

II: The Roots of Modern  
Architecture (Continued):  
Chicago School part II, the  
Secession/Art Nouveau/Arts &  
Crafts, the Werkbund

Louis Sullivan  
Daniel Burnham  
Hector Guimard  
Victor Horta  
Rennie Mackintosh  
Greene and Green  
Gustav Stickley  
Frank Lloyd Wright  
Antonio Gaudi  
Antonio Sant Elia  
Eric Mendelsohn  
Hans Polzig

**Key Concepts of this Period:**

Architects, particularly in the Modern period, followed Louis Sullivan's maxim,

“Form follows function”

This motto is still the basis of contemporary architecture



# “Form follows function”

can be interpreted  
in a number of ways

- Each building should clearly reflect its usage. (A prison and a day care center should not be mistaken for one another.)
  - Each *space* (or room) of a building should reflect its individuality (ie. each usage should have its own ideal “form”).

# “Form follows function”

Examples of buildings where form clearly reflects the buildings' usage.

# Herzog and de Meuron



Rudin House, Leymen, France

1993 <sub>7</sub>

Photo: Margherita Spiluttini

# “Form follows function”

Examples of buildings where the architect developed different forms for distinct functions *within* the building.

# John Hejduk



Wall House 2, designed 1973, built in Groningen 2001

Photo: Christian Richters (AR 11 2001)

# Christian de Portzamparc



Cité de Musique,

Paris

1984

Photo: P. Sperling

# “Honest” expression of forms

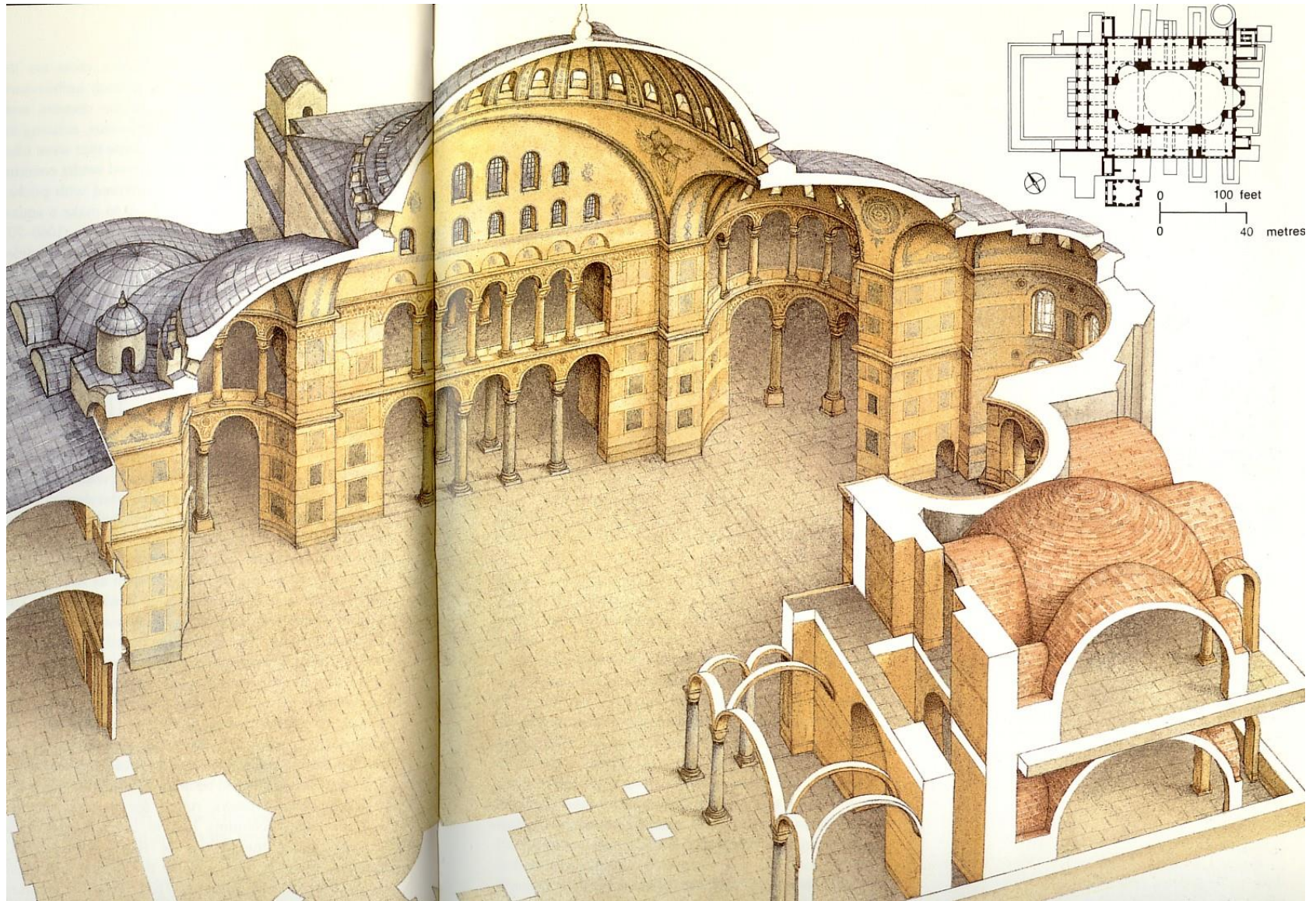
The building's  
exterior form honestly expresses its  
interior space  
(like a hand and a glove.)





Hagia Sophia, Anthemius of Tralles, Istanbul 537A.D. 12





Hagia Sophia, Anthemius of Tralles, 565 A.D.

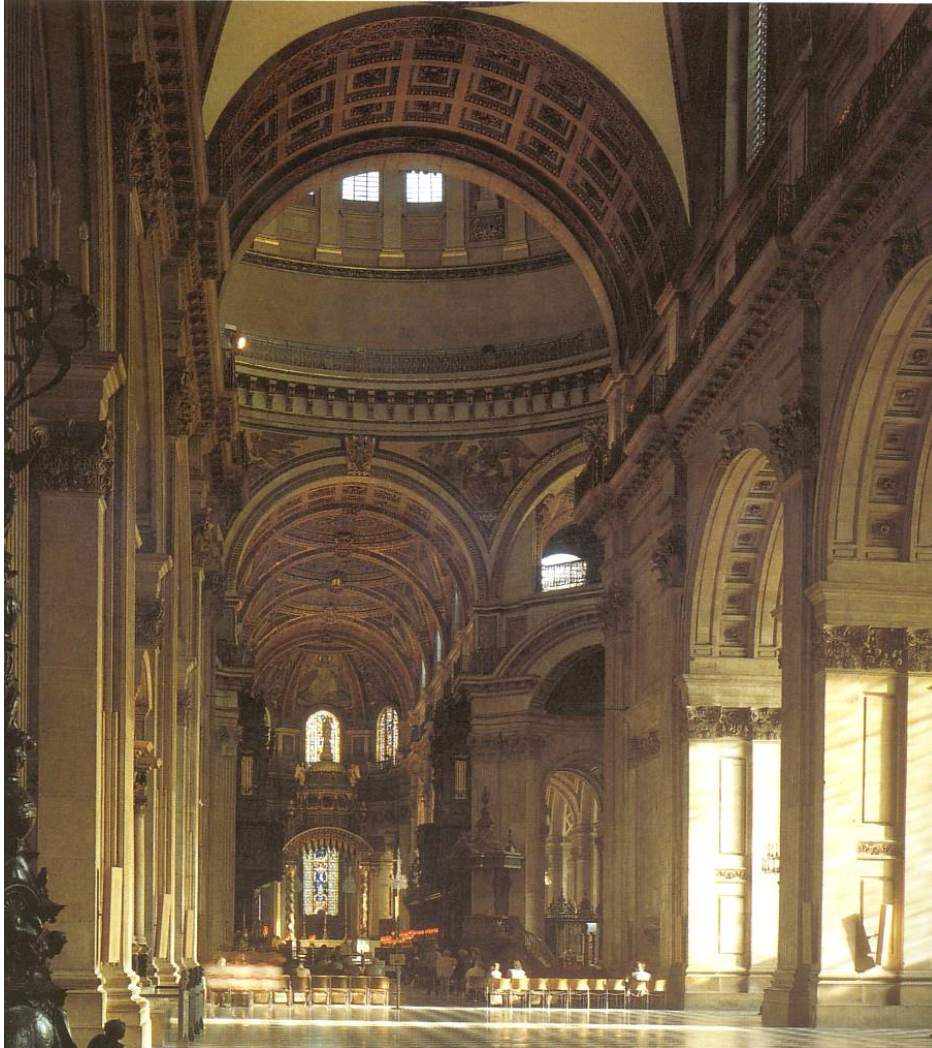
Photo credit: A.F.Kerstein

Some examples where  
honesty of form is *not* followed:



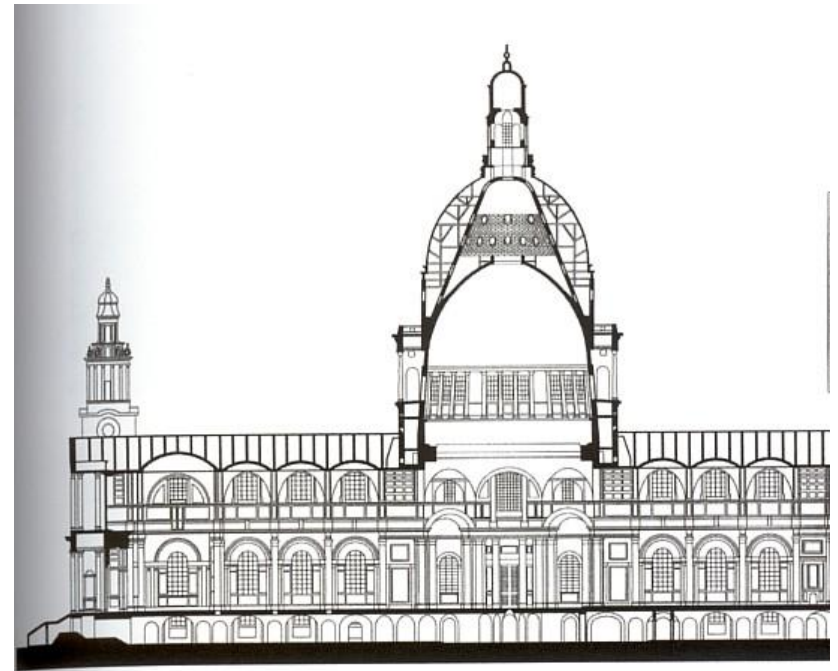
# Christopher Wren

(1632-1723)



St. Paul's Cathedral, London,

Photo: (Moffet)



England

1675

# Robert Venturi



Vanna Venturi House,  
1964

Philadelphia

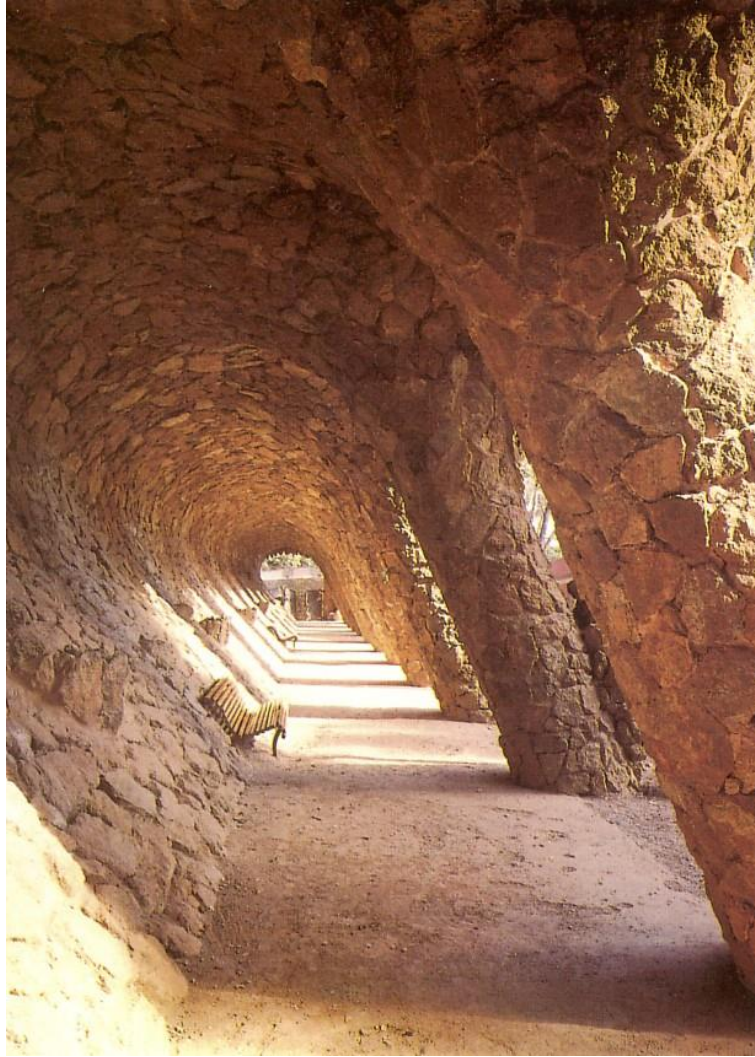
Architects try to use light in unusual ways that enhance their designs.

The *controlled*

play of light and shadow  
(chiaroscuro).



# Antonio Gaudi



Guell Park, Barcelona, Spain  
Photo: Francis Rene Roland

1900-1914

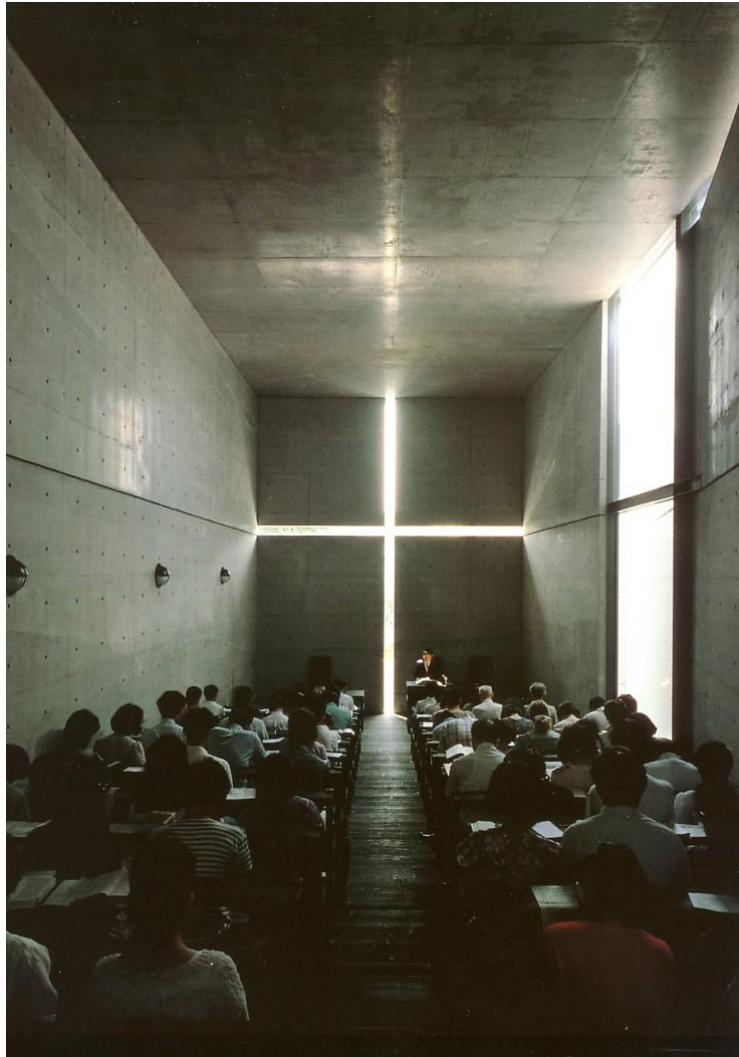
# Steven Holl



Saint Ignatius Chapel, Seattle, Washington 1994

Photo: Paul Wachol

# Tadao Ando



Church of the Light,

Osaka, Japan

1987-89

Photo: Siling



“Minimalist” architects admire  
economy of design

# Mies van der Rohe



Farnsworth House, Plano, Illinois

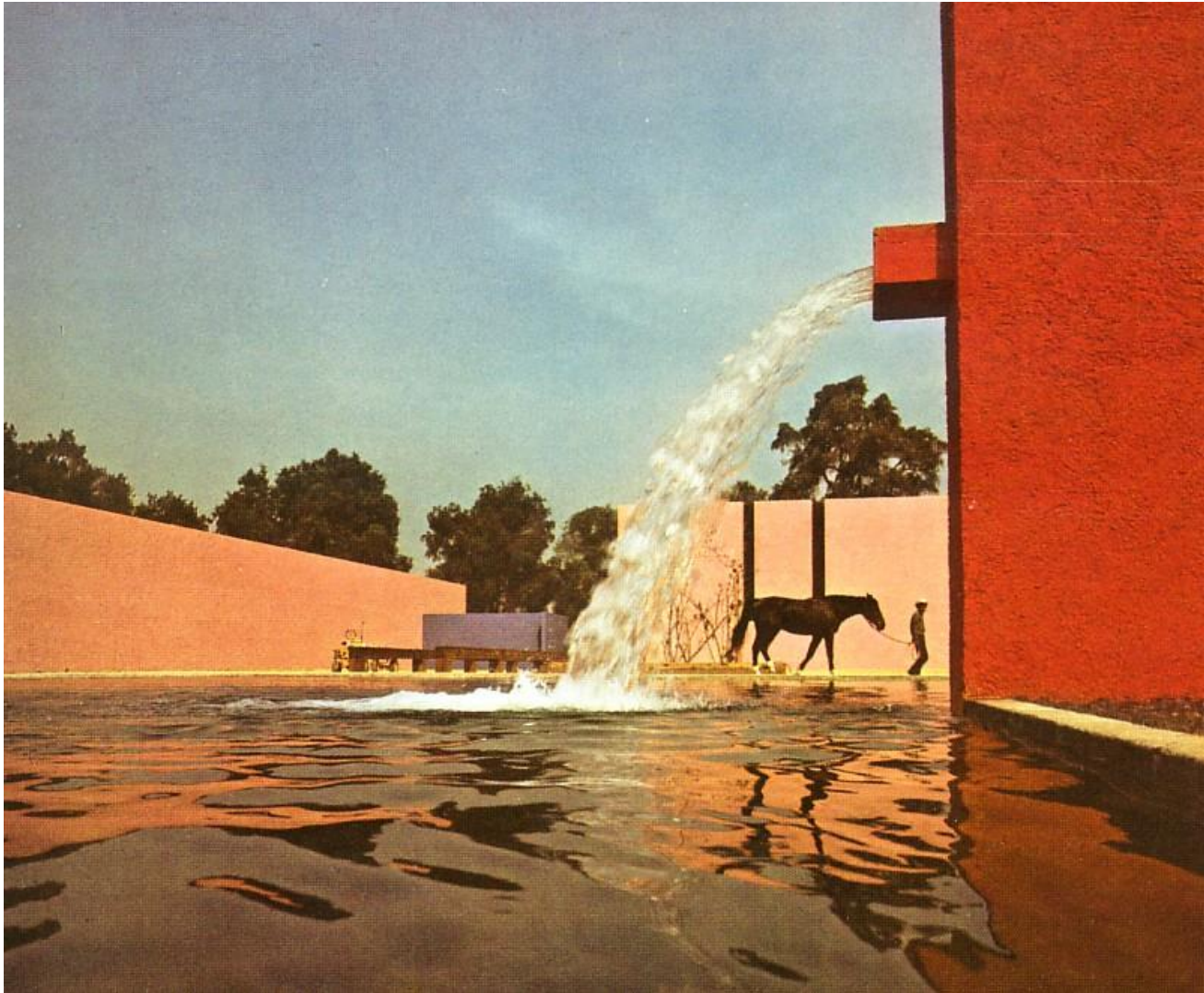
1946

Photo: (Gossel)



# Luis Barragan

(1902-1988)



San Cristobal, Mexico City SF

1958

Photo credit: Carla de Benedetti

# Herzog and de Meuron



Goetz Art Gallery, Munich, Germany

1992

Photo: (Pearman)

Many designers draw their  
inspiration from  
nature



# Victor Horta

(1861-1947)



Tassel House,

Brussels

1893

26

Photo credit: ACI

# Antoni Gaudi



La Sagrada Familia, Barcelona, Spain (still  
under construction)



# Peter Cook and Colin Fournier

Yikes! Peter **Cook's** and Colin **Fournier's** perkily animistic **KUNSTHAUS** in Graz recasts the identity of the museum and recalls a legendary design movement

Harpooning a whale? Not quite. Workers touch up the acrylic-glass skin of the contemporary art museum in Graz. The biomorphic structure, 147,956 square feet in size, is marked by light scoops known as "nozzles," as well as a rooftop rectangular structure with curved ends, called the "pin." From the pin, visitors can see the picturesque town—and a close-up view of the "Friendly Alien."



92 Architectural Record 01/04

By Liane Lefaivre

Archigram is back, judging by the Kunsthaus, the museum in Graz that one of its founders, Peter Cook, has designed with Colin Fournier. If ever there was a movement that everyone dismissed as hopelessly utopian and absolutely unbuildable, it's the one initiated by Archigram in 1961. This is when Cook, with Warren Chalk, Ron Herron, Dennis Crompton, David Greene, and Michael Webb, got together at the Architectural Association in London. The group seemed about as close to the lunatic fringe of the pop phenomenon as one could get. As the Beatles of architecture, Archigram broke down the dreary conformity of the 1950s, sweeping aside sclerotic convention with their antics, and served up a madcap architectural cock-

Liane Lefaivre is the chair of History and Theory of Architecture at the University of Applied Arts in Vienna. She is the coauthor, with Alexander Tzonis, of *Critical Regionalism* (Prestel, 2003).

**Project:** Kunsthaus Graz, Graz, Austria

**Owner:** City of Graz

**Architects and engineers:**

ARGE Kunsthaus, a joint venture: Spacelab Cook-Fournier—Peter Cook and Colin Fournier, principals; Niels Jonkhans, design architect. Architekturstudio/Domenig, Eisenkock, Peyker—Herfried Peyker, partner in charge; Dietmar Ott, project manager. Bollinger+Grohmann (structural engineers)—Klaus Bollinger, partner in charge  
**Digital designers:** Realities United



PROJECTS

Kunsthaus Graz (Museum),

Graz, Austria

2003

Photo credit: AR 1/04



# Architects of this Period

# Louis Sullivan

(1856-1924)

*Louis Sullivan was the most important American architect at the end of the nineteenth Century. With Dankmar Adler, one of the Chicago's most outstanding structural engineers, he formed the firm of Adler and Sullivan.*

*Their 15-year architectural partnership produced some of the most important--and influential structures in the history of American architecture. **They rejected the popular practice of designing historic-looking buildings and instead created original designs that evolved from the functional requirements of each project.** They used the materials and technologies of the time.*

**FORM FOLLOWS FUNCTION:** each building should clearly reflect its usage

# Adler and Sullivan

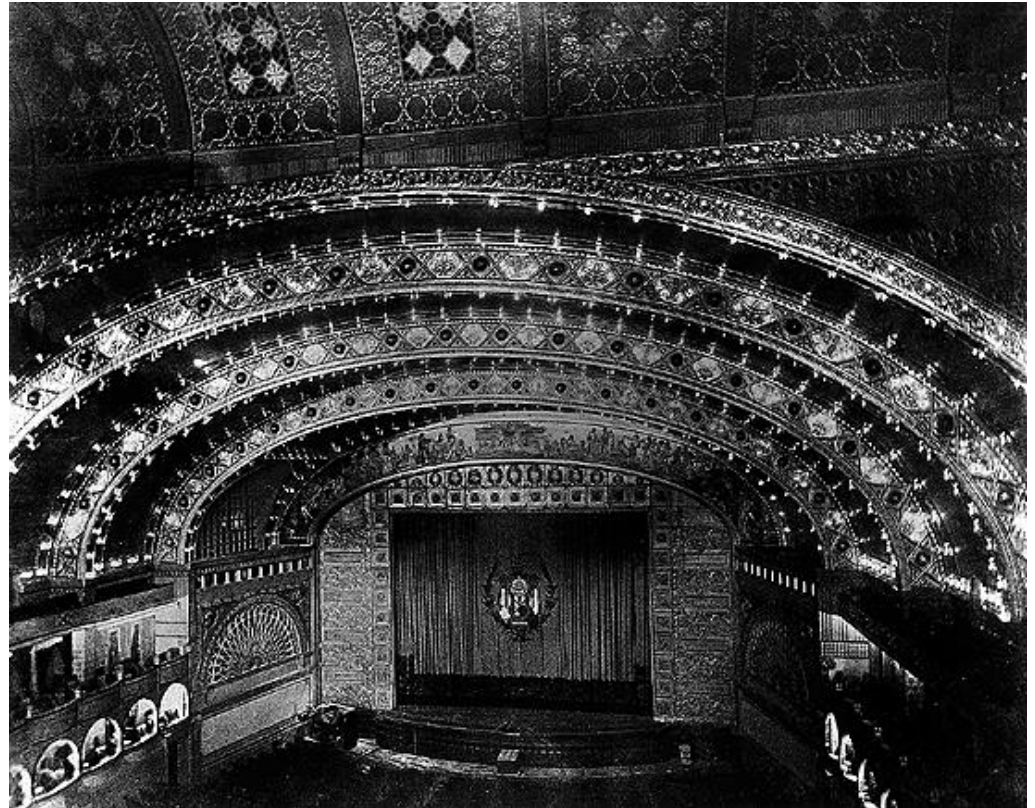


Auditorium Building, Chicago, Ill. 1889

Credit: <http://web.mit.edu/museum/chicago/sullivan.html>



# Adler and Sullivan



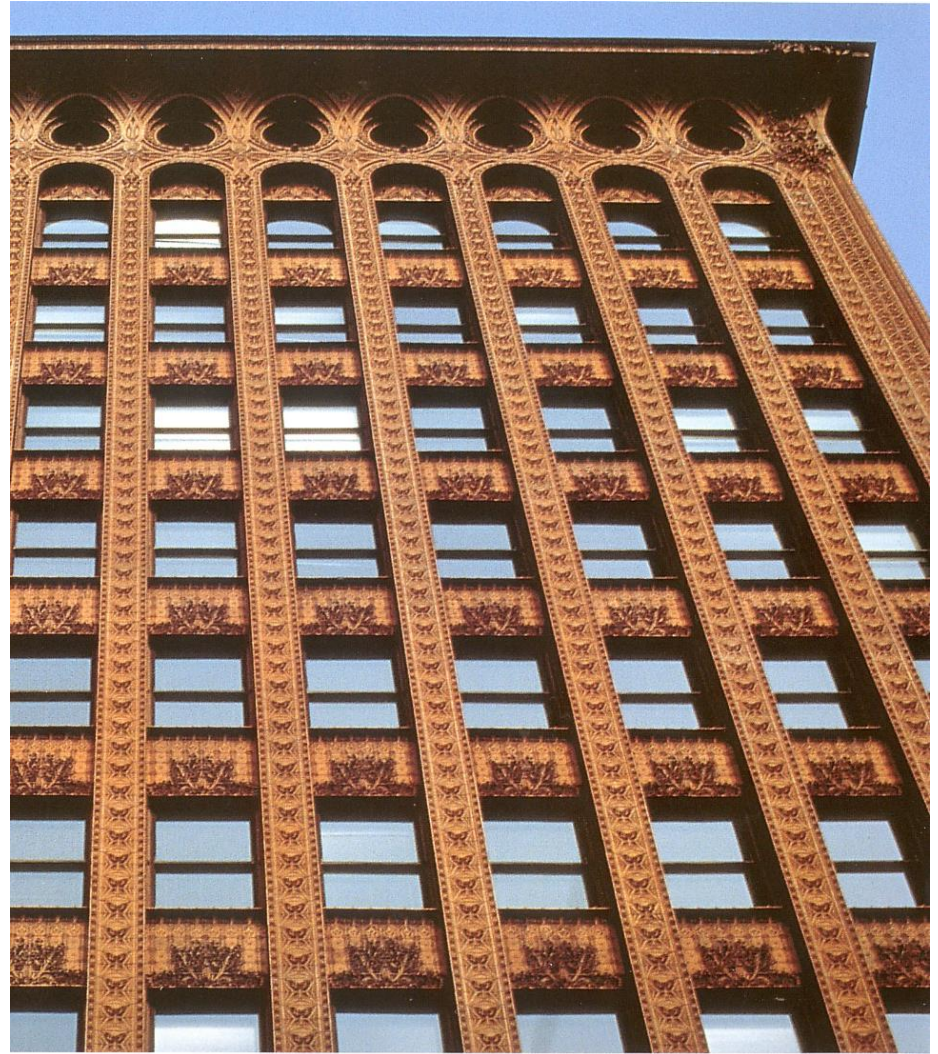
*The Auditorium consists of three distinct parts integrated into a single volume: the great theater stands between a hotel on the east and an office block on the west. Every structural device available was used. Unfortunately, none of this intricate structure is visible from the interior.*

**Auditorium Building, Chicago, Ill. 1889**

# Louis Sullivan

One of Sullivan's most notable contributions was the creation of a form appropriate to the tall commercial office building.

*Rather than stressing the horizontal layers of each story, he emphasized the vertical rise of these buildings. **Verticality was made possible by steel frame construction and the use of light materials such as terra cotta, which had a malleability appropriate for carrying out his ornament.***



Guaranty Building, 1895

(Buffalo, NY) Photo credit: Arch Assoc/Joe Kerr



# Louis Sullivan



***Sullivan created a distinctive style of ornament that embraced natural forms. He replaced the standard classical ornamentation of the day with highly original, organic architectural details inspired by nature.***

**Guaranty Building, 1895**

(Buffalo, NY) Photo credit: Arch Assoc/Joe Kerr

# Louis Sullivan



Wainwright Building, Chicago  
(St. Louis) Photo credit: H. Sands

1890

# Louis Sullivan



Carson, Pirie, Scott Building, Chicago 1898-1904



# Characteristics of the Chicago School

- First walls of solid masonry
- Iron skeleton (determining factor)
- Bay windows (expressive of interior volumes and means to catch more outdoor light)
- Chicago windows (horizontally elongated windows spanning between columns and a double-hung window at each end)
- Use of terra cotta
- Floating foundations

# Daniel Burnham

(1846-1912)

*New York first and oldest  
skyscraper.*

*New Yorkers worried that it  
topple over.*

*Steel frame covered by  
limestone and terracotta.*

*First time power tools were  
used*

**Flatiron Building, New York City 1902**

Fifth Ave. bet. 22<sup>nd</sup> and 23<sup>rd</sup> streets

Photo credit: Thomas A. Heinz, text: [http:](http://users.comkey.net/daniel/flatiron.htm)

[//users.comkey.net/daniel/flatiron.htm](http://users.comkey.net/daniel/flatiron.htm)



# The Equitable Building, New York City, 1915

Broadway and Pine Street, designed by Ernest Graham



When completed, this 39-story skyscraper was condemned as a giant box in which to crate people. A menace to public health and safety and an offense that had to be stopped. It was by far the largest building in the world, with 1.2 million s.f. of floor area. It cast a shadow more than four blocks long.

It has the dubious distinction of being at least in part responsible for the introduction, in the year following its completion, of planning laws to regulate skyscraper design. From 1916, New York skyscrapers were limited to a total floor area not more than 12 times the size of the plot. This building was almost three times that size.

Zoning regulations have evolved and today they are more complex, but still regulating bulk and use.

# The Return to Nature

*The Industrial Revolution was the event that changed the world in the 1800's. It brought better transportation and cheaper consumer goods (through mass production) and had a decided down-side.*

*People left the country to find work in the cities' factories.*

*The cities became crowded and grimy.*

*Sub-standard tenements were built to house the new factory workers.*

*Soon nostalgia for a simpler life, life in the country, became popular in architecture.*

*At the turn of the 19th century two beautiful architectural styles reflected these trends:*

**ART NOUVEAU** *and* **ARTS AND CRAFTS**

# Art Nouveau

*Art Nouveau architects used organic forms and motifs inspired by nature and integrated organic garden-like forms into architecture.*



# Hector Guimard

(1867-1942)

*The fluid, curvilinear lines that characterize Guimard's designs became synonymous with the Art Nouveau movement.*



Entrance to a Metro Station, Paris

1893

Photo credit: (Konemann)

# Victor Horta

(1861-1947)

*Horta's Art Nouveau "married industrial materials, such as iron and steel, with florid, vigorous designs, including ship-shaped balconies, creeping vine tendrils on columns and walls, and sweeping staircases."*



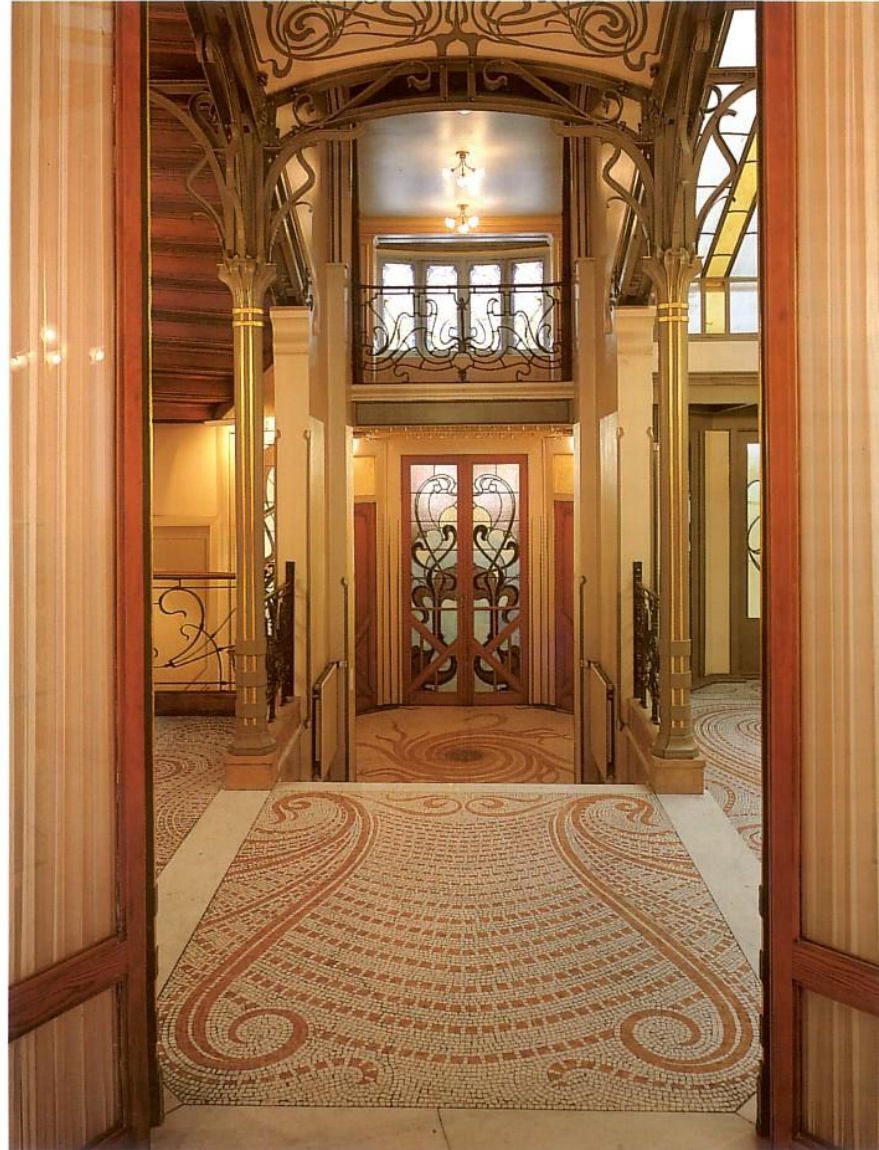
Tassel Hotel, Brussels

1893

43



# Victor Horta

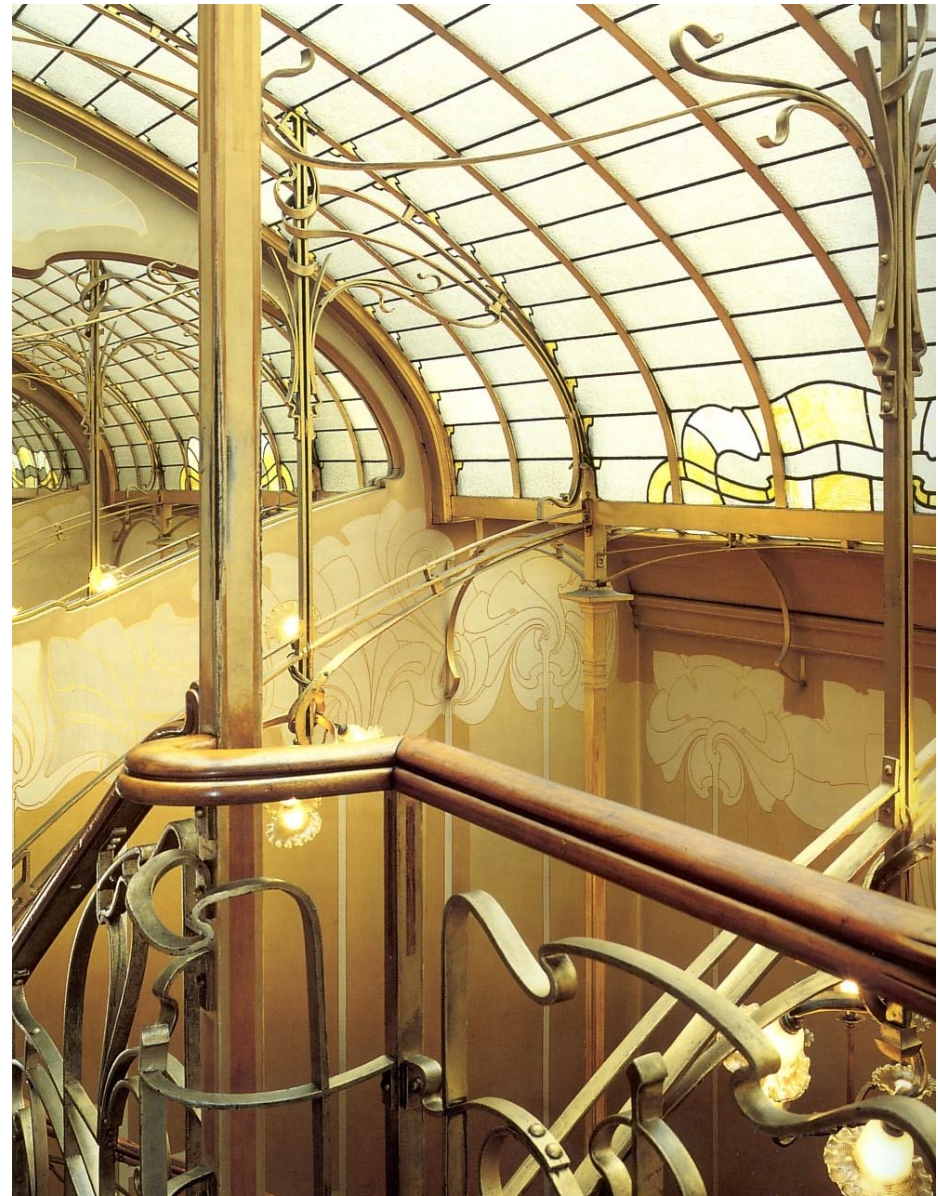


Tassel Hotel, Brussels

1893

Photo credit: ACI

# Victor Horta



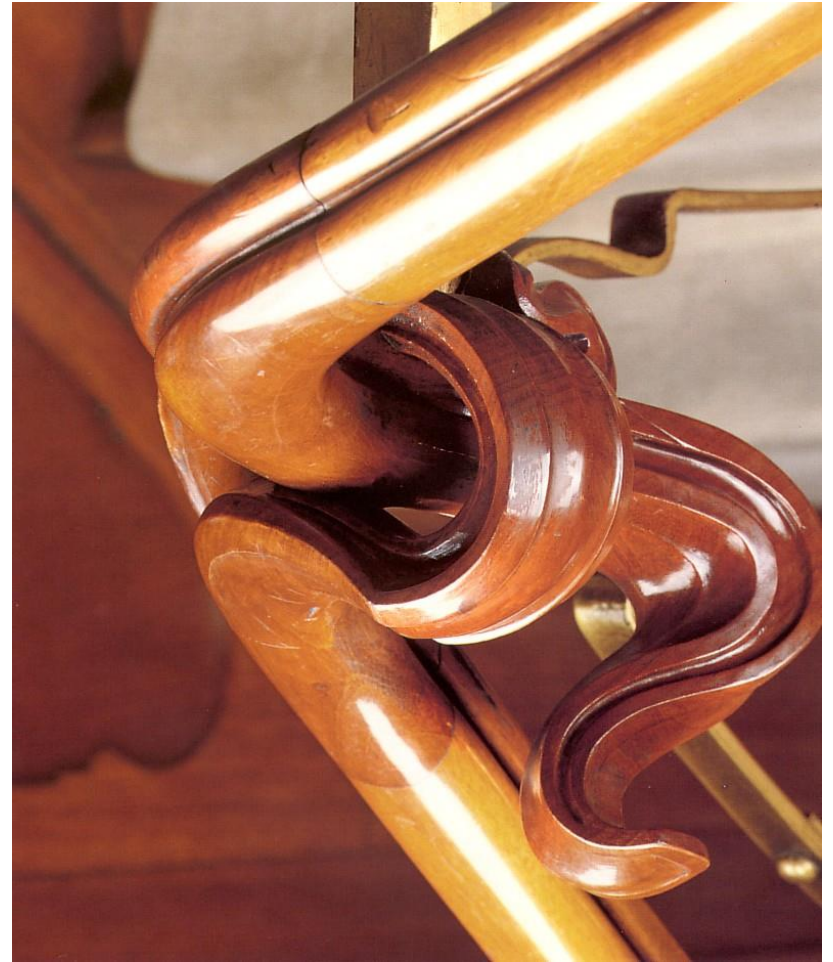
Horta House, Brussels

Photo credit: Richard Bryant

Approx. 1893



# Victor Horta



Horta House, Brussels  
1893

# Arts and Crafts

*Art and Crafts designers rejected Victorian over-embellishment. It was a reaction against the industrialization of building and mass produced household items. The movement called for the return to the “craft” of building (the worker as craftsman) and was nostalgic for man-made things.*

*Their houses had hand-wrought details and were showcases for the skills of the fine wood-worker.*

*(Many of Frank Lloyd Wright’s early houses were influenced by the Arts and Crafts movement.)*



# William Morris (1834-1896)



Kelmscott Manor Renovation, England

1871

# Rennie Mackintosh

1868-1928

*Mackintosh took his inspiration from Scottish traditional architecture, Art Nouveau and Japanese forms. His simple forms, his interior detailing, his furniture and his use of natural light make him a bridge between the Arts and Crafts movement and Modernism.*

Hill House, Glasgow

Photo credit: Anthony Oliver



1902



# Rennie Mackintosh



House for an Art Lover

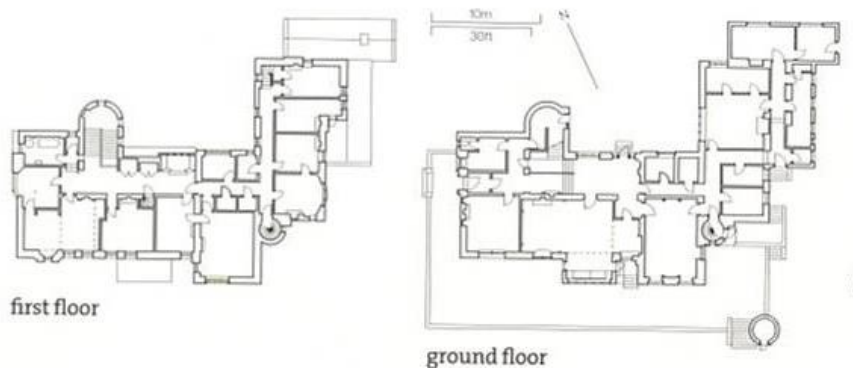
Designed in 1901, built 2001

50

Photo credit: [www.armin-grewe.com/crm/crm-artlover2.htm](http://www.armin-grewe.com/crm/crm-artlover2.htm)



# Rennie Mackintosh



Hill House, Glasgow

1902

Photo credit: Anthony Oliver

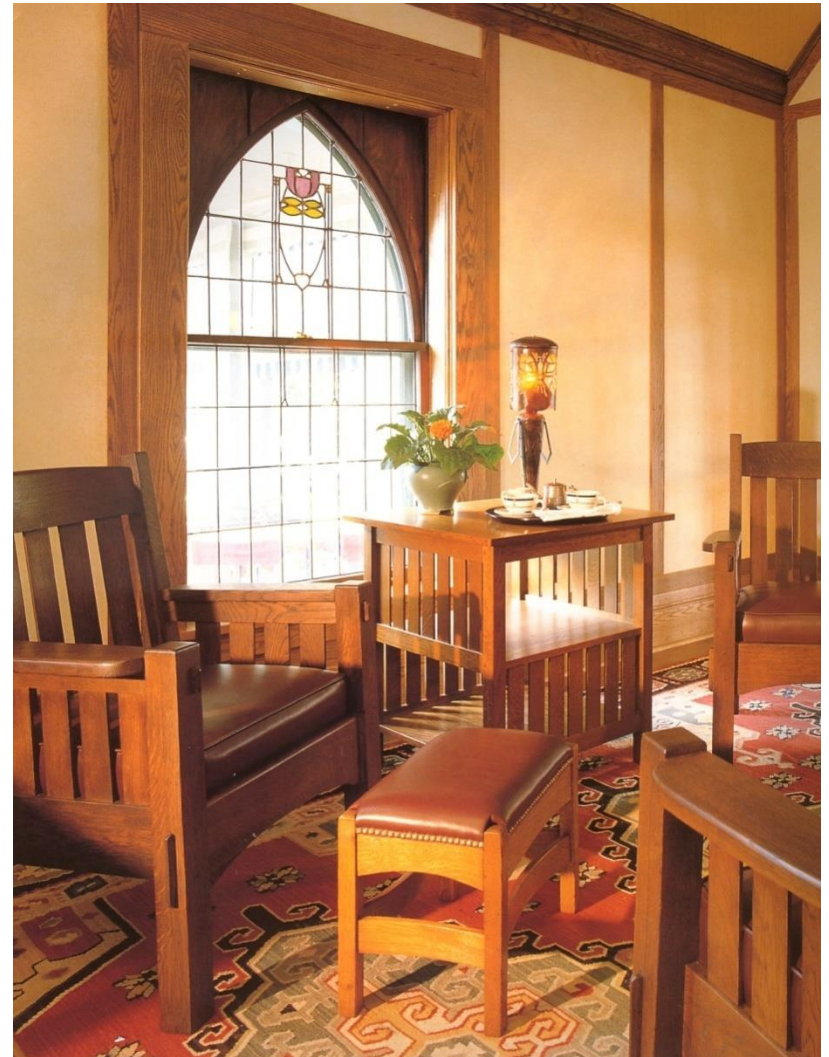
# Gustav Stickley

(1858-1942)

*Stickley's very simple, almost austere furniture is still popular today.*

*His sense of details and attention to joinery and proportion make his work look both modern and traditional at the same time.*

*His furniture is still on demand today.*



## Furniture

Photo credit: (Turgeon-Rust)



# Greene and Greene (Charles and Henry)



*This house, inspired by Japanese traditions is unified by a shared horizontal line of deep eaves and exposed rafters and beams.*

*More: <http://www.usc.edu/dept/architecture/greeneandgreene/>*

**Gamble House, Pasadena, California**

**1909**

Photo credit: (Turgeon-Rust)



# Greene and Greene (Ch.1868-1967 H. 1870-1954)

*The exquisite craftsmanship of the details makes Greens and Greene work the epitome of Arts and Crafts movement.*



## Interior details

Photo credit: (Turgeon-Rust) and usc.edu

# Frank Lloyd Wright

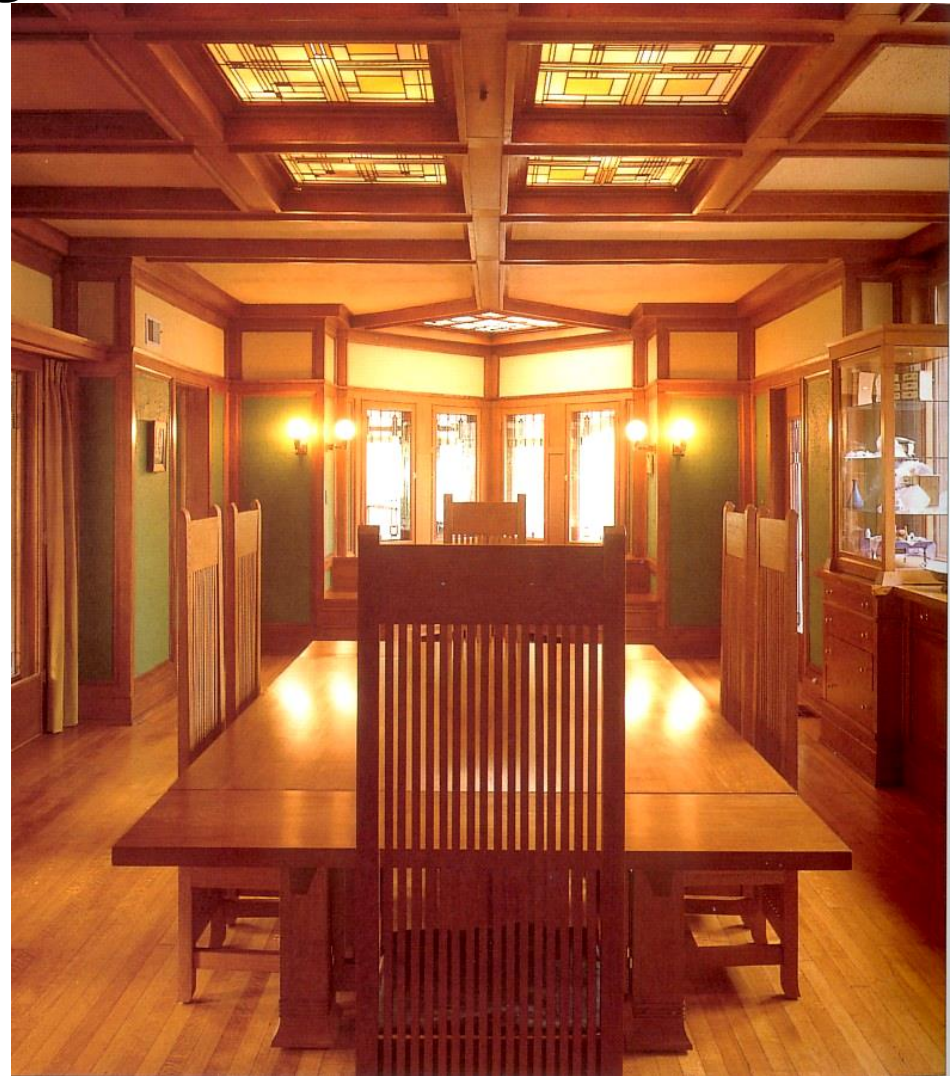
(1867-1959)

(Father of the Prairie Style)

*Wright believed in "organic architecture," and that the building should develop out of its natural surroundings.*

Both the interiors and exteriors of his houses incorporated low horizontal proportions.

*These houses, built before 1910, are in the Prairie style.*



Hurley House Dining Room

about 1901

# **Frank Lloyd Wright, father of The Prairie Style**

Developed by a creative group of Chicago architects.

One of the few indigenous American styles. Short lived.

*The Prairie Style focused specifically on Midwestern regionalism, with its horizontal open floor plan representing the expansive prairie region. It made subtle use of Japanese architecture.*

**Horizontal space, flowing interior spaces, hipped roof with broad eaves and long band of windows.**

*It was the first American style to be taken seriously in Europe.*



# Frank Lloyd Wright



Robie House, Chicago

1906

Photo credit: [www.bc.edu/.../cas/fnart/fa267/FLW\\_prairie.html](http://www.bc.edu/.../cas/fnart/fa267/FLW_prairie.html)



# Antonio Gaudi (1852-1926)

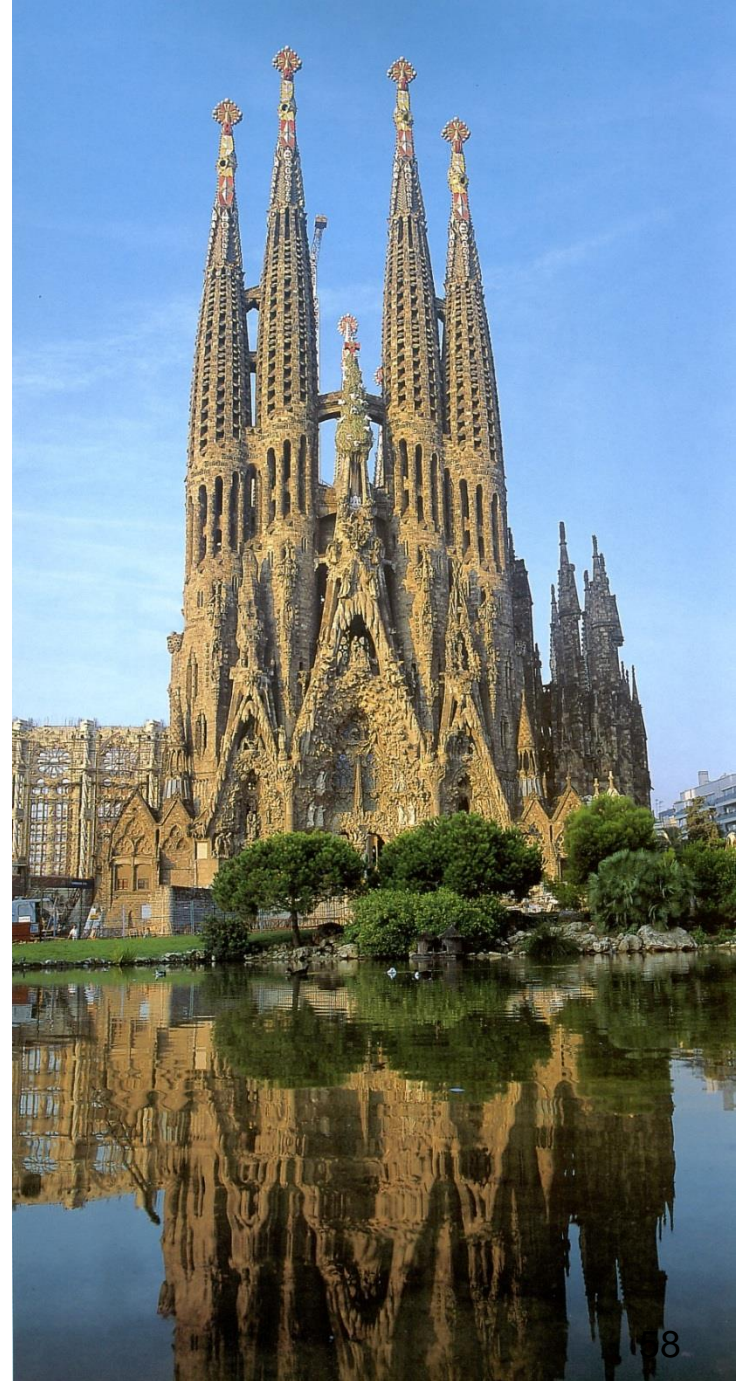
*Gaudi developed a sensuous, curving, almost surreal design style which established him as the innovative leader of the Spanish Art Nouveau movement. With little regard for formal order, he juxtaposed unrelated systems and altered established visual order. Gaudi's characteristically warped form of Gothic architecture is still admired by architects today.*

*([www.greatbuildings.com/architects/Antonio\\_Gaudi.html](http://www.greatbuildings.com/architects/Antonio_Gaudi.html))*

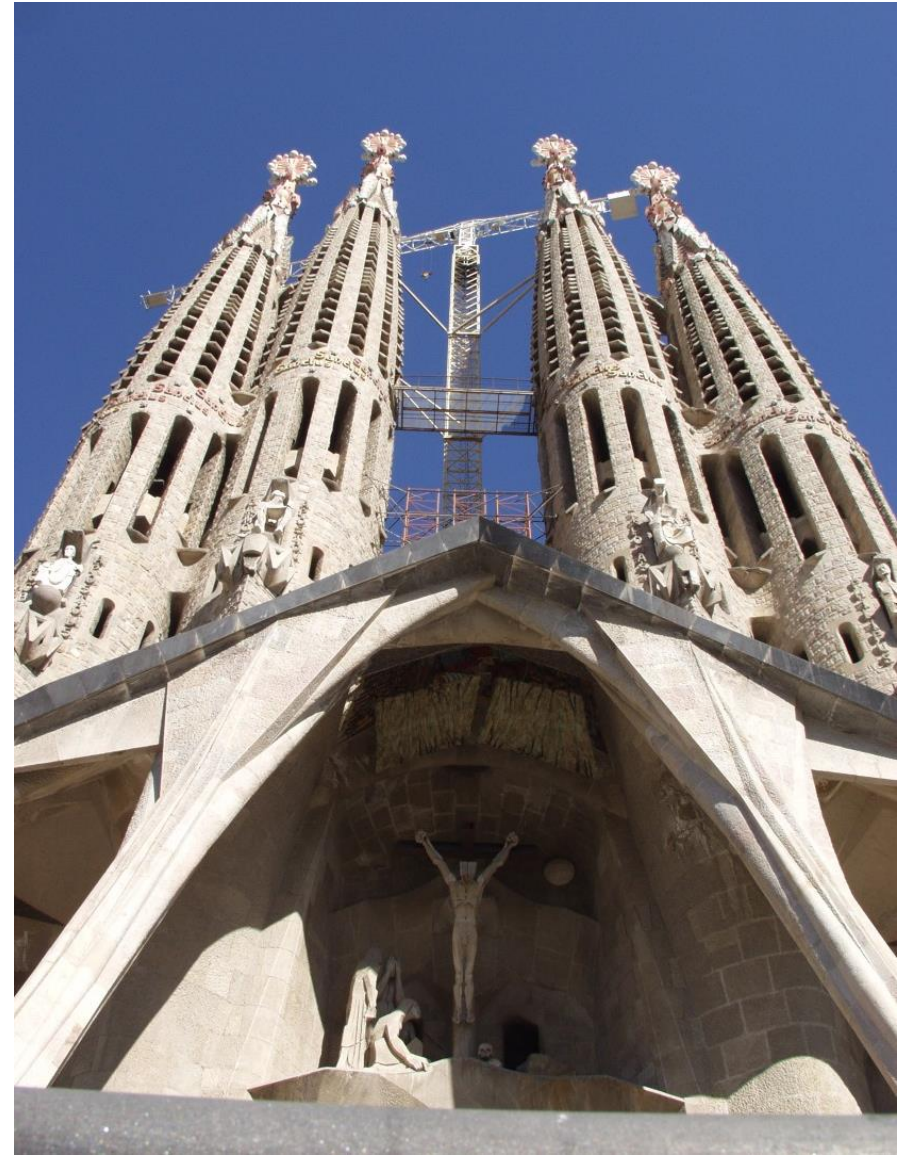
Sagrada Familia, Barcelona, 1904-

(still under construction)

Photo credit: Inigo Bujedo Aguirre



# Antonio Gaudi



Sagrada Família, Barcelona, 1904

Photo credit: Inigo Bujedo Aguirre



# Antonio Gaudi



Casa Mila, Barcelona, Spain

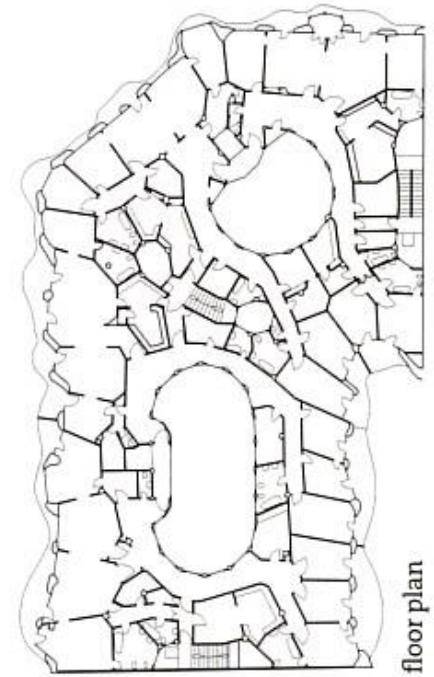
Photo credit: Rainer Martini



1906



# Antonio Gaudi



Casa Mila, Barcelona, Spain

1906

Photo credit: Rainer Martini



# Antonio Gaudi



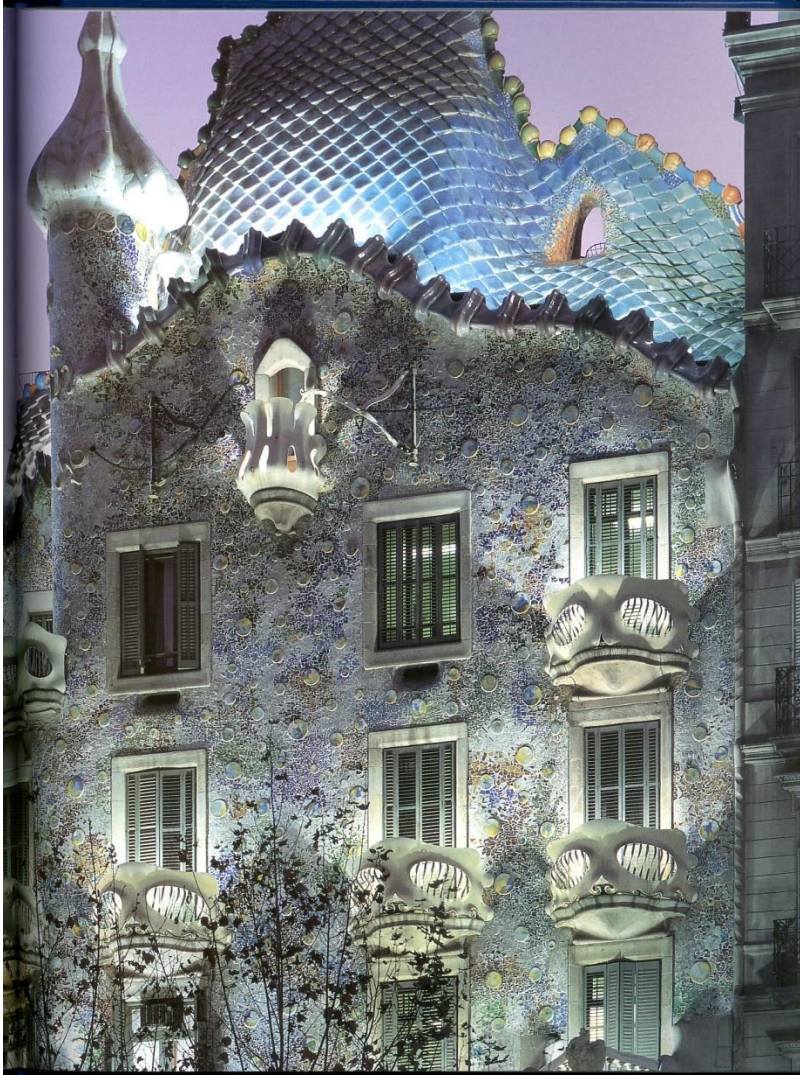
Casa Mila, Barcelona, Spain

1906

Photo credit: Rainer Martini



# Antonio Gaudi



Casa Batlló, Barcelona, 1904

Photo credit: Inigo Bujedo Aguirre





# Antonio Gaudi



Casa Batlló, Barcelona, 1904

Photo credit: internet



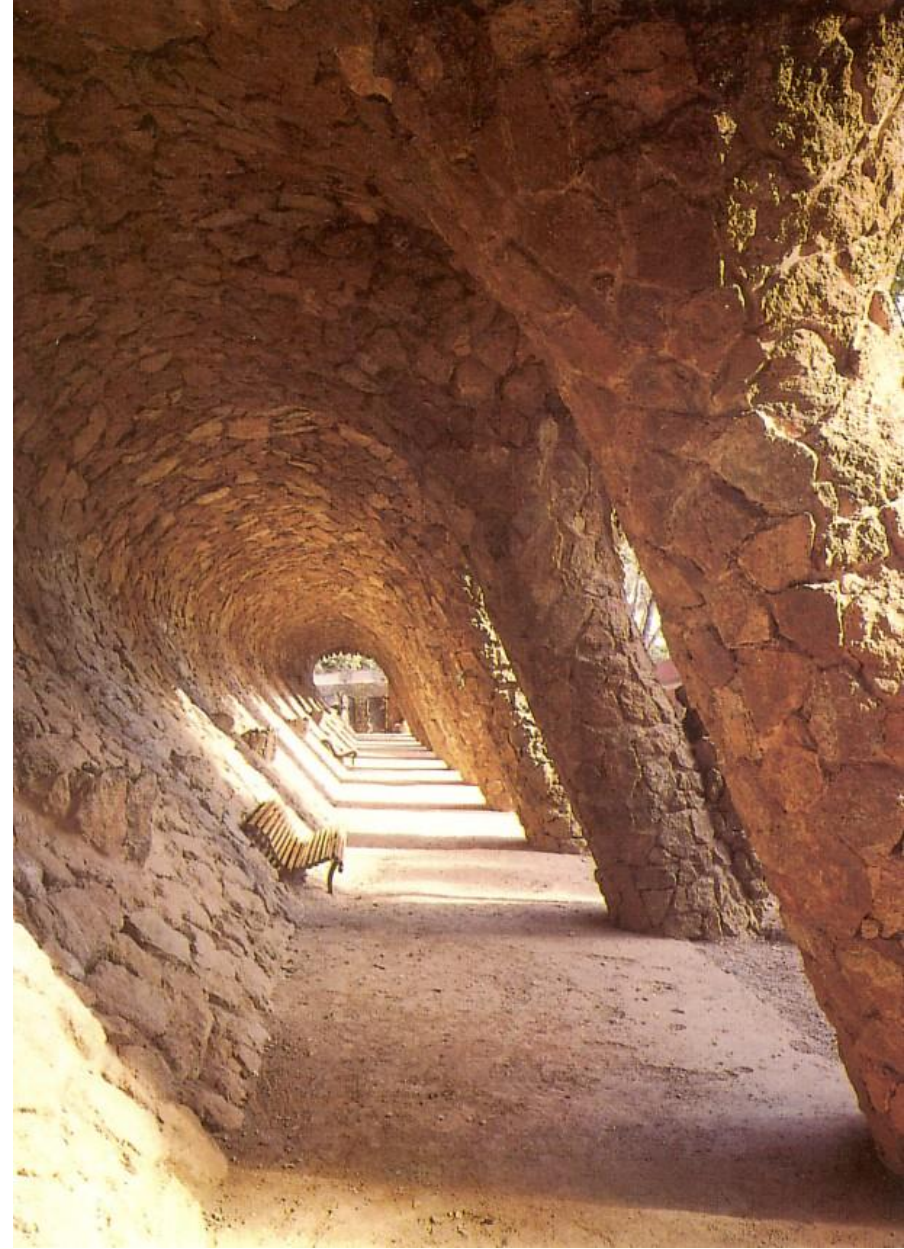


# Antonio Gaudi



Park Guell, Barcelona, 1904

Photo credit: (Tashen:Gossel) and internet





# Antonio Gaudi



Park Güell, Barcelona, 1904

Photo credit: (Tashen:Gossel)



# Antonio Gaudi



Park Güell, Barcelona, 1904

Photo credit: (Tashen:Gossel)

# The Secession Movement

The Vienna secessionists produced daring work, interested in uniting the separate art forms of sculpture, architecture, painting and music aiming for a 'gesamtkunstwerk' - a comprehensive work of art. There were three main architects: Hoffman, Olbrich, and Wagner

This movement is also referred to as Viennese Art Nouveau.





# Joseph Maria Olbrich



Photo credit: (Creative Commons)

# Joseph Maria Olbrich



Secession Museum, Vienna, Austria 1898

Photo credit: (Tashen:Gossel)

# Joseph Maria Olbrich



Ernst-Ludwig Haus, Darmstadt, Germany, 1899

Photo credit: (Tashen:Gossel)



# Joseph Maria Olbrich



Karlsplatz Train Station, Vienna, Austria, 1899

Photo credit: (Creative Commons)

# The Futurists

developed a new look for a new century

*They were modernists who envisioned architecture in the future*

Most of their designs were never built, but still look good today, 100 years later

# Antonio Sant'Elia

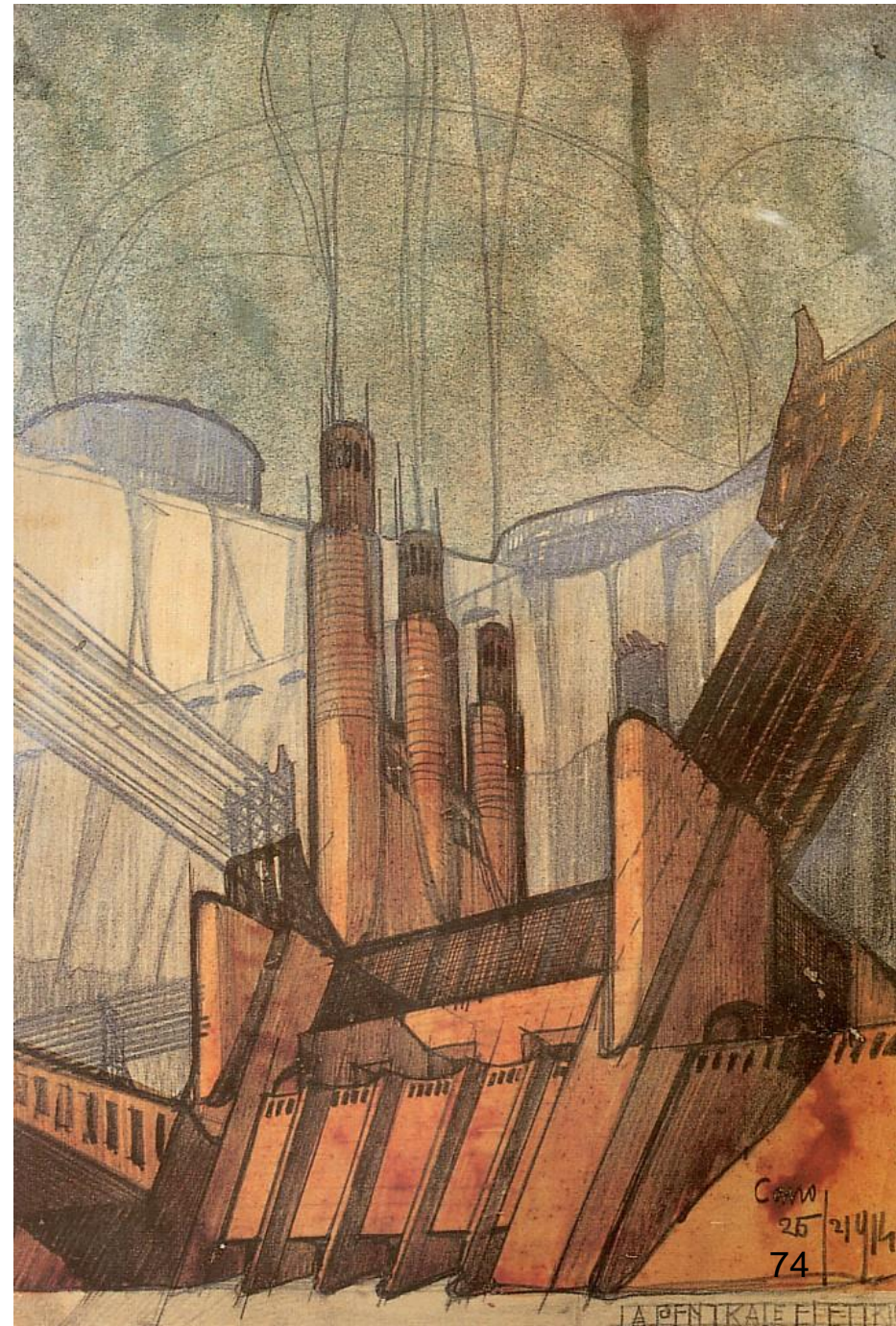
*Sant'Elia was an Italian architect.*

*Associated with the movement known as futurism, he created visionary drawings of futurist buildings that he likened to gigantic machines.*

*His projects for urban complexes suggest the functional architecture of the 1920s. He died on the battlefield before his plans could be realized.*

Architectural vision, 1914

Photo credit: (Konemann)





# Peter Behrens

(1868-1940)



House at Mathildenhöhe, Germany

1901  
75

# Joze Plecnik

(1872-1957)



Langer House,

Vienna

1900-01



# Josef Hoffmann

(1870-1956)



Palais Stoclet

Brussels

1905



# Modernism

The principal idea driving Modern architecture, (***which began in the 1890s and crystallized in 1920, and is still the driving force of most architecture today***), was that:

The building should first and foremost meet the needs of the program. (To the earliest Modernists what the building looked like was secondary.)

The building should be an “honest” expression of its function.

Buildings were “machines” for living, working or schooling.

*More to come.....*