

A Vision to Achieve Minimalist: Negative Space in interior design by Using Hidden Furniture

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ABSTRACT:

At the present time, there has become an urgent need to use small spaces in order to keep pace with the global economic conditions, which make our approach towards minimal a necessity. Small spaces require a special design that achieves a balance between movement in narrow spaces and the size of furniture, so how do we achieve the equation? Therefore, we think about applying the concept of negative space to determine the ratio of the of the space contents of furniture to the available movement pathways in order to achieve a sense of visual and psychological balance for the user inside the space. The negative space has many applications, hidden furniture in its various forms is the most important application. So, the aim is to change the traditional space design into a hidden design that fits with the small space, this new vision is a practical application of the principles of the minimalism, which is now a global trend in design.

Research Problem:

Interior design and regular furniture do not suit the design of small spaces, and therefore new design solutions must be resorted to, such as the hidden furniture, which achieves the minimalist concept in small spaces.

KEYWORDS:

Minimalist concept – Hidden furniture – Negative space.

الملخص:

في الوقت الحاضر ، أصبحت هناك حاجة ملحة لاستخدام المساحات الصغيرة من أجل مواكبة الظروف الاقتصادية العالمية ، مما يجعل نهجنا تجاه الاختزالية ضرورة.

تتطلب المساحات الصغيرة تصميمًا خاصًا يحقق التوازن بين الحركة في المساحات الضيقة وحجم الأثاث ، فكيف نحقق المعادلة؟ لذلك نفكر في تطبيق مفهوم الفراغ السلبي لتحديد نسبة قطع الأثاث إلى مسارات الحركة المتاحة من أجل تحقيق التوازن البصري والنفسي للمستخدم داخل الفراغ الداخلي. المساحة السلبيه لها العديد من التطبيقات ، والأثاث المخفي بأشكاله المختلفة هو التطبيق الأكثر أهمية. لذلك ، الهدف هو تغيير تصميم الفضاء التقليدي إلى تصميم مخفي يتناسب مع المساحة الصغيرة ، هذه الرؤية الجديدة هي تطبيق عملي لمبادئ الاختزالية ، والتي أصبحت الآن اتجاهًا عالميًا في التصميم. يركز البحث على تصميم الأثاث غير المرئي كفكرة مختلفة تهدف إلى تغيير تصميم المساحة الصغيرة من تصميم تقليدي إلى تصميم غير مرئي كأحدى تطبيقات مفهوم الفراغ السلبي والذي يحقق ما يلي:

-التوازن بين قطع الأثاث وممرات الحركة.

-اختزال عناصر الفراغ المرئية التي لا تتناسب مع المساحة الصغيرة في عنصر واحد يتضمن جميع العناصر الأخرى غير المرئية.

-تبسيط الشكل النهائي للمساحة كمبدأ أساسي للتصميم الاختزالي الذي يحقق أقصى استفادة من المساحات الصغيرة. لمساحة السلبية توفر سهولة الحركة حول الأثاث وتدفق سهل بين الغرف وهي القواعد الأساسية للتصميم في المساحات الصغيرة. لذا ، ماذا لو كان الأثاث مخفياً؟ هل لذلك أي تأثير على المستخدمين في المساحات الصغيرة والتي أصبحت اختيار تصميمي لعدد كبير من المستخدمين؟

يعد التصميم الداخلي والأثاث المخفي تطبيقاً مهماً للمساحة السلبية. لا يوجد فوضى تلفت الأنظار ، فقط مساحة بها مساحة كافية للاسترخاء

الكلمات الرئيسية

الاختزالية، الأثاث المخفي، الفراغ الداخلي السليبي

Research Objective:

- 1-Referring to the importance of using hidden furniture instead of regular furniture as an application of negative space.
- 2-Simplifying the final form of space as a basic principle of minimalist design by using hidden furniture.

Research Methods:

Analytical Approach
Projects Analysis / Case Studies
Comparison

Research Limits:

- Formulation of research aims and objectives.
- Implementation of data collection method.

Research Procedural Steps:

- Studying of small spaces design considerations.
- The concept of negative space and its applications in interior design.
- Hidden furniture as an application of negative space.
- Using hidden interior design and furniture to achieve minimalist in small spaces.
- A comparison between using Regular or Hidden furniture.

-Introduction

Small spaces, which have become widespread in recent times due to the high cost of construction. The interior design of this spaces needs special design that achieve the function according to the available space. Therefore, the research focuses on the design of invisible furniture as a different idea that aims to change the design of the small space from a traditional design to a hidden design by following the concept of negative space, which achieves the following:

- The balance between the mass of the elements like furniture and the voids of the movement pathways.
- Minimize the visible space elements that do not fit the small space into one element that includes all the other hidden elements.

-Simplify the final form of the space, which is a basic principle of minimalism design that achieve the most out of the small spaces.

First: A Study of Small Spaces (Studio) Interior Design

Starting with a study of the architectural plan, passing through the various stages of design, all the way to the implementation stage of a small apartment, the studio has a special interior design that differs from the design of other spaces. The elements of design are changeable within the space according to the requirements which suits this specific space.

Pic no. (1) shows small studio apartment design, this type of studio is designed for an eclectic, urban lifestyle where residents are expected to use their apartments to sleep and occasionally do some work.



Pic no.(1) : The Boston Waterfront studio apartment. ¹

The visual relationship created by the different shapes of the free forms connects these determinants to make the space different as it can be perceived with only two or one determinant while canceling the rest of the determinants. This trend is an invitation to change the idea of the interior design inside the cube towards interior design without limits.

So, what is the free form concept? How can it be used in interior design?

Architecture Plan Studio Space

Small spaces have open zone plan, so the main aim is to divide it to separate zones which suits different functions. There are many ways in which we can divide the space in studio apartment. From dividing bookshelves, loft beds or getting creative with color and textiles to using partitions system.

Example 1

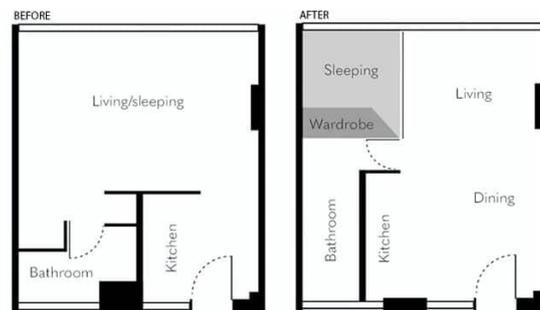
pic no. (2) shows singular urban shelter as an enclosed space where a single person can live and work. The apartment, open small space with different functional uses. The furniture is designed to suit the user needs with no extra space. the kitchen is a walk-through room to get to the living space, and there are stands rather than stairs to go down to the living area, which in turn is over a cellar-storage room. Simple multi-functional furniture to achieve the most of what we've got.



Pic no.(2): Design studio apartment (Urban Shelter , Madrid, Spain)²

Example 2

Boneca Apartment, a 24-square-metre studio apartment in the inner Sydney suburb of Rushcutters Bay. Shape no.(1) and Pic no.(3) show that the space is split in two. The kitchen lines the left wall before the inbuilt double bed featuring hidden storage. Between the kitchen and bed is a short corridor leading to the bathroom. A table for dining or studying in front of the door behind a two-seater sofa and the windows that line the facing wall.



Shape no.(1),Pic no. (3) Design studio apartment (Boneca Apartment, Sydney suburb of Rushcutters Bay).³

Elements of Design Characterize

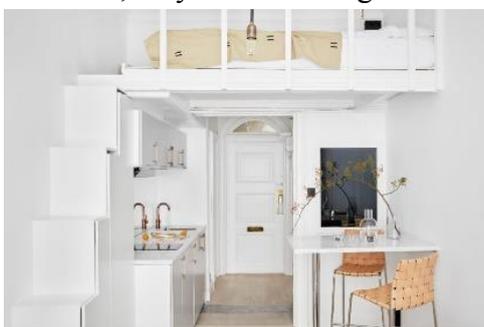
When choosing pieces of furniture to suit a small room, going minimal is the obvious option. Multifunctional Furniture is a must when we design a studio apartment. where we combine storage space with a room divider.pic no(4) shows a wardrobe with open shelves or drawers. It's not only is multifunctional, but it also creates a separate bedroom area. Plus, the bed has underneath storage which is useful in a small space.



Pic no.(4): Multifunctional furniture, wardrobe and bed design. ⁴

Loft Furniture

Pic no. (5) shows minimalism design with the loft bed above the kitchen and small dining space. The loft stairs have a double function, they're also storage.



Pic no. (5) Loft bed design unit. ⁵

Movable and Folding Furniture

The shelves and tables can be folded up when we no longer need it. for example, pic no. (6) shows the motorized movable wall (with 180 degrees rotating TV unite that can be used from bed or sofa) hosts hidden closet, dresser drawers, and clothing storage and when fully extended makes space fold-down bed.



Pic no.(6) : smart movable and folding bed unit. ⁶

Wall Mounted Furniture

With wall mounted furniture you will still be able to see the floor which is such an important visual solution for making a room feel bigger. Easily fold it down from the wall when needed

and fold it back up when not in use. Pic no.(7) shows foldable chair which is wall mounted with more space to help users to make the most of interior space.



Pic no.(7) : Wall Mounted Chair.⁷

Built-In Furniture

Built in units is a perfect idea to save space in small studio. Picture no. (8) shows customized wall unit with two sections. Lower section with two doors consisting of a master bedroom, and plywood shelves that is a built-in wood-lined with open dresser fixed at the end of the bed. Also, the upper section comprising the second sleeping area or a guest room with windows that can be opened to look out into the living room.



Pic no.(8) : Custom Wall Unit with Built-in Furniture.⁸

Small Spaces Design Considerations:

Design of small spaces follows some considerations:

- Prioritize the main space function.
- Invest wisely in essential furniture
- Make the most of what we've got.
- Use all the storage space we can get.
- Furniture selection and arrangement
 - 1)Align Furniture Based on the Shape of the Room.
 - 2) Group the furniture elements together according to their function.
- Save space by using curtains or sliding doors instead of normal doors (after all a normal door needs extra space to open up).
- Using Lighter colors. The result is a space that feels bigger and calmer.⁹

Second: Negative Space Concept and its Applications in Interior Design

The Concept of Negative Space Positive space = the space that's taken up with actual "stuff"; furniture, lighting, artwork, accessories. Negative space = the "empty" space around and in between everything else, more often than not highlighting and showcasing everything next to it.¹

The objects themselves, as well as the space around them, affect how they relate to each other. We call this void surrounding thing the negative void. This is what appears in the relationship of furniture pieces to each other within the same space and their ratio to the ratio of movement paths (positive and negative).

The interior design of the studio requires reducing pieces of furniture and increasing negative spaces to achieve the required balance for movement and use in a small space, and it is considered a design solution that cannot be overlooked.

The Importance of Using Negative Space Concept in Interior Design

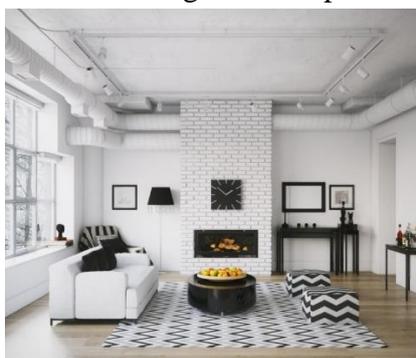
Negative Space – or the areas in between objects – is a vitally important factor in successful interior design.

Negative space in interior design is the empty space between two pieces of furniture, or between furniture and a wall, or around accessories.¹

Positive Space is the space elements like furniture, lighting, artwork, etc. Negative space is the empty space around this element. pic no. (9) shows that a good interior design achieves the balance between positive and negative and their ratio to the ratio of movement paths. The importance of negative space can be seen in any type of design: from minimalist to the maximalist. Negative space often gives positive visual content.

To create interior design negative space there are simple tips:

- Focus on furniture elements that have a functional purpose.
- Dispensing with extra and complementary pieces of furniture, which reduces clutter.
- Make sure of achieving negative space through the good movement paths between pieces of furniture.
- Achieve the required balance between negative and positive in the interior space.



Pic no.(9) : The balance between positive and negative interior design.¹

2

Shape no. (2) shows small apartment layout with negative space that the living room is big enough to have this whole sitting area placed in the center, which by the way gives the illusion of a much bigger space and keep the easy movement around the furniture. The arrangement of seating units and their location relative to the wall.



Shape no. (2) Small Apartment Layout with Negative Space.

The required balance that people can move from room to room smoothly. Interior design with negative space focus on the most important pieces of furniture and its relationship with the walls which enhance people circulation and create space with visually pleasing and relaxing.¹

The Applications of Negative Space in Small Spaces

The perfect balance between the positive and negative space will create a striking space which will enhance the interior design. That Negative space in interior designing will be an additional element which is more felt than seen.

Table no. (1) shows many applications of negative space in small spaces.

Example 1	
Colors	<p>Visual weight relates to the actual weight of objects. Dark-colored objects will also look heavier visually than light-colored objects.¹</p> <p>Color is also an element you must consider in negative space to create a sense of visual comfort and harmony. Neutrals and whites do not necessarily mean that you are going to create a calm space, although these light colors help. Going for just cool colors is also not what is meant here. You can have warm, vibrant colors and still make the space feel harmonious.</p> <p>Contrasting colors red and blue would normally feel intense, but also could suits negative space.¹</p>

Example 2	
	
Wall Patterns	A symmetrical wall pattern can be chosen for the walls, as it will create both negative and positive areas. Tiles along with patterns will also accomplish a balance between both types of spaces. ¹
Example 3	
	
Wall-sized Glass Windows without Curtains.	Wall-sized windows opening to outdoor areas like the garden or lawn, can in fact create a feeling of abundant space and can be a great backdrop for any element placed in the room. So, glass paneled wall-sized windows can make great negative space. ¹
Example 4	
	
Declutter by the absence of cushions.	The absence of cushions and throws creates a negative space, allowing the neutral sofas to recede against the walls and enticing the eye through the space to the window. ¹ Using lesser items and spacing them out helps focus not just on the negative space, but the positive space as well.

Example 5	
	
Hidden Furniture	<p>Hidden furniture is a smart system which create negative space. Folding built in bed unit makes the space appear larger when not in use, while providing a good space flow. Then the bed becomes hidden to show another use of the same foldable unit, which is a desk that occupies less space and thus allows for better movement.¹</p>

Table no. (1) Many Applications of Negative space in small spaces.²

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So, as we have seen, negative spaces have a great significance in designing interiors. It makes a great deal of difference when you use small space to balance different visual elements at the same time. By placing furniture in a certain way, we can easily create zones in small spaces.

Third: Hidden Interior and Furniture Design as an Application of Negative Space

Negative space Provides easy movement around furniture and easy flow between rooms which is the essential rules of design in small spaces. So, what if the furniture is hidden? Is that having any effects on users in small spaces?

Hidden interior design and furniture is an important application of the negative space. There is no clutter to catch the eye, just a space with enough area to relax and get away.

Hidden Interior Design

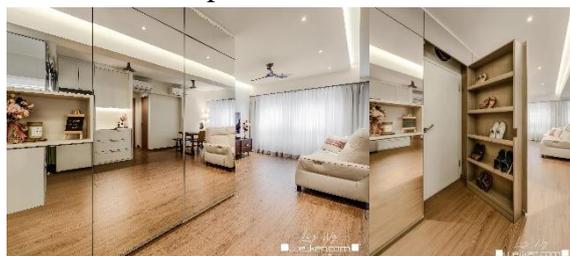
The design of the space is based on a system of separating a specific area from the internal space using a partition system, to be hidden at sometimes. It is not visible to the user as if it does not exist until the need to use. The two pictures no. (10,11) show this idea that the space is simpler than it appears, as this allows all the details of the hidden area to disappear, and thus reduces visual clutter.



Pic no. (10,11): Hidden interior design using partitions system.²

1

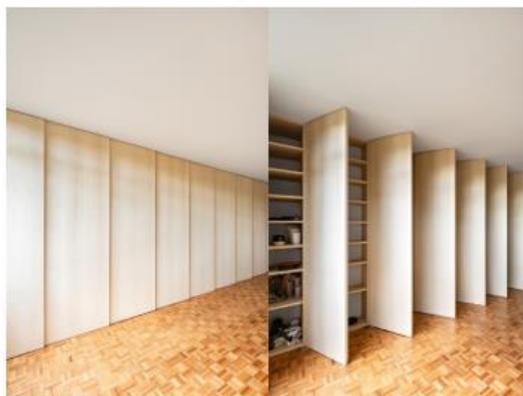
Hidden interior design using hidden door is another system. Hidden door has many types (Hidden Door Beside TV Wall, Double Swing Hidden Door, Pocket Sliding Hidden Door, Hidden Door with Shelves and Slatwall Hidden Door). The purpose of a hidden door is to hide a particular entrance to a room. The room can be a library, a bedroom, a storage space, or a tiny reading nook. It directly affects vision in small spaces and reduces clutter. pic no. (12) shows a minimalist hidden door blends with the wall or backdrop's color making its frame entirely hidden from viewed from a certain standpoint.



Pic no. (12) minimalist hidden door with mirrors cladding.²

2

The design of another apartment in Mexico City as an example of the application of the hidden interior design system. pic no. (13) shows that all unnecessary elements are removed such as dividing walls, false ceilings and decorations resulting in large open spaces. a wall of doors of 17 meters length along the entire depth of the apartment. The overlapping doors allow for easy access to storage, but also serve as kitchen, open bathroom and walk-along closet. Built-in and free-standing furniture pieces have been designed for the space.



Pic no. (13) Hidden interior design wall system.²

3

Hidden Furniture Design

We can use hidden furniture to design small spaces to make them appear larger, which is a new design vision that can change the visual effect of furniture pieces inside the small space. Hidden furniture is built into both the floor and the walls, which reduces the number of visible pieces of furniture that occupy space from the original space and lead to a feeling of discomfort. So, we focus on the importance of the effect of using of hidden furniture instead of regular furniture in the design of the studio which is achieving a balance between positive and negative.

Pic no (14) shows a “pivot door”. One of the hidden furniture units. The door is a closet door, behind it is a fold-out bed. The pivot door hides the bed and provides extra privacy when the bed is folded out. This way, users can spend the day comfortably while no need to use the bed.



Pic no. (14) One of the hidden furniture units “pivot door”.²

4

Hidden furniture elements enhance the visual weight especially in small spaces, that affects the users feel of comfort and relax. Small apartment that featured a lot of space-saving features. Pic no. (15) shows living space designed with hidden furniture system. Multi-functional built -in units like dining table disappears into the floor and the bed descends from the ceiling. The table rises electronically with a simple button press and disappears neatly into the floor to make the most of the space. the bed descended from the ceiling. The kitchen folded away into the walls that includes washing machine, cooker, sink, and all storage space.



Pic no. (15) Small Apartment Designed with Hidden Furniture System Built -in (Wall, Floor and Ceiling).²

5

Fourth: Using Hidden Furniture to Achieve Minimalism

Minimalist Concept in Small Spaces is avoiding unnecessary clutter and ornamentation, emphasize what's most important to the users, using simple forms, colors, and materials to achieve functional, comfortable spaces.²

6

The choice of furniture is very important to achieve Minimalism which suits small spaces interior design. The first step to achieve minimalism is decluttering. One benefit of minimalism is that you can visibly declare what is important to you. Then decide what you need to remove which is unnecessary elements of space, Remove Furniture and Other Large Items.²

The material items that don't support the negative space comfort are clutter.

Minimalism interior design key factors are:

-Neutral colors and delicate shades.

-Simple, clean lines.

-Practical, functional materials.²

8

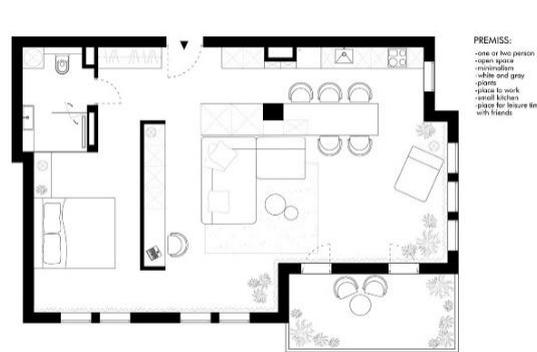
There is a new factor which is hidden furniture.

Minimalism Negative Space Example

In general, white and colors with hints of white are viewed as lighter colors. Lighter colors tend to reflect light, resulting in a space that looks brighter. When used on walls, lighter and cooler colors make the surface look as it is moving away from you.²

9

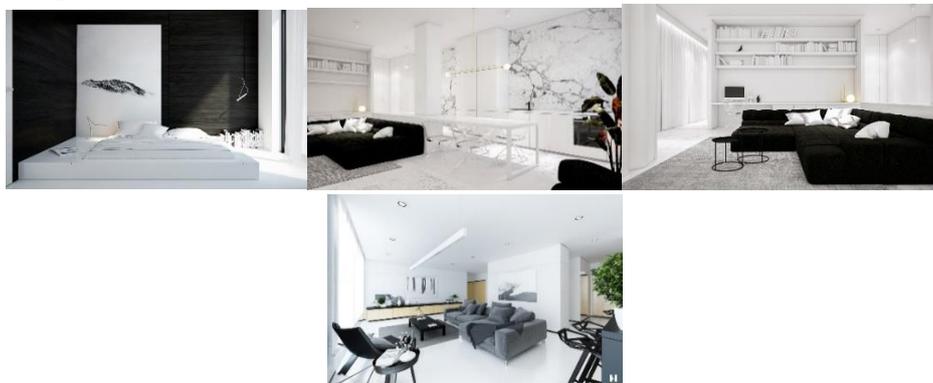
Shape no. (3) shows a studio apartment plan negative and positive design by clarifying the place of the furniture and the space around.



Shape no. (3) studio apartment as a negative space floor plan.

Pic no. (16) shows the studio apartment as a minimalist space. White walls, cabinets, marble, flooring, and lights. Furniture with clean lines looks overstuffed and super comfortable. The positive and negative space is clear by minimalist design. The negative space depends on the contrasts all the white in a space helps it feel less clutter. fireplace and tv built in is the wood storage built right into it.³

0



Pic no. (16) Different zones of a negative space studio apartment.

The balance between black and white, furniture and the space around, clear lines and soft materials of furniture and wall design are a practical application of minimalism. The color of the pieces of furniture is very influential, as black represents the positive inside the space, and the white represents the negative of the area surrounding the piece of furniture, which achieves balance. The design saves hidden storage, which equals the clean space visible to the user and achieves minimalism.

The Relationship between Hidden Furniture and Negative Space

Pic no. (17) shows the design of small apartment in Paris.



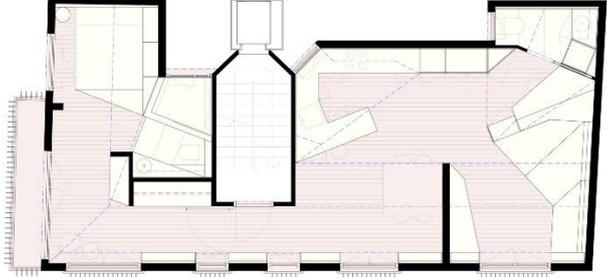
Pic no. (17) Studio Apartment in Paris with Hidden Furniture design.

Using a folding wall as a hidden interior system which hide some furniture pieces like bed unit which includes a storage space on the back to save more space.

A folding partition made it possible to achieve the two conflicting programs. Its different position. The users can choose to have either a larger room or a larger dining area, or to have the bedroom disappear completely into a cube. This hidden system creates free movement paths and affects the negative space. It also reduces the clutter caused by pieces of furniture that are not used at some times.³

Fifth: The Application of The Research

Table no. (2) shows A comparison to clarify the difference of using both Regular and Hidden furniture to achieve minimalism.

Example 1 Minimalism Apartment with Regular Furniture		
 <p>Open-plan interior design utilizing space-saving furniture for maximum floor space. Located in the Gracia neighborhood of Barcelona. By Architects Aureli Mora and Omar Ornaque.³</p>		
Negative Space		<p>Clear movement paths and balanced spaces as a negative space.</p>
Lines		<p>Clear minimal lines. Straight and broken lines with a balanced rhythm.</p>
Colors		<p>Pink and green pastel colors with white shadows add warmth to the interior. Harmony reflects comfort and relax.</p>

<p>Materials</p>		<p>blend of pine, glass, and white walls. Marble was used in several places.</p>
<p>Furniture</p>		<p>Multi-purpose furniture that works to keep the open-plan idea. Using regular built-in system which includes Wardrobes, beds, desks, and storage are combined in a unique way to optimize space.</p>

Example 2
Minimalism Apartment with Hidden Furniture



Argentona Apartment is a minimalist renovation located in Barcelona, Spain, designed by YLAB Arquitectos. A central open L-shaped space, connected to the gallery-garden and the inner courtyard.³

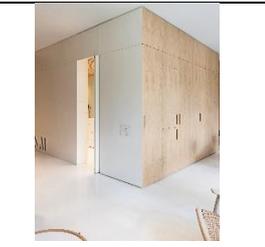
<p>Negative Space</p>		<p>Floor plan has the capability to adapt to inhabitants' needs, and significant space for gathering with family and friends. flexible sub-zone structure. For example, the kitchen/dining area is split into four sub-zones that are segregated into the cooking, washing, breakfast, and bar zones.</p>
<p>Lines</p>		<p>Clear straight lines and rectangular shapes which clearly insures minimalist concept.</p>
<p>Colors</p>		<p>White-lacquered cladding and warm-toned Capri sandstone floors reflect daylight to illuminate the interior.</p>
<p>Materials</p>		<p>Oak wood using in cabinets design. Both materials, wood, and lacquer, combine to perfection with the protected natural Capri sandstone.</p>
<p>Furniture</p>		<p>Using hidden furniture. The L-shaped plan she built, which is defined by floor-to-ceiling oak cabinets and sliding doors. holds the appropriate appliances, outlets, and storage for its purpose. And when a particular zone is not in use, its doors can be slid closed to be completely hidden. Storage was maximized by utilizing floor-to-ceiling custom cabinetry at the perimeter of the walls.</p>

Table no. (2) A comparison between using Regular or Hidden furniture in small apartment.³

Results and discussion

The comparison shows the different factors of minimalist in interior design by analyzing two examples of minimalist apartment. the first example designed with regular furniture and the second example designed with hidden furniture. Tables no. (3,4) shows the proportions assumed by the researcher based on the previous analysis which determine the ratio of clutter resulting from the use of each factor in the two examples.

Minimalism factors in Example 1				
Clutter Ratio	Colors (Two pastel colors +wood color)	Lines (Two lines type straight +broken)	Materials (Three types. Wood+ Glass+ Marble)	Furniture (Regular Furniture)
	Medium	High	Medium	Low

Table no. (3) Clutter Ratio of Using Regular Furniture.

Minimalism factors in Example 2 (Using Hidden Furniture)				
Clutter Ratio	Colors (White Natural wood shadows)	Lines (Straight lines)	Materials (Wood and stone)	Furniture (Hidden furniture)
	Low	Low	Medium	Nil

Table no. (4) clutter ratio of using Hidden Furniture.

The tables show the ratio of clutter resulting from the four minimalism design factors: (color, line, material, and furniture.

The ratio of clutter resulting from the use of regular furniture in the first example is more than the ratio of clutter resulting from the use of hidden furniture in the second example.

The Results of The Comparison between The Two Examples are:

- 1- The type of the furniture is a major influencing factor to achieve minimalism in small spaces.
- 2- The ratio of clutter is changeable according to the type of furniture which is (Regular or Hidden) built in system.
- 3- Hidden furniture as an application of negative space reduce clutter in small spaces.
- 4- According to the researcher's vision using hidden furniture instead of regular furniture in designing studio apartment is a new vision to achieve minimalism concept which make users feel that the space is larger.

Conclusions

We conclude from this research that the concept of hidden furniture is a new vision for the design of small spaces. Hidden furniture reduces all elements of space to the maximum possible degree, which achieves a balance between masses and spaces, which is what the concept of negative space aims at. As well as negative spaces suitable for movement and performing various functions with ease, although they are small spaces, in line with the fact that it has

become the ideal choice for most users at the present time. Hidden furniture is a factor of minimalism design, which is considered a global trend that keeps pace with economic and global conditions.

Recommendation

- Designers to apply the concept of negative space in small spaces to achieve balance between pieces of furniture and the surrounding spaces.
- Designers tend to use hidden furniture instead of regular furniture in designing small studio spaces to make them appear larger.
- Studio design companies to apply the concept of minimalism through hidden built-in furniture units to minimize all pieces of furniture as possible and reduce the cost.
- The factories pay attention to manufacturing units of hidden furniture and presenting them to the market at good prices to make them a choice that competes with regular pieces of furniture and allows users to buy them.

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