

Module 9: Architecture

This module explores architecture – its history and relation to visual art. The sections for this module are outlined below:

- Introduction
- Traditional Methods and Materials
- Architecture in China and the Far East
- Cross-Cultural Influences
- Architecture and the Industrial Revolution
- Modern Architecture: A New Language
- Post Modern and Contemporary Architecture
- Green Architecture

Introduction

Architecture is the art and science of designing structures and spaces for human use. Architectural design in itself is an art form realized through considerations of spatial design and aesthetics. Related to sculpture, architecture creates three-dimensional objects that occupy a given space and create a visual relationship with the space around them. The differences between the sculpture and architecture are in their scale and utility. Early human structures provided shelter from the elements. As hunter-gatherer societies transitioned to farming they made more permanent shelters, eventually formed communities, towns and cities. For thousands of years, architecture reflected the specific environment and materials available in any given region, including rock caves or huts of wood, soil and brick. Many were assemblages of materials like grasses, leaves and animal hides. [Nomadic](#) peoples still utilize these materials.



Saylor URL: <http://www.saylor.org/courses/arth101b>

Attributed to: www.sbctc.edu (adapted)



Turkman woman standing at the entry to a grass and hide covered yurt.

Collection of the Library of Congress Prints and Images File.

This image is not to be reproduced for commercial purposes.

In simple design terms, architecture adheres to the dictum that “form follows function”. Architecture’s function reflects different human needs. For example, warehouses take the shape of large squares or rectangles because they need only to enclose a space that protects and stores products and materials in the most efficient manner. A home is designed with other functions in mind, including cooking, resting, cleaning and entertaining. So the interior design of a home includes specialized areas for these different functions. A church or school design would have their own set of spatial requirements because they provide for large groups of people at once.

Architecture solves problems concerning the use of space, interior design and the landscape that surrounds it. The limitations imposed on architecture by the laws of physics are solved to a large extent by engineering. The greatest limitations on design are the physical loads exerted by a structure’s weight. **Compression** loads refer to vertical weight and **shear** loads travel at an angle or horizontally. Buildings need stable foundations and framing systems that support the spanning of open space.

Methods and Materials

The basic methods in building design and construction have been used for thousands of years. Stacking stones, laying brick or lashing wood together in one form or another are still used today in all parts of the world. But over the centuries, innovations in methods and materials have given new expression to architecture and the human footprint on the landscape. We can look to historical examples for clues that give context to different style periods.

In western culture, one of the earliest settlements with permanent structures was discovered at [Catalhoyuk](#) in Turkey (pictured below). The rich soil that surrounds the settlement indicates the inhabitants relied in part on farming. Dated to about 7500 BCE, the dwellings are constructed from dried mud and brick and show wooden support beams spanning the ceilings. The design of the settlement incorporates a cell-like structure of small buildings either sharing common walls or separated by a few feet. The roofs are flat and were used as pathways between buildings.

Saylor URL: <http://www.saylor.org/courses/arth101b>

Attributed to: www.sbctc.edu (adapted)





Restoration of interior, Catalhoyuk, Turkey.

The image above is released under a [Creative Commons Attribution-Share-Alike License 3.0](#) (HTML). It is attributed to Stipich Bela and the original version can be found [here](#) (HTML).

A significant advance came with the development of the **post and lintel** system. With this, a system of posts –either stone or wood – are placed at intervals and spanned by beams at the tops. The load is distributed down the posts to allow for areas of open space between them. Its earliest use is seen at *Stonehenge* (below), a prehistoric monument in southern England dating to about 3000 BCE.



Stonehenge from the northeast
This image is in the public domain.



Post and Lintel support in contemporary use.

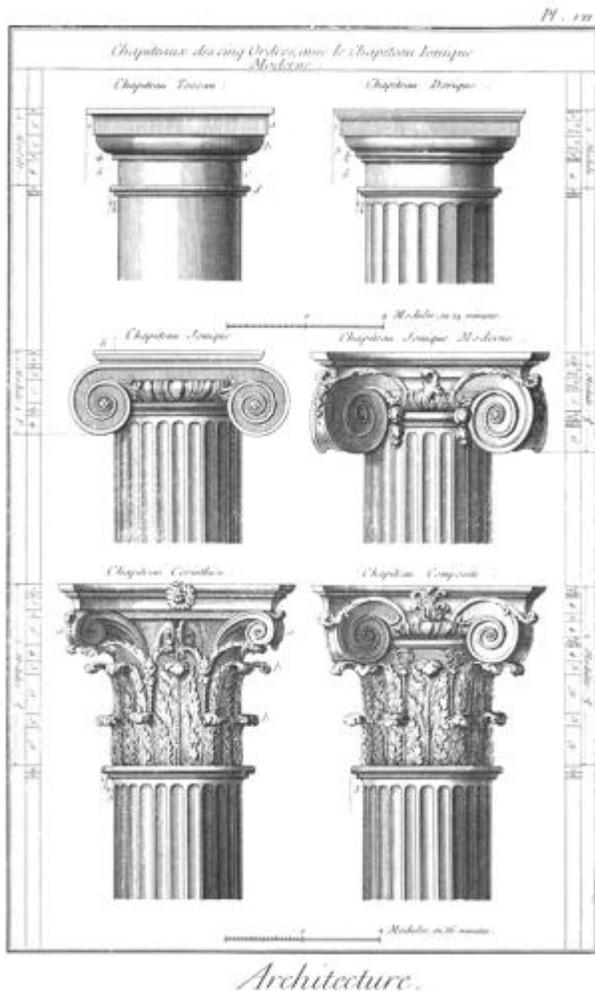
Saylor URL: <http://www.saylor.org/courses/arth101b>

Attributed to: www.sbctc.edu (adapted)



The image above has been reposted by the kind permission of Chris Gildow. Please note that this material is under copyright and cannot be reproduced in any capacity without explicit permission from the copyright holder.

A **colonnade** continues the post and lintel method as a series of [columns](#) and beams enveloping larger areas of space. Colonnades can be free standing or part of a larger structure. Common in [Egyptian](#), Greek and Roman architectural design, their use creates visual rhythm and implies a sense of grandeur. Over time columns became categorized by the capital style at their tops. The smooth and unadorned **Tuscan** and fluted **Doric** columns give way to more elaborate styles: the scrolled **Ionian** and the high relief **Corinthian**.



Greek and Roman capitals: Top row: Tuscan, Doric. Middle Row: Ionic. Bottom Row: Corinthian and a composite Ionic Corinthian.

This image is in the public domain.

Saylor URL: <http://www.saylor.org/courses/arth101b>

Attributed to: www.sbctc.edu (adapted)

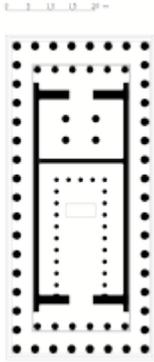


The Parthenon, a Greek temple to the mythic goddess Athena, was built in the 5th century BCE in Athens and is part of a larger community of structures in the [Acropolis](#). All are considered pinnacles of classic Greek architecture. Ionic colonnades march across all sides of the Parthenon, the outer boundary of a very ordered interior floor plan.



2006 01 21 Athènes Parthénon

The image above is licensed under the [GNU Free Documentation License](#) (HTML). It is attributed to Harietta171 and the original version can be found [here](#) (HTML).



Floor plan of the Parthenon.

This image is in the public domain.

Another example is the colonnade surrounding St. Peter's Square in the Vatican, Rome.



Gian Lorenzo Bernini, *Colonnade at St. Peter's Square*, the Vatican. 1656-67. Photo by D.F. Malan

The image above is released under a [Creative Commons Attribution-Share-Alike License 3.0](#) (HTML). It is attributed to Francois Malan and the original version can be found [here](#) (HTML).

The colonnade is part of our contemporary surroundings too. Parks and other public spaces use them to the same effect: providing visual and material stability in spanning areas of open space.



Contemporary colonnade

The image above has been reposted by the kind permission of Chris Gildow. Please note that this material is under copyright and cannot be reproduced in any capacity without explicit permission from the copyright holder.

The development of the **arch** gave architecture new alternatives to post and lintel construction. Arches appeared as early as the 2nd millennium BC in [Mesopotamian](#) brick architecture. They supply strength and stability to walls without massive posts and beams because their construction minimizes the shear load imposed on them. This meant walls could go higher without compromising their stability and at the same time create larger areas of open space between arches. In addition, the arch gave buildings a more organic, expressive visual element. The Colosseum in Rome (below), built in the first century CE, uses repeated arches to define an imposing but decidedly airy structure. The fact that it's still standing today is testament to the inherent strength of the arch.



The Colosseum, Rome, Italy. 1st Century CE. Photo: David Iliff.
The image above is released under a [Creative Commons Attribution-Share-Alike License 2.5](#) (HTML). It is attributed to David Iliff and the original version can be found [here](#) (HTML).

Roman aqueducts are another example of how effectively the arch was used. Tall and graceful, the arches support themselves in a colonnade and were used to transport a network of water channels throughout ancient Rome.



Roman aqueduct, c. 1st century CE.
This image is in the public domain.

From the arch came two more important developments: extending an arch in a linear direction formed a **vault**, encapsulating tall, narrow spaces with inverted “U” shaped ceilings. The compressive force of the vault required thick walls on each side to keep it from collapsing. Because of this many vaults were situated underground – essentially tunnels – connecting areas of a larger building or providing covered transport of people, goods and materials throughout the city.

Saylor URL: <http://www.saylor.org/courses/arth101b>

Attributed to: www.sbctc.edu (adapted)



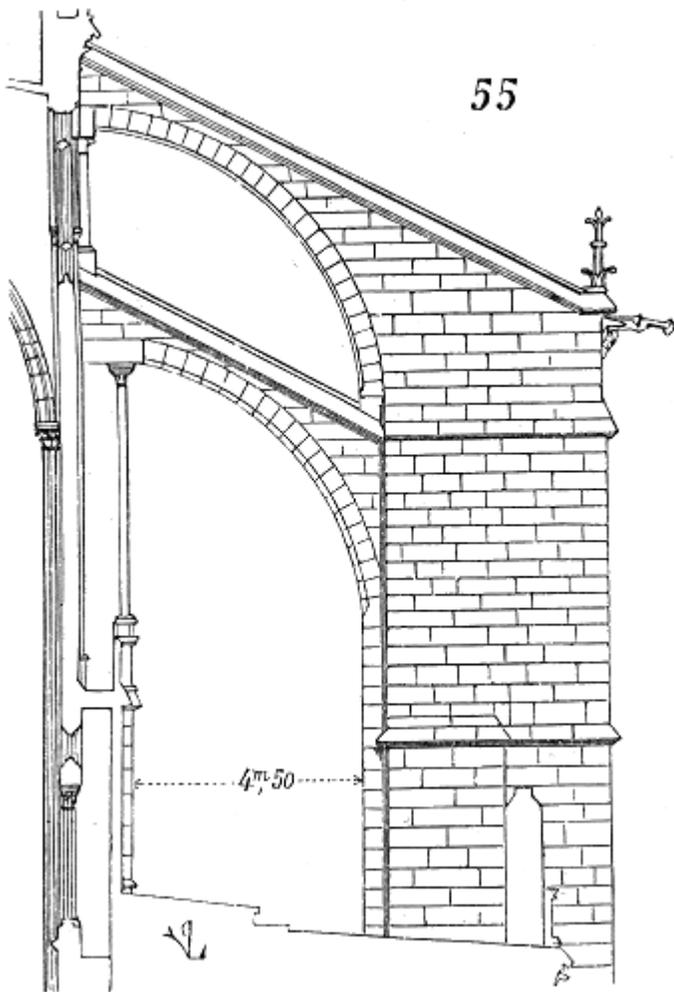
An arch rotated on its vertical axis creates a **dome**, with its curving organic scoop of space reserved for the tops of the most important buildings. The [Pantheon](#) in Rome sports a dome with an oculus – a round or elliptical opening at the top, that is the massive building’s only light source.



Dome of the Pantheon with oculus, Rome. 126 CE.

The image above is released under a [Creative Commons Attribution-Share-Alike License 3.0](#) (HTML). It is attributed to Dennis Jarvis and the original version can be found [here](#) (HTML).

These elements combined to revolutionize architectural design throughout Europe and the Middle East in the form of bigger and stronger churches, mosques and even sectarian government buildings. Styles changed with technology. **Romanesque** architecture was popular for nearly three hundred years (800 – 1100 CE). The style is characterized by barrel or [groin](#) vault ceilings, thick walls with low exterior buttresses and squared off towers. Buildings reached a point where they struggled to support their own weight. The architectural solution to the problem was a **flying buttress**, an exterior load-bearing column connected to the main structure by a segmented arch or ‘flyer’.



Arc boutant eglise Saint Denis

This image is in the public domain.

Flying buttresses became a kind of exoskeleton that transferred the heavy weight of Romanesque stone roofs through their arches and into the ground, away from the building. They became catalysts for the **Gothic** style based on higher, thinner walls, pointed arches, [ribbed](#) vaults and spired towers. Also, the thinner walls of the Gothic style allowed for more stained glass windows and interior illumination.



Church of St. Denis, France. 7th -12th centuries CE.

The image above is licensed under the [GNU Free Documentation License](#) (HTML). It is attributed to MOSSOT and the original version can be found [here](#) (HTML).

St. Denis basilica in France (above) is one of the first Gothic style churches, known for its high vaulted ceilings and extensive use of stained glass windows. The architecture of the church became a symbol of spirituality itself: soaring heights, magnificently embellished interiors and exteriors, elaborate lighting and sheer grandeur on a massive scale.

The Doges Palace in Venice, Italy (pictured below) housed the political aristocracy of the Republic of Venice for a thousand years. Built in 1309 CE, its rhythmic levels of columns and pointed arches, divided by [fractals](#) as they rise, give way to elaborate geometric patterns in the pink brick façade. The ornamental additions at the top edge reinforce the patterns below.



The *Doges Palace*, 1309 CE, viewed from St. Mark's Square, Venice, Italy. The image above is licensed under the [GNU Free Documentation License](#) (HTML). It is attributed to Emustonen and the original version can be found [here](#) (HTML).

Architecture in China and the Far East

-

Chinese architecture refers to a style of [architecture](#) that has taken shape in [East Asia](#) over many centuries. The structural principles of traditional Chinese architecture have remained largely unchanged. Chinese architectural (and aesthetic) design is based on symmetry, a general emphasis on the horizontal and site layouts that reflect a hierarchy of importance. These considerations result in formal and stylistic differences in comparison to the West, and display alternatives in design.

The Chinese have used stone, brick and wood for centuries. *The Great Wall*, begun in the 5th century BCE, was intended to keep nomadic invaders out of Northern China. The stone wall covers 5500 miles in its entirety. The rigid material takes on a more flexible appearance as it conforms to the contours of the landscape surrounding it. Notice in the image below the use of arches in the towers.

The Great Wall, China. Begun 5th century BCE. Stone.

The Zhaozhou Bridge is an example of efficient design and flawless craftsmanship with materials. Built in 595 CE, it uses stone barrel vaults and arches to gracefully span the Xiaio River. Today it is the oldest standing bridge in China. The best architectural testament to it is in a poetic inscription left on the bridge by [Tang Dynasty](#) officials seventy years after its construction and reads:

This stone bridge over the Jiao River is the result of the work of the Sui engineer Li Chun. Its construction is indeed unusual, and no one knows on what principle he made it. But let us observe his marvelous use of stonework. Its convexity is so smooth, and the wedge-shaped stones fit together so perfectly... How lofty is the flying-arch! How large is the opening, yet without piers! Precise indeed are the cross-bondings and joints between the stones, masonry blocks delicately interlocking like mill wheels, or like the walls of wells; a hundred forms (organized into) one. And besides the mortar in the crevices there are slender-waist iron cramps to bind the stones together. The four small arches inserted, on either side two, break the anger of the roaring floods, and protect the bridge mightily. Such a masterwork could never have been achieved if this man had not applied his genius to the building of a work which would last for centuries to come.^[2]

Needham, Joseph. *The Shorter Science and Civilization in China*. Cambridge University Press, 1994. [ISBN 0521292867](#). Pages 145-147.



Li Chun, *Zhaozhou Bridge*, China. Stone. 595 CE.

This image is in the public domain.

Though Chinese stonemason work is celebrated for its preciseness and ingenuity, the use of wood as a primary construction material is the hallmark of traditional Chinese architecture. Wooden timber, usually large trimmed logs, are used as load-bearing

Saylor URL: <http://www.saylor.org/courses/arth101b>

Attributed to: www.sbctc.edu (adapted)



columns and lateral beams for framing buildings and supporting the roofs. These structural timbers are prominently displayed in finished structures. It's not known how the ancient builders raised the huge wooden columns into position. Columns and roof sections were joined together in [mortise and tenon](#) joints without the use of glue or nails.

One innovation developed in Chinese architecture is the **cantilever** – an extension or overhang without exterior bracing. This was made possible by using **corbel brackets** or **dougong** – triangular braces that help support heavy loads at the corners. The Chinese engineered the cantilever and bracket system to provide buildings with sweeping roof overhangs that commonly turn upwards at the corners. Cantilevered roofs appear to float above the main structure and reinforce the focus on a horizontal symmetry. The *Hall of Divine Might*, located in the [Forbidden City](#) in Beijing, China exemplifies this design characteristic.



Hall of Divine Might, located in the Forbidden City, Beijing.

The image above is released under a [Creative Commons Attribution License 2.0](#) (HTML). It is attributed to Saad Akhtar and the original version can be found [here](#) (HTML).

Chinese architecture influenced all of East Asian design over hundreds of years. The same elements and characteristics can be seen in traditional architecture from Japan, the Koreas and Vietnam.

Decoration is implicit in Chinese architecture. Bright colors and intricate designs dominate many traditional buildings and enhance the look of exposed timbers. The Sagami Temple in Japan (below) uses elaborate decoration to intensify the visual effect of a complex corner structure of brackets and overhangs.



Sagami Temple, detail, 745 CE, Hyogo Prefecture, Japan.

The image above is released under a [Creative Commons Attribution-Share-Alike License 3.0](#) (HTML). It is attributed to 663highland and the original version can be found [here](#) (HTML).

Cross-cultural Influences on Architecture

-
As overland and marine trade routes expanded between Eastern and Western civilizations so did the influence of cultural styles in architecture, religion and commerce. The most important of these passages was the **Silk Road**, a system of routes that developed over hundreds of years across the European and Asian continents. Along this route are buildings that show cross-cultural influences in their design. One in particular is the [Hazrat Mian Mir Tomb](#) in Lahore, Pakistan. Completed around 1635 CE, the structure shows characteristics of Chinese design in the cantilevered roof,

Saylor URL: <http://www.saylor.org/courses/arth101b>

Attributed to: www.sbctc.edu (adapted)



terraced dome and sectioned facades. Islamic features include tripartite arches and geometric decorative tiles.



Silk Road Map.

This image is in the public domain.



Dome of the Rock on the

Temple Mount, Jerusalem. 5th century CE.

The image above is released under a [Creative Commons Attribution-Share-Alike License 3.0](https://creativecommons.org/licenses/by-sa/3.0/) (HTML). It is attributed to David Baum and the original version can be found [here](#) (HTML).

The Dome of the Rock in Jerusalem offers different cultural influences manifest in one building: a classic Greek colonnade at the main entrance, the gold dome and central turret supporting it, western style arches and colorful Islamic surface embellishment.

View a detail of the exterior wall in the image below.



Dome of the Rock, Jerusalem, wall detail. Image: Wayne McLean.

The image above is released under a [Creative Commons Attribution-Share-Alike License 3.0](#) (HTML). It is attributed to Wayne McClean and the original version can be found [here](#) (HTML).

The [Louvre Palace](#) in Paris, once the official royal residence and now one of the world's biggest museums, had its beginnings in the 12th century but didn't achieve its present form until recently. The building's style is French Renaissance – marked by a formal symmetry, horizontal stability and restrained ornamentation. The Louvre executive board chose architect [I. M. Pei](#)'s glass pyramid design as the defining element for the new main entry in 1989. The choice was a great success: the pyramid further defines

the public space above ground and gives natural light and a sense of openness to the underground lobby beneath it.



I. M. Pei, *The Louvre Pyramid*, 1989.

The image above is released under a [Creative Commons Attribution-Non-Commercial-Share-Alike License 3.0](#) (HTML). It is attributed to Nick Rossino and the original version can be found [here](#) (HTML).

Architecture and the Industrial Revolution

Beginning in the 18th century the Industrial Revolution made fundamental changes in agriculture, manufacturing, transportation and housing. Architecture changed in response to the new industrial landscape. Prior to the late 19th century, the weight of a multistory building had to be supported principally by the strength of its walls. The taller the building, the more strain this placed on the lower sections. Since there were clear engineering limits to the weight such load-bearing walls could sustain, large designs meant massively thick walls on the ground floors, and definite limits on the building's height.

Forged iron and milled steel began to replace wood, brick and stone as primary materials for large buildings. This change is encapsulated in the *Eiffel Tower* built in 1889. Standing on four huge arched legs, the iron lattice tower rises narrowly to just over 1000 feet high. When I visited the tower I was surprised to find a wooden railing at the top (supported by iron bars) and carved with innumerable names! The Eiffel Tower not only became an icon for France but for industry itself – heralding a new age in materials, design and construction methods.

Saylor URL: <http://www.saylor.org/courses/arth101b>

Attributed to: www.sbctc.edu (adapted)





Gustave Eiffel, *The Eiffel Tower*, 1889. Iron, wood and glass, Paris.
The image above is released under a [Creative Commons Attribution-Share-Alike License 3.0](#) (HTML). It is attributed to Benh Lieu Song and the original version can be found [here](#) (HTML).

In America, the development of cheap, versatile steel in the second half of the 19th century helped change the urban landscape. The country was in the midst of rapid social and economic growth that made for great opportunities in architectural design. A much more urbanized society was forming and the society called out for new, larger buildings. By the middle of the 19th century downtown areas in big cities began to transform themselves with new roads and buildings to accommodate the growth. The mass production of steel was the main driving force behind the ability to build skyscrapers during the mid 1880s.

Saylor URL: <http://www.saylor.org/courses/arth101b>

Attributed to: www.sbctc.edu (adapted)



Steel framing was set into foundations of **reinforced concrete**, concrete poured around a grid of steel rods (re-bar) or other matrices to increase tensile strength in foundations, columns and vertical slabs.



The image above is released under a [Creative Commons Attribution- License 2.5](https://creativecommons.org/licenses/by/2.5/) (HTML). It is attributed to Argyriou and the original version can be found [here](#) (HTML).

Rebar being set in place for the foundation of a sewage treatment plant pump station.

The people in Midwestern America felt less social pressure to conform to the ways and styles of the architectural past. By assembling a framework of steel girders, architects and builders could suddenly create tall, slender buildings with a strong steel skeleton. The rest of the building's elements — the walls, floors, ceilings, and windows were suspended from the load-bearing steel. This new way of constructing buildings, so-called "**column-frame**" construction, pushed them up rather than out. Building design in major urban centers now placed a premium on vertical space. Like the flying buttress of the 14th century, the steel weight-bearing frame allowed not just for taller buildings, but much larger windows, which meant more daylight reaching interior spaces. Interior walls became thinner creating more usable floor space.

Because steel framing had no precedent, its use would rewrite the rules of design and engineering of large buildings and along with them a new formal aesthetic. Architect Louis Sullivan's twelve-story *Prudential Building* in Buffalo New York is an early

Saylor URL: <http://www.saylor.org/courses/arth101b>

Attributed to: www.sbctc.edu (adapted)



example of column framing. Built in 1894, its tall, sleek brick veneer walls, large windows and gently curved top pediment ushers in a new century with the modern style of the skyscraper.

For all of its new technology and design innovations, The *Prudential Building* still holds some forms from the past. A large arch hovers over the main entrance and the brick façade has extensive ornamentation.





Both photos: Louis Sullivan, *The Prudential Building* (Also known as the *Guaranty Building*), 1894, Buffalo, NY. Photo: Jack E. Boucher.

Collection Historic American Buildings Survey, National Archives, Library of Congress. These images are in the public domain.

Modern Architecture: A New Language

-
The move to modernism was introduced with the opening of the **Bauhaus** school in Weimar Germany. Founded in 1919 by the German architect Walter Gropius, Bauhaus (literal translation “house of construction”) was a teaching and learning center for modern industrial and architectural design. Though not a movement or style in itself, Bauhaus instructors and staff reflected different artistic perspectives, all of them born from the modern aesthetic. It was partly the product of a post- World War I search for new artistic definitions in Europe and Gropius’s commitment to the principle of bringing all the arts together with a focus on practical, utilitarian applications. This view rejected

Saylor URL: <http://www.saylor.org/courses/arth101b>

Attributed to: www.sbctc.edu (adapted)



the notion of “art for art’s sake”, putting a premium on the knowledge of materials and their effective design. This idea shows the influence of [Constructivism](#), a similar philosophy developed concurrently in Russia that used the arts for social purposes. Bauhaus existed for fourteen years, relocating three times, and influencing a whole generation of architects, artists, graphic and industrial designers and typographers.

In 1924 Gropius designed the Bauhaus main building in Dessau. Its modern form includes bold lines, an asymmetric balance and curtain walls of glass. It’s painted in neutral tones of white and gray accented by strong primary colors on selected doors.



Walter Gropius, *Bauhaus*, 1924, Dessau, Germany.
This image is in the public domain.

A comparative building is Dutch architect Garret Rietveld’s *Schroder House*, (below)also from 1924. The design is based on the reductive abstract style called [de Stijl](#) or “the Style”, an early modern movement that focused on balanced compositions of planar elements plus the primary colors plus black and white. The movement was made popular by the painter [Piet Mondrian](#). As much as the focus was on materials and “New Objectivity”, the Bauhaus and the Schroder house help solidify the modern aesthetic first expressed by Louis Sullivan in America thirty years earlier.

Saylor URL: <http://www.saylor.org/courses/arth101b>

Attributed to: www.sbctc.edu (adapted)





Gerrit Rietveld, *Schroder House*, 1924. Utrecht, The Netherlands.
The image above is released under a [Creative Commons Attribution License 3.0](#) (HTML). It is attributed to Husky and the original version can be found [here](#) (HTML).

Gropius, Rietveld and the German born architect Ludwig Mies van der Rohe were most responsible for creating a new design language for the modern age. Van der Rohe later moved to the United States and was a force in creating sleek steel framed skyscrapers with metal and glass “skins”. See his IBM Plaza building below.



Ludwig Mies van der Rohe, *IBM Plaza*, 1971, Chicago, Illinois.

This image is attributed to J. Crocker and the original image can be found [here](#).

[Frank Lloyd Wright](#) is considered one of the 20th century's greatest architects. He was a protégé to Sullivan and extended these new design ideas to architectural forms all his own. Wright designed buildings, churches, homes and schools, but is best known for his design of *Falling Water*, a home in the Pennsylvania countryside for Chicago department store owner Edgar Kaufman. His design innovations include unified open floor plans, a balance of traditional and modern materials and the use of cantilevered forms that extends horizontal balance.



Falling Water, Bear Run, Pennsylvania. 1937.

The image above is released under a [Creative Commons Attribution License 3.0](#) (HTML). It is attributed to Sxenko and the original version can be found [here](#) (HTML).

The [Guggenheim Museum](#) in New York City is an example of Wright's concern with organic forms and utilization of space. The main element in the design is a spiral form rising from the middle of the cantilevered main structure. Paintings are exhibited on its curved walls. Visitors take the elevator to the top floor and view the works as they travel down the gently sloped hallway. This spiral surrounds a large atrium in the middle of the building and a domed skylight at the top.



Guggenheim Museum, New York City, Interior.

The image above is released under a [Creative Commons Attribution-Share-Alike License 3.0](#) (HTML). It is attributed to Martyn Jones and the original version can be found [here](#) (HTML).

The American architect Philip Johnson took the modern aesthetic to an extreme with his [Glass House](#) in New Canaan, Connecticut. Completed in 1949, its severe design sits comfortably in the rural landscape surrounding it. Steel vertical supports echo nearby tree trunks and large glass panels act as both walls and windows. Like Meis van der Rohe, Johnson was a leader in developing and refining an architecture characterized by rectilinear forms, little or no surface decoration and plenty of glass. By the mid 20th century most major cities in the world were building skyscrapers designed in this [International Style](#).

Not all architects shared this enthusiasm for the modern style. [Antoni Gaudi](#) realized his own vision in design that gave organic shapes to his structures. The exterior of [Casa Batllo](#) (1905, pictured below) in Barcelona shows a strong influence from the decorative [Art Nouveau](#) style with its undulating forms and strong ornamentation.

Gaudi's greatest architectural effort is La Sagrada Familia basilica in Barcelona. Started in 1884 and unfinished to this day, its massive and complex facades, extensive stained glass and multiple towers are bridges across three centuries of architectural design.



Antoni Gaudi, *Casa Batllo*, 1905, Barcelona, Spain.

The image above is released under a [Creative Commons Attribution License 2.5](#) (HTML). It is attributed to Tato Grasso and the original version can be found [here](#) (HTML).

Saylor URL: <http://www.saylor.org/courses/arth101b>

Attributed to: www.sbctc.edu (adapted)





Sagrada Familia

CC-BY-SA

The image above is released under a [Creative Commons Attribution-Share-Alike License 3.0](https://creativecommons.org/licenses/by-sa/4.0/) (HTML). It is attributed to Bernard Gagnon and the original version can be found [here](#) (HTML).

Postmodern and Contemporary Architecture

-
Postmodern architecture began as an international style whose first examples are generally cited as being from the 1950s, but did not become a movement until the late 1970s^[1] and continues to influence present-day architecture. Postmodernity in architecture is generally thought to be heralded by the return of "wit, ornament and reference" to architecture in response to the formalism of the International Style.

Saylor URL: <http://www.saylor.org/courses/arth101b>

Attributed to: www.sbctc.edu (adapted)



Michael Graves's *Portland Building* from 1982 personifies the idea behind postmodernist thought. A reference to more traditional style is evident in the patterned column-like sections. Overt large-scale decorative elements are built into and *onto* the exterior walls, and contrasts between materials, colors and forms give the building a graphic sense of visual wit.



Michael Graves, *Portland Municipal Services Building*, 1982, Portland, Oregon.

Image by Steve Morgan, licensed through Creative Commons.

The image above is released under a [Creative Commons Attribution-Share-Alike License 3.0](https://creativecommons.org/licenses/by/3.0/) (HTML). It is attributed to Steve Morgan and the original version can be found [here](#) (HTML).

Postmodern design has a more subtle but identifiable presence in some large skyscrapers. Look at any major city's central skyline and see if you can't pick out the different styles.



Seattle Washington urban skyline.

The image above has been reposted by the kind permission of Chris Gildow. Please note that this material is under copyright and cannot be reproduced in any capacity without explicit permission from the copyright holder.

We can see how architecture is actively evolving in the contemporary work of Frank Gehry and [Zaha Hadid](#). Gehry's work is famous for its rolling and bent organic forms. His gestural, erratic [sketches](#) are transformed into buildings through a computer aided design process (CAD). They have roots in postmodernism but lean towards a completely new modern style. They have as much to do with sculpture as they do with architecture. Seattle's *Experience Music Project* is an example of the complexity that goes into his designs. Its curves, ripples and folds roll across space and the multi-colored titanium panels adorning the exterior accentuate the effect. It's even designed for a monorail train to run through it!



Frank Gehry, *The Experience Music Project*, 2000. Seattle Washington. Detail of the west façade with the monorail passing through.

The image above has been reposted by the kind permission of Chris Gildow. Please note that this material is under copyright and cannot be reproduced in any capacity without explicit permission from the copyright holder.

Hadid's designs use soft and hard geometry with lots of cantilever and strong sculptural quality. In 2004 Hadid became the first female recipient of the [Pritzker Architecture Prize](#), architecture's equivalent of the Nobel Prize. Her work defines and influences architectural style in the 21st century. For example, her design for an inclined rail station in Innsbruck, Austria is futuristic, balancing abstract forms and ornament with [utility](#).



Zaha Hadid, *Norpark Rail Station*, Innsbruck, Austria. 2004-2007.

The image above is released under a [Creative Commons Attribution-Share-Alike License 3.0](#) (HTML). It is attributed to Hafelekar and the original version can be found [here](#) (HTML).

-

Green Architecture

-

In the last decade there has emerged a strong interest in developing “green” architecture – designs that incorporate ecologically and environmentally sustainable practices in site preparation, materials, energy use and waste systems. Some are simple: buildings oriented to the south or west helps with passive solar heating. Others are more complex: Solar voltaic cells on the roof to generate power to the building. **Green roofs** are made of sod and other organic material and act as a cooling agent and recycle rainwater too. In addition, technological innovations in lighting, heating and cooling systems have made them more efficient.

A branch of the Seattle Public Library uses green design. A glass curtain wall on the north side makes use of natural lighting. Overhanging wooden roof beams shades harsh light. The whole structure is nestled under a green roof of sod and over 18,000 low water use plants. Seven skylights on the roof provide more natural lighting.

Saylor URL: <http://www.saylor.org/courses/arth101b>

Attributed to: www.sbctc.edu (adapted)





Above: Bohlin Cywinski Jackson Architects, *Ballard Branch, Seattle Public Library*. 2005.

The image above has been reposted by the kind permission of Chris Gildow. Please note that this material is under copyright and cannot be reproduced in any capacity without explicit permission from the copyright holder.



“Green” roof, Ballard branch, Seattle Public Library, with skylights.

The image above has been reposted by the kind permission of Chris Gildow. Please note that this material is under copyright and cannot be reproduced in any capacity without explicit permission from the copyright holder.

And the California Academy of Sciences building in San Francisco harbors a [living roof](#). Click on the hyperlink to view a short video and explore how it works.

The [Jean Marie Tjibaou Cultural Center](#) on the island of New Caledonia in the South Pacific captures the prevailing winds in sail-like structures that disperse it to the building's interior as passive ventilation. Architect [Renzo Piano](#)'s design is influenced by the indigenous tribal culture of the island.



Renzo Piano, *Tjibaou Cultural Center*, New Caledonia. 1998. Detail showing wind filter. The image above is licensed under the [GNU Free Documentation License](#) (HTML). It is attributed to Fanny Schertzer and the original version can be found [here](#) (HTML).

Conclusion

Architecture is an art form that reflects how we present ourselves across the earth's landscape, and, like other expressive mediums, it changes with styles, technologies and cultural adaptations. Architecture not only provides worldly needs of shelter, workspace and storage but also represents human ideals in buildings like courthouses and government buildings and manifestations of the spirit in churches and cathedrals.

Saylor URL: <http://www.saylor.org/courses/arth101b>

Attributed to: www.sbctc.edu (adapted)



Traditional architecture has survived over thousands of years in one form or another, while contemporary design offers new approaches in how we use materials and technology to shape the look of our environment.