DIOCLETIAN'S PALACE AND THE MEDIEVAL CORE OF THE CITY OF SPLIT

Manual for Built Heritage Maintenance and Disaster Risk Management

In the process of developing this manual, a large number of institutions and professionals were consulted. All of them have the author's sincere thanks for their welcome advice, enthusiasm and selfless help by which they have contributed to its getting done.

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Introduction

The need to strike a balance between everyday life, tourism, maintenance of cultural heritage and risk management is one of the greatest challenges that European historic cities face today. In Croatia, the problem received additional prominence in March 2020, when a series of devastating earthquakes with catastrophic consequences hit the cities of Zagreb, Sisak and Petrinja. During the ensuing process of repair, which is still under way, new questions have begged to be answered. They regard the complexity and rationality of the restoration of built heritage (both before and after such catastrophic events), as well as the availability of financial resources and the manner in which individuals and communities can be involved in the whole process. This brochure has been conceived as a response to such undesired events and the related issues, and as an attempt on the part of the author to act locally and preventively in her living and working environment, which is the city of Split as a cultural and historical whole. The emphasis is put on the oldest and, consequently, the most vulnerable part of the city - the area contained within the former Diocletian's palace and the Baroque city walls (protected Zone A), hereafter also referred to as "historic core" or "old city core". It is important to note that much of what is said here also applies to the rest of the historic part of the city (Zone B), and that it is also paid attention to. Chapter 1 gives a brief insight into the history of the old city core and describes the attributes and values of a protected zone, in order to allow for basic understanding of this specific space and its multiple layers. In Chapter 2, the current problems and risks to the historic core of Split are analysed. There is also a checklist of services responsible for disaster risk management and mitigation of its impact, which in case of an unfolding danger can serve as a sort of contact list, complete with an overview of their competences. The same chapter provides information on the measures which any individual can take in order to prevent the development of a risk, yet avoiding the negative effect of such measures on the heritage values of the city. Finally, fire, earthquakes and floods are the historically identified hazards threatening the historic core, there are also instructions on how to behave in emergency situations. Chapter 3 contains instructions and guidelines for maintenance and design of historic buildings. They concern actions which are not subject to the provisions of the *Building Act* and which can be undertaken be the property owner on his own or with the help of a professional. However, since the historic core of Split is a conservation area, some types of work are subject to the provisions of the *Act on the Protection and Preservation of Cultural Property.* Considering that and due to the specific nature of the space in question, the performance of some of the planned works may prove a major administrative, organizational and financial challenge for the owner. In order to help the owner navigate through these often time-consuming issues, apart from providing the necessary guidelines, the author also gives their legal basis and informs the intended reader on the possibilities of co-financing. In Chapter 4 the author briefly considers the residential architecture of the historic core of Split (shapes of houses, the recognizable forms of residential architecture and traditional building materials), which is followed by a glossary of lesser-known and specialist terms. The brochure is intended for all users of the historic centre of Split, including tenants, property and business premises owners, visitors, and tourists. Yet, it should not be mistaken for the problem solving manual for current communal problems of the historic core of Split, as the author's main goals it to inform (on heritage and its values), identify (problems and risks), and involve its users in the complex process of safety improvement, preservation and maintenance.

Vinka Marinković

Diocletian's Palace and the Medieval Core of the City of Split

A reconstruction of the original appearance of the Diocletian's Palace (E. Hébrard, 1912)

Diocletian's Palace in Split

The Diocletian's Palace was modelled on the Roman military camp (*castrum*) - rectangular in shape, enclosed with thick walls, defensive gates and fortified towers. The Palace has two perpendicular main streets, *cardo* and *decumanus,* which divide it in four equal parts. To the south of the point where they intersect is a representative, rectangular open square (*peristyle*), which functionally connects all parts of the Palace, whose southern half was occupied by imperial residential quarters, which included dining rooms, halls, thermae, and bedrooms, while its northern part consisted of two larger buildings accommodating spaces for servants, guards and storage. The consecrated area (*temenos*), spreading east and west of the Peristyle, contained other four buildings: the Emperor's mausoleum and three temples. Running from north to south, under the southern half of the Palace, are the Substructures (also called Basements or Cellars of Diocletian's Palace). They were constructed for the purpose of levelling off and consolidating the terrain, and to provide access to the Sea Gate and the quay. The basic material from which the Palace was built is local white limestone (quarried on the island of Brač and around Trogir). Limestone and imported decorative stones from Asia Minor were both used for cladding and the stone inventory of the imperial rooms and important structures within the Palace. The contents of the Palace have survived mainly in fragmentary form. Today, these fragments are blended with the subsequent construction. However, single Roman structures have been preserved to their full height, while parts of the *decumanus* still serve as street paving.

HOW DID IT FORM?

The founding of the historic core of Split can be traced to the years 293 - 305 AD, when the Roman emperor Diocletian had a palace built there. The palace was intended as an imperial residence. Yet, abundant archaeological evidence that goes back as far as pre-historic times indicates a continuity of human presence in the entire peninsula of Split long before Diocletian. Bearing witness to the Roman *Spalatum* is its name marked on the medieval reproduction of the ancient Roman road map called *Tabula Peutingeriana* and the remains of important Roman structures from time before Diocletian that have been excavated in almost all city districts, including its present-day historic centre. Yet, it was the building of the Palace that created the necessary conditions for the future development of the city. Due to this, the time of its construction is generally taken for the symbolic years in which modern Split was born.

View of the Diocletian's Palace and the historic core of Split (I. Pervan)

After Diocletian died in 316 AD, the Palace remained property of the Roman State. In the 4th and 5th centuries, it was occasionally used by emperors and high dignitaries, such as Gala Placidia or the last Roman emperor Julius Nepos. After the fall of the Roman Empire, life in the Palace continued. In the 6th century simple changes occurred in its fabric, in order to accommodate the needs of the remaining population and to serve the new Christian purposes. Among the first of such modifications, the conversion of the guards' passageways over the Palace's entrances into churches deserves special mention. The churches were dedicated to the patrons of the three city gates - St. Apollinaire, St. Martin and St. Theodor. The last two churches have been completely preserved.

In the 7th century, due to complex historical circumstances and the Avar-Slav invasion, the nearby Salona was destroyed and part of its expelled inhabitants found refuge within the walls of the Diocletian's Palace. The event marked the beginning of organized urban life in the Palace. The surviving Roman structures were converted into habitations and new, timber houses were built. Later, the timber houses were replaced by the stone ones. The Palace walls still served the old defensive purpose and the Peristyle retained its original function of a square. The Substructures, due to their poor state, were gradually filled with soil and rubble, and only part of them remained in use. The North and East Gates were bricked up., while the West

Gate retained its original function and became the main city entrance. This was also the point in which, in the 10th century, due to overpopulation, the city gradually surpassed the confines of the Palace. The same century saw the transformation of the former Diocletian's mausoleum into an improvised Christian church, which would later become cathedral dedicated to the Assumption of the Virgin Mary and commonly referred to as the Cathedral of St. Domnius. The nearby so called Jupiter's Temple likewise became the Baptistry of St. John. In the next couple of centuries, a bell tower was built next to the Cathedral. At the West Gate, Split received the new city square, with the commune buildings complex (present -day People's Square or *Pjaca*). Inside the Palace, new stone houses were filling the gaps between the already existing structures, making the streets even narrower. New construction also took place to the west, beyond the perimeter of the Palace, all the way to present-day Obrov Street, along whose edge the walls of the medieval city were raised. Gradually, new religious objects and the nuclei of what were to become the city's "plebeian" suburbs (present-day Veliki Varoš, Dobri, Lučac and Manuš districts) appeared, beyond the boundaries of the strict centre.

The spatial development of the historic core of Split (J. Marasović)

In 1420, the area of Split fell into Venetian hands. The following couple of centuries were marked by constant conflicts between Venice and the Ottomans. The same period saw the construction of the Venetian Castle next to the south-west tower of Diocletian's Palace. In the city square, new commune building complex was erected, while inside the Palace no new construction took place, as the area was already overpopulated. Yet, rare wealthy residents modified, expanded and refurbished their houses, using the elements of the new architectural style. This was the period in which palaces such as the Small and Large Papalić Palaces were erected, and in which the sculptor and architect Juraj Dalmatinac reached artistic maturity.

In the 16th century, trade activities intensified. A building complex for detention of imported merchandise (the Lazarettos) was erected on the east side of the seafront (the *Riva*). In the next couple of decades, the Lazarettos were expanded to become among the largest and most prominent lazarettos in the whole Mediterranean.

In the 17th century, due to the constant expansion of the city, the existing defensive walls became insufficient. This led to the construction of a new fortification system in the shape of a five pointed star, a popular fort design during that period in Europe. It included ramparts, five bastions and two detached fortresses (Gripe and Bačvice). Although the project was never finished, it is still regarded as one of the most important engineering undertakings in the history of Split. For the purposes of its building, compulsory labour service was introduced, while all other construction in the city was limited. Yet in spite of the imposed limitations, new Baroque palaces and houses appeared in the city core, in the places in which they did not disturb the existing medieval order of communications (e.g., Cindro Palace, Milesi Palace, Cipci Palace).

In the period in which French and Austrian rules took turns (19th century), the standard of living in the city rose (e.g., running water and gas lighting were introduced) and Split got better connected with the islands and the hinterland. Due to the need for the spatial growth and new organization of the city, a part of the fortification system and the dilapidated old building were pulled down. The former "plebeian" suburbs blended with the oldest part of the city, becoming its integral part. The cleared spaces, especially those in which the Baroque ramparts had once stood and in their immediate vicinity, new public facilities were built. They were as follows: Strossmayer's Park (*Đardin*), the Military Hospital, the Procuratie, the Bajamonti Palace, the Fish Market, the Port Authority Building, and the Municipal Theatre (present-day HNK). In spite of the series of consecutive destructions and constructions, the 19th century saw the first serious study, appraisal and excavation of the previously buried parts of the Diocletian's Palace (e.g., North Gate, Substructures).

At the beginning of the 20th century the building activities continued. This is the period in which the recognizable Art Noveau buildings such as the Nakić House, the Sulphur Baths and the Croatian House were erected. With the advent of the Second World War, during which a large number of historic structures and historic parts of the city suffered great damage, all building activities came to a standstill. After the War, the damaged buildings (e.g., the Lazarettos) were removed, while the work on the already begun buildings beyond the boundaries of the city core was continued. In the historic city core, attention was turned to repair, consolidation, and already initiated work on research of the historic structures. The mentioned activities eventually led to the inscription of the historic core of Split on the UNESCO World Heritage List in 1979.

The 1831 cadastral map of the historic core of Split

Current State of Research and Documentation

The beginnings of the scientific research of the Diocletian's Palace and the historic core of Split go back to the second half of the 18th century, when the Roman ruins in Split were recorder in drawings, and described for the first time. Joahnn Fischer von Erlach, Robert Adam, Louis_Francois Cassas and the first Split conservator and architect Vicko Andrić, have left behind a large number of plans and published monographs that still remain a valuable contribution to the study of the subject.

The first archaeological excavation works and technical surveying of the Diocletian's Palace were carried out by George Neimann, Ernest Hebrard and Jacques Zeiller. Parallelly, the domestic archaeologists Don Frano Bulić and Ljubo Karaman carried out their own research. Around the middle of the last century, Cvito Fisković, during his years of service at the Conservation Institute for Dalmatia (present-day Ministry of Culture and Media's Conservation Department in Split), gave another valuable contribution to understanding of the Palace, particularly concerning its yet unexplored parts. The first systematic modern research of the Palace was undertaken between 1955 and 1965 by the Urban Planning Bureau (later renamed into Institute for Urban Planning of Dalmatia, Department for Built Heritage), which later collaborated with the University of Minnesota. A good part of the excavation work was also carried out by the Museum of the City of Split, while the latest significant excavations, performed in the seafront promenade (*Riva*), were conducted by the Museum of Croatian Archaeological Monuments in Split (2006 - 2007).

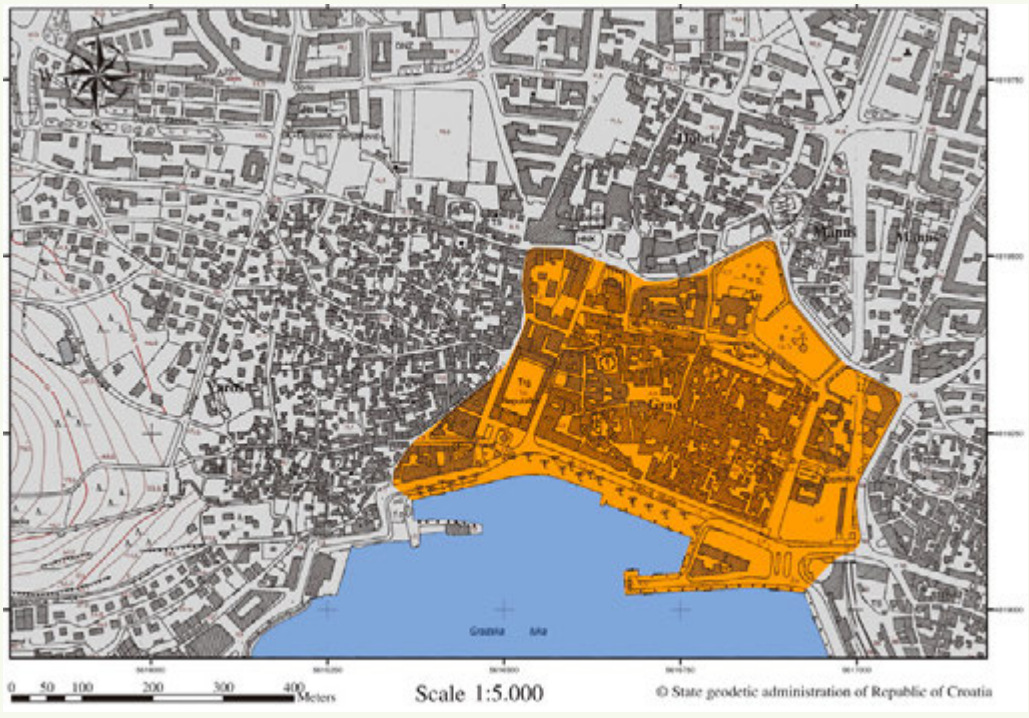
The last few decades have seen a great deal of research work carried out in the historic core of Split. Most often, such works precede building or improvement works. The complete historic core has been surveyed at a scale of 1:200, which has provided a valuable basis for its future investigation and understanding, and the collected documentation is being regularly updated. Prior to any reconstruction or renovation work taking place on an object, the existing condition is additionally recorded at a scale larger than 1:200, using the latest tools and methods. Furthermore, depending on its appraised value, specific conservation-restoration and archaeological research works are carried out.

Currently, the basic state of conservation data are in the process of collection. Once collected, they will allow for a much more transparent management, presentation and appraisal of its built heritage.

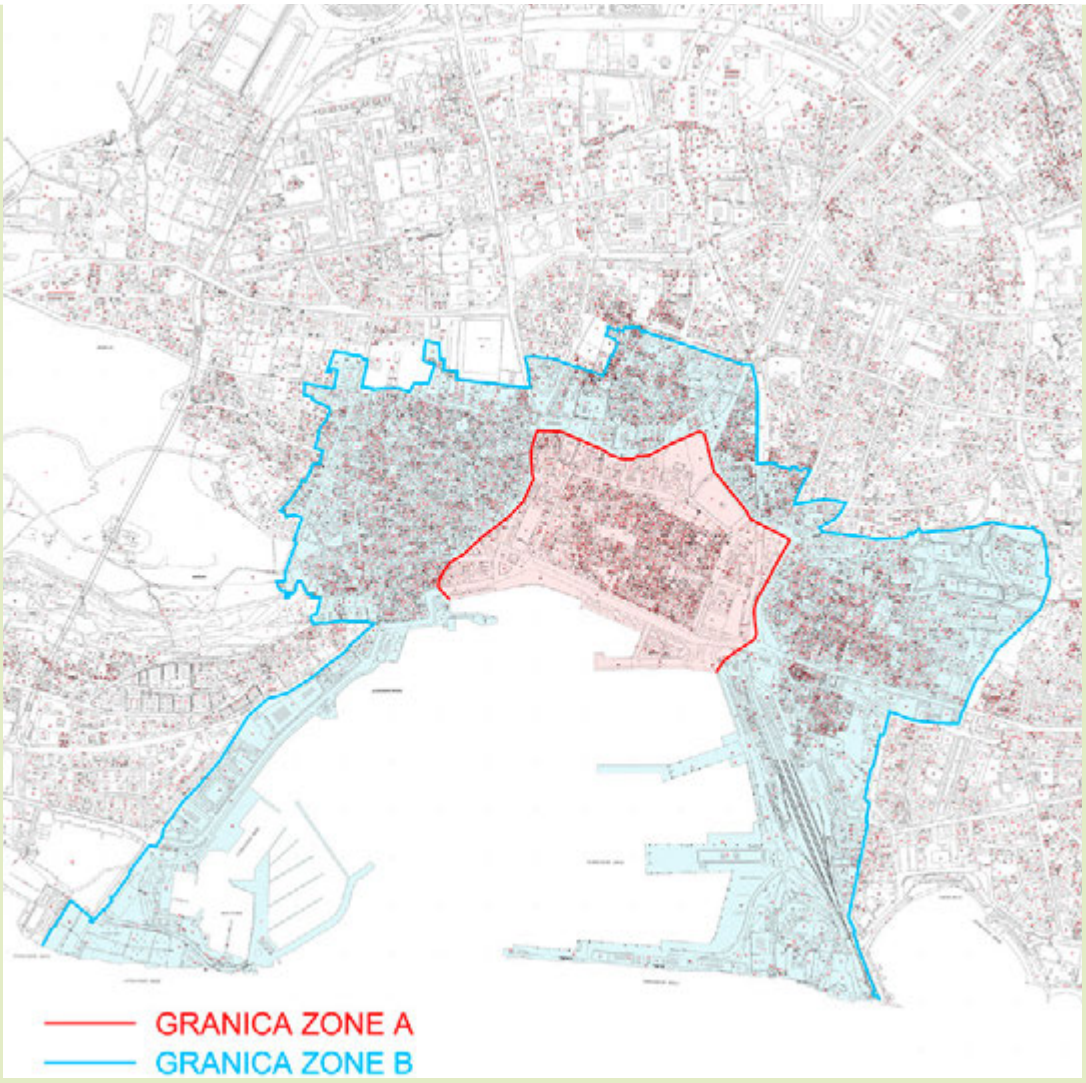
WHAT ARE PROTECTIVE MEASURES AND PROTECTION ZONES?

In 1979, the old core of Split was inscribed on the List of World Heritage under the official title "Historical Complex of Split with the Palace of Diocletian". With the inclusion on the List, it was designated as a heritage site of outstanding universal value (OUV). As such, it is subject to a special regime of protection and preservation. The UNESCO protection zone encompasses the area within the boundaries delineated by the 17th century Baroque defensive walls. In 2005, a modification to the site's confines was proposed. The new boundaries were to include the Aqueduct of Salona and the Roman quarries on the island of Brač.

The protective measures were established by the *Order* of the Ministry of Culture (present-day Ministry of Culture and Media) which describes the attributes of cultural property, and though inscription of the site on the Register of Cultural Property of the Republic of Croatia as an immovable cultural good (doc. no. Z-3778). The Ministry of Culture and Media has classified (protected) the historic core of Split as a unique heritage site with the legal status of cultural property of national significance, under the official title "Cultural and Historical Complex of the City of Split". Heritage sites in Croatia are protected by implementation of zone protection. The historic core of Split is divided into three categories of protection – completely protected (Zone A), partly protected (Zone B) and protected as historic urban landscape (Zone C). The types of cultural goods, the ways in which their protection is organized, and the protection and preservation measures to be taken are described in the *Act on the Protection and Preservation of Cultural Property* (for more details see Chapter 3). Apart from being protected as a whole, the historic core of Split also contains single protected buildings (immovable cultural goods), as well as an impressive number of movable cultural goods.



The boundaries of the old city core of Split according to UNESCO



The boundaries of the old city core of Split according to the Order of the Ministry of Culture of the Republic of Croatia (Z. Radunić)

Protection Zones A, B and C of the Historical Complex of Split

The Zone A encompasses the Diocletian's Palace with the medieval core and the part of the city contained within the 17th century Baroque defensive walls (the spatial equivalent of the area inscribed on the UNESCO World Heritage List). In this zone new construction is strictly controlled, as it is the zone to which apply the highest standards of protection of the existing state and in which only minimal interventions are allowed. The boundaries of the Zone B correspond to the city's boundaries from the period of its historic development (from the end of the 17th to the middle of the 20th century), when Split, in its expansion, engulfed its former plebean suburbs (Veli Varoš, Dobri, Manuš, Lučac) and spread over the peninsula of Sustipan and part of the present-day districts of Gripe, Bačvice and Zvončac. This is the zone in which building is allowed only exceptionality and in full compliance with special conservation requirements. Zone C is the zone of lower and less strict protection regime,. It is an area of environmental or local significance in which spatial interventions are allowed provided that they meet the conservation requirements (permission), including the preservation of environmental features, traditional shapes and unity.

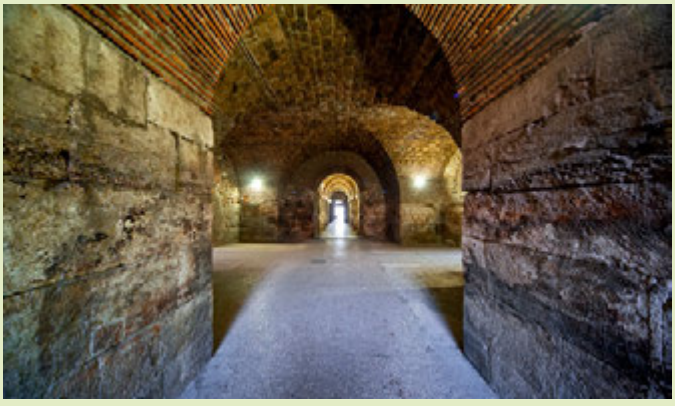
Protective measures have been adopted on the local level, as well. The General Urban Plan of the City of Split (GUP) established basic organization of the space, the measures to be taken with the aim of protecting natural, cultural and historical values, land use conditions and the purpose of single areas, suggesting the priorities in their use. The Plan also defines what can be built in single zones and establishes the maximum building density, building height, number of storeys, treatment of surfaces, number of parking spaces, and other building possibilities. However, there is problem. The boundaries of the historic core as described in GUP do not correspond to those of national protection and should be corrected in the foreseeable future, as required by the aforementioned *Order* of the Ministry of Culture and Media.

What is the Register of Cultural Properties of the Republic of Croatia and Where Can I Find It?

The Register is a public record published on the web pages of the Ministry of Culture and Media (https://registar.kulturna-dobra.hr/#/). It is an active content that is being constantly changed and amended in order to keep up with the new procedures for establishing the status of a cultural property. It contains information on the property, which reads as follows: name, designation of the List and type of good, registration number, classification of the property, location, author, and dating.

Substructures of the Diocletian's Palace as an Individually Protected Cultural Property

Single buildings or groups of buildings of outstanding historical, artistic, scientific, social or technical significance can be protected as individual cultural goods even where they are part of an already protected site. For example, although the historical complex of Split had already been a designated site, the Ministry of Culture and Media of the Republic of Croatia protected the Substructures of the Diocletian's Palace as built heritage. The heritage order was issued in 2019, declaring the Substructures an object of great archaeological importance and object of interest to the Republic of Croatia, a public good in common use, and an inalienable possession of the Republic of Croatia. The designation was preceded by an arduous and time-consuming legal procedure concerning legal doubts over property lines and a nerve-wrecking amount of paperwork. Namely, although the Substructures in some places blend with the foundations of the medieval houses built above them, from the standpoints of function and archaeology they are a separate whole. The problem was that the cadastre did not recognise the situation in which the ownership of a property above the ground was different from that of its basement. However, due to the efforts of the Conservation Department in Split, and the cooperation between the Ministries of Culture, Justice and State Property, the long-standing ownership dispute was finally ended. The necessary changes and amendments to the *Act on the Protection and Preservation of Cultural Property* were adopted, the problematic plots were resurveyed and registered again in the cadastre, and the Republic of Croatia and the City of Split signed the *Facility Use Agreement*. This opened the way for their integral research and improvement as the point of departure for the restoration of the whole south-east quadrant of the Palace and the final solving of the accumulated communal problems.



The substructures of the Diocletian's Palace (I. Pervan)

WHAT ARE HERITAGE ATTRIBUTES AND HERITAGE VALUES?

Any analysis of the cultural and historical whole of Split should take into account its location and its natural and built environment - the nearby towns, villages and islands, the sea, the rivers and the mountains. This exceptional landscape with which Split is strongly bound in terms of both function and historic ties, has influenced its development and shaped its identity. For example, the building material for the Palace and the narrow centre of the historic core came from the quarries of the island of Brač and Trogir, the first dwellers of the medieval Split were Salonitan fugitives, and the Episcopal See was moved from Solin (former Colonia Martia Iulia Salona) To Split. Entire generations of craftsmen, merchants and farmers from the

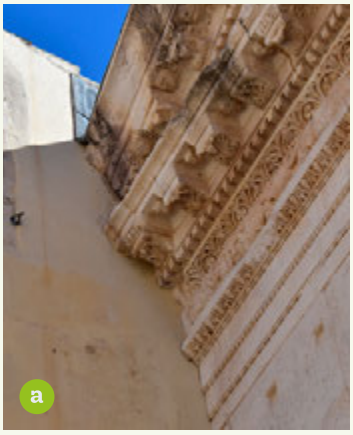
The Rasohe (Brač) Roman quarry from whichstone for the Diocletian's Palace was extracted (V. Marinković)

surrounding area gravitated towards Split, gradually shaping its urban fabric which eventually became a web of residential, vernacular and period architecture.

An isolated consideration of the historic core of Split in the context of built heritage allows for identification of five groups of construction, or historic layers, there. They are as follows: the remains of the Roman Palace, the remains of the fortification system, religious objects, public buildings, and residential buildings. The artefacts of outstanding value (movable cultural property) such as paintings, books, statutes, mundane and sacred objects held in churches, public and private collections, galleries and museums, are a case apart. Split has many museums and collections. Four of them are situated in

the narrow circle of the historic core. They are the Ethnographic Museum, the Museum of the City of Split, the Gallery of Fine Art, and the Church Art Collection.

In present-day Split, due to its rich history and the continuity of life there, different historic layers are often physically and functionally interlaced. The result are almost unbelievable examples of new constructions. So for example, in some medieval houses one can still see a storey-high portion of the Palace wall. Its markedly well preserved construction details stand out from the building fronts on the Riva which are interpolated into its southern façade. Elements of the Vestibule, late Roman houses and the Western Thermae are put on display in tourist facilities (hotels), while an ancient conch (semi-dome), containing the remains of a Roman wall mosaic, still stands in a private courtyard at Dosud. Inside the Ethnographic Museum, a visitor will find a small church dedicated to Sts. Andrew and Fenstris, as well as the west chapel of the Triclinium and yet another Roman (floor) mosaic. The columns of the Peristyle's colonnade are embedded in the facade of the Skočibučić-Lukaris



(fig. a) The place in which a house joins the cornice of the so called Jupiter's Temple (V. Marinković)

(fig. b) The cornice of the Jupiter's Temple inside a privately owned apartment (G. Nikšić)

(fig. c) The western colonnade of the Peristyle and the façade of the Grisogono-Cipci Palace (J. Kliska)

Palace, while a part of its pediment has ended up on its second floor. The ground-floor of the same palace contains the ruins of Roman temples, while on the top floor of the house leaning on the Jupiter's Temple one can see, right before his eyes, the Temple's stone cornice.

Physical and functional blending of historic layers in the city core makes it hard to grasp them as autonomous and distinct units. Yet, this chapter deals with residential architecture for a good reason. Namely, dwelling architecture is one of the most widely represented layers of the historic core of Split and, as such, has shaped its picture, contributing in a big way to its

A group of Romanesque houses situated to the west of the Vestibule (V. Marinković)

specific character, recognizability, and environmental value. Today, the majority of residential buildings in the city core are private property, and co-ownership and complicated ownership relations are most to blame if its residential architecture is the part of Split's built heritage which is least included in the system of protection and the process of restoration.

The earliest examples of residential architecture in the historic core of Split go back to the 9th century. However, the overwhelming majority of the houses there are from between the 12th and 14th centuries, when the building activity in the city core was most lively. Somewhat smaller in number, but no less important or less rare, are the residential buildings erected from the 14th to the 19th century. Most of them have not survived in the original form, as over the centuries many houses got partly or completely removed, remodelled, merged into larger units, or transformed to meet the new needs of everyday life. The buildings that had not been pulled down received new constructive details, now storeys, new access areas, new roofs, and sometimes even entirely new shapes. Yet in spite of that, many of them have preserved the characteristic form conditioned by the style of the period in which they were built and economic and social circumstances of the day. Based on the surviving examples it is possible to reconstruct their general layout and characteristic shapes. Although they may differ one from another in style and time of building, they share the same recognisable elements that come from using traditional materials and living in Mediterranean climate. These elements and materials are not always genuine, as they changed over the centuries to eventually become a group of architectural details that add to the local colour and the authenticity of the local building fabric. By conserving these traditional details, materials and colours, we both protect the historic city core of

Deatail of old house in Bulić Street (V. Marinković)

Split and preserve the vernacular and economic values of its residential architecture. One of the prominent elements of residential architecture is the building material. The buildings in the historic core of Split are made of materials available in the Mediterranean area, whose artisan use was perfected over the centuries, and whose durability and usability were constantly improved. Due to their longevity and mutual compatibility, these materials have been in widespread use in the Mediterranean since Pre-Classical times. Their organized use in the city core of Split began with the construction of the Diocletian's Palace and has continued up to the present day. Today they are predominantly produced and processed industrially, or with the help of machines, while the traditional craftsman skills used in their modelling are disappearing. The preservation of the products of these lost skills and the habit of using the traditional materials are important for the preservation of the built heritage of Split.

The shapes of the houses, the recognizable elements that have shaped the exterior spaces of the historic core of Split, and the traditional building materials of its residential architecture are additionally described in Chapter 4 (Supplement).

Conservation Challenges and Potential Risks

WHAT ARE CONSERVATION CHALLENGES AND POTENTIAL RISKS?

The conservation problems which the historic core of Split faces today are numerous and complex. Yet, it is not only an area of conservation interest, as what we are dealing with here are also social, communal, economic and legal issues that call for cooperation of different public and State institutions, local self-government and the local community.

Two main causes of the degradation of the historic core are the very old age of the material of which it is built and the poor maintenance of the buildings. The aging process affects physical properties of materials, which become non resistant to weathering. It manifests as scaling and cracking of stone, rotting of wood, corrosion of metal, and loss of binding properties of mortars. Due to these processes, roofs, floor constructions, carpentry and wall joints, along with entire facades, deteriorate, reducing stability and functionality of the structures. In the oldest part of the city core (area encompassed by of the Diocletian's Palace), degradation processes are particularly pronounced, and the stability of the buildings is additionally threatened by the fragility of the Roman foundations on which they are built.

The inertia of the competent services and/or owners of the building is not the sole cause of the precarious condition of some objects and spaces in the old city core. There are also different and complex parameters that contribute to it. These mutually interrelated parameters, called vulnerabilities, impede the maintenance process and the systematic restoration there. The old infrastructure, the unresolved property issues, the large net of users, and the multifunctionality of spaces, as well as a complex administration of legal regulations concerning the Croatian protected areas, are only some of them. Vulnerability, in combination with untoward events, risks and hazards (e.g., earthquake, flood, terrorism, etc.), can have very negative impact not only on cultural heritage, but also on population and the whole social system. This hazard is called major accident or disaster.

The evidence of such untoward events in the last couple of years points to natural disasters (earthquakes, floods) and accidents caused by human action (fire, vandalism) as the most important risks to which the historic core is exposed. Yet, keeping in mind the broader picture of risks, and in the light of the events that have taken place in different parts of the world over the past decade, neither the risks of terrorism and war should be neglected.

Fortunately, the recent untoward events in the city core (earthquakes, fires, flooding of the Substructures) had mild to moderate consequences, which were only expressed in material damage. Hence, they can not be considered as disasters. Yet,

The flooding of Split (Nikola Vilić/ Cropix)

The consequences of the 2000 Zagreb earthquake (J. Kadija)

An Illustration of the Cyclical Interrelation Between Threat and Vulnerability

Underutilized historic buildings, most often due to unresolved ownership issues, can have different problems. The long-term consequences of neglect are deteriorated roofs (clay tiles crack and/or become loose) and crumbling and detachment of façade plaster. Plants grow into joints, additionally destabilizing the masonry, and water (rainfall) migrates into roof constructions, walls and woodwork, giving rise to deterioration processes in the interior of the building (e.g., wooden floor construction rots). To thus weakened structures, even a minor earthquake can cause serious damage. Loose roof tiles and plaster can come off and, ultimately, the whole building can collapse. The ensuing physical loss results in tangible damage and, in case of a protected cultural good, in the loss of heritage attributes of a building and a historic environment. The building material that falls off unmaintained buildings poses a serious threat to lives of the remaining occupants and casual passers-by. This is exactly what happened to Zagreb, Sisak and Petrinja in March 2020, when they were hit by a series of earthquakes which caused great material damage and regrettable loss of lives.

Unmaintained carpentry (J. Kliska)

A damaged timber joist (P. Gamulin)

Deterioration of stone (V. Marinković)

such undesired events always come unexpected and can quickly turn into disasters, as the force with which they will strike can not be predicted. Therefore, the first step in disaster risks management is raising awareness of the community about the reality of these threats, the high vulnerability of the old city core, and the proportional relationship between non-maintenance and the severity of ensuing damage.

Although there is little doubt that non-maintenance significantly contributes to the current condition of the city core, improper restoration treatments can be equally harmful. People with good intentions, wishing to prolong life of their buildings, often replace traditional elements and materials with the new, more easily available, and cheaper ones (e.g., lime mortar is replaced by cement, wooden windows are replaced by PVC windows). This not only has a negative impact on the vernacular architecture and the economic value of the object, but also adds unnecessary load on the construction, weakening the building during the time of crisis. So for example, it is not uncommon to see wooden floor constructions replaced with reinforced concrete slabs. Yet, in the event of an earthquake, the ensuing damage can be much more severe than it would be if traditional materials were used. The introduction of heavier elements into historic buildings puts additional load on its walls and foundations, reducing the flexibility of the whole structure.

Vulnerabilities of the Historic Core of Split

Outdated Infrastructure and Other Technical Systems

plumbing, sewage, power supply, water drainage and other technical systems in the city core are not adjusted to the number of current users, nor to the needs of modern life and climate changes. The majority of electric wires are above ground, and there are innumerable cables out of function which nobody removes. The streets are narrow and intertwining. Many of them are reserved for pedestrian-only use and inaccessible to emergency vehicles. Furthermore, the majority of structures in the city core were built in the time when anti-earthquake design was unknown. Higher standards of life and the multiplication of accommodation facilities have multiplied the number of bathrooms, dramatically increasing the volume of leachate that penetrates into the Roman foundations and threatens them. However, the modernization of these systems and their adjustment to current needs are technically challenging (or even impossible), due to the method of construction and multi-layeredness of the historic centre, in which architectonic complexes and archaeology interlace.

Multifunctionality of Spaces

throughout the history, the core of Split was an actively used and lively space. It contained or still contains religious and residential objects, cultural and social facilities and day-to-day amenities (coffee shops, inns, cinemas, etc.), all of which have contributed to its functional multi-layeredness. Today, it is a space in which people actively live and stay, a protected cultural good, and a tourist attraction. Although this multifacetedness may enhance its local appeal, it also puts heavy burden on its management and maintenance, making hard the implementation of even the simplest protective measures. Namely, unlike single monuments, archaeological parks and sites, the historic core of Split can not be put under a single management regime.

Large Net of Users

the users of the historic core of Split are the local population, tourists and visitors, private entrepreneurs, different institutions and organizations, religious communities and political parties. In recent years, the number of tourists and visitors, who became its biggest users, rapidly grew. One of the impacts of touristification was a constant population decline and the loss of crafts and business essential for everyday life. The exodus of city centre residents and the consequent disappearance of small artisans and entrepreneurs there is a global trend, which has been spotted in big European cultural centres as well. The result of this is the abandonment of spaces and their conversion into other uses. In order to stop this negative trend, the traditional uses of space have also been put under protection (the Karaman Cinema, The Photo-Club Split, the Morpurgo Bookshop, the Varoš Pharmacy). Unfortunately, the owners of the Morpurgo Bookshop and Varoš Pharmacy found these measures unstimulating, cancelled the lease and closed down the shops. Today, their appearance is preserved, but they are functionally abandoned. Also, only a small number of barbershops, pastry shops, jeweller's and photo shops have remained in the old city core. The good news is that in recent years shops offering local brands that are not available elsewhere have opened there. These shops should be preserved.

Unresolved Property Issues

the history of formation of the old city core is also the history of changes in ownership and divisions of properties. The consequence of this are complicated property issues. The intensive changes of ownership and the division of properties have also affected their physical appearance. Single parts of buildings were torn down or expanded. The floor constructions were lowered or raised, the openings were walled in and walls were pierced in new places. In recent times, the unresolved property issues have often manifested in the avoidance of the co-owners to invest in the spaces which they do not use, thus avoiding their maintenance of the whole building, as well.

„Tradicija" pastry shop,an example of active local brand in a historic space (P. Gamulin)

"Morpurgo"book shop (P. Gamulin)

The Hazards Identified on the Basis of Examples from Recent History

Earthquake

Earthquake is sudden and short vibrating of the ground caused by collapse of rocks, magmatic activity, or tectonic shift in the lithosphere and parts of the Earth's mantle. Earthquake is a very complex phenomenon, whose force, time, and place of occurrence are impossible to predict. Strong earthquakes can put in danger human and animal lives, and result in great material damage, which can affect everyday life, economy, and the society as a whole. Furthermore, earthquake can trigger other disasters, such as fires, floods, landslides and tsunamis. Earthquake can have negative effect on all kinds of cultural heritage. It can put in danger whole historical complexes, as well as single buildings, movable goods and museum collections. Indirectly, it can have impact even on intangible cultural heritage.

The area of the city of Split and its wider surroundings is a zone of high seismic intensity. The historical complex of Split is very vulnerable to earthquakes. This is particularly true for the poorly maintained medieval houses in the south-east quadrant of the Palace which are built on the shaky ground and have the Roman Substructures in their foundations.

In the last couple of years, the area of Split has been struck by more than just one earthquake. They were light to moderate. In December 2016, the earthquake of 4.7 magnitude on the Richter scale was recorded. Other two earthquakes of the similar magnitude occurred in March and October, 2021 (4.5- 4.6). In April 2022, a strong earthquake shook Split.

Flood and Heavy Rainfall

Flooding is temporary inundation with water of an area which is not normally submerged. The causes of flooding are diverse. They can be heavy precipitation, overflowing of rivers, breach, rising of sea levels, etc. Extreme flood events can result in human casualties, great material loss and ecological damage. In the heritage context, flooding can have negative impact on objects made of wood, paper and metal, and on paintings (museum collections). Inorganic materials are water resistant. Yet, a long term exposure to floods and heavy precipitation can affect buildings, as well. Water penetrates into their foundations, basement objects and roof constructions, destroying the building materials and undermining the foundations.

In the last decade, in autumn and winter periods, urban flooding has become a frequent occurrence in the historic core of Split. "Urban flooding" occurs when a large amount of rain falls in a relatively short period of time in an urban environment. In such circumstances, the rainwater drainage system can not take in the whole volume of water, and streets turn into torrents. Clogged drains and gutters worsen the situation.

In 2021, due to heavy rain, the broken cornice of a modern house in Vicka Andrića Street, in the historic core of Split, detached, causing serious material damage. Fortunately, there were no casualties.

During autumn and winter months, heavy rain, in combination with high tide, causes frequent flooding of the Substructures. As a mitigation measure, a pump was installed to help the fire fighters and the Crisis Intervention Team (CIT) pump the flood water out.

Fire

Fire is every uncontrolled burning which causes material damage, endangers people's health and puts at risk lives of people and animals. Fire can have negative effect on all kinds of cultural heritage. The most common causes of fire are inattention, neglect, mishandling of tools and machinery, defective appliances, installations and equipment, incorrect use of open fire, etc.Apart from being recorded in the wider surroundings of Split (forest fires), fires have been frequently recorded in the old city core, as well. In summer 2019, in just one-and-a-half months, four fires occurred in the narrow circle of the historic core. All of them were quickly extinguished by fire fighters. Yet, the material damage was considerable.

The fact that that fires are more frequent in summer than in other seasons indicates that the risk of fire does not rise solely with the rise in temperature, but also with the rise in the number of visitors. This should be a warning to all users of the historic core, including owners of the apartments to rent, hotels, and food and drink facilities.

Vandalism

Vandalism designates a voluntary act resulting in damage and/or destruction of public and private property. In the historic core of Split, a large number of graffiti have been recorded on stone surfaces, including those of protected buildings. The municipal services remove every new graffiti within 24 hours of its appearance. However, the application of paint and its removal cause irreversible damage to stone. Paint penetrates deep into substrate, which sometimes calls for more aggressive cleaning methods that can damage the surface of historic stones, opening the way for other harmful agents such as water or frost, which gradually degrade the stone material.

Structural damage on a house in Bulić Street. Such constructions are extremely vulnerable in an earthquake (V. Marinković)

The roof cornice collapsed due to the 2021 heavy rain (JoškoŠupić/ Cropix)

Consequences of a fire on the Riva, 2020 (VojkoBašić/ Cropix)

In 2018, the Diocletian's Mausoleum was a target of vandalism (V. Marinković)

ARE THERE SERVICES RESPONSIBLE FOR MANAGING DISASTER RISKS AND PRESERVATION OF THE HISTORIC CORE OF SPLIT?

The political unit responsible for implementation of measures and activities of civil protection in the historic core of Split is the City of Split. The City, in cooperation with the Regional Office of Civil Protection Split (Civil Protection Directorate, Ministry of Interior) implements measures and activities regulated by the *Law on the Civil Protection System.* In case of occurrence and/or development of a major accident or disaster which can not be responded on local level the State forces step in. In that case, the Government of the Republic of Croatia activates the Civil Protection Headquarters of the Republic of Croatia and, if necessary, the Armed Forces of the Republic of Croatia and other bodies of State administration.

112 - Uniform European Emergency Phone Number

122 emergency number is at the service of all citizens and visitors of Croatia. By dialling this number you can request assistance from all emergency services (police, fire brigade, ambulance). Depending on the type of emergency, operators inform other participants of civil protection (bodies of State administration and local (regional) units of self-government) and operational forces (Croatian Mountain Rescue Service, Croatian Red Cross, divers, hunters, etc.)
112 system operates as part of the Civil Protection Directorate of the Republic of Croatia. It provides free of charge call 24 hours a day, 7 days a week, via phone, SMS massages and eCalls from a vehicle.

However, before a major accident or a disaster develops, there is a series of measures and activities that are undertaken on the State and local levels, in order to reduce the possibility of their taking place. These activities and measures include management and planning, identification of the hazards, field training exercises and education, as well as the maintenance of infrastructure, buildings and cultural heritage, on a regular basis. The major accident and disaster risk management measures and services of crucial importance for the historic core of Split are hereafter described and explained.

The *Department of Local Self-Government and Safety* of the City of Split is the municipal administration department entrusted with planning, development, efficient functioning and financing of the systems of civil protection, fire protection, protection against natural hazards and fire service. It coordinates the activities of the operative forces of the civil protection system, according to a predetermined protocol (Emergency Response Plan for the City of Split).

Emergency Response Plan for the City of Split

The *Plan* contains a set of procedures related to alerting, preparedness, mobilization and development of civil protection measures relative to the type of hazard, and to activities of the City of Split Civil Protection operative forces, with the aim of mitigating the impact. A separate part of the *Plan* is dedicated to the protocols of request and assistance provided by different hierarchical levels of the Civil Protection system, during the time of crisis. The *Plan* was developed in 2019, on the basis of *Disaster Risk Assessment for the Area of City of Split Local Self-Government Unit* (2018).

The *Department*, in collaboration with the *Regional Office for Civil Protection Split* and the operative forces (fire brigade, CMRS Station Split, City Red Cross Society), supported by other services (police, emergency medical assistance), organizes practical and educational demonstration exercises. The aims of these exercises are to synchronize the operative forces, to test their qualifications and to establish the emergency response plans and procedures.

The City also undertakes other activities that indirectly reduce the disaster risks. For example, as part of its communal activities, it manages public spaces and infrastructure in collaboration with its firms and institutions. This is, among other things, an important preventive measure in the event of disaster. Its *Department for the Old City Core* is entrusted with the works of renovation, protection and preservation of the historic core and its built heritage, and its projects are funded by the City budget. The Department uses these financial resources for restoration of the world heritage and national heritage objects, with emphasis on the endangered residential architecture. In this context, it is important to mention the *Ordinance on the Allocation of Financial Resources in Support for Renovation and Restoration of Facades and Roofs in the Old City Core,* passed in 2022. Although the activities of the *Department* are primarily directed toward preservation of heritage values of the historic core, it should be stressed that renovated objects are also more resilient to all kinds of risks and, therefore, contribute to the safety and security of the whole city core.

Fire service falls within the scope of duties and responsibilities of the Municipality, and is one of the most important operative forces of Civil Protection. Beside taking part in the implementation of fire prevention measures, fighting fires, and rescuing people and assets from fire, it provides technical support in other emergency situations (floods, ecological disasters, etc.). In addition to the professional *Public Fire Brigade of the City of Split* (JVP), there are also three well equipped and trained volunteer fire brigades, as well (*DVD Split, DVD Žrnovnica, DVD Slatina*).

The Public Fire Brigade of the City of Split has at its disposition around ten types of vehicles, each of them with a different purpose. However, in the context of the old city core, the most useful fire vehicle is also the smallest one, popularly known as "Getanin". With its width smaller then arm span (1.60 m), it is able to move easily through the narrow and intertwined streets of the city centre.

In preservation of the city core (and its protection during the time of crisis), the Ministry of Culture and Media of the Republic of Croatia and its Conservation Department in Split play an important role. The Department is entrusted with specialist and administrative tasks concerning research monitoring, documentation and promotion of cultural goods. It establishes the regime of their protection and management, the conditions of their use, and the their purpose. During the time of crisis, the staff of the Conservation Department in Split leads primary investigation and issues guidelines for intervention procedures. The Department also collaborates with the City services and warns them of urgent cases. In recent years, many heritage objects have been renovated through the joint efforts of the City and the Department.

The Croatian Conservation Institute is another institution actively working on the protection of the heritage values of the city of Split. It is the central public institution for conservation-restoration without administrative powers. As such, it works in close cooperation with the Conservation Department in Split. Over the last decades, in Split, the Croatian Conservation Institute has carried out a series of important conservation-restoration projects concerning movable and immovable cultural goods. In this way, their heritage attributes have been preserved, improved and emphasized, while many public spaces have become more enjoyable and safer places to live. In case of a disaster or proclamation of emergency, the Croatian Conservation Institute, together with other institutions responsible for the protection and preservation of cultural property, expert legal and physical persons, and the system of Civil Protection, is entrusted with the implementation of the preventive measures that prevent damage on cultural property, assessment of damage and its mitigation and removal.

Restoration works on the bell tower of the church of Gospe od Zvonika
(archives of the Croatian Institute for Restoration and Geoprojekt d.d.)

Renovation of Built Heritage as a Measure of Earthquake Risk Reduction

In the last decade, a high percentage of the building stock of the historic core of Split has been successfully renovated in compliance with conservation guidelines. In that period, designated components of the historic core and structures of outstanding importance (such as the Peristyle, the Vestibule, the South-East Tower, the North Gate, the Venetian Castle, the Cathedral of St. Domnio with the belfry, the Old City Hall, and the building of the Croatian Home) were fully restored, and segments of the south and north walls of the Diocletian's Palace and Substructures were structurally consolidated and renovated. Many religious objects, museums and private houses were renovated, as well. The works were funded mainly by the State and City budgets, and in the case of Church objects with significant financial resources invested by the Roman Catholic Archdiocese of Split-Makarska. The renovation of private buildings (mainly residential houses) was mainly financed by the owners of the properties. Standing out from among the projects in realization phase is the West Gate complex. This unique and multi-layered monument is a combination of Roman guards' quarters and a medieval church with a belfry, appropriately called Gospa od Zvonika (Our Lady of the Belfry). The partners on the project are the Croatian Conservation Institute, the Ministry of Culture and Media and the City of Split. Yet, the motive behind it was not only the desire to revitalize the Roman-Christian complex and preserve its heritage attributes, but also the need to improve safety and mitigate the impact of a possible earthquake. Namely, the belfry, among the oldest in the Adriatic region, which prior to work commencing, was in an extremely poor condition, is placed right above the busy pedestrian zone. Its consolidation strengthened the whole complex, whereby the immediate risk to lives of passers-by in case of an earthquake was removed.

WHICH PREVENTIVE MEASURES CAN AND MAY I TAKE AS AN INDIVIDUAL?

As an individual, you can take certain simple measures which will preserve the heritage values of your property and reduce the risk of development of accidents and disasters. These measures, tailored to suit the requirements of the historic core of Split, are set forth hereafter.

Preventive Measures for Heritage Value Conservation

- If you own or co-own a heritage property, try to clarify the documentation concerning your property. Clear and correct documents are the condition for application to public calls that offer funding opportunities for renovation.
- If you live in a building with more owners, choose your common representative. The representative of co-owners represents the interests of all occupants and act as the mediator between them and institutions. This will accelerate the process of communication and the maintenance of your building. It will also increase the chances for success of your application to public calls. The *Act on Ownership and Other Real Rights* establishes the obligation of buildings with three or more apartments or other spaces to have an organized property management.
- If you are an owner or user of a property in the historic core of Split, inform yourself on the property. Learn when, how and of what material your property was built.
- Try to preserve the original or traditional appearance of your property by retaining its basic elements or traditional features.
- If you are planning to upgrade or renovate your property, before taking any further steps, counsel with the Conservation Department in Split.
- If you have noticed structural damage or cracks on the architectural elements of your property (stone frames of doors or windows, brackets, stone gutters), do not replace them immediately with the new ones. Some damages, even if they may seem radical, can be stabilized. Consult with the professionals from the Conservation Department, who will give you advice on the possibilities and manners of consolidation of stone elements.

Fire Protection Measures

- Do not leave cookers or electric appliances turned on or unattended.
- If you own a house and/or a hotel, restaurant or coffee bar, have the flues cleaned regularly, and have the gas and electrical installations inspected especially before the summer season.
- Remove all stored combustible materials (such as paints, diluters, old furniture, wardrobes, etc.) from basements, garages, attics and similar spaces.
- Clean and keep passable the evacuation routes, and free them from all objects (flower pots, boxes, furniture, bicycles, etc.).
- Your fire extinguishing equipment (fire extinguishers, pipes and hydrants) needs to be serviced regularly.
- Do not throw unextinguished cigarette butts out of windows or terraces, nor in the garbage bin. Unextinguished butts can cause fire.

Flood Protection Measures

- Maintain and clean the drains and gutters on a regular basis.
- If possible, have two separate electric circuits, one for the upstairs floor, the other for the downstairs floor.
- Install household appliances, sockets and boilers in elevated positions.
- Put valuable objects and artworks on high shelfs.
- Maintain the carpentry in order to prevent infiltration of water through openings.

Earthquake Protection Measures

- Inform yourself on the property in which you live. Learn about the subsequent improvements, storey additions or reconstructions. Failure to comply with building regulations can affect the stability of the building.
- If your property is in a poor state of conservation, if necessary, make construction improvements in cooperation with the specialists.
- Avoid placing heavy furniture near beds and sofa sets.
- Secure shelves and cupboards to walls to prevent tip-overs.
- Secure objects such as picture frames, mirrors and noticeboards to walls.
- Secure and support ceiling lighting and hanging elements, such as chandeliers.
- Inspect the building on both the outside and the inside, make sure that all woodwork and all exterior elements of the building are well fixed and stable.

WHAT IF A MAJOR ACCIDENT OR DISASTER OCCURS?

If an accident or disaster should develop, it is necessary to act correctly in order to mitigate its impact. On the State and local levels, there are services which in case of major accidents act hierarchically. They should be allowed to do the job they are trained for. By acting correctly, you can facilitate the work of operative services on the prevention of a large damage. The information that follows is tailored to suit the micro-location of the historic core of Split. It will guide you in the event of an accident, telling you how to behave in case of fire, flood or earthquake.

Safety Guidelines During an Accident or Disaste

- Stay calm and do not spread panic.
- If you are in a public building (e.g., museum, restaurant, monument), stay calm and avoid a panic attack. Keep away from the crowd running for the exit.
- If you are in a street, bear in mind that in the old city core of Split streets are narrow and winding and that in summer they are crowded with people, which makes the human stampede very likely.
- Check if you are injured. Administer first aid to yourself (self-aid) if you can.
- Before the arrival of the rescue teams, help the injured persons near you.
- Do not try to move a seriously injured person, unless it is necessary.
- Avoid heavily damaged buildings.
- Do not use the elevator.
- Use safe and recommended routes for evacuation.
- Pay attention to children, persons with special needs, elderly persons, tourists, and animals.
- Keep in mind that in the historic centre there are many tourists and that they do not speak your language. If it is possible, warn them of danger in English.
- If you are a visitor yourself, stay close to your tourist guide or interpreter in order to understand better the new situation.

What to Do if a Fire Starts

- Call the fire brigade dialling 193, or 112 service, and give all possible information about the fire.
- In case of fire, shut off the electrical power by turning off the main circuit breaker.
- If you use water for extinguishing fire on electrical installations and appliances with high voltage, you are exposed to electrical shock.
- Do not extinguish fire caused by gasoline or oil using water. They float on the surface of water, which may cause the spreading of fire.
- Try to extinguish fire using a fire extinguisher or other means at hand, unless this puts in danger you or other persons.
- Do not try to extinguish a grease fire with water or a fire extinguisher (in both cases, boiling over of oil can spread fire to other parts of the kitchen). Turn off the cooker, put a lid on the pan, and wait until oil cools down.
- If the fire surprises you in a building and you can not extinguish it, leave the building as quick as possible, staying close to the ground. If, due to smoke, you can not leave the building, close all openings to prevent smoke from entering the spaces.
- Do not enter stairways if they are filled with fumes and do not use the elevator.
- If you are trapped in the apartment in which you live, an apartment to rent, eating or other facility, wait for fire fighters at a window, on a balcony or on a terrace.

What to Do if a Flood Happens

- Keep away from electric cables.
- If water, due to heavy rain, penetrates into your building, turn off the main circuit breaker and all electric appliances.
- Do not drive into flooded areas. If your vehicle is caught in a flood, pass to higher ground in the safest possible way.
- After the flood, clean and disinfect your spaces and buildings.

What to Do if an Earthquake Happens

- Shelter in the safest place in the house, such as doorways, load-bearing walls, under table or other sturdy furniture. Stay there until the shaking is over.
- Cover your face and head with both arms for protection, and get next to an interior corner.
- Move away from glass, windows, exterior walls, exterior doors, hanging lamps, bookcases, etc., that could fall on you.
- Stay in the house until the shaking is over. After visual inspection of the possible damage, carefully go out and seek a safe place.
- If you are in a single-storey building, you can go out, but take care that you get to an open space, far from buildings.
- During tremblor, do not use staircases and elevators.
- Do not go out to a terrace or a balcony.
- Be prepared for additional shakes.
- If you are in a damaged building and you can smell gas or see torn cables, do not light a match or candle, as there is a real danger of fire and/or explosion.
- Follow the instructions of the competent persons.
- Use phone only in extreme need, as a huge number of calls can overwhelm the system.

Important Phone Numbers

- 112 Civil Protection Directorate (uniform European call number for emergencies)
- 192 Police
- 193 Fire Service
- 194 Emergency Medical Help
- 195 National Coordination Centre for Search and Rescue at Sea
- +385917210001 HGSS Station Split
- 021/489 463 City Society of the Red Cross Split (intervention team)

Maintenance of Historic Buildings

Use of „tiramola" or pulley clothes lines is prohibited in some streets of the historic core of Split (D. Klarić/Cropix)

WHAT ARE MY DUTIES AND RIGHTS AS THE OWNER OF A PROPERY IN THE OLD CITY CORE?

If you own a property inside the historic complex of the city of Split (whether or not it is an individually protected cultural good), you have certain duties and rights described in the *Act on the Protection and Preservation of Cultural Property*. Pursuant to the *Act*, owners of the properties in conservation areas have the duty to safeguard and maintain their property, implement the protection measures established by the *Act*, inform the competent authority on all alterations (e.g., damages or destruction). If your property is a listed building, you must make it accessible to the public, allow its expert and academic research and the implementation of technical measures of protection. If you are planning to undertake works take which could cause changes to your property (building, improvement, restoration) or want to convert the property from residential use to commercial premises, you must gain permission from the Conservation Department in Split. The owners of properties within the boundaries of the the cultural and historical complex of Split can not start their demolition without permission, even when they are in a precarious condition. However, if the owner neglects his property to the extent that it becomes a threat to people and assets, the local self-government may appoint a guardian who will carry out the necessary works at the expense of the owner.

The expenses of protection and maintenance of heritage assets are covered by the owner. Yet, in case of extraordinary expenses that exceed the routine maintenance costs, the owner is eligible for an extraordinary expense compensation funded by the State budget. Furthermore, owners of properties in the historic core are entitled to free expert advice from the Conservation Department in Split regarding the implementation of the heritage protection and preservation measures.

Act on the Protection and Preservation of Cultural Property

The *Act* regulates the types of cultural heritage, the establishment of protection of cultural heritage objects and the measures of protection. Furthermore, the *Act* regulates the obligations and rights of the owners of heritage assets, the performance of activities of protection, preservation, administration and inspection of cultural goods, the operation and scope of work of the Croatian Council for Cultural Objects, financing of protection and preservation of cultural property, and other issues related to the protection and preservation of cultural heritage. Based on the *Act*, the Ministry of Culture and Media of the Republic of Croatia, through the activities of the Directorate for the Protection of Cultural Heritage and the Conservation Department in Split, carries out the tasks of cultural heritage protection.

Local regulations such as the *Order on the Communal Order of the City of Split* define, among other things, special responsibilities of the owners of properties in the protected Zone A. For example, if you want to put a sign on the front-facing façade of your building which happens to be in the zone of complete protection, pursuant to the *Order*, you must place it within the boundaries of your window or door panes, and not higher than 25 cm. Furthermore, it is prohibited to fix signage to stone frames of the openings on the front-facing facades or install metal security roller shutters on doors and shop windows of business premises. See-through shutters are, however, allowed, but must have the permission of the Conservation Department. The *Order* also prohibits flue pipes and ventilation systems on the facades over public spaces, and money dispensers (ATMs) on front-facing facades and in public areas. Clothes drying lines ("tiramole") are allowed. Yet, for practical, functional, and safety reasons, there is a ban on stringing drying ropes across certain streets and squares. They are as follows: Ban Mladenova, Bana Jelačića, Matošićeva, Ujevićeva poljana, Porinova, Trg Gaje Bulata, Sinjska, Manuška poljana, Zagrebačka, Tončićeva, Marmontova, Obrov, Domaldova, Šubićeva, Bosanska, Marulićeva, Dioklecijanova, Kraj sv. Marije, Krešimirova, Ilićev prolaz and Zadarska.

Pursuant to the Order on the Communal Order, it is prohibited to put signs on stone frames of the openings in the protected Zone A (V. Marinković)

PRACTICAL TIPS FOR PROPERTY MAINTENANCE

If you keep your property maintained, it will last longer, be more resilient to risks and hazards and command a higher market value. Besides, in this way you will keep under control the cost of future works. A properly maintained house is more comfortable and safer to stay in. Successful maintenance begins while the building is still in a good condition, i.e., immediately after its renovation, or construction. It is a simple task which does not involve much expenditure, does not require highly specialized contractors and, as a rule, can be done by the owner himself. However, since the historic core of Split is a conservation area, some maintenance works may require consultation with the Conservation Department, while others need a written consent. Furthermore, the majority of front facing facades rise are above public city spaces. This means that the majority of works on your house will have to comply with the local regulations and/ or be approved by the City. The recommendations, technical instructions and tips on how to address the maintenance issues in the micro-location of the historic core of Split are set out hereafter.

Periodic Visual Inspection of the Object

Visual inspection of the whole property should be carried out periodically. By visual inspection, you can establish its possible defects. During the inspection, special attention should be paid to the condition of the roof construction, the underroof, gutters, flashings, chimneys, door and window openings, carpentry, walls, floors, and electrical installations. The presence of moisture will be best detected if inspection is made during dry weather and then repeated during wet weather. Moisture appears most often in underground rooms (ground or capillary moisture), around unmaintained exterior carpentry, gutters and eroded mortar joints (liquid moisture). Furthermore, it is important to find out if there are any cracks, unstable walls, or dislodged architectural elements. Inside the objects, the presence of insects (woodworm, bug) or rodents (mice, pigeons) should be looked for, as they can cause damage to the building materials and compromise the basic hygiene of the property. This operation does not require additional spending, specialized persons, or permissions, and the owner can do it by himself.

Ventilation of Rooms and Basic Cleaning of the Waste Accumulated in Attics and Cellars

Rooms should be ventilated in order to avoid accumulation of moisture and mould on the walls. Ventilation is essential for the buildings which are not in day-to-day use. The basic cleaning of attics and cellars prevents the accumulation of pest and rodents, and reduces the risk of fire, while keeping viruses and bacilli out of rooms. This likewise requires no extra expenditure, specialized persons, or permissions, and can be done by the owner.

Cleaning of Chimneys and Drains

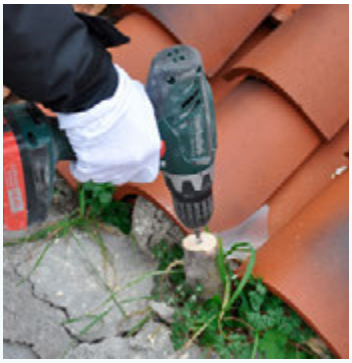
Chimneys and drains should be cleaned once a year. It is recommended that chimneys get swept by chimney pros, while drains can be cleaned by the owner himself, provided that the height and position of the chimney allow to. It is important to sweep chimneys before the heating season, while the accumulated leaves and branches in drains should be cleaned in late autumn.

Vegetation Removal

The vegetation noticed on walls and roofs during routine inspections should be removed. Plants with their root system may damage both joint infills and stone. Some plant species may even threaten the stability of roofs, walls, pavements and piping infrastructure. Of the plant species identified in the old city core, particularly damaging to the structural components of the buildings are capers (Capparis spinose L.), the fig tree (lat. Ficus) and the tree of heaven (Ailanthus altissima). The most invasive of the three species is the tree of heaven, which is not native to the Mediterranean region. This fast growing plant, with a long, resistant and adaptable root system, damages built heritage and infrastructure. Therefore, it should be kept under control and removed in a systematic way.

Tree of heaven, leaf (V. Marinković)

Trees of heaven in the streets of the old city core of Split (V. Marinković)



Tree of heaven removal (V. Marinković)

The best method to remove plants is the mechanical one, when the stem is plucked out together with the root. The plant must be removed carefully. Otherwise it can cause additional damage to the structural components of the building and the surface from which it grows. Where the complete root system can not be extracted, the plant should be sawn off as close to the surface from which it grows as possible, after which the root must be treated chemically. This means that you should drill a hole in the root and injected it with a herbicide. Another method is to peel the bark off, coat the stem with herbicide, and cover it with foil. When it comes to the tree of heaven, treatment with herbicides is essential, as the shoots growing from the unremoved roots are even stronger and more aggressive than the stems before the treatment.

If plants are young and have not yet destabilized the surface from which they grow, you can remove them by yourself. But if the plant is big, if it grows in a hard to reach area, or has already affected the stability of the building, the work should be entrusted to specialized persons. In case of need, you can call the municipal company "Parkovi i nasadi", which is responsible for the removal of destructive vegetation from public areas.

Important!

- After the tree of heaven has been removed, its stems and the leafy part must not be dumped in the open, due to the possibility of seed dispersal and growth of new plants. Therefore, it is better to put the plant remains into a bag in which it will decompose, and then throw it away.
- Be careful when handling the tree of heaven, as it can cause inflammation of the skin (dermatitis).
- If you use a herbicide, strictly follow manufacturer's instructions.

Repointing of Joints

Grouting of joints prevents migration of moisture between stone blocks, secures and strengthens the walls. The traditional grouting method requires the use of lime mortars, whose composition depended on the type of stone and the dressing style (e.g., smaller stones of lower quality are abundantly grouted, while the mortar connecting blocks of ashlar masonry looks like a sunken, narrow line).

Repointing of joints is preceded by a series of preparatory operations, which include removal of vegetation (if there is any), mechanical removal of the old and eroded mortars, sometimes even washing of the whole wall in order to remove dirt. The process of repointing implies gradual grouting of cleaned joints with new lime mortar. The cleaning of joints is carried out with a blower. The cleaned joints are moistened, and the mortar infill is kept wet in order to dry gradually. This will prevent mortar from cracking. When mortar is dry, the repointed joint is brushed with a stiff brush. Preparation of lime mortar according to the traditional recipe is a demanding job and requires a lot of practical skill and knowledge, as does the preparation of a quality lime. This should not worry you, as all stores sell pre-mixed lime mortars manufactured according to traditional recipes. They are easy to prepare and you can choose among different hues and aggregate sizes. The use of

Correctly grouted lime mortar joint
(V. Marinković)

Incorrectly grouted joint: inadequate material
and treatment (V. Marinković)

manufactured lime mortars considerably facilitates repointing, which the house owner with some practical experience in this kind of work can do on his/her own. However, if you are planning repointing of the exterior surfaces of your property, you will have to ask permission from the Conservation Department.

Important!

- The hue of the infill should match that of the stone.
- If you decide to grout larger stone areas, you may need scaffolding. Scaffolding must be safe and it must comply with the regulations in force and the work safety standards. For setting up scaffolding on public ground you will need consent from the City of Split. (Find out more in the next chapter.)

Blue carpentry is not typical of the area of the historic core of Split (P. Gamulin)

Carpentry Maintenance

Maintenance of wooden window shutters, doors, and other wood elements (e.g., beams) is an important item on the property maintenance checklist. If the existing woodwork is in a good condition, every five to ten years, the painted parts of the carpentry should be sanded, the old layers of paint should be removed, and they should be repainted. Small losses and cracks can be filled with putty, and the whole surface can be coated with varnish. Water-based materials are recommended. During painting, manufacturer's instructions should be followed. As a rule, the wooden shutters are painted in deep green or grey, while the window frames are painted white or light grey. The wooden doors are painted deep green or brown. However, there are exceptions to the rule, depending on the period style of the property. This means that, when selecting colours, you should ask advice from the Conservation Department. Once or twice a year, the repainted woodwork should be cleaned with a mild (alcohol and acetone free) cleaning agent, while the metal parts should be oiled. The owner can carry out these works on his own, as they do not require permission. If the carpentry is in a bad state of preservation and beyond repair, it can be replaced. In that case you should contact the Conservation Department, and negotiate the details, depending on the appraisal of the house.

Important!

- Azure or blue shutters may look appealing. In some Mediterranean regions (e.g., Greece), blue is the traditional colour used for certain wooden elements of the house. However, in Dalmatia and in Split it is not a traditional colour, wherefore its use should be avoided.

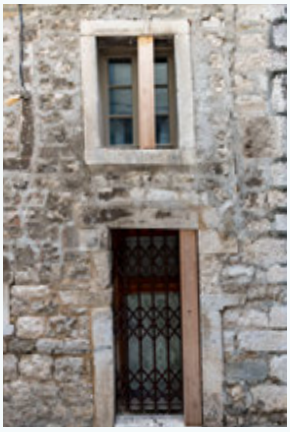
Maintenance of Metal Elements

Architectural elements made of wrought iron, such as window grates or fences, as well as the metal parts of the doors, windows, etc., should be preserved. Do not remove or modify metal parts even when they have suffered major damage, or are themselves damaging stone into which they are anchored. The worn elements can be sanded by hand, coated with an anti-corrosive agent and pained in a neutral tone. When replacing old carpentry, pay attention to the metal parts and details. They should be ne saved, repaired, and reused.

Stone Cleaning

The owner can clean by himself the exterior parts of the house, such as staircases, courtyards and stone balustrades, in order to remove large dirt particles, bird droppings, walking footprints, soiling, algae and lichen. These deposits should be removed with water, soft brushes, mild neutral detergents for stone, and mild disinfection agents. Stable, yet heavily polluted surfaces can be washed using high pressure water lances with controlled pressure (up to 100 bars). However, high pressure cleaners should be carefully handled, as water under pressure may cause damage in the mortar joints and unstable parts of stone. If, during cleaning, you use even minimal volumes of water, make sure that drainage is provided.

This operation does not require specialized persons or a special permission, and can be carried out by the owner himself. However, cleaning of façades, intricate mouldings and decoration, such as plaques, relieves and coats of arms, should be entrusted to specialists and needs consent from the Conservation Department.



An example of interventive support for unstable structures, Rodrigo Street (P. Gamulin)

Important!

- Never clean stone with aggressive agents. Limestone, of which most of buildings in the historic core of Split are made, is particularly sensitive to aggressive treatments and is not acid resistant, which means that the use of any acid must be avoided. Acids may cause serious damage to stoned surfaces!

Temporary Interventive Support for Unstable Structures

If large structural damage and cracks that threaten to cause partial collapse of the masonry have been identified in your property, the unstable zones can be temporarily supported. It is a cost-effective solution which can temporarily defend people living in the property, their assets and the passers-by from harm There are different methods for supporting deteriorated masonry walls. The final decision on which method to employ will depend on the type of problem and the severity of damage.

Prior to any kind of work taking place, contact the Conservation Department. They will decide whether the structural repair is necessary and introduce you to the details and methods of reinforcement. The manner and performance of works are subject to the assessment by a licenced civil engineer.

INSTRUCTIONS FOR RENOVATION OR IMPROVEMENT OF PROPERTIES

If you decide to renovate or improve a property which happens to be a protected cultural heritage, or is located within the boundaries of the historical complex of Split, the first thing that you will have to do is to collect the pertinent documentation and gain the permissions relevant to the planned works.

What do Renovation and Improvement Imply?

Renovation and improvement are a simple group of works, carried out on an already existing building, with the aim of making alterations that are not considered as buildings works, do not require planning permission, and are not carried out on the basis of a main design.

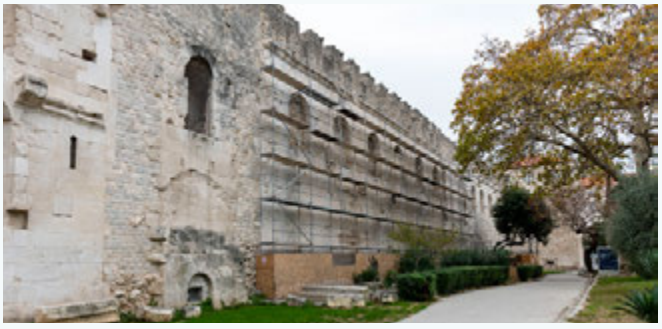
Renovation and improvement include replacement of roofing, consolidation and/or restoration of walls (grouting, repointing, plastering), damp proofing, replacement or renovation of flooring and ceiling, replacement of old installations and plumbing, replacement of old carpentry, etc.

If other building works take place, which alter the building to such an extent that it no longer complies with the original location requirements (e.g., additional storeys, extensions, demolition of exterior parts of the building, material change of use, change of roof construction), then we are talking of reconstruction works, in which case the amount of legal and administrative tasks to be completed in order to secure a building permit is much larger. This group of works should be entrusted to a professional, i.e., a designer, who will be in charge of the whole process and who will produce the main design.

Before embarking on any detailed planning of the project, and before getting started on work of renovation or improvement, it is recommended to contact the Conservation Department in Split, where you will be counselled on the extent of required works and on how to manage the process of obtaining the pertinent documentation and perms, whose number may vary depending on the protection measures provided for in the heritage and construction acts and regulations, as well as on the appraisal, location and the conservation issues of your property.

The Conservation Department may require you to initiate the procedure of architectural survey of the property, or an additional survey, or to carry out protective archaeological and/or conservation-restoration research, before starting your renovation works. The mentioned tasks should be carried out by the professionals who possess the *Permission for Performing Activities of Protecting and Preserving Cultural Goods.* The contractors are not obliged to have the *Permission*.

Pursuant to the *Act on Protection and Preservation of Cultural Goods*, before starting any work, be it research work or work of renovation or upgrading, the investor is obliged to require the *Prior Approval for Works on Cultural Property* issued by the Conservation Department. In case of unpermitted works on a protected cultural property or a property located within the boundaries of a conservation area, or the works that do not comply with the granted *Permission*, the owner (investor) is liable for financial penalty.



Scaffolding must satisfy the rules, regulations and standards of protection (P. Gamulin)

What is Prior Approval?

Prior Approval is an administrative act issued in the form of an order. The Prior Approval application form is obtainable from the relevant Conservation Department. A sample application form template for Prior Approval can be found on the last page of the Ordinance on the Documentation for Issuing Prior Consent for Works on Cultural Goods (https://narodne-novine.nn.hr/clanci/sluzbeni/2015-12-134-2528.html). The application is filled up according to the type of built heritage for which Prior Approval is required, and must be accompanied with documents relevant to the planned works (e.g., design concept, bill of works, etc.). The conditions of approval are specified in the Ordinance on the Documentation for Issuing Prior Consent for Works on Cultural Goods.

The majority of works on external surfaces (first of all, walls and roofs) require scaffolding. Scaffolding has to be safe, with edge protection, and it should meet the requirements and standards established by the *Building Act.* For temporary occupancy of the public right of way for private building purposes a *Temporary Occupancy Permit* must be obtained. The *Permit* is granted by the City of Split.

How to Apply for Temporary Occupancy Permit?

Request for Temporary Occupancy Permit is submitted to the City of Split, Administrative Department for Public Utility Services, Local Rules and Regulations, and Self Government. The application form can be found online at: https://www.split.hr/gradska-uprava/upravna-tijela/upravni-odjel-za-komunalno-gospodarstvo-redarstvo-i-mjesnu-samoupravu).

The *Request* must enclose a scale drawing of the asked area, with its position in space and floor dimensions, a photograph of the asked area and a confirmation issued by the City Department for Financial Management and Control, confirming that there are no unpaid dues to the City of Split on your part of the *Permit* seeker.

The process of renovation and improvement of a property in the old city core of Split may be challenging for a property owner from organizational, administrative and financial points of view. The requirement to use traditional materials and to engage specialized professional contractors, as well as the fact that the historic core of Split is mainly a pedestrian-only zone, put a burden on the dynamics of works and raise their cost. This is why the Ministry of Culture and Media of the Republic of Croatia (https://www.min-kulture.hr) once a year launches a Call for Submitting Programs of Public Needs in Culture. The Call, which is released in public media and can be found on the website of the Ministry, funds programmes of protection, preservation, restoration, presentation, and maintenance of cultural heritage. Any owner of a historic building is eligible for applying, but the individually protected buildings and buildings in precarious condition have the priority.

The City of Split, as a unit of local self-government, also launches calls for co-financing. *Ordinance on the Allocation of Financial Resources in Support for Renovation and Restoration of Facades and Roofs in the Old City Core* recently adopted by the City provides the basis for co-financing of renovation works on privately owned objects which satisfy the eligibility requirements.

The Split-Dalmatia County also launches public calls for co-financing of other projects, non-refundable subsidies for citizens and development measures. In order to find the model of financing which best suits your situation, visit the website of the County. (https://www.dalmacija.hr/natjecaji).

Supplement
(On Residential Architecture in the Historic Core of Split)

SHAPES OF HOUSES

A house in Carrarina poljana: an example of medieval residential architecture (V. Marinković)

The Earliest Examples of House

The earliest examples of residential houses in the old city core came into being in two ways. One of them was the change of use. Here, the Roman structure was converted into a habitation, using minimal spatial interventions (new horizontal and vertical division of space). The second design was more complex, as here the new house relied on the existing Roman walls and porches, which it partly used as its own walls or facades. This type of house is a narrow, high, single-cell, two-storey structure, with external staircase. In such houses each floor is a single unit, with the cellar or shop (*canava*) on the ground floor, the room on the first floor, and the kitchen on the second floor. It is built of rather small, uneven and roughly dressed blocks, and has no conspicuous elements of style. This house form persisted throughout the Middle Ages, with gradual improvements in constructive details and building methods. Later on, its dependency on Classical material diminished. The houses better conformed to the street grid, often bridged the streets and acquired more pronounced elements of style. Their stone façades became more evenly dressed, and the window openings were accentuated with arches.

The Štambuk House: an example of the 18th century patrician house (V. Marinković)

Patrician House

In the Middle Ages, more lavish house forms developed. They were the so called patrician houses. This new type of house was intended for more well-off occupants. In the mid-15th century the Venetian residential palace model was adopted. The new patrician houses were either the expanded old houses or entirely new buildings replacing the pulled down old houses. The removal of old constructions opened space for courtyards with monumental gates, loggias and external staircases. The new palaces often used, as a base, the old Romanesque houses, which were provided with new, large, representative windows (tifores, quadrifores) and painted ceilings. The courtyards were oriented toward the street.

In the Baroque, the design of the patrician house layouts became more diverse. They became larger, which allowed for higher housing standards and a more complex spatial organization. The typical patrician house of the historic city core of Split is a multi-storey dwelling with an attic. The floor with the highest ceilings is the *piano nobile* (main floor), while higher floors have lower ceilings. Such houses can be recognized by finely dressed regular blocks of stone laid in courses of uniform height (ashlar) and lavishly decolorated front facing façades. The lateral facades are generally more modest in appearance and roughly dressed. Furthermore, the front facing facades can contain balconies.

The number of surviving elements of vernacular architecture is constantly decreasing (P. Gamulin)

Traditional Stone House

The traditional stone houses first appeared in the Middle Ages, outside of the present-day protected Zone A. In the majority of cases, they are detached, single-storey buildings, without elements of style. Their walls are built of broken stone or rubble and they are roofed with stone slabs or barrel tiles. The floor below is the cellar, and the upper floor is the living floor. The two floors are connected by an exterior staircase with the *balatura,* which shelters the cellar entrance. Today, they can be seen in the protected Zone B, in the areas of Varoš, Dobri and Lučac.

The Nakić House in Pjaca (P. Gamulin)

Modern House (19th- 20th century house)

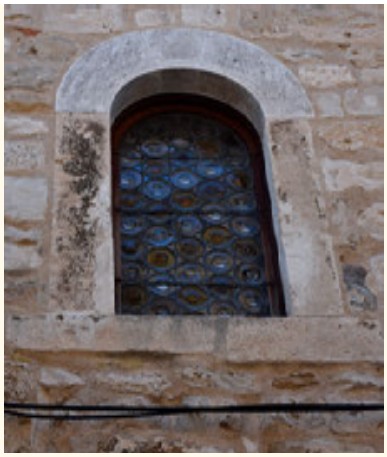
These houses are large, detached strictures that stand alone in space. The modern houses are meaningfully designed and built of different materials. Brick is abundantly represented here, even in the modelling of the facades, which are often plastered, painted and decorated with stucco-work, which is a novelty in the application of decorative elements.

Detail of the stone roof (P. Gamulin)

Detail of the roof containing remains of the old stone roofing and the new barrel tiles (N. Vasić)

Roof Construction and Roofing

The traditional roofs have luminaries (openings), chimneys, gently curved eaves, and a characteristic angle of inclination (from 30 to 45 degrees). Their specific shape gives authenticity to the overall picture of the old city core. The roof frames are commonly made of softwood. The prevailing shapes are ridge roof and ridge roof with end hips. The traditional roofing materials are stone slabs and barrel clay tiles (pan and cover tiles). Stone slabs are made by splitting surface parts of limestone rock along bedding planes into thin sheets. These slabs are generally laid on steep roof frames. The eves slabs, which are placed first, are set in lime mortar. Then the rest of the slabs are laid, without use of mortar. Stone roofs are whitewashed to protect the stone material from rainwater and the heat of the sun. Today, the majority of stone roofs are replaced with clay tile roofs (barrel tiles), which were introduced in the 15th century.



Doors and Windows

stone door and window frames are the elements that contribute most to the overall impression of a façade. In the historic core of Split their appearance, shape and decoration depend on the period in which they were made and the capacity of the owner. Today, in the streets of Split, one can see a wide variety of such frames. They frame windows, whose shape ranges from simple, to mullioned, to coupled, to round and horseshoe arch windows. The same applies to doors, which can be simple openings, doors with lunettes and arched doors. There is also the P-shaped ("*na koljeno*") door with a window, which, although appertaining to the same group, makes a case apart. This type of door with round top developed in the residential architecture of main streets and squares. Introduced in the 13th century, it served as the shop front door. Its specific design allowed the sunlight to penetrate to the depth of the shop, making possible the display of goods inside it. Due to its practicality and functionality, the P-shaped frame was used as late as the 19th century.

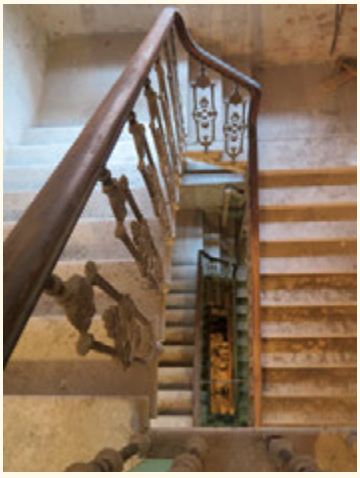





Exterior Carpentry

Exterior carpentry includes doors, windows and shop windows. Carpentry is traditionally made of wood and has metal parts which serve functional needs and for installation (locks, knockers, bolts, etc.). The wood window frames of the historic core of Split are made of hardwood (oak) and emulate the stone frames in style and shape. The door variants recorder in the city core are double layered door, coffered door (with panels) and glazed door. Until the 19th century, their simple decorative motifs were carved into the door, but in the 19th century they were simply nailed to it. The doors are traditionally painted in deep green or brown.

Windows as we know them today have been in use only since 1600s. Window carpentry includes window shutters (exterior part) and window pane frames (interior part). In the historic core, window pane frames are made of light wood (fir, larch). They are slim, with a step cut along their inner edge for the thin pane to be fitted in. They are traditionally painted white or light grey. The shutters protect from rain and sun and are painted in deep green or grey. Solid panel shutters ("škura") have been in use since the 17th century. Venetian shutters ("grilja") were introduced in the 19th century. Less often, one comes across bay windows ("erker", "žburt", "škureta") or interior window shutters.



Staircases and Railings, the "Sulari"

The houses often have external staircases, which lead to the first floor. Staircases of the patrician houses are opulent. Their railings are embellished with small columns and capitals with vegetal motifs, and the handrails are decorated with vine-scrolls. The staircases of the commoners' houses are simpler in appearance, yet more complex in function. As a rule, they are placed on the south (sunny) side of the house, above the vaulted cellar door, to protect the cellar from excessive warming. At the top, this type of staircase widens into a small area, a terrace, which in winter becomes a cosy outdoor space. It is called "sular".

Balconies

Considered a traditional feature of urban architecture, the balconies of the old city core are generally of modest dimensions and without a particular function. The reason is that in the Middle Ages there was a ban on building balconies. The idea was to prevent the occupants of the houses from pouring water and throwing garbage on the street. Later, their building was limited by the narrowness of the streets, chronic lack of space, and Mediterranean way of life. The balconies generally conform to the style of the façade, which is best evidenced by details such as railings and brackets.

Courtyards

In the Middle Ages, patrician houses received courtyards. Most often, they were built on the side next to the street. The courtyard wall is always tall and has a representative, lavishly decorated entrance gate. The obligatory element of the courtyard is the well-head ("bucal"), decorated with vegetal motifs, and the court-of-arms of the owner or the family initials.

Various Decorative and Functul Elements

Today, the streets of Split are embellished with various stone and wrought iron details, which once also served constructive purposes. One of such details are stone brackets, which can be roughly or finely dressed, depending on their function. Brackets generally carried eves and wooden balconies under the windows. The simple perforated window brackets served for hanging cloth that protected rooms from the heat of the sun prior to the advent of wood carpentry. Roughly dressed brackets prevented houses from leaning against each other. Another widely represented stone element are spouts used for conveying water from the roof and away from the sides of the house. They often have the form of an animal head (gargoyle). On the facades of the city core, one can also come across coats of arms and inscriptions indicating the ownership of the building, and the repurposed parts of older buildings and sculptures, used as the building material or to embellish the new structure ("spolia").

The most common wrought iron elements are the old street lamps, that once lighted up the city core, and the decorative details on the old workshops.

TRADITIONAL BUILDING MATERIALS

Stone

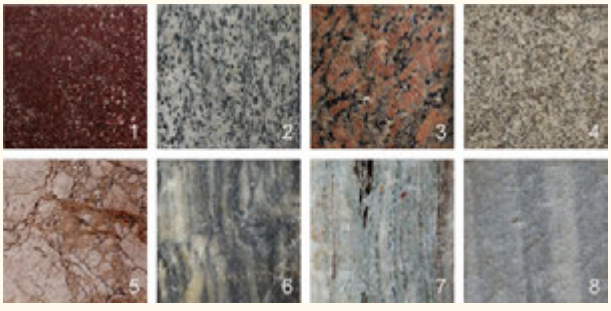
Stone is a natural inorganic material obtained by extraction or by gathering rocks from the surrounding. It is shaped by carving or splitting. On the Dalmatian Coast, stone is the basic and most widely used building material, used for making walls, pavements, roofs and various decorative and functional elements. The most widely represented stone type is the local limestone. The stone quarried for the needs of the historic core of Split mainly comes from the island of Brač, Trogir and Solin areas. It is generally of good quality, resilient and workable. It comes in different varieties, of which the most frequently used one is the high quality grey-whitish or yellow-whitish Rudist limestone.

Sedimentary rock (flysch), of which is built the shore of the Split peninsula, was easily accessible and cheap material for building masonry walls. Flysch is a sequence of sedimentary rock layers, ranging from limestones and clay shales, to sandstones with carbonate cement and marl. It is characterized by a carbonate base with varying contents of calcite and clay components. Its composition makes it a soft material of low quality. The colour of flysch varies from yellow to yellow-greenish to grey. Flysch is processed into building material by splitting large stones into smaller pieces, which are then bound together with abundant amounts of lime mortar and combined with other types of available stone (limestone, Dolit marble). Its most extensive use was recorded in the Middle Ages.

Yet another rock used as a building material is tufa. The deposits of this rock form along river banks. Tufa is formed by precipitation of calcite carbonate, plants, algae, and moss. The tufa used in the old city core was recovered from the fluvial channels of the river Jadro. Its highly porous, spongy structure makes it light and therefore suitable for the construction of vaults.

Although the decorative stones such as granite, porphyry and marble are not traditional materials in Dalmatia, they are not a rare find in Split. In the majority of cases, they are imports from Small Asia. Imported during the construction of the Diocletian's Palace, they were later repurposed as a building material. Furthermore, many architectural elements (limestone and marble relieves, plaques, columns and sarcophagi) from the ancient Salona were built into important and less important Split structures, or became part of the first Renaissance collections in the city.

Detail of the wall made of sedimentary rocks – flysch (V. Marinković)



The types of decorative stones used in the Diocletian's Palace (K. Marasović)

Wood

Wood is a natural, organic material obtained from ligneous plants, most often from tree trunks. In the Split area, the commonly used wood species were pine and cypress. Harder species of wood, such as larch, walnut and oak, were used too. After being purchased, planks were planed. It is believed that in the Middle Ages, houses were made entirely of wood. Unfortunately, these houses have not survived. In the stone houses, timber was regularly used for floor construction, roof framing, exterior woodwork and for making furniture. In the better-off households, the wooden ceiling structures were as often carved, coffered or embellished with decorative paintings.

Cross-section of an oak beam(V. Marinković)

Brick

Brick is a common material of masonry construction. Bricks are made of clay. They are formed, dried and fired. They are usually cuboidal in shape. Their dimensions and thickness depend on the mould, while their colour depends on the composition of clay and the method of firing. Bricks are used to build pavements, chimneys and vaults. It is important to stress that clay roof tiles are also a type of brick. In the city core of Split, the traditional roof tiles are hemicylindrical in shape (barrel tiles). In later times, they were replaced by different shapes of industrially manufactured tiles.

Detail of brick and stone masonry (V. Marinković)

Lime

Lime is made by firing limestone at high temperatures. Firing is a complex and controlled process, and the limestone fired using this method becomes a white, porous and highly reactive substance with crystallin structure called quicklime. If mixed with water, an alkaline white paste, or hydrated lime, is obtained. Hydrated lime is used as a binder in mortars, for whitewashing of stone roofs, and as the binding medium for pigments. Lime mortar is a building material used for plastering, and as a bond in brickwork and ashlar masonry. It is obtained by mixing hydrated lime, sand or grit, and additives, in a certain ratio. Correctly prepared lime mortar is extremely durable, compatible with the traditional building materials, and has good vapor permeability. Colour and texture of a lime mortar depends on its composition and final processing. In the historic core of Split, lime mortar was used for plastering exterior and interior walls. The plastered walls (commonly the interior) were occasionally decorated with simple painted patterns.

Wrought Iron

Wrought iron is an ancillary element of the vernacular architecture. Wrought iron clamps were used for joining stone blocks. Wrought iron was also used in carpentry fittings, for bracing, and as grating and railing.

Glossary

APPRAISAL assessment not only of the market value of a property, but also of its historical, stylistic and aesthetic values

BASIC STATE OF CONSERVATION DATA expert records, containing visual and textual parts, and embracing identification, analysis of the state of conservation, appraisal, and the measures of protection of cultural and historical values within the scope of interest

BILL OF WORKS is the document containing detailed description of all works, organized according to type, unit of measurement, quantity, and price.

CIVIL PROTECTION (SYSTEM) is the way of organizing stakeholders, operative forces and civilians, with the purpose of preserving lives of people and animals, assets, cultural goods and the environment during major accidents and disasters, and removal of consequences caused by terrorist attacks or war destruction.

CONSERVATION implies maintenance and preservation of artworks, buildings and urban wholes in the existing state.

CONSERVATION-RESTORATION is an interdisciplinary profession dealing with protective works on objects of cultural, historic and art heritage, with emphasis on scientific and specialist research, and accompanied by practical work on the material properties of the objects.

CONSERVATOR is a highly educated specialist responsible for protection and maintenance of objects of cultural, historic and art heritage, and supervision of the work of all participants of protective treatments, in line with the regulations prescribed by law.

CONSERVATOR-RESTORER is a highly educated specialist working on the tasks of conservation and restoration of cultural heritage.

CULTURAL AND HISTORICAL WHOLE or CONSERVATION AREA is a settlement or part of a settlement, or a landscape, which is protected cultural good.

CULTURAL GOOD or CULTURAL PROPERTY is any property of national interest enjoying State protection. The concept of cultural good includes movable and immovable objects of artistic, historical, paleontological, archaeologic, anthropologic, and scientific significance, archaeological sites and archaeological zones, landscapes and their parts that bear witness to human presence in a space, and which have artistic, historical and anthropological value.

DESIGN CONCEPT is a set of mutually harmonized plans and documents providing the basic formal, functional and technical features that define the building. Design concept is the first step in the project planning process, and the basis for the building's future development.

DESIGNER is a physical person licenced for works of planning, i.e., licenced architect (or licensed civil engineer). Works on cultural property can be planned only by physical persons who have obtained permission for performing activities on protecting and preserving cultural good, and have an adequate professional career.

DISASTER is an undesired event of large proportions causing a serious disruption in normal functioning of a community or the society, which results in massive human, material, economic, and environmental loss, and whose consequences are beyond the capacities of the affected community or society, which, in coping with it, relies on its own resources.

EMERGENCY are the undesired circumstances manifested in vulnerability, time pressure and threat to the conservation of resources. Emergency occurs as a result of different types of events.

HAZARD is a situation which can potentially cause an accident or disaster.

HERBICIDE is a substance intended for removal of undesired plants.

IMPROVEMENT implies the removal of damage caused by natural or other agents (moisture, corrosion, earthquake).

MAIN DESIGN is a set of harmonized plans (architectural, structural, electrical) that serve as the proof that all legal and technical requirements for building have been met. Main design is the condition for building permit.

MAINTENANCE is a procedure of continuous care, without alterations of the basic state.

MAJOR ACCIDENT is an accident resulting in loss of lives, destruction and material loss, the mitigation of whose impact requires extraordinary efforts on the part of a community, and the impact of which the community usually cannot cope with without outside help.

PRESERVATION implies rescue from degradation and disappearance, and preservation of the original qualities.

PUBLIC AREA is any area accessible to general public that everyone can use under the same conditions (public green spaces, trails, paths, pedestrian zones, open drainage ditches, squares, parks, children's playgrounds, traffic areas).

RECONSTRUCTION are construction and other works concerning an existing building, which affect the fulfilment of the basic requirements for that particular building, or which depart from the location requirements in compliance with which it was built (extensions, storey additions, removal of exterior part of the building, works required by the change of use of the building, etc.), i.e., performance of construction and other works on the ruins of an existing building.

RENOVATION implies construction and other works concerning an existing building which do not affect its stability and safety, do not intervene into its structural parts, and do not alter its shape, capacity and exterior appearance.

RESIDENTIAL ARCHITECTURE is construction intended for living, i.e., permanent or temporary stay in a determined space. This implies all spaces (objects) in which people stay or used to stay for an extended period of time, regardless of their date of construction, shape, style, and current use.

RENEWAL implies improvement of particular features of a building.

RISK is the relationship between the consequences of an event and the probability of its occurring.

STATE OF CONSERVATION REPORT is an expert document made for the needs of more complex conservation works on cultural goods protected by a special Order, which can affect the technical condition and character of a cultural good. State of conservation report can be made for an existing buildings or a planned construction in a protected cultural and historical whole, i.e., in an area of interest for preservation of the properties of a cultural and historical whole.

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