PERCEIVING SPACE LAYER

Addressing Privacy in Assisted Living Facility through Interfaces Design

Author: Yiwen Zhou
Examiner: Jonas Lundberg
Tutor: Kengo Skorick
Institution: Chalmers School of Architecture

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CHALMERS

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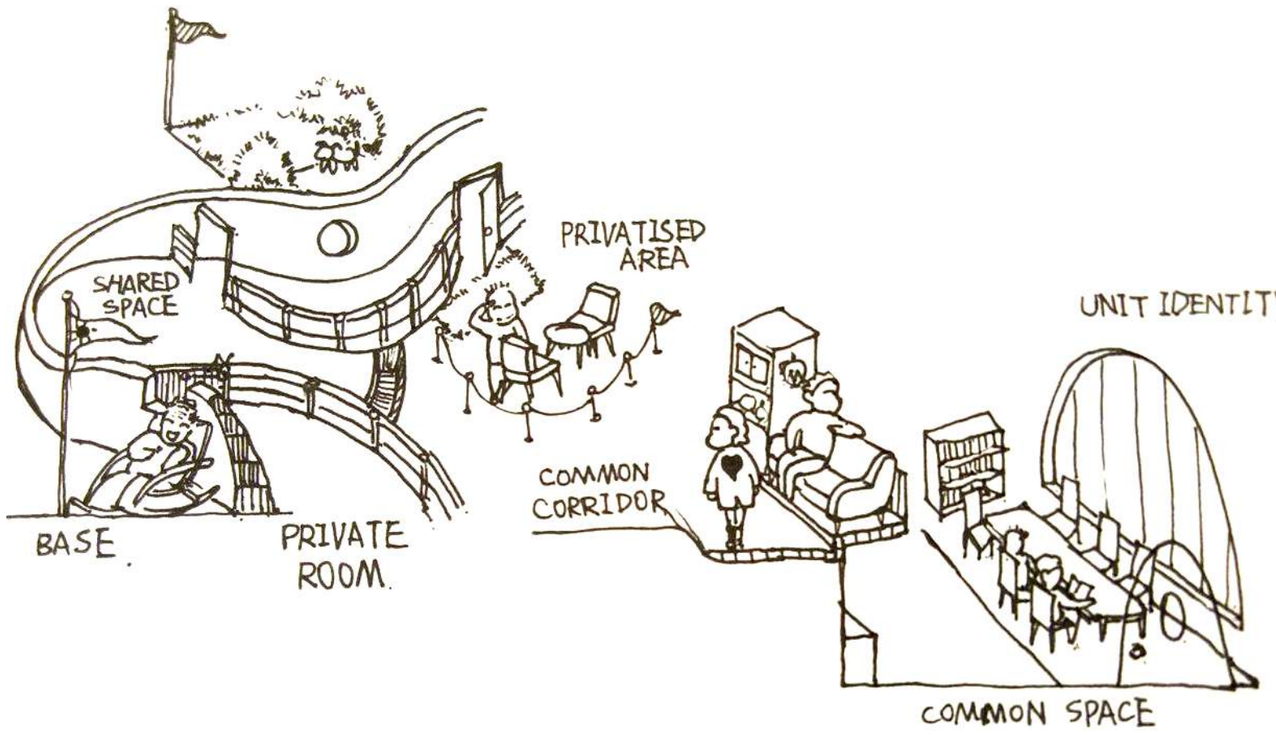
Master Program: Material Term

Year of Graduation: 2017

TABLE OF CONTENT

CHAPTER 01. FACT AND DISCOURSE



BEING MORTAL

When people are talking about elderly faicilities, longliness and isolation feeling are always frequently mentioned. But following this, the discussion is more likely to turn into better connection between the facility and society or help the old people to have more communication chances through better communal space design.
Is it enough?

If the problem need to be really solved, it is necessary to really look into the real situation and pursuing the reason behind it.

Alice Case

Alice: That is not home. Just a copy

Facility situation : Longwood House
Latest Facility, Highest safe and care grades
Church friends living inside
Close to her son's family
An energetic community surrounding the facility
Single room apartment, redecorated according to her taste, enough storage
Private kitchen

Reaction:
Not happy, can't adapt to the environment
Never cook
Avoid all the organized activities even she might like it
Insisted on staying along

Why: Compulsive structure and supervision.
Assistants observe her diet
Nurseries monitor her health
Asked to go to nursery station twice to take medicine
Everyday routine is controlled by insititution schedule

True wish from the elderly

As a old people, the requirment for life is not only safe.
The pure institutional purpose of asylum is nursing. But this concept is completely different from life understood by the old people.
Insuring the safety is the method not the aim.

When we become seniliity and no longer have the ability to protect ourselves, how to make the life still valuble?

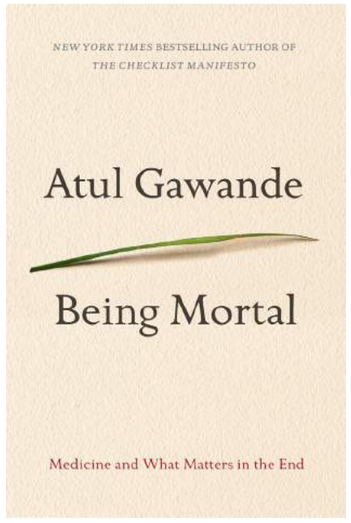
Home. In home you are the only priority.

You decide how to arrange your time, how to share your space, how to sort out your things

Losting freedom is the deepest fear.

So, for the old people in the assisted living facilities, it's necessary to receive frequent helps and accept other people's involvement into their own lives. The autonomy, the right to choose, the control of their life, the recongnition of individuality are threaten to a dangerous level where only communal and public space design are not enough.
How could we motivate the old people to stay positive and explore the outside world even, at the first place, there is no inside world for them to rest and release?

Therefore, more attention in this thesis is paid to how to design a proper process from public to private space and how to build a fair relationships between nursery and inhabitant.



ABSTRACT

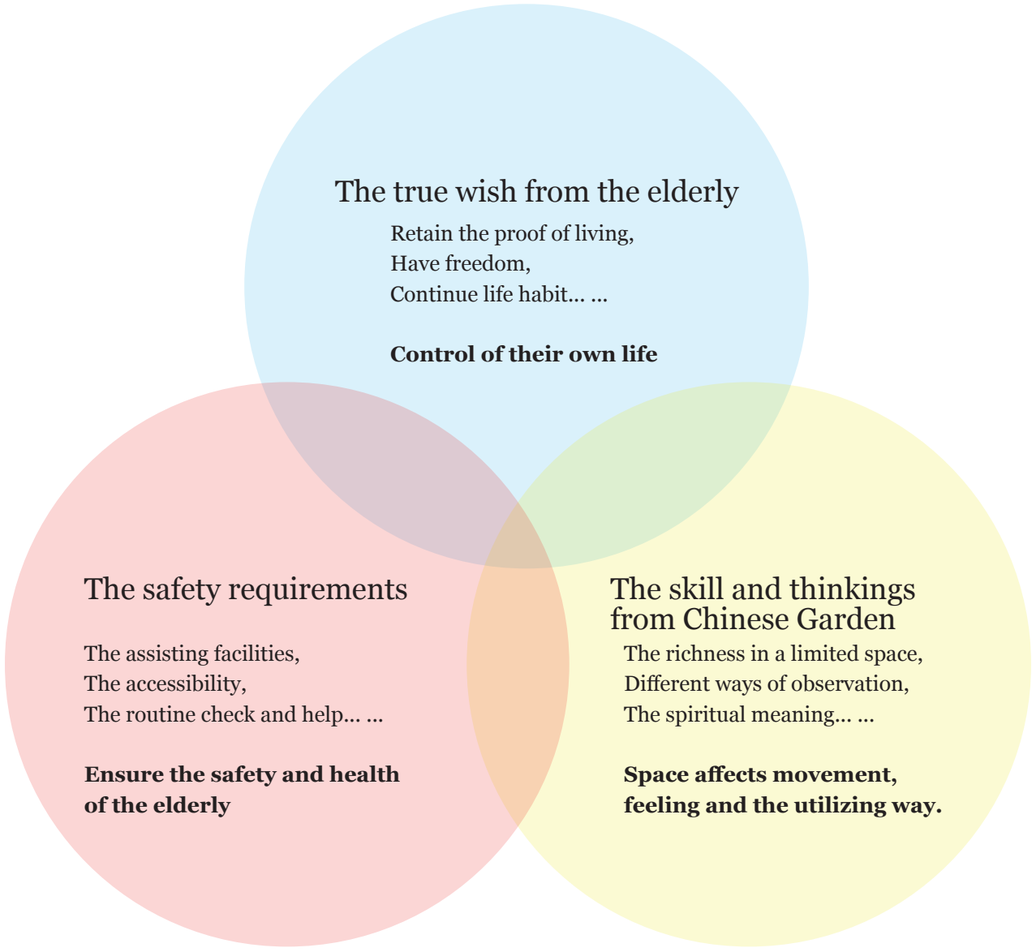
Autonomy and recognition of individuality is the basis of living a satisfactory life and developing public relationship. The importance of these qualities are even more obvious when people needs frequent help for continuing living. At the same time, obtaining individuality in the assisted living facility is not sufficiently considered and reflected in the current building design.

To achieve these qualities, good examples has been found in a series of housing designs which cleverly manage private, and public relationship through controlling view. Meanwhile, many design techniques derived from classic Chinese Garden could be helpful to expand the perception of space and distance.

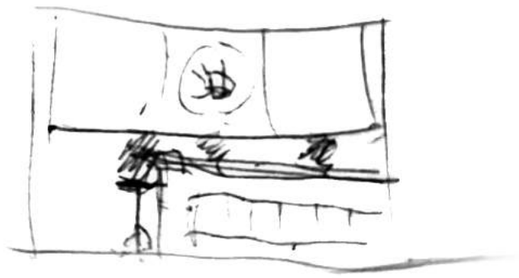
Learned from all the references, creating clear perception of space layer has been chosen as the main design method to help building balanced relations between residents and caretakers in order to protect privacy. Experiments of how to create good perception of space layer has been taken. And one step further, the possibility of the grid system was cherished most and developed through scenario study. A generic scenario is taken as the context with requirements about privacy, view control and way-leading. Finally a functional interface system was generated and be used as a leading factor for design.

Study trip and specific analysis about a standard assisted living facility in Beijing produced context requirements and basic problems in nowadays buildings for a new design on the same site with the same program. The design showed up the organization logic developed according to space layers and privacy levels. While all the interfaces were generated from the logic about indicating movements and controlling view, which was concluded from the grid system analysis.

DISCOURSE



VIEW FACTORS AND EFFECTS



Seeing and being seen, the tricks about choosing which part to be shown to attract guest while have an intimate atmosphere inside.

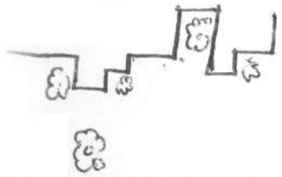
Japanese ramen shop entrance
Proportion + Distribution + Direction

Seeing from the corridor, upside is the deck of storage. Even the half storey space is not for most activity, it still help to enrich the space feeling

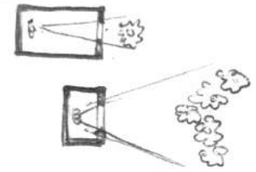
On different floors it is still possible to have meaningful eye contact and good connected feeling with small open bridge for just catching a glipms or observation.

FORME SETAGAYA, Komada Architects' Office
Vertical Angle

Windows, with various size and distance, expressing different sceneries.



Building concave-convex edges and corresponding sceneries



Distance and width effecting view

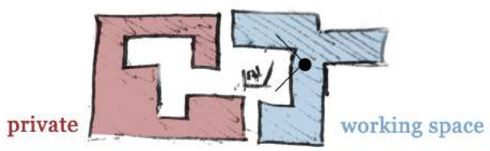
Controling the distance between viewer, window and scenery and the width of each factors to create various connecting feeling between inside and out.

House in Nagoya, Takashi Fujino
Distance + Width + Direction

Angle

COUMA-House H, Toshihiro Yoshimura

Gardens in the middle of the building with many twist and turns can create multi-angles viesituations between inside and outside and the possibility to adjust private-public relations



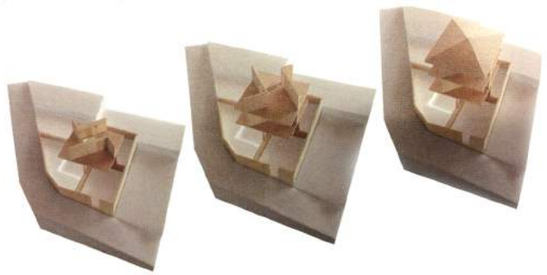
Twisted garden in the middle

Viewing from working space, through garden could see a fraction of the private space

Direction + Angle

House in Ayameike,Ippei Komatsu

The open view is always being twisted according to the outside environment to form a good balance between private and public.



Wall direction changing every floor

Private space in the concrete box with a clear corner to indicate the direction

Proportion + Direction

Cut Slide House,Tomohiko Yamada

The interesting relations between public and private. The gaps created by the private blocks make the rank of publicity clear but also leave the chance to play with view connections

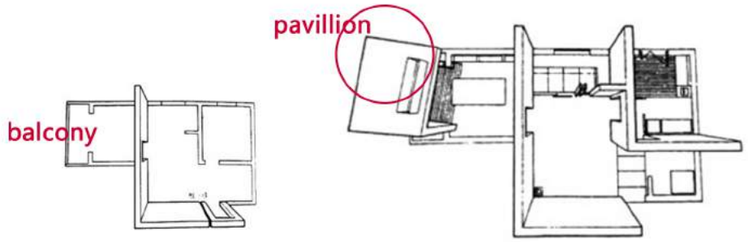
First floor, clearly showing the private and public parts and the interesting ranks of publicity.

View line

View gap

Same logic in facade

CHINESE GARDEN BUILDING LOGIC IN MODERN ARCHITECTURE



Original layout of the apartment Changed layout

Shu Wang House
Emphaizing the balcony to save a space like backside garden

Xiangshan New Campus of China Academy of Art.
Outside corridor leading people climbing up and down to view the building in a special way.

Hangzhou Lakeside Vila Hotel, roof passage
Route on the roof expands new possibility to experience and see.

Chinese Landscape painting

Taihu stone scenery
Resembling the brand natural landscape

Ningbo Tengtou case pavilion
The holes recall the image of Taihu stone and the cultural landscape it representing.

Zhangyuan, enframed scenery

Hangzhou Lakeside Vila Hotel, space layers

Spiritural Meaning of Chinese Garden

The classic Chinese Garden is the backyard part of a building group. When the front building group is built according to systematic contruction techniques and strict social hiearchy, the garden is working like a secrete base for the inhabitants to realese and realize themselves.

The isolated pavillion changed from the balcony emphasizes this spiritural meaning of the Chinese Garden in a medern architecture context and showcase the importance of it.

Route and Moving Experience

Moving experience is carefully designed in the Chinese Garden. If the route is planned in a right way, richer space feeling could be created in a limited space and the landscape could be appreciated differently in the typical angles.

Let this quality be weaved into the funtional circulation organization could give more possiblities and fun to explore a building, which is really important when people's movement is more or less happened inside. Also, the truth that moving experience effects the definition of spaces could help dealing with pricacy and publicity.

Association and Imagination

In the Chinese aesthetics, association and imagination play an important role. From just one stone, a whole image of magnificent landscape could be associated. Thus it enriches the meaning and beauty of the stone space. And this feature is frequently used in Shu Wang's works to condense the cultural background.

Considering this quality in the design may add multiple information in limited space and create meaningful scenes.

Space Layers

It is easy to sense the space layers in Chinese Garden as this quality is repeatedly used to expand space feelings, to supply more view changes and focus and to strengthen the feeling of transition. As this feature is so important, the modern buildings are still trying to articulate it.

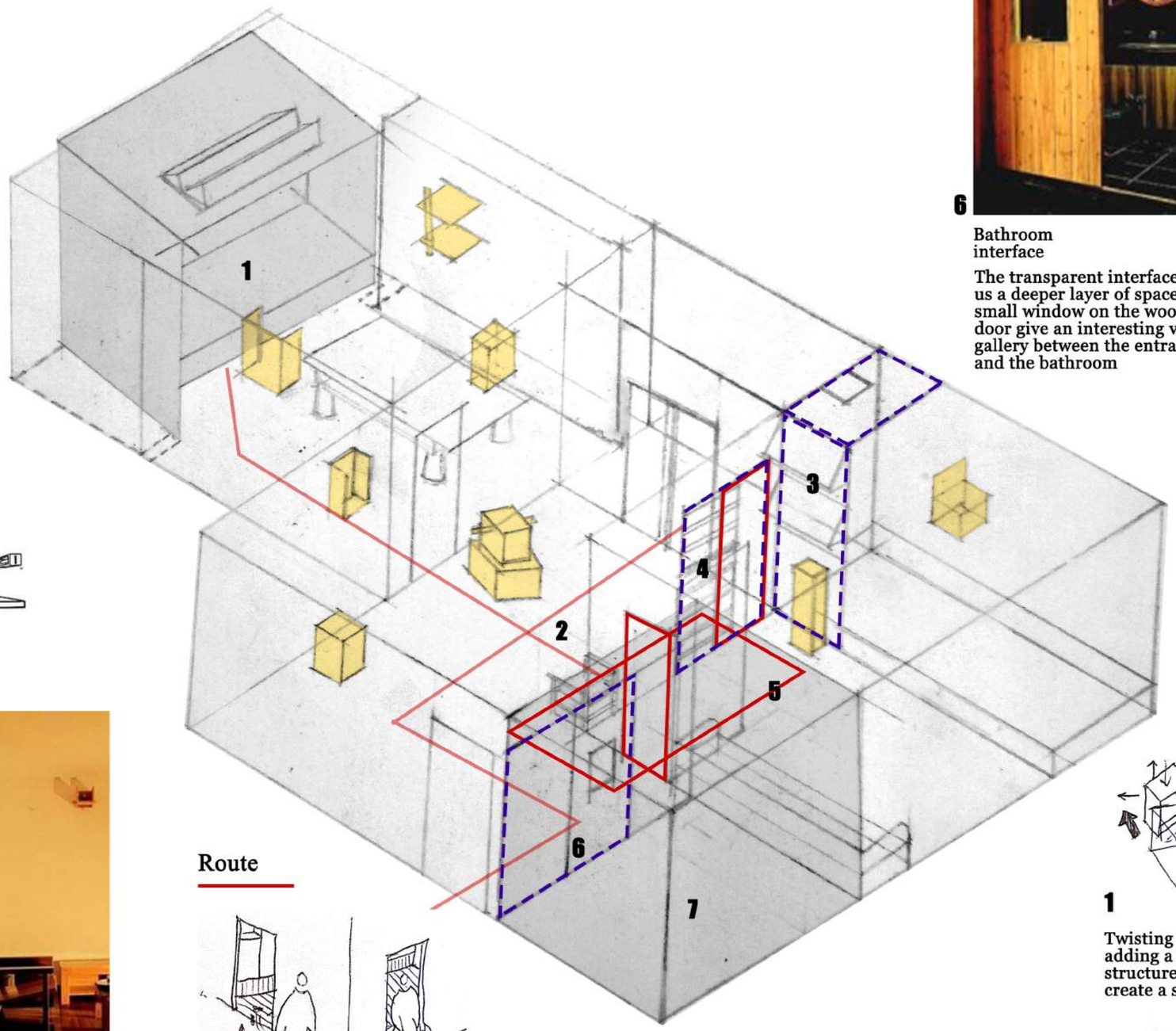
Creating clear space layer feeling can help a lot to the difinition of private and public space through different ways. This could be the next research focus.

CHINESE GARDEN CONCEPT IN MODERN HOUSING

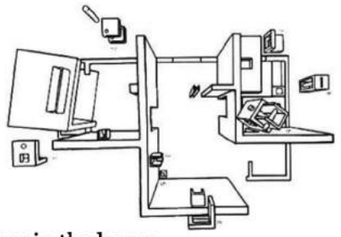
Shu Wang House

This is Wangshu's own house. What impressed me most is the clever use of classic Chinese Garden concept in such a small and indistinctive modern apartment. Through special design of space layer, interfaces and route, the space experience of this apartment is of better quality and the relationship between public and private is more comlicated and changable.

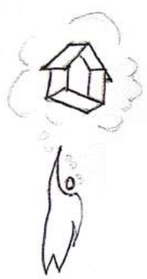
What's more, the small wooden space spread in the house and the balcony pavilion emphasize the importance of spiritual aspect in people's ordinary life, which is always neglected now in modern housing design.



Spiritrual Space



The lamps in the house

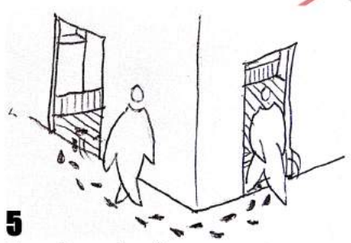


Lamp acting like imagination house

2 Living room chair and lamp

The lamps are all carefully designed to show the fancy dreams about architecture from the architects and iilustrate the important role that imagination and association play in our ordinary days.

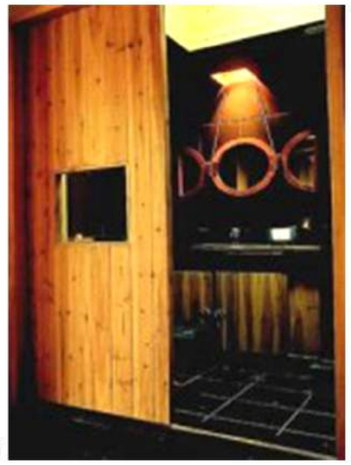
Route



5 Two doors imply new route

Two doors for one room together form a ambulatory space which create more angles and routes to experience the space inside.

Different Interfaces



6 Bathroom interface

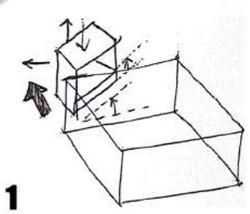
The transparent interface show us a deeper layer of space, the small window on the wooden door give an interesting view gallery between the entrance and the bathroom

3 Bedside interface

4 Bedroom interface

Using different elements in the interface will generate various relationships between spaces, like just view contact or half hidden half exposed.
Also, the up and down faces are contributing to create space differencs.

Rich Space Layer



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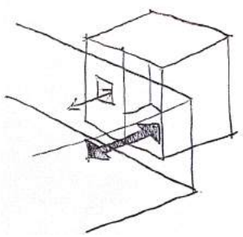
Twisting a angle, raising the floot to a sitting level, adding a roof and one wall inside the original room structure and opening a window facing the outside can create a spiritual space like the "pavilion"in the garden



7

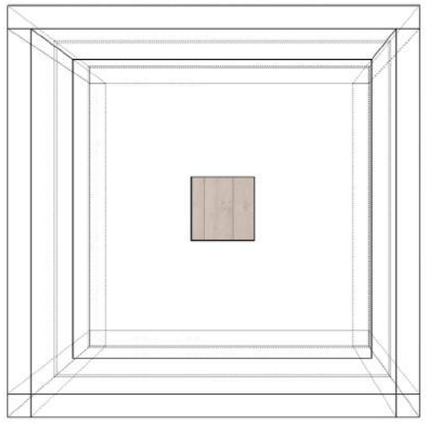
The bathroom has a transparent entrance and a wooden wall with a window on it. So this private space is presented as another layer of space.

CHAPTER 02. ENHANCE PERCEPTION OF SPACE LAYER

SINGLE INTERFACE

Through Size

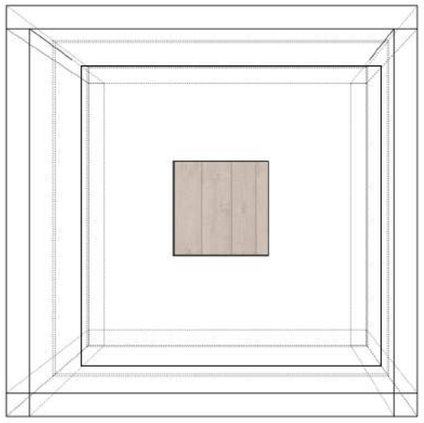
The Degree of how strong people can sense the space layers



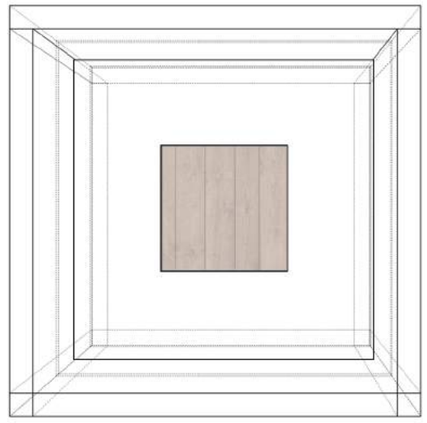
Window area/Wall area=10%

Around this percentage, the window is not likely to attract people' s eyes but act like a hole for deliberate observation. So the feeling of the other space layer is not strong.

Deliberate Observation



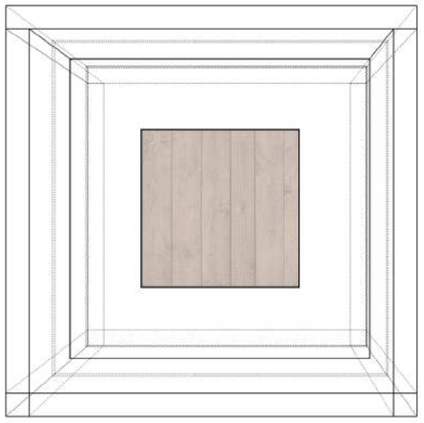
Window area/Wall area=20%



Window area/Wall area=30%

Around this percentage, the window sizes are normal for communication and interchanges between these two spaces. You can easily notice that there is another space behind.

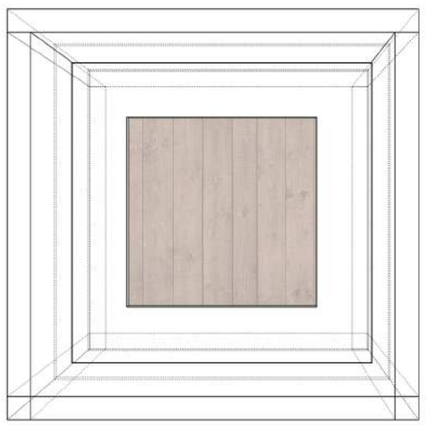
Normal



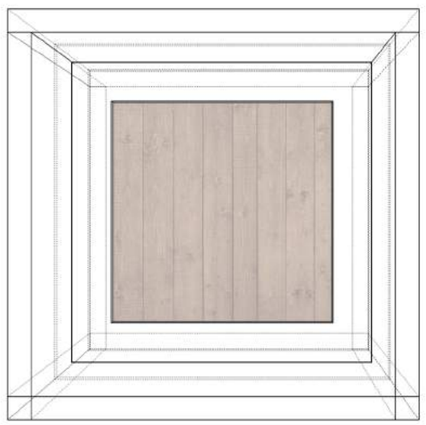
Window area/Wall area=40%

Around this percentage, the window is like a method to emphasize the other space and show what is in the other side, not for hiding.

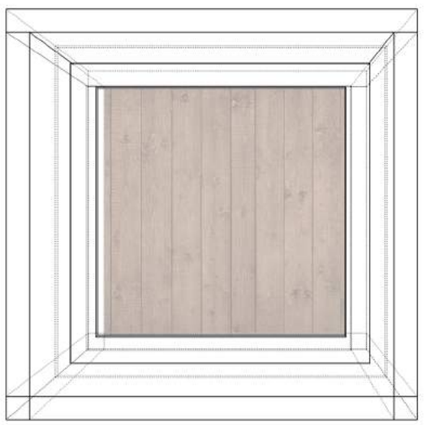
Strong



Window area/Wall area=50%



Window area/Wall area=70%



Window area/Wall area=80%

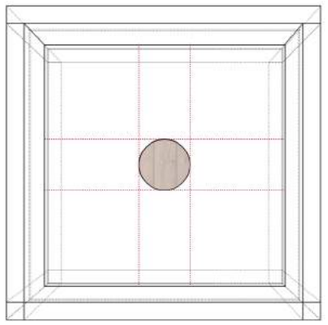
Around this percentage, the wall is acting like a frame for the other space, not taken as wall and window anymore. The thicker the frame is the deeper the sense of space layer is.

Frame

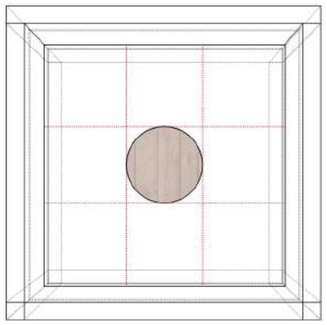
SINGLE INTERFACE

Through Distribution

The Degree of how strong people can sense the space layers



Window area/Wall area=10%



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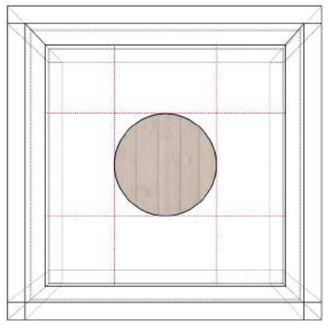

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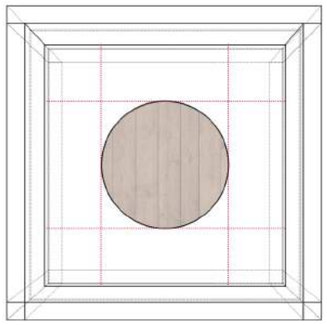
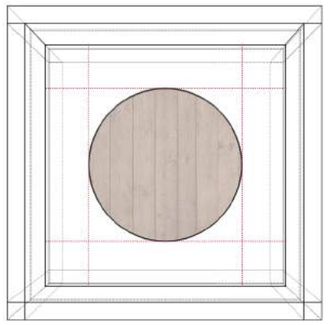


Window area/Wall area=40%



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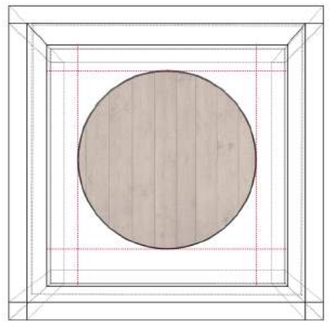

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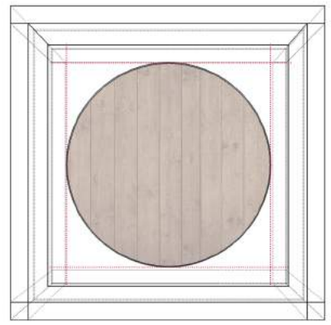
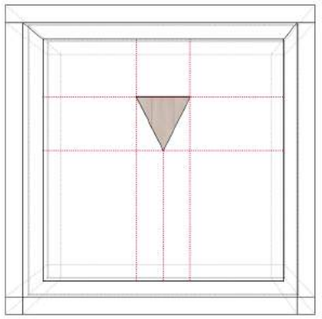


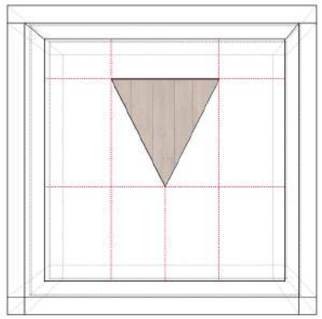
Window area/Wall area=80%

Focus Feeling, Seperation Feeling
Window and Wall emphasized at the same time

- When the percentage of window area/wall area is same, The circle window let people get stronger feeling of the space layer. The different form compared to the space helps to not only emphasis the space behind throught the window like screen but also put stronger feeling of seperation about the solid wall.



Window area/Wall area=20%



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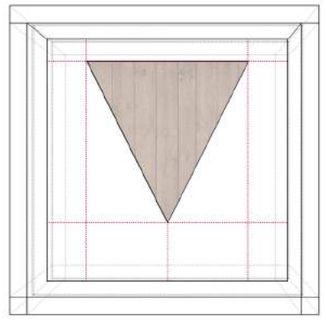
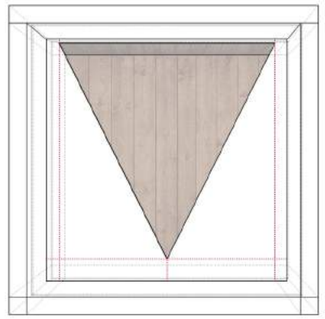


Window area/Wall area=60%



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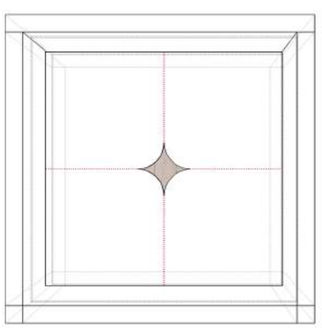
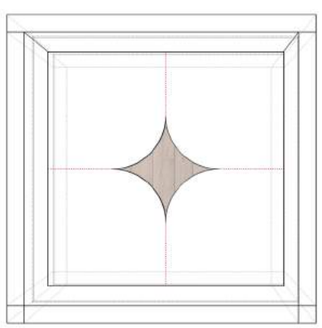
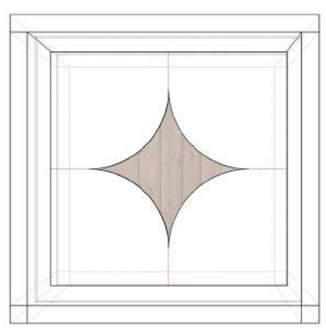


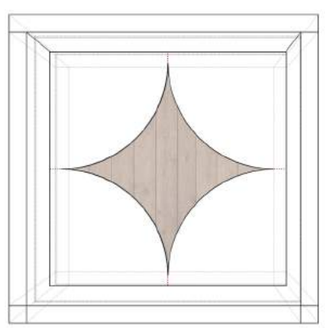
Window area/Wall area=15%



Window area/Wall area=30%



Window area/Wall area=50%



Window area/Wall area=60%

Hide and Show

- Different shapes also provide the oppotunitity to play with hide and show. For example, the triangular form is developed from the square window but with its tip point change two secret corners are created.

Attraction

- The more complicated and unusual the form is, The easier the window attract people' s attention. Especially if the from is originally developing from a center point like the star shape and circle shape

Symbol

- The typical shapes can be associated with certern meanings and hints, which could add speciality and individuality to the space.

SINGLE INTERFACE

Through Direction

The Degree of how strong people can sense the space layers

Easy to ignore the window from people' s normal view height.

Not Visible

People can sense the other space layer now but not easy to look inside. Privacy inside is considerably protected.

Sensible and Protected

The seperation of spaces is clear and the large percentage ensure the easy sense of what is inside the other layer.

The solid wall is above people' s view height so it is more difficult the sense the space division.

Out of View

- Even the percentage has reach the same, the downside wall effecting people' s movement and the direct view acros the boundary show bigger influence on the sense of space layer.

Movement Effection and Direct View

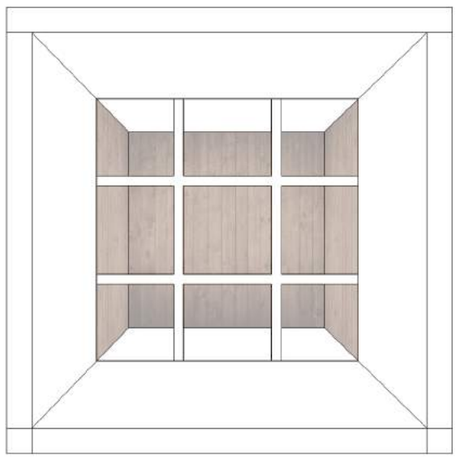
- The side open is inviting for people to enter and thus emphasize the other space sense. Also depending on the viewers standing point, the exposing degree difers a lot.

Invite for Enter and Changable Exposure

SINGLE INTERFACE

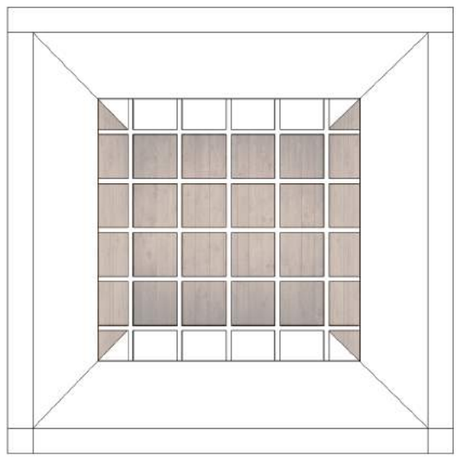
Through Density

The Degree of how strong people can sense the space layers



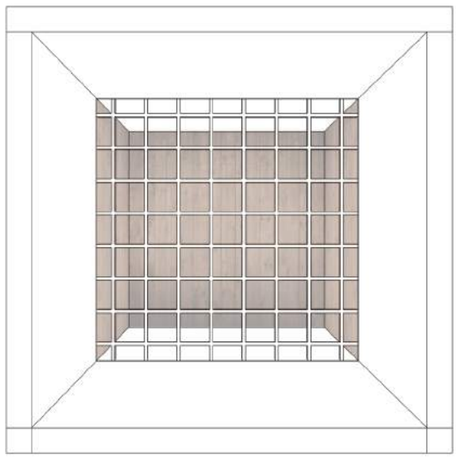
3×3

Not much view protection, but the grid structure ensure a feeling of space seperation



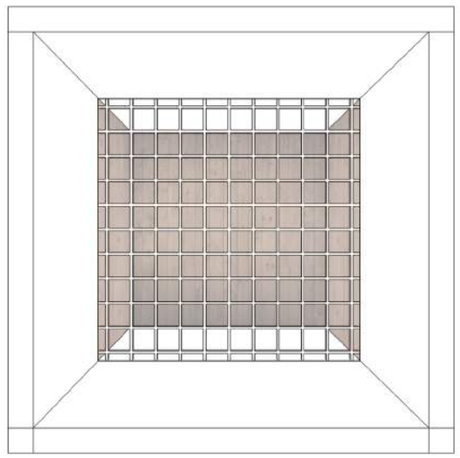
6×6

This scale reminds of storage space



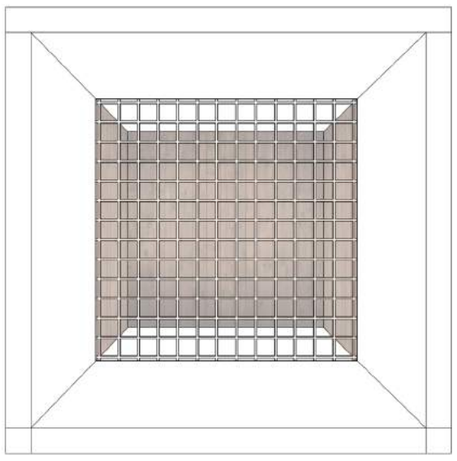
9×9

Until this density, the wall begins to have a feeling of screen. It become much easier to sense the space layer.

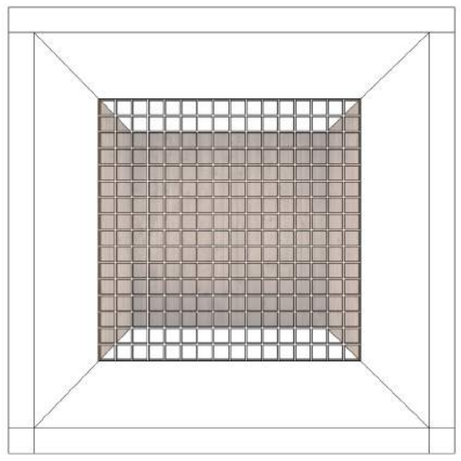


12×12

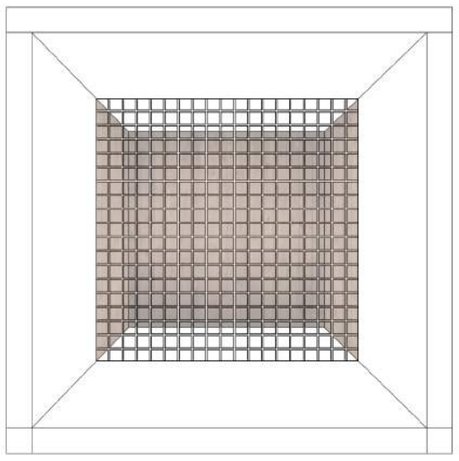
Weak Sensible



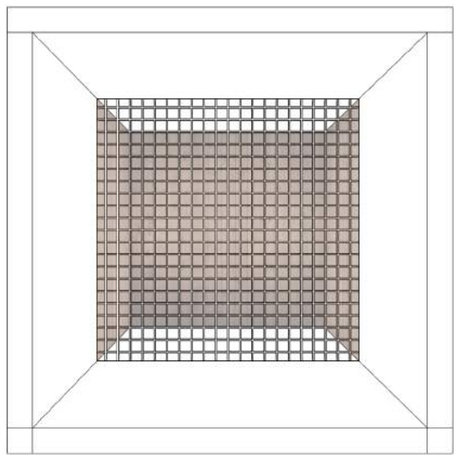
15×15



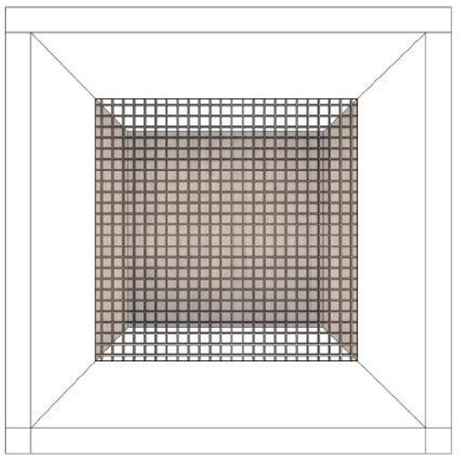
18×18



21×21



24×24



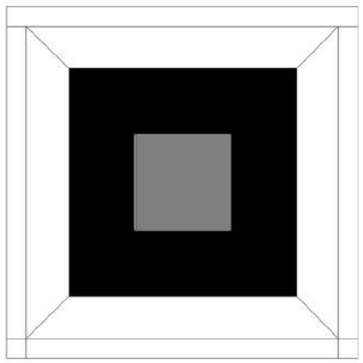
27×27

Depending on different sight angle, when the density continue to rise it is not necessarily becoming more difficult to sense the other layer(if look it straightly) and desified wall will better protect the privacy.

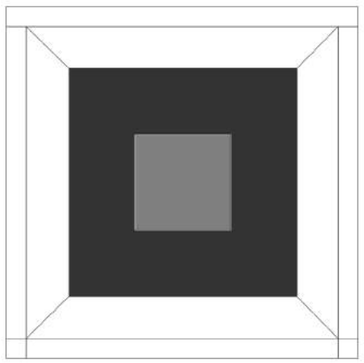
SINGLE INTERFACE

Through Color / Material

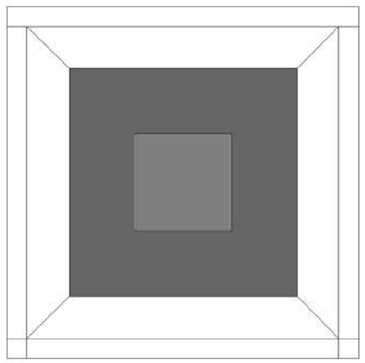
The Degree of how strong people can sense the space layers



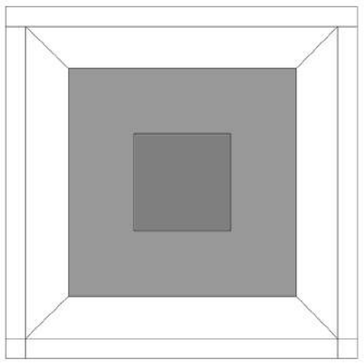
R:0 G:0 B:0



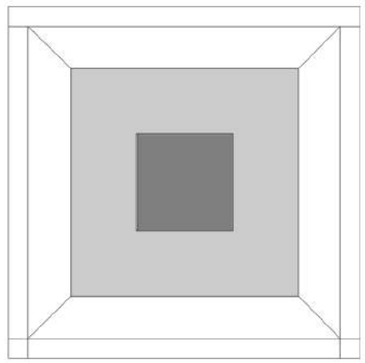
R:51 G:51 B:51



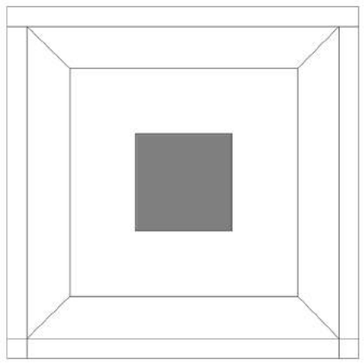
R:102 G:102 B:102



R:153 G:153 B:153



R:204 G:204 B:204



The Other Space
R:127 G:127 B:127

Color Contrast

From black to white it is divided into 6 phases to test how the color contrast between the seperation wall and the room will effect the space layer feeling. The bigger the difference is , the easier for people to pay attention to the seperation wall. But also the contrast between the seperation wall and the other space is very important. If the colors of these two are too similar it is not good for strengthen space feeling.

Loam Wall

Bamboo Wall

Stone Wall

Brick Wall

Wooden Wall

Wooden Wall

Texture

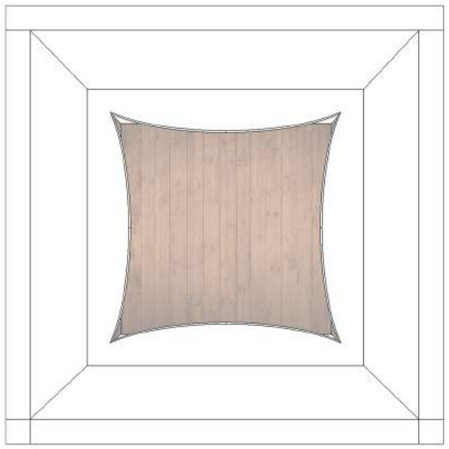
Obvious the different materials used in a white space are attractive. And even the materials' colors are quiet similar, the textures help to differ the space layers a lot.

SINGLE INTERFACE

Weak Points Combination

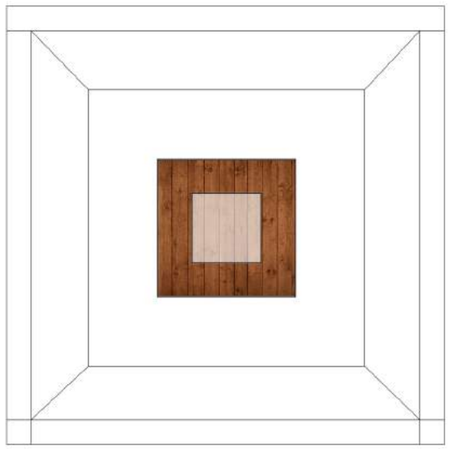
The Degree of how strong people can sense the space layers

1, Too big/too small windows



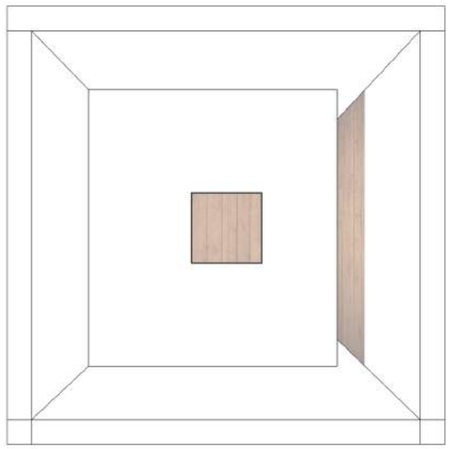
Big Window
Special Form

Just little change of the frame get much better outcome, form change is good method for emphasizing.



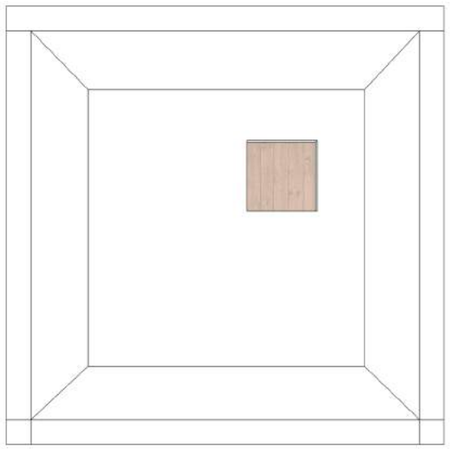
Small Window
Color/Material

Using the changed material to attract attention to the small window. People is always more sensible to changes.



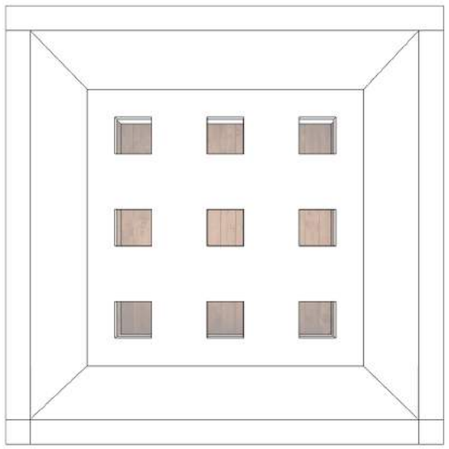
Small Window
Proportion in Direction

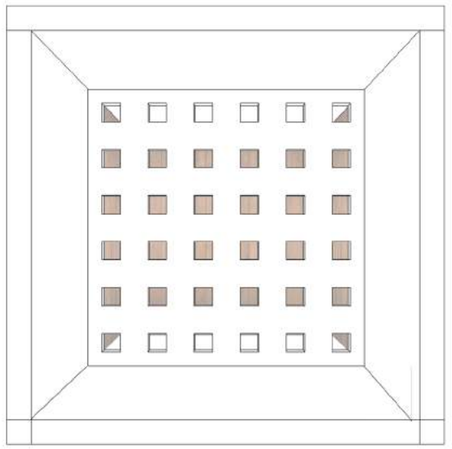
Directly adding the small window and small gap together the feeling is strong enough because the original problem is that people can' t easily sense the space behind through just little window or side gap. But two together the effect is strong enough.

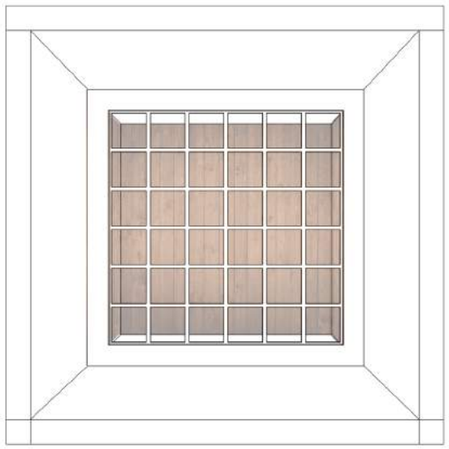


Small Window
Position

The small window is positioned in an unusual place. This "unusuality" can attract more attention.

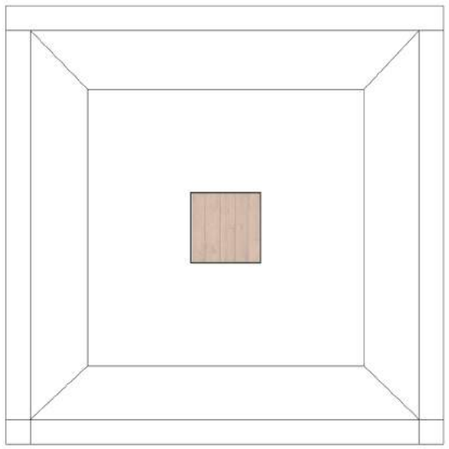


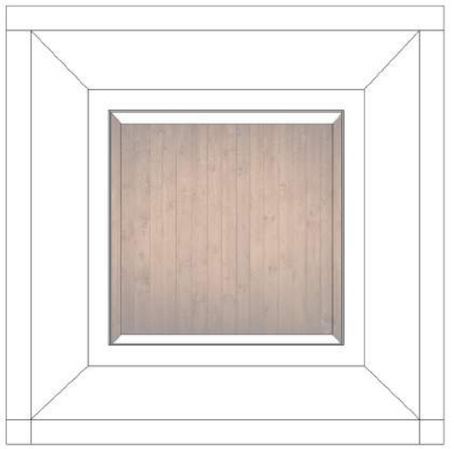




Small/Big Window
Low Density

The original low density results in that it is too easy to look throught the whole space behind and no feeling of seperation. When we change the size of the hollow part the seperation feeling emerges.
The same problem exist in the big window situation. And the added frame compensate the empty feeling. When see this trial from the low density frame view, the added thick frame also helps to seperat the space more obviously.





Small/Big Window
High Transparency

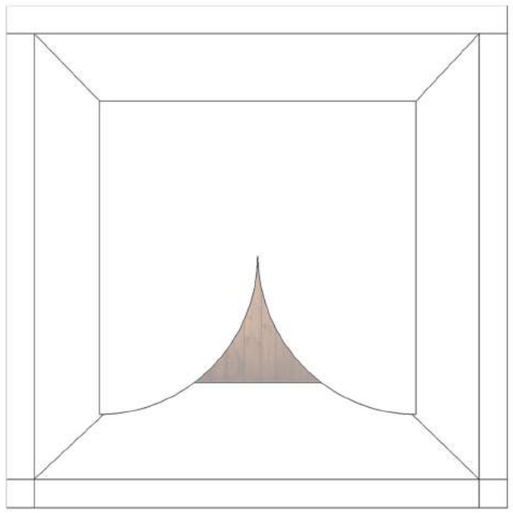
The high transparent glass on the small window can' t help much because it won' t draw more eyes to the window or show more of the space behind. But the big window is different because the high transparent glass at least get stronger seperation feeling than nothing.

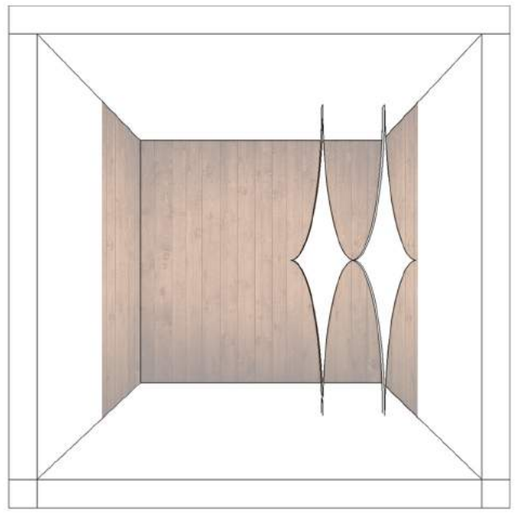
SINGLE INTERFACE

Weak Points Combination

The Degree of how strong people can sense the space layers

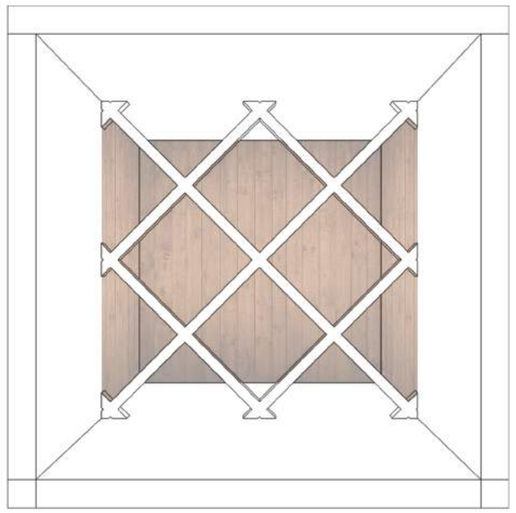
2, Special Form

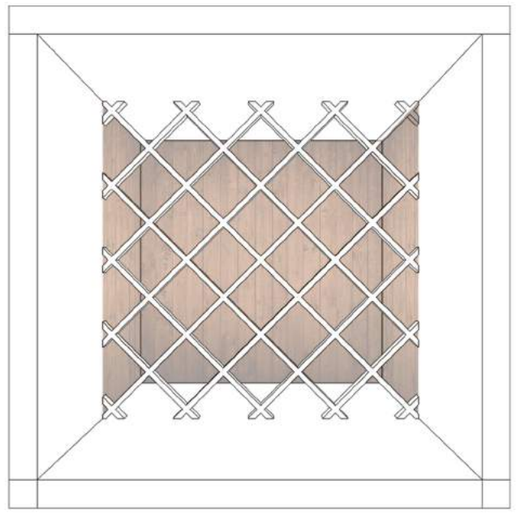




Special Form
Proportion in Direction

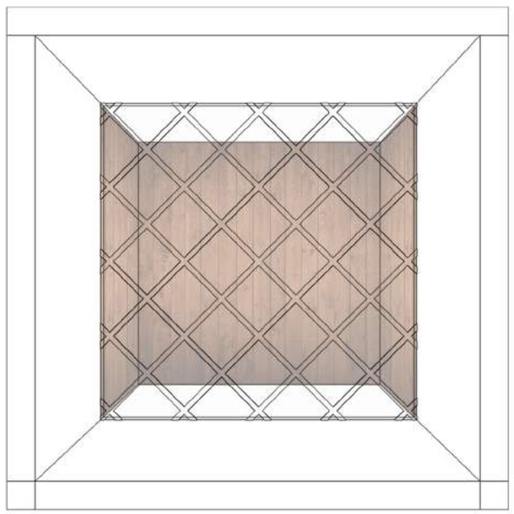
The curved form makes the small gap downside the wall become obvious and the changing hight of the gap gives people chance to look through. Also, the star shaped wall get people to notice it thus the seperation of spaces is stronger.





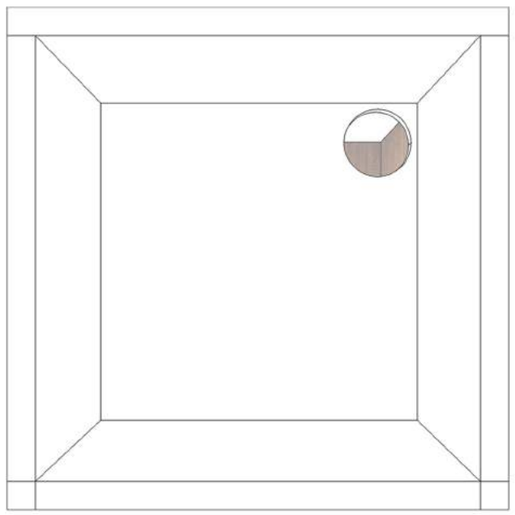
Special Form
Low Density

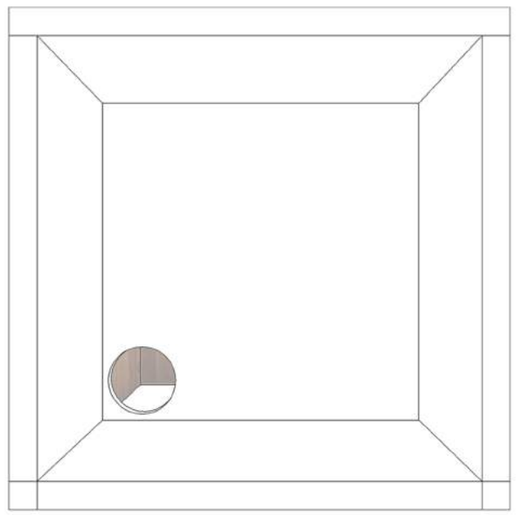
Still the same density but twisted 45 degrees so the frame structure have a different appearance and become more conspicuous. In this way the seperation feeling is stronger



Special Form
High Transparency

Just adding some patterns on the glass wall the transparent seperation become much more impressive and result in a better division of space. At the same time the trasparency ensures the view contact.





Special Form
Position

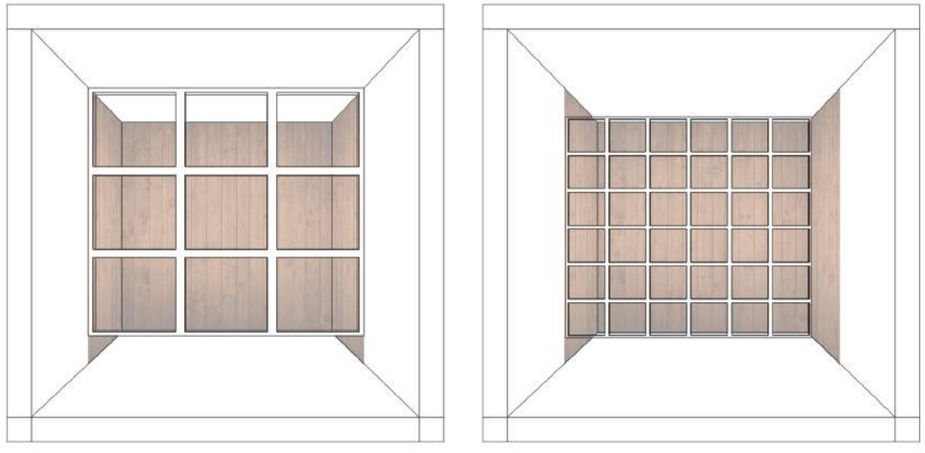
The circle windows act like attractive points and have better effect. But the position factor still makes the view contact not easy.

SINGLE INTERFACE

Weak Points Combination

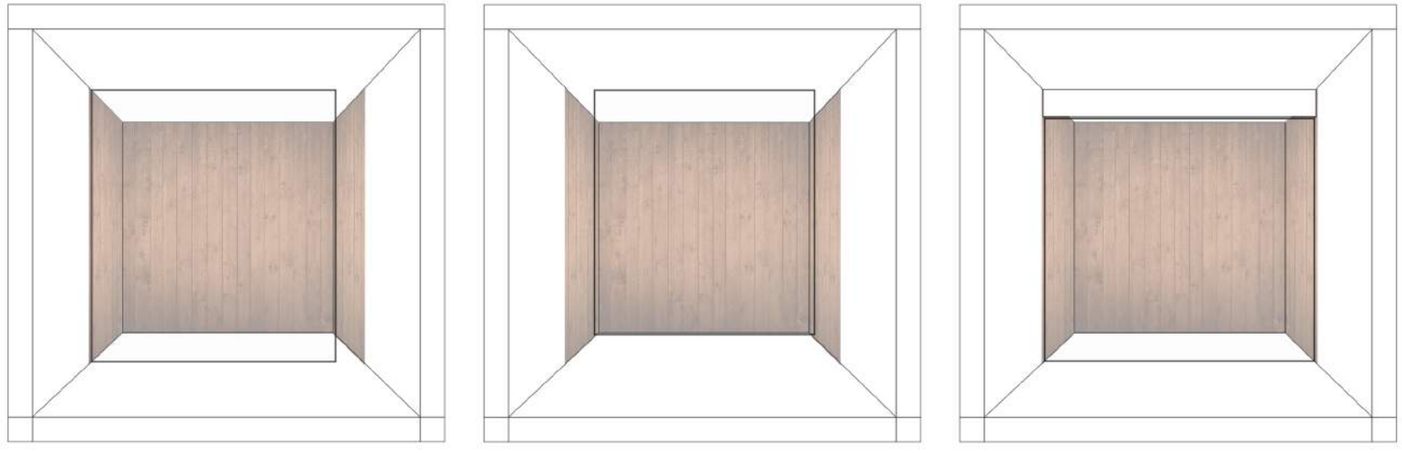
The Degree of how strong people can sense the space layers

3, Direction



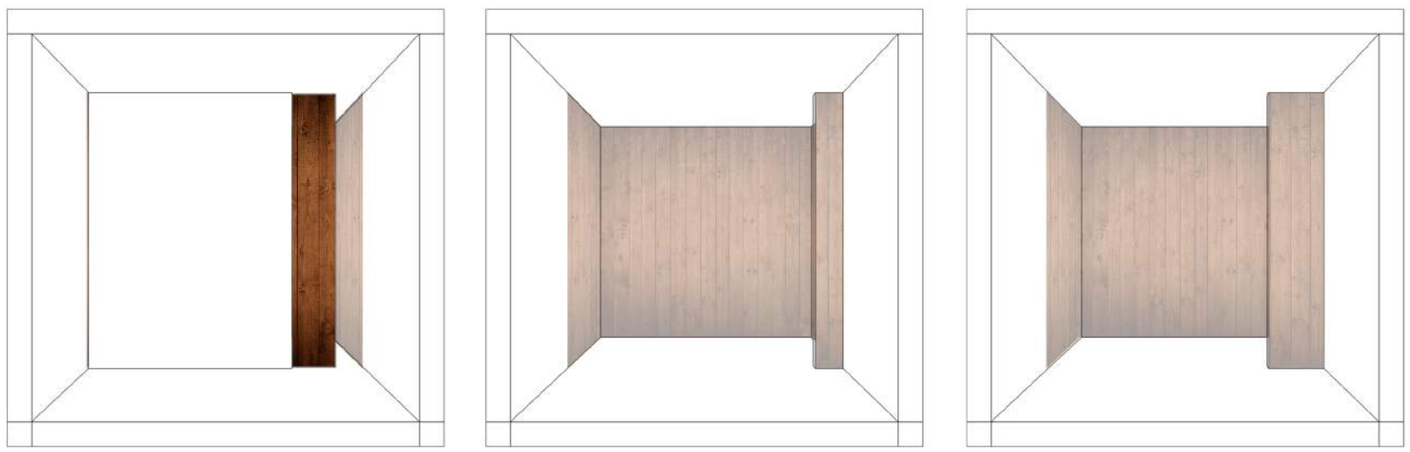
Proportion
in Direction
Low Density

The low density frame take the place of the solid wall and thus ensure the sight path which only the small gap is not enough. And the little narrowed frame is more obvious than the whole one to ensure the seperation.



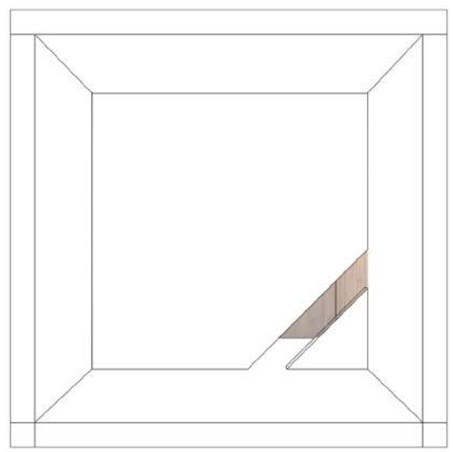
Proportion
in Direction
High Transparency

Let the transparent glass replace the solid part so again it fix the sight problem with the little gap. And the third one the glass is used to fulfill the big gap from the large proportion of direction and in this way the seperation felling is stronger combined with little wall on the roof.



Proportion
in Direction
Color/Material

The strong material used around the gap effective emphasize the empty space and the room behind.
The same material from the room to the seperation wall get a feeling of wraping the space which result in a better feeling of space layer.



Proportion
in Direction
Position

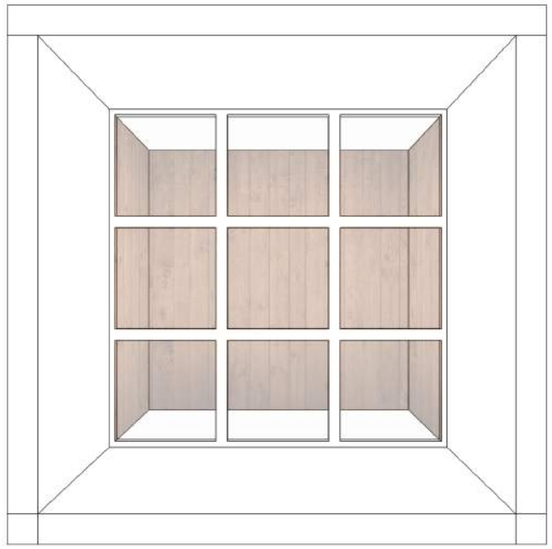
When combine the position and direction factors together we could have some new situations.
To be tested more.

SINGLE INTERFACE

Weak Points Combination

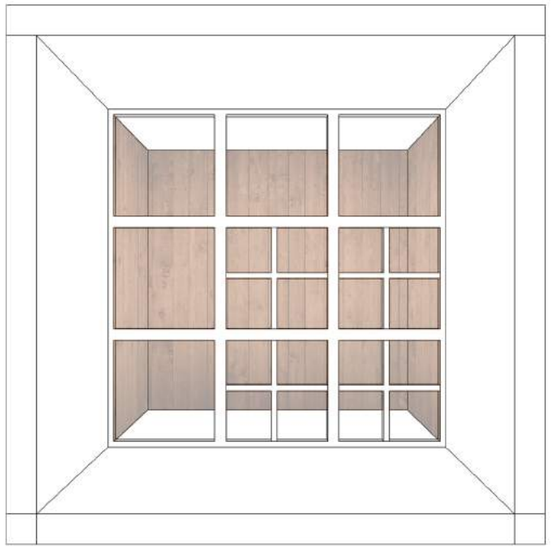
The Degree of how strong people can sense the space layers

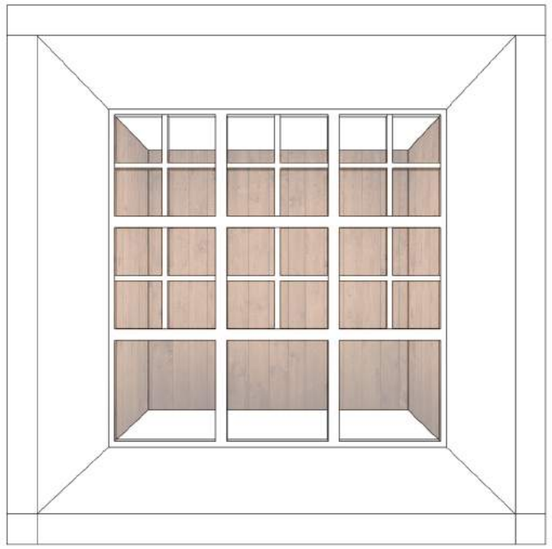
4, Low Density



The added glass means to get the space division feeling stronger while reserve the good sight condition from the low density frame.

Low Density
High Transparency

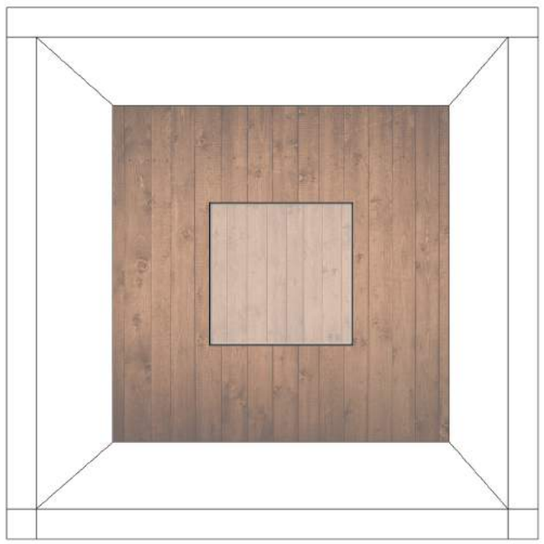


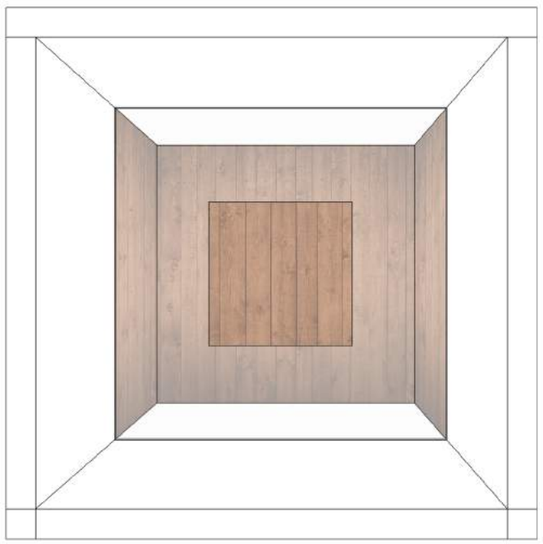


Position here means to try to make changes at some typical position in order to help people feel the seperation frame.

Low Density
Position

5, High Transparency

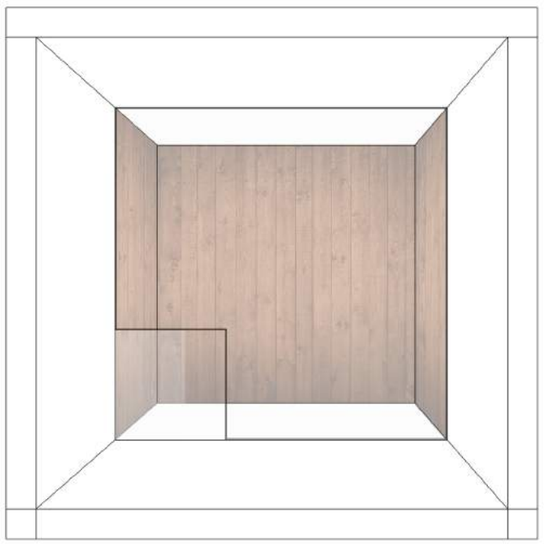




Same window and wall but material of each are shifted. 20% transparent glassed window make the space behind more sensible from the same material seperation.

When reversed, the central wooden part and the glass surrounding is an interesting combination. Sufficient sight area and unusual contral meterial result in good space layer feeling

High Transparency
Color/Material



Position here means to try to make changes at some typical position in order to help people feel the seperation through the glass wall with different transparency.

High Transparency
Position

SPACE CHANGE

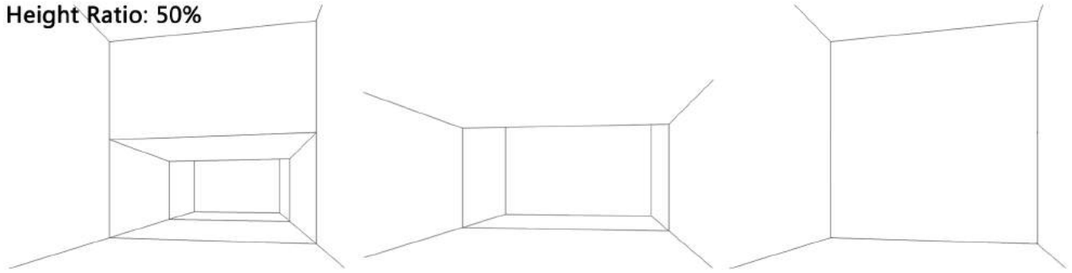
Through Space Height

The Degree of how strong people can sense the space layers

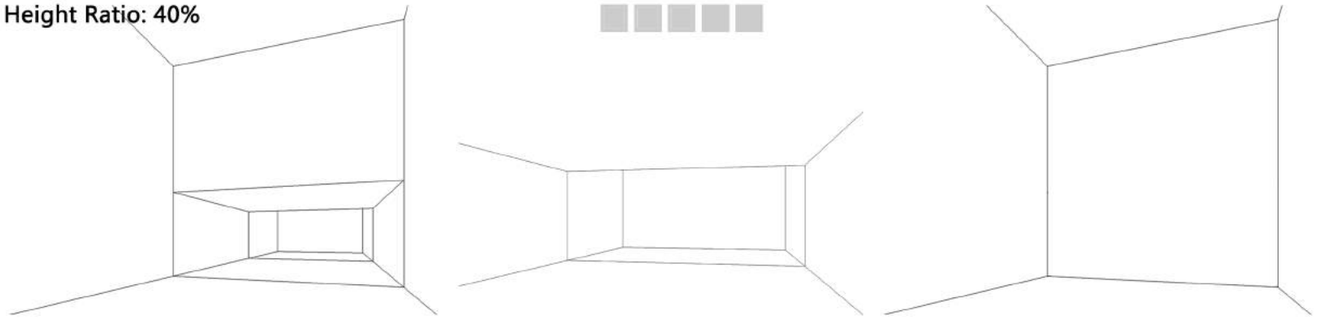
We can try how the height of space will effect the people feeling the space difference and layers.

When the height ratio of spaces is smaller than 90%, it is not difficult to sense the difference of two spaces. When the ratio becomes 70%, the two spaces still could be seen as same type. When the ratio is lower then 60%, there is a clear sense of space layers and further more, the two spaces likely to have different functions and meanings.

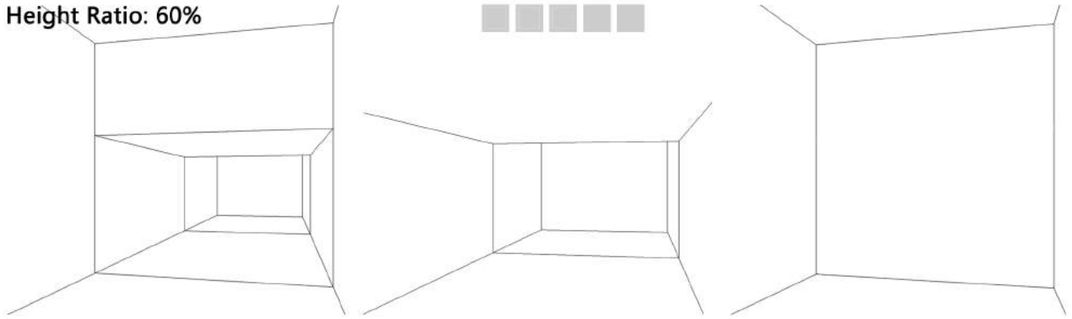
Height Ratio: 50%



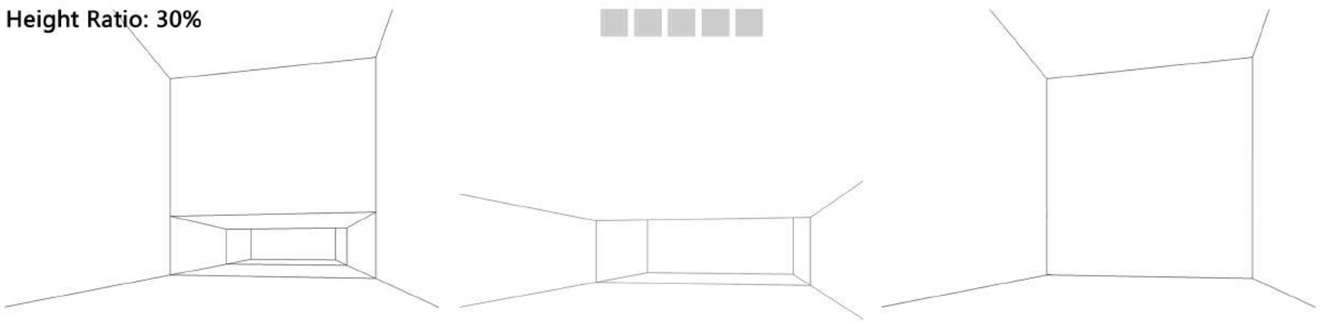
Height Ratio: 40%



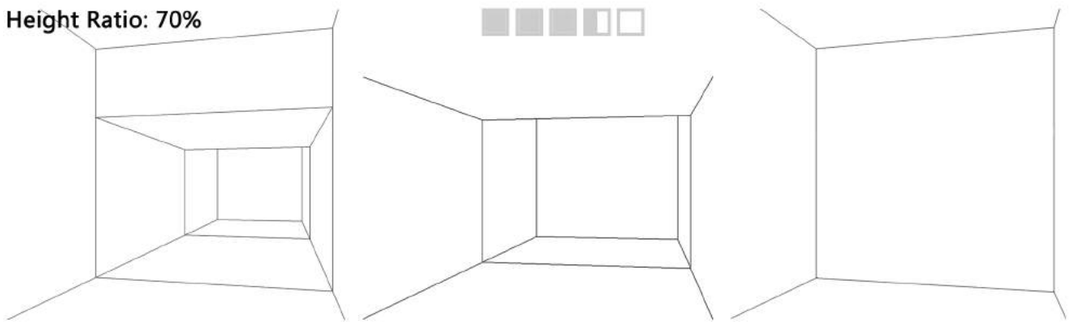
Height Ratio: 60%



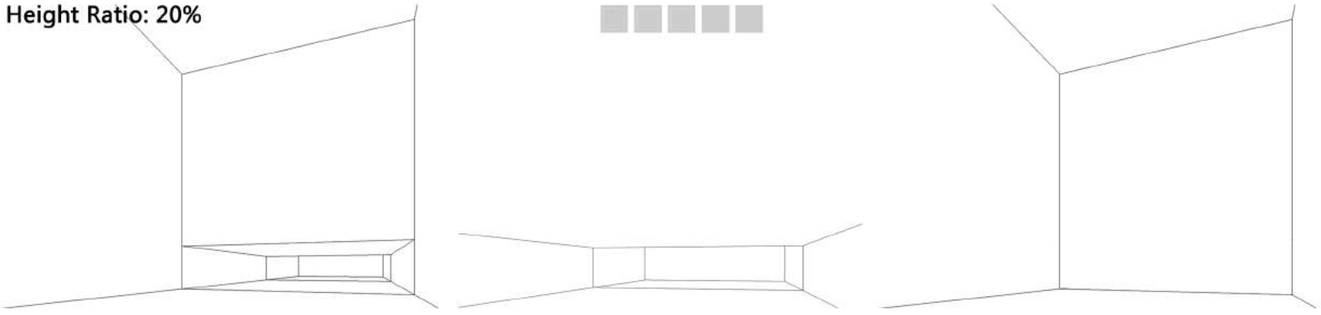
Height Ratio: 30%



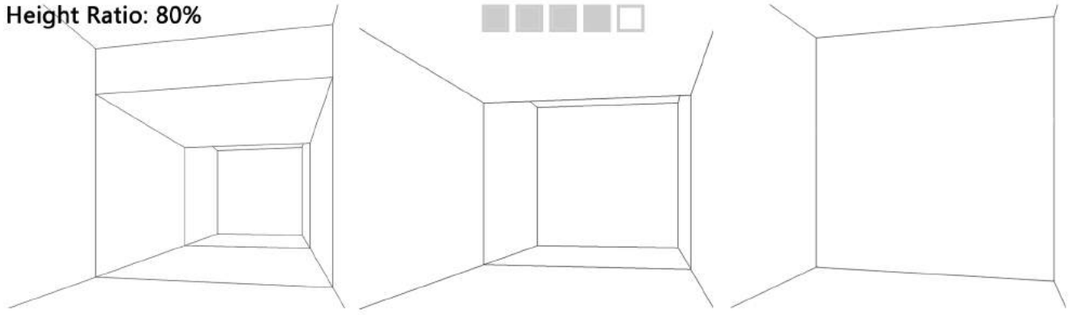
Height Ratio: 70%



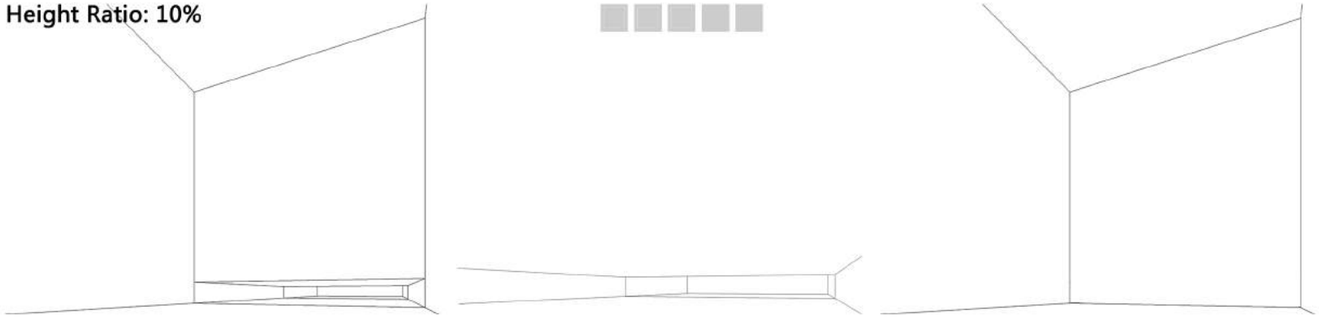
Height Ratio: 20%



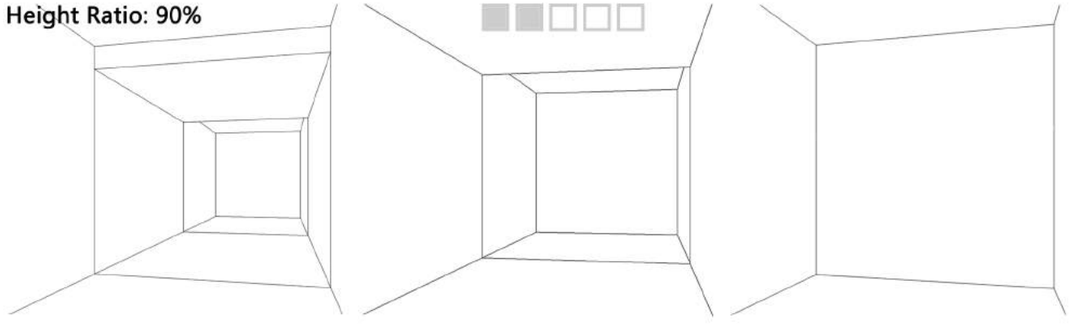
Height Ratio: 80%



Height Ratio: 10%



Height Ratio: 90%



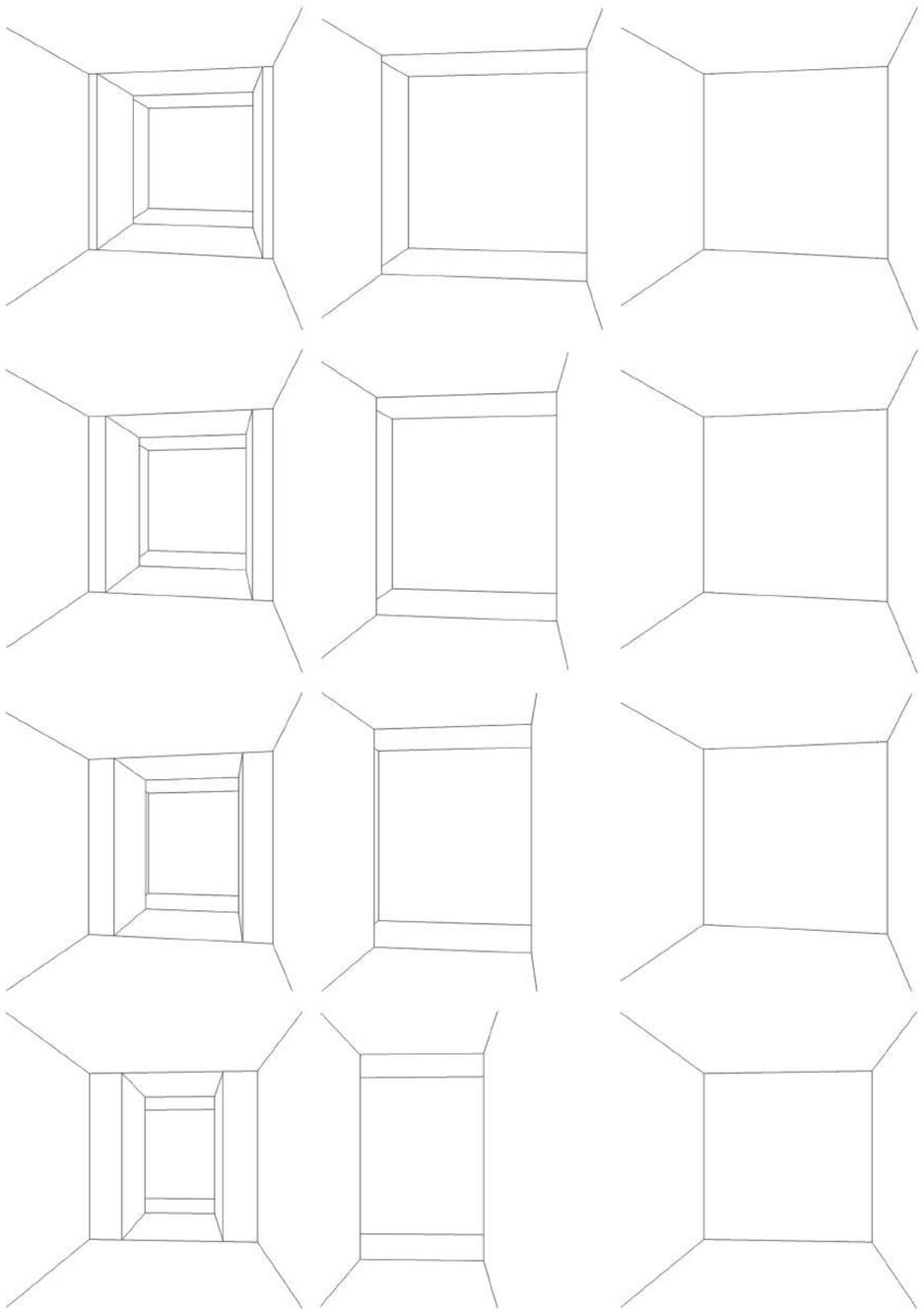
SPACE CHANGE

Through Space Width

The Degree of how strong people can sense the space layers

We can try how the width of space will effect the people feeling the space difference and layers.

The width situation resembles the height one. Ratio higher than 90% has no space layer feeling, lower than 70% the feeling will be strong. When the ratio becomes smaller than 40%, the second space height-width ratio is too large so the overall space scale is enlarged.



Width Ratio: 90%

Like added decoration layer, no clear feeling

Width Ratio: 80%

Can sense the space layer but not obvious

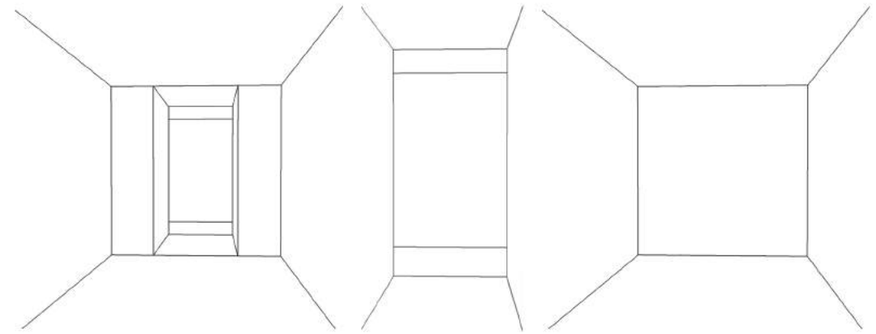
Width Ratio: 70%

Different space and space layer feeling

Width Ratio: 60%

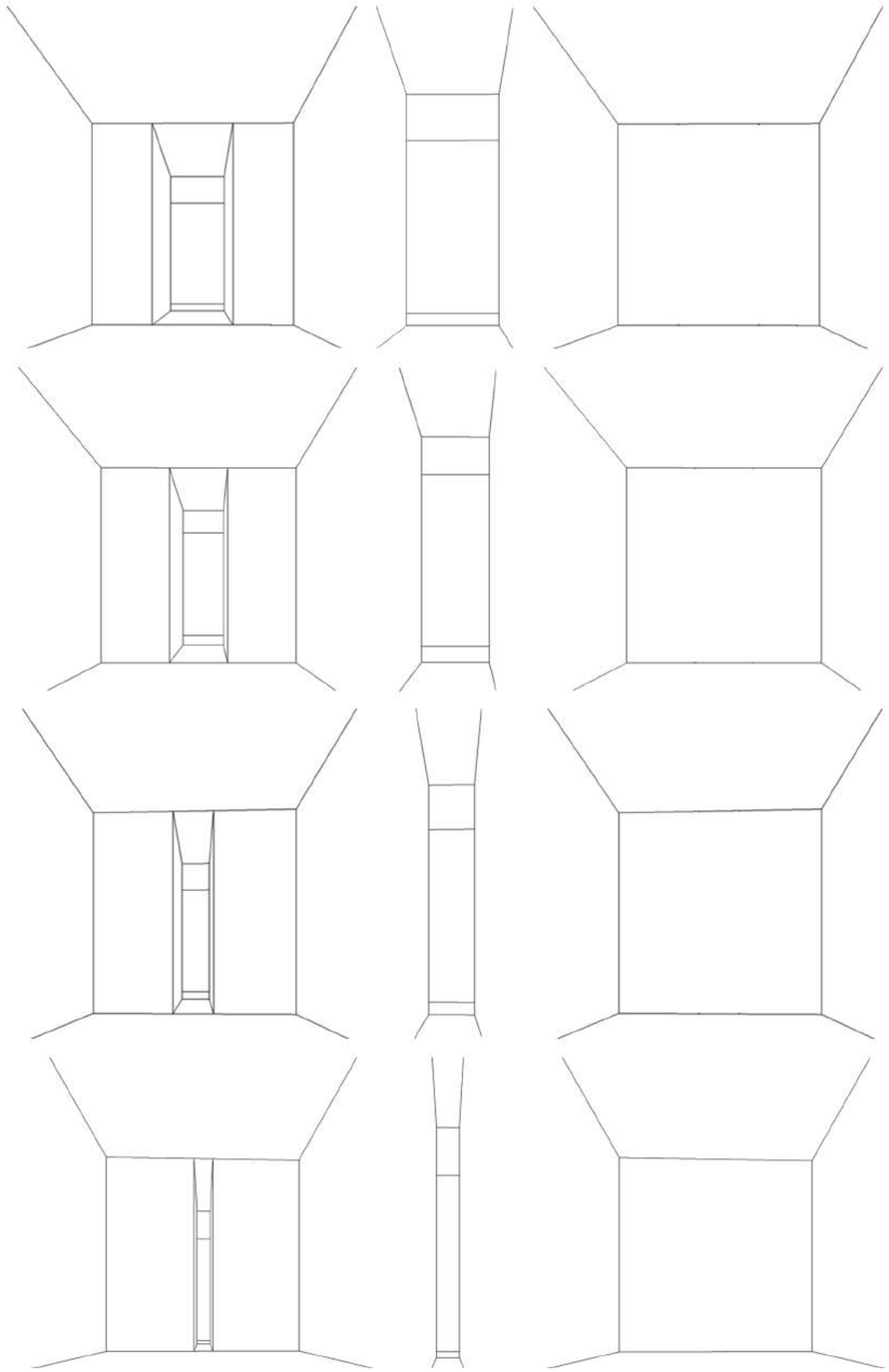
Like corridor space

Width Ratio: 50%



Little narrow for a corridor, easier to take it as a space more than one floor

Width Ratio: 40%



High space

Width Ratio: 30%

Width Ratio: 20%

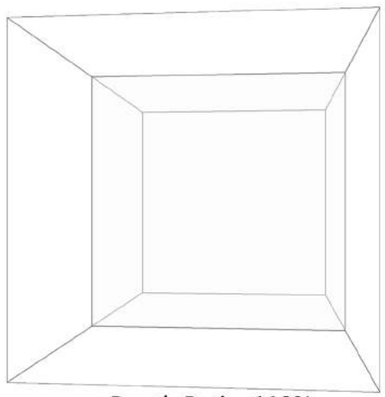
Width Ratio: 10%

SPACE CHANGE

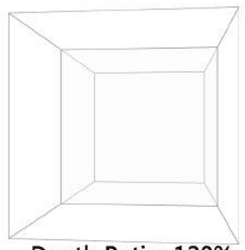
Through Space Depth

The Degree of how strong people can sense the space layers

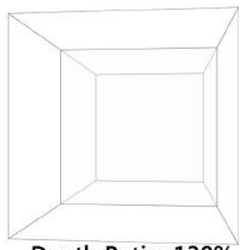
We can try how the depth of space will effect the people feeling the space difference and layers.



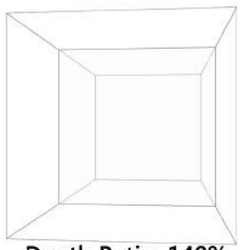
Depth Ratio: 110%



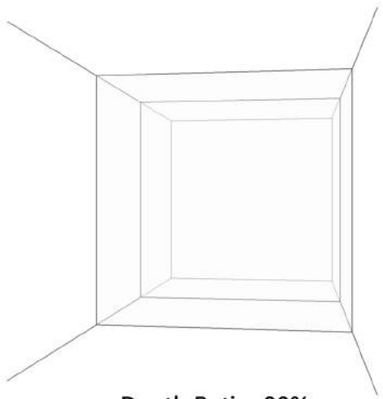
Depth Ratio: 120%



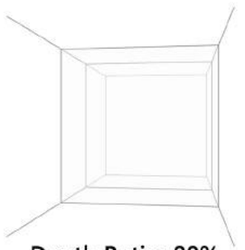
Depth Ratio: 130%



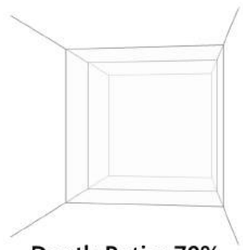
Depth Ratio: 140%



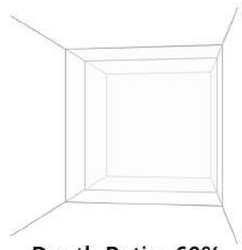
Depth Ratio: 90%



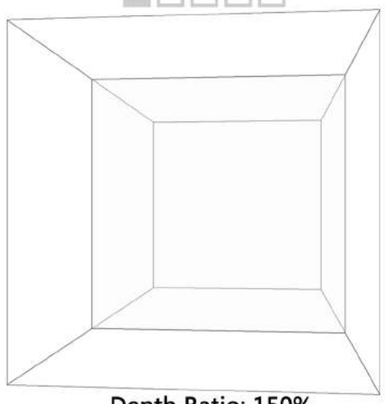
Depth Ratio: 80%



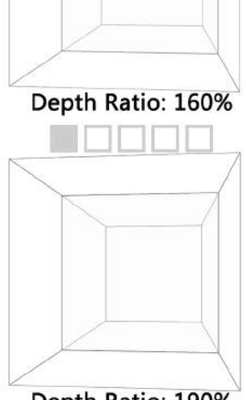
Depth Ratio: 70%



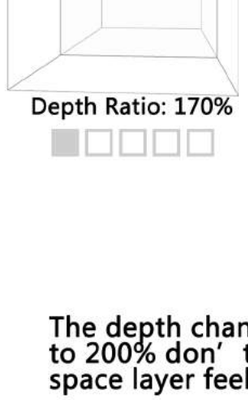
Depth Ratio: 60%



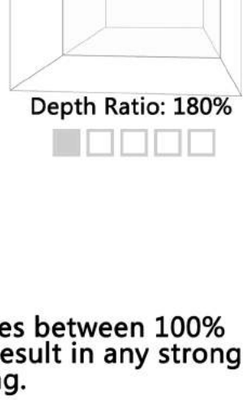
Depth Ratio: 150%



Depth Ratio: 160%



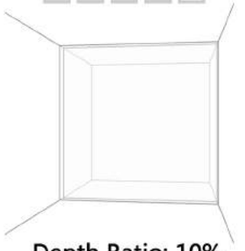
Depth Ratio: 170%



Depth Ratio: 180%

Depth Ratio: 190%

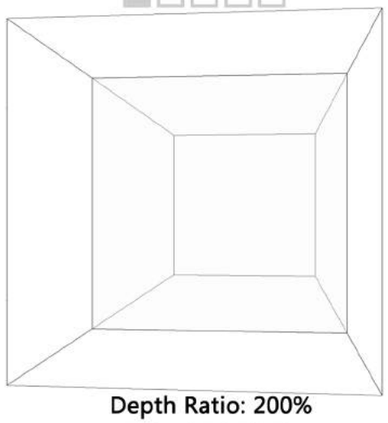
Depth Ratio: 50%



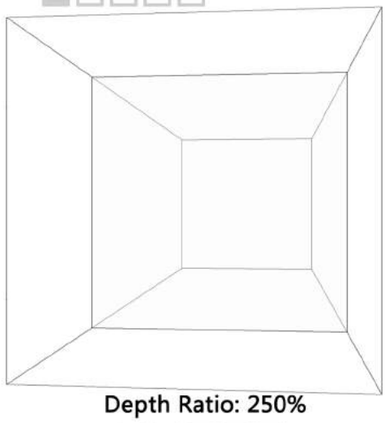
Depth Ratio: 10%

The depth changes between 100% to 200% don’ t result in any strong space layer feeling.

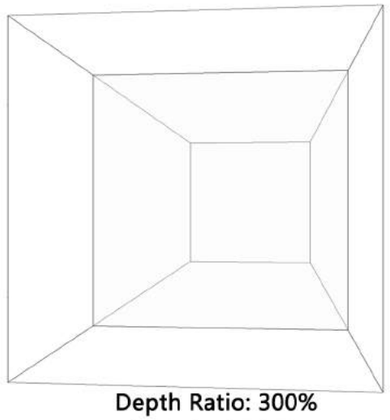
When depth ratio reduce from 100% to 10%, the second space gradually lost the feeling of a space even the different space feeling is becoming stronger. And the changes are more obvious than increasing situation.



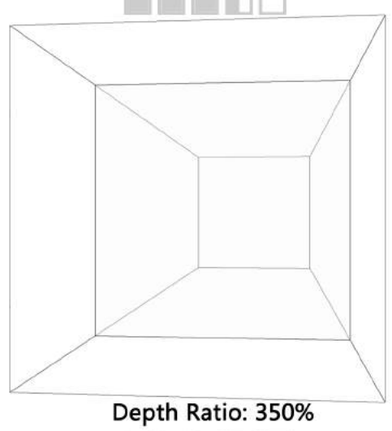
Depth Ratio: 200%



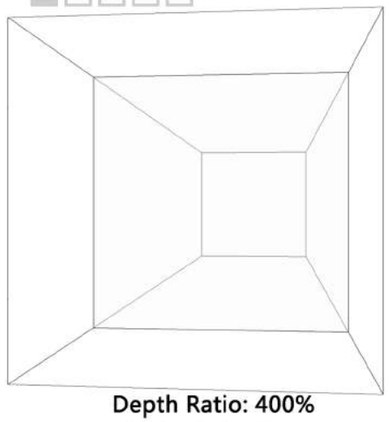
Depth Ratio: 250%



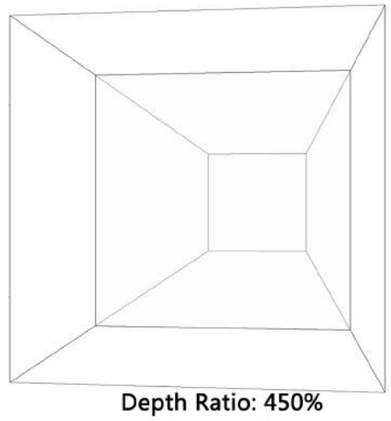
Depth Ratio: 300%



Depth Ratio: 350%



Depth Ratio: 400%



Depth Ratio: 450%

The depth of space need seperations to help people sense the change. And this change is not that recongnizable compared to height and width situations.

The examples here show that little depth change can help little for the space layer feeling because the depth distance is difficult to sense.

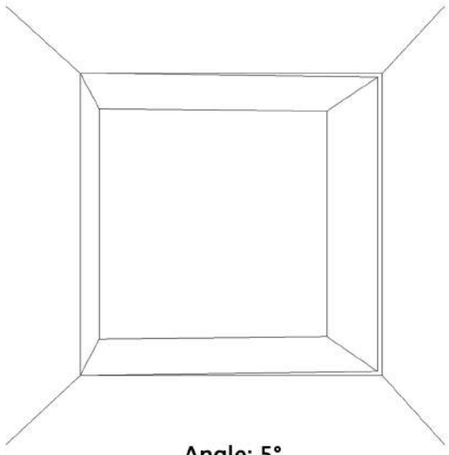
When above 200%, let the depth of the second space change 50% every step to magnify the difference. And obviously the larger the ratio is, the stronger the space layer feeling is.

SPACE CHANGE

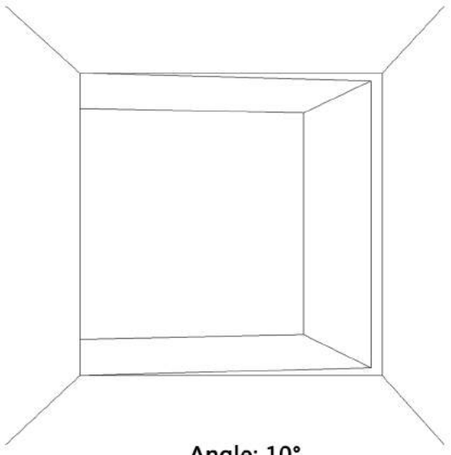
Through Space Angle

The Degree of how strong people can sense the space layers

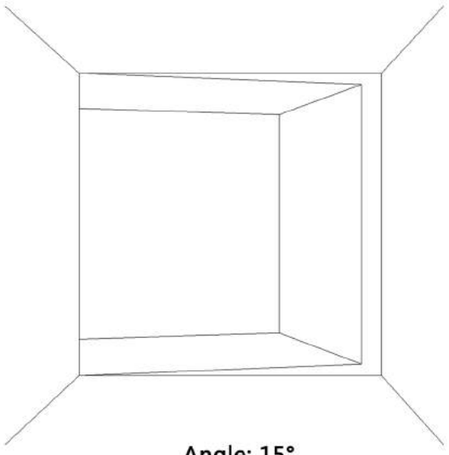
We can try how the twisted angle of space will effect the people feeling the space difference and layers.



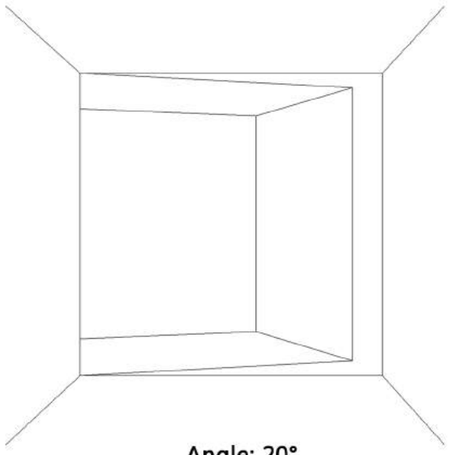
Angle: 5°



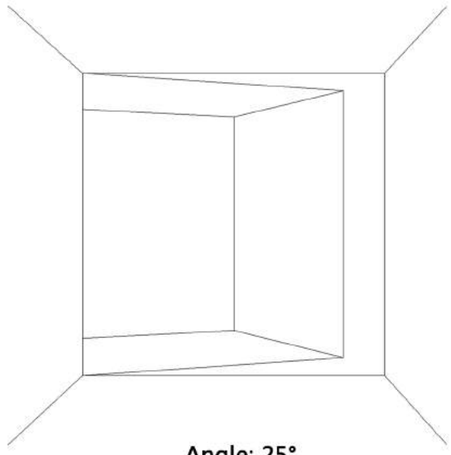
Angle: 10°



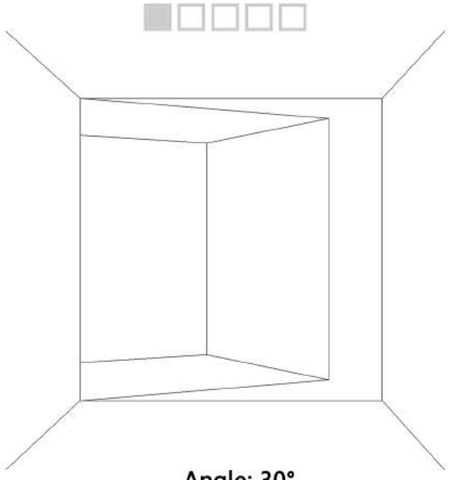
Angle: 15°



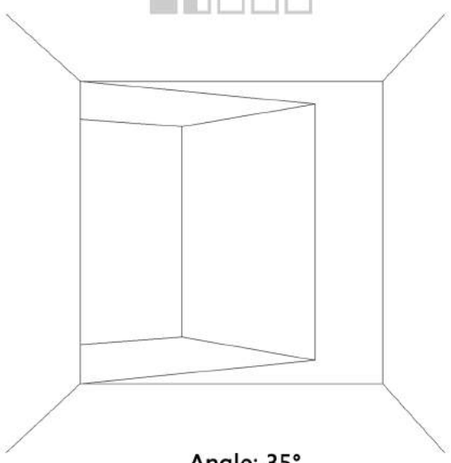
Angle: 20°



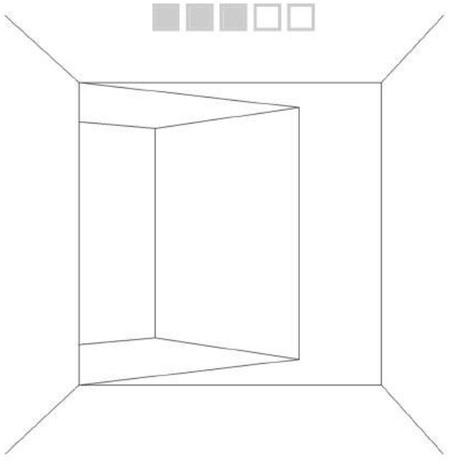
Angle: 25°



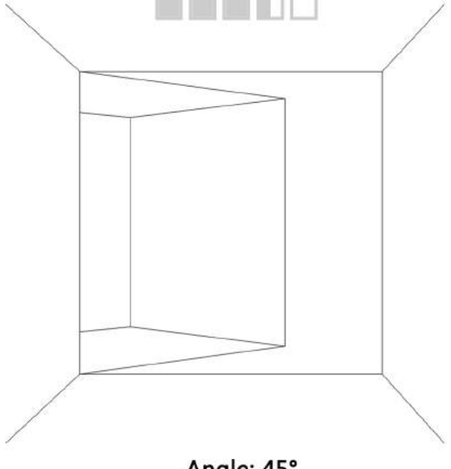
Angle: 30°



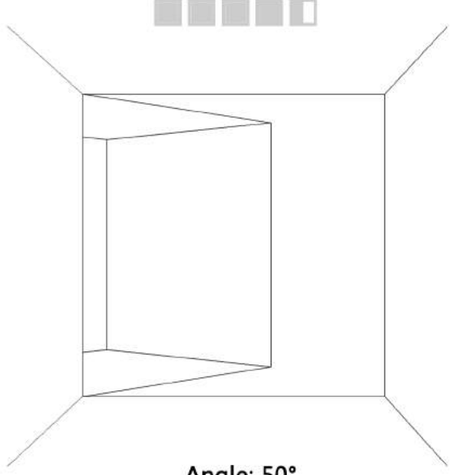
Angle: 35°



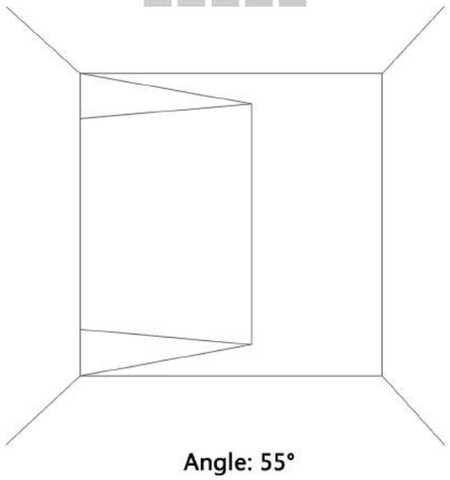
Angle: 40°



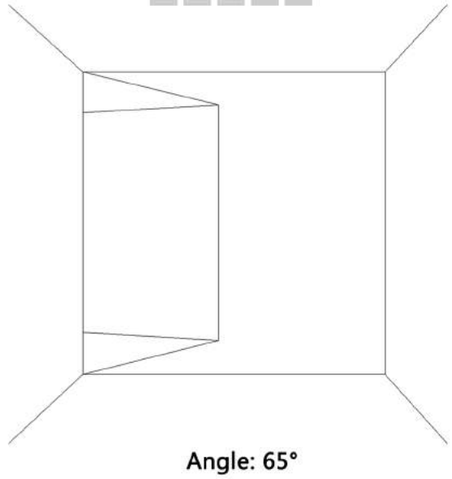
Angle: 45°



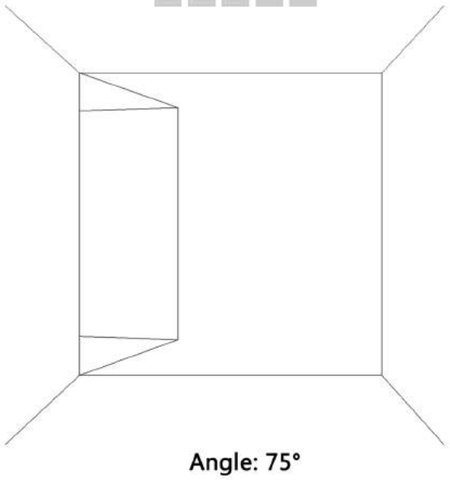
Angle: 50°



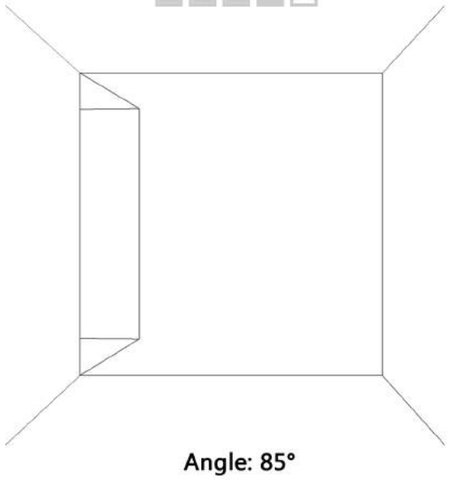
Angle: 55°



Angle: 65°



Angle: 75°



Angle: 85°

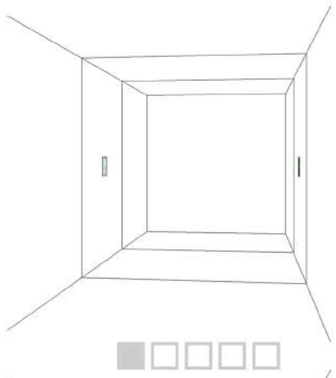
When the angle is smaller than 10 degree, the changes of space is not very sensible. The angle between 15 degree and 50 degree, the space layer is all very obvious and easy to sense. And it is possible to have a intergral understanding of the second space. From 55 degree on, the other space can just be shown partly to the people in the first space and the availability seems to reduce, so the space layer feeling continues to reduce.

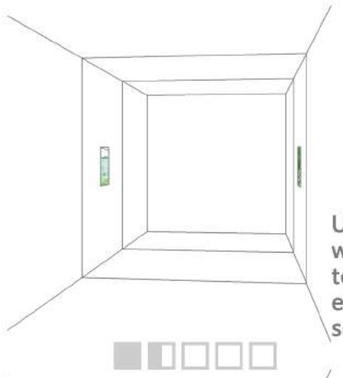
SPACE CHANGE

Through Space Openness

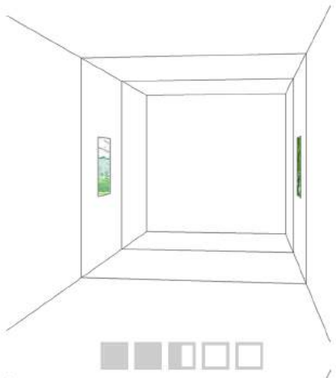
The Degree of how strong people can sense the space layers

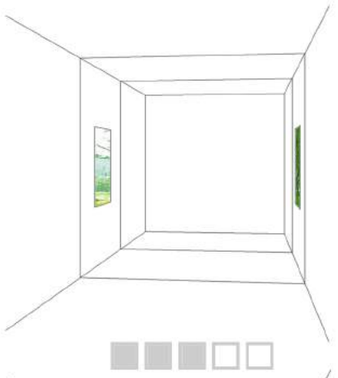
We can try how the openness of space will effect the people feeling the space difference and layers.



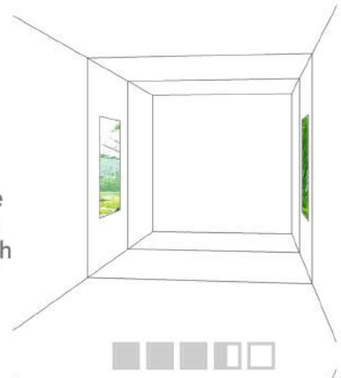


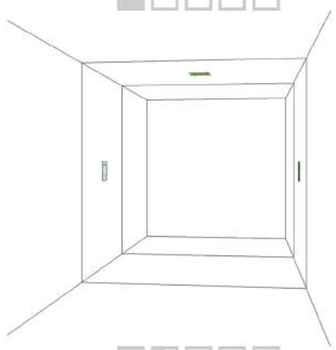
Until 20%, the windows are too small to effect the second space.

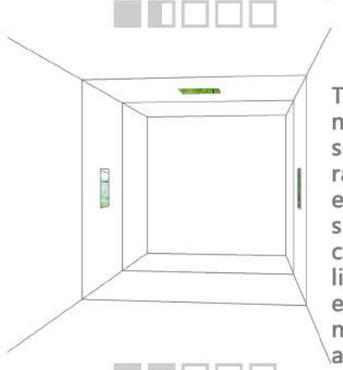




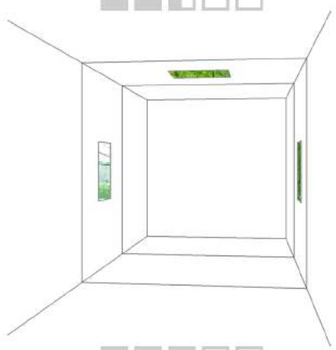
Until 50%, the openness of the second space is different enough for people to distinguish the changes.

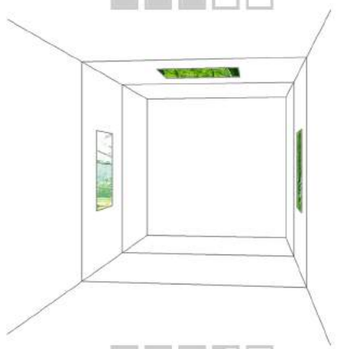


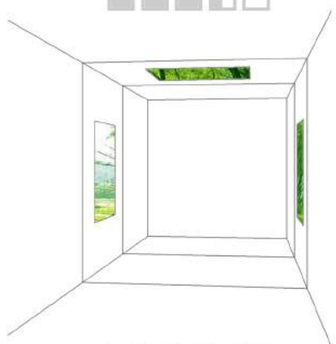




The skylight makes the second space rather special, even the area is small and difficult to notice, the light and ouside environment will make it important

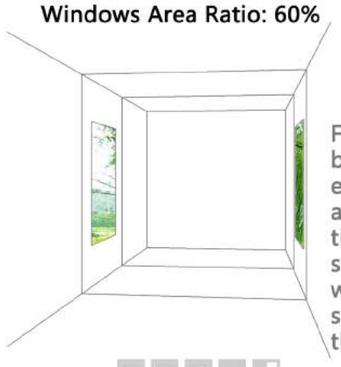






Windows Area Ratio: 10%

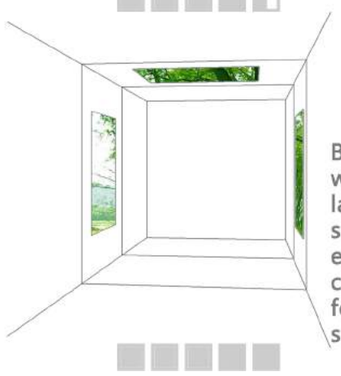
Windows Area Ratio: 60%

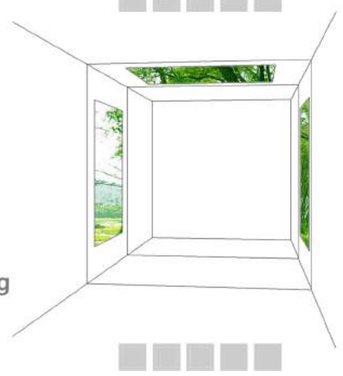


Windows Area Ratio: 20%

Windows Area Ratio: 70%

From 60%, the big window area ensure the light and view condition of the second space, which means a strong feeling of the space layers.

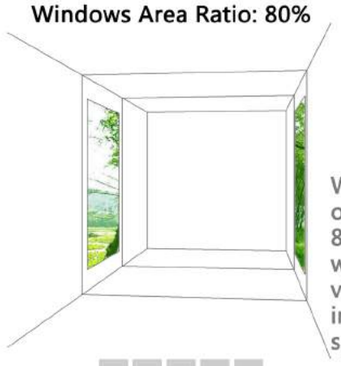




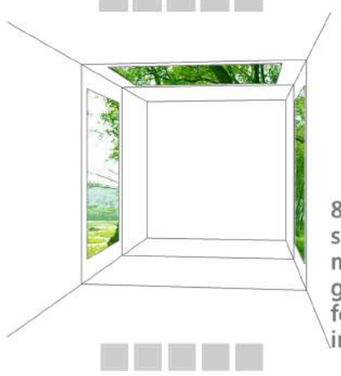
Because the window area is large enough, the skylight act more effectively to create an exposing feeling of the second space.

Windows Area Ratio: 30%

Windows Area Ratio: 80%

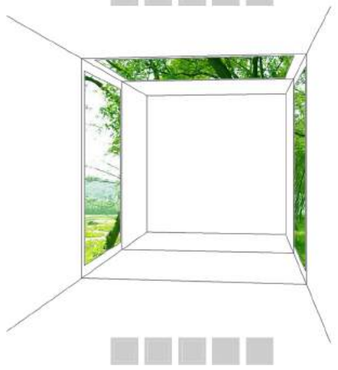


When windows occupied over 80% area of the wall, the outside view is dominant in the second space.



Windows Area Ratio: 40%

Windows Area Ratio: 90%

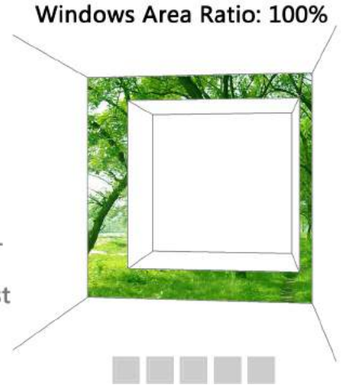


Completely outside environment is the most obvious space layer.

Windows Area Ratio: 50%

Using the size and numbers of windows to test the space openness difference.
The openning mainly influence the space connection between inside and outside and changing this factor will greatly effect the space layer feeling.
Seeing from the test, the skylight will help a lot and starting from 50% area ratio the space layer feeling can be strong.

Windows Area Ratio: 100%

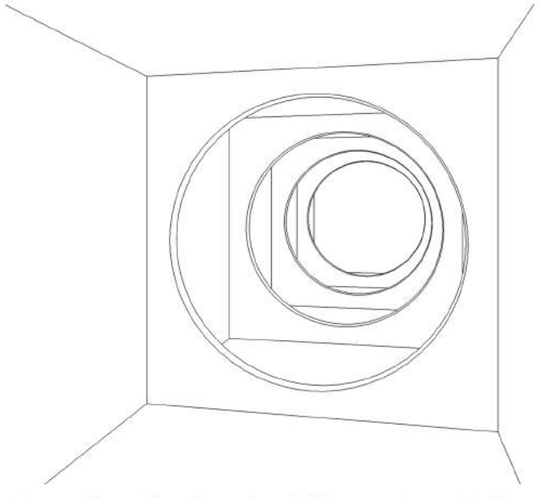


MULTIPLE INTERFACES

Multiple layers of window

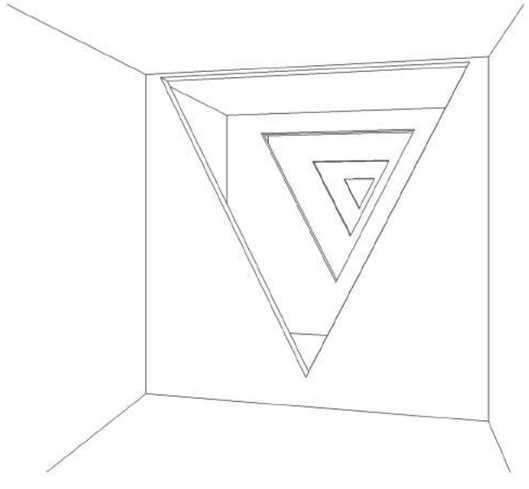
The Degree of how strong people can sense the space layers

Windows effect people' s view towards other space. On this basis, we can test how a series of window interfaces can strengthen the space layer feeling.



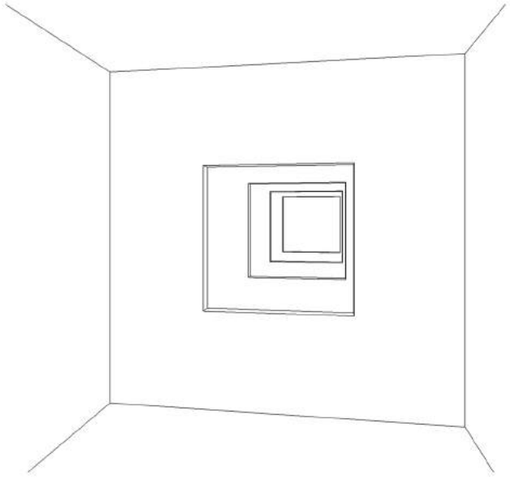
Same Size+Big Size+Special Form+Four Walls

The size ensures good and the seperation is clear, which mean all the space is sensible and the layer feeling is strong.



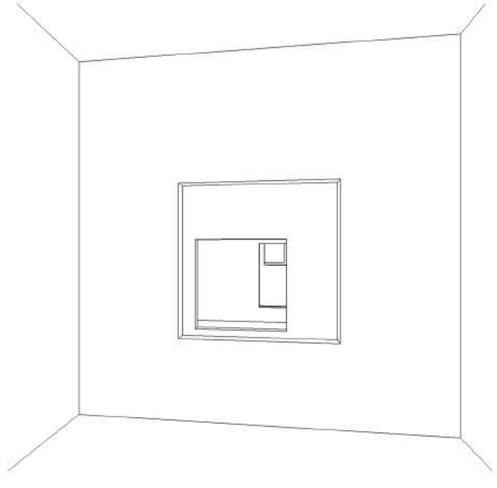
Reduced Size+Special Form+Four Walls

The reduced size windows emphasise the **perspective feeling** which reinforce the space layers but smaller windows restrain people' s view into last spaces so the last layer is not easy to notice.



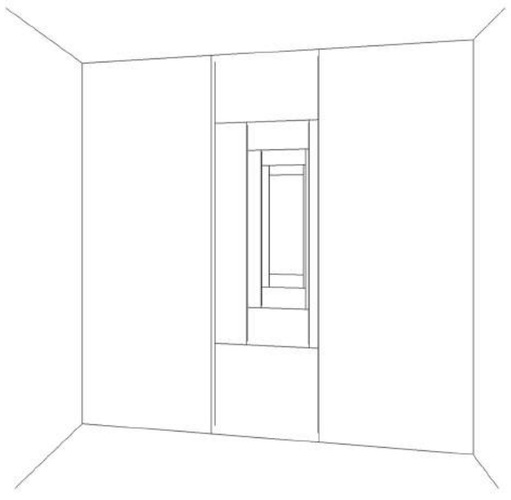
Same Size+Normal Size+Normal Form+Four Walls

The normal size window make sure it is possible to look into each space but **sight is restricted**. So the space feeling is not obvious but window parts act like **stage area**.



Same Size+Normal Form+Six Walls+ Different Position

The normal size window is positioned in different way on each wall, which makes the straight view more limited but the **changing sight** rather interesting. And this change on the contrary e**nhance the depth and layers of space**.



Same Size+Special Form+Four Walls+Accessible

The rectangular window can **direct** people to go deeper and thus the **experience of space layer** is clear.

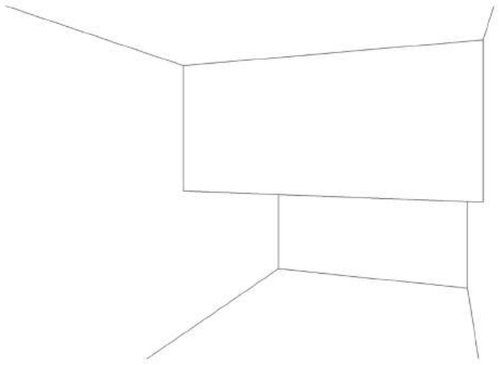
MULTIPLE INTERFACES

Two Interfaces+Horizontal+Solid Wall

The Degree of how strong people can sense the space layers

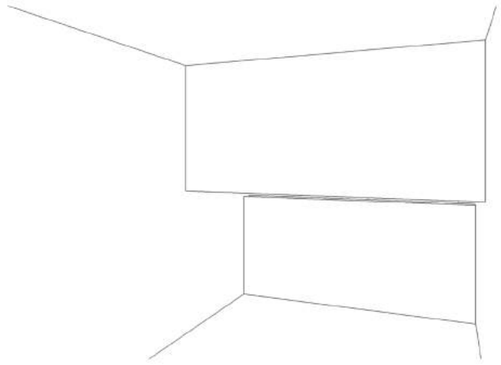
We can try how viarous combination of interfaces will effect the people feeling the space difference and layers.

- Using two 50% wall to test how the distance between interfaces create different space layer feeling.



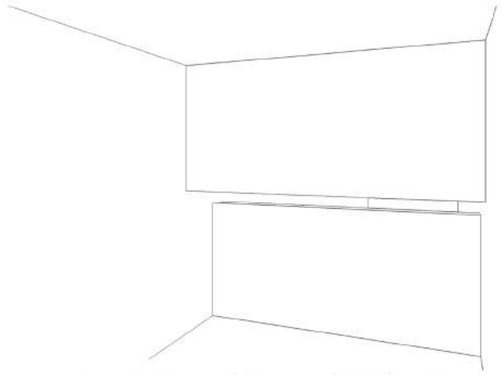
The **view** into the last space is **blocked** and the space can' t be perceived. But the two front space is definitely defined and get a **inviting position** to let people to go behind.

Depth: Second Space= First Space



We can **see the whole** of the two seperations. The last space could be sensed but at the same time the second space is weaken.

Depth: Second Space= 1/2 First Space

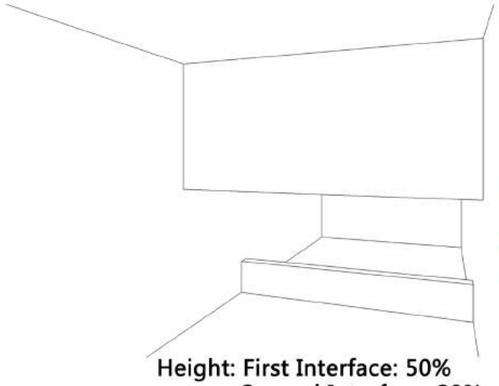


The second space is almost vanished. The two seperations could be seen as one with a small gap to look through. So **three space layers become two** well-defined space.

Depth: Second Space= 1/4 First Space

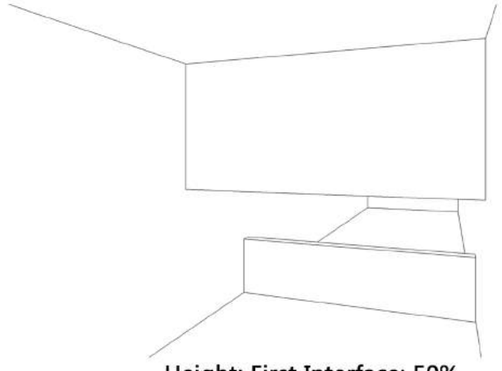
- When the distance is settled, change the height of the two wall to see how the space layer feeling is changed.

Choosed Depth:Second Space= 1/2 First Space



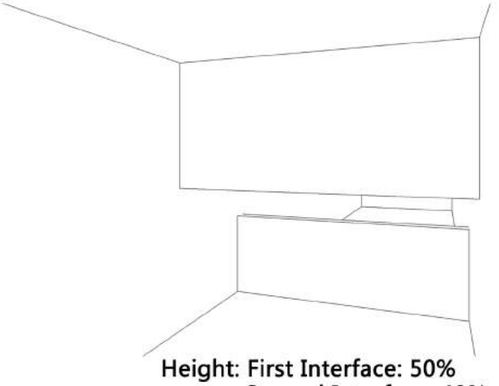
The two seperations work like **curtain and threshold**, which means partly **sheltered view and slightly stopped movement**. These features make the space layer feeling evident.

Height: First Interface: 50%
Second Interface: 20%



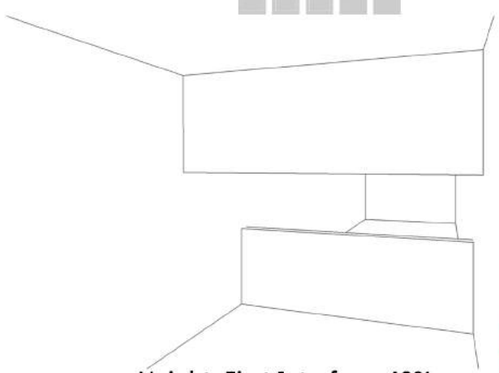
The second interface is in an **unclear status**, neither a proper seperation nor in an inviting manner.

Height: First Interface: 50%
Second Interface: 30%



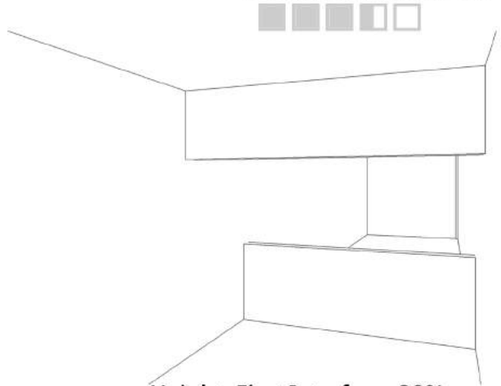
The two interfaces are enough to **seperate** the three spaces while also leave a **gap** for people to see all the spaces.

Height: First Interface: 50%
Second Interface: 40%



On the basis of last trial the first interface is reduced to leave a bigger view gap. In this way the **connection of the three spaces is better**.

Height: First Interface: 40%
Second Interface: 40%



in this percentage the first interface is not enough for a suitable space division.

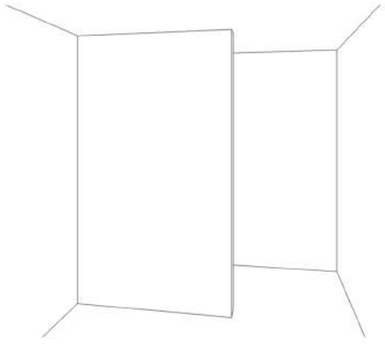
Height: First Interface: 30%
Second Interface: 40%

MULTIPLE INTERFACES

Two Interfaces+Vertical+Solid Wall
Four Interfaces+Vertical+Grid Wall

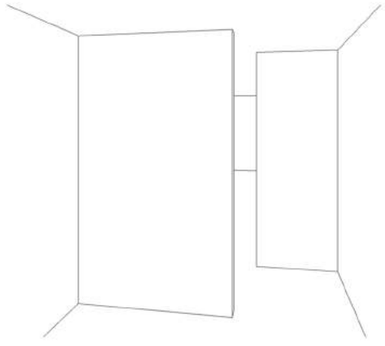
The Degree of how strong people can sense the space layers

Continue to experiment how two simple walls series could create clear space layers in a vertical way. And then try how the horizontal and vertical walls could work together.



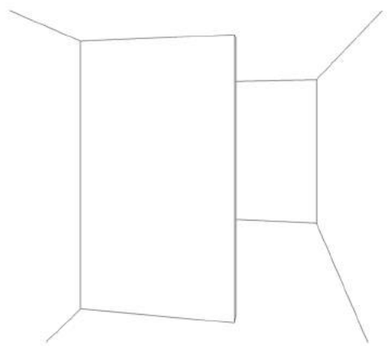
Front Wall Width: 60%
Back Wall Width: 60%
Depth Ratio of Two Space: 2:1

Invisible third space, but imply people to explore; Good space defination.



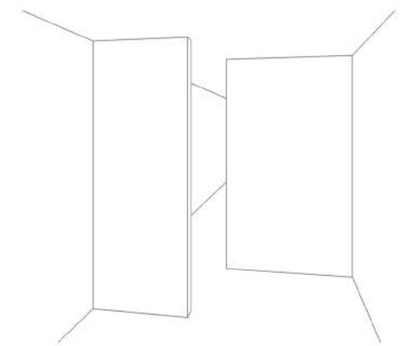
Front Wall Width: 60%
Back Wall Width: 40%
Depth Ratio of Two Space: 2:1

Sensible space, Obsure second space

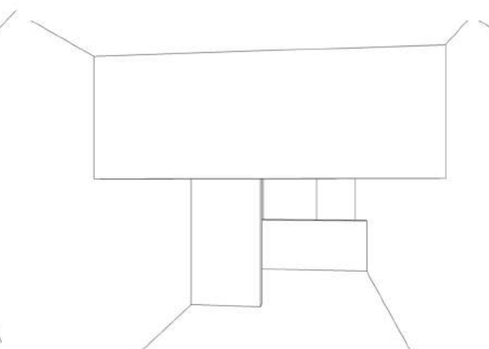


Front Wall Width: 60%
Back Wall Width: 60%
Depth Ratio of Two Space: 1:1

Second space is deeper and felt not like a transition space so the imply for the third space is weaken.

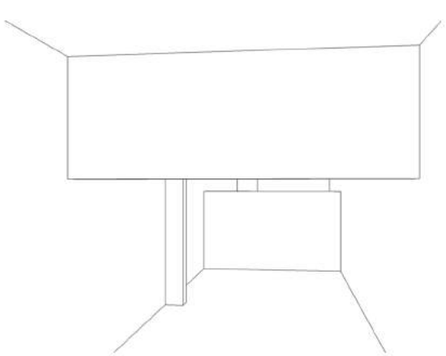


Front Wall Width: 40%
Back Wall Width: 60%
Depth Ratio of Two Space: 2:1



Wall Height/Width: 40%
Depth Ratio of Four Space: 1:1:1:1

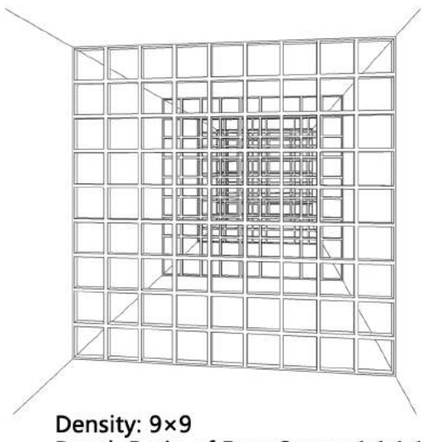
Just any one of the wall is not enough for a good defination of space layer. But four together, the space layer feeling is strong as they help each other.



Wall Height/Width: 40%,10%,60%,70%
Depth Ratio of Four Space: 1:1:1:1

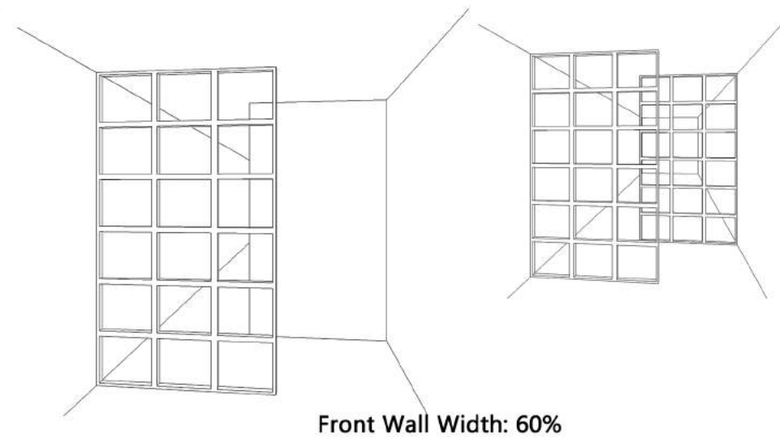
The changes imply different emphasis and functions for different spaces; Diverse feeling

When replacing the solid walls with grid structure, the qualitiy of unobstructed sight of the grid could generates more diverse outcomes.



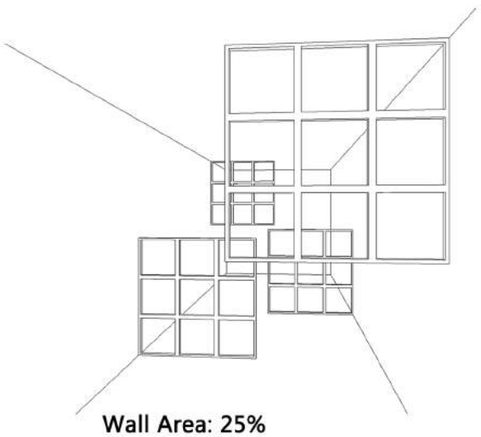
Density: 9×9
Depth Ratio of Four Space: 1:1:1:1

Overlaying of grid structures protects the privacy in distance but at the same time blurs the space layer.



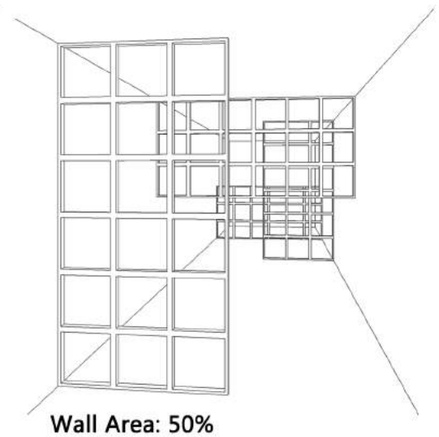
Front Wall Width: 60%
Back Wall Width: 60%
Density: 6×6
Depth Ratio of Two Space: 2:1

Obivously, the seperation meaning of the solid wall is stronger and thus the definition of the space is clearer.



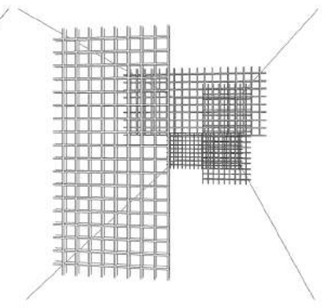
Wall Area: 25%
Density: 6×6
Depth Ratio of Four Space: 1:1:1:1

Too small to seperate space; Different position of the grid give the space series a moving feeling.



Wall Area: 50%
Density: 6×6
Depth Ratio of Four Space: 1:1:1:1

The definition of space by the grid is weaker compared to the one by solid walls.



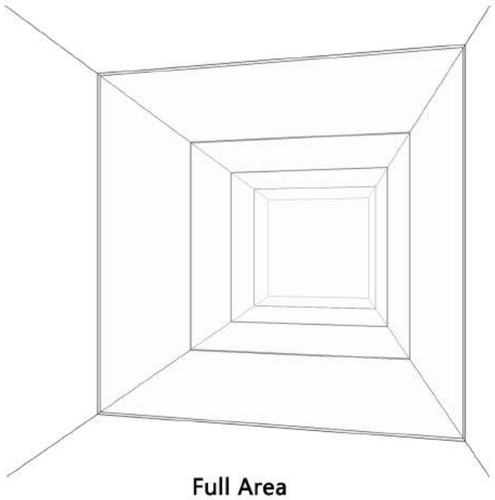
Wall Area: 50%
Density: 24×24
Depth Ratio of Four Space: 1:1:1:1

MULTIPLE INTERFACES

Multiple layers of solid/ transparent wall

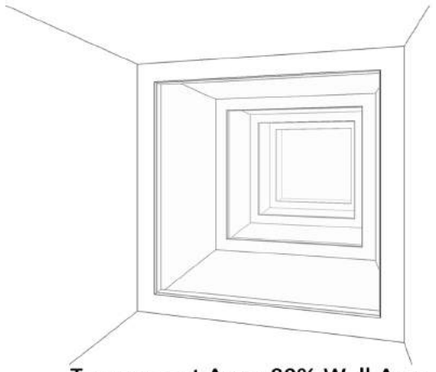
The Degree of how strong people can sense the space layers

Here we test how multiple simple walls will perform concerning about space layer. The transparent wall ensure the seperation and view contact at the same time. So now mainly the number, position and size of interfaces is experimented.

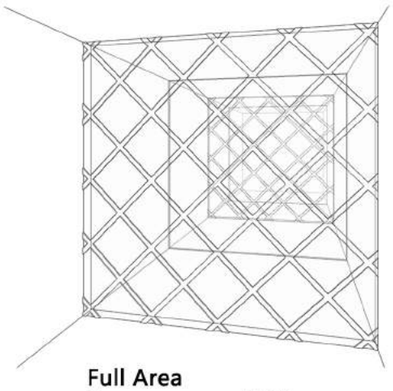


Full Area
Transparency: 20%
Four Walls

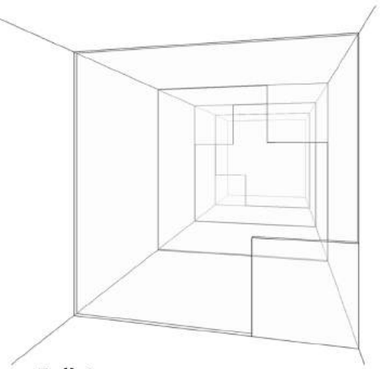
When there is just one interface, the high transparency offers a weak division of space. Here the four layers make the **seperation more noticable**.



Transparent Area: 80% Wall Area
Transparency: 20%
Four Walls

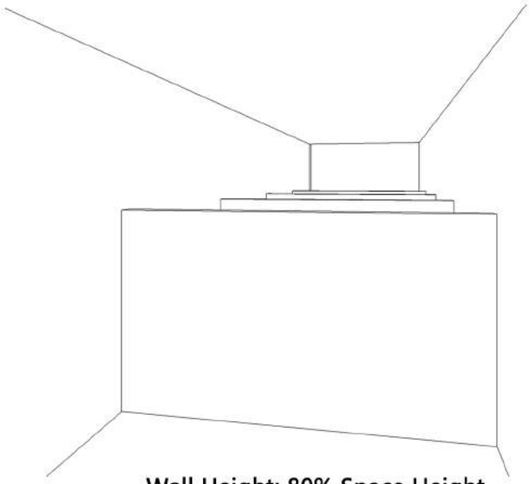


Full Area
Transparency: 20%
Four Walls, Two Patterned



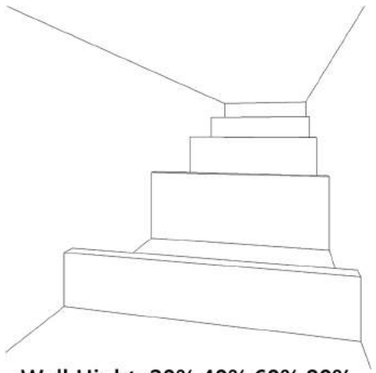
Full Area
Transparency: 20%, Corner 60%
Four Walls

Replacing the normal glass walls with some changed transparent interfaces from the combination step. The **characteristics of the original** four glass walls **still exist** with **stronger** space layer feeling created by the frames and patterns.



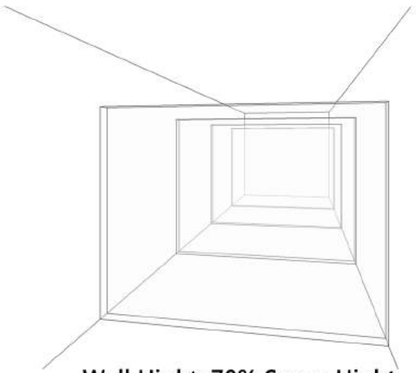
Wall Height: 80% Space Height
Transparency: 0%
Four Walls

In different post people will have different view condition. When in a position people could see all spaces, the **view is a little too broad** to have the seperation feeling.

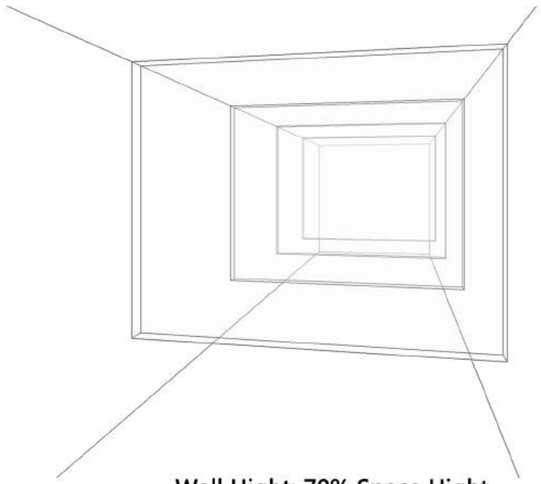


Wall Hight: 20%,40%,60%,80%
Space Hight
Four Walls

From low to high walls makes it possible to **sense all the space layers**. This time, the space layer feeling is reinforced by, not just one or two of the walls, but the **wall series.**

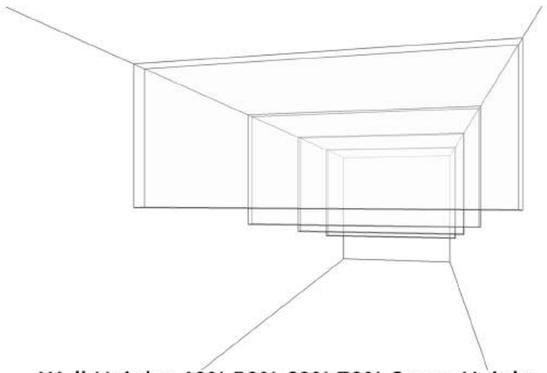


Wall Hight: 70% Space Hight
Transparency: 20%
Four Walls



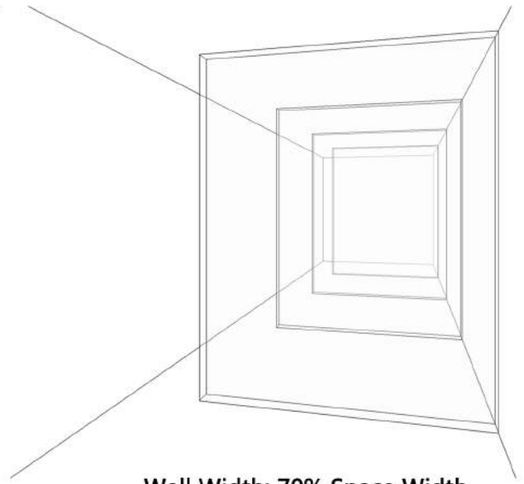
Wall Hight: 70% Space Hight
Transparency: 20%
Four Walls

The space **seperations** are always **in people' s sight** and the **gap emphaise a connection** feeling of this series of space layers.



Wall Height: 40%,50%,60%,70% Space Height
Transparency: 20%
Four Walls

The glass walls grow from low to high creating a stronger **sequence feeling** and this feeling also help to **show the space layers**.

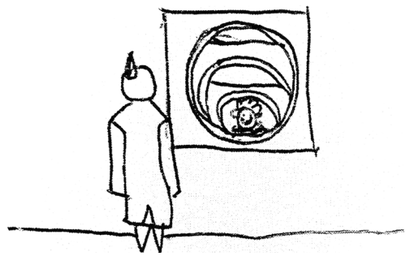


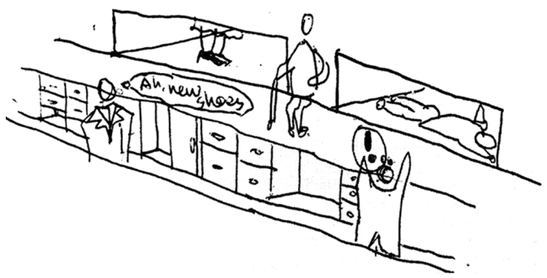
Wall Width: 70% Space Width
Transparency: 20%
Four Walls

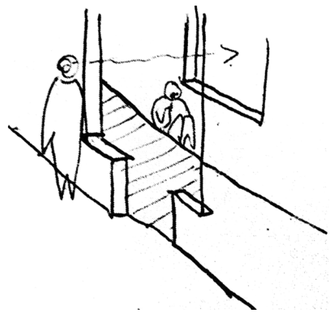
The shrinked width leave a possibility to **go inside and explore** which makes the space layer more sensible.

CHAPTER 03. GRID SYSTEM AND MOVING IMPLICATION

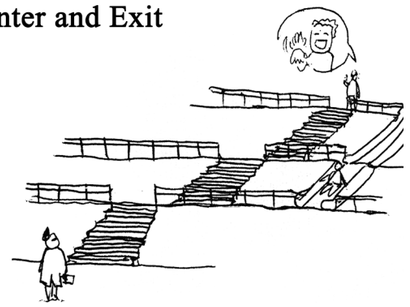
View Contact and Control



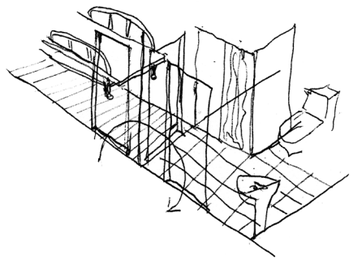




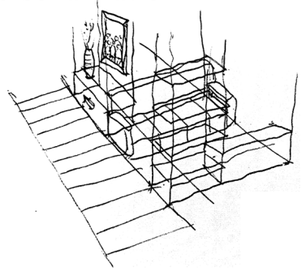
Enter and Exit



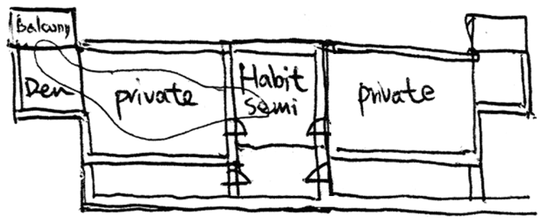
Working Route



Personalization



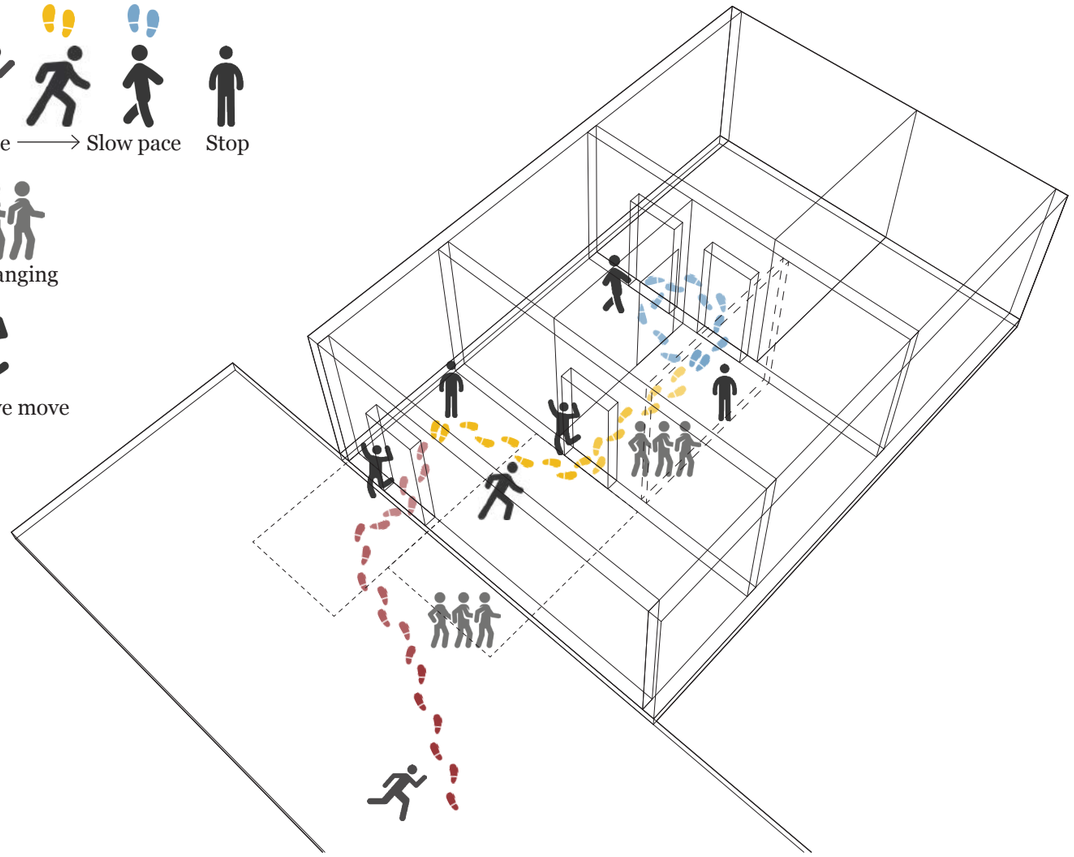
Living Route



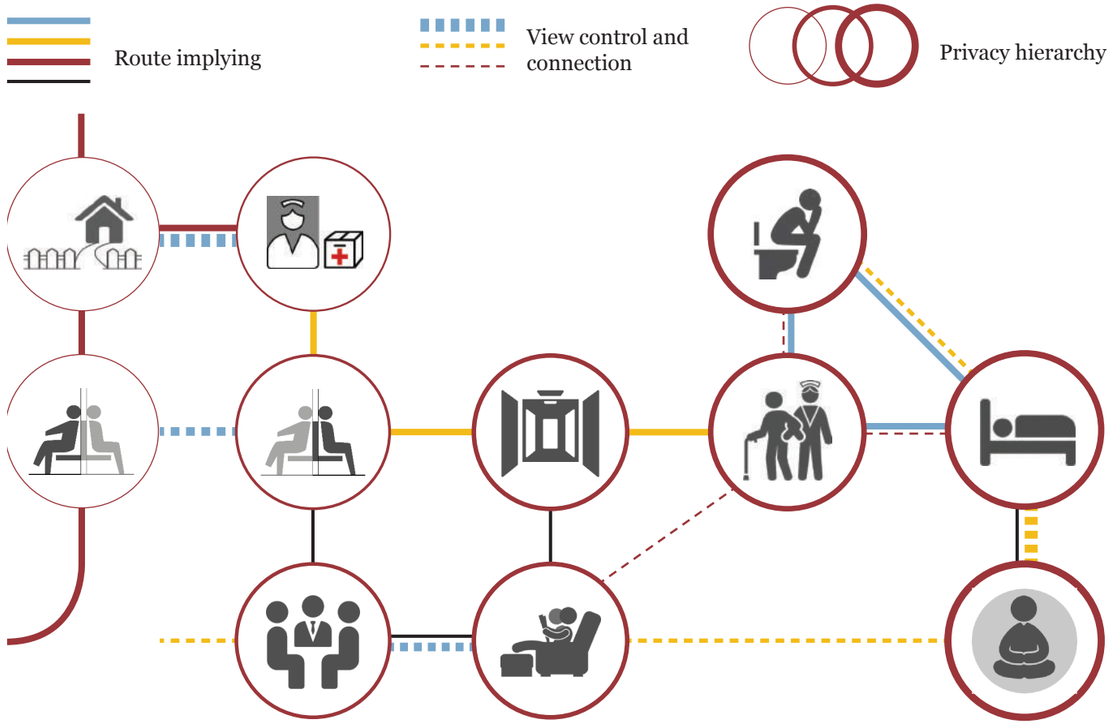
Route Implying


Pace changing

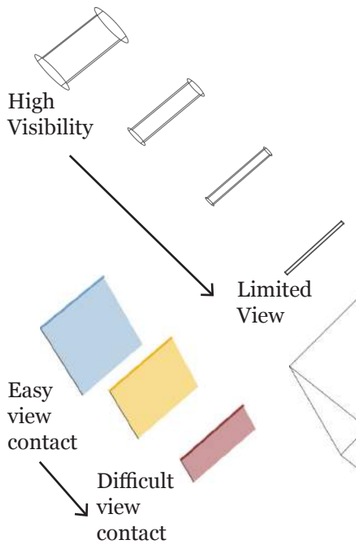

Cognitive move

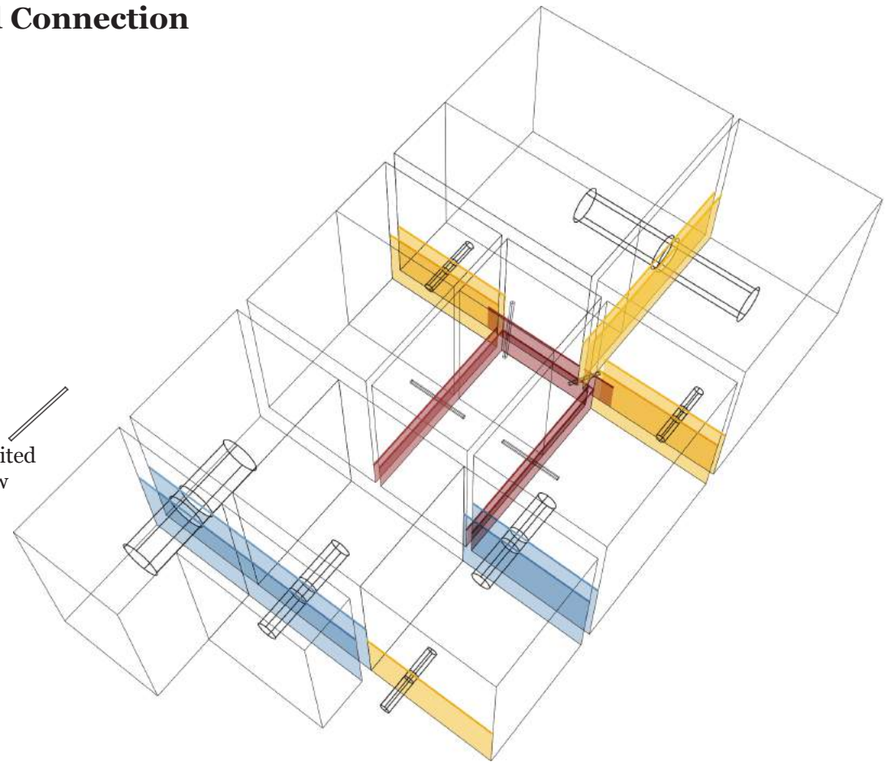


Senario Logic



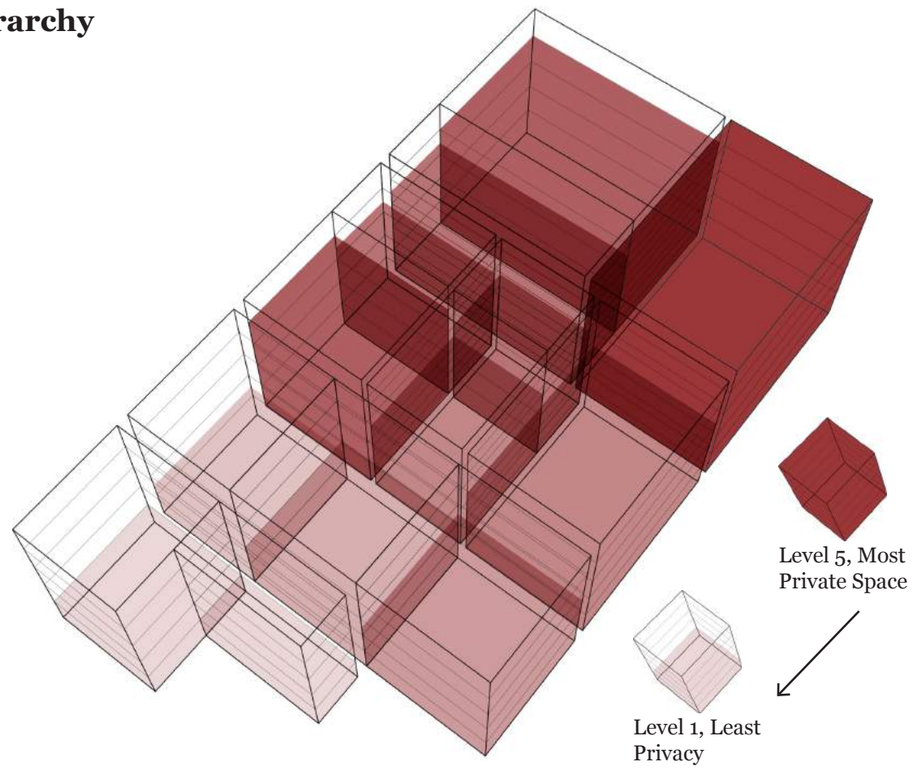
View Control and Connection





Privacy Hierarchy

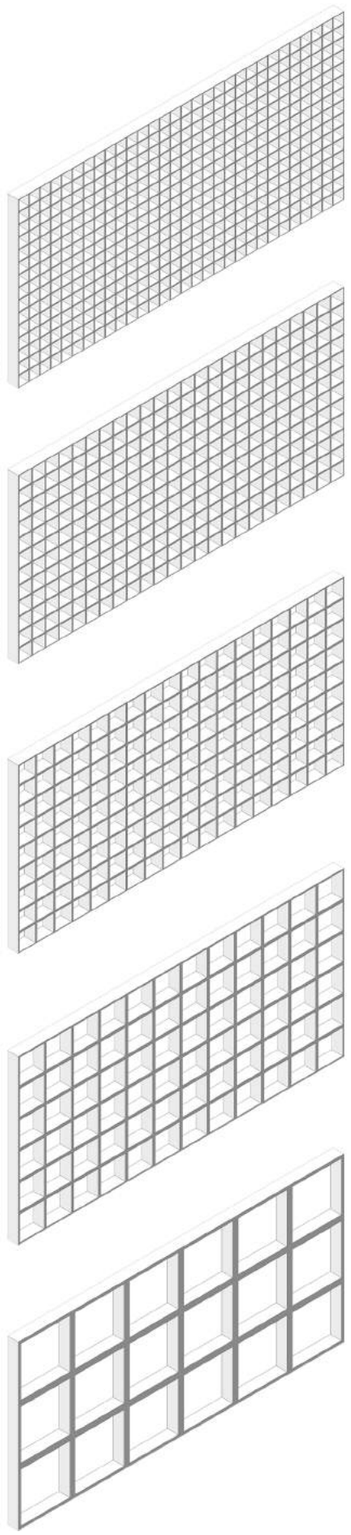
Level 5 private space only for the inhabitant
Level 4 private space, heavy of private routines
Level 3.5 working space for the nursery in the private region
Level 3 private space inviting outsiders
Level 2.5 protected base when facing the public life
Level 2 self-use publized private space
Level 1.5 other-use publized private space
Level 1 personalized public space



LEADING QUALITY

Through organization of grids

Basic cells



Number 5
Division: Height/15
Length/30
Size of cell: 180mm

Number 4
Division: Height/12
Length/24
Size of cell: 225mm

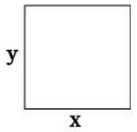
Number 3
Division: Height/9
Length/18
Size of cell: 300mm

Number 2
Division: Height/6
Length/12
Size of cell: 450mm

Number 1
Division: Height/3
Length/6
Size of cell: 900mm

Variable Factors

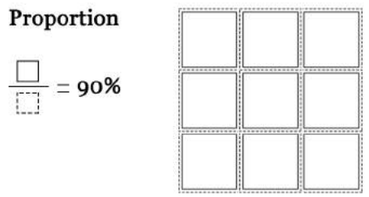
Size



Organization

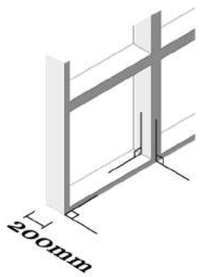
Constant Factors

Proportion

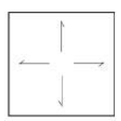


Angle

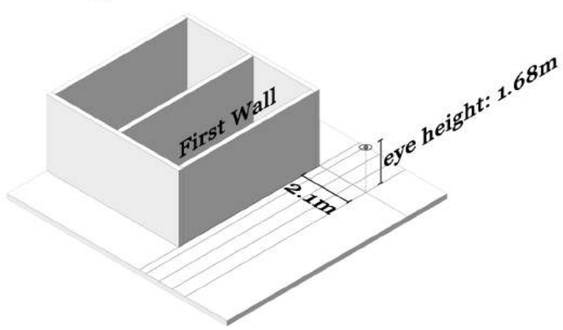
Depth



Distribution

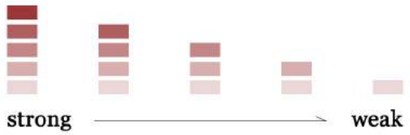


Standing point



Phscological Creteria

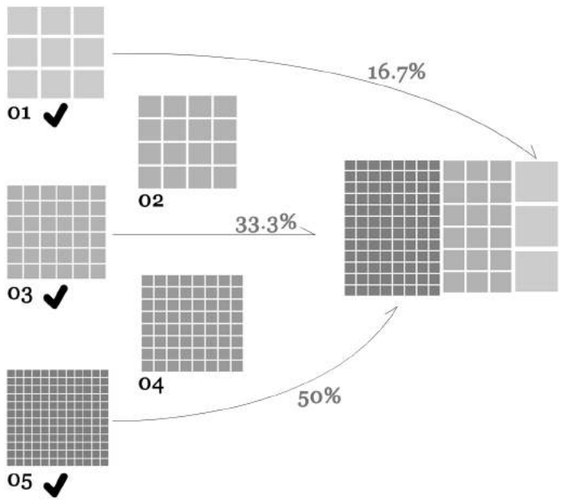
The feeling of leading movement



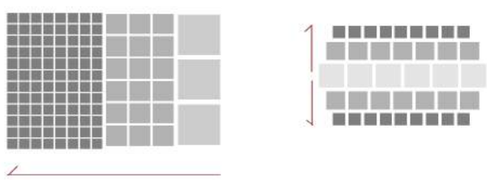
Influencial Elements

Numbers of different grids in combination

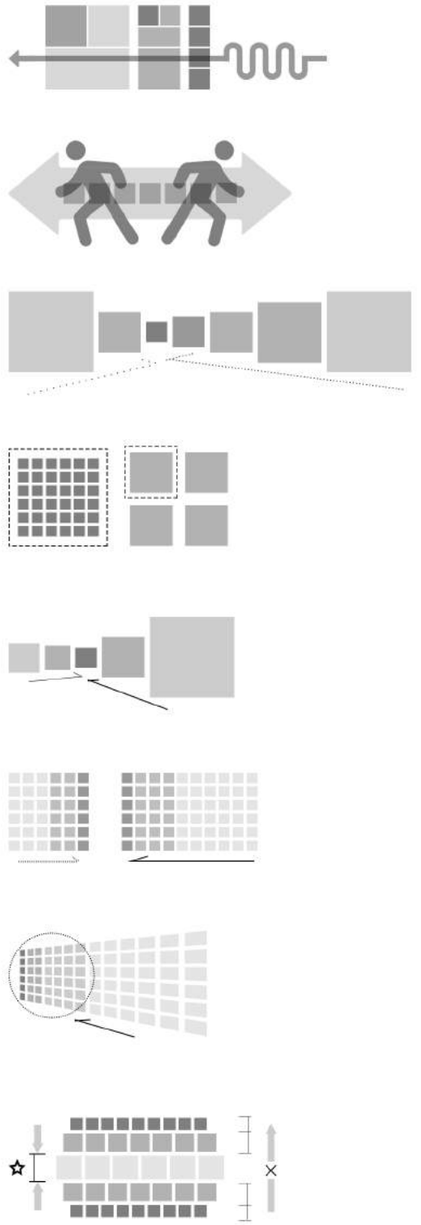
Proportion of different grids



Organization logic



Learned Exerience



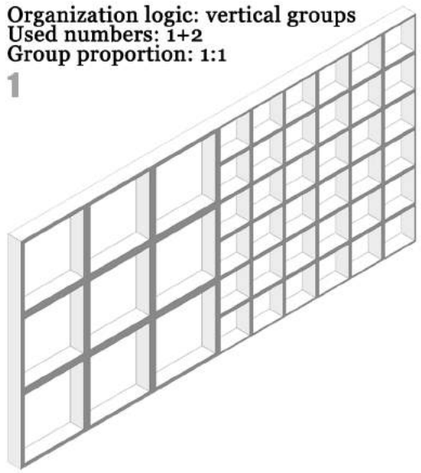
LEADING QUALITY

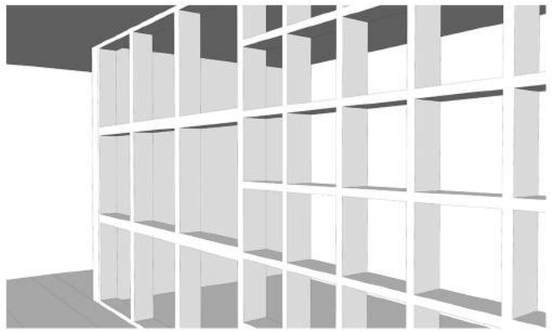
Through organization of grids

Two size combination

Organization logic: vertical groups
Used numbers: 1+2
Group proportion: 1:1

1

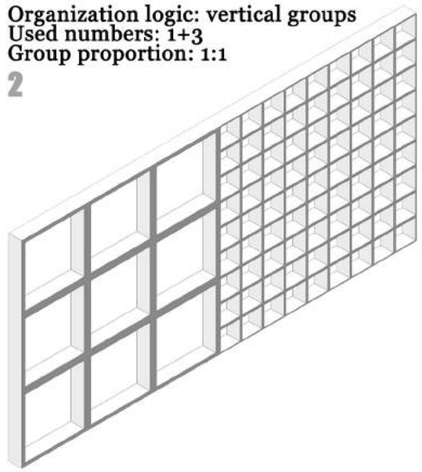


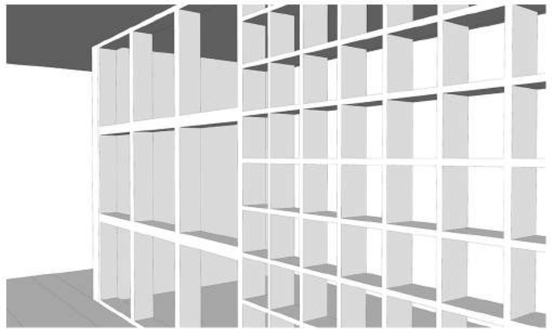


Near numbers together has more fluent transition feeling.

Organization logic: vertical groups
Used numbers: 1+3
Group proportion: 1:1

2

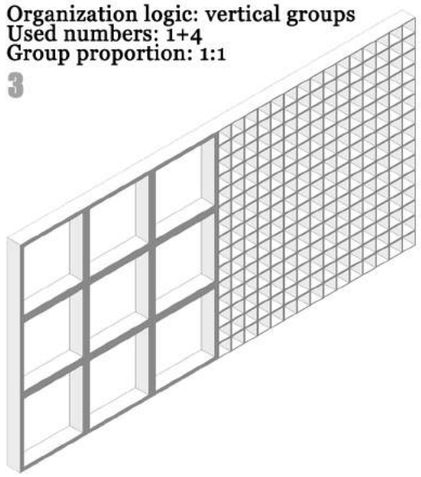


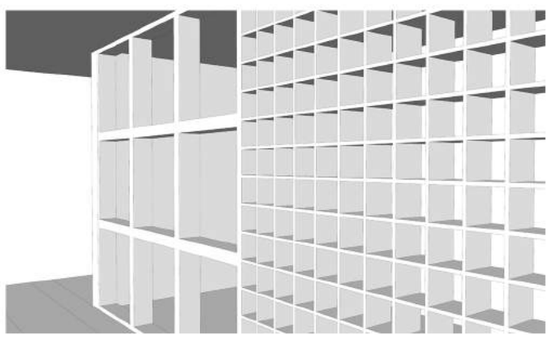


Immobile two part

Organization logic: vertical groups
Used numbers: 1+4
Group proportion: 1:1

3

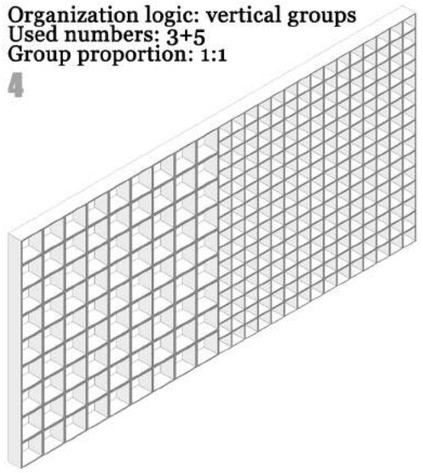


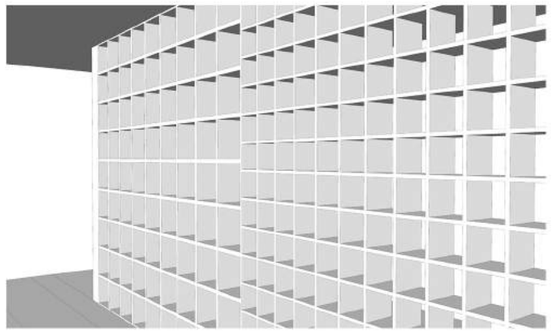


example 1, 2, 3
They don't have a strong feeling of leading, is it because the Number 1 size is too big to have an overall feeling to function well with the other part?

Organization logic: vertical groups
Used numbers: 3+5
Group proportion: 1:1

4

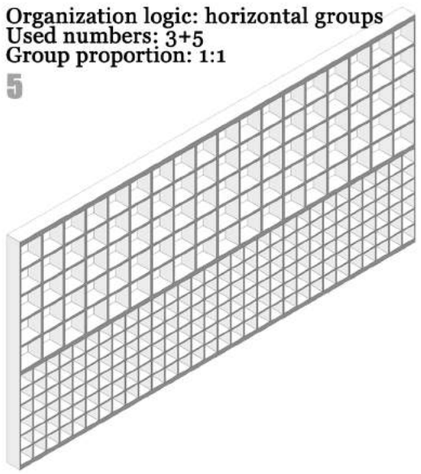


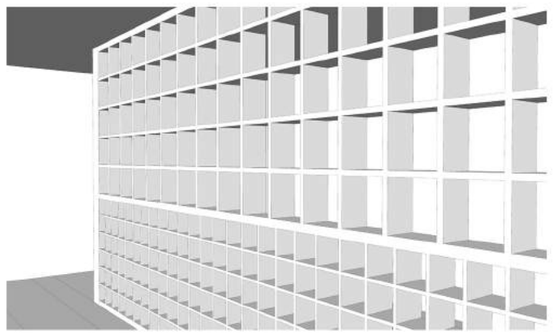


still the result is not satisfying. what about the horizontal groups?

Organization logic: horizontal groups
Used numbers: 3+5
Group proportion: 1:1

5

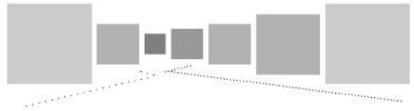


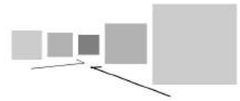


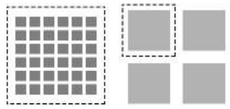
seems like the horizontal organization instinctly has better effect about leading.

LEADING QUALITY

Through organization of grids



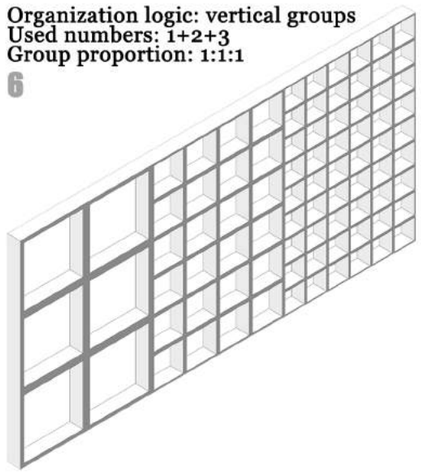


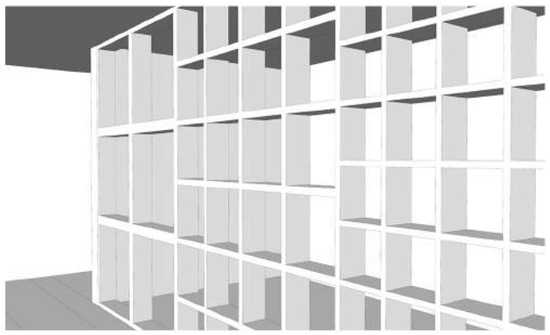


Three/Four size combination

Organization logic: vertical groups
Used numbers: 1+2+3
Group proportion: 1:1:1

6

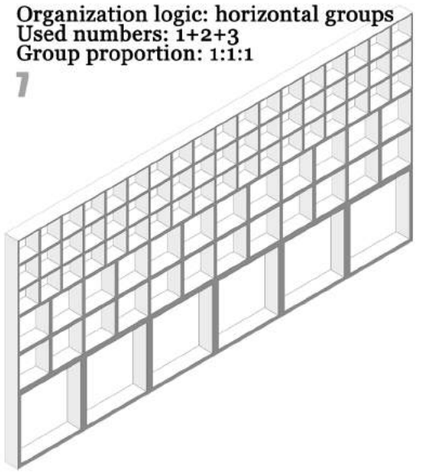




More numbers in, stronger feeling of transition

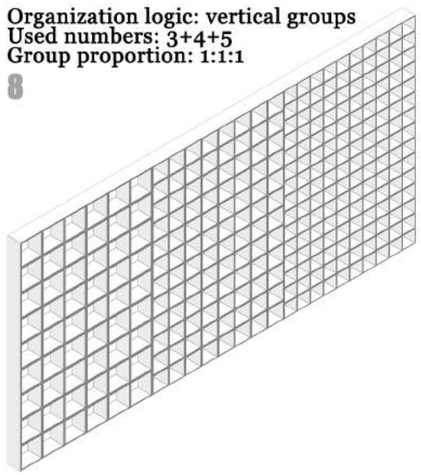
Organization logic: horizontal groups
Used numbers: 1+2+3
Group proportion: 1:1:1

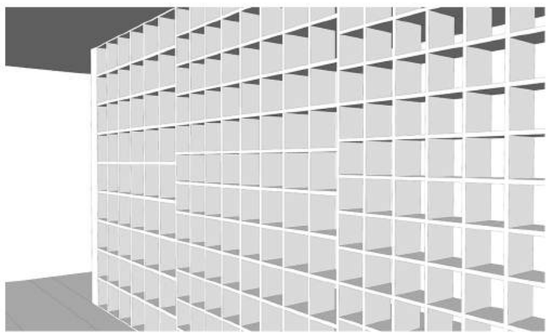
7



Organization logic: vertical groups
Used numbers: 3+4+5
Group proportion: 1:1:1

8

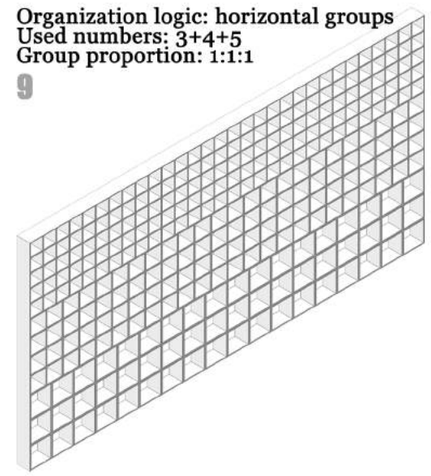


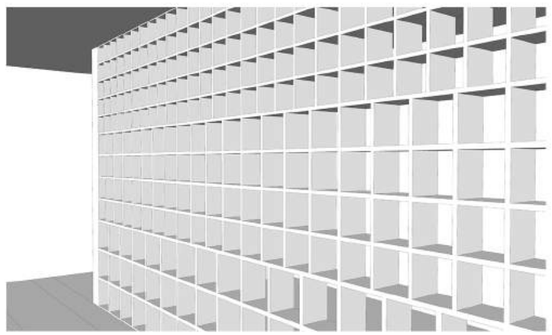


Small size makes the feeling about groups stronger

Organization logic: horizontal groups
Used numbers: 3+4+5
Group proportion: 1:1:1

9

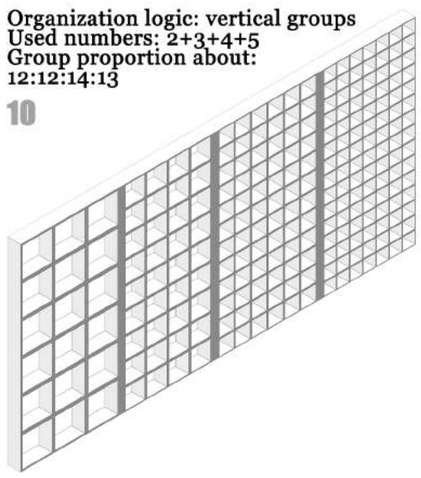


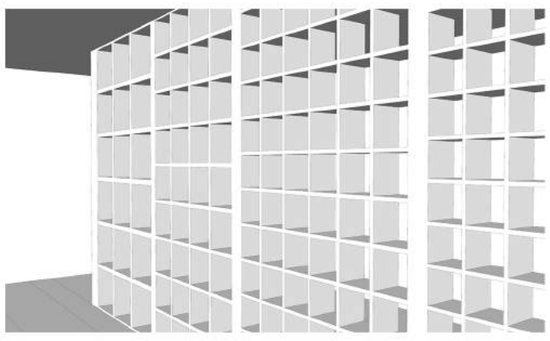


Example 8, 9
The changes between different sizes become less obvious when it comes to small size. So the desired effect - leading people with the strong transition feeling of cells - is weak.

Organization logic: vertical groups
Used numbers: 2+3+4+5
Group proportion about:
12:12:14:13

10

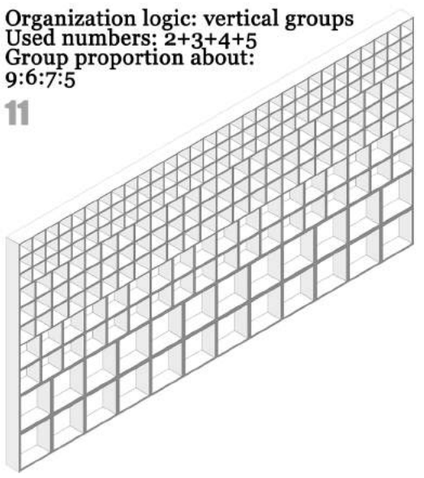


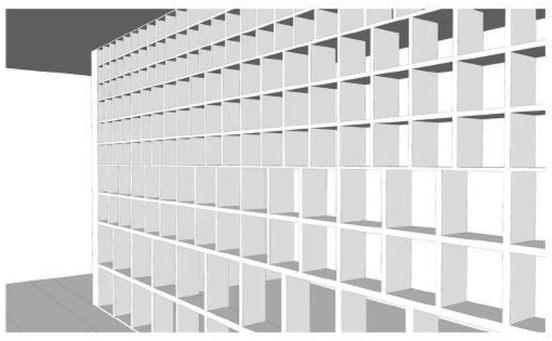


More numbers in, stronger feeling of transition but still not enough

Organization logic: vertical groups
Used numbers: 2+3+4+5
Group proportion about:
9:6:7:5

11

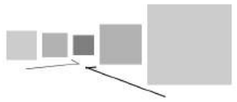


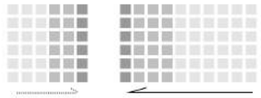


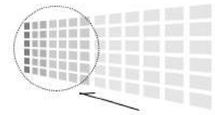
Add more sizes in the horizontal organization doesn't seems to make much sense. What is the important factor?

LEADING QUALITY

Through organization of grids





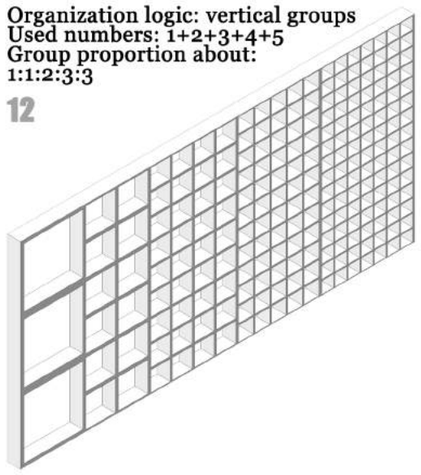


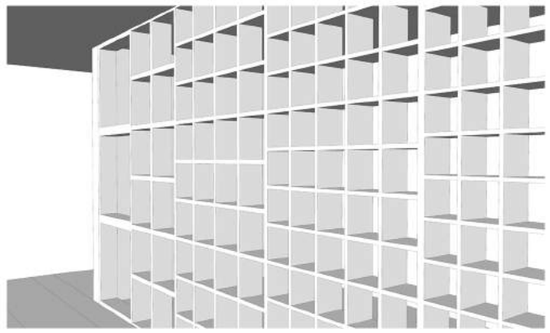
Inequal combination

Vertical combination

Organization logic: vertical groups
Used numbers: 1+2+3+4+5
Group proportion about:
1:1:2:3:3

12

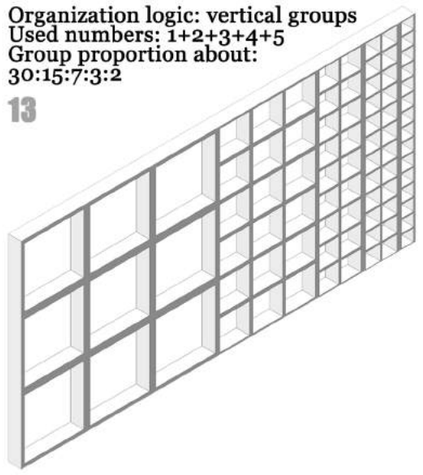


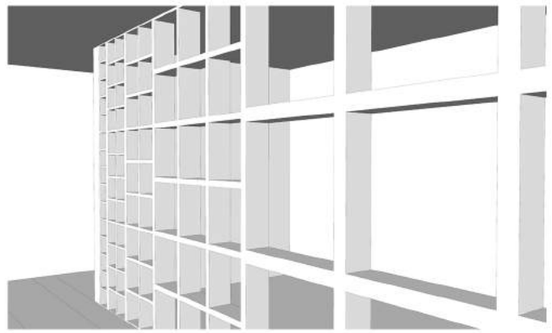


Example 12, 13
These two composed by the same sizes with different group proportion. Ex.13 gets stronger leading feeling.

Organization logic: vertical groups
Used numbers: 1+2+3+4+5
Group proportion about:
30:15:7:3:2

13





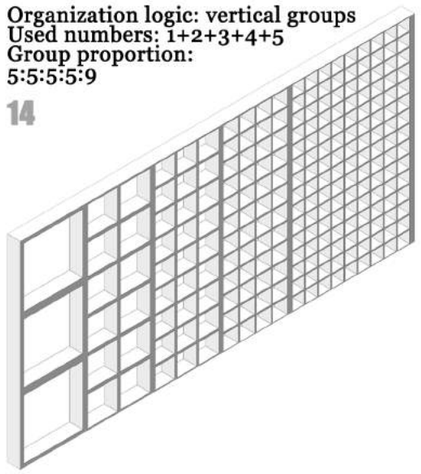
The group proportion change is remarkable

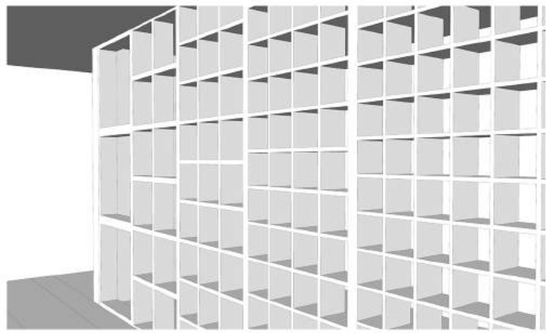
The Number 1 and 2 occupy large proportion, and there changes are obvious

More significant the change of proportion, stronger the leading feeling?
The proportion of bigger size cells is more effective?

Organization logic: vertical groups
Used numbers: 1+2+3+4+5
Group proportion:
5:5:5:5:9

14

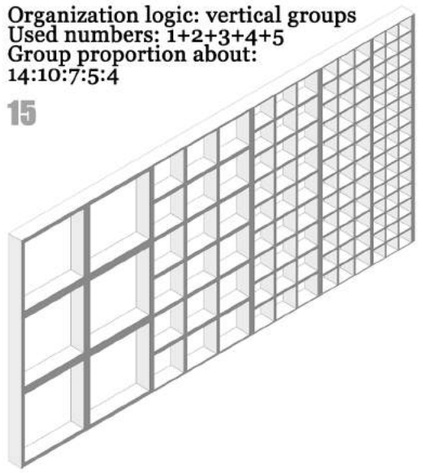


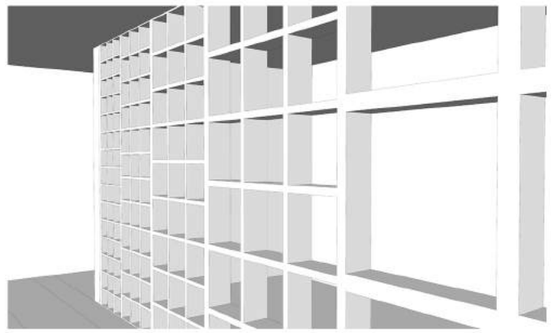


Example 14,15
They are transformed from 12 and 13 with a less radical proportion organization. The result shows the importance of significant group proportion change.

Organization logic: vertical groups
Used numbers: 1+2+3+4+5
Group proportion about:
14:10:7:5:4

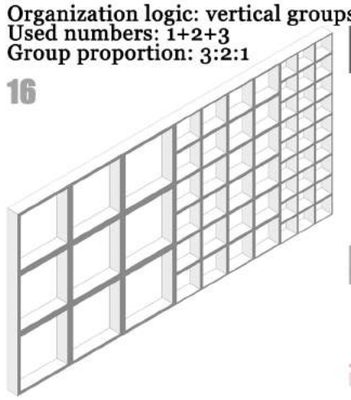
15

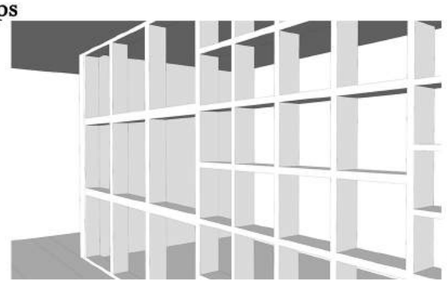


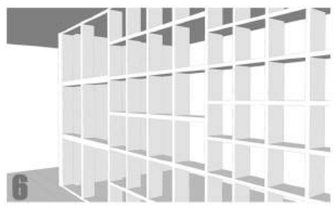


Organization logic: vertical groups
Used numbers: 1+2+3
Group proportion: 3:2:1

16





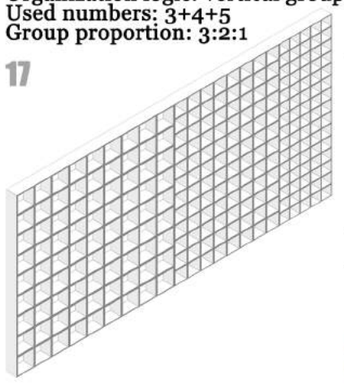


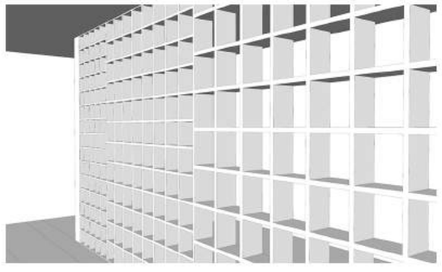
6

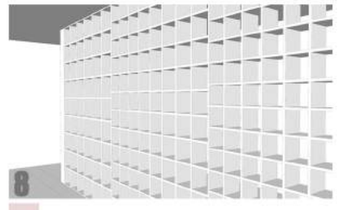
Large proportion group is in the end part so the change of group proportion is not obvious

Organization logic: vertical groups
Used numbers: 3+4+5
Group proportion: 3:2:1

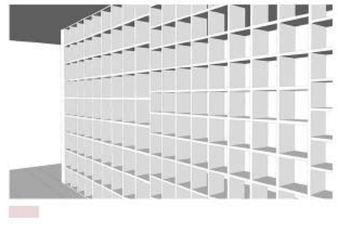
17







8



Example 16,17
Better to let large group be close to the start point to have the radical changed part as attractive point.
Big size cells express the transition and the proportion effect.

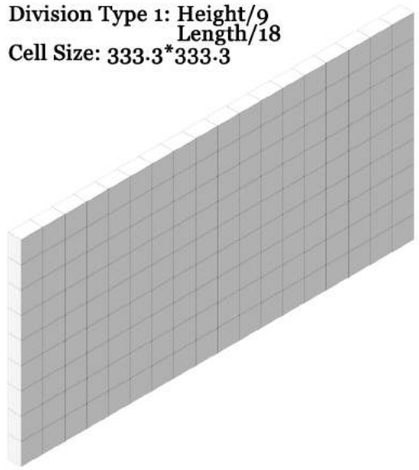
LEADING QUALITY

Through Proportion

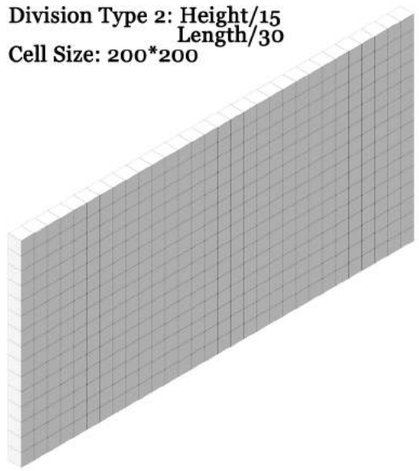
Division Type

Showing the proportion change need enough numbers and proper size. Division Type 1 is the main testing situation with type2 and 3 as control groups.

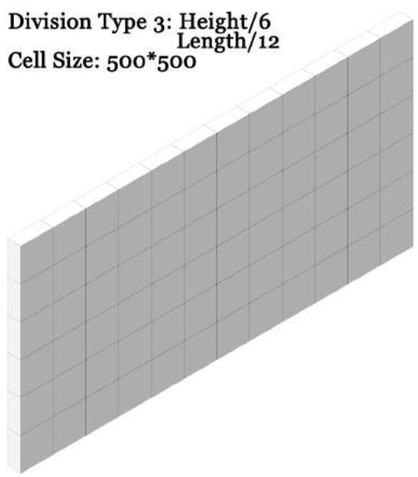
Division Type 1: Height/9
Length/18
Cell Size: 333.3*333.3



Division Type 2: Height/15
Length/30
Cell Size: 200*200

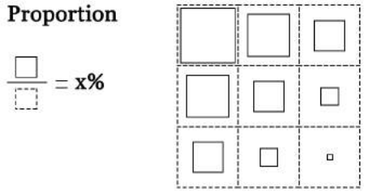


Division Type 3: Height/6
Length/12
Cell Size: 500*500

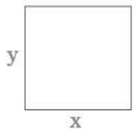


Variable Factors

Proportion

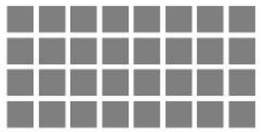


Size



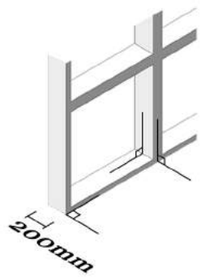
Constant Factors

Organization

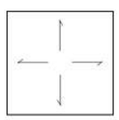


Angle

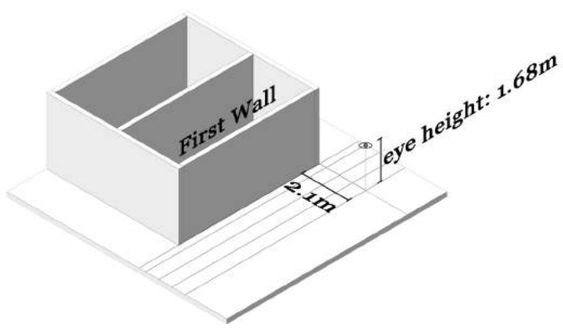
Depth



Distribution

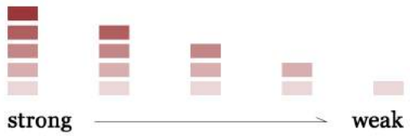


Standing point



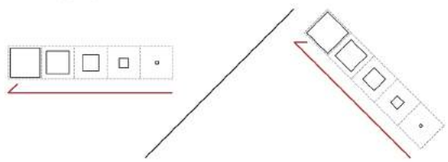
Psycological Criterion

The feeling of leading movement

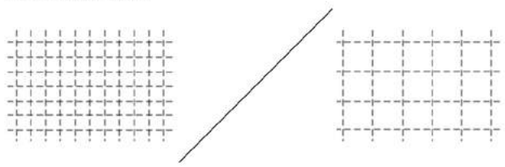


Influencial Elements

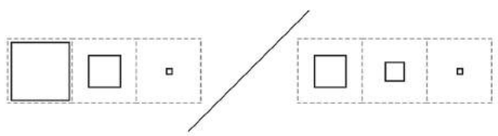
Changing direction



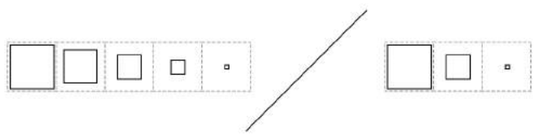
Grid structure



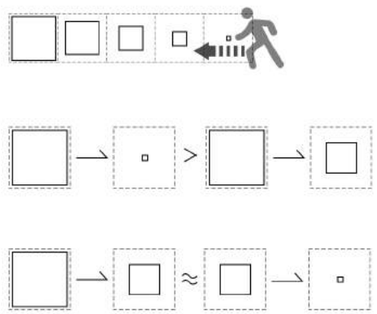
Proportion range

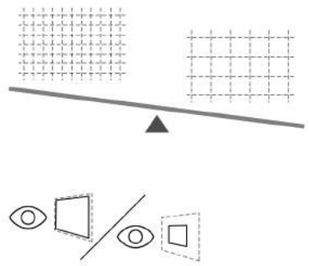


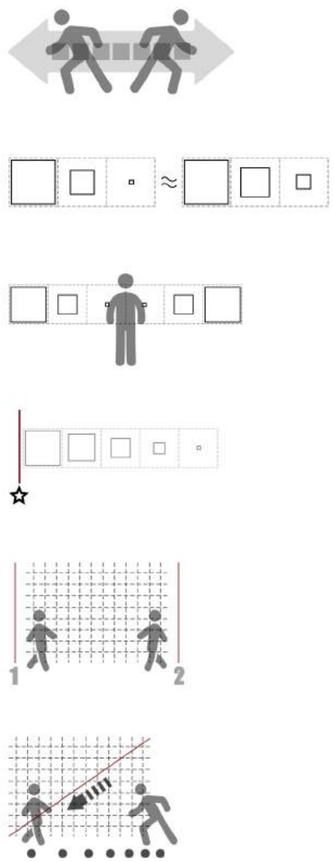
Changing distance



Learned Experience

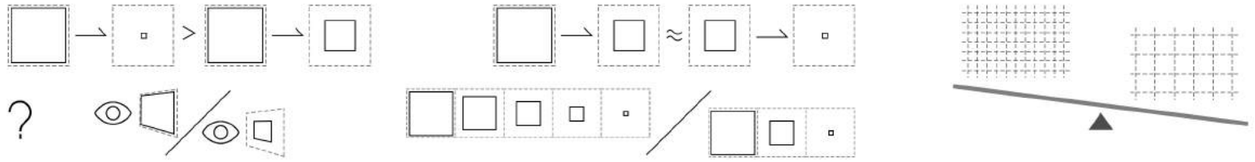






LEADING QUALITY

Through Proportion

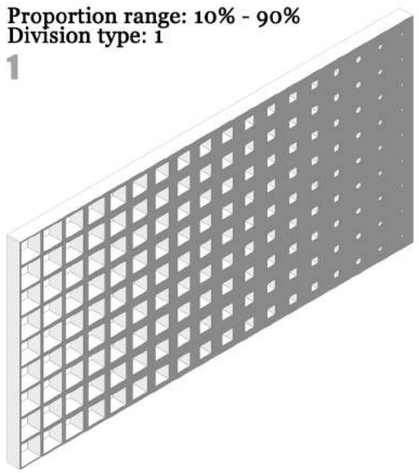


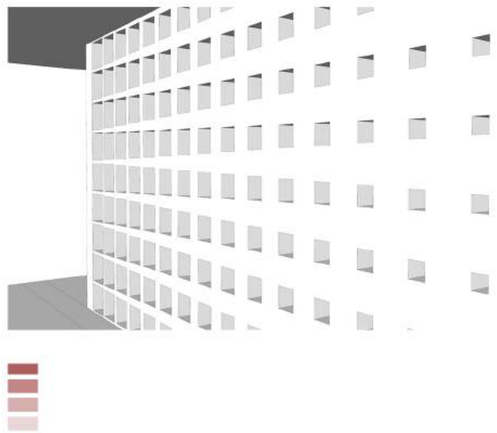
Changing Direction: Horizontal

The Left edge is the destination for the leading effect.

Proportion range: 10% - 90%
Division type: 1

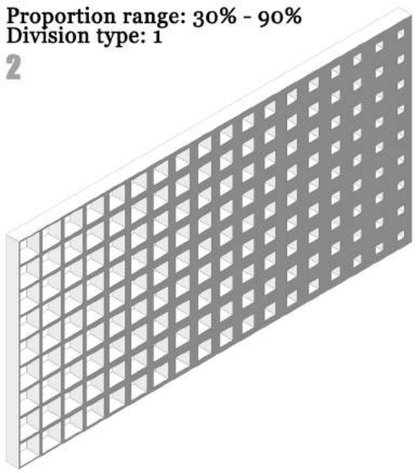
1

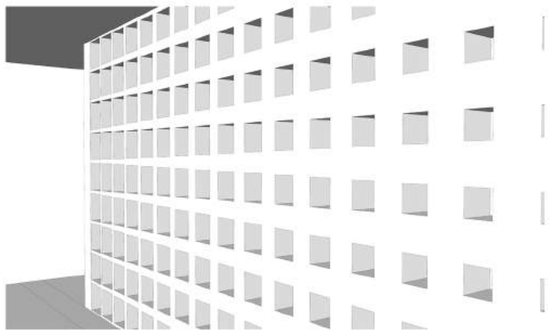




Proportion range: 30% - 90%
Division type: 1

2

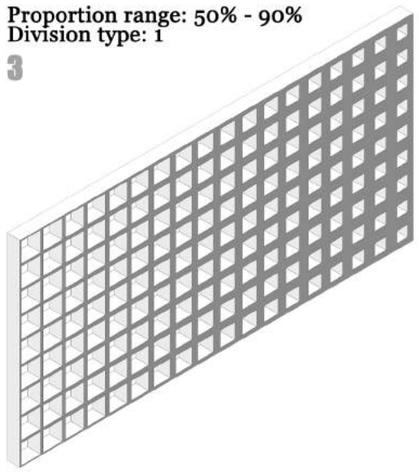


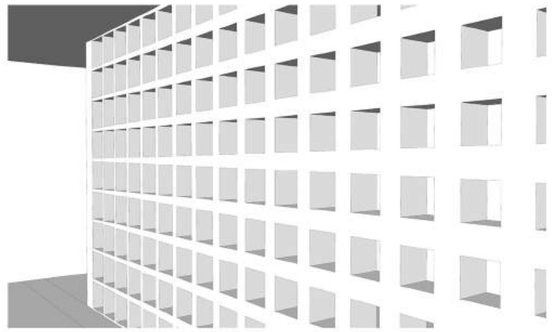


Balanced the leading quality and good view connection

Proportion range: 50% - 90%
Division type: 1

3





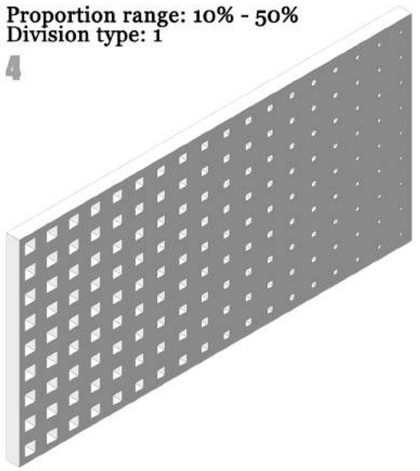
Example 1, 2, 3
When the proportion range is larger, the leading quality is stronger.

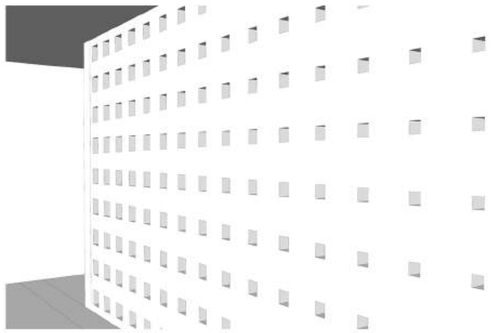
Example 3, 4
The spans of proportion range are the same but regions are different. The results are quite same.

So the span is the decisive factor.
The region mainly affect the chance of view connection.

Proportion range: 10% - 50%
Division type: 1

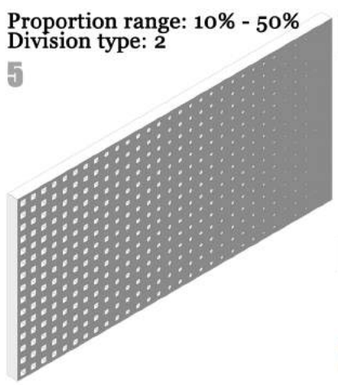
4

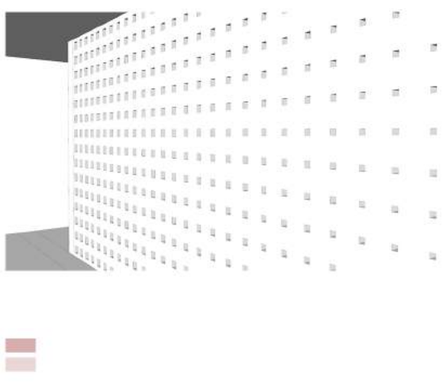




Proportion range: 10% - 50%
Division type: 2

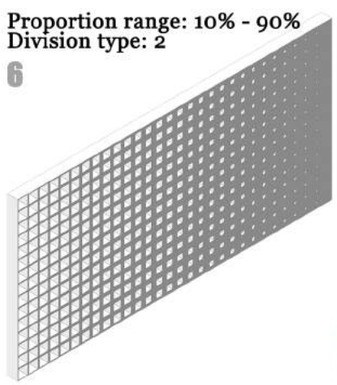
5

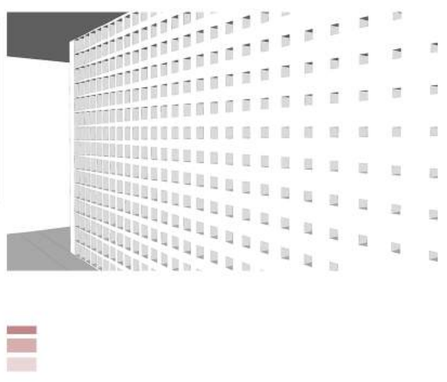




Proportion range: 10% - 90%
Division type: 2

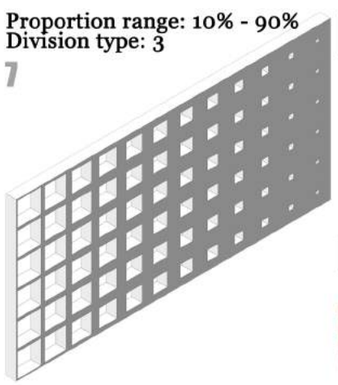
6

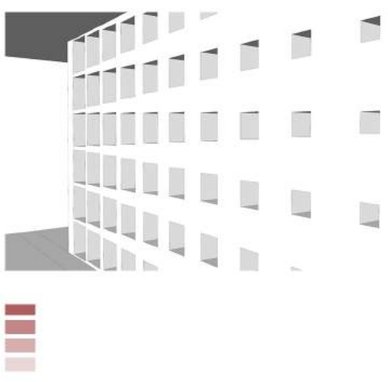




Proportion range: 10% - 90%
Division type: 3

7



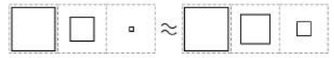


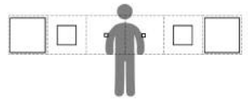
Example 4, 5 and Example 1, 6
Showing the importance of controling density of the grid. Too high density means the changing of proportion between adjacent cells is not obvious while the smaller size can't illustrate the difference clearly.

Example 1, 7
Expressing the possibility of realizing leading effect with less distance and numbers. The exact outcomes need more experiments.

LEADING QUALITY

Through Proportion



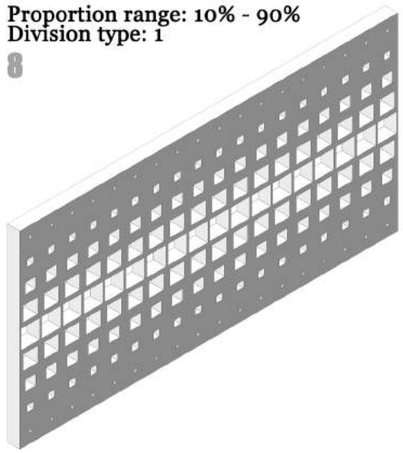


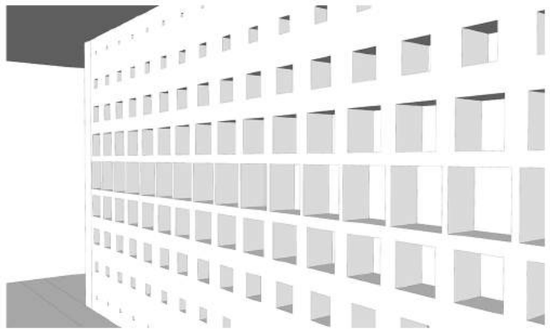
Changing Direction: Vertical

The central line is picked as it is in a neutral position for test. Height of Central Line: 1.5m

Proportion range: 10% - 90%
Division type: 1

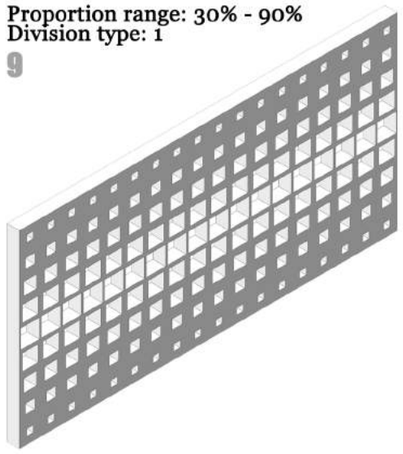
8

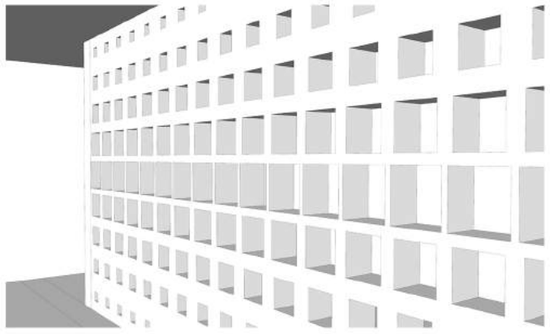




Proportion range: 30% - 90%
Division type: 1

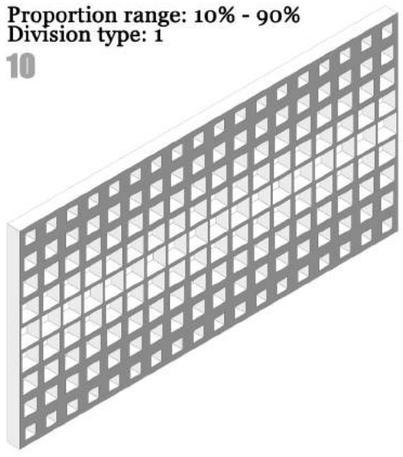
9

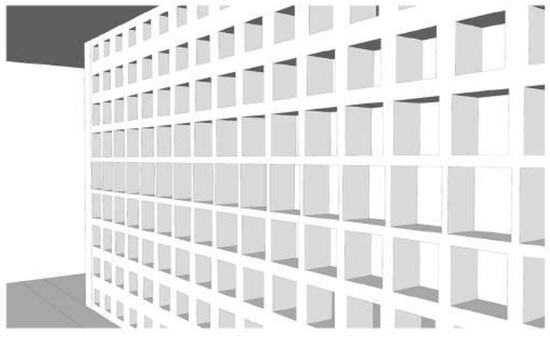




Proportion range: 10% - 90%
Division type: 1

10





Example 8, 9, 10
No specific indication about moving direction.

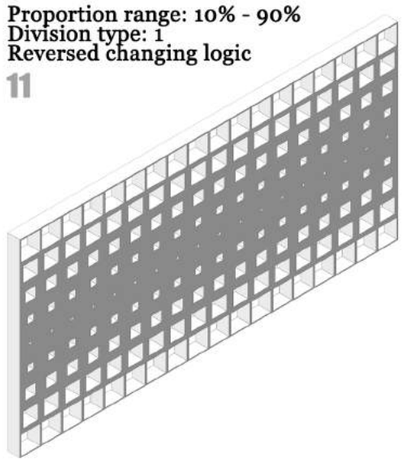
The example 8 and 9 both show good leading feature, which mean that when proportion changing distance is short, the proportion range become less effective.

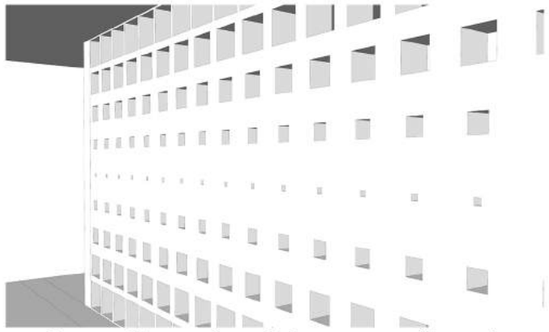
Example 8, 12, 13
The position change of reference line influence the proportion changing sequence. The central and concentrated feeling is lost as the big proportion group is expanded to cause distraction.

But still, in this changing logic, the reference line decide the major part.

Proportion range: 10% - 90%
Division type: 1
Reversed changing logic

11

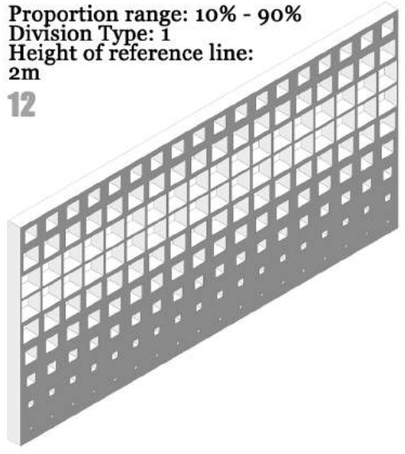


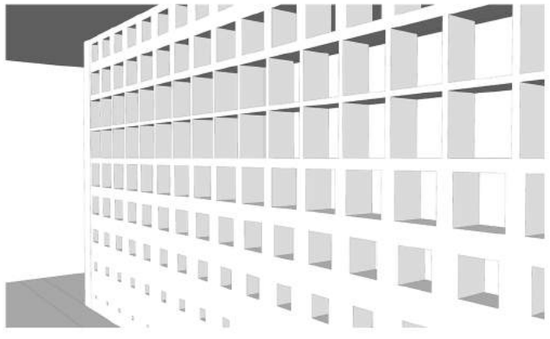


It get a dispersed result because two lines of big size groups. And the top and bottom positions of the attractive groups make even the basic horizontal moving indication is weak. There is no clear direction.

Proportion range: 10% - 90%
Division Type: 1
Height of reference line:
2m

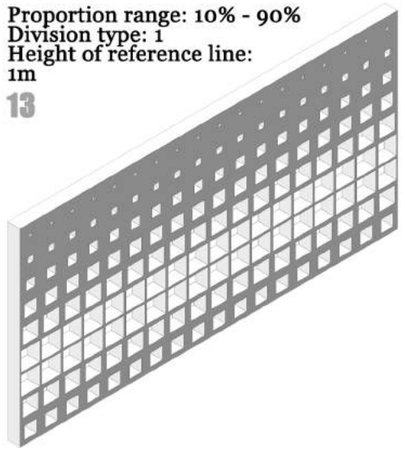
12

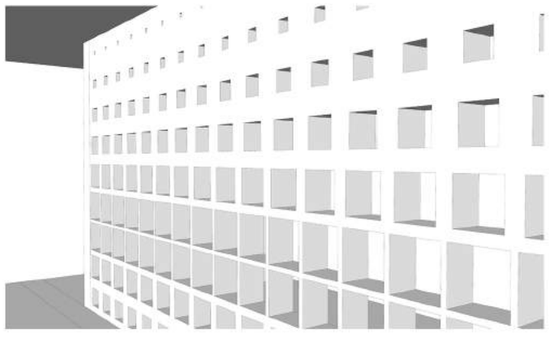




Proportion range: 10% - 90%
Division type: 1
Height of reference line:
1m

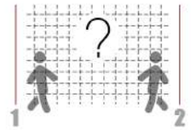
13





LEADING QUALITY

Through Proportion

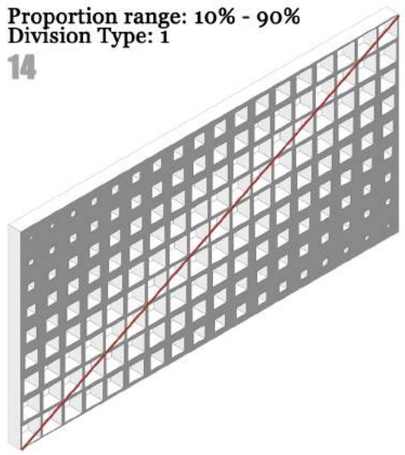


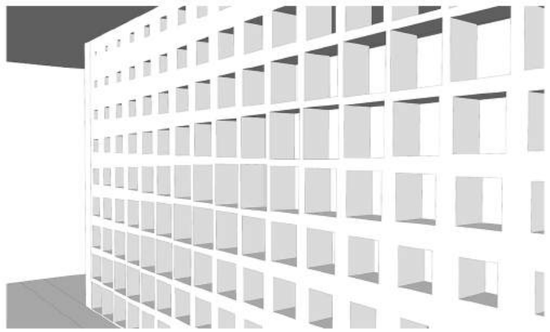
Changing Direction: Diagonal

The diagonal line is chosen as an ambiguity reference of direction to test how the reference effect the leading quality.

Proportion range: 10% - 90%
Division Type: 1

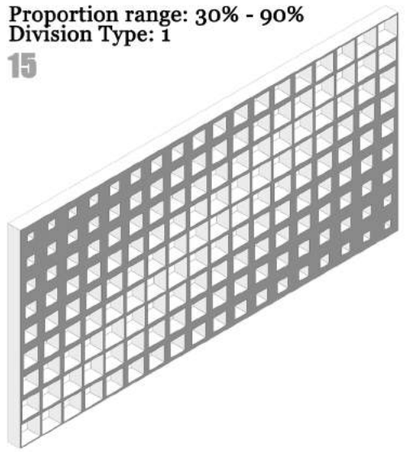
14

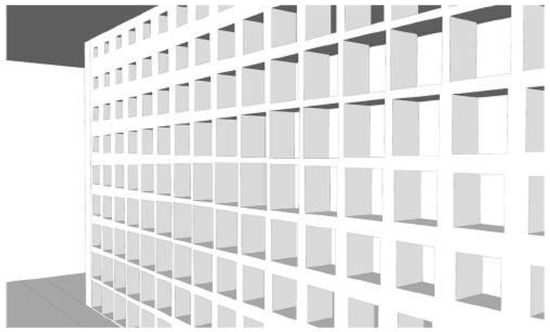




Proportion range: 30% - 90%
Division Type: 1

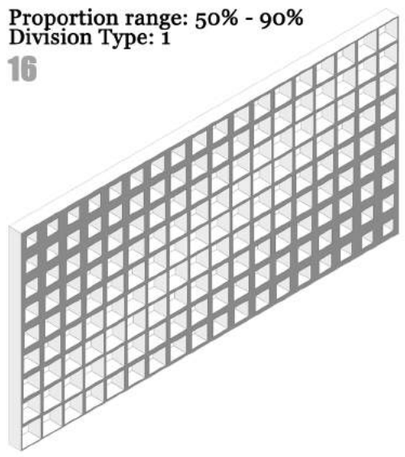
15

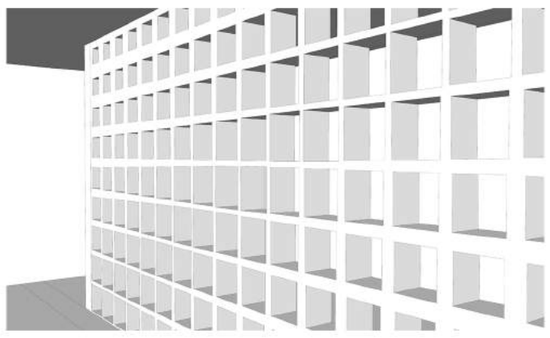




Proportion range: 50% - 90%
Division Type: 1

16



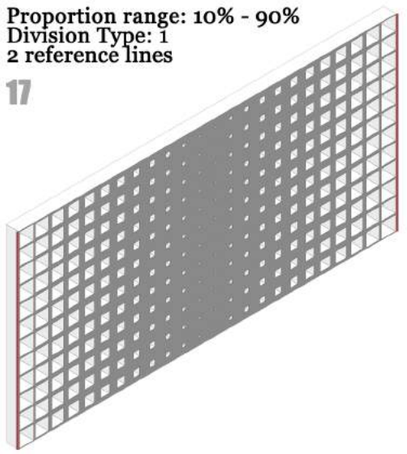


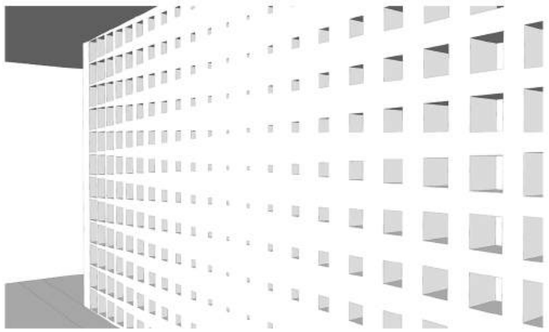
Example 14, 15, 16
People can sense the indication to move forward but not that absolute. The impact of reference line is highlighted.

Example 14, 18
Orientation of changing trends is tested. Upward tendency has a lifting meaning while downward has slowing and calming result.

Proportion range: 10% - 90%
Division Type: 1
2 reference lines

17

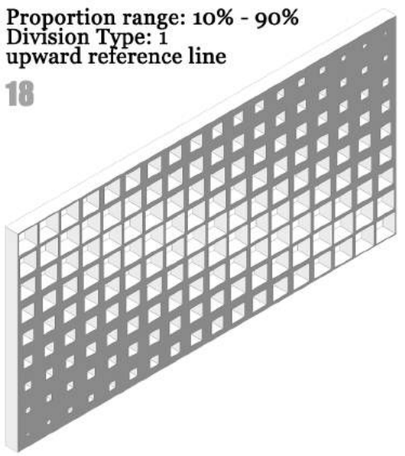


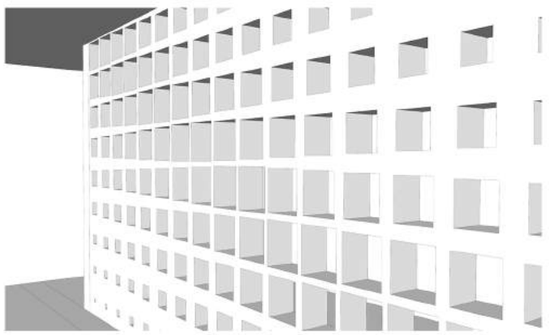


Obviously, 2 reference lines mean 2 directions and result in two reversed leading effects. More reference lines may cause diffrent moving pattern.

Proportion range: 10% - 90%
Division Type: 1
upward reference line

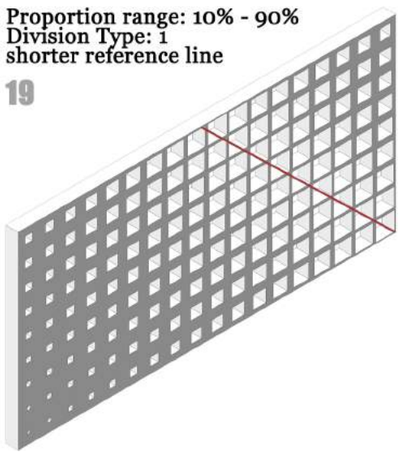
18

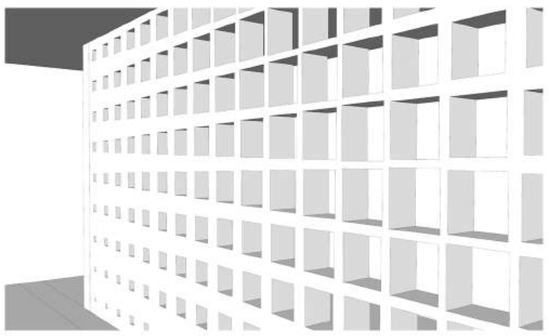




Proportion range: 10% - 90%
Division Type: 1
shorter reference line

19

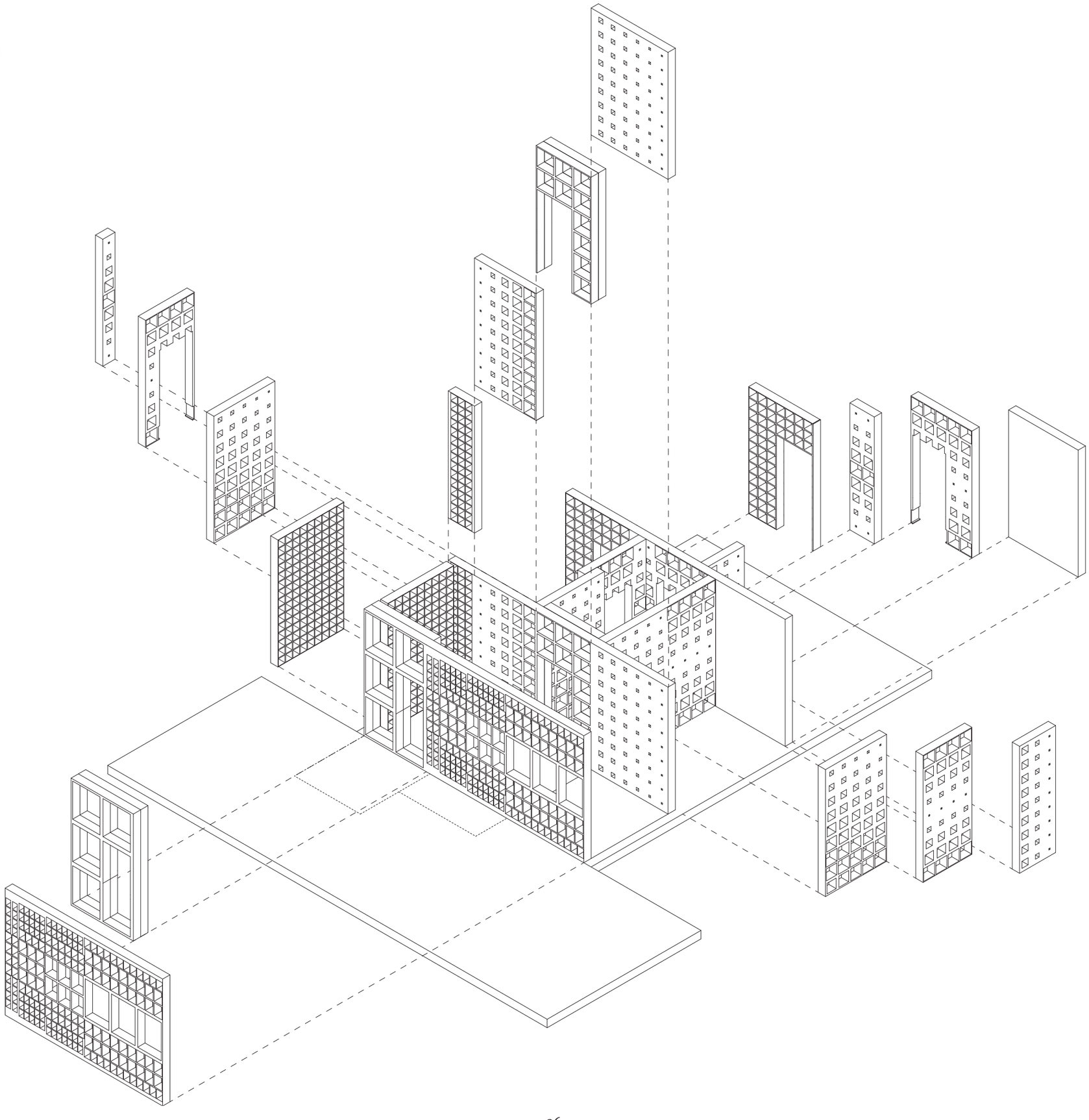




Shorter reference line get more inconspicuous outcome because the changing trend is weaker.

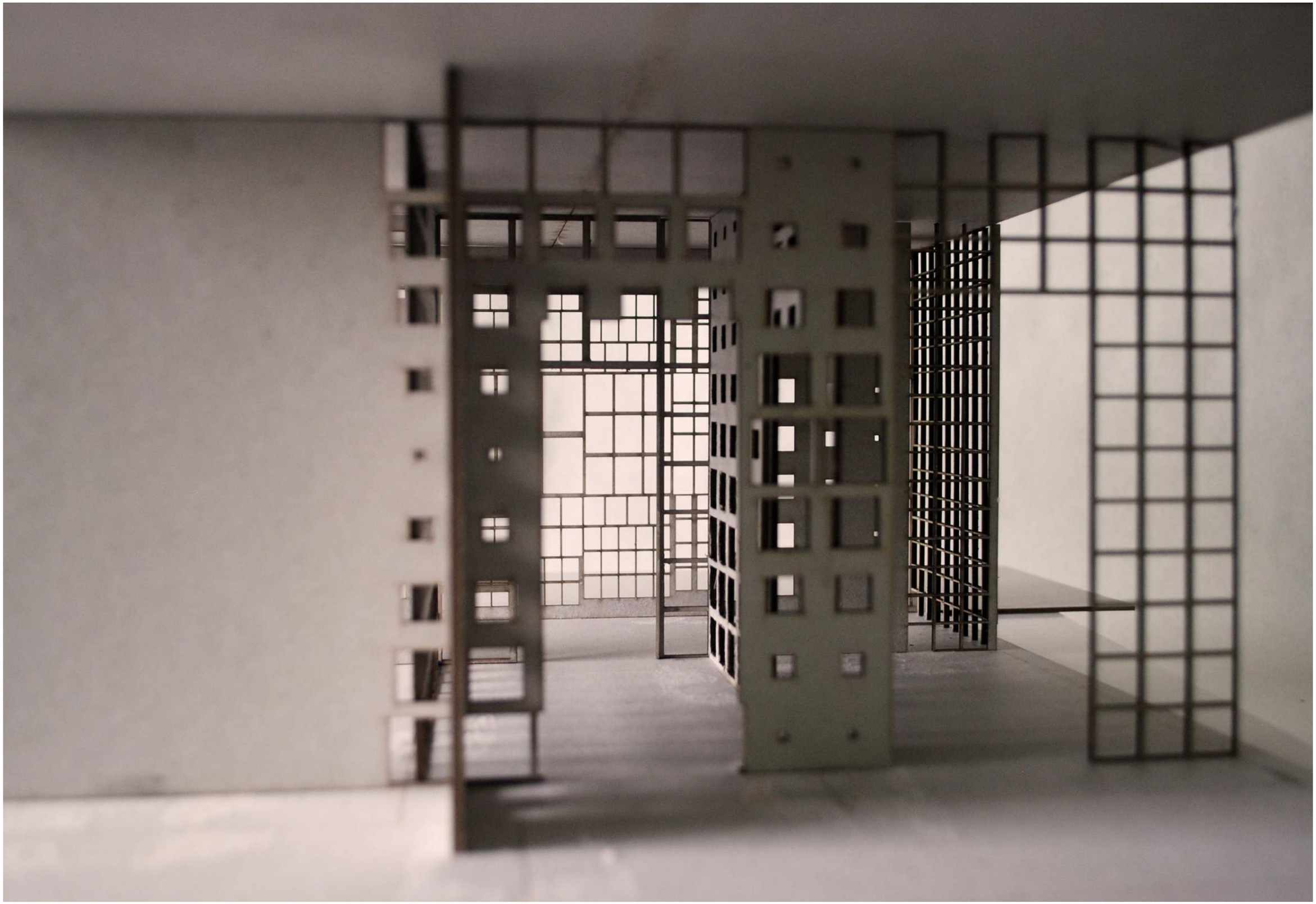
TEST ONE

Choosing Walls



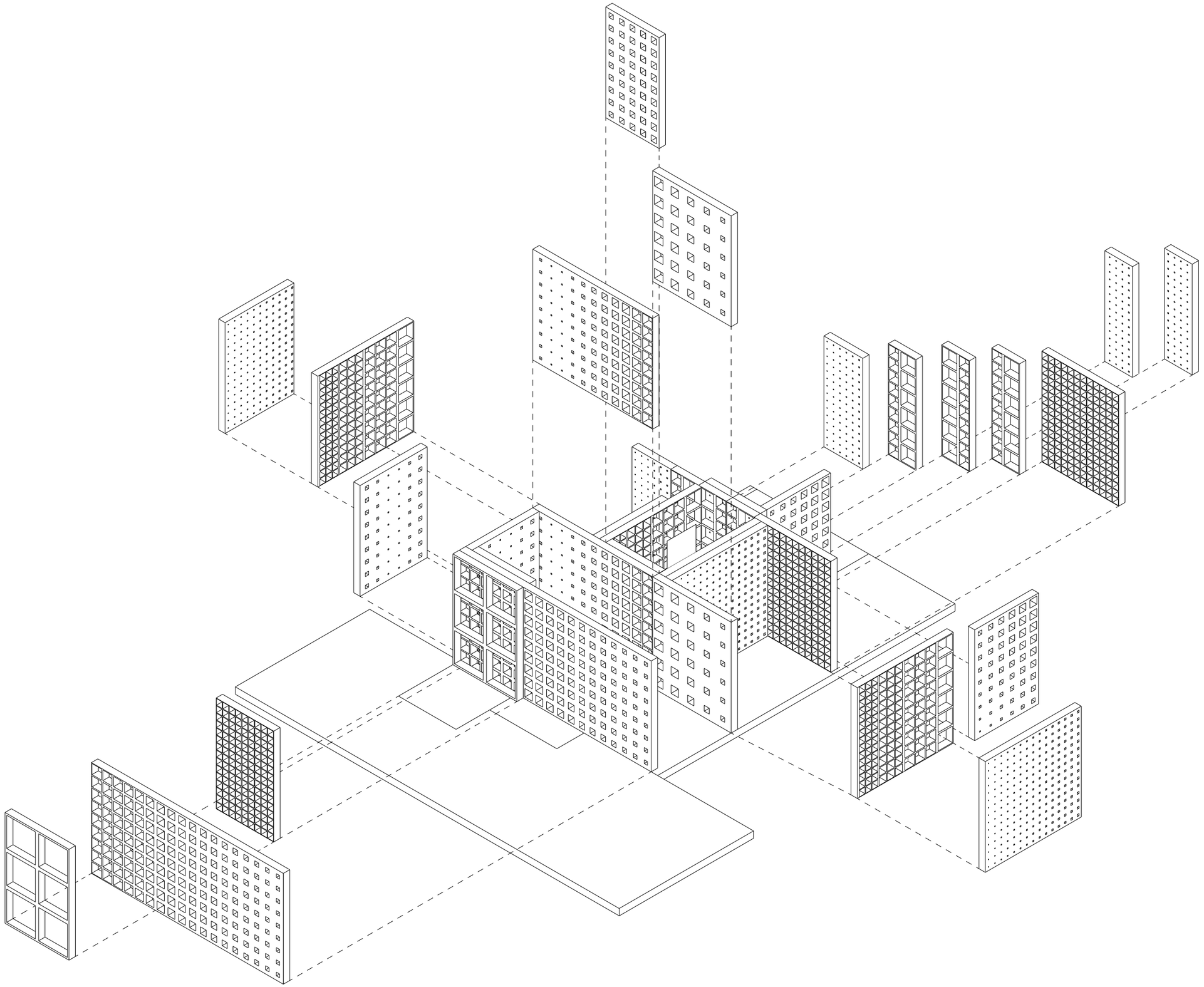
TEST ONE

Photos analysis about Perception of Space Layer



TEST TWO

Choosing Walls



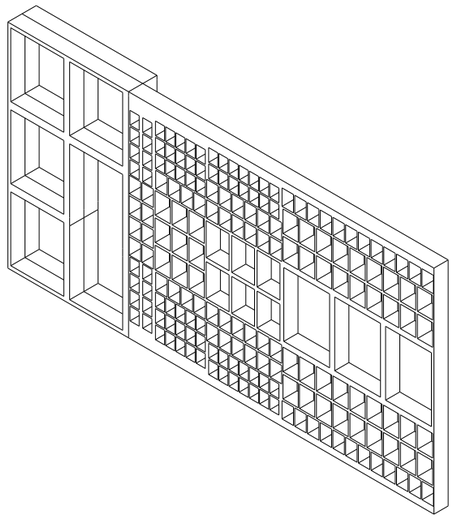
TEST TWO

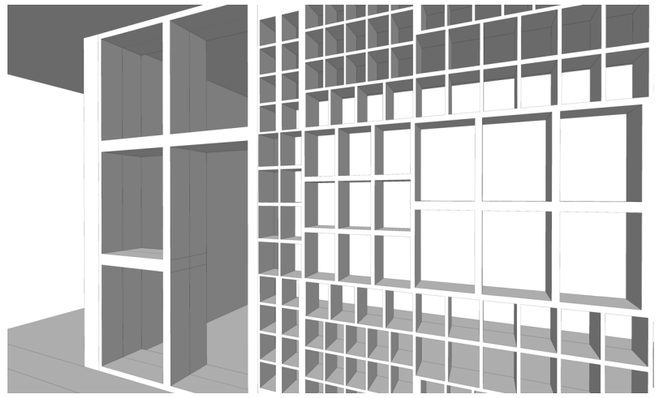
Photos analysis about Perception of Space Layer

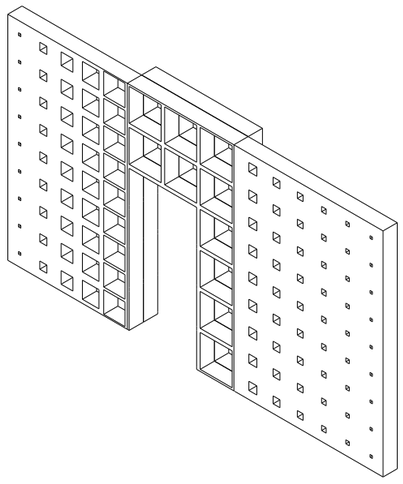
INPROVEMENT

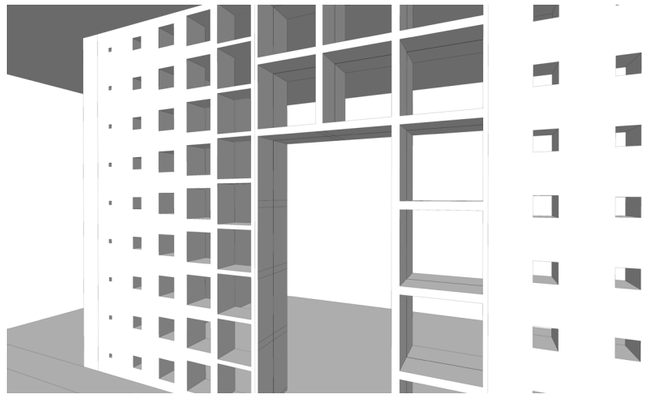
Leading Longitudinal

Test One



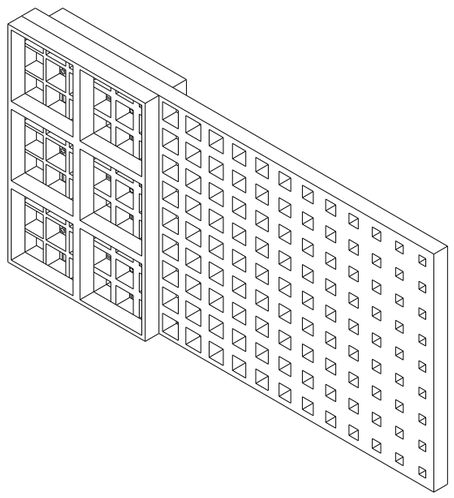


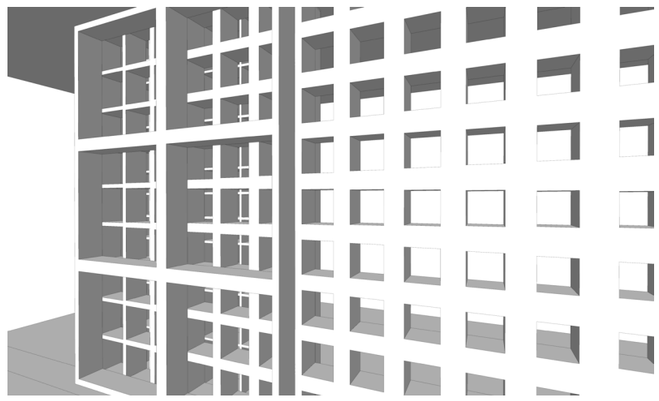


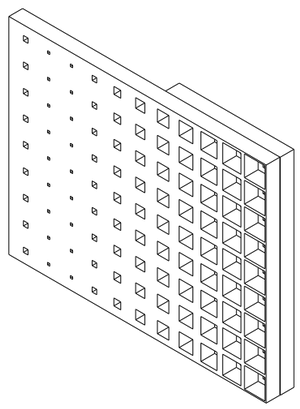


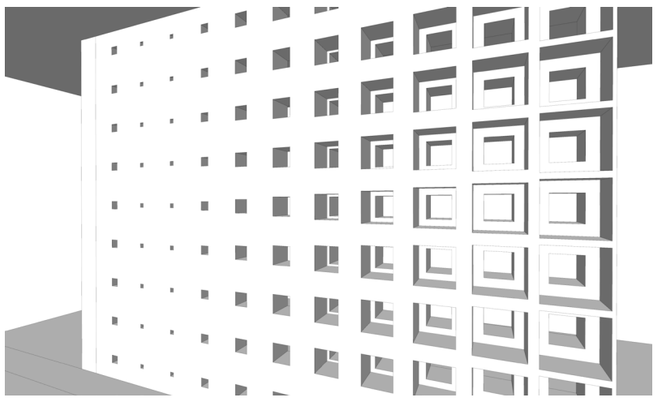
Thickness effect

Test Two









Camparison between

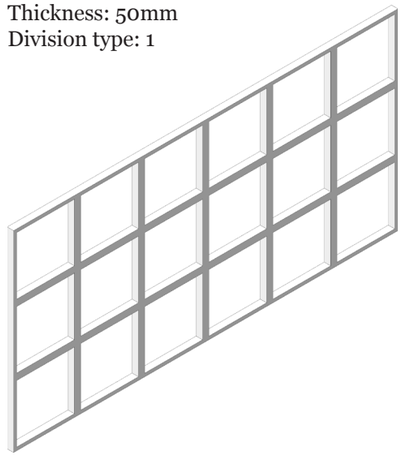
INPROVEMENT

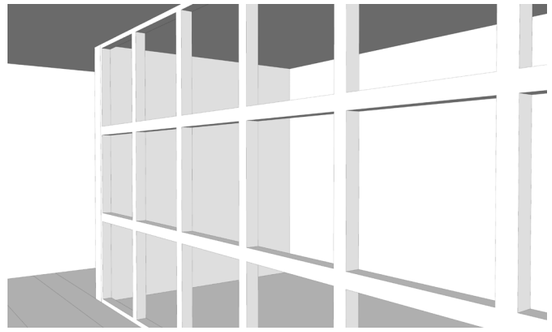
Leading Longitudinal

Thickness Effect

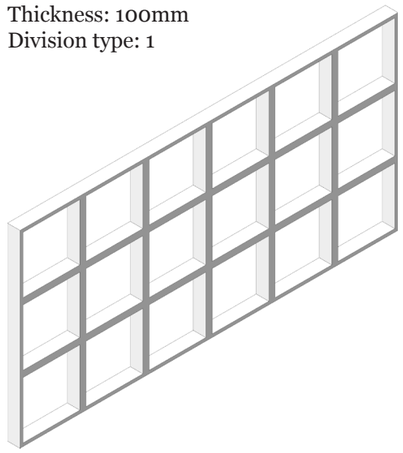
From test one, it could be seen just adding one more same wall behind the first one, the leading attraction is likely to change into another direction.

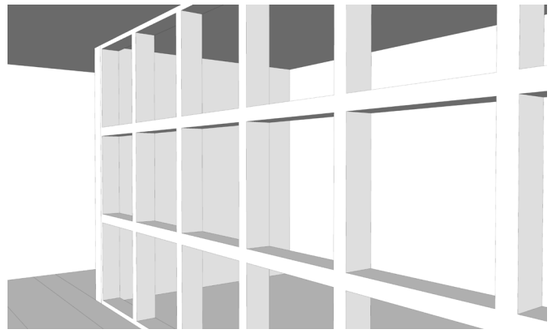
Thickness: 50mm
Division type: 1



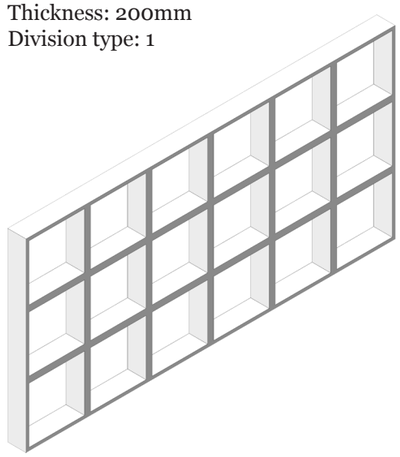


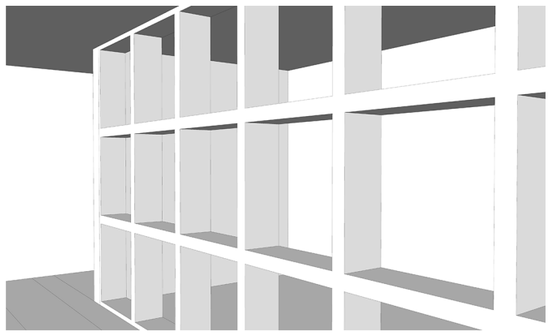
Thickness: 100mm
Division type: 1



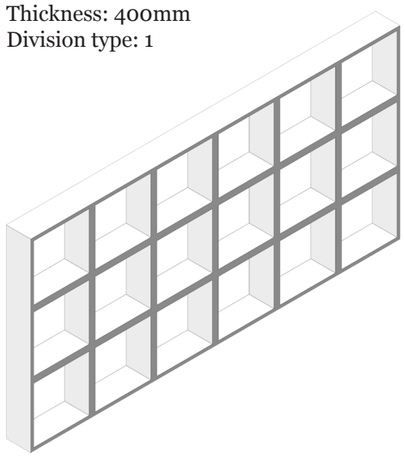


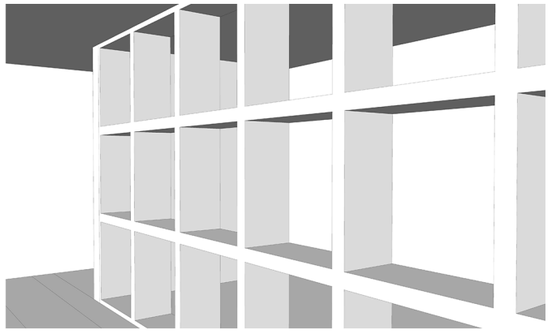
Thickness: 200mm
Division type: 1



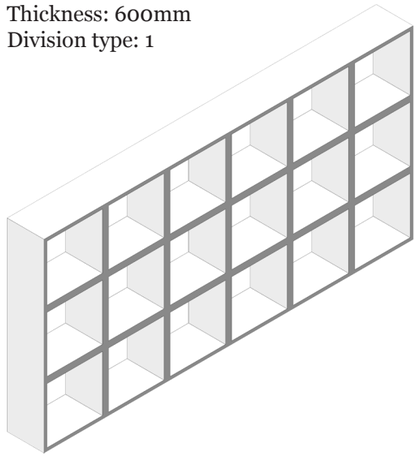


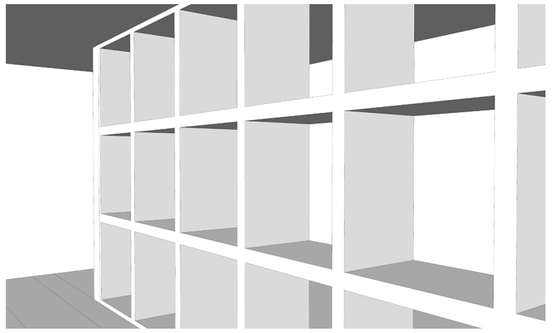
Thickness: 400mm
Division type: 1



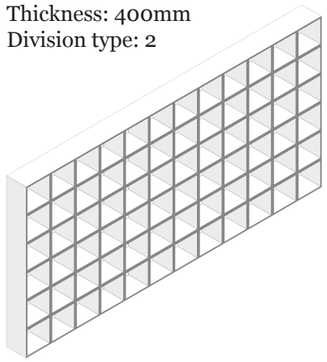


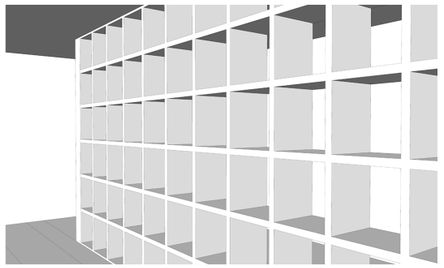
Thickness: 600mm
Division type: 1



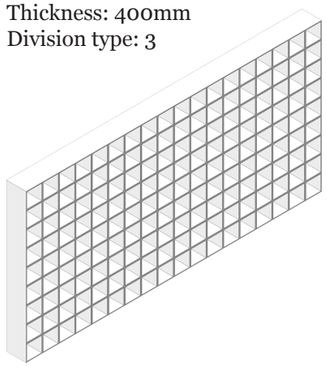


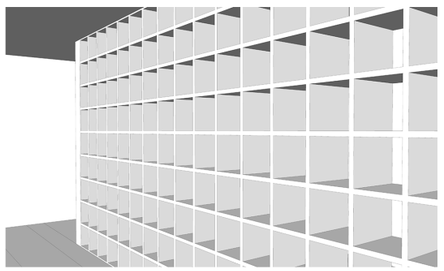
Thickness: 400mm
Division type: 2





Thickness: 400mm
Division type: 3





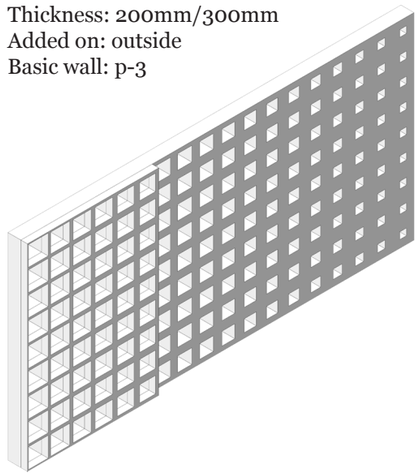
INPROVEMENT

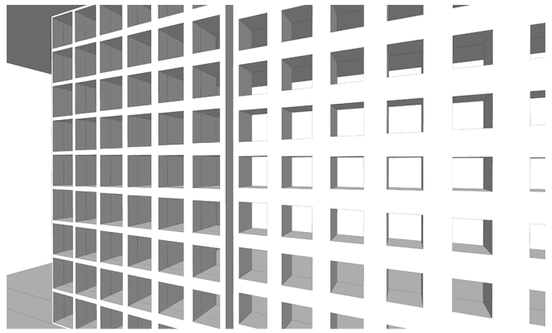
Leading Longitudinal

Thickness Comparison

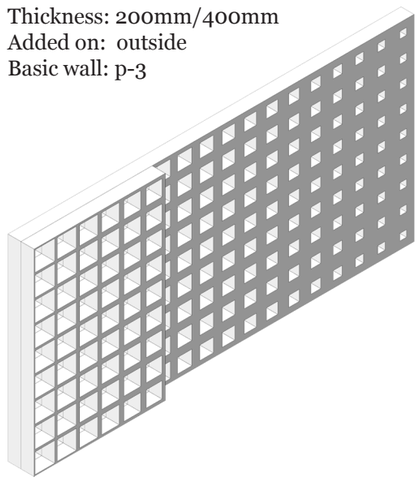
From test two, the changing depth of the wall (extruding to both in and out sides) emphasize the existance of door and introduce people to enter.

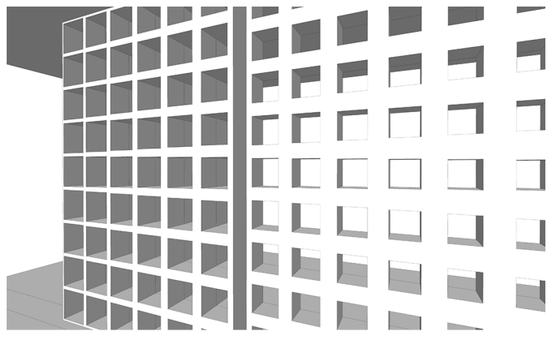
Thickness: 200mm/300mm
Added on: outside
Basic wall: p-3



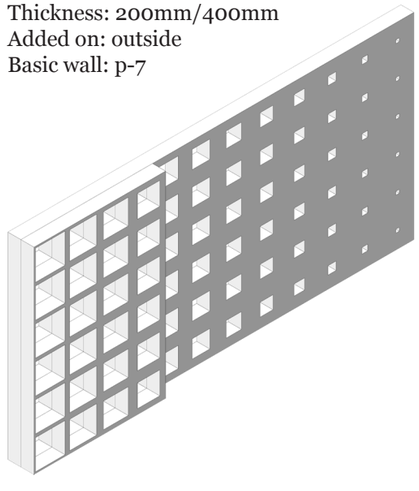


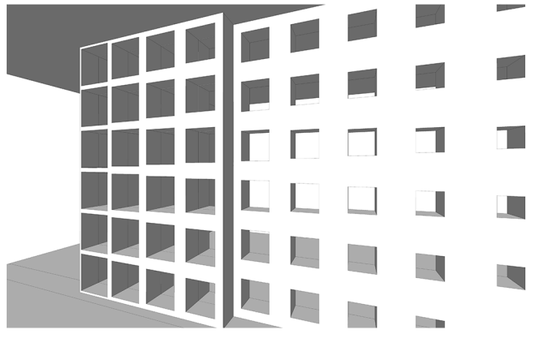
Thickness: 200mm/400mm
Added on: outside
Basic wall: p-3



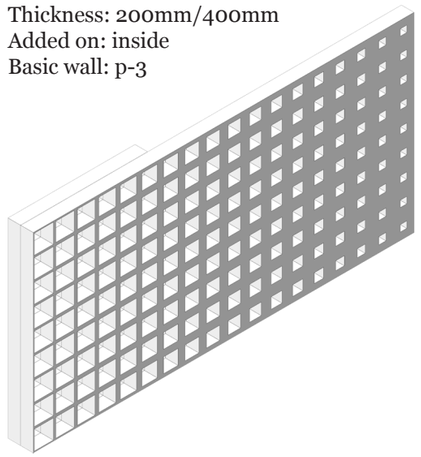


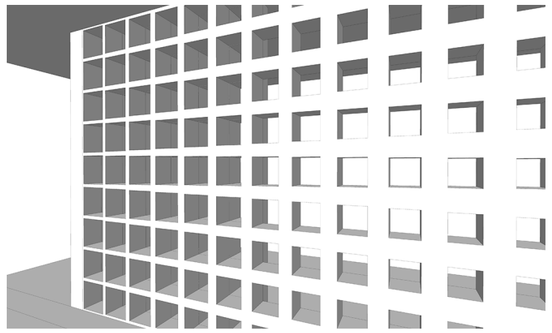
Thickness: 200mm/400mm
Added on: outside
Basic wall: p-7

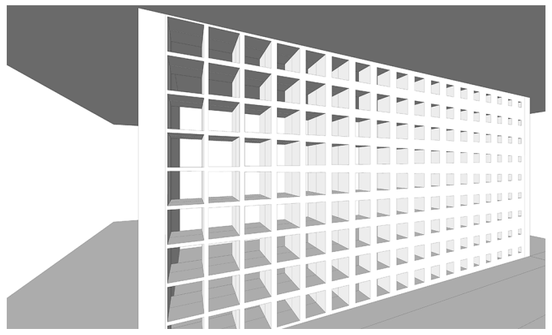




Thickness: 200mm/400mm
Added on: inside
Basic wall: p-3







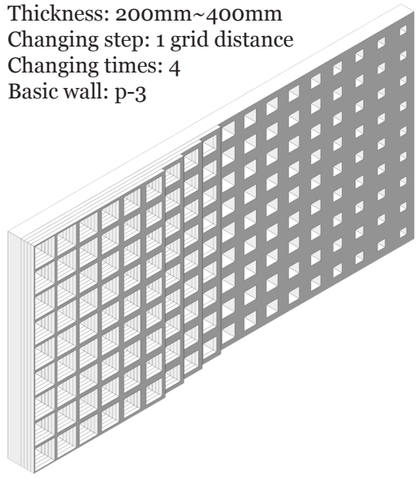
INPROVEMENT

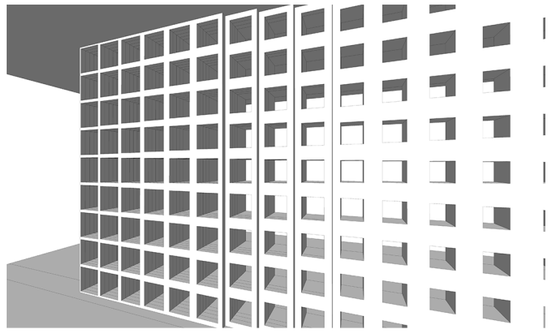
Leading Longitudinal

Gradually Changing 01

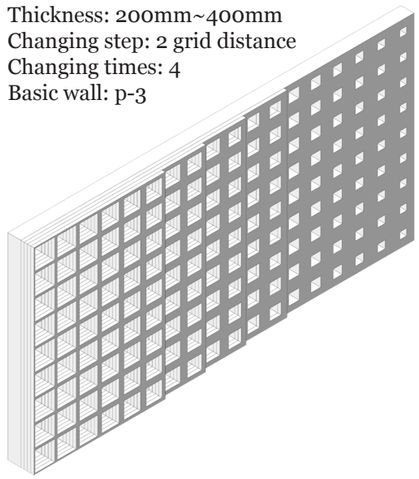
Not a direct or sudden change of depth but a gradual transformation may be a clearer suggestion of trending and leading.

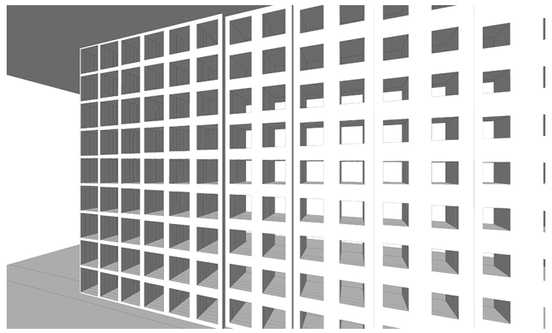
Thickness: 200mm~400mm
Changing step: 1 grid distance
Changing times: 4
Basic wall: p-3



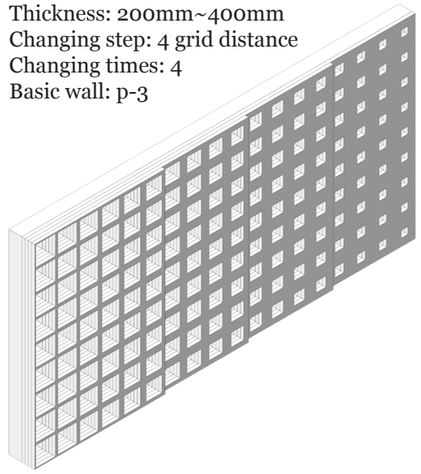


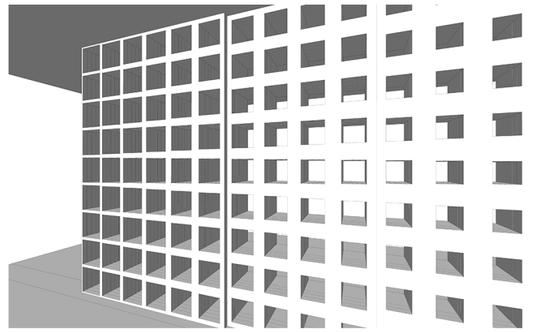
Thickness: 200mm~400mm
Changing step: 2 grid distance
Changing times: 4
Basic wall: p-3

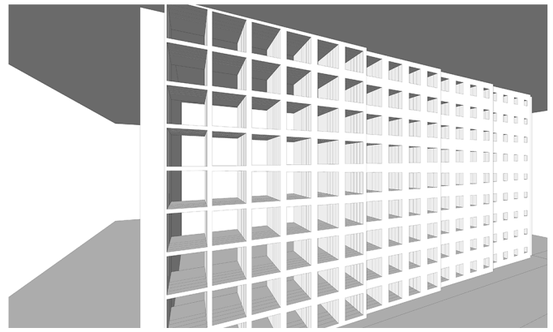




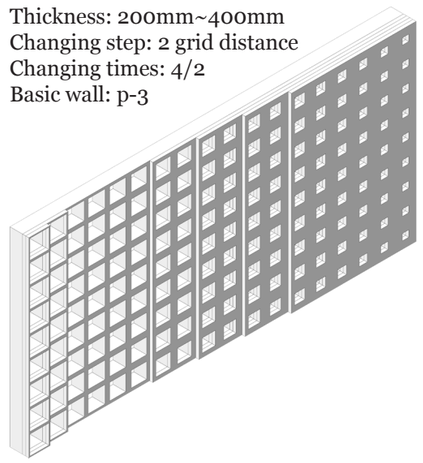
Thickness: 200mm~400mm
Changing step: 4 grid distance
Changing times: 4
Basic wall: p-3

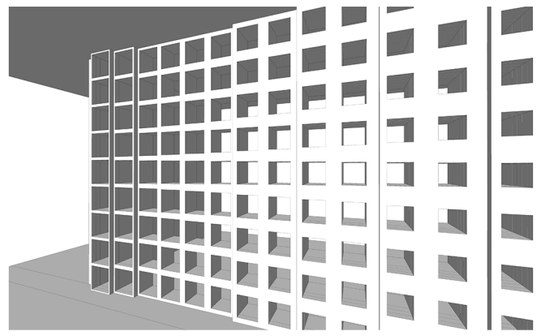


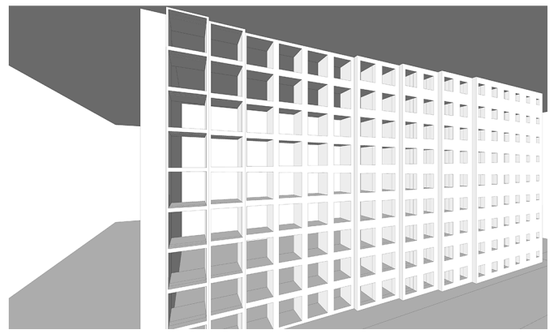




Thickness: 200mm~400mm
Changing step: 2 grid distance
Changing times: 4/2
Basic wall: p-3







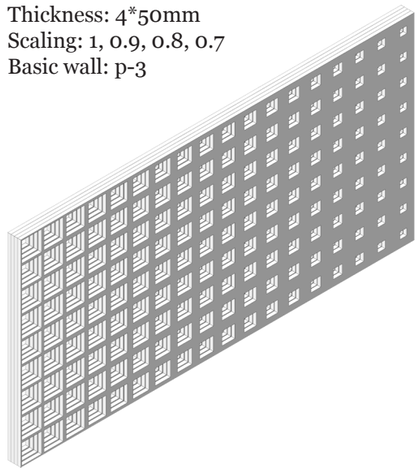
INPROVEMENT

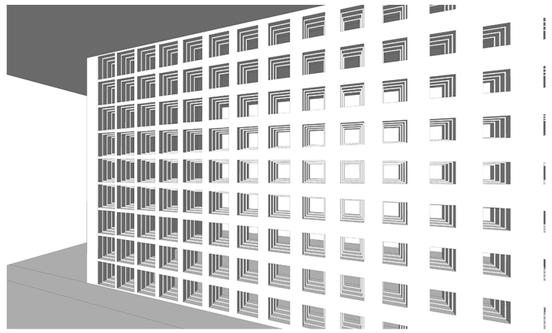
Leading Longitudinal

Scale in Depth 01

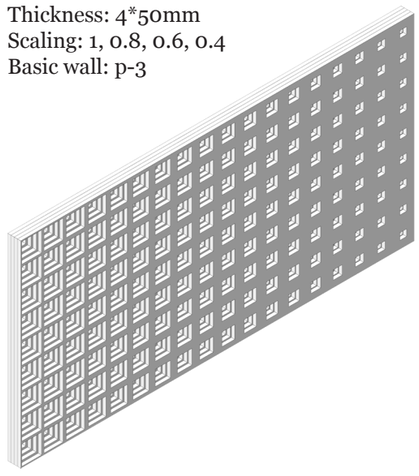
From test two, the transformation in the depth / longitudinal direction form a natural attraction towards this orientation.

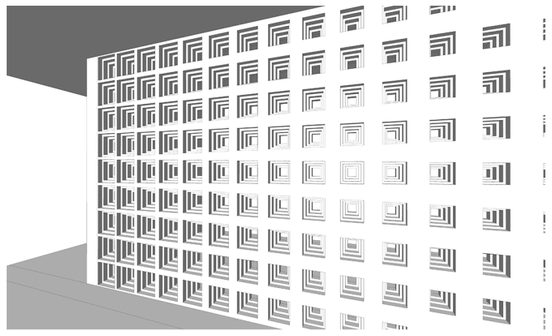
Thickness: 4*50mm
Scaling: 1, 0.9, 0.8, 0.7
Basic wall: p-3



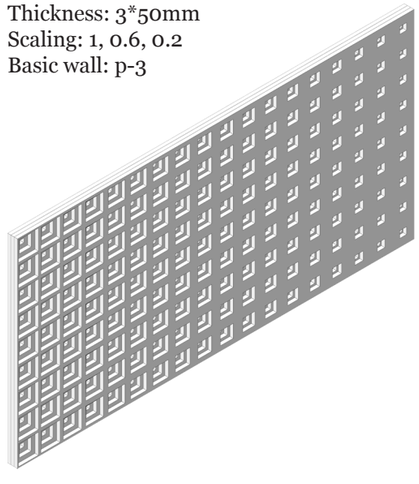


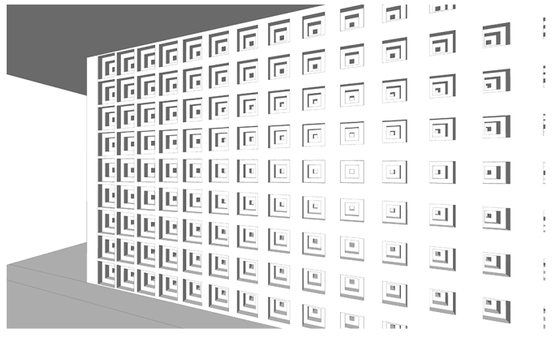
Thickness: 4*50mm
Scaling: 1, 0.8, 0.6, 0.4
Basic wall: p-3



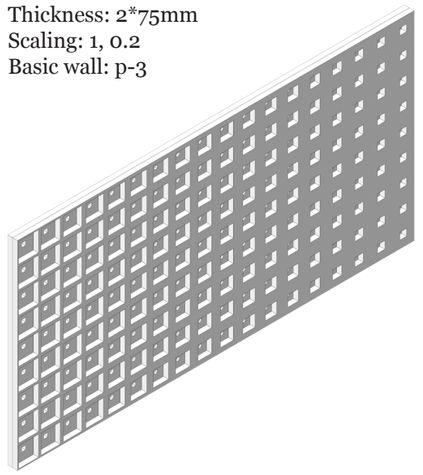


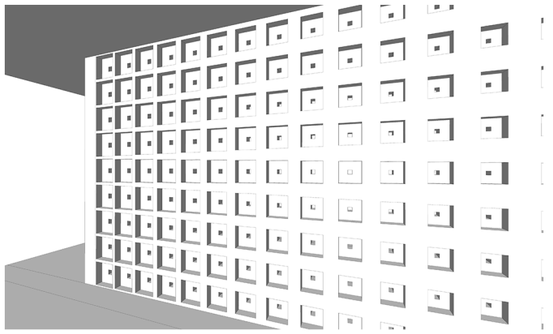
Thickness: 3*50mm
Scaling: 1, 0.6, 0.2
Basic wall: p-3



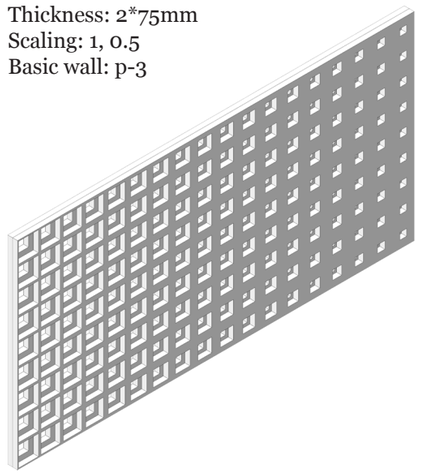


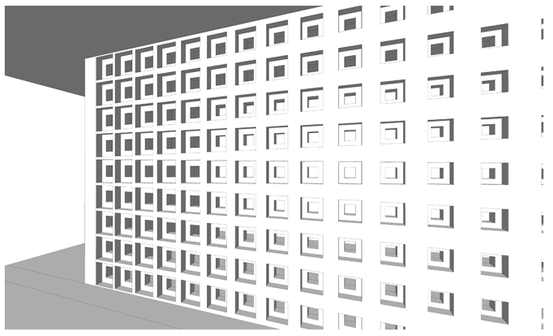
Thickness: 2*75mm
Scaling: 1, 0.2
Basic wall: p-3





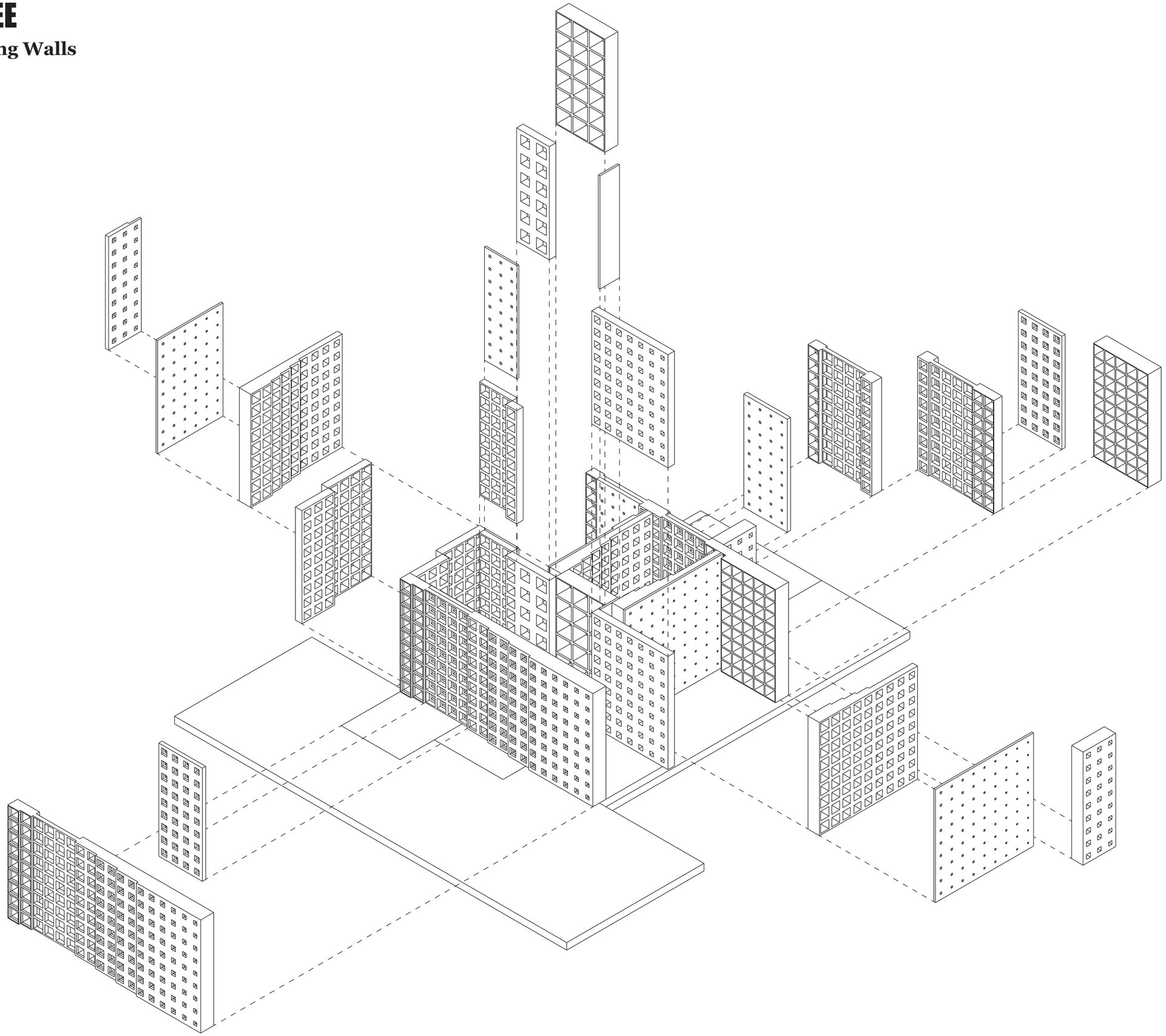
Thickness: 2*75mm
Scaling: 1, 0.5
Basic wall: p-3





TEST THREE

Choosing Walls



TEST THREE

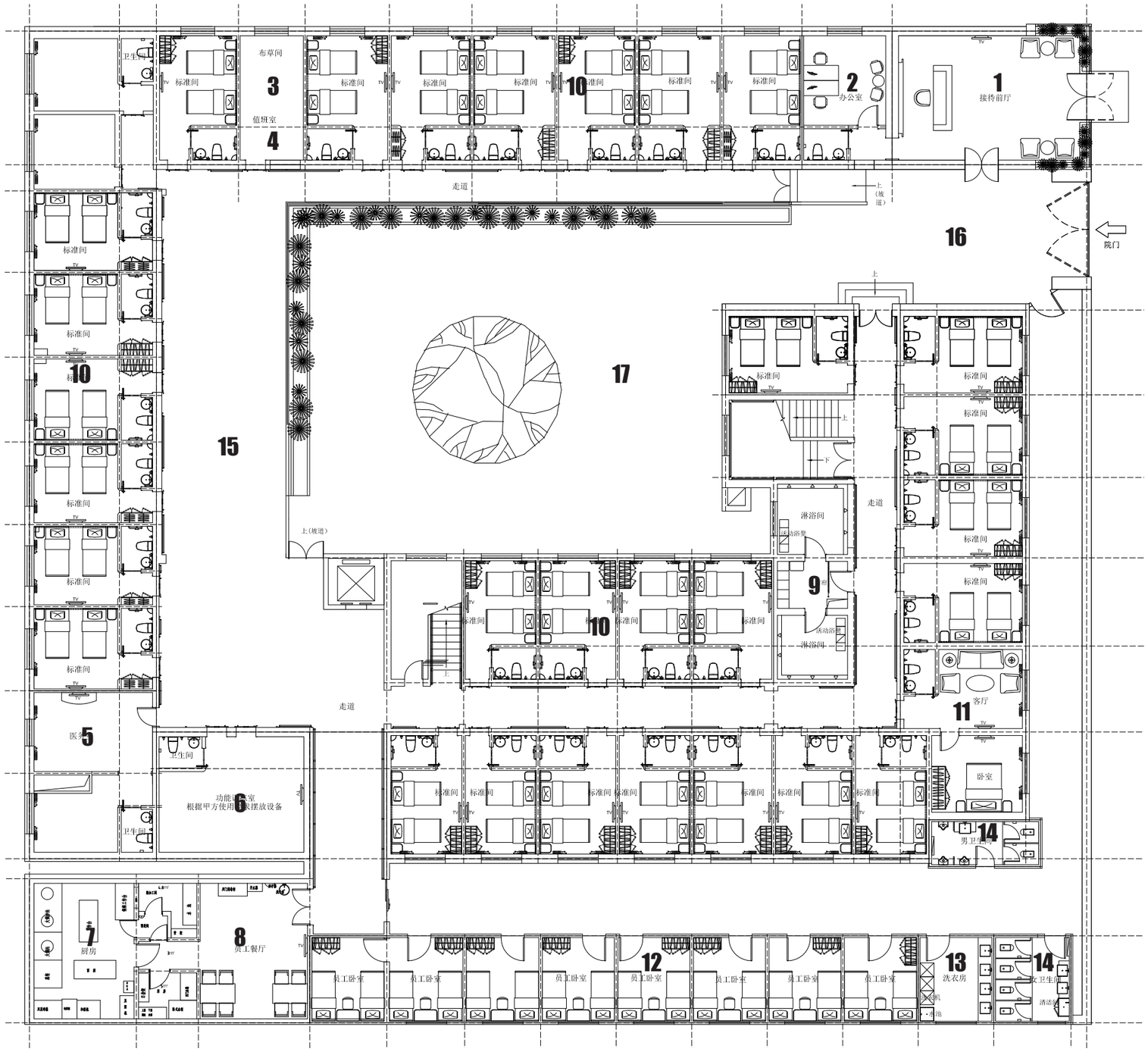
Photos analysis about Perception of Space Layer

CHAPTER 04. CONTEXT

CONTEXT

Cuncao Chunhui Basic Information

First Floor Plan 1:200



Key

1, Reception hall
2, Office
3, Linen room
4, Duty room
5, Infirmary
6, Rehabilitation room
7, kitchen
8, Staff restaurant
9, Public bathroom
10, Common Unit(doubles)
11, Single Unit
12, Staff dormitory
13, Laundry
14, Public lavatory
15, Multi-purpose space
16, Main entrance
17, courtyard

Building Characteristics

1, Numbers of units	33
2, Numbers of stories	1 (partly 2)
3, Context	residential district
4, Housing type	elderly care house
5, Building shage	courtyard
6, Unit mixture	31 doubles 2 singles
7, Size of most common unit (average)	17.495 sq meters
8, Community facilities	No
9, Community-accessible restaurant	No
10, Year opened	2011

Basic Service

1, Health management:
-Entering, preliminary assessment about health condition
-Every month, detailed assessment about health status
-Every year, at least one health checkup

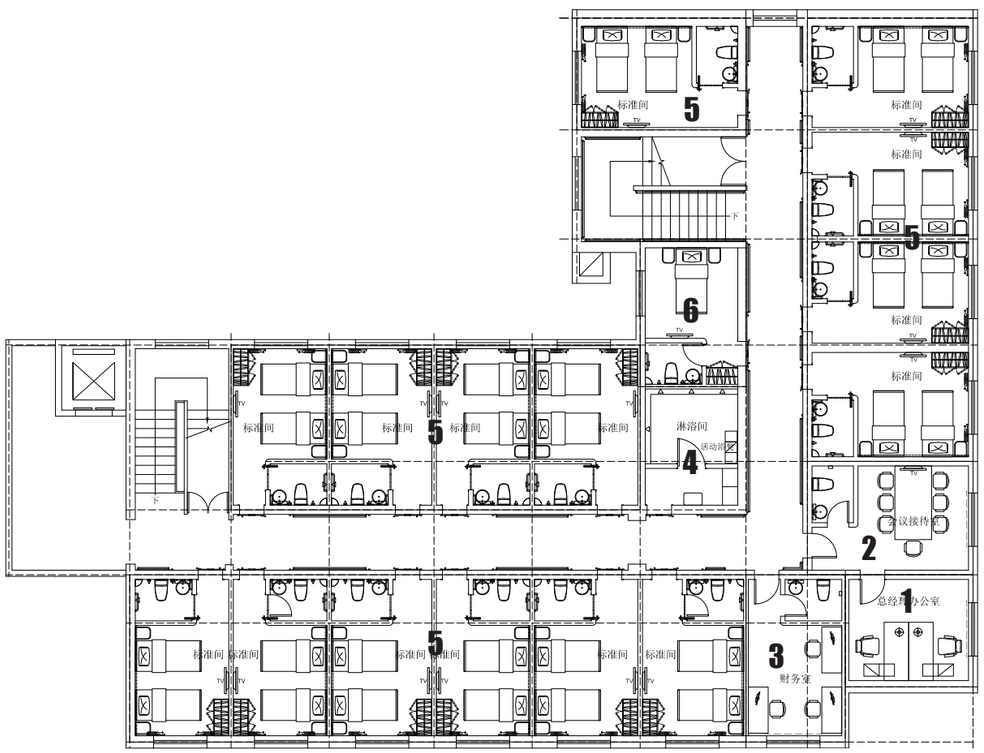
2, Basic health care service:
-every day, safety monitoring
-once a day, room clean
-once a week, room disinfection and bedcloth change
-once half a month, nail cutting
-once half a year, curtain change
-others: newspaper sending, water boiling, meal sending

3, 24 hours attendance

CONTEXT

Cuncao Chunhui Basic Information

Second Floor Plan 1:200



Key

1, General manager office
2, Meeting room
3, Finance office
4, Public bathroom
5, Common Unit(double)
6, Single Unit

CONTEXT ANALYSIS

Space Occupation and Influence

Key/Feature

Residents space

Caretakers living space

Caretakers working space

1, Create single resident space and caretaker living space

2, Caretaker working space near residents living area

Shared space

1, Create proper shared space within residents and careworkers themselves

2, Less overlaying of working and living areas for caretakers

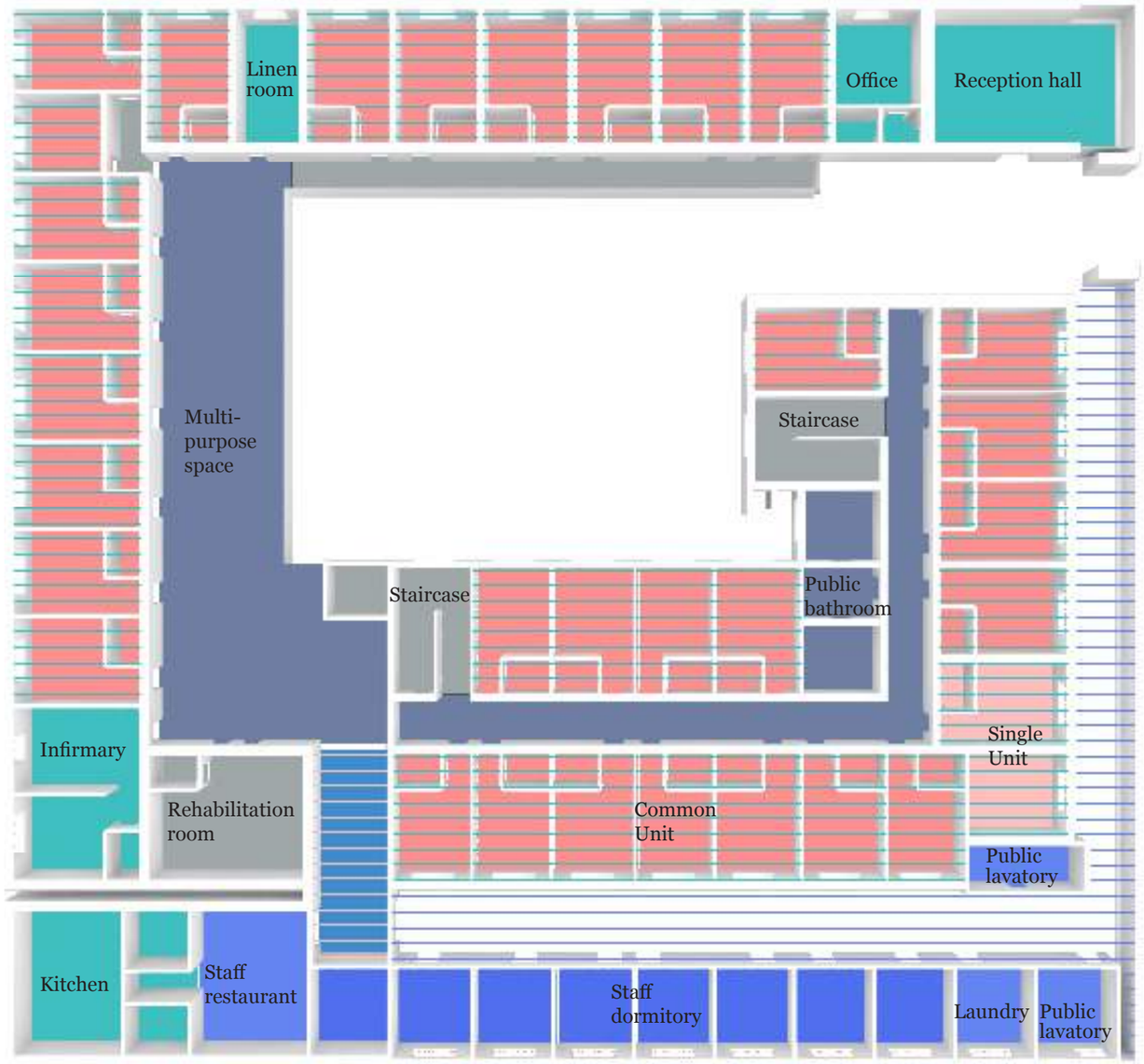
3, New meeting space for residents and caretakers in resting time, neighborhood feeling

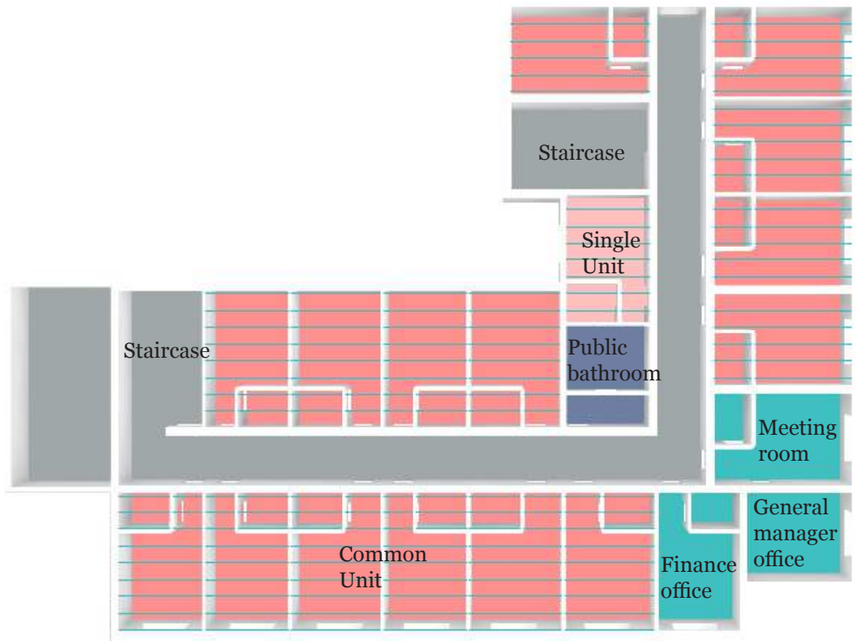
4, Create shared working space between residents and caretakers to balance the need for more working space and better acknowledge of the situation

Space influenced by

1, Reduce and control the influence from working caretakers in resident units

2, Create outdoor space belong to or mainly influence by residents





CONTEXT ANALYSIS

Privacy

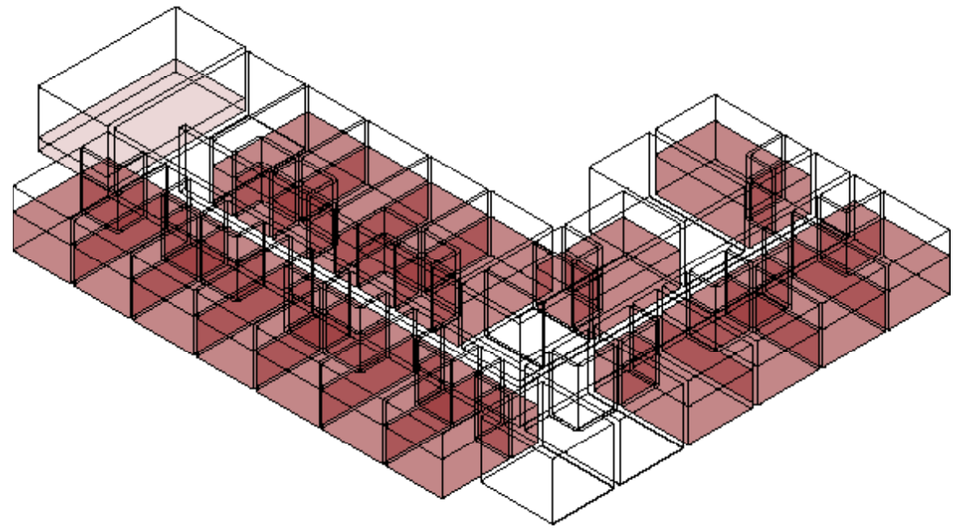
Privacy of a space is influenced by how many people occupy the space, how many people can use and influence the space.

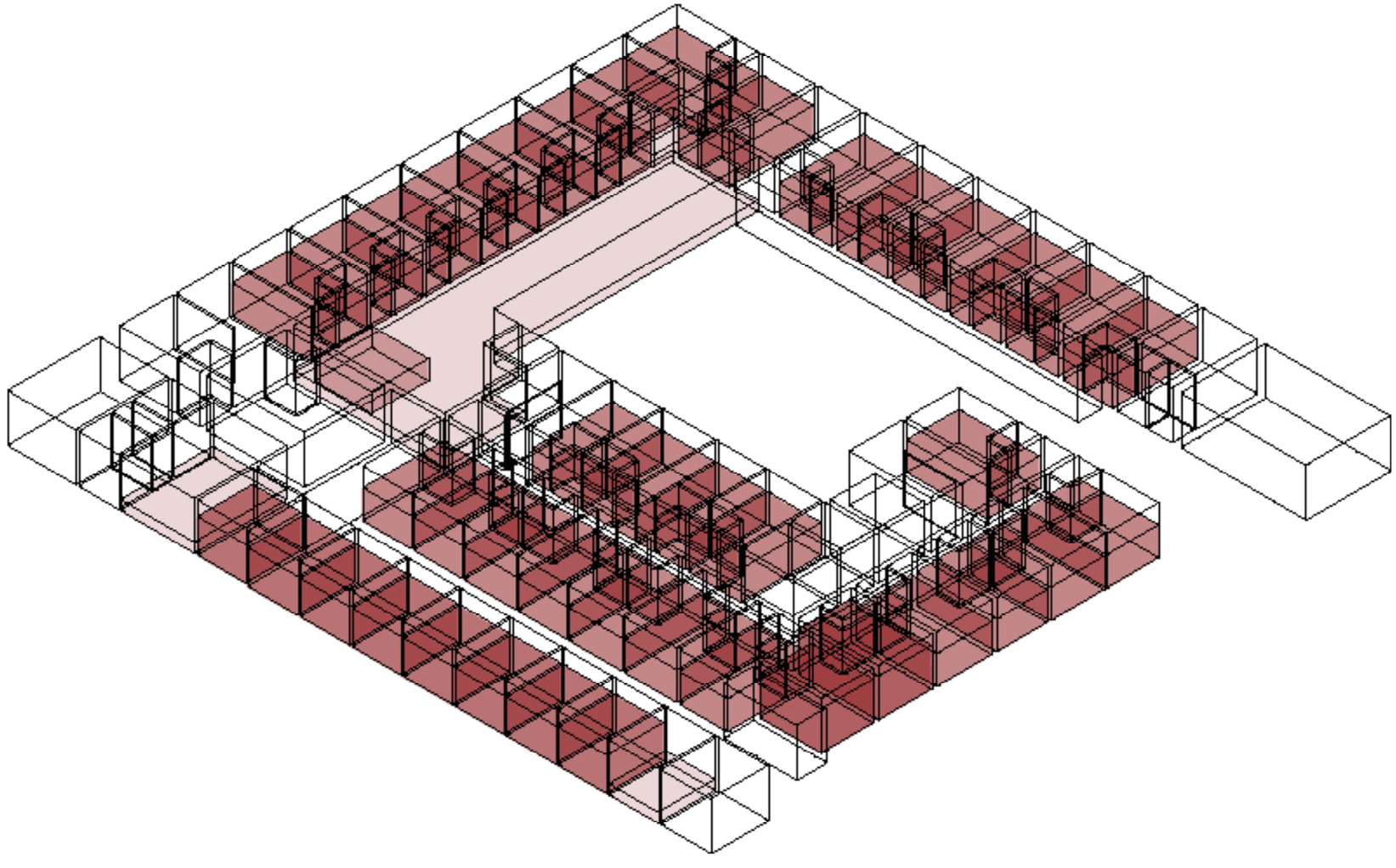
Key

- Most private
- Private space, partly influence by others
- Shared private space, influenced by others
- Personalized public space
- Self-used public space

Characteristics

1, No high private space
2, Change of privacy is too sudden
3, Possible to have more public space become personalized and better used





CONTEXT ANALYSIS

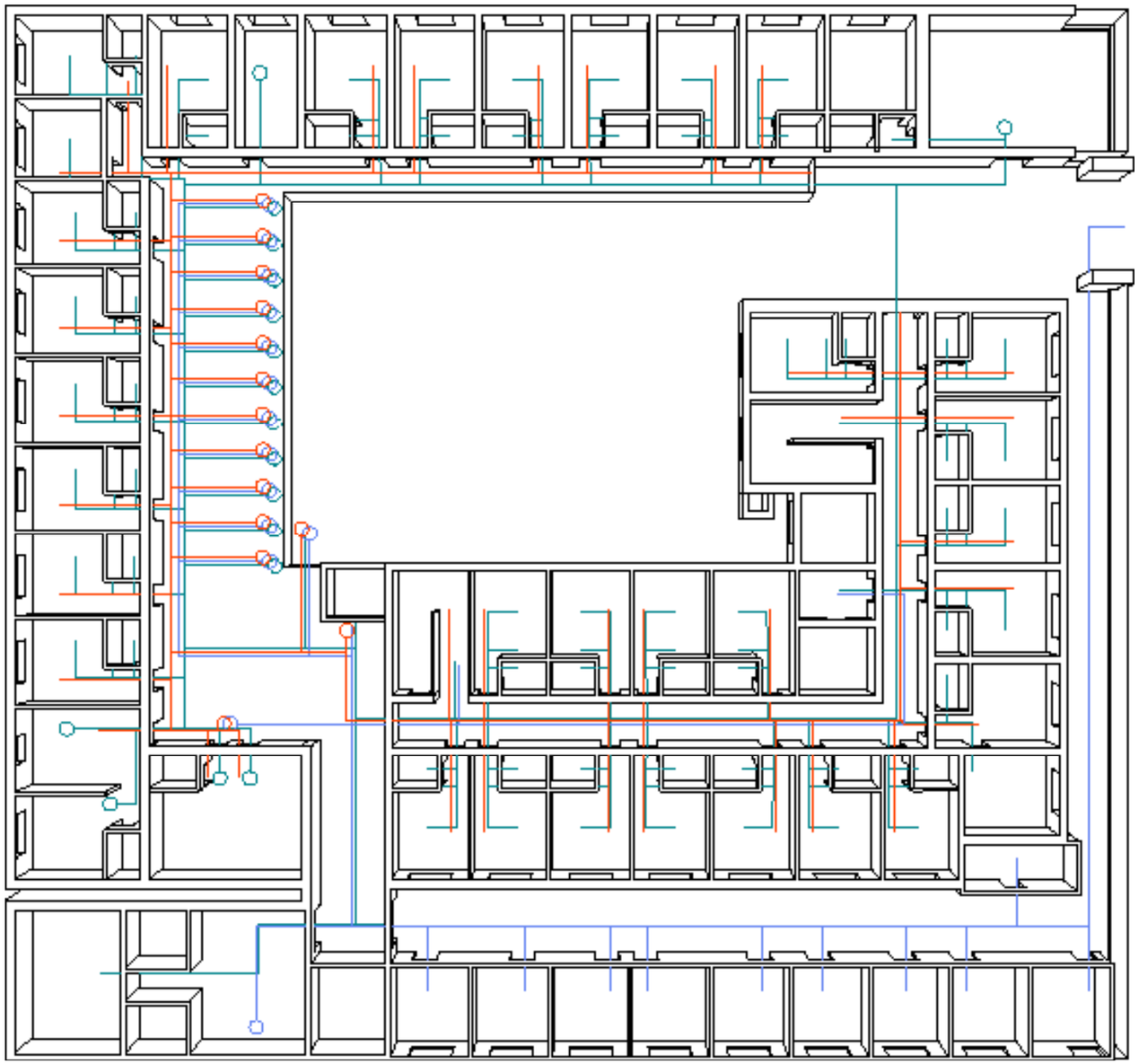
Route

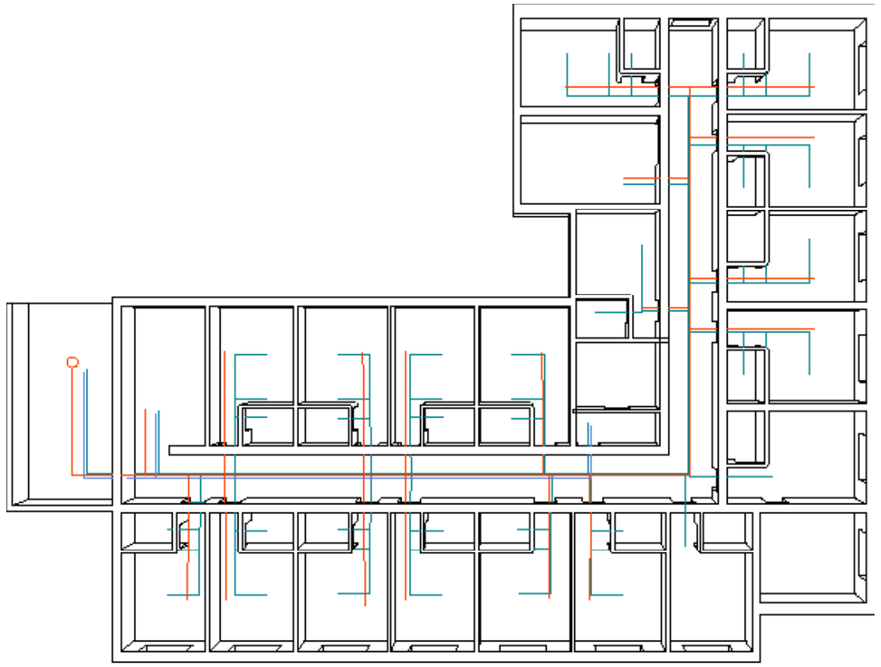
Key

- Caretaker living route
- Caretaker working route
- Resident route
- Staying
- Temporary staying

Characteristics

1, Caretakers route into residents room need to be reorganized.
2, Proper staying space for caretakers is limited
3, Long corridor need some staying space
4, Make full use of the space where different routes all go through as public space





CONTEXT ANALYSIS

View

Key

Difficulty level of view contact

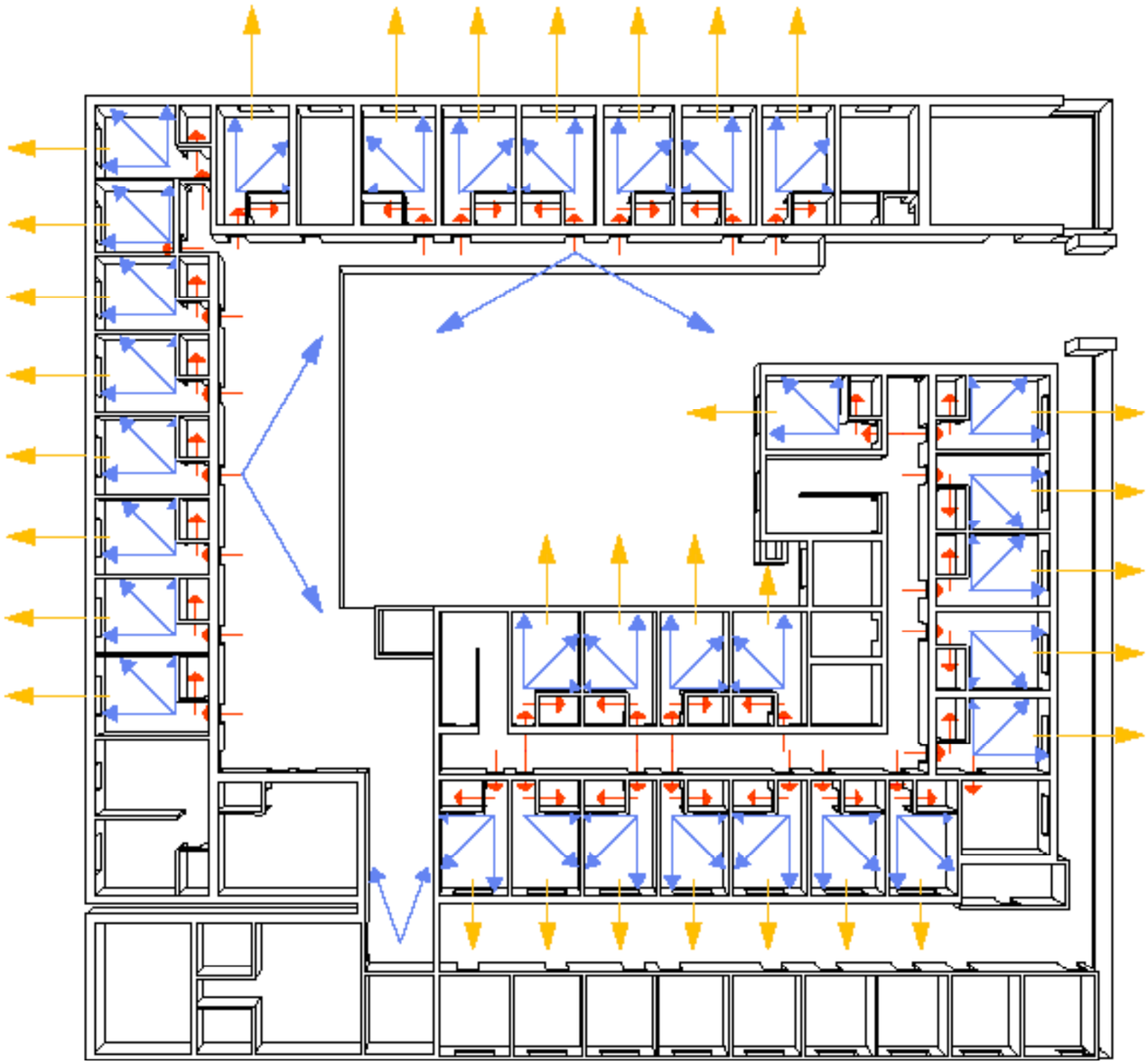
- Easy
- Normal
- Difficult

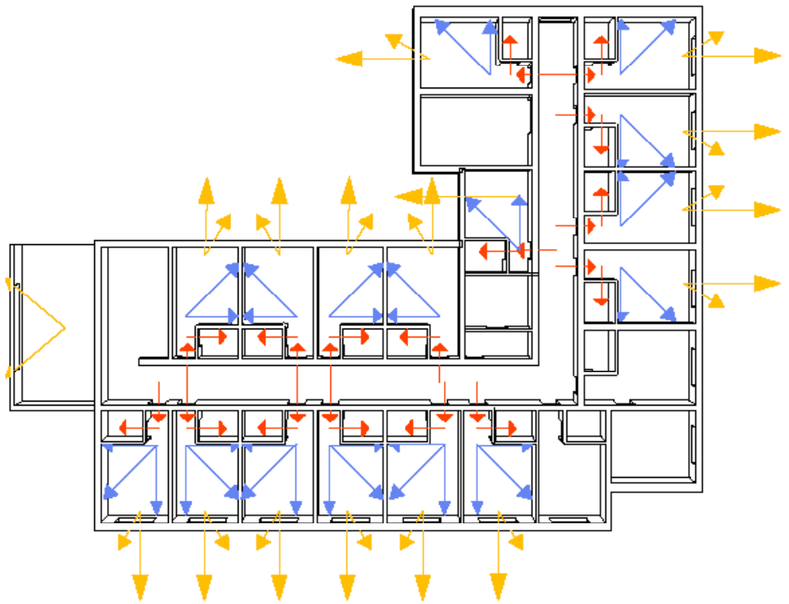
Level of visibility

- High visibility
- Limited visibility

Characteristics

1, The view through entrance door bathroom door are not really working, should change the checking way
2, After entering, there is no block for the view over the whole room.
3, The window is not suitable enough for contact between outside and inside because the privacy and safety consideration.
4, View towards outside and view towards courtyard and inside street should be treated differently.
5, Be concious of the influence from view condition on public and private space.
6, The view contact between first and second floor will be very important considering connecting residents on different floors
7, The better safety and privacy situation on second floor could allow more view choice.





CONTEXT ANALYSIS

Common Unit

1, Individual Symbol

Room entrance:
Name and Chinese zodiac as individual symbol and emphasizing the personalized meaning.

2, Photos, Bed Distance, Curtain

Wall:
Photos showing personal characteristic and promote privacy.

Beds and curtain:
Keeping larger distance between two beds and adding curtain for less intervene and blocking view, also restrict the caretaker's working area

3, Outside relation, Storage, Activity

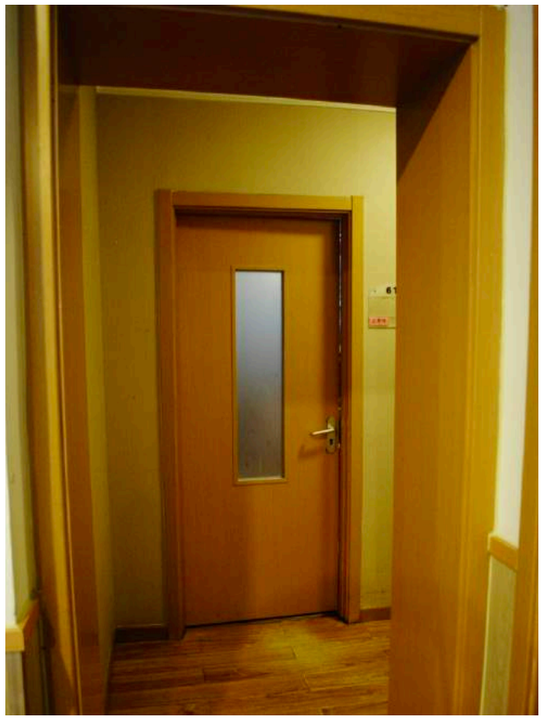
Window:
Simple, just for view and light
Storage:
Added furniture
Activity:
Watching TV, small table for reading and writing

4, Multi-use and Larger Space

Bathroom:
Here people need to do more things in bathroom like washing and cleaning. So ordinary bathroom space is not enough.

5, Regulation Required Bathroom

Bathroom:
Original bathroom, because caretakers' help and the urgent need for more space, people tends to change the organization.



6, Check

Entrance door:
The frosted glass is tended to provide some light and view possibility for the caretakers.

CONTEXT ANALYSIS

Transportation Space

1, Personalized, Light, Atmosphere, Rehabilitation

Photos:
Hanging photos is working to create a sense of belonging and help people personalize the space.

Light:
The light condition is enough for people to move ground and the warm color is helpful.

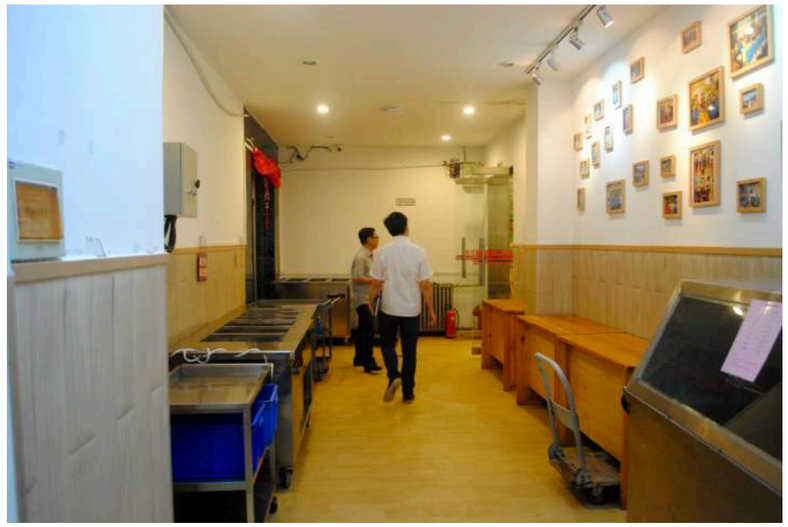
Wooded decoration:
The detailed wooden decoration helps to form intimate atmosphere

Handrail:
Really helpful for encouraging frail old people to move

2, Natural Light, Privacy

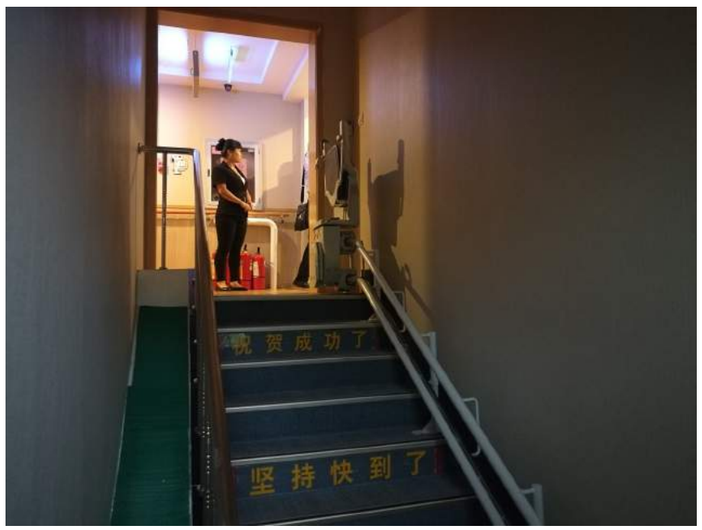
Facing courtyard:
With natural light and outdoor view, the corridor is suitable for staying and more activity.

Less transportation:
Because of the remote location, this corridor get less circulation and is good for more private use.



3, Caretakers Life and Work

Corridor connected to the caretakers' living area:
The space is loaded with working equipments and the photos on the wall is showing the the working group.

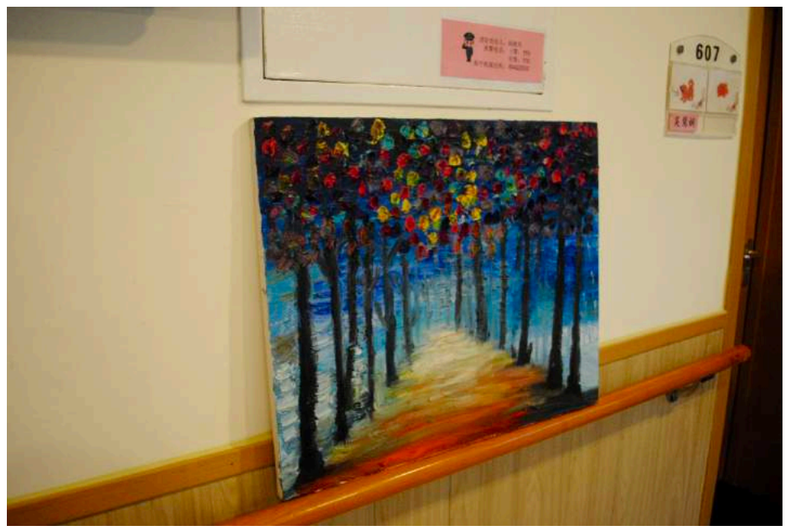


4, Rehabilitation

Staircase:
Because of the lack of space and the understanding of the importance of rehabilitation, staircase is also used as exercise space.

5, Commom Space

Elevator hall:
The only commom space on second floor, cleverly utilising the transportation space and the circulation.



6, Life

Resident's painting:
Used as docoration but also showing the desire to express self.

CONTEXT ANALYSIS

Hall

1, Multi-purpose Hall

Dining area:
Dining table can also be used for other purpose

Wide corridor:
In normal days it is a wide corridor space. When people need to gather around, more chairs and wheelchairs could be put in this space.

Sideway seats and furnitures:
The hall is working like the living room for residents. Different furnitures provide more possibilities for activity.

2, Private Corner, Rehabilitation Need

Majiong table:
This corner near the infirmary is more private in the public space because less circulation affect.

Fitness equipments:
Just two equipments work like symbol. Not many people uses them.

3, Natural Light

Skylight:
The natural light introduced into the hall promote the vitality.

CHAPTER 05. DESIGN

PRIVACY LEVEL

Measuring Method

Credits | Activities

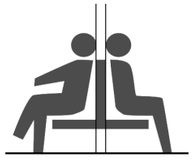
+10 activity just for self-pursuit | go to toilet, take a bath

9 sleep, rest

7 meeting with intimate friend

5 leisuring time spending in home

3 communication in neighborhood



1 activity in community, private working in office

Space users

+5 one people occupying

4 two people sharing

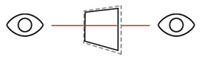
3 four people using

2 group purpose

1 different groups sharing

Space influencer

-1 connected view



2 passing through, entering

3 regular activity

Onion Organization

privacy level

04 courtyard part which connected to other courtyard and public space
front corridor in caretakers' living area

03 residents corridor connected differenct courtyards
shared laundry and kitchen
gardens on second and third floor
activity room

02 caretakers working space beside each units
outdoor garden

01 private office space in working area

00 office, central courtyard, transportation space

10 secret balcony

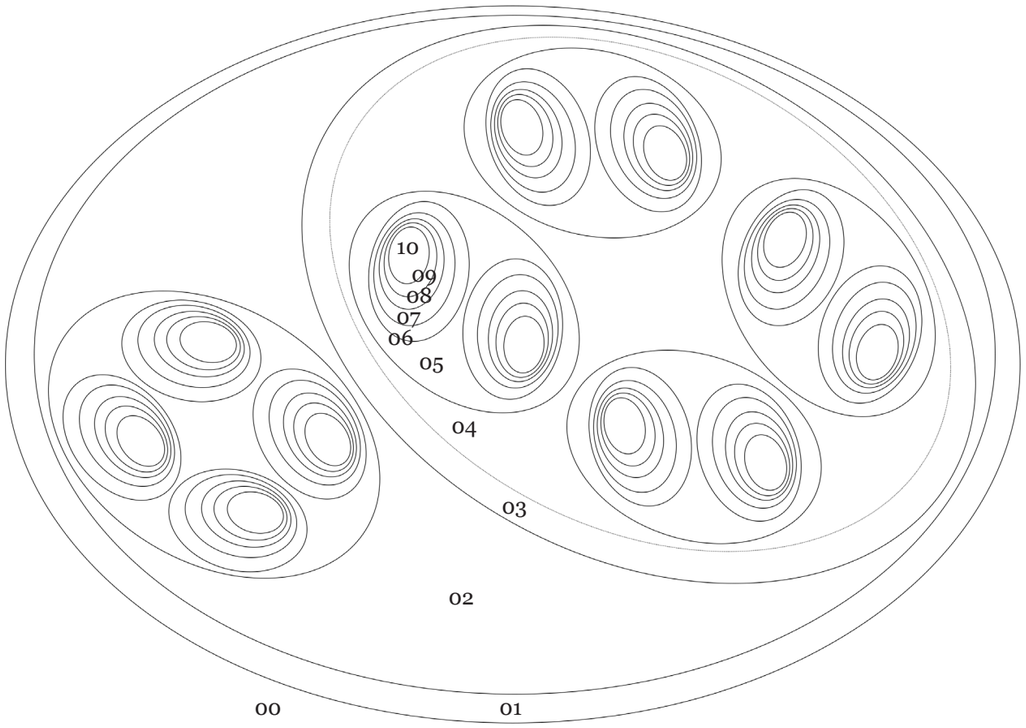
09 single bedroom

08 bathroom

07 shared living room

06 front corridor in residents units

05 courtyard



WALL GENERATION LOGIC

PROCESS

Divide into

5

types of grids of different densities

Change the proportion of each grids of different densities from evenly distributed to gradual changed proportion.
The proportion of the grid with lowest density is A

Subdivide each grids

B

times for higher density

Create openings with the proportion range of the openings changing from

C to C+40%

Consider specific sight tunnel and blocking view requirement through changing the proportion of openings according to view lines.
The proportion range of the openings changing from

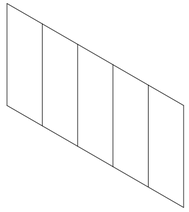
Sight tunnel 0.9 to 0.001
Blocking view 0.001 to 0.9

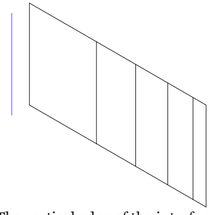
Decide the thickness of the wall, the thinnest part start from

D

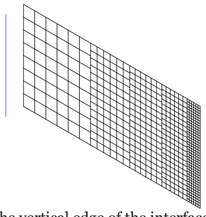
The thickness becomes 50mm wider each time when grid density becomes different.

LEADING





The vertical edge of the interface should be the reference line



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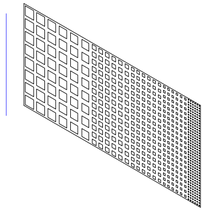

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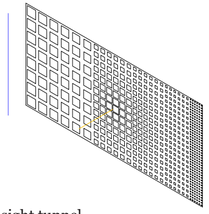
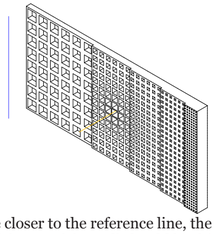
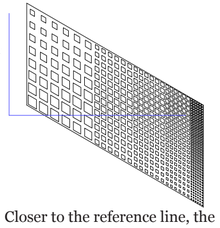


sight tunnel
Closer to the reference line, the proportion should be greater



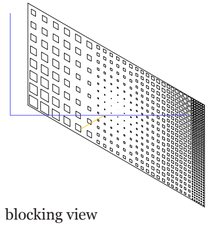
Be closer to the reference line, the thickness of the wall should be thinner

Slowing

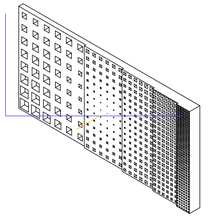


The diagonal line of the interface should be the reference line for proportion changes of the openings.

Closer to the reference line, the proportion should be greater



blocking view
Closer to the reference line, the proportion should be smaller



Privacy level requirements

Low privacy level, radical difference of the proportion
Maximum proportion 50%

A (proportion of the grid with lowest density)
Privacy level

23%	26%	29%	32%	35%	38%	41%	44%	47%	50%	53%
10	09	08	07	06	05	04	03	02	01	00

If the largest grid size is bigger than the size from the creteria form, then subdivide the grid once (B=1); If still too large, subdivide twice (B=2), etc.

Grid size
Privacy level

100	150	200	250	300	400	550	750	950	1150mm	1350mm
10	09	08	07	06	05	04	03	02	01	00

The end perception of the proportion range should be 40% higher than the starting perception.

C (starting proportion)
Privacy level

10%	15%	20%	25%	30%	35%	40%	45%	50%	55%	55%
10	09	08	07	06	05	04	03	02	01	00

Low privacy level, thin wall thickness
Control the thinnest part to ensure privacy

D (thickness)
Privacy level

250	250	200	200	150	150	100	100	50	50	50mm
10	09	08	07	06	05	04	03	02	01	00

WALL GENERATION LOGIC

PROCESS

Divide into

5

types of grids of different densities

Change the proportion of each grids of different densities from evenly distributed to gradual changed proportion.
The proportion of the grid with lowest density is A

Subdivide each grids

B

times for higher density

Create openings with the proportion range of the openings changing from

C to C+40%

Consider specific sight tunnel and blocking view requirement through changing the proportion of openings according to view lines.
The proportion range of the openings changing from

Sight tunnel 0.9 to 0.001
Blocking view 0.001 to 0.9

Decide the thickness of the wall, the thinnest part start from

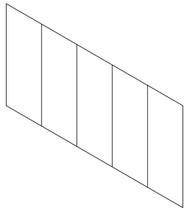
D

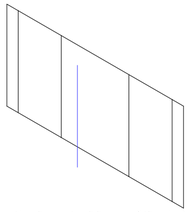
The thickness becomes 50mm wider each time when grid density becomes different.

Scaling down the openings towards inside direction when meet the entrance

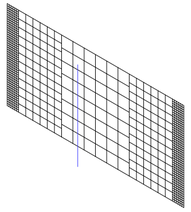
Evenly divide the thickness into 50 mm
The end scale factor should be E

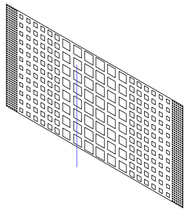
Entering

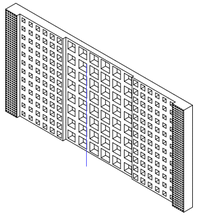


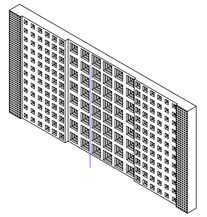


The vertical central line of the interface should be the reference line.









Privacy level requirements

Low privacy level, radical difference of the proportion
Maximum proportion 50%

A (proportion of the grid with lowest density)
Privacy level

23%	26%	29%	32%	35%	38%	41%	44%	47%	50%	53%
10	09	08	07	06	05	04	03	02	01	00

If the largest grid size is bigger than the size from the creteria form, then subdivide the grid once (B=1); If still too large, subdivide twice (B=2), etc.

Grid size
Privacy level

100	150	200	250	300	400	550	750	950	1150mm	1350mm
10	09	08	07	06	05	04	03	02	01	00

The end perception of the proportion range should be 40% higher than the starting perception.

C (starting proportion)
Privacy level

10%	15%	20%	25%	30%	35%	40%	45%	50%	55%	55%
10	09	08	07	06	05	04	03	02	01	00

Low privacy level, thin wall thickness
Control the thinnest part to ensure privacy

D (thickness)
Privacy level

250	250	200	200	150	150	100	100	50	50	50mm
10	09	08	07	06	05	04	03	02	01	00

E (scale factor)
Privacy level

0.5	0.46	0.42	0.38	0.34	0.54
01	02	03	04	05	00

0.3	0.26	0.22	0.18	0.14
06	07	08	09	10

WALL GENERATION LOGIC

PROCESS

Divide into

5

types of grids of different densities

Change the proportion of each grids of different densities from evenly distributed to gradual changed proportion.
The proportion of the grid with lowest density is A

Subdivide each grids

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times for higher density

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C to C+40%

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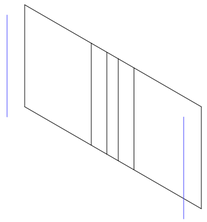
The proportion range of the openings changing from

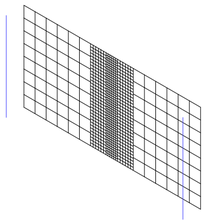
Sight tunnel 0.9 to 0.001
Blocking view 0.001 to 0.9

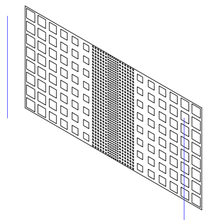
Decide the thickness of the wall, the thinnest part start from

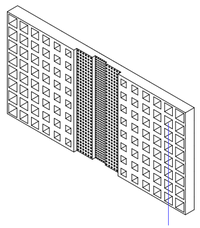
D

The thickness becomes 50mm wider each time when grid density becomes different.



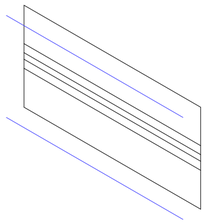


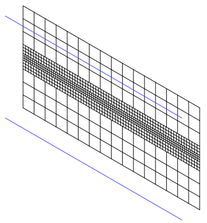


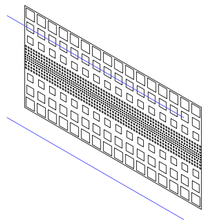


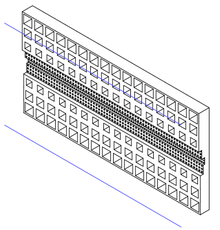
The changing logics are always reversed from the “leading” process

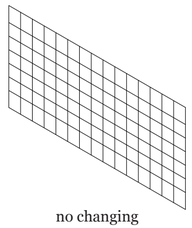
Staying

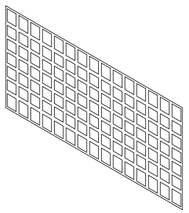


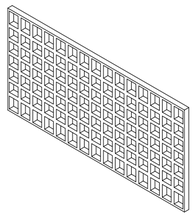












no changing

preventing

The outcome is reversed from the “leading” process

Privacy level requirements

Low privacy level, radical difference of the proportion
Maximum proportion 50%

A (proportion of the grid with lowest density)
Privacy level

23%	26%	29%	32%	35%	38%	41%	44%	47%	50%	53%
10	09	08	07	06	05	04	03	02	01	00

If the largest grid size is bigger than the size from the creteria form, then subdivide the grid once (B=1); If still too large, subdivide twice (B=2), etc.

Grid size
Privacy level

100,	150,	200,	250,	300,	400,	550,	750,	950,	1150mm	1350mm
10	09	08	07	06	05	04	03	02	01	00

The end perception of the proportion range should be 40% higher than the starting perception.

C (starting proportion)
Privacy level

10%	15%	20%	25%	30%	35%	40%	45%	50%	55%	55%
10	09	08	07	06	05	04	03	02	01	00

Low privacy level, thin wall thickness
Control the thinnest part to ensure privacy

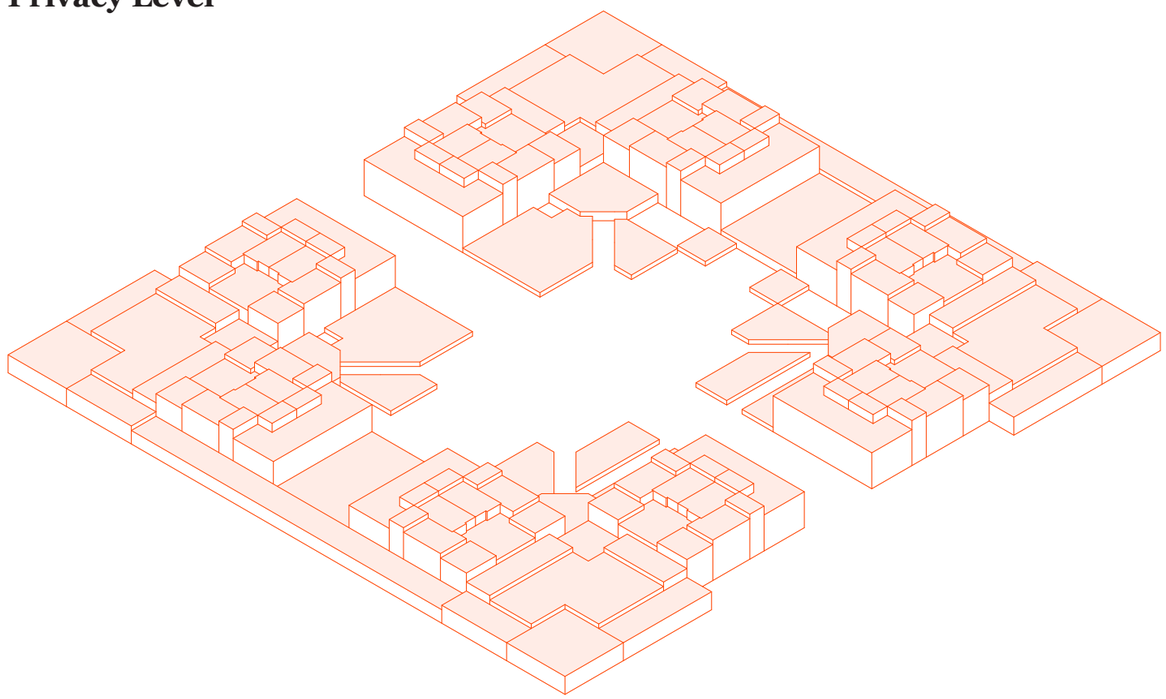
D (thickness)
Privacy level

250,	250,	200,	200,	150,	150,	100,	100,	50,	50	50mm
10	09	08	07	06	05	04	03	02	01	00

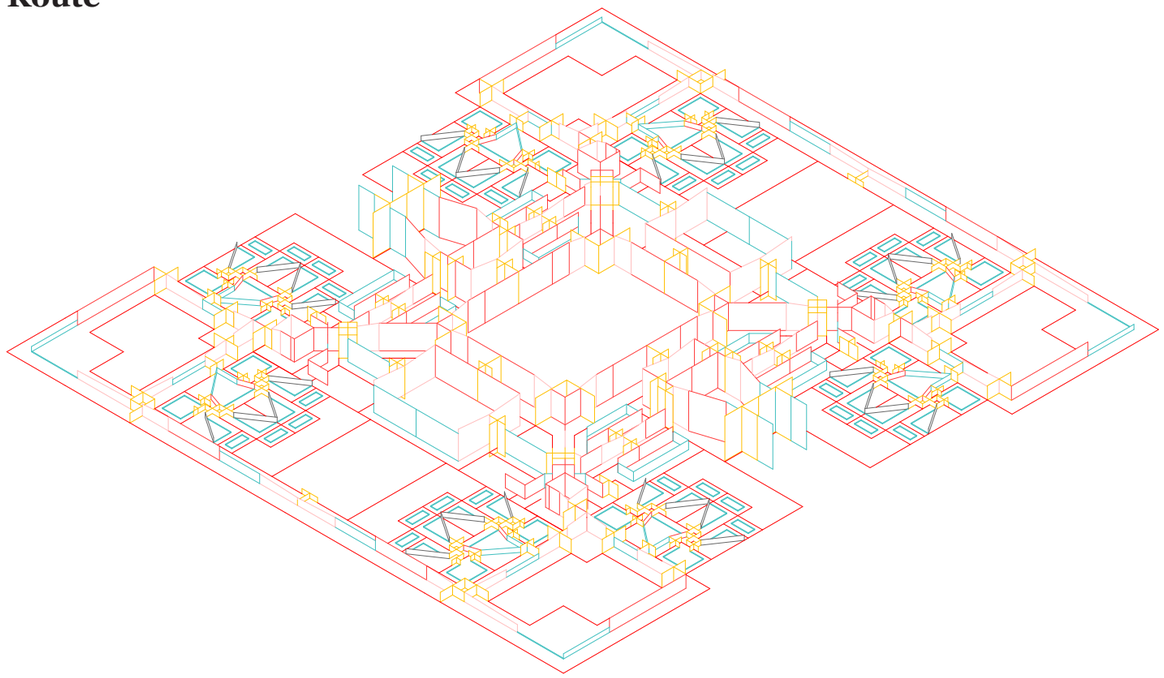
ANALYSIS DIAGRAM

First Floor

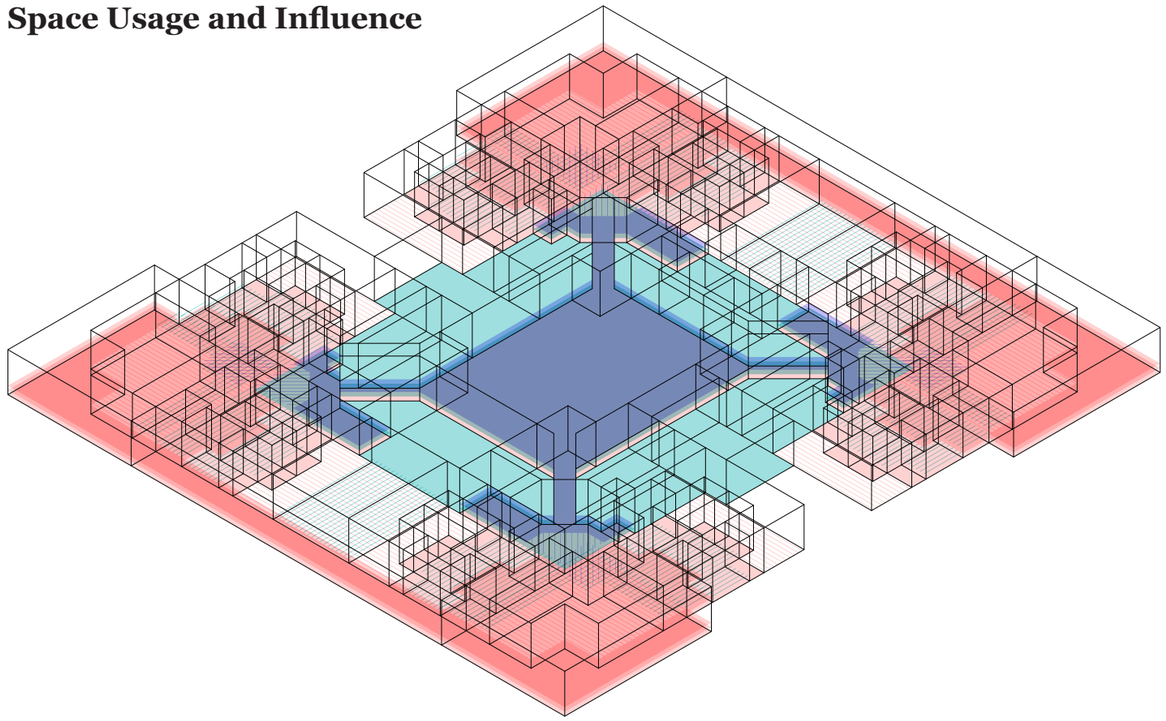
Privacy Level



Route

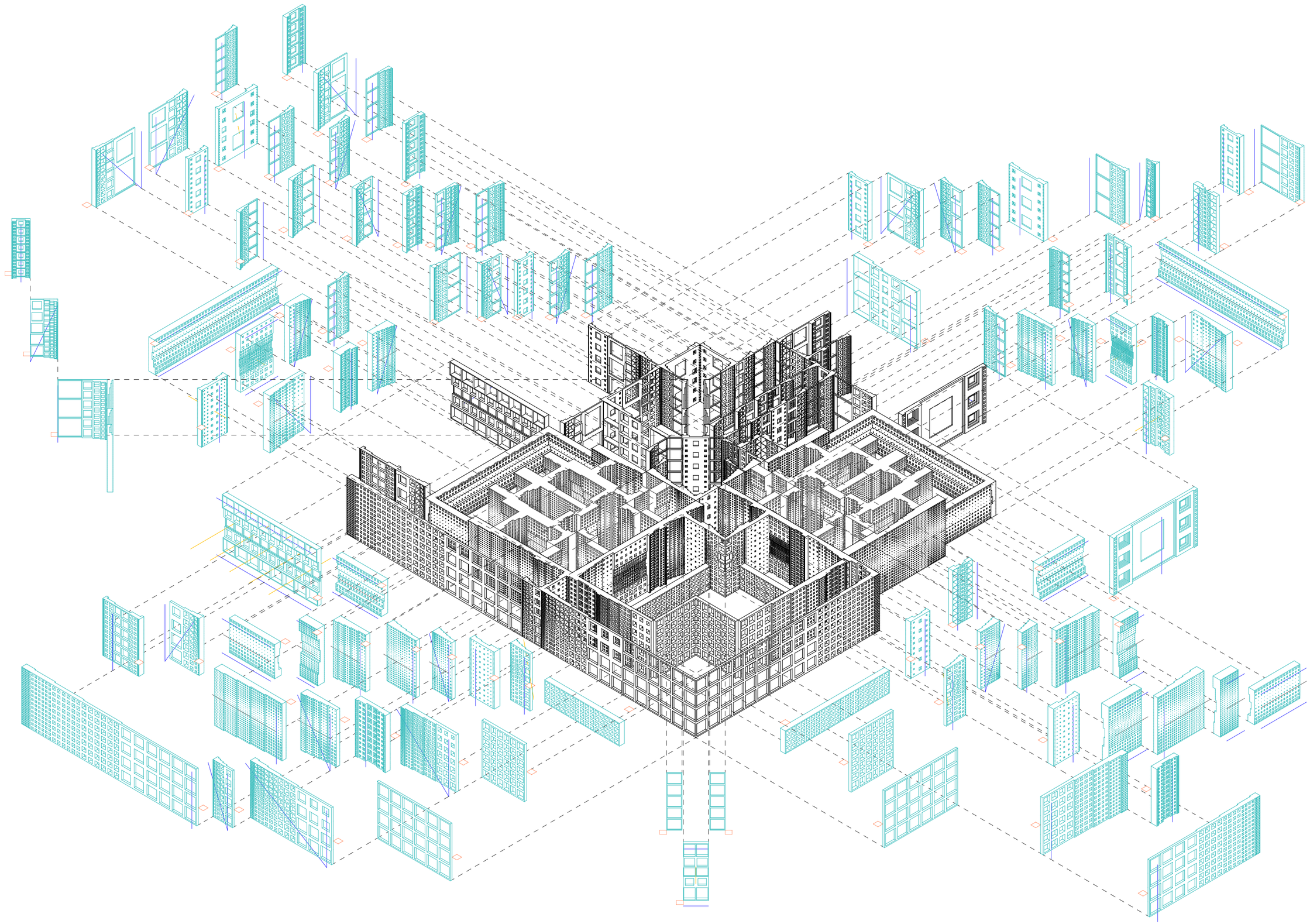


Space Usage and Influence



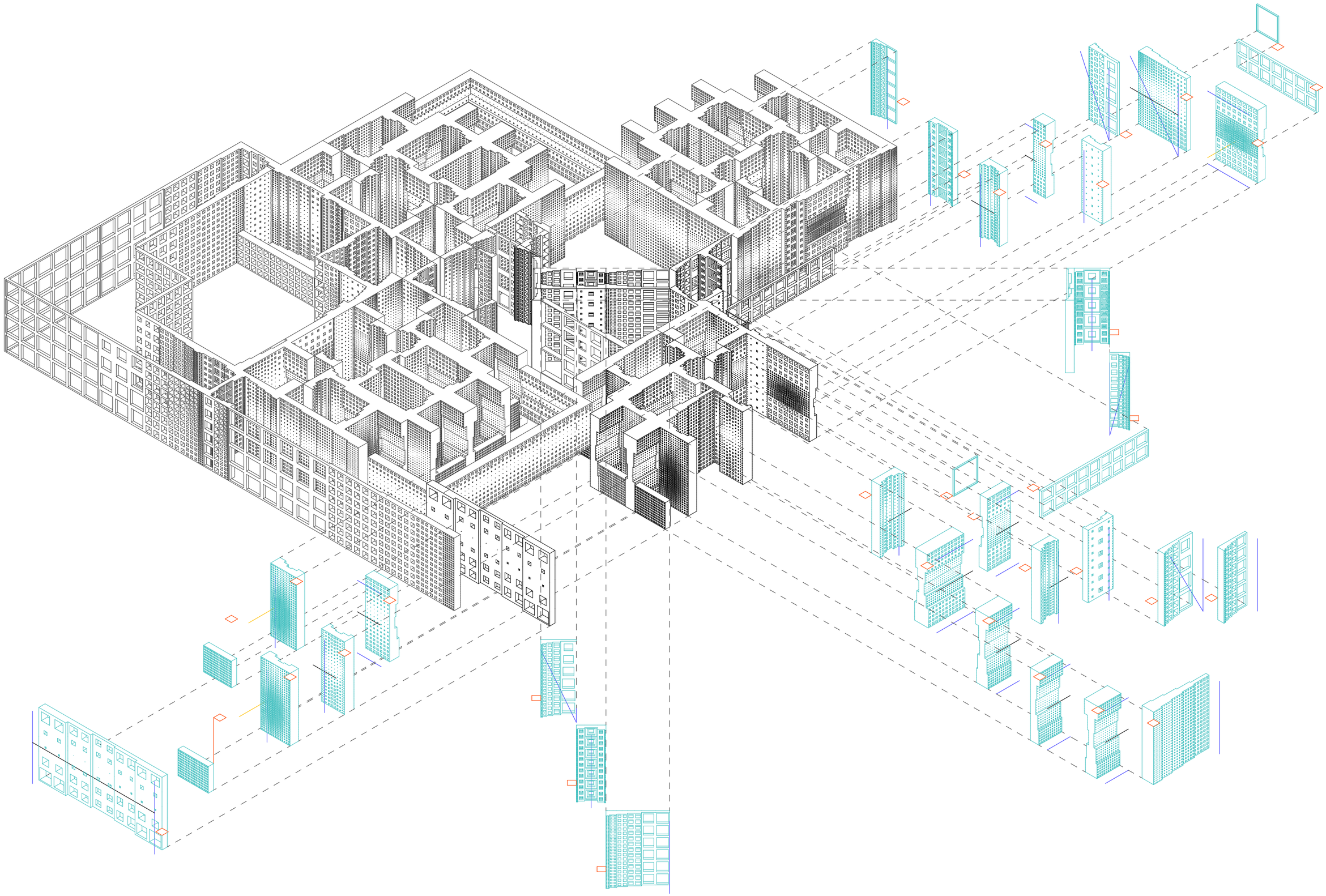
WALL UNITS EXPLOSION

1/4 Corner of First Floor



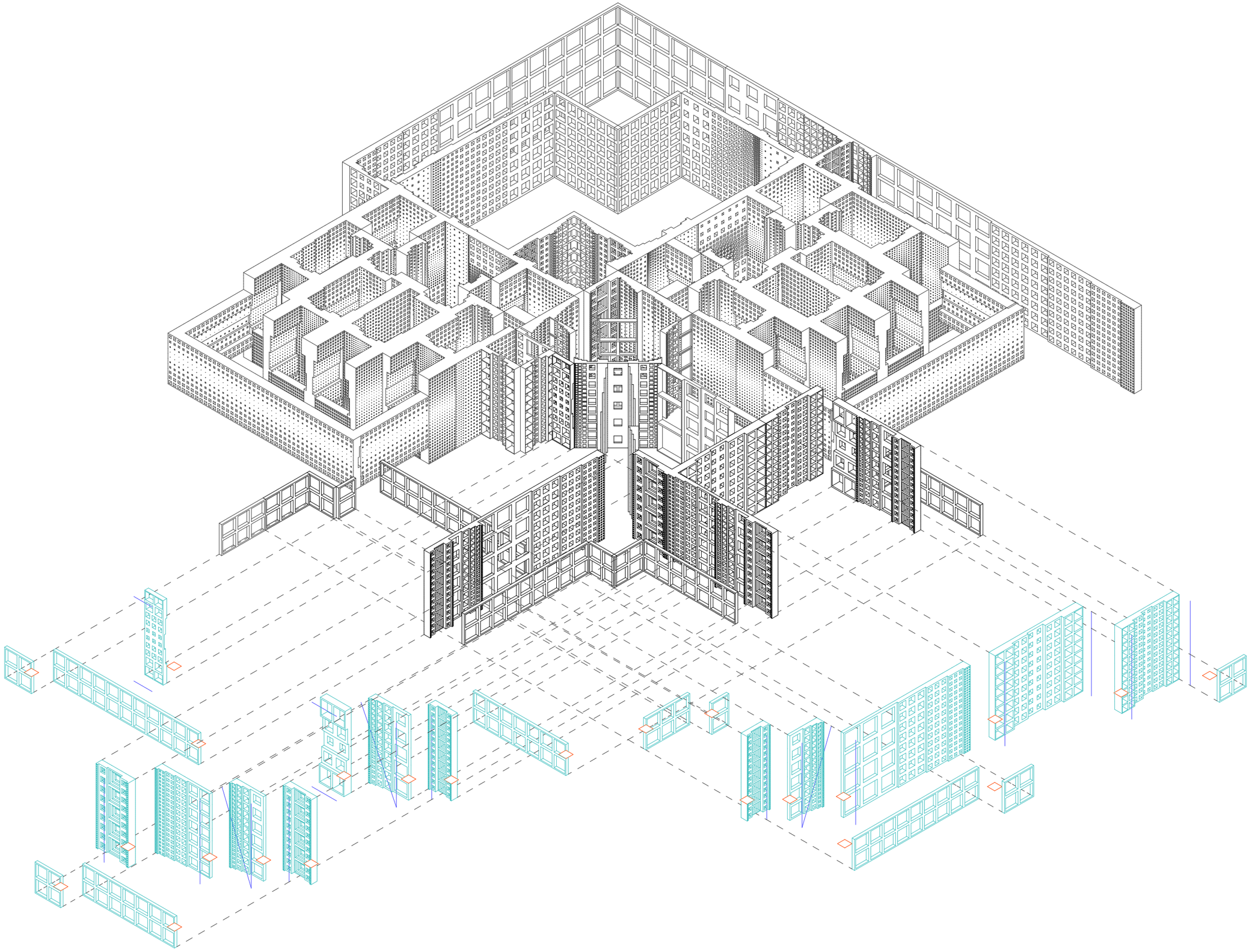
WALL UNITS EXPLOSION

1/4 Corner of Second Floor



WALL UNITS ON THIRD FLOOR

1/4 Corner of Third Floor



PASSAGE TOWARDS RESIDENT UNIT

COURTYARD IN RESIDENT UNIT

PRIVATE BALCONY FACING GARDEN

PERSPECTIVE SECTION

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