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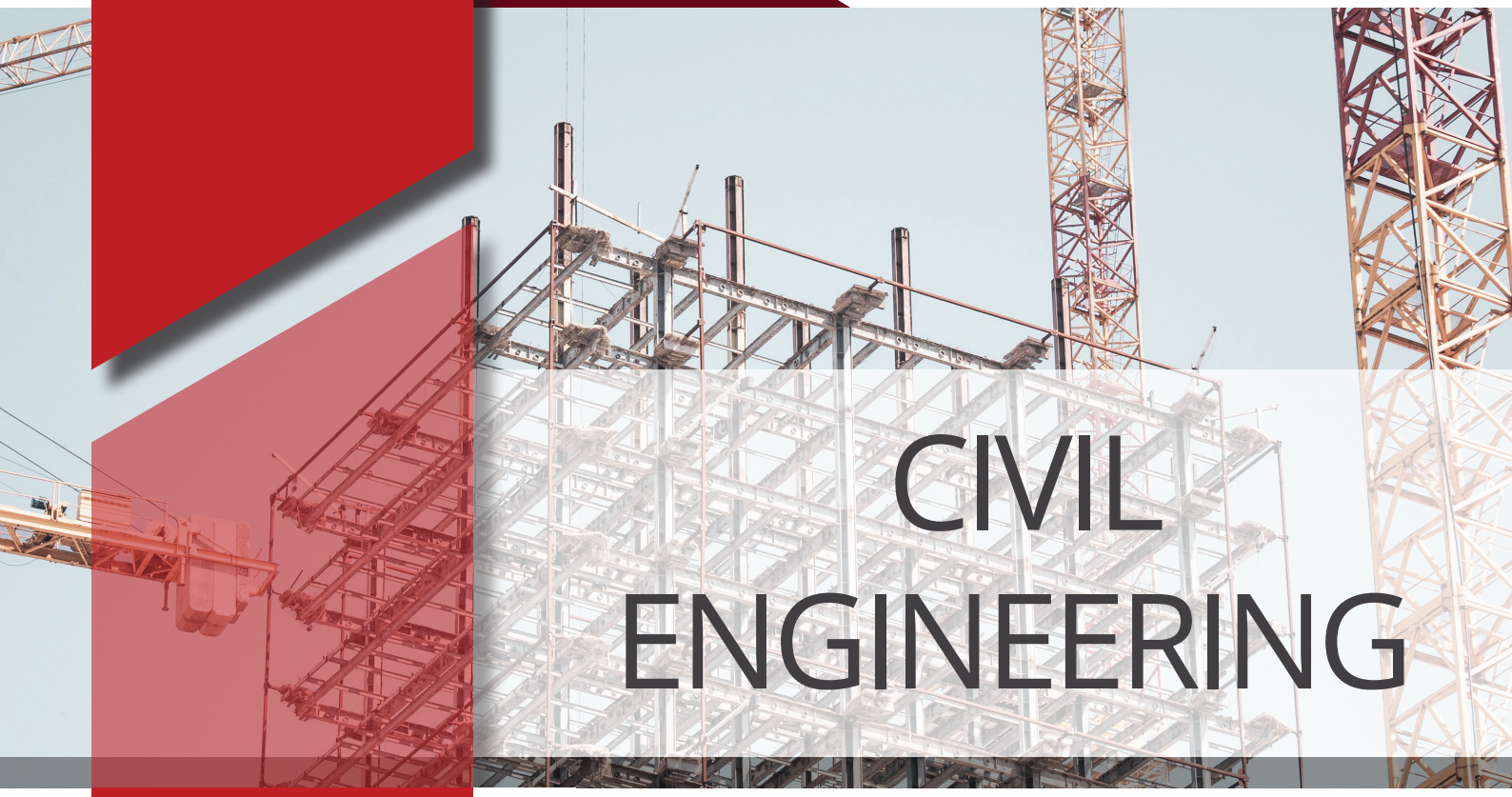

CIVIL ENGINEERING

History of architecture

UNIVERSITY OF APPLIED SCIENCES UPPER AUSTRIA

VŠTE

EUROPEAN UNION

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1. DEFINITION OF TERMS, ARCHITECTURE AS ARCHÉ + TECHNÉ

Architecture = ARCHÉ-TECTONIC
ARCHÉ = basic principle, beginning, origination, occasion
TECTON = carpenter, craftsman (TIKTÓ (τικτω) = the TREE, TECHNÉ --> TECHNIQUE)

ARCHITECTURE is configuration of matter, space and events.
The word SPACE includes the TIME in it
KAIROS - non-linear time, time of events and cycles
CHÓROS (chronos > chronology) - linear TIME
CHÓRA (in Greek) - bound, goal, landscape, earth, home and also the SPACE
ARCHITECTURE = forming of space for events. Basic elements of architecture are: the space, the matter, the events.

FORMULA VITRUVIA: firmitas, utilitas, venustas = structure of building must be solid, useful, beautiful

2. MEGALITHIC CULTURE

In the Paleolithic, altering natural structures for the purpose of providing shelter can be considered the oldest example of construction. Archaeology of the Neolithic has proved the existence of a large number of dwellings from inflammable materials – "long houses" (pole construction).

Megalithic cultures also created the first examples of monumental architecture, which can be found in the vast area of Europe and the Mediterranean. These areas were very likely to have contact with one another, thus creating a kind of the first architectural style. The building material – stone – was sometimes transported from a very long distance.

Constructing megalithic artefacts meant manipulating with suitable large blocks of stone (mega = large, lithos = stone). The first examples of monumental architecture were created thanks to the Neolithic agricultural revolution and required a great deal of organized cooperation.

The types of megaliths:

- Menhir (a standing stone) is a rough simple stone block

- Dolmen (a stone "table") consists of several big stones supporting other flat stones. Dolmens with a small barrow on top were proven to be tombs or ritual places. These are called tumuli (singular tumulus). The oldest European building is this kind of tomb: in Barnenez, Morlaix (Brittany, 4 500 BC)

- Cromlech (crom = crooked, lech = stone) is a round group of single stones (menhirs). It can be a circle, oval, ellipse or an unfinished circle or semi-circle. It's probably the youngest type of megalithic shrines and it's most common on the British Isles. (e.g. Stonehenge, 3 500- 1 600 BC)

The beginnings of urban development

The beginnings of urban development
The oldest dwellings are known from the first settlements in Asia Minor (Hacilar, 6 000 BC, Catal Hüyük, 5 600 BC or Jericho from 9 000 BC).

Besides real cities there also existed – especially in the Western world – a biblical vision of an ideal city, a city-paradise. This vision was described in the Bible by the prophet Ezekiel as the New (or the Heavenly) Jerusalem. This vision came to Ezekiel during the Babylonian captivity, which means that his description of an ideal city of Jerusalem could be influenced by Mesopotamian cities.

3.ANCIENT ARCHITECTURE

Knowing the culture of developed ancient civilizations – Mesopotamia, Egypt, Phoenicia-Palestine, India and China – can help us understand many younger periods of the evolution of architecture which drew inspiration from them.

The vast territory of Mesopotamia was inhabited by a wide range of cultures (from city-states to large empires) which lived there in the course of thousands of years. The most important cultures were:

- Sumer – from approx. 5 000 BC, the peak around 3 000 BC, the most significant cities: Nippur, Ur and Uruk (see the Epic of Gilgamesh).
- Assyrian empire – the cities of Assur and Nineveh (the 3rd millenium BC)
- Babylon (growing especially before 1 700 BC and in the 6th century BC)

The Mesopotamian construction technique (which can be seen in the large dwellings that were discovered) knew these basic types, technologies and materials: brick (dried and fired, glazed, even special shaped bricks), brick vault (primarily corbel vault). Ziggurat – a high terraced shrine, e.g. the Tower of Babel. Fortification – monumental, brick and clay. A house with a central courtyard. Canals, cisterns, bridges, aqueducts – developed engineering.

The culture of ancient Egypt – with more than 3 400 years of civilization – is fascinating. Its typical feature was a strong belief in afterlife (tombs, temples). The most striking Egyptian architecture – the pyramids – had influenced architects for centuries to come. The oldest pyramids are in Saqqara – Djoser's step pyramid (2 650 BC, Imhotep – the first known architect). The most famous archaeological site is Giza: the Pyramid of Khufu (Cheops), originally 150 m high, the ground plan 5 ha, 2 million m3 of stone blocks, approx. 20 years of building.

3.1. Ancient Greece

- Archaic Period (800-500 BC) - Crete – city-states – great colonization – Sparta and Athens
- Classical Period (480-323 BC) - Greco-Persian Wars – the dominance of the Athens – Peloponnesian War – Sparta and Thebes – Macedonia
- Hellenistic Period (336-146 BC) - Alexander's raids – Antigonid dynasty – Macedonian supremacy – the end of a free Greece

- The Roman supremacy (146 BC - 395 AD)

The culture of Ancient Greece has had a crucial impact on Europe (e.g. the writings of Aristotle and Plato, which strongly influenced medieval monastic culture) and keeps inspiring us even today. Panhellenic classical culture was strongly shaped by the Greco-Persian Wars. Here lies the distinction between the Orient (the East) and the Occident (the Western world) – meaning democracy vs. despotism – that Europe later made. Classical Greek architecture strongly influenced almost all later architectural styles: columns and the Classical order, Greek temple as a symbol of perfection, 19th century landscape architecture etc.

Building materials: non-fired bricks, shaped stone, wood, straw, clay

The typology of buildings:

- Cult: the temple, propylaea, memorials, Mausoleum at Halicarnassus (the 4th century)
- Dwellings: a house (pastas, prostas, a house with a peristyle), palaces
- Administration buildings: city halls, libraries
- Public facilities: spas, theatres (e.g. Epidauros – the 4th century BC)
- Educational: gymnasium (youth training, both physical and mental)
- Sports: stadium, hippodrome (the stadium in Olympia)

3.2. Ancient Rome

- The Roman Kingdom (759-509 BC)
- The Roman Republic (509-31 BC) – conquering the Apennine Peninsula – Punic Wars – Hannibal's invasion – civil wars
- The Principate (the first period of the Roman Empire, 31 BC – 300 AD): the birth of the Principate – the Severan dynasty – the beginning of late antiquity
- The Dominate (the second period of the Roman Empire, 300 AD – 476 AD): division of the empire – christianity – the decline of the empire

The Roman building culture took over the knowledge of the Greeks and the Etruscs and created developed engineering. This developed culture spread out in Europe thanks to the Roman expansion. Europe drew inspiration from this tradition for centuries to come.

Building materials: non-fired and fired bricks, stone, wood

Developed infrastructure: the aqueducts bringing water to the cities, water pipeline in every house, heating and hot water in luxurious dwellings, public toilets, garbage was thrown out of the windows on the streets

The typology of buildings:

- Thermae (public spa) – a place for hygiene, company, politics
- Amphitheatre, Circus (= a place for fun, "panem et circensis" = bread and games), e.g. Colloseum in Rome
- Country villas of rulers and rich patricians (= e.g. villa Tivoli – Hadrian's villa)
- Memorials (The Mausoleum of Hadrian, the Tomb of Caecilia Metella, Ara Pacis Augustae)
- Triumphal arches (the Arch of Trajan, the Arch of Titus ...)
- Rental houses (blocks of flats = insula)
- Temples

4. BYZANTINE, PRE-ROMANESQUE AND ROMANESQUE ARCHITECTURE

Byzantine architecture is the architecture of the Byzantine Empire, also known as the Later Roman or Eastern Roman Empire. Byzantine architecture was mostly influenced by Roman and Greek architecture. It began with Constantine the Great when he rebuilt the city of Byzantium and named it Constantinople and continued with his building of churches and the forum of Constantine. This terminology is used by modern historians to designate the medieval Roman Empire as it evolved as a distinct artistic and cultural entity centered on the new capital of Constantinople rather than the city of Rome and environs. The empire endured for more than a millennium. Its architecture dramatically influenced the later medieval architecture throughout Europe and the Near East, and became the primary progenitor of the Renaissance and Ottoman architectural traditions that followed its collapse.

The Edict of Milan (Latin: Edictum Mediolanense) was the February 313 AD agreement to treat Christians benevolently within the Roman Empire. Western Roman Emperor Constantine I, and Licinius, who controlled the Balkans, met in Milan and among other things, agreed to change policies towards Christiansfollowing the Edict of Toleration by Galerius issued two years earlier in Serdica. The Edict of Milan gave Christianity a legal status, but did not make Christianity the official religion of the Roman empire; this took place under Emperor Theodosius I in 380 AD.

Prime examples of early Byzantine architecture date from the Emperor Justinian I's reign and survive in Ravenna and Istanbul, as well as in Sofia (the Church of St Sophia). One of the great breakthroughs in the history of Western architecture occurred when Justinian's architects invented a complex system providing for a smooth transition from a square plan of the church to a circular dome (or domes) by means of pendentives.

Finally, at Hagia Sophia (6th century) a combination was made which is perhaps the most remarkable piece of planning ever contrived. A central space of 100 ft (30 m) square is increased to 200 ft (60 m) in length by adding two hemicycles to it to the east and the west; these are again extended by pushing out three minor apses eastward, and two others, one on either side of a straight extension, to the west. This unbroken area, about 260 ft (80 m) long, the larger part of which is over 100 ft (30 m) wide, is entirely covered by a system of domical surfaces. Above the conchs of the small apses rise the two great semi-domes which cover the hemicycles, and between these bursts out the vast dome over the central square. On the two sides, to the north and south of the dome, it is supported by vaulted aisles in two storeys which bring the exterior form to a general square.

Technical inovations:

- Pendentives, large domes
- Using of bricks, in decorative combinations with stones

4.1. Pre-Romanesque architecture

The term "Pre-Romanesque" is sometimes applied to architecture in Germany of the Carolingian and Ottonian periods and Visigothic, Mozarab and Asturian constructions between the 8th and the 10th centuries in the Iberian Peninsula while "First Romanesque" is applied to buildings in north of Italy and Spain and parts of France that have Romanesque features but pre-date the influence of the Abbey of Cluny.

4.2. Romanesque architecture

Romanesque architecture is an architectural style of medieval Europe characterized by semi-circular arches. There is no consensus for the beginning date of the Romanesque style, with proposals ranging from the 6th to the 11th century, this later date being the most commonly held. It developed in the 12th century into the Gothic style, marked by pointed arches. Examples of Romanesque architecture can be found across the continent, making it the first Pan-European architectural style since Imperial Roman architecture. The Romanesque style in England is traditionally referred to as Norman architecture.

Combining features of ancient Roman and Byzantine buildings and other local traditions, Romanesque architecture is known by its massive quality, thick walls, round arches, sturdy pillars, barrel vaults, large towers and decorative arcading. Each building has clearly defined forms, frequently of very regular, symmetrical plan; the overall appearance is one of simplicity when compared with the Gothic buildings that were to follow. The style can be identified right across Europe, despite regional characteristics and different materials.

The name Roman(esque) we give to this architecture, which should be universal as it is the same everywhere with slight local differences, also has the merit of indicating its origin and is not new since it is used already to describe the language of the same period. Romance language is degenerated Latin language. Romanesque architecture is debased Roman architecture.

Romanesque architecture in the Czech countries is the first stage of architectural development on the Czech territory with preserved buildings. From the previous, Great Moravian phase, only archaeological finds have survived. In the period of the Romanesque style, the first stone structures were built in the Czech Republic, especially the churches and monastery buildings, and the first castles and city buildings (fortifications, houses)

at the end of the period. The Romanesque architecture was built on the Czech territory from the end of the 9th century until the middle of the 13th century, when the Gothic style gradually began to be promoted.

The most remarkable creation of the Romanesque period is the monastery basilica of St. Prokop in Třebíč. In this building, the most conspicuous is the style of embarrassment and shape disparity. The obsolete ground plan of the South German type with the conservative presbytery (with its unique dividers between the vault fields – French influence) contrasts with modern elements – column gallery, rose window, sculptural decoration.

5.GOTHIC ARCHITECTURE AND PRZEMYSLID URBAN DEVELOPMENT

Gothic architecture is an architectural style that flourished in Europe during the High and Late Middle Ages. It evolved from Romanesque architecture and was succeeded by Renaissance architecture.

Originating in 12th century France and lasting into the 16th century, Gothic architecture was known during the period as Opus Francigenum ("French work") with the term Gothic first appearing during the latter part of the Renaissance. Its characteristics include the pointed arch, the ribbed vault (which evolved from the joint vaulting of Romanesque architecture) and the flying buttress. Gothic architecture is most familiar as the architecture of many of the great cathedrals, abbeys and churches of Europe. It is also the architecture of many castles, palaces, town halls, guild halls, universities and to a less prominent extent, private dwellings, such as dorms and rooms.

The most famous gothic buildings are cathedrals Notre Dame in Paris, Chartres, Amiens, etc.

The Gothic style first appeared in the Czech lands in the first half of the 13th century and was usual there until the early 16th century. The phases of the development of the Gothic architecture in the Czech lands are often named after the Bohemian ruling dynasty of the corresponding time:

- Early Gothic — Přemyslid Gothic (13th and early 14th century)
- High Gothic — Luxembourg Gothic (14th and early 15th century)
- Late Gothic — Jagiellonian Gothic (approximately 1471–1526)

The most significant Gothic architects who worked in the Czech lands (especially in Bohemia) were Peter Parler and Benedikt Rejt. The Czech nobility accepted the culture of knights, so they listened to the German Minnesingers, participated in tournaments, got their coat of arms and built castles of stone. Thanks to the newly found silver mines the Kingdom was becoming richer (e. g. Jihlava, Stříbro or Kutná Hora). The castles: Pernštejn, Křivoklát.

Gothic urbanism: in 2nd half of 13th century were founded the important Czech cities founded, eg. České Budějovice, Plzeň, Litoměřice, ...).

6.RENAISSANCE

Renaissance architecture is the European architecture of the period between the early 14th and early 17th centuries in different regions, demonstrating a conscious revival and development of certain elements of ancient Greek and Roman thought and material culture. Stylistically, Renaissance architecture followed Gothic architecture and was succeeded by Baroque architecture. Developed first in Florence, with Filippo Brunelleschi as one of its innovators, the Renaissance style quickly spread to other Italian cities. The style was carried to France, Germany, England, Russia and other parts of Europe at different dates and with varying degrees of impact.

Renaissance style places emphasis on symmetry, proportion, geometry and the regularity of parts, as they are demonstrated in the architecture of classical antiquity and in particular ancient Roman architecture, of which many examples remained. Orderly arrangements of columns, pilasters and lintels, as well as the use of semi-circular arches, hemispherical domes, niches and aedicules replaced the more complex proportional systems and irregular profiles of medieval buildings.

Periods:

- Quatrocento, 1420–1490 (Filippo Brunelleschi, Leon Batista Alberti)
- Cinquecento, 1490–1520 (Leonardo da Vinci, Donato Bramante, Rafael Santi)
- Late renaissance – leades to the mannerism and baroque (Michelangelo, Andrea Palladio – palladianism)

The person generally credited with bringing about the Renaissance view of architecture is Filippo Brunelleschi. Brunelleschi's first major architectural commission was for the enormous brick dome which covers the central space of Florence's cathedral, designed by Arnolfo di Cambio in the 14th century but left unroofed. While often described as the first building of the Renaissance, Brunelleschi's daring design utilizes the pointed Gothic arch and Gothic ribs that were apparently planned by Arnolfio. It seems certain, however, that while stylistically Gothic, in keeping with the building it surmounts, the dome is in fact structurally influenced by the great dome of Ancient Rome, which Brunelleschi could hardly have ignored in seeking a solution. This is the dome of the Pantheon, a circular temple, now a church. lleschi (1377–1446). The underlying feature of the work of Brunelleschi was "order".

6.1. Renaissance in Czech lands

Czech Renaissance architecture refers to the architectural period of the early modern era in Bohemia, Moravia and Czech Silesia, which then comprised the Crown of Bohemia and today constitute the Czech Republic. The Renaissance style flourished in the Czech lands from the late 15th century to the first half of the 17th century. In the Crown of Bohemia as well as in other parts of Central Europe the Renaissance style was accepted slower than in southern Europe and its development was delayed in comparison with Italy. It was partly caused by the situation in the Kingdom after the Hussite Wars. The Bohemian Reformation was mistrustful of the influences coming from the "pa-pal" Italy and rather respected the traditional values expressed with the older Gothic style. There-fore, the first examples of the Renaissance architecture in the Czech lands can be found in the do-mains of the Catholic aristocracy or the Catholic king. The Renaissance style first appeared in the Czech Kingdom in the 1490s. Bohemia (together with its incorporated lands, especially Moravia) thus ranked among the areas of the Holy Roman Empire with the earliest known examples of the Renaissance architecture. The facades of Czech Renaissance buildings were often decorated with sgraffito (figural or ornamental). The figural sgraffito as well as relief decorations usually drew inspi-ration from the Bible or ancient mythology.

7.BAROQUE

Baroque architecture is the building style of the Baroque era, begun in late 16th-century Italy, that took the Roman vocabulary of Renaissance architecture and used it in a new rhetorical and theatrical fashion, often to express the triumph of the Catholic Church. It was characterized by new explorations of form, light and shadow, and dramatic intensity. Common features of Baroque architecture included gigantism of proportions; a large open central space where everyone could see the altar; twisting columns, theatrical effects, including light coming from a cupola above; dramatic interior effects created with bronze and gilding; clusters of sculpted angels and other figures high overhead; and an extensive use of trompe-l'oeil, also called "quadratura," with painted architectural details and figures on the walls and ceiling, to increase the dramatic and theatrical effect.

Czech Baroque architecture refers to the architectural period of the 17th and 18th century in Bohemia, Moravia and Czech Silesia, which comprised the Crown of Bohemia and today constitute the Czech Republic. The Baroque style also changed the character of the Czech countryside (churches and chapels in Czech countryside are mostly Baroque). Czech Baroque architecture is considered to be a unique part of the European cultural heritage thanks to its extensiveness and extraordinariness. In the first third of the 18th century the Czech lands (especially Bohemia) were one of the leading artistic centers of the Baroque style. In Bohemia there was completed in a very original way the development of the Radical Baroque style created in Italy by Francesco Borromini and Guarino Guarini. The leading architects of the Czech High Baroque style (also called Radical Baroque of Bohemia) were Christoph Dientzenhofer and Kilian Ignaz Dientzenhofer. The Baroque Gothic style is a unique strand of Czech High Baroque art which connects the Bohemian Radical Baroque style with Gothic elements. The creator and main representative of this style was the Bohemian architect Jan Blažej Santini-Aichel.

The spread of the Baroque style in the Crown of Bohemia was coupled with the victory of the Catholic Church during the Thirty Years' War when the Catholic Church became the only legal church in the Kingdom of Bohemia (from 1627) and Margraviate of Moravia (from 1628). The heyday of Baroque style in the Czech lands can be seen in the early 18th century.

Many of the Baroque architects who worked, lived and often also died in the Czech lands came from different countries or were of foreign origin, mainly Italian, some came also from Bavaria, Austria or France.

8.CLASSICISM AND THE BEGINNING OF MODERNISM

Late baroque (approx. 1730 – 1780) leads to the classicist forms (Dobříš). In this period are build the most important works of fortification architecture and urban structures (Terezín, Josefov).

Rococo was an exuberantly decorative 18th-century European style which was the final expression of the baroque movement It pushed to the extreme the principles of illusion and theatricality, an effect achieved by dense ornament, asymmetry, fluid curves, and the use of white and pastel colours combined with gilding, drawing the eye in all directions. The ornament dominated the architectural space.

Classical architecture usually denotes architecture which is more or less consciously derived from the principles of Greek and Roman architecture of classical antiquity, or sometimes even more specifically, from the works of Vitruvius. Different styles of classical architecture have arguably existed since the Carolingian Renaissance, and prominently since the Italian Renaissance. Although classical styles of architecture can vary greatly, they can in general all be said to draw on a common "vocabulary" of decorative and constructive elements. In much of the Western world, different classical architectural styles have dominated the history of architecture from the Renaissance until the second world war, though it continues to inform many architects to this day.

The term "classical architecture" also applies to any mode of architecture that has evolved to a highly refined state, such as classical Chinese architecture, or classical Mayan architecture. It can also refer to any architecture that employs classical aesthetic philosophy. The term might be used differently from "traditional" or "vernacular architecture", although it can share underlying axioms with it.
For contemporary buildings following authentic classical principles, the term New Classical Architecture may be used.

Gründerzeit was the economic phase in 19th-century Germany and Austria before the great stock market crash of 1873. At this time in Central Europe the age of industrialisation was taking place, whose beginnings were found in the 1840s. No precise time for this period can be given, but in Austria the March Revolution of 1848 is generally accepted as the beginning for economic changes, in contrast to political reforms. In Germany, as a consequence of the large influx of capital resulting from French war reparations from the Franco-Prussian War of 1870–1871, and the subsequent German Unification, there followed an economic boom, giving rise to the description of these years as the “founders’ years”.

These years in Central Europe were a time that citizens increasingly influenced cultural development. This was also the epoch of classical liberalism, even if the political demands of the time were only partially met, and then only in the later period. Industrialisation also posed aesthetic challenges, above all in the fields of architecture and craftsmanship, through development of existing forms, rather than innovation as such.

In common parlance the term Gründerzeitstil is often mingled with Historicism, which was the predominant architectural style after 1850 until 1914, leading to a blurring of the terms. In historical context different decades are often also called Gründerzeit. For this reason, the term Gründerzeit is used to refer to several periods; for example 1850 – 1873, 1871 – 1890, sometimes 1850 – 1914 for the architecture, or just 1871 – 1873.

9. REVOLUTION: THE BIRTH OF A BIG CITY AND THE UTOPIANS

The German term Gründerzeit refers to the great economic upswing in the mid-19th century, when the founders of business (entrepreneurs, Gründer) could apparently become rich overnight. Of particular importance for speedy economic development was the rise of a developed railway system. Not only was it a major factor in its own right on the business scene of the time, but it also permitted further development through improved communication and migration. Rural migration to the cities assisted the development of a proletariat, with an attendant increase in social problems.

9.1. Cities of utopians

Arturo Soria y Mata (1844-1920) – Arturo Soria y Mata (1844-1920) was an internationally important Spanish urban planner whose work remains highly inspirational today. He is most well known for his concept of the Linear City (Ciudad Lineal) for application to Madrid and elsewhere. He studied the civil engineer career (Ingeniero de Caminos), but he didn't finish it. Arturo Soria y Mata's idea of the Linear City (1882) replaced the traditional idea of the city as a centre and a periphery with the idea of constructing linear sections of infrastructure - roads, railways, gas, water, etc.- along an optimal line and then attaching the other components of the city along the length of this line. As compared to the concentric diagrams of Ebenezer Howard and other in the same period, Soria's linear city creates the infrastructure for a controlled process of expansion that joins one growing city to the next in a rational way, instead of letting them both sprawl.

Nikolay Milyutin (1889– 1942) –concept of city development outlined in his 1930 book, Sotsgorod (Socialist City). Milyutin's concept allowed for practically unrestricted linear growth. His concept was based on decentralisation of industry, which needed to be spread in a thin line along a mainline railroad route, ideally - according to the natural flow of production from raw supplies to finished goods. The housing zone, separated from the industrial zone by a park strip, would develop concurrently, and ideally residents will be settled directly across their employers, eliminating the need for private or public transportation. In another departure from linear city, he did not insist on building housing in a continuous strip; on the contrary, Milyutin proposed a less expensive model of initially isolated housing hubs spread along the main line which might, eventually, merge into a continuous housing belt.

9.2. Gründerské období a zrod velkoměsta

Ebenezer Howard (1850–1928) – the English founder of the garden city movement, is known for his publication To-Morrow: A Peaceful Path to Real Reform (1898), the description of a utopian city in which people live harmoniously together with nature. The publication resulted in the founding of the garden city movement, and the building of the First Garden City, Letchworth Garden City, commenced in 1903.

Hermann Muthesius (1861–1927) was a German architect, author and diplomat, perhaps best known for promoting many of the ideas of the English Arts and Crafts movement within Germany and for his subsequent influence on early pioneers of German architectural modernism such as the Bauhaus.
Georges-Eugène Haussmann (1809–1891) was a prefect of the Seine Department of France chosen by Emperor Napoleon III to carry out a massive urban renewal program of new boulevards, parks and public works in Paris that is commonly referred to as Haussmann's renovation of Paris. Critics forced his resignation for extravagance, but his vision of the city still dominates central Paris.

Similar development of cities we can recognize in Vienna (Otto Wagner), Berlin (K. F. Schinkel), Munich (Leo von Klenze), Hamburg (Gottfried Semper), Dresden (Gottfried Semper and Camillo Sitte), Barcelona (Cerda y Sunyer), Athens, Beograd, Bucuresti etc. The big economic boom was made in America in cities: Philadelphia, Chicago, Boston or New York. V classicist period was build Washington D.C., as well as Saint Petersburg in Russia.

Camillo Sitte (1843–1903) – was an Austrian architect, painter and urban theorist who influenced the development of urban construction planning and regulation in Europe. Camillo Sitte was born and died in Vienna. He was an art historian and architect. He traveled around the towns of Europe and tried to identify aspects that made towns feel warm and welcoming. Architecture was a process of culturization for him. Sitte received a lot of attention in 1889 with the publication of his book "City Planning According to Artistic Principles". The richly illustrated book pointed out that the urban room around the experiencing man should be the leading motif of urban planning, thus turning away from the pragmatic, hygienic planning procedures of the time. Sitte emphasized the creation of an irregular urban structure, spacious plazas, enhanced by monuments and other aesthetic elements.

The Athens Charter (congress CIAM) was a 1933 document about urban planning published by the Swiss architect Le Corbusier. The work was based upon Le Corbusier's Ville Radieuse (Radiant City) book of 1935 and urban studies undertaken by the Congrès International d'Architecture Moderne (CIAM) in the early 1930s. The Charter got its name from location of the fourth CIAM conference in 1933, which, due to the deteriorating political situation in Russia, took place on the S.S. Patris bound for Athens from Marseilles. This conference is documented in a film commissioned by Sigfried Giedion and made by his friend Laszlo Moholy-Nagy: "Architects' Congress."

The Charter had a significant impact on urban planning after World War II.

The concept of the Functional City came to dominate CIAM thinking after the conference in Brussels. At a meeting in Zürich in 1931, CIAM members Le Corbusier, Walter Gropius, Siegfried Giedion, Rudolf Steiger and Werner M. Moser discussed with Cornelis van Eesteren the importance of solar orientation in governing the directional positioning of low-cost housing on a given site. Van Eesteren had been chief architect of Amsterdam's Urban Development Section since 1929 and the group asked him to prepare a number of analytical studies of cities ready for the next main CIAM meeting planned to be in Moscow in 1933. The theme for these studies would be the Functional City, that is, one where land planning would be based upon function-based zones.

Domino House (1915): is an open floor plan structure designed by noted architect Le Corbusier in 1914–1915. It is a design idea to manufacture in series, that combines the order he discovered in classical architecture. It was a prototype as the physical platform for the mass production of housing. The name is a pun that combines an allusion to domus (Latin for house) and the pieces of the game of dominoes, because the floor plan resembled the game and because the units could be aligned in a series like dominoes, to make row houses of different patterns. This model proposed an open floor plan consisting of concrete slabs supported by a minimal number of thin, reinforced concrete columns around the edges, with a stairway providing access to each level on one side of the floor plan. The frame was to be completely independent of the floor plans of the houses thus giving freedom to design the interior configuration. The model eliminated load-bearing walls and the supporting beams for the ceiling.

10. THE FIRST HALF OF THE 20TH CENTURY

Wagner School

Otto Wagner (1841–1918, Vienna) was an Austrian architect and urban planner, known for his lasting impact on the appearance of his home town Vienna, to which he contributed many landmarks. Wagner had a strong influence on his pupils at the Academy of Fine Arts in Vienna. This "Wagner School" included Josef Hoffmann, Joseph Maria Olbrich, Jože Plečnik, Jan Kotěra, Josef Gočár etc.

The Czech speciality is development of cubism in architecture.

Functionalism is the principle that buildings should be designed based solely on the purpose and function of the building. This principle is less self-evident than it first appears, and is a matter of confusion and controversy within the profession, particularly in regard to modern architecture.

In the wake of World War I, an international functionalist architecture movement emerged as part of the wave of Modernism. The ideas were largely inspired by the need to build a new and better world for the people, as broadly and strongly expressed by the social and political movements of Europe after the extremely devastating world war. In this respect, functionalist architecture is often linked with the ideas of socialism and modern humanism. A new slight addition to this new wave of functionalism was that not only should buildings and houses be designed around the purpose of functionality, architecture should also be used as a means to physically create a better world and a better life for people in the broadest sense. This new functionalist architecture had the strongest impact in Germany, Czechoslovakia, the USSR and the Netherlands, and from the 1930s also in Scandinavia (including Finland). The main ideologist and architects of functionalism are Adolf Loos (Villa Müller in Prague) or Ludwig Mies van der Rohe (Villa Tugendhat in Brno).

Bauhaus was a German art school operational from 1919 to 1933 that combined crafts and the fine arts, and was famous for the approach to design that it publicized and taught. The school existed in three German cities: Weimar from 1919 to 1925, Dessau from 1925 to 1932 and Berlin from 1932 to 1933, under three different architect-directors: Walter Gropius from 1919 to 1928, Hannes Meyer from 1928 to 1930 and Ludwig Mies van der Rohe from 1930 until 1933, when the school was closed by its own leadership under pressure from the Nazi regime, having been painted as a centre of communist intellectualism. Although the school was closed, the staff continued to spread its idealistic precepts as they left Germany and emigrated all over the world.

II. SPACE CONCEPTS THEORY

Concept of 3 space plans is based on theory of Pierre von Meiss (born 1938), who taught this methodology on EPFL v Lausanne in Switzerland and as a guest professor on FA CTU in Prague.

RAUMPLAN

Adolf Loos (1870–1933) was an Austrian and Czech architect and influential European theorist of modern architecture. His essay Ornament and Crime advocated smooth and clear surfaces in contrast to the lavish decorations of the fin de siècle and also to the more modern aesthetic principles of the Vienna Secession, exemplified in his design of Looshaus, Vienna. Loos became a pioneer of modern architecture and contributed a body of theory and criticism of Modernism in architecture and design and developed the "Raumplan" (literally spatial plan) method of arranging interior spaces, exemplified in Villa Müller in Prague. His careful selection of materials, passion for craftsmanship and use of 'Raumplan'-the considered ordering and size of interior spaces based on function—are still admired.

PLAN LIBRE

The free plan refers to an open plan with non load-bearing walls dividing interior space. In this structural system, the building structure is separate of the interior partitions. This is made possible by replacing interior load-bearing walls with moving the structure of the building to the exterior, or by having columns that are free from space dividing partitions. Le Corbusier became the pioneer of free plan during the 1914 through 1930's with his "Five Points of New Architecture" (pilotis, free plan, horizontal windows, a free façade and roof top gardens) and his adoption of the Dom-ino System. This heavily influenced the importance of free plan and its role in the "modern era" of architecture.

STRUCTURAL PLAN

Structural plan is based on accordance between load-bearing structure and the shape of space. The spaces are defined by construction. The most important architect of structuralist architecture was Louis I. Kahn (1901–1974).

12. POSTMODERNISM AND PRESENT-DAY TRENDS

Unique styles were founded in Czechoslovakia after WWII:

Brussels style – in the late 1950s, the gradual and measured democratization process that started with the death of Joseph Stalin and soon engulfed the entire Eastern Bloc had opened up new possibilities for the people, not only in the political, but also in the cultural sphere. One such art form, unique to Czechoslovakia, eventually came to be known as the Brussels Style (Bruselský styl). Although it was short-lived, it managed to make a significant impact, and it is still present in Prague's architecture and design today. Expo 1958, the first major world fair since the end of the Second World War, was organized in Brussels in the summer of 1958. The most famous structure created for Expo 58 is now a well-known landmark in Brussels, the Atomium. Czechoslovakia's pavilion, however, had soon become the most popular one at the fair. The most recognizable piece from the Brussels Style era is not a building, however. It is the famous Tatra T3 tram.

Brutalism – brutalist architecture flourished from the 1950s to the mid-1970s, having descended from the modernist architectural movement of the early 20th century. The term originates from the French word for "raw", as Le Corbusier described his choice of material béton brut, meaning raw concrete in French. The main architects of brutalism are internationally James Stirling or Moshe Safdie, in Czechoslovakia then e.g. Karel Filsak, Vladimír Machonin and Věra Machonin or Karel Prager.

SIAL - The architectural office founded in the year 1968 by architect Karel Hubáček. SIAL was involuntarily tied in Stavoprojekt Liberec as Atelier 2. Despite of limits given by the communist establishment, the SIAL continuity was not interrupted and the high quality of the projects was preserved. The architects of SIAL were and are e.g. Miroslav Masák, Mirko Baum, Zdeněk Zavřel, Emil Přikryl, Jiří Suchomel, Martin Rajniš, John Eisler, Helena Jiskrová. They have very big impact on contemporary Czech architecture and students. Jiri Suchomel founded the Faculty of Architecture of Technical University in Liberec.

Metabolism was a post-war Japanese architectural movement that fused ideas about architectural megastructures with those of organic biological growth. It had its first international exposure during CIAM's 1959 meeting and its ideas were tentatively tested by students from Kenzo Tange's MIT studio. During the preparation for the 1960 Tōkyō World Design Conference a group of young architects and designers, including Kiyonori Kikutake, Kisho Kurokawa and Fumihiko Maki prepared the publication of the Metabolism manifesto. They were influenced by a wide variety of sources including Marxist theories and biological processes. Their manifesto was a series of four essays entitled: Ocean City, Space City, Towards Group Form, and Material and Man, and it also included designs for vast cities that floated on the oceans and plug-in capsule towers that could incorporate organic growth. Although the World Design Conference gave the Metabolists exposure on

the international stage their ideas remained largely theoretical. Some smaller, individual buildings that employed the principles of Metabolism were built and these included Tange's Yamanashi Press and Broadcaster Centre and Kurokawa's Nakagin Capsule Tower.

Archigram was an avant-garde architectural group formed in the 1960s - based at the Architectural Association, London - that was neofuturistic, anti-heroic and pro-consumerist, drawing inspiration from technology in order to create a new reality that was solely expressed through hypothetical projects. The main members of the group were Peter Cook, Warren Chalk, Ron Herron, Dennis Crompton, Michael Webb and David Greene.

HIGH-TECH architecture, also known as Structural Expressionism, is a type of Late Modern architectural style that emerged in the 1970s, incorporating elements of high-tech industry and technology into building design. High-tech architecture appeared as revamped modernism, an extension of those previous ideas helped by even more technological advances. This category serves as a bridge between modernism and post-modernism; however, there remain gray areas as to where one category ends and the other begins. In the 1980s, high-tech architecture became more difficult to distinguish from post-modern architecture. Some of its themes and ideas were later absorbed into the style of Neo-Futurism art and architectural movement.

Like Brutalism, Structural Expressionist buildings reveal their structure on the outside as well as the inside, but with visual emphasis placed on the internal steel and/or concrete skeletal structure as opposed to exterior concrete walls. In buildings such as the Pompidou Centre build by Renzo Piano and Richard Rogers.

Contemporary architecture: Rem Koolhaas, Norman Foster, Alvaro Siza, Herzog & de Meuron, Eduardo Soto de Moura, Peter Zumthor, Sou Fujimoto, Jan de Vylder, Shigeru Ban, Josef Pleskot, Zdeněk Fránek, Roman Koucký, Ladislav Lábus, Jan Jehlík, Jiří Střítecký, Mjölk, David Kopecký, D3A, A1 architekti, Projektil, A69, HŠH, DRNH, Monika Mitášová...

Terms:

- Architecture
- Space
- Time
- Vitruvius
- Firmitas
- Utilitas
- Venustas
- Menhir
- Dolmen
- Cromlech
- Ziggurat
- Ancient
- Doric order
- Ionic order
- Corinthian order
- Acropolis
- Byzantine architecture
- Edict of Milan
- Pendentiv
- Basilica
- Romanesque style
- Barrel vault
- Rotunda
- Concha
- Castle
- Gothic
- Cathedral
- Ogive
- Pinnacle
- Rosette
- Petr Parler
- Matthias of Arras
- Benedict Rejt
- Renaissance
- Santa Maria del Fiore
- Filippo Bruneleschi
- Leon Batista Alberti
- Michelangelo
- Andrea Palladio
- Villa
- Palace
- Baroque

- Dynamic baroque
- Baroque gothic
- Jan Blažej Santini Aichel
- Kilian Ignac Dietzenhoffer
- Pilgrim places
- Cultural landscape
- Classicism
- Rococo
- Empire style
- Historism
- Gründerzeit
- Modern architecture
- Metropolis
- Utopians
- Linear city
- Garden city
- Athens charter
- Camillo Sitte
- Le Corbusier
- Modernist estate housing
- Otto Wagner
- Functionalism
- Bauhaus
- Brutalism
- Brussel style
- SIAL
- Postmodern architecture
- Structural plan
- Plan Libre
- Raumplan

LITERATURE

FRAMPTON, Kenneth. Moderní architektura – kritické dějiny. 1. vyd. Praha: Academia, 2004. ISBN: 80-200-1261-3.

GEHL, Jan: Život mezi budovami: užívání veřejných prostranství. Brno: Nadace Partnerství, 2000. 202 s. ISBN 80-85834-79-0.

HEROUT, Jaroslav. Staletí kolem nás. 3. vyd. Praha: Paseka, 2002. 392 s. ISBN 80-7185-389-5.

HNILIČKA, Pavel. Sídelní kaše. 2. vyd. Brno: HOST, 2012. 212 s. ISBN 978-80-7294-592-4.

HRŮZA, Jiří. Svět architektury. 1. vyd. Praha: Aventinum, 2000. 416 s., ISBN 80-7151-112-9.

JEHLÍK, Jan. Rukověť urbanismu. Praha: Ausdruck Books, 2016.

KAHN, Louis. Ticho a světlo. Praha: Arbor vitae, 1999. 128 s. ISBN 80-86300-02-1.

LYNCH, Kevin. Obraz města: The image of the city. Praha: Polygon, 2004. ISBN 80-7273-094-0.

NORBERG-SCHULZ, Christian. Genius loci. Krajina, místo, architektura. 2. vyd. Praha: Dokořán, 2010. 224 s. ISBN 978-80-7363-303-5.

SITTE, Camillo. Stavba měst podle uměleckých zásad. 2. vyd. Brno: ÚÚR, 2012. 113 s. ISBN 978-80-87318-21-8.

ŠEVČÍK, Oldřich. Architektura – historie – umění. Praha: Grada, 2007. 330 s. ISBN 978-80-247-2032-6.

ŠVÁCHA, Rostislav. Česká architektura a její přísnost. Praha: Prostor – architektura, interiér, design, 2004. ISBN 80-903257-3-4.

ZUMTHOR, Peter. Prožívat architekturu. Zlín: Archa, 2009. ISBN 978-80-901926-1-4.