の防犯設計理論に対する批判

■ Planning for crime prevention in housing complexes

   集合住宅の防犯・安全性の計画

■ Security design of detached houses
   戸建住宅の防犯設計

■ Combination of hardware and software in crime prevention

   防犯におけるハード面とソフト面のコンビネーション

■ Graffiti Problems
   落書き（グラフィティ）の問題：

■ Broken windows theory

   割れ窓理論