

PDH Academy

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Reviving Minimalism

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Reviving Minimalism Final Exam

- 1. Which of the following is a dictionary definition of minimalism?**
 - a. The reduction of clutter based on personal attachment to material objects
 - b. Form follows function
 - c. A style of art, music or design that uses very simple ideas or a very small number of simple elements.
 - d. Reduction of building costs based on elimination of non-functional elements.
- 2. In the application of minimalism to architecture, one common feature is the:**
 - a. Absence of embellishments or extraneous adornment
 - b. Use of Japanese elements
 - c. Addition of Miesian furniture
 - d. Essential use of glass and steel
- 3. According to the course material, which of the following historical buildings is not an example of minimalist architecture:**
 - a. The great pyramids of Egypt
 - b. The Ka'aba in Mecca
 - c. The hanging gardens of Babylon
 - d. The Taj Mahal
- 4. Who is credited with saying "Less is More"?:**
 - a. Walter Gropius
 - b. Ludwig Mies van der Rohe
 - c. Le Corbusier
 - d. John Pawson
- 5. What is the literal meaning of The Bauhaus**
 - a. Germanic house
 - b. International Style
 - c. House of Style
 - d. Building House
- 6. In the post-World War 2 era which of the following Scandinavian Architects had a major influence on American architecture?**
 - a. Eero Saarinen
 - b. Le Corbusier
 - c. Frank Lloyd Wright
 - d. Walter Gropius

7. **A key difference that distinguishes Modernism from Art Deco is:**
 - a. There is no distinguishing feature – both are synonymous.
 - b. Modernism was flamboyant while Art Deco was very highly rectilinear and geometric.
 - c. In modernism the emphasis is on form rather than ornament.
 - d. None of the above

8. **Oscar Niemeyer’s design for Brasilia is an example of which minimalist Architectural style?**
 - a. Art Deco
 - b. Modernism
 - c. Organic Architecture
 - d. Post Modernism

9. **How have Scandinavian and Japanese minimalist philosophies influenced design and architecture?**
 - a. They have provided step by step templates to facilitate direct emulation.
 - b. They have created design schools to promote and proliferate their design philosophies throughout America.
 - c. Both have promoted traditions of Zen Buddhism.
 - d. They have inspired other styles through ideological intensity.

10. **Which of the following are some characteristics of Scandinavian and Nordic minimalist design?**
 - a. Minimalist aesthetic
 - b. Understated design that follows function
 - c. Airy spaces filled with light.
 - d. All of the above

11. **Which of the following is not a minimalist philosophy?**
 - a. The International Style
 - b. Post Modernism
 - c. Hygge (Hoo-ga)
 - d. Lagom

12. **The Gateway Arch in St Louis, MO was designed by which Scandinavian architect?**
 - a. Alvar Aalto
 - b. Eliell Mortensen
 - c. Eero Saarinen
 - d. Arne Jacobsen

13. **Which of the following is not among Zen principles?**
- There is no such thing as “self”.
 - Material fulfillment.
 - Life should be simple.
 - Build a community and contribute to it.
14. **Which country is considered the most minimalist country?**
- Egypt
 - Denmark
 - Sweden
 - Japan
15. **Which of the following are among the Zen principles for minimalist design:**
- Be formless
 - Be consistent.
 - Simplicity
 - All of the above
16. **Kanso is a Japanese minimalist design principle that emphasizes:**
- Asymmetry
 - Tranquility
 - Simplicity
 - Landscaping
17. **What dramatic change occurred with Japanese architecture after the Meiji Restoration period (1868)?**
- It adopted western-style architecture, mainly English, French, German and then American.
 - It shifted towards minimalism and influenced the creation of the Bauhaus.
 - It became very nationalistic, reverting back to traditional philosophies like Keiretsu
 - The Meiji restoration was political, and it had no impact on design and architecture.
18. **According to the course material, which of the ideals of minimalism offers the key to the longevity of the movement and its confluence with NetZero and sustainability trends?**
- Socially beneficial solutions
 - Low-cost approach
 - European origins
 - Support from major corporate firms.

19. Which of the following is not a type of minimalist building type??
- A generic barn.
 - An industrial “fit for purpose” building.
 - A Palace
 - A traditional mud hut.
20. NetZero is a reaction to the _____ of natural resources and the waste created which cumulatively generates a cycle of wasteful pollution and toxic byproducts accelerated by mass consumerism.
- thoughtful
 - over utilization
 - industrial
 - None of the above
21. Which of the following is not a design principle shared by NetZero and minimalism?
- Avoidance of technological solutions
 - Less is more / reduce energy and unnecessary elements.
 - Emphasize natural lighting.
 - Use of natural, durable, and sustainable materials
22. As much as _____ of all building materials delivered to a typical construction site can end up as waste?
- 25%
 - 30%
 - 35%
 - 44%
23. In the post COVID era, as people reassess the “meaning of life”, which of the following is a trend entering into mainstream thinking?
- Giving up on all material things
 - Avoid going out of the home.
 - Minimize new building construction.
 - Consider how much materialism and development is the right amount.
24. Minimalism in the 21st century is less about a design style than a way of thinking and applying that process across all _____ of the _____ and the user experience.
- Dimensions, design
 - Materials, project
 - Regions, world
 - Members, team

25. **Frank Lloyd Wright's furniture designs were:**
- Very minimalistic and devoid of patterns
 - Universal and generic
 - Generally specific to a building
 - Borrowed n style from Japanese tea houses.
26. **While industrial buildings are minimalist in design as far as being "fit for purpose", where do they lack adoption of truly minimalistic design?**
- Creating interesting forms
 - Creating ugly structures
 - Owners are disinclined to use quality materials.
 - None of the above
27. **Which style of architecture is Frank Gehry known for**
- International Post Modernism
 - Minimalism
 - Futurism
 - Deconstructivism
28. **Which prominent architect of the 21st century is associated with futuristic architectural design??**
- Zaha Hadid
 - Richard Meir
 - Renzo Piano
 - John Pawson
29. **In broader building sectors, which elements of minimalist architecture elements are gaining traction?**
- Simplified designs
 - Better materials
 - More integration of nature in design
 - All of the above
30. **Per a 2022 study by IISD, the production of building materials and construction activities are responsible for _____ of global energy related greenhouse gas emissions.**
- 6%
 - 10%
 - 20%
 - 31%

REVIVING MINIMALISM – A Clean, Sustainable Lane on the Road to Net Zero

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Disclaimer Notice:

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Course Summary

One of the defining movements in Architecture since the dawn of the 21st century has been the shift towards “green” and “sustainable” buildings. Architects are increasingly pushing to make their designs more energy efficient, use more durable materials and reduce waste and minimize use of environmentally harmful materials. Against this backdrop, some professionals are revisiting the principles of minimalism and the functionality of the International Style and also rediscovering the inherent sustainable values found in the principles of Scandinavian design of the 20th century and also in the Zen inspired high quality but functional minimalism of traditional Japanese design principles.

The course will show how the influences of these design principles support sustainable and eco-friendly design and construction.

Course Objectives

The objectives of the course are 4-fold:

1. Examine the historical basis of minimalist architecture principles and break these down into elements that bear relevance to the current challenges for design professionals.
2. Examine notable Scandinavian and Japanese architecture, furniture and industrial design and see how minimalism provided a basis for reduced waste, higher quality, and durable work. Based on these examples, the application towards future design trends will be discussed.
3. Illustrate how some of the notable emerging works of architecture are incorporating these design principles to “lighten” their work in conjunction with technology to add functional longevity to a timeless design.
4. Consider whether a resurgence of minimalist design is likely to be a niche movement, a temporary fad or a more lasting foundational shift in design.

Learning Objectives

- Understand minimalist design principles.
- Similarities and differences between Scandinavian, Bauhaus, and Japanese minimalism
- How minimalist design supports NetZero, sustainable design.
- Influence of industrial and furniture design on architecture and sets up trends in design.
- Is an emerging interest in minimalism a potential mainstream movement?

Course Structure

- The course on Reviving Minimalism, or Minimalist Architecture is a two-part course broken down as follows:
- PART 1 – Introduction to Minimalist Design
- PART 2 – Minimalism as a Sustainable 21st Century Option

PART 1 – INTRODUCTION TO Minimalist Design – Rev 0

1.1. What is Minimalist Design?

Minimalist design, as the name suggests, is essentially the reduction of design to its barest elements stripping out any superfluous appendages or ornamentation. The concept is a subset of the broader minimalism movement that has its roots in the art world. According to Oxford Learner's dictionaries, minimalism is “a style of art, music or design that uses very simple ideas or a very small number of simple elements”¹. Expanding on this theme, one can find a variety of definitions and descriptions for minimalism, minimalist design, minimalist art, architecture, music and so on. But all are adaptations of this fundamental theme. In the context of Architecture as it has evolved in the 20th and 21st centuries, the concept of minimalist architecture is to strip everything down to its essential quality and achieve simplicity.¹ The idea is not completely without ornamentation², but that all parts, details, and joinery are considered as reduced to a stage where no one can remove anything further to improve the design.³ As such whenever a building design responds only to its functional and environmental needs it can be considered minimalist provided that any embellishments have a valid reason for application. On the basis of this general definition, there are several categories of building typologies that could be considered minimalist. For example, most industrial buildings are built as “fit for purpose”, meaning that only what is essential for the building to perform its function is considered in the design. The main driver is cost and a pure engineering mindset with the result that the building is purely an assembly of spaces and facades that have no “design” consideration, only functional necessity. That is not to say that these are necessarily rectangular boxes without any complexity of form. On the contrary, the pure functionality can result in some elaborate and intricate shapes as illustrated in the pictures. Similarly, at the other extreme, traditional rural villages and settlements in poor, non-industrialized countries are composed of very basic structures that serve to provide only the most essential functional needs for shelter and privacy. Yet, these too can range from the proverbial “mud hut” or the basic barn to intriguing compositions of forms and spaces that evolve from serving required functions rather than to satisfy a need to achieve a formal design or be embroidered with applied enhancements as the examples illustrate.

¹ Wikipedia

² Rossell 2005 p.6 as referenced in Wikipedia.

³ Pawson 1996 p.7 as referenced in Wikipedia



"Mud Hut" is licensed under CC BY-SA 2.0



"Taos Pueblo North Structure" by Bradley N. Weber licensed under CC BY 2.0



Generic Barn – Western USA. Photo: Author 2021



"Fit for Purpose" Industrial building – Western USA. Photo: Author 2021

Having grounded the notion that a minimalist approach is the absence of embellishments or extraneous adornment, it should be noted that this does not mean that minimalist design is a random outcome or that formal design principles and the application of aesthetics or a desire to achieve excellence in the arts must therefore not apply. The notion of Minimalist DESIGN or the application of minimalism to any art form is, in some ways, the most sophisticated and arguably among the hardest applications of design principles. The evolution of minimalist design concepts that we have generally come to understand in the art and architecture fields today are a post-World War II feature and have a decidedly western cultural centrality to them even though there are oriental influences that merit considerable credit for the influence they have provided.

1.2. Some Historical Context

In architecture today, minimalist design is associated with Northern European influence, particularly from Nordic or Scandinavian countries. Recently, appropriate credit has also extended to Japanese design and traditional architecture. Undoubtedly both of these sources

are among the best honed and qualitatively the most developed and influential of the minimalist design traditions in the modern era. However, it would be erroneous to say that these societies own the legacy of minimalist architecture and design.

The idea of simplicity as a source for design purity, spiritual awareness and social harmony is not new. Over the ages, the pendulum has oscillated between purist forms and extravagant ornamentation and decoration. One can argue that the pyramids of Egypt represent a very pure geometric, albeit grand, expression of minimalist architectural form that has endured the test of time even as all the superfluous paint and applied caricatures have faded into oblivion. They stand as testament to the use of minimalism in form to express the ultimate grandeur of an empire. The ancient Hanging Gardens of Babylon or the oversized ornament laden colonnades and palaces of Rome would demonstrate the opposite extremity of the pendulum.

The above examples highlight how societies use art and architecture to stage their values for posterity. The Egyptians, with their interest in mathematics and esoteric fascination with the afterlife, reflected this in their architecture and arts that have a reductive, formal purity focused more on their gods than on humans. The Romans, on the other hand, were more involved with conquests, arts and leisure and that is reflected in the decorative nature of their art and architecture with extravagant ornamentation and large public places that signified a society with extraneous wealth, leisure time and a preoccupation with more worldly, human endeavors.

Religious architecture has often been linked to extreme ornamentation across the globe with most prominent examples associated with religious practice being replete with statues, artwork, calligraphy, sculptures, ostentatious use of expensive finishes, precious metals and even gemstones. Yet, one striking example stands out as a pure example of minimalism: The Ka'aba in Mecca which is the holiest shrine in the Islamic faith. It is the symbolic center of the world for followers of the faith and the directional focus of their daily prayers. Its architectural significance is the purity of the form – an almost perfect cube (Although that was not the original shape, it was reduced to this pure form), the building is built of black stone blocks with no physical ornamentation. Its proportions and purity of shape are similar to the 21st century Apple Store on 5th Avenue in New York. Apple has built its reputation on minimalist design and purity of form. Steve Jobs, the company's founder created his NeXT computer in the shape of a cube and as the headline of Apple's first marketing brochure proclaimed in 1977, "Simplicity is the ultimate sophistication."⁴ In both of the buildings in this example, while they represent the core of minimalist design, the surroundings of both buildings have tacked on a series of elements and features that take away from the basic purity of the central form. The Ka'aba is now surrounded by one of the most lavish and ornate collection of structures and a gold embroidered cover that collectively mute its minimalist and pure origins. The Apple cube is surrounded by a series of fountains and picnic tables.

⁴ SMITHSONIAN Magazine, "How Steve Jobs' Love of Simplicity Fueled A Design Revolution", Walter Isaacson, September 2012.



Holy Ka'aba in Mecca Saudi



Apple Cube – 5th Avenue, New York, NY

The purpose of this brief discussion has been to establish that minimalism, as a philosophy and as an expression in art and architecture is not a new concept but, as we will discuss going forward, it has found a new, more structured and better-defined framework within which to evolve and be relevant, not only as a design style but also as a viable option for responding to some of the more immediate challenges for Architects.

1.3. Europe, Scandinavia, Japan and Minimalist Architecture in America

As alluded to earlier, much of our modern minimalist design philosophy in America is heavily influenced by the ideas that gained popularity around the post- World-War II era as prominent designers and architects from Europe gained new audiences in the Americas. Among the most lasting inspirations on American architecture were the works of Mies Van der Rohe, Alvar Aalto, Eliel and Eero Saarinen, Walter Gropius, Louis Kahn, and Le Corbusier, among others. Some have argued that even Frank Lloyd Wright had minimalist design tendencies in spirit, if not style. The main style of Architecture that resulted was not called minimalism but became popularized as the International Style or Modern Architecture. In this context “Modern” was a specific style, not a synonym for anything that is “contemporary” or “current”.

1.4. The Bauhaus & Modernism

In the art world that often parallels or mirrors Architecture, minimalism gained ground and it flourished in the 1960s and 1970s with Carl Andre, Dan Flavin, Donald Judd, Sol LeWitt, Agnes Martin and Robert Morris becoming the movement's most important innovators.⁵ Similarly in Architecture the popularity and influence of the International Style and Modernism also matured in the same time period. However, the genesis and early incubation of the movement started to take shape in Germany in the 1910s and culminated in the establishment of *The Bauhaus* (Literally “Building House” in German).

[The Bauhaus was founded in 1919 in the city of Weimar by German architect Walter Gropius \(1883–1969\). Its core objective was a radical concept: to reimagine the material world to reflect the unity of all the arts. Gropius explained this vision for a union of art and design in](https://www.tate.org.uk/art/art-terms/m/minimalism)

⁵ <https://www.tate.org.uk/art/art-terms/m/minimalism>

the Proclamation of the Bauhaus (1919), which described a utopian craft guild combining architecture, sculpture, and painting into a single creative expression. Gropius developed a craft-based curriculum that would turn out artisans and designers capable of creating useful and beautiful objects appropriate to this new system of living.

The Bauhaus combined elements of both fine arts and design education. The curriculum commenced with a preliminary course that immersed the students, who came from a diverse range of social and educational backgrounds, in the study of materials, color theory, and formal relationships in preparation for more specialized studies. This preliminary course was often taught by visual artists, including Paul Klee (1879-1940), Vasily Kandinsky (1866-1944), and Josef Albers (1888-1976), among others.⁶

It is interesting to note that The Bauhaus movement, as it eventually became, took shape at about the same time as Art Deco was the rage. The name [Art Deco] is a shortening of the phrase *Arts Décoratifs*, which was taken from *Exposition Internationale des Arts Décoratifs et Industriels Modernes* - an art exhibit held in Paris, France in 1925. The style itself had already been in practice in creating commercial and public buildings in Paris before the show, but it was this event that brought Art Deco to the attention of artists and aesthetes around the world.⁷ However, unlike the Bauhaus philosophies of minimalism that led to *Modernism*, Art Deco was flamboyant and represented the extravagance and stylistic excess of what is referred to as “The Roaring Twenties”. In fact some of the Modernists also dabbled with Art Deco since both styles had common roots in art, emphasis on geometry, clean lines and a fascination with industrial forms.

Modernism and Art Deco surely have their overlapping features – they were both prominent around the same time, and designers like Le Corbusier teetered the line between Art Deco and Modernism. However, Modernism is a streamlined version of Art Deco, where the emphasis is placed on form rather than ornament.⁸

In the 1930s, the confluence of the Great Depression and the rise of the Third Reich in Germany had a radical impression on western art and following the 2nd World War, the shift from flamboyance to practicality and egalitarianism began in earnest. The architects of the Bauhaus and Modernism found a receptive audience and minimalist thinking became embedded in art and architecture. Buildings morphed from the ornament laden structures of the past to clean, geometric, machine like structures like the Mies and Philip Johnson’s Seagram’s Building or Skidmore, Owings and Merrill’s Lever House in New York; the Edith Farnsworth House and the IIT campus in Illinois, both by Mies van der Rohe; The *Unité d’Habitation* (Marseilles Block), Villa Savoy by Le Corbusier and Oscar Niemeyer’s design for Brasilia are all examples of how Modernism and its minimalist ideology manifested.

⁶ https://www.metmuseum.org/toah/hd/bauh/hd_bauh.htm

⁷ <https://www.lillicoco.com/pages/the-art-deco-era>

⁸ <https://www.theinside.com/blog/modernism-vs-art-deco-furniture/#:~:text=Modernism%20and%20Art%20Deco%20surely,on%20form%20rather%20than%20ornament.>



Original Lever House (SOM), New York, NY. 1952. Photo: Author 2022



Seagram Building (Mies / Philip Johnson) 1958 – 5th Avenue, New York, NY. 2006. Photo: Author 2022

The words of Ludwig Mies van der Rohe, perhaps Modernism’s most famous architect, “Less is More”⁹ became the defining mantra of the International Style and the focus on minimalism is evident from the simplicity of the slogans themselves. Mies also designed two of the best known minimalist buildings that remain classic to this day: The Barcelona Pavilion in Spain and the Edith Farnsworth (Glass) House in Illinois, USA.



"File: The Barcelona Pavilion, Barcelon, 2010.jpg" By Ashley Pomeroy at English Wikipedia is licensed under CC BY 3.0.

⁹ NY Times, “When Less Was More”, Jayne Merkel, July 1, 2010.

Beyond The Bauhaus

In addition to the Bauhaus begotten International Style and Modernism, other inspirations with minimalist roots were also having their impact. Among these, the design principles from Scandinavia and Japan have had a most significant and lasting impact on design, even if somewhat more subtle than that of the Modernism as far as architecture is concerned. In many ways this is because the minimalism genre from these traditions is tied more holistically to a way of thinking and living, and their proponents engage in designs that affect all aspects of living beyond buildings. The cores of both these traditions have spiritual links and are not purely derived from art or social movements. In many ways the influence of Scandinavian and Japanese styles of minimalism are more noticeable in the way they have inspired other styles through ideological intensity rather than as a source of direct emulation. To put it into perspective, below are two useful descriptions that describe these two genres that are literally on the opposite sides of the globe:

Scandinavian minimalism is a simple, practical approach to design that produces a way of life surrounded by the natural world. The goal of this interior design style is to have a simple life lived in harmony with nature, while embracing the great outdoors.¹⁰

Japanese minimalism is a concept that focuses on keeping life simple, clean, and uncluttered by living with just the essentials. It's inspired by the aesthetic of Japan's traditional Zen Buddhism and can be seen in many different facets of everyday life, from their architecture to fashion choices.¹¹

We will now examine how each of these outlooks has affected architecture and what future paradigms are likely.

1.5. Scandinavian Minimalism

There are some important distinctions that need to be understood when one considers Scandinavian Design, Minimalism, Nordic Design and Scandinavian Minimalism. These days, often the popular vision when any of these phrases is mentioned is furniture or simple bright colored coastal cabins. Danish furniture, IKEA, and Saunas are the images that are conjured up. While all of these reflect elements of Scandinavian design, let us consider the subtle but essential differences:

“At first glance, **Scandinavian design** and minimalism can seem synonymous. And indeed, in the world of blogs and social media, the two have blended enough that in contemporary design culture they've created an almost ubiquitous picture of the ideal, uncluttered interior—white walls, carefully chosen house plants, neutral knit blankets, and clear surfaces. Although these two styles mix well, minimalism and Scandi design are not one and the same.

Minimalism, which strives to create space and simplicity, has a distinctively spiritual and philosophical undertone. Scandinavian design, which is founded on a history of practical,

¹⁰ The Spruce; “What Is Scandinavian Minimalism?”, Erica Puisis, 10/7/22.

¹¹ Minimalist Vegan, “Japanese Minimalism: 5 Principles to Help You Declutter Your Life”, Michael Ofei, updated January 28, 2023.

functional, and relaxing home-keeping, is fundamentally pragmatic—and leaves plenty of room to embrace the possessions you love.”¹²

“**Scandinavian minimalism** started in the 20th century. This design style emerged out of a desire to create functional but aesthetically appealing furniture and decor that was easily accessible to the general population. It stood in contrast to the elaborate decor and style embraced by the wealthy of Europe in the pre-World War I years.

The focus on functionality without losing a sense of beauty quickly gained traction. This was especially true in the northern areas of Europe, where the long winters with limited daylight made maximizing light and comfort a top priority. By the 1930s, this simple style really took off in Sweden, Denmark, and Norway.

During the 1950s and onward, this style spread worldwide after the Lunning Prize was awarded to a number of Scandinavian designers. To this day, Scandinavian minimalism continues to gain popularity for its simple functionality and everyday comfort.”¹³

“...Scandinavian design is often confused with Nordic design. This is because Nordic design encompasses Iceland and Finland as well as Denmark, Norway and Sweden. Some argue that these terms are interchangeable, but there are a few subtle differences between Nordic and Scandinavian design.

Nordic vs Scandinavian Design: Nordic design focuses slightly more on comfort and expression, with brighter colours and raw natural materials as common eye-catching features in their interiors. Scandinavian design, by contrast, tends to have a more neutral or monochromatic colour palate and aims for a contemporary look rather than the timelessness of Nordic design. However, these design styles are very similar and the differences are understated enough that one can easily be recognized for the other.”¹⁴

From the above, the definitional differences are subtle and particular. In terms of architecture, the variations are even more blurred. Current Scandinavian architecture styles have gained prominence only over the past century. Traditionally, Scandinavia (Denmark, Sweden, Norway and extending to Finland and Iceland) was “...considered an architectural lightweight, as its castles, cathedrals, and other major buildings were usually built in historical styles borrowed from abroad. Most other buildings were vernacular wooden, stone, and brick structures constructed by those without formal architectural training. Although unheralded, they offered practical solutions to problems specific to the far north, including maximizing natural light and heat during the dark, cold winter days.

“Scandinavia’s architectural standing began to change in the early twentieth century as architects rejected historicism and instead blended new international styles and technological advances with elements from the vernacular traditions.

“This set the stage for what became the defining traits of Scandi buildings: designs that are functional, attractive in a minimalist way, and in balance with nature. At the same time,

¹² The MODERN DANE, “The Difference Between Scandinavian Design And Minimalism”, April 4, 2020.

¹³ The Spruce; “What Is Scandinavian Minimalism?”, Erica Puisis, 10/7/22.

¹⁴ INDESIGNLIVE Asia, “The Simple Allure of Scandinavian Interior Design”, Juliet Taylor, 25 March 2022.

architects played a role in the emergence of the region's social welfare model, which required quality housing for all and public buildings for the common good."¹⁵

As with design in general, the terms Nordic and Scandinavian create some confusion. Earlier the differences were noted in the broad context of design between these in terms of style and approach with Scandinavian being more minimalist and use of materials like steel and chrome and a neutral color palette, while Nordic being more colorful, and craft oriented in the use of natural materials like wood and softer textures¹⁶. However, there has now been so much cross pollination that the differences are really for academic and classification discussions. The only meaningful distinction is a geographic one. (Although for the purpose of this course the terms are used interchangeably – for example Finnish architecture is treated as part of the same minimalist school as Scandinavian)

Scandinavia is a Northern European region made up of the countries of Sweden, Denmark, and Norway, but broadly speaking sometimes also Finland, Iceland, and the Faroe Islands. The Nordic region is the broader Scandinavian region plus Greenland, Jan Mayen Island, and Svalbard.¹⁷

The common theme of minimalist approach to lifestyle and design – furniture, interiors, and architecture from the region share some basic characteristics¹⁸:

- Minimalist aesthetic
- Understated design that follows function
- Light, neutral colors
- Muted, dark hues that remind of Nordic landscapes
- Airy spaces filled with light
- Wood furniture and wood accents
- Decorative, statement pendant lights
- Multifunctional and flexible designs
- Plush sofas and tactile fabrics
- Hanging plants and lush greenery
- Natural textiles
- Steel, brass, or copper accents
- Artworks as focal points in a minimalist space

In addition to the above, there are some important lifestyle philosophical mindsets in Scandinavia that help promote and socialize the wide acceptance of minimalist design ideals. Among these are:

¹⁵ Scandinavia Standard, "A Brief History of Scandinavian Architecture" Jeff Ruben, January 17, 2023.

¹⁶ RETHINK STUDIO, "Scandinavian vs. Minimalism", April 12, 2018.

¹⁷ Nordic perspective, "Nordic vs. Scandinavian: Meaning & Usage Explained", Karl Andersson, October 3, 2022.

¹⁸ <https://www.gessato.com/scandinavian-design/>, 2023.

Hygge: "... pronounced *Hoo-ga* or *Hue-gah*, comes from the Norwegian word meaning 'wellness'. It first appeared in Danish writing in the C18th and has been embraced and perfected by the Danes ever since. Although there is no direct translation, hygge is most closely translated to 'coziness', 'comfort' and 'contentment'.

"... Hygge can be sited as a philosophy of life, something that makes people happier. It applies to various spheres of life from emotions, feelings, architecture, design and cooking.

"... the design concept of hygge is not just for the home but that it can be translated into commercial environments such as offices, hotels, spas, bars and restaurants?

"It's all about savoring simple pleasures and enjoying good times with great people. It's an absence of stress and strife; a sense of ease and indulgence; a feeling of wellbeing and warmth" ([The Telegraph](#) – How to enjoy hygge in Copenhagen)

"Hygge has been gaining attention as designers and architects look for ways to foster wellness in buildings with a focus on light, warmth, spaces for gathering as well as providing a fresh perspective on sustainability.

"Respected designers looking to make green buildings have in recent years turned to biophilia, biomimicry and beauty. A new interest has us looking inward at human culture and what makes us feel at home. Its more than just a warm feeling"¹⁹.

"Hygge is not a thing or something you buy...Hygge is a state of mind" (Morten Georgsen).

Hygge has recently been popularized as a new wave for people seeking lifestyle management to relieve the stresses of contemporary living. Whether it takes root in non-Scandinavian countries or moves on like many passing fads, the influence and legacy on Scandinavian design is inextricable and to the extent that style influences art, design and architecture, the touch of hygge will be present.

Lagom: (Pronounced lah-gom) The literal translation of 'Lagom' from it's Swedish origin into English is: "enough, sufficient, adequate, just right". Its definition is quite the mouthful but in concept, it's actually all about simplicity and minimalism. It means living in moderation rather than abundance and being frugal rather than wasteful."²⁰

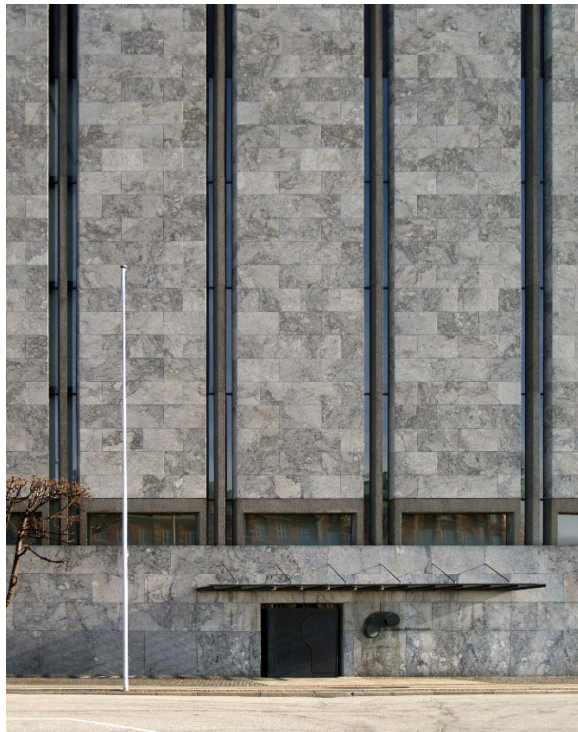
The above are discussed to illustrate the idea that Scandinavian minimalism and broader design philosophies are driven by deeper social convictions that enable widespread embrace of minimalist ideals. In term of Architecture, Scandinavia continues to produce some of the finest examples of clean, simple and elegant designs that maintain the emphasis on quality materials, simple lines and pure forms that are functionally responsive and cater to user comfort. Below is a listing of some of the examples that can be easily viewed online using any search engine. [NOTE: Due to unclear usage rights, the images have not been reproduced here].

- Artipelag art gallery of 2012 by Nyréns Arkitektkontor
- Strömkajen Ferry Terminal, 2013 by Marge Arkitekter

¹⁹ Linked in, "Can the concept of hygge be fostered in architectural design projects?", Kathryn Watts, Jan 23, 2017.

²⁰ Penketh Group Glacier Museum, 1997 by Sverre Fehn, "Interior Design Trends: What is Lagom", 7 March, 2020.

- The Mirrorcube, 2010 by Tham & Videgård; The Cabin, 2010 by Cyrén & Cyrén
- Helsinki Central Railway Station, 1919 by Eliel Saarinen (Not truly a minimalist building though it represents Eliel's display of clean, geometric forms with a hint of Art Deco.)
- Paimio Sanatorium, 1933 by Alvar Aalto
- Glacier Museum, 1997 by Sverre Fehn
- Finlandia Hall, 1975 by Alvar Aalto
- SAS House, 1960 by Arne Jacobsen
- National Maritime Museum, 2013 by Bjarke Ingels Group
- Sydney Opera House, 1973 by Jørn Utzon (Another sample that is not pure minimalist but embraces most of the elements of a clean geometry and form with hardly any unnecessary embellishments.
- Vennesla Library and Cultural Centre, 2011 by Helen & Hard
- Oslo Opera House, 2008 by Snøhetta
- National Bank, Copenhagen, 1971 by Arne Jacobsen



"File:Arne jacobsen, national bank, copenhagen, 1961-1978 facade..jpg" by seier seier is licensed under CC BY 2.0

In America, the influence of Scandinavian architects is reflected in some very prominent buildings designed by prominent Scandinavian émigré architects, among whom are Alvar Aalto, Eliel Saarinen and Eero Saarinen. From these, the most notable works are those of Eero Saarinen (Gateway Arch) as shown below. In recent years there has been a resurgence of Scandinavian inspired architecture and some prominent projects are listed below:

- GATEWAY ARCH – St. Louis, MO, USA – Eero Saarinen – 1963 ~ 1965.



Photo: ©Muhammad a Siddiqui, AIA, 2011; courtesy author.

- TWA TERMINAL Building, JFK Airport, Queens, NY, USA. – 1962.



Photo: ©Muhammad a Siddiqui, AIA, 2021; courtesy author.

- DULLES AIRPORT, BWI International, Baltimore, MD, USA – Eero Saarinen – 1962.



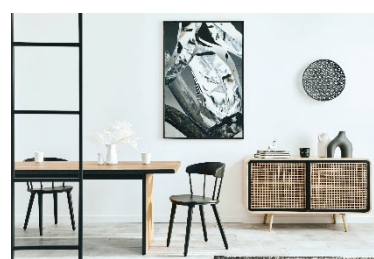
Photo: ©Muhammad a Siddiqui, AIA, 1987; courtesy author.

- VIA 57 West, New York, NY, USA – Bjarke Ingels – 2016
- Monroe Blocks, Detroit, MI, USA – Schmidt Hammer Lassen – 2018 ~ Unfinished as of 2023
- Seneca House, Paolo Alto, CA, USA – Dunsmuir Institute – Renovation date unavailable.

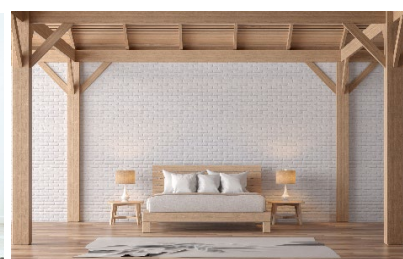
Throughout the discussion on Scandinavian minimalism, there has been a blending of architecture and design. Perhaps the most lasting of the design aspect has been in the field of interior design, particularly with fabrics, industrial design and furniture. The simplicity and clean lines of Scandinavian furniture has gained global acclaim and the popularity is underscored by the reach of IKEA which since its founding in 1943 has now become the largest furniture retailer in the world²¹. The designs are quintessentially Scandinavian although the quality of traditional crafts has been replaced by mass production methods. It is not uncommon for Scandinavian architects to also be actively engaged in furniture and industrial design. This inclusiveness dates back to the Bauhaus movement which produced some of the most iconic furniture designs of the 20th century. Mies, Gropius, Saarinen, Le Corbusier, all produced almost as many classic pieces of furniture as they did buildings. Though not a minimalist in the pure sense, Frank Lloyd Wright also adhered to this aspect of total design. His foray into minimalism, or at least the modern, egalitarian side of it was influenced more by Japanese art and architecture although not isolated from the Modernist movement (a connection he liked to minimize, choosing instead to emphasize his own creation of a new American architecture!)



Scandinavian Interior Photo:



Scandinavian Interior



Minimalist Furniture

²¹ <https://www.statista.com/topics/1961/ikea/>, Sept 2022.

1.6. Japanese Minimalism

So far the discussion on minimalism has focused on the styles and schools of design that originated in Europe and migrated to the Americas. On the other side of the globe, another civilization with deep historical and artistic traditions was guided by a profoundly minimalistic approach to life. Japanese society has, for centuries, been founded on the principles of Zen Buddhism.

Zen philosophy was born in India, developed in China, and arrived in Japan around the 11th century. Although Zen is one of the schools of Buddhism and emphasizes the concepts of emptiness (*sunyata*), self-lessness (*anatta*), and taming our desires (*tanha*) it still has many typical Asian values from Taoism and Neo Confucianism such as intuition over logic, modesty, middle path, good human nature, and social harmony. Unlike conventional religions, Zen philosophy does not have a unified book and is divided into three major disciplines which are *rinzai*, *soto* and *obaku*.

The principles of Zen are: (Note: there are several variants to what constitute Zen principles. The list below²² is a fairly comprehensive one and selected because it captures the breadth of the underlying spirit of the ideology).

These are:

1. There is no such thing as “self”
2. Everything constantly changes, nothing is finished
3. Things we value are “empty”
4. Attachment is the source of suffering
5. Everything in the universe is connected. You are the universe.
6. Our Logic is misleading. Appearances are faulty.
7. Accept that painful things may happen
8. Be present, be mindful, fully experience each moment
9. Meditation is the way to awakening
10. Be free from greed and desire
11. Do not be judgmental
12. Compassion is necessary to have peace of mind
13. Life should be simple
14. Build a community and contribute to it
15. Display gratitude and respect for everything
16. Do not fear anything, even death

²² Mai-ko.com, MAIKOYA, Zen Principles, Adam Acar PhD, accessed 2023.

17. Act with equanimity

Japanese society is heavily influenced by the principles of Zen and has distilled it into an almost compulsive obsession with minimalism. If one searches online for the “most minimalist country”²³, Japan is the top result, followed by Scandinavian countries. In terms of design, Japan has a very old and sophisticated vocabulary of architecture, lifestyle and social interaction that raises minimalism to an art form. Of the many Zen principles that play into this, the main characteristics revolve around the concepts of simplicity, subtraction, consistency and completeness. According to Ravi Rajan, a writer on Zen philosophy, the 5 Zen principles for minimalist design²⁴ are:

1. Be formless.

When water is flowing, like in a stream or a river, it's difficult to stop. You can try and push it back, but it will slip around you and continue on its way. Like all currents, it automatically finds the path of least resistance and follows it without effort or hesitation. It will find its way through and keep going if there is even the slightest crack or weakness.

In the same way, the formless designer absorbs and appreciates all the different approaches and essences of creation and obtains the fluidity to evolve quickly, delivering unorthodox solutions that open the door to great discoveries.

We become formless in our approach. Our design becomes natural, direct, and gelled with nature.

[Essentially you approach design without any preconceived notion of form]

2. Subtract until it breaks.

In Zen philosophy, every detail has significance, and everything should have a purpose.

So, when creating an extremely minimalist design, keep subtracting elements until the design stops working the way it should. For example, when designing a website, if you reach a point when the website fails to perform its function, you know you've achieved the most minimalist design possible.

A point to be noted is that the “breaking” is relative. It can be the technical breakage after subtracting but also a dip in the user experience. After subtracting to the bare minimum, you need to consider both aspects and ensure that your design is still user-friendly and delivers the experience you want the users to have.

Remember, in a minimalist design, every detail has significance. What you choose to leave in is vital.

3. Be consistent.

Being consistent means being in a state of active calm, tranquillity, solitude, and quietude, which is the essence of creative energy.

²³ <https://gunnlukari.medium.com/10-countries-inspired-by-minimalism>, Gunn Lukari, Dec 2022

²⁴ OWLCATION, 5 Zen principles for Minimalist Design, Ravi Rajan, August 2022.

And applying to design means creating a sense of familiarity and reliability in the application or craft by ensuring that the basic elements, their function, the content, and the placement of pieces are uniform throughout. Consistency is important because users can leverage their natural learning, thereby reducing cognitive load on subsequent use and friction of adoption.

Always remember we don't always need to give a jazzy potpourri of art to the user. We only need to give them a creation with which the users are comfortable, and they naturally gravitate towards it. And any user can only feel comfortable when symmetry and tranquillity are maintained.

4. Consider selective disregard.

To the Zen practitioner, the subconscious mind and its behavior play a very important role in the further actions of any person.

For example, if you were to walk down a busy street, you would probably see and forget a handful of street signs. Those signs enter your peripheral vision but are subconsciously ignored because they are deemed unimportant or familiar. But if something seemingly important or unfamiliar enters your peripheral vision, you subconsciously shift your attention to it.

People thus make subconscious decisions about everything. To maximize productivity, users always work on the path of least resistance and ignore everything that isn't important to them. This is called selective disregard, and as designers, this is an important aspect to be considered while creating a design.

The more elements in a design, the more users will ignore it. A design with few elements takes little effort to analyze, so users typically do so easily, allowing them to complete the task at hand as it was intended by the designer.

Yes, you may argue here; rather than removing the unimportant ones, I can just emphasize the important ones. This is nothing less than design hara-kiri. Users will be left even more confused and disoriented by the resulting clutter.

Remember, the decision about what's important in a design and what's wasting space is key to a successful design.

5. Simplicity.

Zen dictates that beauty and utility need not be overstated, overly decorative, or fanciful. The overall effect is fresh, clean, and neat.

As Nicholas Burroughs has rightly said:

“Minimalism is not a lack of something.

It's simply the perfect amount of something.”

Another Japanese design practice that emanates from Zen Buddhist principles is the philosophy called *wabi-sabi*.

In traditional Japanese aesthetics, wabi-sabi (侘寂) is a world view centered on the acceptance of transience and imperfection. The aesthetic is sometimes described as one of appreciating beauty that is "imperfect, impermanent, and incomplete" in nature.²⁵

Wabi-sabi is often used to describe the Japanese context which lies behind the art. A quick google search would disclose to us the real meaning of wabi-sabi, plus finding its roots from the Zen teachings that are all about appreciating perfection in imperfection. Wabi comes from the root word 'wa,' referring to harmony, peace, tranquility and balance. On the other hand, 'Sabi' means 'bloom of time'. It refers to the effect of time on an object. Japanese Architect Tadao Ando describes wabi sabi as an art of finding aesthetics in the forgotten realm and accepting the natural cycle of growth and decay.²⁶

However, unlike minimalism, which seeks to streamline and eliminate clutter, wabi-sabi celebrates the knot in the wood or the wrinkle in the linen.²⁷

That said, when one looks at the principles of wabi-sabi, they are aligned with the more minimalistic notions of Zen. Consider the list below in light of the earlier 5 Zen principles of minimalist design.

1. Kanso – simplicity
2. Fukinsei – asymmetry or irregularity
3. Shibumi – beauty in the understated
4. Shizen – naturalness without pretence
5. Yugen – subtle grace
6. Datsuzoku – freeness
7. Seijaku – tranquillity

1.7. Application of Japanese Minimalism in Architecture

As has been stated, a cornerstone of Japanese life and art is an active embrace of simplicity, at least in principle. As such, minimalism is one of the keystones of Japanese architecture. This, in application is achieved through the following means:

- Simple Lines

... It first starts with the clean pure form. In Japanese architecture, houses tend to have clean square or rectangle shapes. They do not use deconstructive forms or even curves in their designs, and that does not only apply to the exterior of the building but the interior as well. The forms used are a mix between rationalism and the complexity of the structure. And what's more impressive is that they have deeper philosophical, spiritual, and religious concepts behind them.²⁸

²⁵ <https://en.wikipedia.org/wiki/Wabi-sabi>, accessed 2023.

²⁶ Rethinking The Future, "An overview of Wabi-Sabi Architecture", Prakriti S, 2021.

²⁷ <https://interiorstylehunter.com/wabi-sabi-design>, "Wabi-Sabi Design: The luxury of imperfection"

²⁸ <https://japaneseinteriordesign.com/minimalism-and-japanese-architecture>, April 2, 2018.



- **Materials Used**

Another treatment used to strengthen the concept of minimalism and simplicity is the materials used. Only honest materials and treatments are used. The natural bare undecorated form of the material, the smoothness and sleekness of the material is what is targeted and focused on. Such materials are like wood, and in modern style Japanese buildings, concrete and glass.²⁹

- **Furnishings**

As with all minimalist architecture, the building shell and interior outfitting are not divorced. The cleanliness and elegance of the forms and materials is carried over into the way the furnishings are designed and arranged. They tend to use honest, natural materials, are composed of rectilinear forms and tend to be low to the ground.



- **Light, Views and Color**

When the building and its furnishings are sparse and functional, the importance of the visual conditions in which the building exists takes on a magnified prominence. The infusion of natural

²⁹ <https://japaneseinteriordesign.com/minimalism-and-japanese-architecture>, April 2, 2018.

light into the spaces of the building is carefully managed to highlight and focus attention where it is desired. Natural light is given priority over artificial light in keeping with Zen principles. Light is also key to how the color palette is perceived. For the most part, colors are neutral but their natural, raw hues are emphasized by the careful interaction with lighting. Finally, just as lighting and color are studiously arranged, the views from the spaces are staged to provide serenity by use of interior gardens, serene water features and carefully arranged natural rocks and man-made sculptures. These natural elements also serve to add splashes of color, subtle motion, and vitality to an otherwise static setting.

1.8. Influence of Japanese Minimalism on Western Architecture

Japanese society and architecture changed dramatically after the Meiji Restoration period [1868] when Japan's drive to industrialize brought in a rapid influx of western ideals and a period of almost blind emulation. Japan started to adopt Western-style architecture while advancing modernization, chiefly from the English but also from the French, the Germans and the Americans.³⁰ Interestingly in this period of exchange between the west and Japan, the concepts of Japanese minimalism and Zen notions of simplicity were also imported into Europe and America. Frank Lloyd Wright, arguably the greatest American architect to date, was heavily influenced by what he observed in Japan when he was commissioned to do the Imperial Hotel in Tokyo. According to an article published by KCP International, Wright made his first trip to Japan in 1905 and returned in 1913. Between 1917 and 1922, he spent almost three full years in the country as the architect of the New Imperial Hotel in Tokyo. Wright was outspoken about his admiration for Japan and how the country inspired him. Japanese prints are said to be the center of his attraction to Japan. Wright once described Japan as being "the most romantic, artistic, nature-inspired country on earth."³¹ The fact that Wright, whose egotism was legendary, acknowledged being influenced by Japanese art, speaks volumes about the impression that this style would have had on others. In addition to Frank Lloyd Wright, Japan was the earliest country in all of East Asia to engage with Le Corbusier's work in the late 19th century, and by the 1930's many of his books has been translated into Japanese. Corbu is credited with influencing many of the later Modernist architects that emerged in Japan. In this way, it can be viewed that as Japan lost its minimalist path after the Meiji revolution, the Modernist movement from the west reintegrated minimalist ideals back into Japanese architectural thinking.

³⁰ Public Relations Office, Govt. of Japan, Modern Japanese Architecture: From the Meiji Restoration to Today, Professor Terunobu Fujimori, November 2017

³¹ KCP International, JAPANESE INFLUENCE IN THE WORKS OF FRANK LLOYD WRIGHT, Yasuka, September 2019



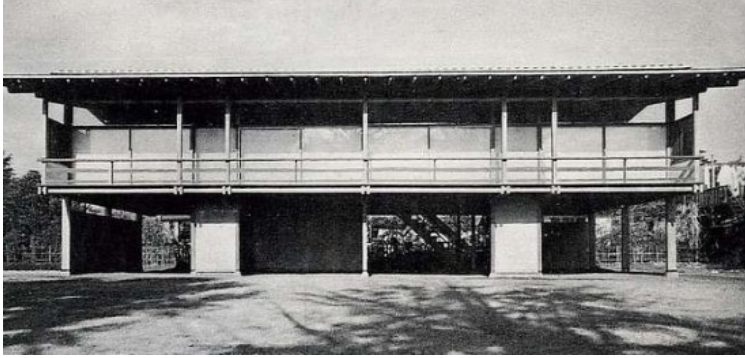
Le Corbusier, National Museum of Western Art, Tokyo

After World War II, Japanese architects finally started to work on modern-style architecture, which is still in existence today.³² By this time, with changes in technology and communication, the world of art and architecture became much more internationalized. It can be justifiably argued that calling Modernism The International Style underscores its global reach. Japanese architects like Kenzo Tange, Tadao Ando, Kisho Kurokawa, and more recently, SANAA are all modernists of degrees but share a vocabulary that has roots in minimalist and Zen thinking.



"Tadao Ando, Langen Foundation 2004 by seier & seier is licensed under CC BY 2.0

³² Public Relations Office, Govt. of Japan, Modern Japanese Architecture: From the Meiji Restoration to Today, Professor Terunobu Fujimori, November 2017



Kenzo Tange, Tange House, circa 1950s. Photo: Wikimedia Commons



"SANAA, Zollverein School of Management and Design, Essen" by dave7dean is licensed under CC BY 2.0

It would be unfair to conclude any discussion on Japanese minimalist influence without mentioning the impact on industrial design and the adoption of the underlying principles into the whole “green” design movement and now more broadly into discussion about sustainability.

In industrial design, Japan emerged after World War II as a major manufacturer of consumer electronics and cars. It focused on simple, affordable and mass-produced products. These ideas produced ubiquitous brands like Toyota, Sony, Nikon and others that became global household names. While these were inspired by simplicity, the products themselves were ultimately consumer oriented and evolved as marketing departments willed them to. But the principles they inspired reached a culmination when American computer maker, Apple revolutionized consumer design with the introduction of the iPhone, a remarkably minimalist device that, functionally overtook our entire lives. Less was truly More. Apple founder Steve Jobs’ respect for and adaptation of Zen principles are a major reason for the trend³³. The latest continuation of this style is seen in the way Tesla approaches the design of their cars. A recent article on the design shack website succinctly captured the success of minimalism:

³³ SMITHSONIAN Magazine, How Steve Jobs’ Love of Simplicity Fueled A Design Revolution, Walter Isaacson, September 2012

Minimalist design is taking over because it just works. The style is so simple that users don't have to think about it. (Even though it requires quite a bit of thought and planning from designers to create something that looks so easy.)³⁴

1.9. The Future of Minimalist Design

The future of anything is very difficult, if not impossible, to predict. All visions of future are essentially the best estimates of a trajectory based on past performance, filtered through current trends and morphed with some degree of information to determine the likely path of the subject, whether a product, cost, career or a social movement. All these are then projected with a healthy dose of optimism or pessimism depending on the forecaster's own biases. Minimalism is no different. What is known is that the movement has grown throughout the 20th century. We have examined the 2 most dominant sources of influence – what this author terms as the western school – i.e., Scandinavian and the eastern school – i.e., Japanese. Their confluence in the 21st century has energized and synthesized the ideals into a more global movement that is not rigidly structured but is an amorphous philosophy with some shared fundamental ideals – simplicity, durability, serenity, and an emphasis on nature based, decluttered and socially beneficial solutions. It is the last of these ideals that offers the key to the longevity of the minimalist movement and suggests that it will not only continue to influence design but may become a dominant stylistic option. This is due in large part to the growing awareness of environmental issues and consequent concern for the sustainability of the earth's resources and a new emphasis on the quality of life for humans. These are the same concerns that gave birth to the NetZero movement that focuses on arresting climate change. The next part of the course will briefly examine the synergies between the two movements.

This concludes Part 1 of the course. Part 2 will focus on minimalism as a sustainable 21st century design option.

Review Questions Part 1

1. Which of the following statements is not true of the Holy Ka'aba in Mecca and the Apple Cube in New York City?
 - a. They are both pure form cubes of roughly the same dimensions.
 - b. They are both examples of minimalist architectural form.
 - c. One is a clear glass "void" while the other is a black cube.
 - d. Both were built in the 21st century

³⁴ design shack, Minimalist Design Is Taking Over: Here's Why, designshack.net, accessed April2023

2. The _____ were more involved with conquests, arts and leisure and that was reflected in the decorative nature of their art and architecture with extravagant ornamentation and large public places that signified a society with extraneous wealth.
 - a. Romans
 - b. Egyptians
 - c. Swedes
 - d. Dutch

3. Arts Décoratifs became popularly known as what style:
 - a. Minimalism
 - b. International Style
 - c. Modernism
 - d. Art Deco

4. In the _____, the confluence of the Great Depression and the rise of the Third Reich in Germany had a radical impression on western art and following the 2nd World War, the shift from flamboyance to practicality and egalitarianism began in earnest.
 - a. 1910s
 - b. 1920s
 - c. 1930s
 - d. 1940s

5. Which of the following statements is true of Nordic design?
 - a. Nordic design focuses more on comfort and expression, with brighter colors and natural materials
 - b. Nordic design has more neutral or monochromatic color palettes and aims for a contemporary look.
 - c. Both a & b
 - d. None of the above

6. Which of the following statements is true of the difference between Scandinavian and Nordic regions?
 - a. Scandinavia includes Sweden, Denmark, and Finland. While Nordic is broader, including Norway, Iceland, Greenland, Jan Mayen Island and Svalbard.
 - b. Nordic regions include Sweden, Denmark, and Norway but exclude Finland and Greenland. While Scandinavia is broader, including Iceland, Greenland, and Svalbard.
 - c. Scandinavia includes Sweden, Denmark, and Norway and sometimes Finland. While Nordic is broader, including Finland, Iceland, Greenland, Jan Mayen Island and Svalbard.
 - d. The regions are the same.

- 7. Which of the following is not Swedish?**
- a. Lagom
 - b. IKEA
 - c. Hygge
 - d. None of the above
- 8. Which of the following has not been listed in this course as a Scandinavian design influenced building?**
- a. Dulles Airport, BWI, Baltimore, MD.
 - b. Lever House New York.
 - c. VIA 57 West, New York, NY.
 - d. Sydney Opera House, Sydney, AU.
- 9. Which of the following are among the post World War 2 architects who helped revive the minimalist styles in Japanese architecture?:**
- a. Walter Gropius
 - b. Kenzo Tange
 - c. Tadao Ande
 - d. b & c
 - e. a, b & c

Part 2 of the course will cover:

Minimalism as a Sustainable 21st Century Option

- Comparing minimalism with principles of Net Zero and Sustainable design
- What aspects of minimalism are universal and transferrable towards mainstream?
- Influence of industrial and furniture design on Architecture
- Niche fad or a potential foundational shift?

REVIVING MINIMALISM – A Clean, Sustainable Lane on the Road to Net Zero

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Course Summary

One of the defining movements in Architecture since the dawn of the 21st century has been the shift towards “green” and “sustainable” buildings. Architects are increasingly pushing to make their designs more energy efficient, use more durable materials and reduce waste and minimize use of environmentally harmful materials. Against this backdrop, some professionals are revisiting the principles of minimalism and the functionality of the International Style and also rediscovering the inherent sustainable values found in the principles of Scandinavian design of the 20th century and also in the Zen inspired high quality but functional minimalism of traditional Japanese design principles.

The course will show how the influences of these design principles support sustainable and eco-friendly design and construction.

PART 2 – Minimalism as a Sustainable 21st Century Option – Rev 0

“The term Net Zero means achieving a balance between the carbon emitted into the atmosphere, and the carbon removed from it. This balance – or net zero – will happen when the amount of carbon we add to the atmosphere is no more than the amount removed.”³⁵

2.1 Comparing Minimalism with Principles of NetZero and Sustainable Design

Minimalism and NetZero are both a response to different yet similar impacts on society as a result of human actions. Minimalism is a reaction to clutter and chaos of materials and “things” – essentially to having or using more than is necessary. NetZero is a reaction to the over utilization of natural resources and the waste created which cumulatively generates a cycle of wasteful pollution and toxic byproducts accelerated by mass consumerism. While one seeks to

³⁵ Energy savings Trust.org (UK). The definition is consistent with other sources, with slight verbiage syntax difference but not in substance.

minimize what we should have to what we actually need, the other seeks to arrest and possibly reverse the harm being caused by uncontrolled pollution and emissions by limiting the use of fossil fuels and encouraging cleaner, safer and sustainable solutions that take natural renewal ability into account. If we compare some of the basic principles of NetZero and Minimalism, the parallels are astounding, in terms of philosophy if not action. (See Table 2.1 below)

NetZero	Minimalist Design
Reduce energy loads and consumption	Less is more
Use of passive heating, cooling, ventilation – i.e., more natural, less mechanical.	Feeling of freeness of space
Incorporate more natural light into design – less artificial lighting	Natural lighting and serenity
Sustainable material selection – recyclable, durable, bio-degradable (natural)	Use of natural, durable materials that remain timeless
Forms that minimize excessive materials or energy consumption	Simple lines, pure forms

As we will explore, the general guides of minimalist design directly and measurably impact the goals of NetZero design.

The most basic rule of minimalist architecture – Less is More – can help eliminate the layers upon layers of superfluous and unnecessary components that are commonplace in buildings today. And consider that each needless item that is eliminated is one less future occupant of a landfill. This reductive approach has a domino effect. If fewer materials are used, fewer production factories that translate into reduced energy consumption and lower carbon emissions.

An extension of the Less is More doctrine is the emphasis of simplicity of forms, details and “line” – meaning that the design should not only be visually “clean” but also in the way it is detailed, constructed and maintained. This approach has multiple benefits. A simple design that is detailed to minimize or eliminate unnecessary cuts, trims or fasteners will be built easier, faster, and be simpler to repair and maintain. Just consider, for a moment, any American suburb and examine the roof designs. They are unnecessarily complex with hips, valleys, dormers, multiple gables, and rakes – mostly only for some style rather than functionality. Each complexity introduces construction difficulty and every cut or trim at every joint adds to the waste factor for materials. Over time these same intricacies become the genesis for leaks and failures, adding to repair and maintenance. At each repair, more material is discarded, and waste is generated. This is just roofs. The same is repeated for all aspects of design that, with some careful thought, could be designed more simply. Note that as much as 30% of all building materials delivered to a typical construction site can end up as waste. (ScienceDirect)³⁶.

³⁶ Bigrentz.com, 23 Construction Waste Statistics & Tips to Reduce Landfill Debris, April 2021.

That is an alarming statistic and one where a minimalist mindset to design can have a noticeable impact.

Beyond these, the Minimalist focus on use of natural light and ventilation goes directly to NetZero requirements for passive energy utilization, daylighting and active reduction of HVAC systems. All these are major consumers of power and result in significant carbon emissions. In a study by National Renewable Energy Laboratory (NREL) and Xerox PARC researchers calculated air conditioning is responsible for the equivalent of 1,950 million tons of carbon dioxide released annually, or 3.94% of global greenhouse gas emissions. Of that figure, 531 million tons comes from energy expended to control the temperature and 599 million tons from removing humidity. The balance of the 1,950 million tons of carbon dioxide come from leakage of refrigerants and from emissions during the manufacturing and transport of the air conditioning equipment.³⁷ Clearly, by embracing minimalist ideals and adapting designs to take advantage of natural ventilation and dehumidification techniques can, combined with more efficient mechanical systems, aid efforts to achieve NetZero. It should be noted that minimalism here does not mean eliminating HVAC systems. The great comfort and adaptability that comes as a result of the ability to create climate controlled spaces is a remarkable technological achievement. It is, however, the practice where HVAC has become a lazy substitute for responsible climate-based ventilation and cooling design. This has caused planners and architects to deviate from traditional analyses of sites and climate patterns to help guide design decisions. With these factors taken into account, the load on mechanical systems can be lowered and the balance can provide comfort while reducing the carbon footprint of this activity. Of course, for this to work, a mind shift has to occur among designers but also, more importantly, the developers who determine living and working “fashions” and, therefore, influence what people want. If the public demands conscientiousness in design, it will be forthcoming but if the demand is for cookie cutter mansions, that is what will be put forth.

Lastly, and perhaps most importantly, the emphasis on material selection is a subject where designers have a great ability to facilitate change. There are two major reasons why this is critical. One is quantitative, the other qualitative. First, the quantitative:

The built environment and all the materials in it are among the major contributors to global carbon emissions. In a 2022 study cited by the International Institute for Sustainable Design (IISD), the following findings are noteworthy:

“An era of massive construction is currently underway; with a new area the size of Paris being built every week. The global building floor area is expected to double by 2060, which will have a massive impact on the climate. The production of building materials and construction activities are already responsible for 10% of global energy-related greenhouse gas emissions.

... Building materials have a heavy carbon footprint and present a concrete challenge to the climate. The “embodied carbon” in buildings comes primarily

³⁷ NREL.gov, News Release: Scientists Show Large Impact of Controlling Humidity on Greenhouse Gas Emissions, March 2022.

from the energy-intensive production of cement, steel, aluminum, glass and insulation materials. The production of materials like cement also involves chemical processes, releasing additional greenhouse gases (GHGs), and leads to the depletion of natural resources like sand and the erosion of ecosystems.

... We need to rethink the way we construct our buildings in order to reduce embodied carbon. The strategies to reduce embodied carbon already exist – from building smarter to decarbonizing building materials.”³⁸

Clearly building materials are a culprit. It is not a difficult conclusion that if materials are an issue, then the fewer that are used, the less impact they will have. So, the quantitative case is pretty straightforward: Design with as few materials as possible. The very mantra of minimalism – the simpler the design, the fewer the elements, the less the materials that will be needed.

As the study cited above points out, it is not only the amounts of materials that are a problem but also the types. This is where the qualitative shift is crucial. Minimalism, as a design value, has always emphasized high quality materials and workmanship that are derived from natural sources or are high grade industrial. The direct qualitative benefit is that natural materials have relatively lower carbon footprint in the way they are extracted and used. Because the amounts are substantially lower, the minimalist building can afford to pay higher costs for more environmentally responsible manufacturing and less wasteful craftspeople. Unfortunately, unless the frugality of design is merged with the extravagance of quality and durability, results will be hard to realize. Too often, on a commercial scale, minimalist design economy is welcomed but the corresponding quality is quickly discarded for cheaper, wasteful materials. This creates a false impression that minimalist design is chic but throw-away. Genuine Scandinavian design and furniture are inherently high quality and generationally durable. However, mass production can take the design part and trade the quality for essentially planned obsolescence. These types of markets give the mass market an affordable way to achieve good design. The problem lies with the consumer based marketing that regularly forces fashion changes from clothing to furniture to “living lifestyles” and home décor and this creates the consumerist impulse to continually “update” rather than appreciate quality and timeless resilience. Here the minimalist ideals will work on a large scale only if a social revolution that refocuses consumer priorities comes to pass. In Japan and Scandinavia, where minimalism is more than design trend, one can see the application of quality materials manifest in their buildings, home goods, furniture, and lifestyle.

2.2 What Aspects of Minimalism are Universal and Transferrable Towards Mainstream?

³⁸ Sdg.IISD.org, Building Materials – A Hidden Heavyweight for Climate Action, April 2022.

The 3 traits of minimalist design that have resonated over time and would suggest having an appeal towards prevailing mainstream attitudes are the following:

- Simplicity in design, visual appeal and ease of navigating (from the user's perspective).
- Perceptible quality and durability of materials.
- Environmental consciousness.

The popularization of elegance and simplicity in design, especially product design, has made minimalism a phenomenon among younger generations. This appeal is prompting mass consumer developers and marketers to take notice and the style is seeing a resurgence of a magnitude not seen since the 1960s. This is coupled with countless people, especially Millennials, swearing off material possessions and embracing a minimalist lifestyle to simplify their lives.³⁹ This demographic paradigm shift aided by the power of the smart phone is still a cultural shift in flux. The impact of the COVID19 pandemic layered another veneer of soul searching that is moving society towards rethinking everything from the workplace to personal satisfaction, lifestyle and meaning of place and home. These shifts can be temporary swings of the pendulum or can be harbingers of a more permanent realignment of society just as the suburbia trend on the 1950s redefined city living.

As people reassess the proverbial "meaning of life", and materialism, as a concept, is painted with a negative hue, humans as a whole have seldom shunned possessions. After all, how else does one show off success? True ascetics are always few and a fringe element. What seems to be entering mainstream attitudes in this age of environmental awareness and penitents for global warming, is a baseline reevaluation of what materialism should entail. This is somewhat different from eschewing materialism as evil. Rather it is about how much is the right amount. Pure minimalist philosophy would say that only absolute necessity and nothing else. However, practical minimalism, if it can be called that, is more along the lines of reducing possessions to those that are valuable to use and help create a clutter free living. This clutter free has many dimensions – from the tidying of space⁴⁰ to balancing work and play to minimize stress and finally to having spaces (private and public) within which to experience life, not to store objects and promote products. This thought process leads to greater attention to the details of the spaces and the materials and finishes that one engages with. This enhanced awareness leads to better appreciation of quality and the intrinsic nature of materials.

With all the attention to global warming, climate change and the frenzy to reign in carbon emissions, city planners, architects and others in the design professions are increasingly challenged to do their part and "make a difference". In an effort to meet these environmental challenges, designers are increasingly turning to minimalism as a guiding basis. This is not to resurrect Modernism and the International Style but to utilize the same underlying thinking to define new styles that are both minimalist in thought and approach but also much more fluid and dynamic in design form. Minimalism in the 21st century is less about a design style than a way of thinking and applying that process across all dimensions of the design and the user experience.

³⁹ Minimalistvegan.com, The Pros and Cons of Minimalism: A life of Deprivation or Abundance? January 2023.

⁴⁰ Konmari.com, What is the Marie Kondo method? 2023.

In employing minimalist design there are some pros and cons to consider, as the table below summarizes⁴¹:

Minimalism in Architecture	
Pros	Cons
Breathing Space – The fewer things, the more space to relax and “breathe”	Expensive – Fewer items but of higher quality and therefore more expensive.
Saves Money – Fewer items and elements, lowers costs and ability to afford better quality which further reduces maintenance costs.	Boring – For many people, the neutral color palette and empty spaces come up as boring spaces. It may look soulless for some of us, because of the monotony in the design style that follows up from the wall to the furniture. It takes the potential to make a minimalist design functional and to prevent the appearance of a badly performed design.
Psychological Discharge - With the use of clear shapes, neutral shades, and open horizons, rest is not only a view but also a psychological one. This is a perfect style for those who are given life for a lot of stress factors.	Can't Cover the Flaws - Minimalism is synonymous with more open space and smaller artifacts and thus struggles to cover up a design flaw. While on the other hand, if anyone doesn't want to get into a minimalist design philosophy, it's simple to cover the mistake with different elements and artifacts.

2.3 Influence of Industrial and Furniture Design on Architecture

As we have discussed in part 1 of this course, minimalist design has always integrated architecture with furniture design. Almost all major minimalist architects had and still have a tradition of designing furniture. In that sense the two go hand in glove. In Japanese minimalist, the placement, proportion, and form of the furniture was carefully, almost meticulously, composed with the building's interior design. But it is not necessarily that the building influences furniture design or vice versa. In rare cases, it is true that furniture and buildings are fully integrated such as Frank Lloyd Wright's designs where the furniture was exclusive to a specific building. More often. Each is an independent expression where common design elements and philosophy come together seamlessly. For example, Mies developed furniture with clean industrial lines of polished chrome accented with stark, industrial leather. That furniture fit perfectly in his buildings which were also masterpieces of steel, glass and travertine design with an unsurpassed delicacy of detail that illustrated his maxim of “God is in the details”. It means that when attention is paid to the small things it can have the biggest rewards and that the details matter.⁴² This is an attitude that derives from furniture design where details define the quality of the piece.

⁴¹ Adapted from information on the blog *re-thinking the future.com*, Pros and Cons of Minimalism in Architecture, 2021.

⁴² Artsandculture.google.com, user gallery, April 2023.

Furniture and architecture have had a symbiotic relationship going back centuries. Industrial design, however, is a relatively recent phenomenon that really came into its own in the 20th century. The advent of the Industrial revolution and the proliferation of steel and other manufactured materials that could be mass produced with perfection. This spawned a plethora of consumer products that all had to be designed. These designs ranged from mimicking older, familiar object forms to completely new forms and styles born out of the technologies themselves. These forms and the materials that enabled them had a major influence on architects since many of the new industrial materials directly affected buildings. As discussed earlier in the course, The Bauhaus was conceived as a child of the industrial revolution and so was the Modernist movement and The International Style. The use of steel, glass and polished, smooth materials gave testimony to their industrial roots. Minimalism, in turn, has influenced industrial. The cycle of influence and adaptation is continuous and mutually constructive.

2.4 Contemporary Minimalist Buildings

As a new wave of minimalist architecture sweeps through, most of the impact has been seen in the design of homes, particularly higher end homes where owners are open to investing in better quality materials, fixtures and finishes. The trend has also begun to be more noticeable in urban buildings where space is at a premium and so all the benefits of minimalism are well received. The American suburbs are still stuck in the mass marketed lifestyle designs that developers promote.

The industrial sector remains minimalistic “fit for purpose, but the downside is the disinclination of owners to adopt quality materials. So, while the designs are pure function, all other aspects of minimalism are basically ignored. This is a sad outcome since these projects end up with heavy maintenance costs but in the capital cost vs. operating cost tug of war, the capital cost savings tend win out.

In the broader commercial sectors of building, ranging from retail, offices, hospitality and healthcare to education, multi-family and institutional, partial inroads are being made, mostly in simplified designs, better materials and more attention to the integration of nature. Much of this is brought on by mandates and responses to NetZero policies of corporations and institutions. As these voluntary mandates take on the backing of regulations and codes, the reliance on minimalistic principles is likely to increase.

For some examples of recent works that have incorporated minimalist design, see the links below. Reproduction of photographs is restricted due to copyright issues.

minimalist architecture, Dezeen Magazine

<https://www.dezeen.com/tag/minimalist-architecture/#>

Minimalist Modern: The Architecture of Rural Retreats

<https://www.archdaily.com/932659/minimalist-modern-the-architecture-of-rural-retreats>

Love of Less: Minimalism in the 21st Century

<https://www.christiesrealestate.com/blog/love-of-less-minimalism-in-the-21st-century/>

Why is modern architecture shifting towards minimalism?

<http://www.christianklugmann.com/new-blog/modern-architecture-shifting-towards-minimalism>

The beauty of minimalist architecture: why less is sometimes more

<https://selo.global/beauty-minimalist-architecture-less-sometimes/>

2.5 A Niche Fad or a Potential Foundational Shift?

As discussed in Sections 2.1 and 2.2, minimalist design is certainly having a resurgence on the coat tails of the global environmental consciousness. It can also be seen as just the natural cycling of styles as people got tired of the Post-modern era of the 1980s, 1990s and early 2000s and the deconstructivism of Frank Gehry and the futurism of Zaha Hadid. After all the mesmerizing forms created during the reign of these architects, we now have skylines that are a caricature of a science fiction movie set (See picture below). Here, buildings struggle to get noticed as each is more extravagant than the next. Undoubtedly a simple elegant Mies building would steal the stage in this setting.



A 21st century skyline: Doha, Qatar. ©muhammad a siddiqui, 2023; Photo: courtesy of the author.

It is quite plausible to argue that a subconscious desire to go back to simpler, but more refined architecture has been simmering for a decade or so. It appears that the social and economic conditions are aligning to create a breakthrough opportunity for the defining minimalistic project that will give full throttle legitimacy for the style to take the crown. The answer as to

whether minimalism will simply be a “style of the month” to be quickly replaced by the next “wow” design that comes along or whether it represents a foundational shift in architectural and design thinking is still up for debate. If the environmental movement gains traction and NetZero becomes a serious and committed goal, then minimalism will likely have its place of influence for a while – not for stylistic reasons but because it offers ideological, practical and economic solutions to pave a fast lane on the path to NetZero.

This concludes Part 2 of the course.

ⁱ <https://www.oxfordlearnersdictionaries.com/us/definition/english/minimalism>

Review Questions Part 2

- 1. For most industrial buildings, only what is essential for the building to perform its function is considered in the design. The term for this kind of approach to design is called:**
 - a. Modernism
 - b. Fit for Purpose
 - c. Industrial constructivism
 - d. Functional industrialism
- 2. Furniture design has played an integral role in minimalist architecture and Interior design.**
 - a. True
 - b. False
- 3. Which of the following is a trait of minimalist design that has resonated over time and would seem to have a broad mainstream appeal?**
 - a. Simplicity in Design, visual appeal and ease of navigating (from the user’s perspective)
 - b. Perceptible quality and durability of materials
 - c. Environmental consciousness
 - d. All of the above
- 4. “God is in the details” was stated by which architect?**
 - a. Frank Lloyd Wright
 - b. Mies van der Rohe
 - c. Philip Johnson

- d. Zaha Hadid
5. There are pros and cons of minimalist design, which of the following is a pro when considering minimalist design?
- Breathing Space – The fewer things, the more space to relax and ‘breathe’
 - Saves Money – Fewer items and elements, lowers costs and ability to afford better quality which further reduce maintenance costs.
 - Psychological Discharge – With the use of clear shapes, neutral shades, and open horizons, rest is not only a view but also a psychological one.
 - All of the above
6. **Minimalism, architecture, industrial design, and furniture design have had a symbiotic relationship over time.**
- True
 - True, except for industrial design
 - False
 - False, except for architecture
7. **In the new wave of minimalist architecture on the 21st century, the impact has largely been seen in:**
- Shopping malls
 - Luxury hotels
 - High end homes
 - School buildings
8. **Much of the resurgence of minimalism is being aided by which of the following:**
- Mandates and responses to NetZero policies of corporations and institutions
 - Desire for the public to pay more for the greater good
 - Both a and b
 - None of the above

Review Question Answers

Part 1

1. Which of the following statements is not true of the Holy Ka'aba in Mecca and the Apple Cube

in New York City?

- a. They are both pure form cubes of roughly the same dimensions.
- b. They are both examples of minimalist architectural form.
- c. One is a clear glass “void” while the other is a black cube.
- d. **Both were built in the 21st century**

D is the correct answer. The Holy Ka’aba was not built in the 21st century. It has been around for over 5,000 years.

2. The _____ were more involved with conquests, arts and leisure and that was reflected in the decorative nature of their art and architecture with extravagant ornamentation and large public places that signified a society with extraneous wealth.

- a. **Romans**
- b. Egyptians; incorrect the Egyptians, with their interest in mathematics and esoteric fascination with the afterlife, reflected this in their architecture and arts that have a reductive, formal purty focused more on their gods than on humans.
- c. Swedes
- d. Dutch

A is the correct answer. Over the ages, the pendulum has oscillated between purist forms and extravagant ornamentation and decoration. The ancient Hanging Gardens of Babylon or the oversized ornament laden colonnades and palaces of Rome would demonstrate the opposite extremity of the pendulum purist forms.

3. Arts Décoratifs became popularly known as what style:

- a. Minimalism; incorrect
- b. International Style; incorrect
- c. Modernism; incorrect, [Modernism is a streamlined version of Art Deco, where the emphasis is placed on form rather than ornament.](#)
- d. **Art Deco**

D is the correct answer. . The name [Art Deco] is a shortening of the phrase *Arts Décoratifs*, which was taken from *Exposition Internationale des Arts Décoratifs et Industriels Modernes* - an art exhibit held in Paris, France in 1925. The style itself had already been in practice in creating commercial and public buildings in Paris before the show, but it was this event that brought Art Deco to the attention of artists and aesthetes around the world.

4. In the _____, the confluence of the Great Depression and the rise of the Third Reich in Germany had a radical impression on western art and following the 2nd World War, the shift from flamboyance to practicality and egalitarianism began in earnest.

- a. 1910s
- b. 1920s
- c. **1930s**
- d. 1940s

C is the correct answer. The architects of the Bauhaus and Modernism found a receptive

audience and minimalist thinking became embedded in art and architecture. Buildings morphed from the ornament laden structures of the past to clean, geometric, machine like structures like the Mies and Philip Johnson's Seagram's Building or Skidmore, Owings and Merrill's Lever House in New York; the Edith Farnsworth House and the IIT campus in Illinois, both by Mies van der Rohe; The *Unité d'Habitation* (Marseilles Block), Villa Savoy by Le Corbusier and Oscar Niemeyer's design for Brasilia are all examples of how Modernism and its minimalist ideology manifested.

5. Which of the following statements is true of Nordic design?

- a. **Nordic design focuses more on comfort and expression, with brighter colors and natural materials**
- b. Nordic design has more neutral or monochromatic color palettes and aims for a contemporary look.
- c. Both a & b
- d. None of the above

A is the correct answer. Nordic design focuses slightly more on comfort and expression, with brighter colors and raw natural materials as common eye-catching features in their interiors. Scandinavian design, by contrast, tends to have a more neutral or monochromatic color palate and aims for a contemporary look rather than the timelessness of Nordic design.

6. Which of the following statements is true of the difference between Scandinavian and Nordic regions?

- a. Scandinavia includes Sweden, Denmark, and Finland. While Nordic is broader, including Norway, Iceland, Greenland, Jan Mayen Island and Svalbard.
- b. Nordic regions include Sweden, Denmark, and Norway but exclude Finland and Greenland. While Scandinavia is broader, including Iceland, Greenland, and Svalbard.
- c. **Scandinavia includes Sweden, Denmark, and Norway and sometimes Finland. While Nordic is broader, including Finland, Iceland, Greenland, Jan Mayen Island and Svalbard.**
- d. The regions are the same.

C is the correct answer. "...Scandinavian design is often confused with Nordic design. This is because Nordic design encompasses Iceland and Finland as well as Denmark, Norway and Sweden. Some argue that these terms are interchangeable, but there are a few subtle differences between Nordic and Scandinavian design. Scandinavia is a Northern European region made up of the countries of Sweden, Denmark, and Norway, but broadly speaking sometimes also Finland, Iceland, and the Faroe Islands. The Nordic region is the broader Scandinavian region plus Greenland, Jan Mayen Island, and Svalbard.

7. Which of the following is not Swedish?

- a. Lagom; incorrect, Lagom is Swedish and the literal translation of 'Lagom' from it's Swedish origin into English is: "enough, sufficient, adequate, just right".
- b. IKEA; incorrect, this furniture retailer started in 1943 in Sweden.
- c. **Hygge; correct**

- d. None of the above

The correct answer is C. pronounced *Hoo-ga* or *Hue-gah*, comes from the Norwegian word meaning 'wellness'. It first appeared in Danish writing in the C18th and has been embraced and perfected by the Danes ever since.

8. **Which of the following has not been listed in this course as a Scandinavian design influenced building?**

- a. Dulles Airport, BWI, Baltimore, MD.
- b. Lever House New York.**
- c. VIA 57 West, New York, NY.
- d. Sydney Opera House, Sydney, AU.

The correct answer is B. Following World War **, buildings morphed from the ornament laden structures of the past to clean, geometric, machine like structures like the Mies and Philip Johnson's Seagram's Building or Skidmore, Owings and Merrill's Lever House in New York; the Edith Farnsworth House and the IIT campus in Illinois, both by Mies van der Rohe; The *Unité d'Habitation* (Marseilles Block), Villa Savoy by Le Corbusier and Oscar Niemeyer's design for Brasilia are all examples of how Modernism and its minimalist ideology manifested.

9. **Which of the following are among the post World War 2 architects who helped revive the minimalist styles in Japanese architecture?:**

- a. Walter Gropius
- b. Kenzo Tange
- c. Tadao Ande
- d. b & c**
- e. a, b & c

D is the correct answer. After World War II, Japanese architects finally started to work on modern-style architecture, which is still in existence. Japanese architects like Kenzo Tange, Tadao Ande, Kisho Kurokawa, and more recently, SANAA are all modernists of degrees but share a vocabulary that has roots in minimalist and Zen thinking.

Part 2

1. **For most industrial buildings, only what is essential for the building to perform its function is considered in the design. The term for this kind of approach to design is called:**
- a. Modernism
 - b. Fit for Purpose**

c. Industrial constructivism

d. Functional industrialism

B is the correct answer. The main driver of an industrial building is cost and a pure engineering mindset with the result that the building is purely an assembly of spaces and facades that have no “design” consideration, only functional necessity.

2. Furniture design has played an integral role in minimalist architecture and Interior design.

a. True

b. False

A is the correct answer. Minimalist design has always integrated architecture with furniture design. Almost all major minimalist architects had and still have a tradition of designing furniture.

3. Which of the following is a trait of minimalist design that has resonated over time and would seem to have a broad mainstream appeal?

a. Simplicity in Design, visual appeal and ease of navigating (from the user’s perspective)

b. Perceptible quality and durability of materials

c. Environmental consciousness

d. All of the above

D is the correct answer.

4. “God is in the details” was stated by which architect?

a. Frank Lloyd Wright

b. Mies van der Rohe

c. Philip Johnson

d. Zaha Hadid

The correct answer is B. Mies developed furniture with clean industrial lines of polished chrome accented with stark, industrial leather. That furniture fit perfectly in his buildings which were also masterpieces of steel, glass and travertine design with an unsurpassed delicacy of detail that illustrated his maxim of “God is in the details”. It means that when attention is paid to the small things it can have the biggest rewards and that the details matter. This is an attitude that derives from furniture design where details define the quality of the piece.

5. There are pros and cons of minimalist design, which of the following is a pro when considering minimalist design?

a. Breathing Space – The fewer thing, the more space to relax and ‘breathe’

b. Saves Money – Fewer items and elements, lowers costs and ability to afford better quality which further reduce maintenance costs.

c. Psychological Discharge – With the use of clear shapes, neutral shades, and open horizons, rest is not only a view but also a psychological one.

d. All of the above

D is the correct answer. Minimalism in the 21st century is less about a design style than a way of thinking and applying that process across all dimensions of the design and the user experience. There are cons in minimalist design to consider as well: Minimalist design can be considered expensive, boring, and unable to cover design flaws.

6. Minimalism, architecture, industrial design, and furniture design have had a symbiotic relationship over time.

- a. True
- b. True, except for industrial design
- c. False
- d. False, except for architecture

A is the correct answer. Minimalist design has always integrated architecture with furniture design. Almost all major minimalist architects had and still have a tradition of designing furniture.

7. In the new wave of minimalist architecture on the 21st century, the impact has largely been seen in:

- a. Shopping malls
- b. Luxury hotels
- c. **High end homes**
- d. School buildings

C is the correct answer. Owners of these homes are open to investing in better quality materials, fixtures and finishes.

8. Much of the resurgence of minimalism is being aided by which of the following:

- a. **Mandates and responses to NetZero policies of corporations and institutions**
- b. Desire for the public to pay more for the greater good
- c. Both a and b
- d. None of the above

A is the correct answer. There are many new policies that are making minimalism more mainstream. If the environmental movement gains traction and NetZero becomes a serious and committed goal, then minimalism will likely have its place of influence for a while – not for stylistic reasons but because it offers ideological, practical and economic solutions to pave a fast lane on the path to NetZero.



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How could these courses be improved?

What other topics would be of interest?

Additional Comments:
