ARCHITECTURE
IN THE FIRST HALF OF THE
TWENTIETH CENTURY

The Bauhaus, Walter Gropius
Mies van der Rohe (Europe)

Week 12.1
Futurist Architecture

- many stories down into the earth, embracing the metropolitan traffic
- metal gangways
- **The decorative must be abolished**
- Roofs and underground spaces must be used
- importance of the façade must be diminished
- masses, and large-scale disposition of planes

**Antonio Sant'Elia**
Terraced Building with exterior elevators
1914

**CONSTRUCTIVISM**

- use industrial materials, such as glass metal and plastic in three dimensional works.
- higher than Eiffel Tower, the monument was planned for the center of Moscow.
- a **continual spiral** to denote humanity’s upward progress.

*The Monument to the Third International.*
1919, Vladimir Tatlin
THE BAUHAUS: INDUSTRIAL STRENGTH

- Although Constructivists in Russia and Futurists in Italy were proposing radical designs around World War I, the style that came to dominate world architecture and define Modernism was born in Germany. The Bauhaus, a state school founded in 1919 to unite fine and applied arts in a new architecture, was its epicenter.

- Bauhaus Modernism was a movement or method, not a style. It proposed simple, streamlined (elverişli) houses for workers, which would be affordable, efficient and well-designed. Living in such an environment, it was thought, would improve the human condition and foster an egalitarian society. Mass production was the key. Only standardized components were feasible to fill the urgent need for mass housing quickly and cheaply.

- Architects considered themselves as leaders of a social revolution. They would create a new society on the drafting board—social, not just aesthetic, reform. For the first time, great architects concentrated not on designing palaces for royalty or monuments for church and state, but ordinary housing for the common man.

- Traits of Bauhaus architecture that proliferated across the globe in high and low-rise structures from 1930 to 1970 were free-plan interiors; use of concrete, glass and steel; stark white cubes; unadorned wall surfaces, strip windows flush with the wall pane; and flat roofs. This "white architecture" was called factory and machine design. Order, regularity, and the sense of space, rather than mass predominated.

- Founded in 1919, by the architect Walter Gropius, and shut down by the Nazis in 1933, the Bauhaus brought together artists, architects, and designers in an extraordinary conversation about the nature of art in the age of technology. Aiming to rethink the very form of modern life, the Bauhaus became the site of a dazzling array of experiments in the visual arts that have profoundly shaped our visual world today.

- The most influential school of avant-garde art, design and architecture of the twentieth century, the Bauhaus was a vibrant laboratory for defining artistic practice in the modern age. The school made its home in three German cities: Weimar (1919-25), Dessau (1925-32), Berlin (1932-33).

- Over its 14-year existence, the Bauhaus had three different directors: Walter Gropius (1919-28), Hannes Meyer (1928-30), and Ludwig Mies van der Rohe (1930-33). While all three directors were architects, its illustrious faculty which included figures such as Lyonel Feininger, Vassily Kandinsky, Paul Klee, László Moholy-Nagy, and Oscar Schlemmer, were drawn from the artistic avant-garde, insuring a dialogue that challenged traditional hierarchies of the arts, placing fine art, architecture, and design on an equal footing.

- When the Nazis closed the Bauhaus in 1933, its teachers scattered, spreading the concept of rectangular minimalism across Europe and the United States. Architects like Walter Gropius, Marcel Breuer, Ludwig Mies van der Rohe, and László Moholy-Nagy exiled from Germany, and immigrated to the United States:

  - Gropius and Marcel Breuer taught at Harvard’s Graduate School of Design. (Gropius banished the study of architectural history at Harvard, fearful that the knowledge of the past would stifle creativity.)

  - Ludwig Mies van der Rohe taught at Illinois Institute of Technology.

  - László Moholy-Nagy founded the Chicago Institute of Design, and continued his career there.
Walter Gropius (German, 1883-1969) American architect, industrial designer and teacher of German birth. He was one of the most influential figures in the development of the Modern Movement, whose contribution lay as much in his work as theoretician and teacher as it did in his innovative architecture. The important buildings and projects in Gropius’s career—the early factories, the Bauhaus complex at Dessau (1925–6), the Total theater project for Berlin, the housing estates and prefabricated dwellings—were all more than immediate answers to specific problems. Rather, they were a series of researches in which he sought prototypical solutions that would offer universal applicability. They were also didactic in purpose—concrete demonstrations, manifestos, of his theories and beliefs. His theories sought to integrate the individual and society, art and industry, form and function and the part with the whole. He left Germany for England in 1934; three years later he emigrated to the USA, where he continued to teach, write and design for the rest of his life.

In 1908 he entered the Berlin office of Peter Behrens, then acting as design consultant to the Allgemeine Elektrizitäts-Gesellschaft (AEG). In Behrens’s office Gropius met fellow-assistants Adolf Meyer and Mies van der Rohe and perhaps Le Corbusier, who came to work there in 1910, at around the time that Gropius left.

One can see the effects of the years with Behrens not only through such contacts but also in Gropius’s own realization of the powerful influence of industry, both for architectural patronage and in the building process, and in his appreciation of the architect’s comprehensive role, from graphics and product design to building and urban planning.

In 1911 he joined the Deutscher Werkbund; this was an organization dedicated to that synthesis of art and industry that Gropius himself so ardently advocated.

On leaving Behrens (1910), Gropius opened his own office in Berlin, with Adolf Meyer as his associate. Their practice flourished until interrupted by World War I. Two buildings of this period stand out: the Fagus Factory (1911–13) on the Leine at Alfeld and the model factory of 1914.
The Fagus Factory (1911–13) was a striking example of early modernist architecture.

- The simplified modular treatment of the main façades
- The extensive use of glass and
- The dramatic omission of piers at its corners

These three features made Fagus Factory an innovative landmark in the evolution of the Modern Movement.

At the same time, Gropius retained an elemental classicism not only in the ordered regularity of its columned façade, but in the nuances of design:

- the entasis-like treatment of the narrow brick piers,
- the correction of optical illusions in the graduated spacing of the glazing bars and
- the precision of detail of the metal profiles.
At the end of World War I, Gropius returned to a chaotic, revolutionary Germany. He joined the newly formed Arbeitsrat für Kunst, becoming its director the same year. Soon afterwards he accepted an offer to head the Kunstschule and the Kunstgewerbeschule in Saxony, which he combined and renamed the Staatliches Bauhaus, Weimar. On assuming directorship of the Bauhaus in April 1919, his main preoccupations became education and the establishment and consolidation of the institution. It was an idealistic institution, and his opening manifesto proclaimed a utopian vision of ways to build, ‘which will embrace architecture and sculpture and painting in one unity, and which will rise one day towards heaven from the hands of a million workers’. The immediate reality of the Bauhaus was more modest, its goals more realistic and its scope restricted to the theory and practice of design. Within these parameters its achievements were notable (as demonstrated by the impressive Bauhaus exhibition of 1923).

The Haus am Horn was built for the Weimar Bauhaus’s exhibition of July through September 1923. It was designed by Georg Muche, a painter and a teacher at the Bauhaus. Other Bauhaus instructors, such as Adolf Meyer and Walter Gropius, assisted with the technical aspects of the house's design. Gropius stated that the goal of the house’s construction was "the greatest comfort with the greatest economy by the application of the best craftsmanship and the best distribution of space in form, size, and articulation."

The Haus am Horn was a simple cubic design, utilizing steel and concrete in its construction. At the center of the house was a living room, twenty-feet square, with specialized rooms surrounding it. Gropius described the rooms design: "in each room, function is important, e.g. the kitchen is the most practical and simple of kitchens -- but it is not possible to use it as a dining room as well. Each room has its own definite character which suits its purpose." Each room had specially-designed furnishings and hardware designed by and created in the Bauhaus workshops. Laszlo Moholy-Nagy, for instance, designed the lights and were made in the metal workshop; Marcel Breuer, a student at the time, designed the furniture, including the built-in cabinetry.
Bauhaus workshops, Haus am Horn kitchen (1923)
The Bauhaus originated in Weimar in 1919 as a new type of design school. In 1924, when further work in Weimar became impossible, the Bauhaus offered itself up to other towns. That Dessau, an aspiring industrial city in central Germany, was chosen by the Bauhaus Masters over Frankfurt am Main, for example, depended in part on the fact that it could offer the Bauhaus a new school building. Walter Gropius, founder of the Bauhaus in 1919 and its director until 1928, designed the building on behalf of the city of Dessau and in cooperation with Carl Fieger, Ernst Neufert and others in his private architectural practice – the Bauhaus did not have its own department of architecture until 1927. The Bauhaus workshops were integrated within the building's interior design. The city of Dessau provided money for the new school building on a development site close to the train station and also for the Masters' Houses, and remained the owner of both properties.

In his design, Walter Gropius refined architectonic ideas he first put into practice before WW I in the construction of the Fagus-Werke in Alfeld an der Leine. In Dessau as in Alfeld, the glass curtain wall suspended in front of the load-bearing framework defines the exterior of the workshop wing and openly shows the constructive elements. Gropius, rather than visually amplifying the corners of the cubic body of the building, allowed the glass surface to overlap the edges, thereby creating the impression of lightness.
The most renowned constructions, the "Bauhaus building" and the "Master Houses" were built in 1925-26. Especially the "Bauhaus building," an asymmetrical composition with three wings, strictly lived up to principle of form following function.

Walter Gropius
Bauhaus Building in Dessau, 1925–1926
Busch-Reisinger Museum, Harvard University, Cambridge, Massachusetts

Gropius consistently separated the parts of the Bauhaus building according to their functions and designed each differently. He thereby arranged the different wings asymmetrically – in relation to what is today the Bauhausstraße and the Gropiusallee respectively. In order to appreciate the overall design of the complex, the observer must therefore move around the whole building. There is no central viewpoint.

On the right, behind the curtain wall, lie the "laboratory workshops" of the Bauhaus classrooms, and on the left the wing containing the City of Dessau "Technical College". The raised section above the road housed the administration offices and Walter Gropius' private architecture practice.

Stairwell in the workshop wing
Photo Klaus Frahm
Under pressure from the National Socialists, the “Hochschule für Gestaltung” (school of design) at the Bauhaus was closed in 1932. After suffering heavy bomb damage towards the end of the war, the building was provisionally repaired. Designated a protected monument in 1974, it was comprehensively restored for the first time in 1976. The Wissenschaftlich-kulturelle Zentrum Bauhaus Dessau (WKZ), which began to establish a Bauhaus collection and which organised events, introduced an institution that focused on the work of the Bauhaus Dessau into the building. The WKZ merged with two further education institutes in 1987 to form the Bauhaus Dessau, which in 1994 became the Bauhaus Dessau Foundation. With its declaration as a World Cultural Heritage Site in 1996, it was decided to carry out further extensive restoration, which was completed in 2006. Today, the Bauhaus is therefore once more a vital place for experimental design, research and teaching, similarly dedicated to the cultivation and communication of the Bauhaus legacy, and to work on contemporary urban issues.

The Masters' Houses by Walter Gropius, Dessau, 1925-26

The Bauhaus movement needs no introduction; and its importance for architecture, as well as the arts and crafts is indisputable. In 1925, the city of Dessau also commissioned Walter Gropius with the construction of three semidetached houses for the Bauhaus masters and a detached house for its director. The plot lies in a small pine-tree wood. In 1926, Gropius and the Bauhaus masters László Moholy-Nagy and Lyonel Feininger, Georg Muche and Oskar Schlemmer as well as Wassily Kandinsky and Paul Klee were able to move in with their families.
As mentioned before, the school’s progressive teachings sought to unite art and production, a philosophy clearly reflected on its own Gropius-designed home.

With this ensemble of buildings, Gropius aimed, using industrially prefabricated and simple “building block” construction elements, to put the principles of efficient construction into practice – both in relation to the architecture and the building process itself. The standardization of construction elements was, however, in view of the technical resources available at the time, only partially realized.

The building soon became a recognizable icon of Classical Modernism, symbolising the movement and underlining through its decoration-free, clean style, a modern approach and a special, fully built-in architectural solution, use of colour.
The houses acquired their form through interleaved cubic corpora of different heights. Vertical rows of windows on the side façades provide lighting for the stairways, while the view of the semidetached houses from the street is characterized by the large glass windows of the studios. The façade of the Director’s House was the only one to feature asymmetrically arranged windows. The sides facing away from the street have generous terraces and balconies. The houses are painted in light tones and the window frames, the undersides of balconies and down pipes in stronger colors.

The creation of a row of houses, called the Masters’ Houses and planned to be the homes of the School’s Director and its professors and guests, was one of the campus’ most important additions, transferring the Bauhaus teachings to the residential typology.
The semidetached houses are essentially all the same: Each half of the house shares the same floor plan, albeit mirrored and rotated by 90°. Only on the second floor do the halves of the houses differ – the western section always features two additional rooms.

All the houses were equipped with modern furniture, and fitted cupboards were integrated between the kitchen service area and the dining room and between the bedroom and the studio. While Gropius and Moholy-Nagy fitted their houses exclusively with furniture by Marcel Breuer, the other masters brought their own furniture with them. The artists also developed their own ideas with respect to the arrangement of color, which, with Klee and Kandinsky, for example, was closely related to their own artistic work.
In 1920, Walter Gropius invited Klee to join the faculty of the Bauhaus.

Static-Dynamic Gradation, 1923
Paul Klee (German, 1879–1940)

While teaching at the Bauhaus, first in Weimar (1919–25) and then in Dessau (1925–32), Klee created many works that related to the subject of his courses.
Ludwig Mies van der Rohe (American, born Germany. 1886-1969) German architect, furniture designer and teacher, active also in the USA. With Frank Lloyd Wright, Walter Gropius and Le Corbusier, he was a leading figure in the development of modern architecture. His reputation rests not only on his buildings and projects but also on his rationally based method of architectural education.

He was born Ludwig Mies but later adopted his mother’s name, van der Rohe. The son of a master stone mason, Mies van der Rohe had no formal architectural education, but now is regarded as the father of all modern architects in a sense.

- In the first half of the 1920s the newly established Weimar Republic offered few opportunities for building in Germany, but progressive developments in the arts were beginning to find a hospitable European centre in Berlin. Mies van der Rohe participated fully in these activities. He directed the architectural division of the Novembergruppe (1921–5), helped to finance and wrote for the magazine G (Gestaltung) and prepared a remarkable series of projects in which he explored the architectural possibilities of the new building materials.
Two projects for country houses followed in 1923–4, one in brick, one in concrete. In them he developed the open concept of interior space as initiated by Frank Lloyd Wright.

Many other projects were designed during this period, all to remain unbuilt.

He designed and built the Wolf House (1926; destr.) at Guben, a finely crafted flat-roofed brick house, and municipal housing in the Afrikanischstrasse (1926–7) in Wedding, Berlin, three- and four-storey buildings with balconies on the south side. The decade closed, however, with two notable achievements.
In 1927, as First Vice President of the Deutscher werkbund, Mies van der Rohe directed one of the most successful of the inter-World War initiatives, the Weissenhofsiedlung exhibition in Stuttgart. He invited the foremost European architects to participate, among them Walter Gropius, Le Corbusier, Behrens, Max Taut and Bruno Taut. Twenty permanent residential buildings for working class were built around his own four-storey steel-framed apartments. They provide a remarkable exhibition of comparative individual interpretations of the new architecture. It was an international showcase of what later became known as the International style of modern architecture.

The German architect Mies van der Rohe was in charge of the project on behalf of the city, and it was he who selected the architects, budgeted and coordinated their entries, prepared the site, and oversaw construction. Le Corbusier was awarded the two prime sites, facing the city, and by far the largest budget. The twenty-one buildings vary only slightly in form, consisting of terraced and detached houses and apartment buildings, and display a strong consistency of design. What they have in common were their simplified facades, flat roofs used as terraces, window bands, open plan interiors and prefabricated elements which permitted their erection in just five months. All but two of the entries were white. Bruno Taut had his entry, the smallest, painted a bright red.

The estate was designed with tenant participation, and a streamlined building process in mind. Advertised as a blueprint for future workers’ housing, in fact each of these houses was customized and furnished on a budget far out of a normal workers reach. The exhibition opened to the public on July 23, 1927, a year late, and drew large crowds. Of the original twenty-one buildings, eleven survive as of 2006.

Participating architects:
Peter Behrens
Vicor Bourgeois
Le Corbusier (Charles Edouard Jeanneret-Gris) and Pierre Jeanneret
Richard Döcker
Josef Frank
Walter Gropius
Ludwig Hilberseimer
Ludwig Mies van der Rohe
Jacobus Johannes Pieter Oud
Hans Poelzig
Adolf Rading
Hans Scharoun
Mart Stam
Bruno Taut
Max Taut
Ferdinand Kramer
Modern architecture is usually characterized by:

- White walls, flat roofs, window bands, and open plan interiors;

**IN OTHER WORDS:**

- an adoption of the principle that the materials and functional requirements determine the result
- an adoption of the machine aesthetic
- an emphasis of horizontal and vertical lines
- a creation of ornament using the structure and theme of the building. Not rejection of ornamentation.
- a simplification of form and elimination of "unnecessary detail"
- an adoption of expressed structure

**Form follows function...**
It was not, however, until 1929 that Mies’s revolutionary ideas that shaped Modern Movement were finally realized in his German (or Barcelona) Pavilion (destr.; reconstructed 1986), Montjuïc, Barcelona.

In the years following World War I, Germany started to turn around. The economy started to recover after the 1924 Dawes Plan. The pavilion for the Universal Exhibition was supposed to represent the new Weimar Germany: democratic, culturally progressive, prospering, and thoroughly pacifist; a self-portrait through architecture. The Commissioner, Georg von Schnitzler said it should give “voice to the spirit of a new era”.

This concept was carried out with the realization of the "free plan" and the "floating room".

The pavilion stood for barely six months before being dismantled and all its reusable elements being sold. The photograph shows the reconstruction which has since been built. The pool of its marble-lined courtyard features the sculpture “Der Morgen” (The Morning) by Georg Kolbe.

Ludwig Mies van der Rohe
German Pavilion at the International Exhibition in Barcelona, 1929
Plan
It was a last-minute addition to the German section of the Exposición Internacional in Barcelona in 1929 for which Mies van der Rohe and Lilly Reich (with whom he collaborated on exhibition projects) had been given overall design responsibility by the government in 1928. Here Mies van der Rohe used the open (decellurized) plan as an architectural analogy of the social and political openness to which the new German republic aspired. Space-defining elements were dissociated from the structural columns, planning was free and open, merging interior and exterior spaces: unbroken podium and roof planes were held apart by a regular grid of slender cruciform steel columns, giving a clear field for spatial design, using opaque, translucent and transparent walls freely disposed between the columns. These ideas were crucial to all his subsequent work. The rich materials of the space-defining walls, the reflecting pools—in one of which stands a sculpture by Georg Kolbe—and the furniture that he designed specifically for the pavilion (the well-known Barcelona chair, stools and table), all added to the architectonic qualities in a building of great poetic beauty.

The Barcelona Pavilion, designed by Ludwig Mies van der Rohe, was the German Pavilion for the 1929 International Exposition in Barcelona, Spain. This building was used for the official opening of the German section of the exhibition. It was an important building in the history of modern architecture, known for its simple form and extravagant materials, such as marble and travertine. Several critics, historians and modernists have declared it "the most beautiful building of the century"
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This concept was carried out with the realization of the “free plan” and the “floating room.”
Mies wanted this building to become "an ideal zone of tranquility" for the weary visitor, who should be invited into the pavilion on the way to the next attraction. Since the pavilion lacked a real exhibition space, the building itself was to become the exhibit. The pavilion was designed to "block" any passage through the site, rather, one would have to go through the building. Visitors would enter by going up a few stairs, and due to the slightly sloped site, would leave at ground level in the direction of the "Spanish Village". The visitors were not meant to be led in a straight line through the building, but to take continuous turnabouts. The walls not only created space, but also directed visitor's movements. This was achieved by wall surfaces being displaced against each other, running past each other, and creating a space that became narrower or wider.