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Michael Fazio
Marian Moffett
Lawrence Wodehouse

Buildings Across Time

An Introduction to World Architecture

Mc Graw Hill Education

BUILDINGS ACROSS TIME

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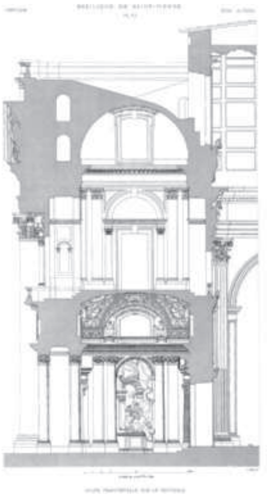
BUILDINGS ACROSS TIME

AN INTRODUCTION TO WORLD ARCHITECTURE



FIFTH EDITION

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BUILDINGS ACROSS TIME: AN INTRODUCTION TO WORLD ARCHITECTURE, FIFTH EDITION

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Preface

Marian Moffett, Lawrence Wodehouse, and I wrote this survey of world architecture both for students taking introductory courses and for the general reader simply interested in buildings. We have searched out the stories these buildings have to tell, considered the intentions of the people who built them, and examined the lives of those who used them. We begin with prehistory and end with the early twenty-first century. We cover the Western tradition as well as works in the Islamic world, the Pre-Columbian Americas, Africa, China, Southeast Asia, Russia, and Japan.

We have written about this diverse sampling of the built environment in a straightforward but lively style that is rich with detail. The text contains extensive descriptive narrative leavened with focused critical analysis, which both allows the book to stand alone and invites lecturers to impose their studied interpretations on the material without the danger of undue ambiguity or conflict. In a world that grows smaller by the day, it presents a global perspective, and in a discipline that concerns built objects that are often beautiful as well as functional, it is copiously illustrated, intelligently designed, and consistently usable.

Because architecture is at once utilitarian and a visual art, the text and its illustrations are inseparable. This book contains over 800 photographs and line drawings, most of which have discursive captions that can be read in conjunction with the text or appreciated independently. Short illustrated essays accompany almost every chapter. An annotated bibliography at the end of the book provides suggestions for further reading. Also at the end of the book is a glossary that defines the key terms set in bold throughout the text.

New to This Edition

- Key edits have been made throughout to enhance students' understanding of architectural features, their purposes, and their origins.
- Over 450 new photos are included, and many black-and-white photos have been replaced with color versions for a greater visual impact.
- A new essay on the vision of Pope Pius II is included, as well as updates on buildings in various parts of the world, such as those that have been given new purpose and those that have been damaged by ISIS.
- Chapter 16 has undergone significant revision and updating, including new sections on Eladio Dieste, the Barnes Foundation Building, the Parrish Art Museum, the Elbphilharmonie in Hamburg, and the Australian Islamic Centre.

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Michael Fazio April 2018

Map 1 Central and Eastern Europe and the Middle East

Map 2 Europe and North Africa

Map 3 Western Asia and India

Map 4 North America

Map 5 Central and South America

Map 6 Eastern Asia and Australia

Introduction

You, the reader, are the reason for this book. We, the authors, have drawn on our cumulative experience in teaching and writing about architectural history to convey in words and images information about some of the world's most interesting and important buildings. This book surveys Western architecture in some depth and offers an introduction to non-Western architecture in Africa, India, China, Southeast Asia, Japan, the pre-Columbian Americas, and many Islamic settings. Together the text and illustrations encourage discussion, thought, and analysis. In this introduction, we offer a guide to the effective use of this book.

Architectural history begins with buildings. In order really to see these buildings, one needs to use precise descriptive language. Hence we have tried throughout to present clear, understandable, but provocative prose, and to define basic terminology when it is first introduced. Still, if left at the level of pure information, these words produce little true insight. We have therefore written this book in a way that encourages looking, but more than that, *seeing*; and the difference between the two is considerable. Seeing requires proceeding beyond the image projected on the retina to a process of analysis and the making of critical judgments. This, in turn, calls for placing buildings in their various contexts—social, political, economic, artistic, technological, and environmental—and determining whether they fulfill their obligations to their clients, to other users, and to society at large. To do this, it is necessary to enter the mind of the architect and to suspend modern biases so that we can evaluate the work as the product of a particular time and place.

What is architecture? Certainly it is shelter, but it can be much more. The phrase "frozen music" is often used, but such a description seems to imply that architecture has only an esthetic component. The "shaping of space for human use" seems more obviously useful, but it hardly explains the fascination of the Egyptian pyramids or the symbolism of a state capitol building. The Roman architect and engineer Vitruvius, active around 40 BCE, considered the essentials of architecture to be *firmitas*, *utilitas*, and *venustas*, commonly translated as firmness, commodity, and delight. Here firmness is structural stability, commodity is the meeting of functional requirements, and delight is beauty. One can hardly disagree with the need for firmness and commodity: any building that collapses or does not provide the right kind of space for the client's purposes must be considered a failure. Delight, or beauty, however, is a more elusive term, one with standards that have changed over time. Some have argued that beauty arises naturally from the fulfillment of functional requirements. Others have seen it as an inevitable result of the logical use of building materials and structural systems. Still others have found it in applied ornamentation.

Let us consider the first two terms in Vitruvius's triad in a slightly different way by asking, why and how is architecture produced? In order to erect buildings, people must have a motive—a will to build; materials and a knowledge of how to use them—a means to build; and systems of construction—an ability to build. The will to build certainly includes responses to functional requirements, but often goes well beyond these to address spiritual, psychological, and emotional needs. For some building types, such as industrial buildings, practical concerns naturally predominate. In others, such as civic or religious buildings, meanings may be dramatically revealed through symbolic forms. To most people, for example, the interior of a religious building should elevate the human spirit, while a warehouse must only protect material goods. However, utilitarian high-rise office buildings are usually designed to reflect the corporate image that the CEO and board of directors wish to project, and homeowners commonly modify their houses both inside and out, not only to accommodate changing functional demands but also to express their own personalities and values. All architecture reflects such values, and the best of it expresses the tastes and aspirations of the entire society. More money, finer workmanship and materials, and (often) better design have typically been expended on buildings that shelter activities important to large segments of society. Thus, for many periods, religious buildings have been the principal laboratories for architectural experimentation and have been built to endure, while residential architecture and even commercial buildings have been more transitory, which explains the abundance of religious buildings in a text such as this one.

At the beginning of an architectural project, the client and architect develop a program, or statement, of projected spatial uses, sizes, qualities, and relationships. The program for an apartment building, say, would itemize the number of apartments and their sizes, the common spaces such as lobbies, the service spaces such as mechanical rooms and storage, and also include an allowance for horizontal and vertical circulation (corridors, stairs, ramps, and elevators). Because many designs can satisfy such a program, it is the architect's responsibility to develop alternatives, to select the best ideas from among them, and to present the results in the form of drawings and models from which the building can be erected.

No matter how strong the will to build, people must also have the resources with which to build, which historically has meant local building materials. In turn, materials have strongly influenced architectural character. One of the most fascinating aspects of studying everyday buildings from the past is noticing how the simplest materials, such as wood, clay, thatch, and stone, have been employed to create architecture. If clay alone was available in abundance, people used tamped earth or made bricks. If people lived in areas that were heavily forested, they built in wood. The ancient Greeks were among the most skilled carvers of stone, but they would hardly have become so without the abundant local marble that could be chiseled with extremely fine detail.

People must also have the ability to build. That is, they must be able to assemble materials into stable systems of construction. Structural materials can be classified according to the way they accept loads: in tension or compression, or a combination of the two. When in compression, the fibers of a material are pressed together; when in tension the fibers are pulled apart. Stone, brick, and concrete are all strong in compression but not in tension. Wood is strong in both tension and compression, as is iron; but iron is also brittle. In the nineteenth and twentieth centuries, metallurgists refined iron into steel, a material to which small amounts of other metals have been added to form alloys that are highly malleable. Because it combines the compressive strength of **concrete** with the tensile strength of embedded steel, reinforced concrete is also strong in both tension and compression.

0.1 Library of Celsus, Ephesus, Asia Minor, 114–117.
Constructed by the Romans, this is an example of post-and-lintel (column-and-beam) construction.
©Marian Moffett

All structures respond to the vertical pull of gravity in the form of live and dead loads, and to side loads or lateral forces created by the wind and earthquakes. Live loads are the people (and/or animals) that inhabit a structure. Dead loads are the weight of the building itself and of its inanimate contents such as furniture. Wind loads are accommodated primarily by diagonal bracing, and seismic loads through flexible connections.

Only in the past 150 years has it become possible to quantify the direction and magnitude of loads and to measure the ability of specific building materials to resist external forces, providing designers with the basis for producing mathematical models that predict structural behavior. For the vast majority of buildings considered in this book, however, achieving a stable structure was a matter of trial and error, based upon modifications of what had been done in the past.

Structural systems can be classified into five categories according to the geometric configuration of their members and the way in which loads are resisted: (1) post and lintel (or column and beam); (2) corbel and cantilever; (3) arch and vault; (4) truss and space frame; and (5) tensile. Post-and-lintel systems, formed by vertical and horizontal members, are perhaps the most common type, sometimes known as trabeated systems (Fig. 0.1). The possible distance between **posts** is primarily determined by the spanning capability of the **beams**. Under loading, the beams bend or deflect downward, stretching (or placing in tension) the fibers in the lower half of the member and pressing together (or placing in compression) the fibers in the upper half. Materials such as stone tend to fail quickly if placed in tension, so one can hardly imagine a wire made of stone. Since materials for **lintels** should be equally strong in tension and compression, wood, steel, and reinforced concrete are widely used.

Stone was the most durable building material available to early societies. These civilizations found ways to overcome stone's inherent weakness in tension and so used it to span greater distances than were possible in post-and-lintel construction. The earliest method was through **corbeling** (Fig. 0.2). Stones were laid in horizontal courses, with the last stone in each course projecting slightly beyond the one below it to form a corbeled **arch**. A corbeled **dome** is made up of rings of stones (or even wood), with each succeeding ring smaller and, therefore, projecting beyond the one below it. This same principle has been used in **cantilever** construction, where a beam or beams (often of wood) project beyond their supports to form an overhang, such as an **eave** below a roof or an overhanging second floor or **jetty** (Fig. 0.3).

Masonry arches and **vaults** (Figs. 0.4–0.5) are composed of wedge-shaped stones called **voussoirs** that must be supported on a temporary framework, called **centering**, until the arch or vault is completed, at which time the stones press tightly against one another and become self-supporting. Such construction requires firm lateral bracing, as an arch or vault exerts not only a downward thrust but also a lateral thrust, which is an outward, overturning force that must be counteracted if the arch or vault is to remain in equilibrium.

0.2 **Arch, Kabah, Mexico, 850–900.**
Built by the Maya of Central America, this is an example of corbeled construction. Note that the stones forming the triangular arch are laid in horizontal courses and slightly overlap one another as they rise.
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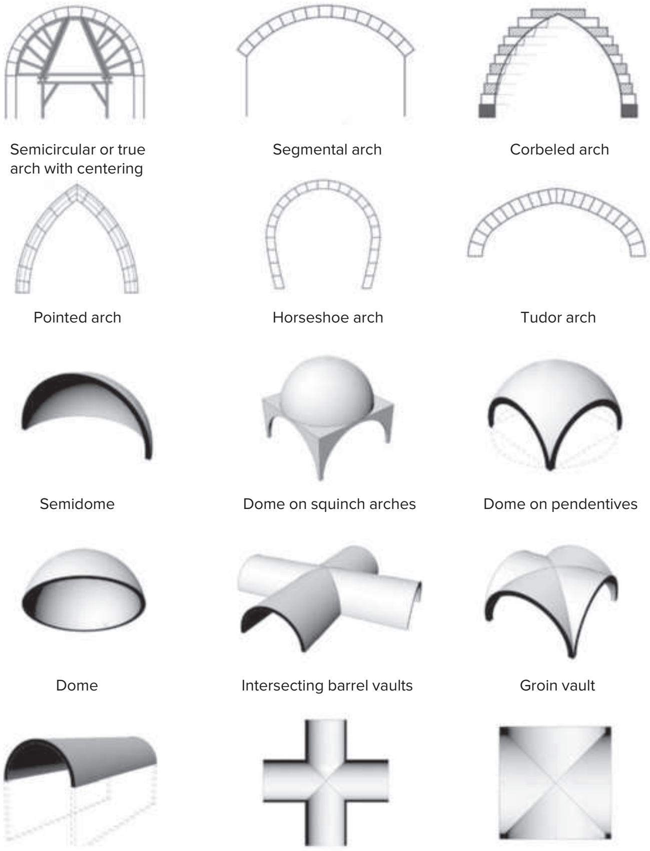
While all arches behave in a similar manner structurally, their profiles vary considerably. Semicircular (or true), segmental, **pointed**, horseshoe, and Tudor arches are among the most important historically. Domes may also vary in profile, from shallow saucer shapes to semicircular or hemispherical to steeply pitched; the steeper the arch or dome's

0.4 **Street in Rhodes, 1100–1300.**
Buildings here have been braced with arches as a result of earthquakes. Several different arch profiles can be seen, all constructed of wedge-shaped voussoirs.
©Marian Moffett

0.3 **Barn, Cades Cove, Great Smoky Mountains National Park, Tennessee, 19th century.**
This is an example of cantilevered construction. The second-floor loft overhangs the log cribs of the base, supported on long, wooden cantilevers extending to the sides and front-to-back across the width of the barn.
©Marian Moffett



Semicircular or true arch with centering
Segmental arch
Corbeled arch
Pointed arch
Horseshoe arch
Tudor arch
Semidome
Dome on squinch arches
Dome on pendentives
Dome
Intersecting barrel vaults
Groin vault
Barrel vault
Intersecting barrel vaults
Groin vault

0.5 **Arch, vault, and dome types.**
Understanding masonry vaulting is crucial to understanding most permanent construction from the time of ancient Rome to the development of iron, steel, and reinforced concrete in the nineteenth century.

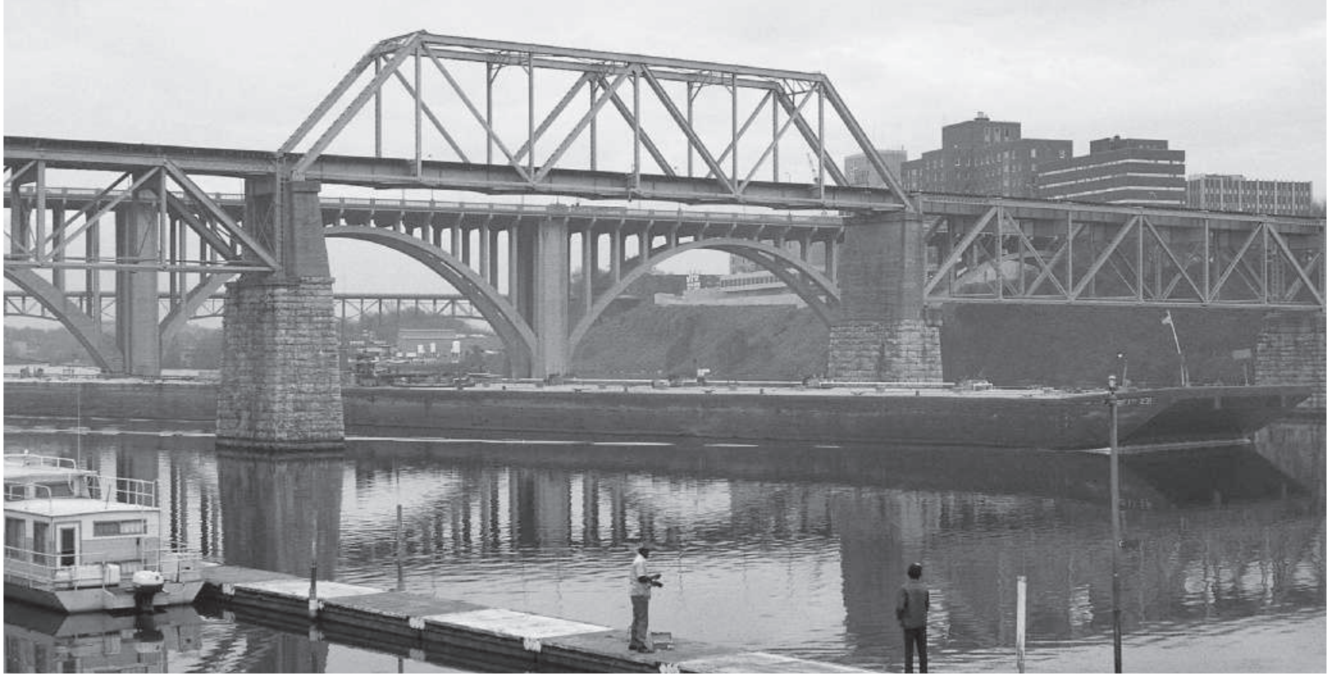
0.6 **(above) Goharshad Mosque, Mashhad, Iran, 1418.**
This mosque design shows typical Islamic arch profiles and a handsome, bulbous blue-tiled dome.
©Marian Moffett

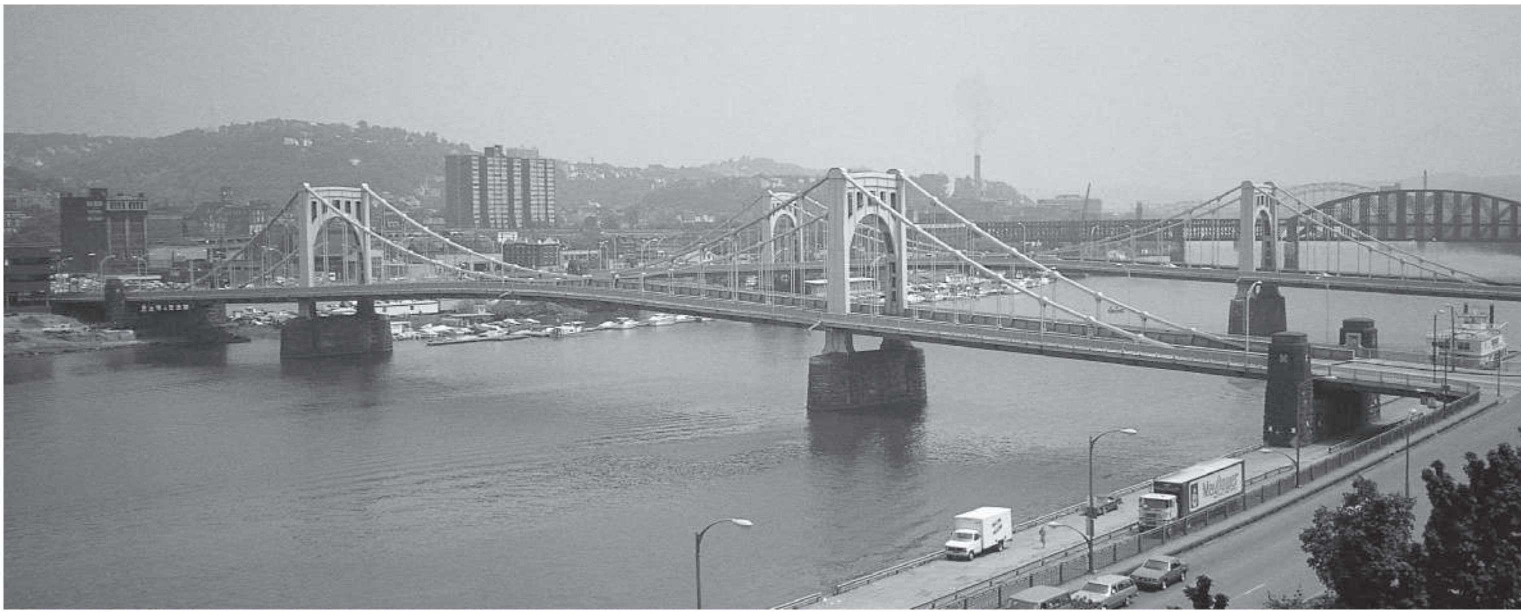
0.7 **(below) Railroad bridge, Tennessee River, Knoxville, Tennessee, ca. 1906.**
This bridge over the Tennessee River is composed of Warren trusses.
©Marian Moffett

profile, the less the lateral thrust (Fig 0.6). And domes can be supported by squinch arches or pendentives. Vaults, which are linear extensions of arches, can be intersected at right angles, producing a groin vault.

The trussing method of spanning space calls for short wooden or metal elements to be connected in triangular configurations (Fig. 0.7). The Romans developed this technique for wooden bridges, but their experiments were not continued by subsequent societies. In the medieval period, **trusses** in church roofs depended on having one member, the bottom chord, equal in length to the span being covered. Early in the nineteenth century, bridge-builders reinvented the art of constructing trusses using short members, employing first wood and then iron and steel in various triangulated configurations, many of which were patented. The Warren truss, named for its designer and composed of equilateral triangles, is probably the most common today. A truss repeated in three dimensions is known as a space frame, a twentieth-century structural development that is particularly useful for long, clear-span roofs.

Some structures are based largely on the control of tensile forces. Fabric tents with upright posts are examples of tensile structures, as are suspension bridges (Fig. 0.8). In both cases, the load is partly carried by fibers or cables woven or spun together. Builders in China and the Andes of Peru used animal or vegetable fibers such as hair, vines, and sisal to build tension structures, but these were limited in durability by the inherent weakness of the fibers and their tendency to decay. Great progress was made in the development of tensile construction in the nineteenth and twentieth centuries as engineers used iron bars or spun thin strands of steel into cables to support the world's longest bridges. Cables have also been used to suspend floors of multi-story buildings. Pneumatic structures, like balloons, have lightweight membranes supported by pressurized air, and thus are also based on tension.





0.8 Seventh Street Bridge, Pittsburgh, Pennsylvania, 1925–1926. This is an example of a suspension bridge structure where vertical loads are carried primarily in tension.

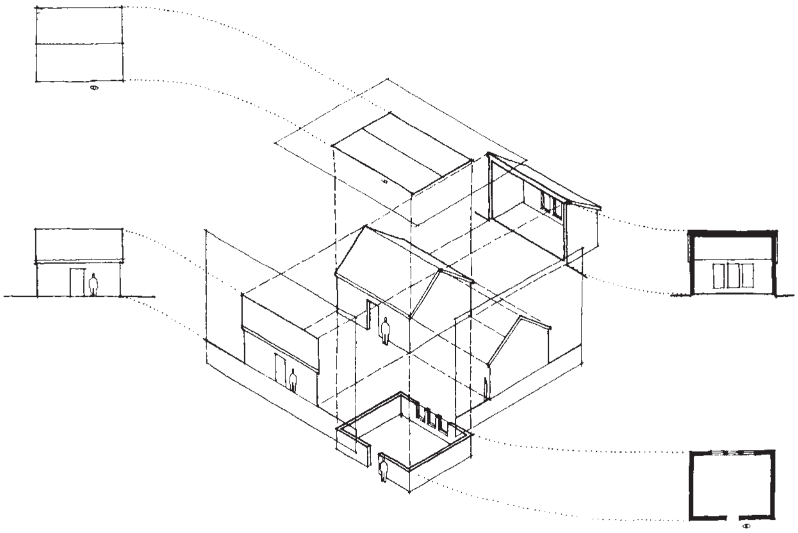
©Marian Moffett

The possibilities of these structural systems are vast. In addition, there are hybrid systems such as cantilevered and arched trusses. The selection of any one of them for a particular building depends on available materials, economics, spatial requirements, and the esthetic sensibilities of the architect and client.

Finally, a few words about styles and precedents. During the eighteenth and nineteenth centuries, historians developed taxonomies classifying the architectural work of various periods according to perceived common characteristics. Today, we recognize that the story is often much more complex and that the lines between the chronological classifications are blurred. The reader should take this into account when studying a chapter on, say, the "Renaissance" or the "Baroque." These are convenient terms, but they should be seen as no more than that, conveniences, and should not obscure the diversity and complexity of the historical built environment. Likewise, the buildings discussed here have been carefully chosen. In most cases, they are the so-called canonical buildings; that is, the ones that have been recognized by many scholars over time as best representing a time and place or the work of an individual. The canon has changed and will continue to change, particularly for buildings outside the European context and those of the more recent past. Furthermore, not only historians but also architects themselves have participated in establishing the canon. Throughout history, architects have learned from those who preceded them. The buildings that they admired, studied, and emulated became design precedents. For instance, the exterior of McKim, Mead, and White's Boston Public Library (1887–1893) (see Fig. 14.51) owes much to the principal façade of Henri Labrouste's Bibliothèque Ste.-Geneviève in Paris (1844–1850) (see Figs. 14.10 and 14.11), which, in turn, was based upon the side elevation of Leon Battista Alberti's church of S. Francesco in Rimini (begun ca. 1450) (see Fig. 11.14). At S. Francesco, Alberti was inspired by the arches of the Tomb of Theodoric in nearby Ravenna (ca. 526). A similar backward trajectory can be established for the dome of the U.S. Capitol (1851–1867), designed by Thomas U. Walter, who was inspired by Sir Christopher Wren's design for St. Paul's Cathedral in London (1675–1710) (see Fig. 12.47). Wren's probable precedent was François Mansart's dome of the Val-de-Grâce in Paris (see Fig. 12.37), which was in turn inspired by Michelangelo's dome for St. Peter's in Rome (see Fig. 11.42), which was itself based on Brunelleschi's dome for Florence Cathedral (see Fig. 11.3). Brunelleschi had looked for his inspiration to the ancient Roman Pantheon in Rome (see Fig. 5.21), erected about 125 CE for the Emperor Hadrian. Where Hadrian's architects got their ideas, we leave for you to discover. Throughout the ages, then, architects have been influenced by the works of their predecessors. We hope that you, our readers, whether you are concerned with history or design or both, will be equally informed and inspired by what is presented in the pages that follow.

A Word about Drawings and Images

In this book, there are many drawings as well as photographs of interior and exterior views. Architects have long relied on the convention of orthographic projections—plans, elevations, and sections—to describe buildings. A plan represents a building as seen from above once a horizontal cutting plane has been passed through it, usually just above the height of the window sills, with everything above this cutting plane removed and the lines of the plan cast onto the cutting plane (Fig. 0.9). Elements that have been cut are usually defined by the darkest lines in the drawing or are blackened



0.9 **Plans, elevations, and sections.**
This diagram illustrates the basis of orthographic projection in plan, elevation, and section.

in completely. Elements below the cutting plane are drawn with thinner lines, and doors may appear as arcs showing the direction of their swings. Dotted lines in a plan usually indicate ceiling elements above the cutting plane, such as vaults and **coffers**. Thus, in a single, economical drawing, a plan can indicate spatial distribution and dimensions on a particular floor and even give some idea of the structure above.

Elevations are obtained by passing a vertical cutting plane down through the ground a few feet in front of one exterior face of a building, with the image of the building then projected onto the cutting plane. Sections also result from a vertical cutting plane, but in this case one passed down inside a building with its image cast upon the plane. By convention, these cutting planes in elevation and section are placed parallel to the building's principal walls. In an elevation, the only line that is intersected by the cutting plane is the ground line, so this line is shown as the darkest in the drawing. In a section, as in a plan, all the building elements that have been cut are usually defined by the darkest lines on the drawing or are blackened in completely, and elements beyond the cutting plane are seen in elevation and, therefore, are drawn with thinner lines. While it may take some experience to "read" orthographic drawings, they are very useful in the building process because dimensions can be scaled directly from them.

Let us see how drawings work by considering the pair of two-story houses shown in Figs. 0.10 and 0.11. They represent a common type built by early colonists in Connecticut, and both were enlarged by a one-story addition at the rear that was covered by extending the existing roof slope. The resulting form was dubbed a "saltbox" because it resembled the bulk salt containers found in nineteenth-century general stores. In Fig. 0.12, we see the plan and two elevations of another saltbox house as documented by the Historic American Buildings Survey, a national record of buildings begun in the 1930s and archived in the Library of Congress. From the plan it is easier to see the rear addition and to understand how the interior of the house was arranged. A perspective drawing, Fig. 0.13a, more closely resembles the photographs in Figs. 0.10 and 0.11, because perspective drawings show all three dimensions through foreshortening, as photography does, with elements that are farther away (the front-left and back-right corners of the house, in this case) diminishing in size. We know that in fact both front corners of the house are the same height, but in a perspective the one closer to the viewer will be taller. Because most of us readily understand perspective drawing, this drawing type provides architects with a powerful tool for communicating the appearance of buildings not yet constructed in a way that non-architects can understand. An axonometric

0.10, 0.11 **(left) John Graves House, Madison, Connecticut, 1675; (right) Samuel Daggett House, 1750, Connecticut.**
Although these colonial houses are not identical, they share a similar form and massing around a central chimney.
(left) ©Marian Moffett; (right) ©Marian Moffett

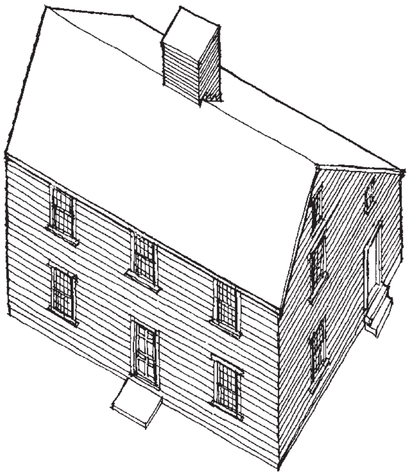
0.12 **(above) Plan and front and right-side elevations of Ogden House, Fairfield, Connecticut, ca. 1700.**
Fine lines on this drawing indicate dimensions taken from the building when it was measured for the Historic American Buildings Survey.

drawing, as in Fig. 0.13b, also depicts all three dimensions, but does so without distorting these dimensions as measured along the axes of height, width, and depth. Something must be distorted to capture a three-dimensional object in two dimensions, however, and in this case it is some of the angles at which these axes intersect. At the front- and right-side elevations, some 90° angles, like those at the right front corner, have become acute angles, while others are now obtuse angles.

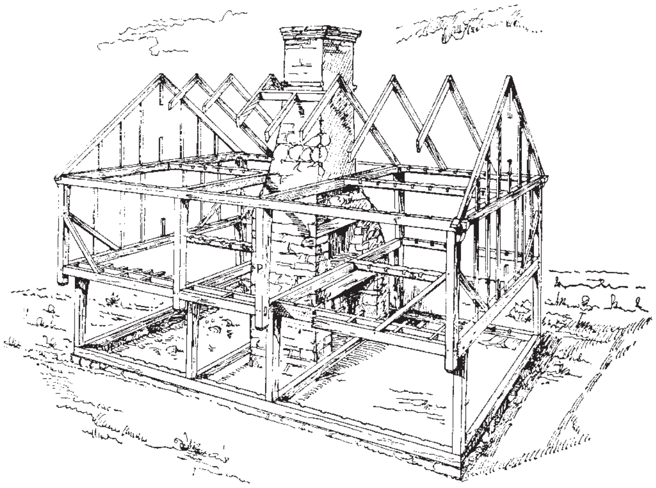
One of the specialized uses of drawings is to show conditions that may not be visible in the finished building. Fig. 0.13c shows a perspective view of the structure of a saltbox house, allowing us to see the heavy timber frame that is covered by the exterior siding and also to understand how the massive stone chimney fits into the core. Images of buildings, no matter how detailed, are inevitably abstractions of reality. Even photographs do not show everything "as it really is." Therefore, having multiple images, drawings as well as photographs, aids in understanding a building's structure and spatial arrangement.

0.13a **(above) Perspective drawing of Ogden House.**
This view is based on the dimensions of a house measured by the Historic American Buildings Survey.

0.13b **(below) Axonometric drawing of Ogden House.**
This view is based on the dimensions of a house measured by the Historic American Buildings Survey. Compare this view with the perspective drawing (Fig. 0.13a) to see how these drawing types differ from one another.



0.13c **(below) Analytic perspective of a saltbox house.**
With the exterior siding, doors, and windows removed, one can see the heavy timber frame and masonry chimney that comprise the structure of this building.



Chapter 1

The Beginnings of Architecture

Though ancient, the structures that appear in this initial chapter are rich and varied and often sophisticated. Moreover, because they are "ancient" and always local, they are in some ways more exposed to revelation than later structures. That is, they lay bare for consideration certain fundamental principles of architecture and, arguably, certain fundamental aspects of the human condition.

In 1964, polymath architect-engineer-historian Bernard Rudofsky organized a then surprising and ultimately extremely influential exhibition, "Architecture without Architects," at the Museum of Modern Art in New York City. The exhibition created something of a sensation, appearing as it did at a time of general cultural upheaval in the United States, and the subtitle of the book accompanying the exhibition, *A Short Introduction to Non-Pedigreed Architecture*, suggests why it was so sensational or, perhaps more accurately, so iconoclastic. Illustrating, with obvious personal admiration, what he called "vernacular, anonymous, spontaneous, indigenous, rural" architecture, Rudofsky argued for a much more chronologically and geographically inclusive study of the built environment and one that did not cater exclusively to constructions for the wealthy and powerful and did not result exclusively from the efforts of what we might today call academically trained designers. The images of architectural objects that he displayed and analyzed ranged from earth mounds in China to rock-cut dwellings in Turkey, to reverse-action chimneys in Pakistan and much else in among them.

Reading Rudofsky's book and particularly the initial pages of this chapter, you will be directed away from matters of fashion and even style, in favor of "anonymous" but distinctive, even archetypal, forms, and you may come away with a deeper understanding of human responses to particularized environments, to specific local building materials, to elementary but expressively logical structural systems, and to early but nuanced social conditions. You will be able to embrace the essentials of function, space, and meaning by "beginning" with the architecture of prehistory; that is, the era before the appearance of written language.

Prehistory begins as early as 35,000 BCE and extends to about 3000 BCE in the lands of the eastern Mediterranean, and until well after 2000 BCE in parts of western Europe. On the timescale of humankind, these dates correspond to the earliest years of "modern" human evolution from cooperative hunting-and-gathering societies into agricultural civilizations with a fixed settlement area and a ruling class. In the absence of written records, archaeologists and historians must interpret the fragmentary evidence of ancient people—pottery, household implements and rubbish, burials, tombs, and building remains—found in locations scattered across Europe, Africa, and Asia. The most dramatic images from prehistoric times are the Paleolithic cave paintings in France and Spain dating back as far as 33,000 BCE. Depicting mostly animals, often in hunting scenes, they have been variously interpreted as part of religious rituals, as the hallucinogenic visions of shamans, and even as star charts. New technologies have assisted the dating of such artifacts through the use of radioactive carbon 14, thermoluminescence, and dendrochronological analysis (the study of growth rings in trees), but both the methods and the hypotheses derived from them are subject to continual revision as researchers discover new evidence and reexamine old ideas. Reconstructions based on post-holes or masonry foundations help us visualize the simple buildings erected by early societies and provide clues to the more elaborate structures that come later.

PREHISTORIC SETTLEMENTS AND MEGALITH CONSTRUCTIONS

Eastern Europe

Human settlement seems to have originated at the small clan or family level, with a sufficient number of people living together to provide mutual assistance in hunting and food gathering and joint protection against enemies. Among

Ceiling of the red cows, Lascaux, Dordogne, France, 15,000–20,000 BCE.
Discovered in 1940, this cave contains some 2000 painted images—some of abstract signs, some of humans, and some of animals, as seen here. In the absence of written records, the purpose of the paintings remains open to conjecture. Some see them as depictions of past hunting experiences or as the settings for mystical ritual experiences intended to bring hunters success. Some even argue that they depict hallucinogenic visions or are star charts. In 2008 the cave was beset by black mold and has since been closed except for brief, weekly monitoring visits by scientists.
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Chronology

Beginning of prehistory	**ca. 35,000 BCE**
Sumerians develop a written language	**3500 BCE**
Construction of Stonehenge	**ca. 2900–1400 BCE**
Egyptian Old Kingdom	**2649–2134 BCE**
Construction of the pyramids at Giza	**2550–2460 BCE**
Construction of the Ziggurat at Ur	**2100 BCE**
Egyptian Middle Kingdom	**2040–1640 BCE**
Egyptian New Kingdom	**1550–1070 BCE**