## URBAN RE-GENERATION & AIR-RIGHTS

TRANSITIONAL MORPHOLOGIES /THE CASE OF RIMINI /SAN GIOVANNI

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## URBAN RE-GENERATION & AIR-RIGHTS

TRANSITIONAL MORPHOLOGIES /THE CASE OF RIMINI /San Giovanni Master Thesis Architecture Construction City Politecnico di Torino Academic Year 2020/2021

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#### Abstract

With history changes, every city will encounter problems in the process of urban transformation. When the city's productivity model changes or is affected by demographic changes, wars, economic crises, etc., parts of the city will decay. These degraded, underutilized areas jeopardize the image of the city and the living environment of people. How to solve the problem of historical urban degradation through urban intervention? The thesis focuses on the issue in Rimini, a historical city in Italy, and explores urban strategies with the help of knowledge related to urban morphology.

The thesis is divided into two parts. The first part introduces the humanistic environment, history, and other related backgrounds of Rimini and the analysis and research of the urban form that shows the overall view. The second part takes Air-Rights and urban regeneration as the theme, through case study and research related to Air-Rights, discusses the spatial problems faced in urban regeneration, as well as the right of urban space ownership and the question of property to find solutions to improve the initiative of citizens in urban transformation. Finally provides a detailed analysis and design plan in the San Giovanni area and applies it to other areas in Rimini.

In addition to analyzing urban issues in the whole city, the thesis mainly focuses on building types with uneven distribution of building density in the city center, takes Air-Rights as the entry point, and simulates the real situation to provide complementary strategies. Think about the identity of architects, government, residents, and related stakeholders in the urban regeneration, finally, provide long-term planning in Rimini.

Key words: urban regeneration, Air-Rights, space, property

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RIMINI

### PART.1

TRANSITIONAL MORPHOLOGIES IN THE ITAL-IAN CONTEMPO-RARY CITY. THE CASE OF RIMINI

PART.1

# <u>00</u> INTRO-DUCTION

Through the diachronic study of the form and rules that order the built and the cartographic reworking, it is possible to create a catalogue of operational guidelines.

#### FIELD OF INTEREST

The study investigates the links between form and urban rule in the contemporary Italian city, concerning the case of Rimini. The study consists of analyzing the historical settlement system to form the cognitive framework of the General Urban Plan of Rimini. The analysis is conducted in a morphological-transitional manner or formulate guidelines for urban transformation.

The city understood as a complex evolutionary system that changes continuously over time. As **Stephen Marshall (2008)** argues, "the plan of a city - like the plan of an ongoing chess game - is a snapshot of an ever-changing process. Two cities - or two games of chess - may have different distributions of pieces. Still, these distributions often have a systematic local relationship, which gives them a recognizable order". This concept denotes the changing character of the city over time. It introduces a distributive and formal structure that organises the elements that make up the urbanized space (*Caniggia, 1979*). The deepening of the relationships between elements, especially in urban sectors capable of documenting important seasons for the city's evolution, makes it possible to develop scenarios for future development. Thus, the participation of the present in the spaces of the existing city makes the civic and design value of the historical heritage understandable and accessible.

In this context, Rimini assumes a paradigmatic role in observing the evolutionary cycles of the existing city. Therefore, through the diachronic study of the form and rules that order the built and the cartographic reworking, it is possible to create a catalogue of operational guidelines (codes). The operating procedures allow the triggering of urban regeneration mechanisms. They respond to local needs with a view to exporting and generalizing design practices. This Thesis presents a collection of documents. Starting from the global analysis of the urban fabric of the city of Rimini, four specific areas have been identified in which to simulate a series of urban projects. The design project is carried out in educational and academic settings to show possible actions in specific contexts. Thus, the simulations allow generalizing the detailed reasoning and extending them to the rest of the urban fabric with the same morpho-typological characteristics.





#### ONGOING RESEARCH AND METHODOLOGY

In the last ten years, the significance of urban codes has been placed in the foreground, both for their use to reform buildings and their value as new tools to shape the future *(Talen, 2012)*. Urban codes, or the governance tools for administrations that allow cities to be generated and regenerated, reveal a profound relationship with the urban form, which can be studied thanks to the paradigm of transition morphologies. Investigating transition means looking at urban morphologies as a process.

Transitional urban morphologies are an operational conceptual tool for analyzing the urban form of contemporary cities in their historical development, up to their present reality, and also looking at their possible future configurations of urban planning and design *(Trisciuoglio et al., 2021)*.

The development of a new generation of urban planning rules requires a deep and critical understanding of the mechanisms of evolution of form and the analysis of the effects of the regulations on the built environment. Evolution is the lens through which city development can and must be understood *(Marshall, 2008)*.

This page presents the first analysis of the historic core of the city of Rimini. Through the redesign of the Roman structure, of the Renaissance elements and the Gregorian Cadastre of 1811, it is possible to understand the permanences and the permutations of the urban morphology of Rimini. Numerous in-depth studies and considerations can be conducted by superimposing the different layers obtained from interpreting the maps and historical documents. Therefore, the aim is to understand the formal mechanisms of origin and modification of the urban fabric to build project reasoning consistent with the context.



Fig.5-8, Superposition of Roman matrix on Gregorian Cadastre of 1811, Rimini, Martina Crapolicchio (2020)

This sub-chapter showcases the urban fabric of the historic center and the distribution of different typologies in the city Rimini.

#### General Plan: Morphological Homogenous Categories

The collection of original maps and re-workings documents the main elements that combine to define the character and structure of four emblematic areas, chosen as representative archetypes of morphotypological ensembles.

This operation helps to study the city based on the elements that compose it and define intervention strategies in a localized manner to trigger regeneration mechanisms of the entire urban fabric. This approach allows collecting the evidence of the analysis to formulate generalizable principles. Furthermore, it is possible to elaborate other questions relating to urban morphology in the planning, design and conservation of Rimini's historical center.

The four morphologically homogeneous areas (1 Cavour, 2 Tiberio, 3 Mazzini, and 4 San Giovanni) are presented here. Each region corresponds to a graphic pattern and a precise urban morphological characteristic.

The diagram on the next page represents the constructed surface of each morphological category. A diagram illustrating the framing of the regulatory guidelines is presented on the next page.



Fig.9-13, Typological Map of Historic Center Rimini, Liqiuzi Guo (2021)

STUDY AREA	ICON	IF	YOU CAN	ADVANTAGES
CAVOUR Acupuncture		There are condition of: <b>compact</b> <b>building</b> <b>fabric with</b> <b>stratifica-</b> <b>tions.</b>	Rethink urban space to allow po- rosity through: - Interventions on voids system - Interventions on facade' surface (Echo) - Interventions on roofs' surface (Echo) <b>Promoters: pri- vate OWNERS.</b>	Discount on environmen- tal taxes; Adding vol- umes or/and surfaces in percentage.
TIBERIO Up & Down Strategy		There are condition of: <b>compact</b> <b>margin tis-</b> <b>sue, com-</b> <b>pared with</b> <b>canal port</b> <b>or different</b> <b>heights.</b>	Recover cubage through: - Augmenting sur- faces or volumes (even served by footbridges and aerial walk paths) - Allowing tempo- rary (years) occu- pation of private open spaces by the municipality to realize public spaces and gardens <b>Promoters: pri- vate OWNERS.</b>	Adding vol- umes or/and surfaces in percentage.
MAZZINI Dynamic Growth		There are condition of: <b>building</b> <b>fabric of the</b> <b>outer village</b> <b>attested on</b> <b>roads.</b>	Recover cubage through: - Augmenting sur- faces or volumes partially or entirely involving the buildings' shape in plan. <b>Promoters: pri- vate OWNERS.</b>	Adding vol- umes or/and surfaces in percentage.
SAN GIOVANNI Air-Rights		There are condition of: <b>ribbon dis-</b> <b>position in</b> <b>urban fabric</b> <b>along the</b> <b>Flaminia.</b>	Recover cubage through: - Augmenting sur- faces or volumes partially or entirely involving the sides of the buildings according to stakeholders. <b>Promoters: pri- vate OWNERS</b> <b>agreement.</b>	Adding vol- umes or/and surfaces in percentage.

# 01 OVER-VIEW

**RIMINI BETWEEN FORM AND NORM** 

### UNDERSTANDING RIMINI

This chapter showcases a collection of articles about the history, monuments, city development and the current regulations of Rimini. Rimini, which can be described as the split town, owning to its geographic, cultural, economic and politic reasons.

#### THE SPLIT TOWN / by Wu Hongye

#### I. Beach resort, a great turning point of city development

One of the most essential turning points in the history of Rimini was that the seaside resort gradually developed, since then, people's attention shifted from the original core of the city which centered on piazza Tre Martiri to the coastal area to the east of the city.

In 1843, precisely under the Papal Government, Rimini officially inaugurated its first beach resort that became the Riviera Romagnola afterwards. The geographical boundaries of Rimini's beach resort extend from the mouth of the Rhine River up to the promontory of San Bartolo, but most of all, Rimini develops the tourist vocation along the Adriatic coast. The development of the first beach resort in Rimini was followed by the construction of the Kursaal and the hydrotherapy resort, in response to a new trend among the aristocracy and the upper middle class, who appreciated sea-bathing for its therapeutic properties. After the Second World War, many beach resorts arise in the area from Riccione to Milano Marittima and since the '50s, the seaside is full of areas devoted to bathing. Along with Milano Marittima, Rimini became famous throughout Europe as major tourist destination. In the '60s, Rimini and the Riviera Romagnola were finally recognized as leading touristic locations. Nowadays, people has already been associated with Rimini's bathing history since the first bathing establishment was founded in 1843.

In recently ten years, Rimini has made an excellent effort in terms of environmental renewal and restoration. Devoting to promote a more enjoyable and sustainable city, Rimini municipality built many leisure green parks, especially the new **Sea Park**: 16 kilometers of waterfronts, from Torre Pedrera to Miramare, completely



Fig.14, Beach resort in Rimini, Rimini, Wen Yee Tan (2021)



Fig.15, Beach resort in Rimini, Rimini, Wen Yee Tan (2021)

FELLIN

Fig.16, Fellini is Everywhere, Rimini, Hongye Wu (2021)



free of metal sheet and asphalt and transformed into islands and roads dedicated to greenery, nature and the quality of the sea.

In Rimini, tourists from Europe and all around the world would like to flock to the **seaside** for vacation, especially during the summer vacation, while the original historic center of the city is gradually forgotten. In fact, the historic center is full of important **memories** of the past, the memories of the people and the memories of stone (e.g. architecture, city walls, arches, etc). Cinemas, theaters, castles, cafés, museums, piazza, streets, and alleys, all of them, have both tangible and intangible memories which deserve to be preserved and continued in their own special forms.

#### II. To be continue, a city of memory

Federico Fellini once wrote, "I can not consider Rimini as an objective fact. It is rather, a dimension of my memory... What is Rimini? It is a dimension of memory (a memory that in any case has been invented, adulterated, violated) on which I have speculated so much that I developed a kind of embarrassment *(Fellini, 1971)*."

Rimini, thus, for Federico Fellini, is not an objective fact, but primarily a facet of his **memory**. Although Fellini never shot a film in Rimini, Rimini as his memory is always existing in his films, recreated and memorized in some ways. The town of Rimini truly becomes an island, in Fellini's idiosyncratic recreation, which represents a private place, protected by the see, and where the individual can freely keep his or her most secret dreams (*Gieri, 1995*). Ostia, Rome, where Fellini shot "I Vitelloni", as Fellini describes, is more Rimini than the real Rimini. The place re-proposes Rimini in a theatrical, scenographic and, therefore, harmless way (*Fellini, 1971*). In the movie "I Vitelloni", Rimini truly becomes an island, that is, a total universe where each one of the five protagonists proPensare a Rimini. Rimini: una parola fatta di aste, di soldatini in fila. Non riesco a oggettivare. Rimini è un pastrocchio, confuso, pauroso, tenero, con questo grande respiro, questo vuoto aperto del mare; lì la nostalgia si fa più limpida, specie il mare d'inverno, le creste bianche, il gran vento, come l'ho visto la prima volta... Infatti, quando mi trovo a Rimini, vengo sempre aggredito da fantasmi già archiviati, sistemati (Fellini, 1971).

gressively undergoes gradual unmasking so as to expose his empty inner life, which is metaphorically paralleled by a vacuous social existence *(Gieri, 1995)*.

"It looks like an American city. But who wants the American city?", the Rimini people said while they were watching the model of the future Rimini which proposed by the Americans after the WWII. Rimini was almost destroyed entirely by horrible bombs during the WWII. After the war, the Americans had promised to rebuild everything at their own expense. Then, Rimini becomes a word which is made up of auctions, of toy soldiers lined up. For Fellini, he can not objectify Rimini. Rimini is a mess, confused, fearful, tender, with its great breath, its open emptiness of the sea; nostalgia becomes clearer there, especially the sea in winter, the white crests, the great wind, as he saw it the first time... In fact, when he is in Rimini, he is always attacked by ghosts already archived, settled *(Fellini, 1971)*. Again, the Rimini which from Fellini's childhood did not exist anymore, but Fellini recreates and invents it in his films in his own way.

**In recent years**, local municipality has been working hard to enhance historical urban places with a **strong identity** starting with the redevelopment of the historic center with the renovation and reopening of the Fulgor cinema, which is perhaps the most famous cinema in the world, the reconstruction of the Amintore Galli Theatre linked to the unitary redesign and reorganization of Piazza Malatesta up to the Malatesta Castle, the inauguration of the



Fig.17, Park in Castel Sismondo, Rimini, Hongye Wu (2021)



Fig.18, Park in Castel Sismondo, Rimini, Hongye Wu (2021)



Fig.19, Newly Piazza Malatesta Under Construction, Rimini, Hongye Wu (2021)



Fig.20, Newly Piazza Malatesta Under Construction, Rimini, Hongye Wu (2021)

Ricordo che ebbi una reazione infantile. Quello spettacolo mi pareva un oltraggio sproporzionato. Ma come, non c'è più il Politeama, non c'è più quell'albero, la casa, il quartiere, il caffè, la scuola! Mi pareva che avesse dovuto frenarli il rispetto per certe cose. Sta bene, è la guerra: ma perché distruggere proprio tutto? (Fellini, 1971)

new PART Museum of Contemporary Art. The creation of new public spaces, street furniture, green areas, as part of a coordinated and organic design, in close connection with the other ongoing contracts aimed at creating new cultural engines, such as a series of **exhibition of Fellini** will be inaugurated on August of 2021, including the Fellini Museum which located in the recent renovated Castle and some open-air exhibitions which will be showed in the newly organized Piazza Malatesta in front of the Fellini Museum. Obviously, Fellini has already became a symbol, an icon of Rimini.

A city of memory or a memory of someone? So what is Rimini for you? And, how the city Rimini will be in the future?

#### III. Multiple identities, today's Rimini

It is not necessary to redefine the identity of historic city center of Rimini but what has to be done is that to grow the original identities and in the meantime to dig out profound ingredients such as disappearing tradition, demands of residents which not only have been deeply hiding in the history, during the fast urban development but also which are going to be increasingly needed in nowadays' constantly changed world such as post-pandemic era which is being faced by the individual, groups, cities, countries and the whole world (\*different dimensions of needs). Different dimensions of needs, for example, the individual considers only a single house, the group may consider how a community could be, the city takes



Fig.21, Piazza Sull'Acqua, Rimini, Hongye Wu (2021)



Fig.22, Piazza Sull'Acqua, Rimini, Hongye Wu (2021)

A city of memory or a memory of someone? So what is Rimini for you? And, how the city Rimini will be in the future?

#### a bigger view into account, and so on.

Overall, Rimini is an attractive city with rich culture, profound history, great artificial green parks, and stunning natural landscape from hills and sea, however, all these characters as if they are separate fragments floating on the water island. In this sense, Rimini as a **split town** has being seen today. One of the main influence factors is the location of the railway. The railway exactly right splits the city into two parts, the new town along the seaside with thousands of villa, hotels, hostels, B&B on the northeast side, while the other, the city historic center, is isolated totally on the other side. At the beginning, one of the main purposes of the planning of the railway is to bring convenience to the tourists who want to go the beach. However, it is also the main factor that weakens tourists' attention to the meaningful city center. Furthermore, apart from those important buildings for the city itself, most the residential buildings are being neglected. For example, residents renovated their house themselves in an interesting informal way or in a creative and adaptive way.

Therefore, although there is no perfect city, regenerations in several aspects will give benefits to transform the city of Rimini into a more completive, coherent, livable place and to promote its sustainable development.



Fig.23, Self-renovated Residential Building, Rimini, Hongye Wu (2021)



Fig.24, Self-renovated Residential Building, Rimini, Hongye Wu (2021)

Rimini was founded by the Romans in 268 BC. Throughout Roman times, Rimini was a key communications link between the north and south of the peninsula.

#### THE CORE OF THE TOWN / by Guo Liqiuzi

#### I. The historical center\_Cardo-decumanic\_Rome

The historic center of Rimini is surrounded by walls built by Malatesta and bounded by **the Marecchia and Ausa rivers**. The center has a unique regular urban structure of Roman origins, based on a typical Roman square mesh. Each town has two main roads, **cardus maximus** and **decumanus maximus**. One faces north-south and the other faces east-west. The town is divided into four areas by two orthogonal roads, which is based on colonial needs. The intersection of the roads is a large Piazza in the center of the town, called the **Forum**. It is used for markets and conferences. It has shops and offices on three sides, and government offices on the other.

In Adimario Adimari's plan for Rimini, a square mesh plan was adopted, with military barriers on the north and south sides coincident with the two bridges on the Ausa river. The city is surrounded by a moat and city wall, showing its strategic significance. This reflects the urban structure of the Roman period.

The urban layout, of the **Cardo-decumanic** type, is oriented from north-west to south-east and from north-east to south-west, unlike what happens for the territorial network. Not only of orientation but of connection, [...], that characterizes the practical-empirical attitude of the Roman urban planners in the organization of inhabited centers. The reference to a predetermined model, the quadripartite orthogonal city, is conducted and applied, here as elsewhere, without any rigidity, historicized in relation to human and geographical pre-existences, corrected from time to time according to certain objectives. (RIMINI. Laterza. 1982).



Fig.25, Drawing for the restructuring, regularization and expansion of Rimini, Rimini, Gobbi, G., Sica, P. (1982)

During the Renaissance, Rimini benefited from the house of Malatesta.

In rimini, the city walls surround the urban space orthogonal to the street grid. At the intersection of cardus maximus and decumanus maximus, corresponding to the current Piazza Tre Martiri, was the Forum, the core of public life and commercial transactions. Roman emperors erected monuments such as the Arch of Augustus and the Tiberius Bridge to mark the beginning and the end of the Decumanus of Rimini.

#### II. The historical center\_House of Malatesta\_Renaissance

Malatesta Temple, which is the most important site in Rimini, first example of the Italian Renaissance; designed by Leon Battista Alberti. Castel Sismondo, designed by Filippo Brunelleschi, is the symbol of Sigismondo Pandolfo Malatesta strength and power. Piazza Cavour (Piazza Della Fontana) is the main medieval square. Piazza Malatesta, formerly joined to Piazza Cavour, overlooked by the cathedral and the castle. Piazza Malatesta takes its name from the castle of Sigismondo Pandolfo Malatesta, lord of Rimini from 1432 to 1468, which combines the celebratory intent with the defensive need. The fortress stood out for the might of its towers and walls with escarpments, for the wide moat, for the grandeur of the keep.

The early medieval city was organised as a dense knot of functions and activities contracted around a square (Piazza Della Fontana) (Fig.27.) where the religious and civil powers had their headquarters. During the municipal age of Rimini, it did not undergo significant morphological changes. Punctual interventions are carried out on prestigious ecclesiastical and political buildings. Unlike other municipal city-states, Rimini does not present expansion in multiple phases since the complete circle of the **Aurelian walls**, and the cardo-decumanic layout dictate the morphological development and function as an urban generating structure. (Crapolicchio, 2020) **III. The historical center\_19th Century** 



Fig.26, Map of Roman Rimini,Rimini, Gobbi, G., Sica, P. (1982) 1.Porta Montanara; 2.Arch of Augustus; 3.Bridge of Tiberius; 4. Bridge over the Ausa; 5. Theatre; 6. Amphitheatre; 7. Remains of the road pavement; 8. Aurelian walls (findings and presumed route); 9, Significant findings of masonry, mossic structures, etc; 10.Percorso della Fossa Patara



Fig.27, Piazza Tre Martiri, Rimini, Gobbi, G., Sica, P. (1982)



Fig.28, Piazza Cavour (Piazza Della Fontana), Rimini, Gobbi, G., Sica, P. (1982)

In the 19th century, Rimini was one of the most active cities on the revolutionary front. During the World War II, the city was the scene of numerous clashes and bombings.

By the end of the 19th century, Rimini left the enclosure of the city wall and began to expand to the northeast. **North-East Town Plan (1906)** (Fig.29.) is the first expansion plan of the city in the area between the old center and the Marina. A large checkerboard layout, completed in two stages between 1907 and 1929.

#### IV. The historical center\_current status

In ancient times, city walls were used by builders to protect themselves. In modern times, people need more connectivity. Therefore, the city wall is slowly disappearing from people's sight. After several explosions and wars, many ancient city walls and monuments have been completely destroyed or only left some relics. Some of this relics has been integrated with people's lives.

A Roman theatre was built in the first block east of the Forum. This building represents a pivotal point in the observation of Rimini's urban stratification as it remained incorporated into the residential fabric in the early medieval phase of decay and rebuilding of the city. To the south of the Theatre is the Lettimi Palace, whose history can be traced back to the Renaissance period. It was destroyed during World War II, and the remains are still preserved, with some broken walls, doors and windows. The ground and walls have been occupied by plants. Seen from the street, it looks like a green wall, blending with the city. (Fig.30.)

The building fabric is defaced and undone in many places with the degradation of some monumental buildings. The latter are stripped of their materials and erased from the visible shape of the city. The amphitheatre is part of these ruins, of which only a few ruined arches covered with plants remain, more similar to natural cavities than to architectural works. As a result, the countryside returned to take possession of the urban space through areas that were wild or planted with vegetable gardens. (Fig.31.)



Fig.29, Piano Regulator Northeast (1906), Rimini, Gobbi, G., Sica, P. (1982)

#### V. The historic center\_debate\_1965~1975

De Carlo argues that "the ancient center has value only if its constructions and forms can still be used (including, of course, the contemplative / aesthetic use) by a contemporary community: otherwise it has no value"; consequently, "the purpose of an urban intervention on the historic center cannot be that of its block in its present state nor that of its reintegration to a pre-existing state, but it can only be its revitalization".

According to De Carlo, first of all it is necessary to verify the contemporary use of the historic city, to involve citizens in interpreting the needs of the community, to intervene to adapt the historic city to the social, economic and cultural needs of the community; it is therefore necessary to have the ability to listen, but also the ability to choose.

Rimini clearly bears the signs of the events that have profoundly altered it in the last 50 years, and currently does not present a unitary historical fabric: there are important monuments, some shreds of minor connective tissue, but also parts that are decidedly and definitively upset and irrecoverable. De Carlo has noticed that citizens intensely use the historical environment, appropriating and manipulating it to adapt it to current needs; what guarantees this link between the community and the historical environment are not the fabrics or the rare monuments, but the scale, the spatial relationships between the building plot and the city community: the conservation of this scale, and the intensity of the relationships that is related to it, will be the problem that the Plan will have to solve and guarantee, together with the preservation of the surviving historical values.





Rimini – where margin (border & edge) of the old city still remains and visible in most parts of the city and it plays an important role even in the current days.

#### ON THE MARGIN / by Tan Wen Yee

#### I. River & Monument

Rimini is a city that sprawls along the Adriatic Sea, on the coast between the **rivers Marecchia** (the ancient Ariminus) and **Ausa** (ancient Aprusa). The Marecchia river runs through its valley and the plain in a very large riverbed and, after confluence with the Ausa, it flows into the Adriatic sea through a deviator between San Giuliano Mare and Rivabella, while the ancient riverbed is used in its last section as the city's harbour. The Marecchia, usually with little water flow, was subjected to periodic, destructive floods near its mouth, where the riverbed became narrow after various bends: for this reason it was deviated north. Ausa creek, which was the eastern limit of Rimini for many centuries, was deviated as well after World War II, and its original riverbed was filled and turned into an urban park.

Ponte di Tiberio is one of the important monuments in Rimini, situated on river Marecchia, the construction begun under Emperor Augustus in 14 AD, as the inscription on the internal parapets recalls, and completed under Tiberius in 21. Built in Istria stone, the bridge consists of five arches that rest on massive pillars with breakwater spurs set at an oblique angle with respect to the bridge's axis in order to follow the current. The bridge's structure on the other hand, rests on a practical system of wooden poles. Until today, it still connects the city center to Borgo San Giulianowhich was once a humble neighborhood inhabited by fishermen and offers an exciting glimpse into the past. It is a village with total immersion in Fellini's Rimini where murals with characters and scenes from the most important Fellini films are reproduced on the walls of the village, it then leads to the consular roads - Via Emilia and Via Popilia that lead north, and it is currently opens only for pedestrian and light vehicular circulation.



Fig.32, From Ponte di Tiberio to Borgo San Giuliano, Rimini, Wen Yee Tan (2021)

#### II. Rimini Riverside Development

The current Rimini has an extensive parks system that includes a series of **large urban parks**, created along the old riverbeds of Marecchia and Ausa. Neighborhood parks, gardens and tree-lined boulevards were largely incorporated in the recent city development.

Being Rimini's largest and most spectacular park-Marecchia Park that also known as XXV Aprile Park is located right in the heart of the city center and is perfect for a stroll or some relaxation on the edge of the beautiful town square overlooking the water Piazza sull'Acqua. Built at the foot of the Ponte di Tiberio, where the ancient Marecchia River once flowed (before being diverted in the 1930s), Piazza Sull'acqua is the public place redeveloped in 2017-2018 that surrounds it. It is the terminal part towards the sea of the Marecchia Park and the ideal place for the realization of cultural and spectacular events in a frame of absolutely unique naturalistic and architectural beauty. Many activities and few markets were held in the new piazza since its opening, the spacious venue and well-designed public area helped to attract the citizens to utilize this place. From Piazza Sull'Acquathat overlooks the reservoir of the old river Marecchia, the Ponte di Tiberio, stands immobile and steady, showing the city all its beauty. A new floating walkway connects the left and right docks of the ancient port facing the bridge, is considered one of the most beautiful in the world.

Nearby, the **Archaeological Park "Le pietre raccontano"** offers the chance to discover the long history of the bridge with a long walk on foot just an inch from the water and offers a panoramic terrace towards the Marecchia park that will leave the users breathless.



Fig.33, Piazza Sull'Acqua, Rimini, Wen Yee Tan (2021)



Fig.34, Flower market on Piazza Sull'Acqua, Rimini, Wen Yee Tan (2021)

#### III. Past and Present of the City Wall System

Rimini's city walls were built by Malatesta, it was divided since the Middle Ages in four districts (Rioni): Cittadella, Clodio, Pomposo and Montecavallo. The boundaries of these districts are not known, but it is assumed that they followed the current Corso d'Augusto, Via Garibaldi, and Via Gambalunga. Additionally, the ancient coastline was situated much farther inland than today's, it gradually shifted outward over centuries and the new land was developed throughout the 20th century.

The **city walls**, with its towers and gates, and the castle constituted for centuries as an **important defensive system** for city life under many aspects, such as the protection from external dangers, an essential element of the urban planning and control over trade with the surrounding area.

Rimini had a city wall since its foundation (268 BC). In the third century AD, a new fortified system was built which remained operational for a long time, until the Middle Ages, when new military requirements required the construction of a **new fortified circle**.

**Castel Sismondo**, wanted by Sigismondo Pandolfo Malatesta as a noble residence and fortress at the same time, crowned the Malatesta defensive system by connecting to the city walls.

As military techniques and political conditions changed, between the end of the eighteenth century and the mid- nineteenth century, almost all the city gates were **demolished and replaced** by customs barriers, further destruction occurred in the twentieth century, when the urban expansion crossed the ancient and now obsolete limit of the walls. There are a total of 4 city gates of old Rimini which still exist today and outside of the city walls, there are four boroughs (Borghi)- Borgo San Giuliano, Borgo San Giovanni, Borgo Sant'Andrea (or Borgo Mazzini) and Borgo Marina, which were entirely incorporated to the city by the urban sprawl in early 20th century.



Fig.35, Rimini with ancient city wall system, Arimini Caput Viarum



Fig.36, Rimini with ancient city wall system, Arimini Caput Viarum

#### City Gate 1 - Arco di Augusto

The triumphal Arch of Augusto (Arco di Augusto) is the **oldest** preserved arch in northern Italy, and it is also one of the main attractions in the old town of Rimini. It marks the entrance to the city for those coming from the Flaminia, the route traced by the consul Flaminio in 220 B.C. to connect Rome to Rimini. Being a city gate and honorary arch, Arco di Augusto was erected in 27 B.C. by the will of the Senate in celebration of Octavianus Augustus, as manifested by the inscription placed above the arch. The Arch is located on the South side of the old town, then it was a **city gate** and was built into the defensive walls of the city, marking a main road in Rimini. Sitting just outside the largest entrance to the city where the majestic Arco d'Augusto stands, there is Borgo San Giovanni. This neighborhood historically developed around the end stretch of the Via Flaminia, and reminants of its past remain to this day, such as its lively and welcoming streets packed with bars and quaint shops.

#### City Gate 2 - Porta Galliana

Porta Galliana is a city gate that was built in the thirteenth century to **connect the city with the port area** along the Marecchia river. It was part of the defensive walls due to the enlargement of the city in the Frederick era (13th century). It replaced another door **moved slightly further** into the city. Currently, the area is undergoing construction for the recovery and redevelopment of the area, that aims to enhance the city gate and the fact that the historical-archaeological area that can be visited and accessible to all visitors and the desire to restore an ancient artefact as it is the only medieval - Renaissance city gate that is still usable, and largely recoverable, existing in Rimini.

#### City Gate 3- Porta di Sant'Andrea

The Montanara Gate, also called the "Porta di Sant'Andrea", is the only example in northern Italy of an **urban gate** of the **Sellian age**. Dates back to the first century BC, it was also part of a general reorganization of the city's defensive walls attributed to Sulla. From 1400 to 1809, it was the only access point to the city of Rimi-



Fig.37, View of Arco di Augusto from San Giovanni, Rimini, Hongye Wu (2021)



Fig.38, Porta Galliana, Municipality of Rimini

ni from the mountain. The rounded arch, in blocks of sandstone, was one of the two entrances of the door that allowed access to the city for those coming from via Arezzo, along the Marecchia valley. The double archway facilitated traffic, channeling the path out of Ariminum, through the cardo maximus, and the one in entrance, in parallel passages. In the first centuries AD, the arch facing north was buffered and the door, thus resized to a single arch, continued to mark the entrance to the city until the Second World War. It is the **Roman monument** that suffered the greatest damage during the bombings of the Second World War, despite having been protected with sandbags. In 1949, when the war was over, the ministry established that the gate had no monumental value and ordered its dismantling. It was rebuilt in the courtyard of the Diocese of Rimini. However, in 2003, it was then relocated to its original position, at the extremity of the Cardine Massimo of the old Roman city.

Outside the city walls (near Porta Montanara) is where Borgo Sant'Andrea (Borgo Mazzini) located, this district was once home to the Foro Boario and is now a beautiful neighborhood lined with beautiful green parks. The long road to Covignano also begins here and runs from the old town into the hills, offering splendid views of the Adriatic along the way.

#### City Gate 4- Porta Gervasona

The Porta Gervasona or Portello belonged to the **defensive system of the Malatesta Walls**, which flank it and surround the whole village of S. Giuliano and date back to the 15th century. It can be reached from the promenade that winds from the Ponte dei Mille to the small church entitled 'Madonna della Scala'. Continuing along via Madonna della Scala, the remains of the walls and towers with the passages still accessible.

#### **IV. The Current Status**

In recent years, this **dynamic city** has seen the completion of a participatory **urban regeneration plan** that has radically and permanently innovated the city. Rimini's city council has been investing and planning a lot of redevelopment activities for the riverside urban parks and even to rebuild the ancient wall or integrating them into the new functionality of space today. It helps not only to promote tourism but at the same time, to bring the **balance be-tween the old and new** memories that is still intact in the city.



Fig.39, Porta di Sant'Andrea, Rimini Turismo



Fig.40, Porta di Gervasona, Rimini Turismo

The presence of the tall building in a compact in-line urban fabric, reasons and relations with the urban fabric.

### ALIENS IN THE URBAN FABRIC OUTSIDE OF THE WALL / by Dai Wanping

#### I. The urban fabric outside the wall

Outside the historical center surrounded by city walls, which is another mark of history, connecting the new and the old urban fabric. The main streets of the ancient urban structure of Rome extend to the land beyond the city walls and become the main roads outside the historical center, the Cardo and decumanic. Among them, the main street of San Giovanni originates from the Flaminia and connects the city and Rome. The urban fabric of the city center is full of voids and arranged compactly. Even though the city wall separates the center from the periphery, the traditional urban fabric does not totally disappear and it continues with the buildings that grew along the central axis. The unique thing is that several buildings with completely different ratios of length, height and width that suddenly appear on the periphery is particularly eye-catching and the high-rise building is even ten meters away from the neighboring building. At the same time, the side of the tall building is exposing. Some buildings are even without any decoration and windows, which show a blank facade. Those independent huge buildings occupy the blocks and become the protagonist. Most of them seem to be abandoned by history and are out of place, and some of them are connected with the surrounding historical buildings to form a strong contrast. The skyline of the whole street is like jagged teeth. Why do buildings here take on a unique shape? They seem to be the last struggle in the process of urban transformation. Leaving this area to the south, the texture of the historic center is completely broken. People no longer gather in an apartment and share a courtyard. The density of buildings begins



Fig.41, The Historical Center and Outside, Wanping Dai (2021)

to decline. Instead, they choose to own their villas and build fences to divide their domain. There are more high-rise buildings by the sea, and the distance between the buildings is gradually widening.

It can be observed from the figure 2 that the fabric of the city center and its exterior has changed. The periphery area has become a transitional area connecting the historic center and the new fabric. Besides, the historical fabric and the geometric form of the sites make the urban fabric more complex nowadays. Places like San Giovanni and Mazzini have a more substantial historical mark, and all thanks to the preservation of the church and the historical urban fabric for centuries, it becomes its unshakable element.

#### II. The formation of the aliens

There were several attempts to trace the appearance of these **alien buildings**. From the 19th-century city plan, the main road leading to the waterfront marks its opening to the sea. Before that, around the historic center, the urban fabric of the old city continues. However, in 1912, Rimini began to focus on coastal planning, ushered in the most crucial turning point, and began to develop into the tourism industry, providing cost-effective villas and rental houses for the nobility and middle class. Also, due to the Second World War, some historical buildings were destroyed, which accelerated the construction of the urban image based on mass tourism(*Grazia Gobbi*, *Paolo Sica*, *1982*). Thus, the periphery historical center became a testimony of a turning point.

Figure 3 shows Rimini's plan in 1882. The coastal area was planned to be developed. The empty space was divided into a chessboard layout, since then, the city's development has moved in this direction. The substantial opening of the ancient city indicated on the map is towards the sea, with the establishment of the railway station. Above all, with the connecting axis to the bathing establishment, at a scale hitherto unknown to the intramural city. The same field depicted on the map, in which the ancient city is no



Fig.42, Changing of the Urban Fabric Along the Main Road, Wanping Dai (2021)

longer the center of gravity of the representation, clearly denounces the different involvement of the territory in the city's life. The new weight was assumed by the "Marina," albeit documented at the beginning of urbanization, but felt like a pole of convergence of new urban interests (*Grazia Gobbi, Paolo Sica, 1982*).

There is no way to judge from the vertical direction when these high-rise buildings appeared. However, it could be speculated that under this unsaturated expansion, the periphery of the historic center is transforming. The evolution of the city urgently needs more housing space and population to support Rimini's industry. This rapid demand has led people to seek more space outside the historic center. Coupled with the impact of post-disaster reconstruction factors, the target is locked in partially destroyed residential buildings. These buildings have been rebuilt and integrated with the characteristics of modern architecture, aiming to provide people with more economical housing. Therefore, the city we see today continues the old texture but with few appearances of high rising buildings. From the plans of those alien buildings today, it appears that they are of the same type as the neighboring buildings. However, Rimini divided the blank area with a checkerboard layout (Crapolicchio, 2021). Many villas in the remaining regions aim to provide the middle class with the private territory for vacation and leisure differences in the urban texture. These alien buildings are the energy supply in this process. The fabric of the historic center continues, but the height presents differently.

This phenomenon is considered as the degradation of traditional urban centers. For instance, since Rimini began to expand outward with the development model of the historical center, the buildings' plan remains the traditional Italian typologies: The ground floor is for shops, and the rest are for residences, sharing a public area as a transportation connection. A building usually comprises four households with one staircase, so the aspect ratio often does not deviate from the average. In the periphery of the historical center, the ground level has not



Fig.43, Plan in 1882, retrive from Gobbi, G., Sica, P. (1982), Redraw by Dai Wanping (2021) changed much. Still, there are usually more or fewer differences in building facade and heights, which is proof of the transitional phase of the historical center in the process of degradation. What's more, the degradation of the city is not only manifested in the characteristics of the building, it could cause a series of influences, reflected in the economy, culture, population, urban form, etc., and these factors, in turn, affect the city's construction. For example, with the expansion of the coast, the population is constantly migrating from the old historical center, leading to the disintegration of the social structure of the historical support, there has been a transformation for purely commercial purposes or a lack of precise positioning to solve the current dilemma. The characteristics of these alien buildings in Rimini reflect in the density and the facade (high buildings with blank walls).

#### III. About future

Interventions will be carried out at this node connecting the historic center. When the need to restore the historic center arise, following questions should be considered :

1. Since there are many blank walls in Rimini, to repair the defects in the urban texture, what intervention should be implemented to integrate these buildings into the urban texture better?

2. How to deal with environmental problems, streets, and courtyards?

3. How to re-attract people to the city center by intervening in the plot?

These issues play a crucial role in urban regeneration. In future interventions, Rimini aspires to take on a new look and provide people with a new development idea through the intervention of these aliens. Therefore, by studying the reasons for the emergence of these aliens buildings, can clear understand of the responsibilities on urban regeneration and tracing the roots. It aims to provide people with an ideal utopia and restore their cherished historic center.



Fig.44, Building Outside the Wall, Wanping Dai (2021)
Rimini, and urban regeneration. From the Regional Law n.20 of 24/03/2000 to the Regional Law n. 24 of 21/12/2017 to refer to Urban Planning Building Regulations currently in force, pending the future Piano Urbanistico **Generale PUG** 

Fig.45, Orthophoto map of Rimini, Google Earth Pro (2021)

### PANORAMA ON THE CURRENT RULES / by Alessia Portigliatti Pomeri

Urban regeneration must guarantee a valid usability of public spaces and affirm the environmental sustainability of the transformations. Historic centers fall within these contexts as they can be affected by particular and widespread forms of decay as well as abandoned areas. To promote and combine their urban and energy adaptation, a system of rules, incentives and agreements between public and private actors is necessary.

On urban and energy regeneration at national and regional level, work is still in progress and the regulations are partial and not yet organically defined.

### I. Regional Law of Emilia Romagna

With adoption of the Emilia Romagna Regional Urban Planning Law no. 20 of 24/3/2000, the government of the territory is profoundly innovated in content and forms, regulating the relations between territorial and local authorities on urban planning according to the principles of subsidiarity and cooperation between bodies, environmental and territorial sustainability, simplification of procedures and planning tools.

The Piano Regolatori Comunali are modified in their characteristics and procedures, separating their contents into three new general planning tools:

Piano Strutturali Comunali (PSC), Piano Operativi Comunali (POC) and Regolamenti Urbanistici Edilizi (RUE). The contents of the municipal planning remain unchanged, but are organized separately and structured with three different degrees of definition of the choices and contents of the planning: each of the three municipal urban planning tools will be a necessary condition to define a complete planning discipline and the integration of their contents will in fact constitute a "Piano Urbanistico Comunale" with rules and forecasts for the planning of the municipal territory.



### **II. General Planning Tools**

The RUE (Regolamento Urbanistico Edilizio) contains the related regulatory and regulatory aspects construction activity and health and hygiene aspects; it is configured as the union of the Building Regulations and a part of the Norme Tecniche di Attuazione of the past Regulatory Plans and regulates the interventions in the consolidated area and in the rural area.

The rules of the RUE apply to the entire municipal territory, are valid indefinitely and serve to clarify the urban planning and implementation terms of the PSC and the POC and the building terms and the typological and hygienic characteristics of direct building interventions. It brings together the municipal provisions relating to the urban and building profile: the Regulation is strictly connected to the provisions of the Structural Plan and in fact contains the discipline to carry out, through the authorization title alone, the transformation interventions permitted by the Structural Plan itself in the consolidated urban territory. And in the agricultural territory, interventions on heritage existing building, completion, maintenance and modernization interventions of technological systems and urbanization in existing production areas.

In the areas to be redeveloped, the interventions of new settlement, urban restructuring and environmental redevelopment are programmed by the POC (Piano Operativo Comunale), within the limits defined by the PSC (Piano Strutturale Comunale), which defines specific contents, methods and terms and implement upon approval of an Piano Urbanistico Attuativo extended to an entire sector defined by the POC, or to part of it as defined by the POC itself.



Fig.46, Sea park, Piazzale Kennedy, Alessia Portigliatti Pomeri (2021)



Fig.47, Piazza Cavour, Historical center, Alessia Portigliatti Pomeri (2021)

### **III. Analysis of RUE Categories**

From the Regional Law n° 24/2017 to the formation process of the Piano Urbanistico Generale (PUG)

Following an initial phase of experimentation of the Regional Law n. 20 of 24/3/2000, LR 6/2009 'Government and solidarity redevelopment of the territory' has made further changes aimed at defining criteria for streamlining and simplifying procedures with objectives of reducing land consumption, urban redevelopment, incentives for inter-municipal planning in particular strengthens the objective of redeveloping the existing building heritage (also providing for appropriate urban planning incentives) and the role of the Provincial Territorial Coordination Plan (PTCP) "by explicitly assigning it the task of establishing the conditions and limits on the consumption of non-urbanized land as well as the requirements of territorial sustainability and municipal urban planning forecasts which entail significant effects that go beyond the administrative boundaries of each entity ".

LR 20/2000 and the subsequent LR 6/2009 were an opportunity to identify and evaluate "good practices" of transformation of the territory, unfortunately, perhaps traditional planning prevailed over the culture of urban design and the assessment of the sustainability of building transformations for the recovery of urban spaces.

With art. 7 ter added by art. 16 of the L.R. 6 July 2009 n. 6, later integrated with the addition of paragraphs 3 bis and 3 ter by art. 30 of the L.R. 18 July 2014 n. 17, the ways in which urban planning can pursue the objective of promoting the qualification and functional recovery of the heritage are identified existing building, in compliance with the regulations relating to buildings of historical-architectural, cultural and testimonial value and in line with the historical, landscape, environmental and urban characteristics of the areas where such buildings are located.

The law provides that urban planning establishes "volumetric incentives for:

**A.** promote urban redevelopment, also through building interventions that qualify urban fabrics and, at the same time, discourage settlement spread and land consumption;

**B.** achieve a significant improvement in the energy efficiency of buildings, with the full application of the energy performance requirements of buildings and energy systems;

**C.** incentivize the implementation of seismic adaptation or improvement interventions, in application of the technical regulations for constructions;

**D.** promote the elimination of architectural barriers;

**E.** ensure compliance with the health and hygiene requirements of the inhabited areas and living and working rooms, as well as the requirements relating to plant safety, fire prevention and construction site safety;

**F.** carry out the simplification and speed of the authorization procedures, while ensuring that the necessary checks are carried out on projects and works in progress of work and on those made ".

This article is very interesting as it provides not only for the possibility of recognizing surface incentives outside the dimension of the Plan, but also exceptions to the distances provided for by Ministerial Decree 1444/1968. Any volumetric incentives recognized for the intervention can be realized with the raising of the original building, also notwithstanding Articles 7, 8 and 9 of Ministerial Decree no. 1444 of 1968, as well as with out-of-shape expansion of the original building where the minimum distances between buildings or those from pre-existing buildings in front, if smaller, are still respected.

Finally, it is specified, with paragraph 3, that these provisions "prevail over the various forecasts on building density, on the height of buildings and on the distances between buildings provided for by the municipal urban planning tools".

There are also some subsequent changes that were made to Regional Law 20/2000 by Regional Law 15/2013 in favor of a shared and integrated vision of the building regulations and respect for environmental constraints deriving from superordinate planning: for example, changes have been introduced to the Article 19 (Carta unica del territorio) of Regional Law 20/2000 with the introduction of Article 3-bis (and subsequent ones) which states that "in order to ensure the certainty of the urban and territorial regulations in force and of the constraints on the territory and, consequently, simplify the presentation and control of building permits and any other activity to verify the compliance of the planned transformation interventions, the Municipalities equip themselves with a specific cognitive tool, called "Table of constraints", in which all the constraints and prescriptions that preclude, limit or condition the use or transformation of the territory, deriving further that by the urban planning tools in force, by the laws, by the superordinate, general or sectoral plans, or by the administrative acts of affixing protection restrictions. This deed is accompanied by a specific document, called "Form of constraints", which reports for each constraint or prescription, a summary indication of its content and the deed from which it derives. "

On 1 January 2018, Regional Law no. 24 of 21 December 2017 entitled "Regional discipline on the protection and use of the territory", becomes the new urban planning law of Emilia-Romagna. It sees among its main objectives the reduction of urban planning forecasts and the introduction of the principle of land use with zero balance, new devices for urban regeneration and the redevelopment of buildings, the protection of the territory and respect for legality.

In particular, the regulation of land consumption provided for in the law, which establishes a ceiling on new settlement expansions, is set at an additional 3% compared to the current urbanization and to be saturated until 2050. It provides for the PUG (Piano Urbanistico Generale) Single Municipal Plan which replaces PSC RUE and POC. The Piano Urbanistico Comunale has the obligation to devote all the attention, choices and tools to the existing settlement system, to the rapidly evolving demographic and social structure, to the morphology and environment of the built city, and to the vast and complex scope of the portions of territory "compromised" by urbanization, to be completely rethought and redesigned. The new characteristics and requirements thus become those of resilience, that is, the ability of the urban organism to adapt to environmental and social challenges and also to react positively to traumatic emergencies; the study of urban metabolism, aimed at creating or strengthening virtuous circuits in the use of resources and in the growth of well-being (circular economy); of the transformability of urban fabrics, to make them participate in a new design in which the social dimension of public and private spaces represents the guideline for generating a condition of quality of life and sustainability of choices.

The formation of a Piano Urbanistico Generale is still in progress, therefore reference is made to the regulatory instrument in force. Below is an excerpt of the rules of the Rue concerning the area of the historic center. Articles 48, 49 and 50 regulate possible interventions on buildings located in the historic center. Below are the articles present in the RUE that regulate the historic center.

### TITOLO II – CLASSIFICAZIONE AMBITI E DISCIPLINA INTERVENTI EDILIZI DIRETTI

### CAPO 9 – CITTA' STORICA ED EDIFICI TUTELATI ESTERNI

Art. 48 - Disposizioni generali

1. Le disposizioni del presente Capo disciplinano gli interventi ammissibili nella Città Storica (ambito ACS), nonché quelli effettuabili sugli edifici soggetti a tutela in quanto riconosciuti di interesse storico architettonico o di pregio storico-culturale e testimoniale, collocati in altri ambiti del territorio comunale.

2. Per gli edifici soggetti a tutela esterni alla Città Storica, le disposizioni riguardanti la categoria d'intervento del presente Capo prevalgono su quelle dell'ambito specifico in cui ricadono.

 Costituisce la Città Storica la porzione di territorio individuata dal PSC ai sensi dell'art. A-7, comma 1, della L.R. 20/2000 s.m.i..
 Le norme del presente Capo, in relazione al controllo qualitativo degli interventi sugli edifici e sugli spazi esterni, vanno integrate con le disposizioni dei successivi Capi 16 e 17, nonché con le prescrizioni di cui all'art. 9 comma 3 in relazione alla SP.

5. La disciplina particolareggiata riguardante la Città Storica è costituita:

• dalla Tav. 2-3 del RUE: "Città Storica: categorie di tutela e unità di intervento. Funzioni pubbliche e

di interesse pubblico";

• dalle norme del RUE;

• dalle Tavole dei Vincoli e dalle Schede allegate;

6. Le prescrizioni previste nei successivi articoli, si integrano con le modalità di intervento di cui al precedente Capo 4 richiamate in ogni categoria di tutela, ed in caso di contrasto prevalgono su di esse.

7. Qualora la rappresentazione planimetrica di un edificio non corrisponda a quella reale, dovrà essere applicata ugualmente la categoria di intervento indicata in cartografia.

Qualora nella particella catastale sussista unicamente un edificio non classificato, dovranno applicarsi le modalità MO, MS, RRC. 8. Nell'ambito della zona omogenea A gli interventi di RE seguono la disciplina del D.P.R. 38=710 s.m.i..

Nel suddetto ambito, in conformità all'art. 5.1, punto 8 del PSC, laddove consentita la modalità RE per gli edifici di categoria C1, C2 e D, non sottoposti a tutela di cui al D.Lgs. 42/2004 s.m.i., è consentita la demolizione e ricostruzione, qualificata RE, senza incrementare la sagoma planovolumetrica del fabbricato esistente, entro il limite del sedime originario con modifica dei prospetti e delle sue caratteristiche planivolumetriche e tipologiche. Negli edifici tutelati sparsi, laddove consentita la modalità RE per gli edifici di categoria C1 e C2, non sottoposti a tutela di cui al D.Lgs. 42/2004 s.m.i., è prescritto il mantenimento della sagoma e del sedime esistenti, fatta salva la sola deroga al sedime ai sensi dell'art. 8 comma 5.

Per gli edifici di categoria C2 inoltre, la ricostruzione delle porzioni mancanti dovrà rispettare quanto indicato al successivo art. 49. 9. Fatte salve le possibilità di ricostruzione, da valutarsi secondo i casi per i fabbricati individuati nelle unità di intervento speciali di cui all'art. 5.1 comma 13 del PSC con la categoria A e C2, nonché gli interventi ricostruttivi concessi dal precedente art.8 comma 4, con RE è inoltre ammessa la possibilità di ricostruzione del volume di edifici parzialmente crollati precedentemente alla data del 29/03/2011, ai sensi dell'Allegato all'art. 9, lettera f), della L.R. 15/2013 s.m.i., a condizione che l'intervento sia esteso e sottoscritto a tutti gli aventi titolo dell'intera UMI di appartenenza.

10. Per i corpi accessori individuati in cartografia con apposita simbologia, è consentito l'intervento RE nel rispetto delle seguenti condizioni:

• mantenimento della SU e/o della SA preesistenti;

• H max: ml. 2,50;

• distanze tra pareti finestrate: almeno ml. 3,00;

• distanze da strade e spazi pubblici: almeno ml. 3,00;

• distanze dai confini di proprietà: Codice Civile.

11. La tutela delle aperture esterne prevista nei successivi articoli non riguarda i lucernai posti sulle falde di copertura, per i quali si rimanda alle prescrizioni dei successivi artt. 91 e 122 secondo i casi. 12. Nei fabbricati esistenti a destinazione residenziale per almeno il 51% di SC, fermo restando le possibilità di deroga ai sensi dell'art. 7.5 del D.M. 236/1989 s.m.i., è consentita l'installazione di ascensori/piattaforme elevatrici interni, nel rispetto dell'art. 8.1.12 e 8.1.13 del citato D.M., contestualmente alla riduzione delle rampe scale esistenti, a condizione che la larghezza di tali rampe

non sia inferiore a cm. 80 e che l'intervento complessivo non comporti la demolizione (anche parziale) del fabbricato. In caso di dimostrata impossibilità strutturale, l'ascensore potrà essere installato anche con dimensioni inferiori a quanto previsto dai menzionati art. 8.1.12 e 8.1.13.

Nei fabbricati di categoria A e B non è ammessa la riduzione delle rampe scale esistenti.

13. Nel territorio urbanizzato, oltre all'applicabilità dell'art. 9 L. 122/1989, compatibilmente con i criteri di tutela riportati nel presente Capo e per le destinazioni non residenziali, è consentita la realizzazione di un solo piano interrato ad uso parcheggi P3, anche parzialmente o totalmente fuori sedime, indipendentemente dalla categoria di tutela prevista, solo contestualmente ad interventi di tipo conservativo.

Alla fine dei lavori dovrà essere prodotto atto trascritto di asservimento all'uso a garage. Tali interventi sono soggetti a Permesso di Costruire.

14. In tutte le categorie di tutela è ammessa la realizzazione di soppalchi anche con aumento di C.U..

15. La coibentazione delle facciate esterne degli edifici ricadenti nella Città Storica (ambito ACS), nonché in quelli tutelati esterni, è consentita solo sugli edifici ricadenti nelle categorie di tutela C e D, per le quali è consentita la modalità di intervento RE alle seguenti prescrizioni:

• negli edifici ricadenti nella Città Storica non sarà consentito installare la coibentazione sulle facciate

poste a confine con gli spazi pubblici e su quelle che determinano una cortina edilizia continua;

• negli edifici esterni alla Città Storica non sarà consentito installare la coibentazione sulle facciate,

poste a confine con gli spazi pubblici, che determinano una cortina edilizia continua.

Art. 49 - Categorie di tutela

1. I tipi di intervento definiti al precedente Capo 4 da integrarsi con le DTA di cui all'art. 9 bis, sono applicabili nel rispetto delle finalità e delle modalità di intervento indicate per ciascuna categoria e sottocategoria di tutela. Gli interventi che non rispettino le prescrizioni di conservazione o il ripristino

degli elementi di cui all'art. 49 comma 3 lett e) e comma 4 lett e), saranno sottoposti alla valutazione della CQAP anche con richiesta preventiva.

2. Categoria A (ovvero "restauro scientifico"): comprende le unità edilizie che hanno assunto rilevante importanza nel contesto urbano territoriale per specifici pregi o caratteri architettonici o artistici. Gli interventi su tali unità edilizie sono da qualificarsi come operazioni storico-critiche, condotte con metodo scientifico, nel rispetto degli elementi tipologici, formali e strutturali, e sono dirette alla conservazione e alla valorizzazione dell'unità edilizia, rendendone possibile un uso adeguato alle intrinseche caratteristiche.

All'interno di tale categoria sono comprese anche ville o palazzi storici con parco; per tali complessi la documentazione storica e l'analisi storico-critica dovrà essere effettuata non solo per le costruzioni ma anche per il parco e l'assetto vegetazionale.

Nel rispetto di quanto disciplinato dal successivo Capo 17 sono ammessi i seguenti interventi: RS, così come definito dal punto c) dell'Allegato all'art. 9 della L.R. 15/2013 s.m.i., da integrarsi con le DTA di cui all'art. 9 bis.

Gli interventi edilizi di RS, nel rispetto della ricostruzione filologica dell'intero fabbricato e/o unità immobiliare, devono mantenere invariato la dimensione e posizione delle aperture esterne, comprese le aperture di logge e portici; inoltre è consentito il ripristino delle aperture originarie e/o l'eliminazione di quelle incongrue, nonché, nei fronti non prospicienti gli spazi pubblici, la creazione di nuove aperture

o l'adeguamento di quelle esistenti per esigenze igienico-sanitarie e di accessibilità, purché non venga alterata l'unitarietà del prospetto e degli elementi di composizione architettonica. Per gli interventi riguardanti le facciate esterne, il rilievo ed il progetto dovranno essere estesi all'intera facciata interessata. 3. Categoria B: comprende le unità edilizie di interesse storico architettonico o di pregio storico culturale e testimoniale non già ricomprese nella categoria A, che hanno complessivamente o prevalentemente conservato i caratteri tipologici, strutturali e morfologici originari.

Gli interventi edilizi devono avere le finalità sotto riportate.

a) Valorizzazione degli aspetti architettonici originali, mediante:
il restauro finalizzato al recupero degli elementi significativi dei fronti; è prescritto inoltre il mantenimento delle aperture esistenti ed è comunque consentito il ripristino delle aperture originarie e/ o l'eliminazione di quelle incongrue, nonché, nei fronti non prospicienti gli spazi pubblici, la creazione di nuove aperture o l'adeguamento di quelle esistenti per esigenze igienico-sanitarie e di accessibilità, purché non venga alterata l'unitarietà del prospetto e degli elementi di composizione architettonica;

• il restauro ed il ripristino degli ambienti interni qualora sussistano elementi di documentata importanza.

b) Il consolidamento strutturale ai fini del miglioramento/adeguamento sismico, con eventuale sostituzione delle parti non recuperabili, senza modificare la posizione dei seguenti elementi: murature portanti sia interne che esterne, solai, volte, scale principali originarie, tetto con ripristino del manto di copertura;

c) Obbligo di demolizione delle superfetazioni qualora l'intervento sul fabbricato principale ecceda le opere di MS;

d) L'inserimento degli impianti tecnologici e igienico-sanitari essenziali nel rispetto dei criteri di cui ai commi precedenti;

e) La conservazione o il ripristino di elementi morfologici e di finitura congruenti con la tipologia originaria (colori, infissi e chiusure, rivestimenti, manto di copertura, comignoli, elementi decorativi, ecc.).

Nel rispetto di quanto disciplinato dal successivo Capo 17, da integrarsi con le condizioni di cui sopra,

sono ammessi i seguenti interventi: MO, MS, RRC.

4. Categoria C - Unità edilizie storiche parzialmente alterate e recuperabili

Sottocategoria C1: comprende le unità edilizie di pregio storico culturale o testimoniale in mediocre o cattivo stato di conservazione ovvero parzialmente alterate rispetto all'impianto e ai caratteri morfologici originari, che possono tuttavia essere recuperate come parte integrante del patrimonio edilizio storico.

Per gli edifici assoggettati a vincolo di cui al D.Lgs. 42/2004 s.m.i. e/o a RRC nelle Tavole dei Vincoli e Schede allegate, gli interventi edilizi, devono avere le finalità sotto riportate.

a) Valorizzazione degli aspetti architettonici mediante:

• il restauro finalizzato al recupero degli elementi significativi dei fronti o la loro modifica con caratteristiche coeve all'epoca dell'edificio; verso gli spazi pubblici è prescritto inoltre il mantenimento delle aperture esistenti; nei fronti non prospicienti gli spazi pubblici, è ammissibile la creazione di nuove aperture o l'adeguamento di quelle esistenti per esigenze igienico-sanitarie e di accessibilità, purché non venga alterata l'unitarietà del prospetto e degli elementi di composizione architettonica;

• la conservazione o ripristino degli ambienti interni qualora sussistano elementi di documentata importanza; sono consentiti adeguamenti delle altezze interne degli ambienti, con mantenimento delle quote delle finestre e della linea di gronda, fermo restando la conservazione in sito di eventuali solai voltati.

b) Il consolidamento strutturale ai fini del miglioramento/adeguamento sismico, esteso a larghe parti

dell'edificio.

c) Obbligo di demolizione delle superfetazioni, per i soli fabbricati esclusi dalla modalità RE, qualora l'intervento sul fabbricato principale ecceda le opere di MS.

d) L'inserimento degli impianti tecnologici ed igienico-sanitari essenziali nel rispetto dei criteri di cui ai commi precedenti.

e) La conservazione o il ripristino di elementi morfologici e di finitura congruenti con la tipologia originaria (colori, infissi e chiusure, rivestimenti, manto di copertura, comignoli, elementi decorativi, ecc.).

Nel rispetto di quanto disciplinato dal successivo Capo 17 da integrarsi con le condizioni di cui sopra sono ammessi i seguenti interventi: MO, MS, RRC.

Per gli edifici non assoggettati a vincolo di cui al D.Lgs. 42/2004 s.m.i. e/o a RRC nelle Tavole dei Vincoli e Schede allegate denominate Vin 2.1 a), Vin 2.1 b) e Vin 2.1 c), è inoltre ammesso l'intervento RE con i limiti di cui all'art. 48 comma 8. Sottocategoria C2: riguarda le unità edilizie fatiscenti, totalmente o parzialmente demolite o fortemente alterate, di cui sia possibile reperire adeguata documentazione della loro organizzazione tipologica originaria.

Gli interventi edilizi devono avere la finalità di ripristinare, a seconda del contesto, l'omogeneità e continuità del tessuto edilizio storico o la compiutezza del complesso storico-architettonico di cui

l'edificio faceva parte, ovvero l'assetto paesaggistico, attraverso una riedificazione congruente con i caratteri tipologici e morfologici originari.

Nel rispetto di quanto disciplinato dal successivo Capo 17 da integrarsi con le condizioni di cui sopra sono ammessi i seguenti interventi: MO, MS, RRC, RE.

Sottocategoria C3: comprende le unità fondiarie e gli spazi pubblici storicamente non edificati, che testimoniano l'assetto storico dell'insediamento e la sua evoluzione, da conservare o ripristinare. Comprende inoltre le aree nelle quali è prescritto il recupero e la valorizzazione delle risorse storico archeologiche.

Gli interventi devono avere la finalità di valorizzare gli spazi e i manufatti diversi che li arredano, di demolire gli eventuali edifici ovvero manufatti incongrui esistenti e realizzare opere capaci di concorrere alla riorganizzazione funzionale e formale delle aree e degli spazi liberi. L'intervento può comprendere la realizzazione di: costruzioni interrate; manufatti di servizio urbano o di arredo urbano (fontane, fioriere, lapidi, panchine, contenitori rifiuti, pavimentazioni, ecc.); infrastrutture tecnologiche a rete.

Negli spazi pubblici e nei percorsi non edificati di interesse storico si applicano le norme generali relative alla conservazione, recupero e valorizzazione degli spazi urbani storici di cui al successivo Capo 17.

Nel rispetto di quanto disciplinato dal medesimo Capo sono ammessi i seguenti interventi: RAL. 5. Categoria D - Unità edilizie fortemente trasformate o moderne nella città storica

Sottocategoria D1: riguarda le unità edilizie della città storica che, pur non presentando caratteristiche di pregio storico-architettonico, o essendo costruzioni e ricostruzioni moderne, sono tuttavia compatibili e congruenti con l'impianto urbanistico e con i caratteri morfologici del tessuto storico, e sono quindi da consolidare nel loro rapporto con il contesto.

Nel rispetto di quanto disciplinato dal successivo Capo 17 sono ammessi i seguenti interventi: MO, MS, RRC, RE.

Sottocategoria D2: riguarda unità edilizie, di epoca recente, la cui costruzione ha modificato l'impianto del tessuto storico in modo irreversibile, introducendovi un assetto planivolumetrico difforme, e che tuttavia sono da considerarsi consolidate nel loro assetto odierno.

Nel rispetto di quanto disciplinato dal successivo Capo 17 sono ammessi i seguenti interventi: MO, MS, RRC, RE.

Sottocategoria D3: riguarda immobili di norma di epoca recente, con caratteristiche planivolumetriche, tipologiche o morfologiche scarsamente compatibili o dequalificanti rispetto al contesto del centro storico, o la cui permanenza nelle forme attuali non consente la valorizzazione degli elementi di pregio storico-architettonico o testimoniale del contesto.

Nel rispetto di quanto disciplinato dal successivo Capo 17 sono ammessi i seguenti interventi: MO, MS, RRC, RE, DR a parità di volume e H max preesistente.

Sottocategoria D4: riguarda corpi di fabbrica o manufatti incongrui, di norma di epoca recente, la cui permanenza impedisce la valorizzazione di risorse storiche o archeologiche primarie.

Nel rispetto di quanto disciplinato dal successivo Capo 17 sono ammessi i seguenti interventi: MO, MS, demolizione.

6. Unità di intervento speciali attuabili tramite POC. Le unità di intervento speciali individuate nella tavola 2 del RUE con numeri progressivi riguardano immobili o complessi di immobili per i quali il PSC auspica una organica riprogettazione per perseguire la messa in valore di risorse storiche o archeologiche presenti, ovvero recuperare situazioni di disordine edilizio, anche attraverso interventi di ristrutturazione urbanistica di cui alla L.R. 15/2013 s.m.i., con la riconfigurazione o la demolizione di corpi edilizi di epoca recente che hanno modificato e degradato l'impianto storico, e la ridefinizione di un nuovo assetto degli spazi aperti.

Nelle more della previsione del POC, secondo gli obiettivi definiti dal PSC, sui singoli edifici esistenti, sono ammissibili i tipi di intervento secondo la categoria di tutela attribuita a ciascuno di essi nella tavola 2.

Sugli edifici esistenti classificati D2, ritenendo la loro riqualificazione un intervento di interesse pubblico, oltre alle modalità previste al precedente comma 5, è ammessa la sostituzione urbana attuabile con intervento di DR a parità di volume e H max preesistente, subordinata al rilascio di PdCC.

6 bis. Per la UMI 13 denominata "Resti del Convento di S.Francesco e Mercato Coperto", per la sola porzione del Mercato Coperto, fatto salvo il vincolo di cui al D.Lgs. 42/2004 e smi presente

sull'immobile, valgono le seguenti disposizioni:

• l'intervento di recupero dell'edificio può essere eseguito tramite

RE o DR a parità di volume;

• H max quella preesistente;

• D1= 5 ,00 ml;

• mantenimento degli allineamenti esistenti su Via Michele Rosa; sono ammissibili eventuali modifiche rispetto al profilo del fabbricato esistente prospiciente Via Castelfidardo finalizzate alla creazione di aree e spazi pubblici;

• tipi d'uso ammissibili: centro commerciale di vicinato costituito dagli spazi adibiti all'uso mercato pubblico, unità ad uso b1.1 e una sola unità ad uso b1.2.a.

Le dotazioni standard pubblico, ai sensi dell'art. 5.1.2 lettera c) della D.C.R. 1253/1999 s.m.i., non sono dovute; le dotazioni di parcheggio pertinenziali sono dovute e monetizzabili con i criteri di riduzione previsti dalla D.C.C. 208/2011 per la sola funzione b1.2.a, ai sensi dell'art. 5.2.5 lettera b) della D.C.R. 1253/1999 s.m.i, mentre non sono dovute per le restanti porzioni di fabbricato. 7. Le specifiche descritte per gli interventi edilizi di RS e RRC riportate nei precedenti commi 2 e 3 non risultano prescrittive per gli edifici vincolati ai sensi dell'art. 10 comma 3 del D.Lgs. 42/2004 s.m.i., in quanto, ai sensi dell'art. 2.14 del PSC, il rilascio dell'autorizzazione della competente Soprintendenza è ritenuta integrativa della categoria d'intervento assegnata all'edificio riportata nella tavola 2-3 di RUE.

Le modalità di intervento dovranno comunque rispettare le disposizioni contenute nell'art. 3 comma 1 lettera c) del D.P.R. 380/2001 s.m.i. e quelle alle lettere c) e d) dell'allegato all'art. 9 comma 1 della L.R. 15/2013 s.m.i..

Art. 50 - Tipi d'uso ammessi e condizioni

1. Tipi d'uso ammessi: a1, a2, b1.1, b1.2, b3.1, b3.2, b4, b6, c1, c2, c3, c4, c5, c6, c7, e1, e2 (per i soli ostelli).

Gli edifici con uso in essere "e1" non possono mutare destinazione, salvo che attraverso interventi programmati nel POC.

È esclusa l'apertura di nuovi sportelli bancari; è sempre ammesso l'ampliamento degli sportelli bancari esistenti ai piano superiori al piano terra.

Sugli edifici individuati con apposito grafismo nella Tavola 2-3, corrispondenti al Polo Funzionale Universitario, indicato all'art. 5.6 del PSC, sono ammesse tutte le destinazioni d'uso coerenti e complementari con la funzione principale universitaria, quali ad esempio: attività culturali, formative, ricreative, sportive, convitti, studentati, collegi, seminari, mense.

2. Nella Città Storica, le unità immobiliari poste al piano terreno in affaccio alle strade individuate come strade commerciali nella Tav. 2-3 del RUE che abbiano destinazione d'uso in atto b1.1, b1.2, b4, sono ammesse variazioni esclusivamente fra questi tipi d'uso.

3. Nella Città Storica, i locali posti al piano seminterrato o interrato, qualora rispettino i requisiti igienico sanitari e di sicurezza, possono anche essere utilizzati come estensione di attività commerciali, artigianali, studi professionali e pubblici esercizi poste ai piano soprastanti.

4. Negli edifici tutelati esterni alla Città Storica, le destinazioni d'uso consentite sono quelle ammesse nell'ambito in cui l'edificio ricade, ai sensi del presente Titolo II.

With reference to the articles that regulate historic centers, we can also refer to CHAPTER 17 and CHAPTER 23..

The rules of Chapter 17 are specific for all buildings falling within the historic city and for all buildings falling within the remaining territory recognized as having historical-architectural value by the PSC or recognized as having historical-architectural and testimonial value by the RUE.

Art. 101 - Disposizioni generali Art. 102 - Materiali ed elementi costruttivi Art. 103 - Strutture portanti orizzontali Art. 104 – Coperture Art. 105 - Elementi decorativi e facciate Art. 106 - Infissi esterni Art. 107 - Manufatti tecnologici Art. 108 – Recinzioni

The rules of Chapter 23 are made up of several articles, the one that interests us standard photovoltaic systems.

Art. 126 - Localizzazione degli impianti fotovoltaici

Another reference to consider is Article 6 bis in CHAPTER 1 which deals with energy redevelopment and improvement of the energy performance of buildings subject to building intervention.

### CAPO 1 – DISPOSIZIONI GENERALI

Art. 6 bis - Interventi di qualificazione e sostenibilità

1. Al fine di migliorare le prestazioni energetiche degli edifici oggetto di intervento edilizio è necessario garantire il rispetto dei requisiti minimi di prestazione energetica, in funzione della tipologia d'intervento, in conformità alla D.G.R. 967/2015 s.m.i. e alla D.G.R. 1383/2020 s.m.i..

2. Per interventi volti ad incrementare i valori minimi obbligatori definiti al comma 1, in applicazione del 2 comma, lettera b) dell'art. 7 ter della L.R. 20/2000 s.m.i., il RUE definisce nel Titolo II, gli incrementi di volume e superficie in funzione del tipo d'intervento secondo disciplina d'ambito.

Ulteriori incentivi in termini di volume e superficie sono concessi nel Titolo II per interventi finalizzati al complessivo perseguimento degli obiettivi di interesse pubblico ai sensi del 2 comma, lettere c), d), e) dell'art. 7 ter della L.R. 20/2000 s.m.i. .

Sono ammissibili, con l'obiettivo di favorire la qualificazione e il recupero funzionale del patrimonio edilizio esistente, le seguenti modalità di intervento:

- RE di demolizione e ricostruzione totale comprensiva dell'incentivo volumetrico, con deroghe alle

distanze D1, D2 e D3 in conformità alle condizioni di cui all'art. 2bis del D.P.R. 380/2001 s.m.i. e all'art. 10ter della L.R. 15/2013 s.m.i., nonché alle altezze ed alla SC secondo disciplina d'ambito;

- RE conservativa e contestuale intervento di AM con deroghe alle distanze D1 e D2, nonché alle altezze ed alla SC secondo disciplina d'ambito;

- DR con deroghe alle distanze D1, D2 e D3 in conformità alle condizioni di cui art. 2bis del D.P.R. 380/2001 s.m.i. e all'art. 10ter della L.R. 15/2013 s.m.i, nonché alle altezze ed alla SC secondo disciplina d'ambito.

Tali incentivi, come disciplinati nel Titolo II, sono a loro volta alternativi e non cumulabili con quelli concessi in applicazione dei commi 3 e 4 seguenti. 3. Per favorire interventi ecosostenibili e biocompatibili, inoltre, il "Regolamento delle misure volontarie di bioedilizia", come specificato dalle successive circolari applicative, prevede incentivi calibrati in base alla qualità progettuale. Tali incentivi, come indicato nel Titolo II, sono a loro volta alternativi e non

cumulabili con quelli concessi in applicazione del comma precedente e seguente.

4. Il medesimo Titolo II stabilisce forme diverse di incentivazione e deroghe ai sensi dell'art. 5, comma 3 della citata D.G.R. 1383/2020 s.m.i., da considerarsi alternative e non cumulabili con quanto previsto dai commi precedenti.

4 bis. Nel territorio urbanizzato e per i fabbricati con destinazione residenziale, con intervento RE conservativa è consentita la contestuale realizzazione di interrati ad uso parcheggio, nei limiti e alle condizioni di cui all'art. 9 della L. 122/1989 s.m.i..

Nel territorio urbanizzato negli interventi comportanti l'integrale demolizione e ricostruzione di fabbricati con destinazioni compatibili, è ammissibile l'incentivo volumetrico per la realizzazione di interrati ad uso parcheggio nei limiti e alle condizioni di cui all'art. 2 della L. 122/1989 s.m.i. e nelle

quantità prescritte al successivo art. 40, comma 1; tale incentivo, nelle more della formazione del P.U.G., ai sensi dell'art. 7 comma 4 lettere a) e b) della L.R. 24/2017 s.m.i. e allo scopo di promuovere l'attivazione dei processi di rigenerazione urbana, è cumulabile con quelli concessi in applicazione dei commi precedenti.

Lo stesso incentivo volumetrico è applicabile, con le modalità di intervento di RE ricostruttiva, nell'ambito del Centro Storico e sugli edifici tutelati sparsi in territorio urbanizzato.

5. In merito all'applicazione delle norme in materia di bioedilizia valgono le seguenti prescrizioni:

• i P.P. approvati e convenzionati in data precedente all'adozione del RUE, o durante il periodo di

salvaguardia, sono regolati dalle NTA dei rispettivi piano che hanno ancora come riferimento il P.R.G. previgente (parametri edilizi ed urbanistici compresi), in tal caso non sarà necessario

procedere ad una verifica delle dotazioni di standard urbanistici assentiti;

• i P.U.A. approvati e convenzionati in fase transitoria, in attesa del primo POC, potranno beneficiare degli incentivi edilizi previsti dal comma 2 dell'art. 1.3 del "Regolamento delle misure volontarie di bioedilizia", incrementando le quote di dotazioni di standard proporzionalmente alle maggiori quantità di superfici realizzate



Fig.48, Cavour district view, Google Earth Pro (2021)



SISTEMA TERRITORIALE Inquadramento storico archeologico Indice di spessore stratigrafico su quota romana Tavola C.1.3 Approvazione con delibera di C.C.n.15 del 15/03/2016



SISTEMA TERRITORIALE Carta dei vincoli Carta dei vincoli ministeriali Tavola C.1.5 Approvazione con delibera di C.C.n.15 del 15/03/2016



PIANO STRUTTURALE COMUNALE Strategie di qualificazione del territorio Tavola PSC.2 Approvazione con delibera di C.C.n.15 del 15/03/2016



PIANO STRUTTURALE COMUNALE Schema di assetto della mobilità e ambiti normativi Tavola PSC.3 Stesura dicembre 2019



SISTEMA TERRITORIALE Analisi evolutiva del centro storico Tavola C.1.1.1 Approvata con delibera di C.C n. 15 del 15/03/2016



SISTEMA TERRITORIALE Carta delle tipologie edilizie del centro storico Tavola C.1.1.2 Approvata con delibera di C.C n. 15 del 15/03/2016



SISTEMA TERRITORIALE Carta della tutela monumentale Tavola C.1.1.4 stesura novembre 2019



Città Storica: categorie di tutela e unità di intervento. Funzioni pubbliche e di interesse pubblico. Tavola RUE.2-3 stesura dicembre 2019

# 02 ICONO-GRAPHIC

**APPARATUS** 

## THE TRANSITIONAL FORM OF RIMINI

This chapter showcases different maps of Rimini, ranging from the years of 1800-1990. The analysis of maps are carried out to focus mainly on the changes of city from different times, ranging from road system, city walls, and zoning.



Fig.49, Historical Map 1811, Gobbi, G., Sica, P. (1982)



Fig.50, Analysis of Transitional form of Rimini Historical Map 1811, Hongye Wu (2021)



Fig.51, Historical Map 1912, Gobbi, G., Sica, P. (1982)



Fig.52, Analysis of Transitional form of Rimini Historical Map 1912, Wanping Dai (2021)



Fig.53, Historical Map 1975, Municipality of Rimini



Fig.54, Analysis of Transitional form of Rimini Historical Map 1975, Liqiuzi Guo (2021)



Fig.55, Historical Map 1990, Municipality of Rimini, Prof. Arch. Leonardo Benevolo



Fig.56, Analysis of Transitional form of Rimini Historical Map 1990, Wen Yee Tan (2021)

## THE ATLAS OF PICTURES OF RIMINI

This chapter is consists of a series of pictures taken on site Cavour, Tiberio, Mazzini, San Giovanni to showcase the atmosphere, street and urban life, and architecture of Rimini.

### CAVOUR/ by Hongye Wu



### CAVOUR/ by Hongye Wu



CAVOUR/ by Alessia Protigliatti Pomeri













CAVOUR/ by Alessia Protigliatti Pomeri

















### CAVOUR/ by Hongye Wu































### MAZZINI / by Hongye Wu



Fig. 41. Mazzini, Rmini, Hongye Wu (2021)








### MAZZINI / by Hongye Wu



### MAZZINI / by Hongye Wu





















### MAZZINI / by Hongye Wu



### SAN GIOVANNI/ by Wanping Dai



SAN GIOVANNI/ by Wanping Dai































### SAN GIOVANNI/ by Wanping Dai



### PART.2

TRANSITIONAL MORPHOLOGIES IN THE ITAL-IAN CONTEMPO-RARY CITY. THE CASE OF RIMINI SAN GIOVANNI

PART.2

# 01 INTRO-DUCTION

**ESSAY & LITERATURE REVIEW** 

### AIR-RIGHTS AND THE QUESTION OF PROPERTY

This chapter showcases the literature review and critical essay related to the definition and application of Air-Rights, and discuss the implementability in Rimini. What is Air-Rights? The form of Air-Rights in the city. The relationship between Air-Rights and Rimini

### I. Introduction

The growth of the contemporary city has triggered a series of urban phenomena. Over time, some buildings become detached from the city's historical context, showing differences in height and causing blank facades. Perhaps it is due to the uneven distribution of population, which leads to different building densities, or the different financial situation of each household, with higher building owners having a better economic situation and therefore having a higher building density. No matter how these buildings appear, the city as a whole presents itself in an unsaturated state, with unused spaces and empty walls between two adjacent buildings. Hence there is an attempt to intervene in these buildings through the process of urban regeneration. However, it is known that the space above residential buildings is private property, sacred and inviolable in urban law. How to deal with this space separated from its historic urban context is a problem that needs to be addressed. Here the approach of Air-Rights is used as a medium to develop the project in the city of Rimini through design strategies.

The main problem has to be solved in the San Giovanni area: Suppose there are two buildings a, b, a is 6 meters high, and b is 18 meters high. The blank walls caused by the height difference make these buildings appear obtrusive, and there is an unused part of the space between them. Therefore, it is necessary to consider an intervention method that can fully use the upper space of building a. If it supposes that the residents of building a have financial problems under this scheme, considering the building owner's economic situation, this will be a high cost. Thus, can the space above the building a be reasonably shared or transferred with building b? However, this way will infringe on the rights of building a. Commonly, the space above a is private, and a person's rights in this area are called Air-Rights. To better manage such a space, it is necessary to understand Air-Rights and learn from related cases.



Fig.1, Blank facade in Rimini, by author

### II. Background&definition

Roman law early on said, "whoever's is the soil, it is theirs all the way to heaven and all the way to hell" Based on this concept, people's right to use land is often based on the ground up and down, which means that the landowner can control the space above and below the land, including ownership of the air. Under this concept, people have reached a consensus on the ownership of space. However, with the development of science and technology, the density of buildings has gradually increased, and buildings are no longer limited by height, forms and structures. In that case, spaces have evolved various possibilities. Therefore, people realize that the rights for developing space must be clearly stipulated in the law.

Commonly, ownership in real estate is divided into mineral rights, surface rights, and air rights. In other words, a landowner's real property begins at the earth's center and extends through the surface boundaries indefinitely into outer space (Alvin, 2021). Under this legal framework, people began to think about more ways to develop land, especially in dense urban centers, where every inch of land is expensive. The more the city becomes saturated, the greater the demand for land. Especially after the industrial revolution in the 19th century, the high development of productivity in the United States, to relieve the pressure of land demand, increasing land utilization rate could be one way, and the land was divided vertically into several hierarchical areas. From this derives the Air-Rights used in later urban planning. It seems to have first appeared in the case of New York's Grand Central Terminal. The space above the railroad was leased to the developer to construct a two-story waiting room building(Xiao, 2015).

Air rights definition: "In the United States, under normal circumstances, Air-Rights are rights obtained based on the division of land ownership, and in most cases it is regarded as a kind of ownership. Therefore, it can be the object of buying, selling and leasing, and there is no time limit stipulated in the buying and selling transaction. Even if the building is demolished, it cannot be considered that the space is destroyed" (*Guan B, 2005*). "Air-Rights are the rights to inclusive use and control of a designated space within delineated boundaries, either at the surface or above a stated elevation. Such rights may be purchased or leased for the construction of improvements. Air-Rights, like mineral easements, are only a partial interest in the real property" (*Frank, Cameron, 2015*).

Currently, the definition of Air-Rights in most countries is based on the US model, the land is transferred to developers for development or leased for use in buildings or workplaces.





Fig.2-3, Air-Rights meaning in real estate (from website), redraw by author (2021)

### III. Different approach to Air-Rights

The original intent of establishing Air-Rights is to increase the utilization of urban space, and the following methods are generally used to deal with construction in the airspace above buildings and impersonal land that can be shown like the image above:

### 1. Adding a connected building above

Usually, when a new building is added over an existing building, a new foundations must be added between the building on the ground and the added building. For example, if the residence of building a is not obstructed, it can build a cement foundation on the top of a, then build a new building on the foundation, or directly push off building a to build a new one. In this case, the building on the ground and above can be regarded as a new building, and the property of the reconstructed building can be distinguished by the traditional method *(Xiao, 2015).* 

### 2. Adding a separated building above

It is similar to the first method, but the foundation and the building on the ground are separated. The building is divided vertically into two parts without interfering with each other. In this method, the bearing capacity problem must be solved as there is no earth support. New load bearing walls or columns have to be built into the ground or a more complex structure has to be used. Sometimes it requires not only Air-Rights of the household on the ground but also the rights for space to build structures and the ownership could be more complicated (*Xiao, 2015*).

### 3.FAR transfer

In general, urban planning sets different FAR (floor area ratio) for different areas, and developers must build within the prescribed FAR. In fact, the transfer of Air-Rights is a transfer of FAR and can be between two adjacent lots or the FAR can be sold or shared across lots (Kurt, 2017). As long as the two properties reach an agreement on ownership without exceeding the prescribed FAR, they can achieve any kind of transfer and the property will be allocated based on the sale or lease transaction. When the FAR of the land is transferred to another land, the area that accepts it can construct higher buildings to increase its economic value. Nevertheless, the area that sells the FAR must maintain a low height but obtain some funds for compensation to improve the quality of its Facility. This method is also used in the maintenance of some historic buildings. For example, the Japanese Eastern Railway Company sold the FAR above its office building to the surrounding five buildings. The profit obtained is used to repair Tokyo railway station so that the station was pro-



Fig.4, Air-Rights approaches (from different text here in notes), draw by author (2021)

tected and there were more high-rise buildings around the station.

### 4.Other methods

In reality, Air-Rights constructions are in different ways. For example, in some cases in the United States, the FAR was purchased from another adjacent building, and the two buildings were separated by cantilever. It appears to be separate in form, but at the same time, the transfer of FAR is also used. In some cities, if land developers use the ground floor as a space for public activities the government will reward them in policy. For example, in the administrative regulations of Shanghai city, it is proposed that the building area can be increased if plots in the central city provide open space for the public *(Kohlstedt,2017).* This kind of policy is prescribed to provide more public space for citizens.

According to the current literature and research, the owners whose space is occupied will make relevant compensations due to the legal effects of Air-Rights. What's more, the way to occupy the air space depends on how the new foundation is added.

### IV. Summary

The current approach to Air-Rights can effectively solve the problem of unused air space legally. But, how to better use Air-Rights to solve problems in the process of urban regeneration? Can different approaches to using Air-Rights solve the problem of uneven building density? In reality, there will be more to be considered, such as the condition of the building's facade, the historical value of the building on the ground, the roof treatment etc. Secondly, the solutions of Air-Rights are usually the conversion of FAR, there is no direct connection between the new and the old building, so how much area should be added and what kind? If in New York, the answer is, of course, as many as possible. Usually, the choice will be to demolish the original building and rebuild or buy and sell it by lease, but when it comes to Europe, there is no way to take a big action on some historic cities or launch an ambitious plan like in Paris. Instead, sustainable strategies can create more flexibility and diversity in the city through better use of air space.

The research takes the San Giovanni of Rimini in Italy as an object and proposes design strategies through Air-Rights to improve the living environment of the inhabitants, but at the same time it is necessary to follow a sustainable development idea:

1. Increase residents' sense of participation.

2. Establish rules that can be implemented in other places as well.

3. provide leasing or renting model.

4. Consider the interests and economic conditions of residents in

different living spaces.5. Provide more housing and public space.

# 02 REFE-RENCES

**PROJECT ABOUT AIR RIGHTS** 

### URBAN DE-Sign References

This chapter showcases the case study about Air-Rights and related ideas about how to intervene on the facade. Approaches to urban design through Air-Rights

### Introduction

In the first chapter, it is mentioned the treatment of different types of Air- Rights in a typological way. In this chapter, some important cases are put forward, which have played an essential role in the proposal in the Italian city of Rimini. It is first considered the core ideas of cases related to Air-Rights, focusing on the cases in New York City and thinking about what problems they are mainly proposed to solve. Finally, the author analysis the current urban regeneration-related ideas, urban residential space regeneration, and case studies about flexibility and sustainability through urban strategies.

### I. Case study about how to manage different hight building through Air-Rights

1.Expanding Air-Rights Exchanges in NYC

There are many projects related to handling Air-Rights in the United States, most of which are large-scale operations aimed at making full use of the space in the city. The difference is that the solution provided by Brooklyn design firm SITU Studio began exploring the idea of expanding district transfers, which enables poor communities in the periphery of the city to sell their Air-rights to communities without financial pressure. In that case, they can use the compensation to improve the housing environment of the community and increase some shared facilities. This kind of Air-Rights conversion has been realized in many cases in New York, and the core idea is to sell Air-Rights. Incredibly, this case applied it to a larger urban scale. In other words, they provide a bolder plan, not limited to a compromise between two buildings, but for urban construction. That is, Air-Rights can realize the growth of urban space through this kind of conversion.





59 West 128th Street, New Zone (Maximum FAR) : C2-4 Maximum Average FAR : 3.0



5 West 28th Street, New York he (Maximum FAR) : C6-2A(6.0), M1-6D(12.0), M1-6(10) ximum Average FAR : 9.0

6-2(6.0), M1-5(5.0), C2-8(10.0



East River Waterfront Esplanade, Zone (Maximum FAR) : C4-6(10.0) Maximum Average FAR : 10.0

Fig.5, Uneven growth, SITU Studio, (2015)



2.St. Peter's Church and Citicorp Center, East Midtown, NYC

Air-Rights seem to be a kind of urban right protected by law, especially those architectural groups marginalized by modern development, such as historical buildings and old residential buildings. These buildings may symbolize the city's cultures and carry people's memories or are merely the labour efforts by some specific group, which can not be traded as real property. They are seen as obstacles in the process of urban construction at times. When skyscrapers are built, where should these buildings go? Undoubtedly, a skyscraper will bring economic development and more population, jobs, and business to the city. However, should those wrecked buildings be demolished? Should they be erased from the city?

In the United States, many cases are not a large-scale Air-Rights transformation but the FAR conversion between two adjacent buildings to protect those marginalized buildings in the city. This transfer between adjacent structures will be a merged zoning. For example, the owner of St. Peter's Lutheran Church in the United States uses Air-Rights to maintain their desired position in the city. Firstly, the owner of the church already occupying the block gave the Air-Rights to the developer to build up and over with a caveat. And the developer needs to be at the request of the church owner to build a new church. Therefore, by zoning in the vertical direction, a new value is created while also protecting historical buildings.

This compromise solution protects the rights of those marginalized buildings to some extent. In other words, it protects the rights of residents in the city. Its significance lies not only in the protection of these marginalized buildings but also in the fact that these buildings did not ultimately become victims of capital competition. They still belong to the city and exist independently, and their value has not been assimilated or transformed. From this, it can see that Air-Rights are fundamental as a kind of rights in the legal sense, and the conversion of Air-Rights is not a crude property sale in a sense, or it forces urban planning to seek more humane solutions.



Fig.6, St. Peter's Lutheran Church

3.Speculative Project Seeks to Take Advantage of NYC Air-Rights for Affordable Housing

Air-rights approaches in New York increase the buildable space in the city. However, these spaces need to be handled flexibly since they often exist above a complete building. Consequently, the structure of the new and old buildings will be processed into different forms according to the identity of the recipient of the space. If the recipient is private, such as developers and residents, the project will usually be treated as a fixed building because these groups have clear goals or personal wishes. If obtaining this space is a public project in the city, its structure will be more complicated. On account of urban public projects existing as individuals, the value of their existence needs to be public and serviceable and need to stand out in the buildings of the city. Otherwise, its significance as publicity will be reduced.

Another reason is that the urban environment will change over time, and the managers of these spaces are responsible for maintaining the value of the building. Therefore, the space needs to be used appropriately or solve urban problems rationale. Otherwise, people in the city can't help but ask, why doesn't it look like a public building but more like a private skyscraper? Or, why does a public building need to be built on top of another building in an incompatible way?

The case sites here aims to use Air-Rights to provide more affordable housing and living space in New York. A white, modular mesh structure is designed, built on top of the existing building, are very flexible and can be used as houses, activities, gardens, etc. The project uses a unit-based solution to provide low-cost housing. On the one hand, it takes advantage of abandoned air space, and on the other hand, it solves the problem of housing shortage in the city. The purpose of this public project using the medium of Air-Rights is to provide extra space to solve the issues in the city when the urban area is insufficient.



Fig.7, Instant City, Beomki Lee and Chang Kyu Lee of Atelier L (2017)

### II. Cases about flexibility

### 1.Transformation of 530 Homes

In some cases of building renovation, the main structure of the building is often used as support, and people are more pursuing the reuse of the original building function form, seeking a sustainable strategy by not destroying the main structure as much as possible. Therefore, the balcony of the building has become an important design element. Although the balcony is the entry point for urban transformation and determines the facade of the building in Europe, modern cities have put forward higher requirements for the flexibility of the balcony. More lighter, assemblable balcony form has been well received in the building renovation process.

In the transformation project of the 530 apartment in Pairs, by building a large winter garden and balcony, each apartment can enjoy more natural light and more space for activities. Use large glass sliding doors to create a broader view. The project puts forward an idea for the existing housing after the war, without violent demolition of the original building, using minor resources to achieve the most excellent effect. In addition, flexible materials, steel structures, and glass are used to prevent damage to the original structure during the construction process. The partition wall in the middle is also convenient for assembly.





Section/Before and after



Fig.8-10, Transformation of 530 Homes, by Christophe Hutin architecture, Frédéric Druot, Lacaton & Vassal (2016)

### 2.Rue Camille Claudel

To avoid the duplication and monotony of the building facade, fewer materials to transform the form can also achieve a flexible and beautiful effect, especially in the case of concentrated housing.

In Rue Camille Claudel's project, the architecture and the street are perfectly combined. Although the same materials and styles are used, each building has its uniqueness under facade form, and building volume changes. The architect provides different external spaces for each resident to provide differentiation. The balcony space is based on the Seine occupants' views from multiple angles and offers maximum sun exposure. In this project, the extension of the public space is the core, connecting each building's residents.

The activities on the balcony are places to express the human touch of the city. Although buildings are fixed, different stories can be created at different times and in different spaces. In the European atmosphere, this will undoubtedly become an important design point, forcing people to turn to opposite thinking in urban renewal projects and topics such as sustainability and flexibility.



Fig.11-12, Rue Camille Claudel, by Hamonic+Masson & Associés (2017)

## <u>03</u> PR0-JECT

**RETHINKING THE BLANK FACADE** 

### SITE ANALYSIS

This chapter showcases the site analysis of San Giovanni by showing architectural drawings.

### I. Typological reading

The site is located on the south side of the historical city gate (Arco di Augusto). The buildings continue the morphology of the historical city. Most of them are enclosed to form an inner courtyard. The San Giovanni plot has fewer voids in the plan, which is different from other plots. It can be seen from the architectural form along the street that they are very compact. In addition, the buildings along the back of the road are piled up and placed on the ground, and with more public space, San Giovanni is located on the edge of the historic center. It is entirely different from the chessboard pattern planned by the open beach in the 19th century. Most of the buildings in San Giovanni are on two to three floors, but there are two six-story buildings. From the plan view, San Giovanni has the pros as the historical center. People share courtyards and live in apartments with a shop on the first floor. Surrounding San Giovanni and going out of the center, the street width gradually increases, and the plots are divided by street, and it can observe the shape of each building from the map.





As early as the early 16th century, the historical center has matured. The ancient city walls of rivers and rivers separated it from the periphery. San Giovanni also began to develop. The church was first located on the plot, and then buildings were expanding along the street. While Rimini began to open to the coast in the 19th century, the land between San Giovanni and the coastal developed simultaneously. In the 19th century, the rest of the land was divided in a chessboard layout, and the river was filled before 1894s. With the addition of new buildings, it can be observed through the Morphology plan of 1894-1912 that the plots are always unsaturated. The historic gate is still intact and perfectly integrated with the building surroundings. Until 1948, the landscape near the historic gate was re-planned, perhaps related to Rimini's coastal development plan, and the destruction of some buildings during World War II accelerated this process. San Giovanni's building renewal speed is not as fast as the new buildings around it. Since the 19th century, Rimini has been developing coastal areas rapidly. By 2012s, San Giovanni was utterly saturated, and all the empty areas were filled (Grazia Gobbi, Paolo Sica, 1982). Nevertheless, the city walls and churches have always been iconic symbols since the 1577s, and the Arco di Augusto has never been erased in history.



## Building City wall

River
#### III. Buildings and street

When observing the buildings and the street, it is possible to notice that the buildings along the street are like jagged teeth. Suddenly, two six-story buildings appear, and the buildings have exposed blank walls without any decoration. The height along the street feels insufficient, and the facades of many buildings present a state of disharmony. The reason for the appearance of these buildings is speculated in the first chapter. It is related to the disintegration of the population and the social structure of the historical center for the development of the city, so these buildings were built relatively tall.

So how to improve the plot to better connect with the city center in this context? It can be discussed by studying the typology along the street. First, the blank wall on the side of the building can be used as the starting point. Buildings with different heights will form the following different types of blank walls in San Giovanni: 1. A blank wall with a smaller depth produced by two adjacent buildings with a height of more than 3m can increase the space to fill the gap between the two buildings (The surface considers the renovation of the entire wall). 2. Large-depth blank walls generated by two adjacent buildings with a height difference of more than 3m (reconstruction on some of the walls can be considered) 3. Two adjacent buildings with a height difference of fewer than 3m (consider reconstruction on both sides of the lower building) 4. Three low-to-high buildings create the void. If they are categorized and analyzed, it is as shown in the figure on the right.

If considering intervention on those types of buildings, it needs to consider the issue of Air-Rights, which will be explained in more detail in the next chapter.

### IV. Street classification:

From the bird's eye view of Google Maps, it can be observed that there was a two-way lane in San Giovanni not long ago, and vehicles were parked on both sides of the road. Now the street has been re-planned, a one-way lane towards the historic center, and the parking space on the east side has been re-planned. It has been changed to a one-way bicycle lane, and the outermost two sides are still human-shaped roads. The current state of roads and buildings can be observed from the picture at the back.









# DESIGN Strategy

This sub-chapter showcases the significance of urban regeneration and Air-Rights in the project and how Air-Rights operate strategically to solve urban problems.

#### I. Towards urban regeneration

In real life, urban regeneration always faces conflicts and spears between the old and the new. On the one hand, it is necessary to consider saving for social and economic growth. On the other hand, improving the degraded historical center and respecting the urban form and its legacy is essential. However, in reality, the future of the historic urban landscape requires decision-makers, urban planners, urban developers, architects, heritage conservation workers, property owners, investors, and relevant citizens to work together to maintain its cultural and historic character. Furthermore, it is sensitive to consider social modernization and social development to preserve and enhance the city's characteristics and social cohesion. At the same time, a spiritual and emotional connection between human beings and the environment and their local concepts, ensuring the quality of the city's living environment. It is also crucial to the economic development of a city and the reproduction of its social and cultural vitality.

Therefore, based on the workflow, the following visions for the regeneration of Rimini's historical center are proposed and hoped that it can be realized in the San Giovanni plot:

1. Adapt to the requirements of the times while retaining its complex history, humanities, activities, and functions. 2. Follow the development principles of circular economy, repair the city's central area, and attract business and capital investment. 3. Adapt to the new urban concept and realize the value of symbiosis.

### II. Design through Air-Rights

To address the problems in the plot, try to intervene in the following ways (as chart shown on the right). They are strategies to solve the morphological differences caused by historical center decay. Besides, making full use of air space in the city could be the best way of these four types of buildings. Thus Air-Rights can be a medium to transfer air space to solve financial pressures, realize economic cycles, and enable people to participate in reconstruction projects spontaneously. Finally, one of the most important topics is how to allow the citizens to participate in the process of urban regeneration so that they have the initiative and the right to choose. It is essential to provide good enough solutions to attract citizens to invest and obtain long-term profits.



How to get the first start-up capital? This project can start from the following aspects if need to obtain construction funds: 1. The sale and leasing of houses (to get construction funds through the sale and lease of space) 2. Urban public facilities projects (government investment or citizens tax payment) 3. Housing renovation project (citizens spontaneously invest in construction)

If these three issues are considered comprehensively, citizens have the highest degree of participation in them. They need to stimulate citizens' initiative, and government organizations have a strong lead in urban projects. Therefore, Air-Rights could be a good entry point. The reasons are 1. It is a private and undeveloped space with entropy-increasing economic value. 2. The essence of Air-Rights is to invade other people's air space. This process will create a system of cooperation or competition, increasing the sense of participation among citizens. 3. The advantage is that it can be obtained by selling or leasing Air-Rights. Resolve financial pressure. The first and second chapters list a series of how cities can solve the stress of construction funds by selling Air-Rights above others. There are public construction projects selling Air-Rights and getting funds to protect historic buildings, and selling private air space to get funds for the city public facilities construction and private construction. However, the owner of the air rights in this plot belongs to residents, so it can convert the conditions to how citizens can obtain benefits by selling their air rights by renting and leasing. And later, they can use these funds to solve part of the reconstruction costs to minimize the loss of groups whose interests are affected.

Based on the current thinking, a plan to renovate the four types of buildings on the plot is proposed. In this scheme, buildings a in types 1, 2, and 3 will get all or part of a new volume. They will invade the Air-Rights of the owner below the new volume, and at the same time, the owner will get other compensation schemes. The space winners in Type 4 are all residents in the city, and the new buildings will be used to construct public facilities.





Type1, adding volume between buildings





Type3, adding volume to connect buildings on both side



Type4, adding volume to connect on one side and middle



#### Plans of building type1



Ground floor plane

Plane of 1st,3rd,5th floor





Plane of 2nd,4th floor



#### Layer definition



## Layers definition

If it is necessary to develop a strategy and work in other parts of the city, making the same rules or using the same language can be helpful. Therefore, trying to increase the building area in four types of buildings and use the same language to operate could achieve by defining the space. The picture on the right is a floor plan of type 1. It is a traditional Italian typology plan, similar to the other four types, sharing a public transportation space, with shops on the first floor and living spaces with the same flat on the upper floor. Therefore, the living spaces are arranged in units, and it is possible to intervene in these unit spaces. Thus, four levels are established in the vertical direction. The first is the adjustment laver and allocate it to the users on the lower floor, and they can transform at this height to connect the upper building-the transition layer, as the connection between the surrounding space. The standard layer depends on the number and height of the floors and the roof layer. In this way, defining space are also applicable to other types. Different spatial levels play different roles in various building types. For example, in type1 and type3, the buildings on the left and right sides are connected, so renewing the building can also drive the renewal of the adjacent two sides. Transition in type2, the transition layer and standard layer can be used as a new facade of a blank wall. The layer in type 4 can be used to construct public facilities since it has more extended width and sufficient depth to be open to the public.



Furthermore, this zoning is to solve the different problems that need to be solved in building additions. First, adjusting the layer is mainly used to add a new foundation to bear the weight of the new structures above. The transition layer connects the new functional space and the old one. Therefore, it is necessary to consider how to allocate Air-Rights and design the redefined air space. The number of standard layers depends on the load-bearing capacity of the original structure and the new structure. The higher the load-bearing capacity, the higher the number of layers.

The advantages of this are 1. The Air-Rights can be reasonably allocated to adjacent buildings. Therefore, the building owner located on the adjustment layer can obtain a certain amount of funds to increase and renovate their houses to have a better living quality. 2. Residents of the transition layer can obtain new living space through the allocation Air-Rights. That is, a certain amount of space is provided for buffering, which depends on the economic status of the residents. 3. It is possible to clarify the tasks of each stage, such as first soliciting opinions from the households on the adjustment level since their houses will be affected first and most affected during the entire renovation process. w

## Overall strategy

The overall strategy is to select individual targets for project simulation. The previous article has classified the types of buildings in the plot, so the target buildings were selected and shown on the left, and they will be demonstrated as four independent projects. Each type represents a building in San Giovanni that needs urgent attention, and finally, these four solutions will be combined and replicated throughout San Giovanni area.



# PROJECT RE-Port

This chapter showcases the design strategies in San Giovanni, the concept of four types of buildings by graphic and technical drawings, and applied them to the entire site.

# **Overall strategy**

The overall strategy is to select individual targets for project simulation. The previous article has classified the types of buildings in the plot, so the target buildings were selected and shown on the left, and they will be demonstrated as four independent projects. Each type represents a building in San Giovanni that needs urgent attention, and finally, these four solutions will be combined and replicated throughout San Giovanni area.







## TYPE1

The building plan shows four rooms on the first floor, and they share a staircase. There is a gap between the target building and the adjacent buildings on both sides. Therefore, the space is divided and arranged in the form of units.

The adjustment layer serves the original residents, and the newly built floors are used for lease or sale. Moreover, rules can be formulated to conditionally provide extra space for users on the left and right sides. The profits from the upper floors can be used to construct houses on the adjustment layer. Also, residents can choose to own one or more units, and unallocated units will be left vacant for future use.

# Unit form



Type layer	Selection type		Result
Roof layer	1/2		Single house with a shared roof garder
Standard layer	Medium		Medium room&balcony
	Large		Large room&balcony
		Greening	Terraces&garden
	No selection	Single room	Single room&shared balcony
		Empty	Future construction
Transition layer	Left		Single room&private balcony
	Right		Single room&private balcony
	No selection	Greening	Terraces&garden
		Single room	Single room&shared balcony
		Empty	Future construction
Adjustment	Single loft		
layer			













3D View of facade









# TYPE 2

Type 2 has a more extended depth, therefore choose the blank wall that can be opened for renovation, more flexible materials, such as wood, steel structure, aluminum, etc., to minimize the impact of the original building.

In the same way, air space can allocate to neighboring residents, and the floor can be disassembled and assembled. Residents can choose the number of slabs they own, up to six, and at least three, and the number of slabs can be increased in the future, providing a flexible selection mode, and the funds obtained can be used to make up for the economic losses of the top households. And it can build a new house on the top of the building for sale or lease.





## Activities out side the blank wall

The new areas are used for balconies with different types of activities. With the choice of the number of modes, the final space will be different. It can be arranged according to the resident's personal preferences and economic conditions, but the middle section is always used as a display.





For the large blank wall, part of the wall is selected for renovation and used in conjunction with stairs, and these types of buildings can be used multiple times.



Type 3 elevation 1:500





## TYPE 3

Type 3 has a regular aspect ratio, but its height is lower than the buildings on both sides, so consider connecting it with the buildings on the left and right sides. Thus, it distributes Air-rights to the residents on the left and right sides and provides a variety of options to adapt to the different economic conditions of the residents. A public corridor connects the buildings on the left and right.

The addition has a continuous structure. However, the functions in the center of the building and the function on both sides are different. The spaces on both sides belong to the lower occupants of the target building, and the center area belongs to the buildings on the left and right sides.







3. Half (west)

4. Complete house



This type uses Air-Rights to have changeable space. First, demolish the roof of the original building and then use the steel and wood structure to complete the transformation. Each stage will achieve different effects according to the choices of the left and right residents. Generally speaking, there are four types. First of all, when the homeowners on the left and right are in a bad economic situation, the roof will be built into a public space, with two roof gardens for residents on both sides, as shown in Figure 1. Secondly, if one of the house owners on both sides has a good financial situation, one side will be transformed into a house, as shown in Figures 2 and 3. If the homeowners on both sides are rich, then as shown in Figure 4.





## **ROOF** Use wood materials.

NEW STRUCTURE The steel structure serves as the main support structure for the additions and is fixed to the beams or floor slabs on the top floor.

## **GADDING VOLUME** Add new house for res-

idents on both sides of the target

Add more space for the top residents of the original building

ORIGINAL BUILDING



1st floor plan 1:150





3rd floor plan 1:150



# Air-Rights and the public

Citizens should undoubtedly be the biggest beneficiaries of the project, so it is necessary to build a public space that serves citizens and still use modules to implement. In this case, allocate Air-Rights to all the citizens, let them decide what to build, and then the government and planners will realize it. However, a new building needs to be above a complete continuous facade space. Next to the church, a moderately high building has a continuous facade and spatial form to build an entire building above it. Type 4 elevation 1:500







The house has a good foundation, and the space above the building with a continuous facade can be built into a public facility. Its content depends on what the residents of the city want. Using materials can be assembled for future changes. For example, during the coronavirus period, the hospital's beds are relatively tight and can be considered a temporary hospital. However, the coronavirus is under control now, and the public facility could be regarded as other activities, such as studio, libraries, offices, markets, etc.

However, suppose it considered building an independent public facility on top of the target. In that case, the roof of the original building should be demolished, and a new independent foundation should be built above. What's more, there is a very dilapidated building next to the target with a shallow height. Therefore, consider demolishing it as the entrance to the market. Assuming that the target will eventually be built into a market, the construction will follow the steps shown in the figure.







Type 4 ground floor plan 1:150

Type 4 1st floor plan 1:150



The market consists of detachable structures. Have fixed retail and non-fixed ones. Non-fixed temporary sales can rent one or more 3m\*3m venues. Commodities are displayed on shelves, and each shop can have a mobile cart used as a place for transactions.





Stair and elevator Sale

Type 4 3rd floor plan 1:150







## Market in the city

No matter what the ultimate function of the target is, it will be built flexibly. The use of modules and flexible materials will be the final choice. Except for the foundation, the other structures are entirely steel, plates, and glass, and the roof can be sheltered by light canvas. The space has two floors, the first floor serves as a public garden and a sales area, and the second floor also serves as a sales area.

In Italian cities, the market is very popular as a place where people gather. Many markets around the San Giovanni plot are disorderly, accumulating in squares or roadsides and not well organized. If it is provided with a more orderly and comfortable environment, it will attract more people. What's more, the area is located near the gate of Augustus, only 650m from Pizza Tre Martiri.

Even if the target is treated as a market, in this case, there are still other possibilities. It can become a bookstore and still attract people, or it can completely replace the original flexible structural model and become an office building or a supermarket. It depends on the citizen's choice. But it is worth noting that no matter what the final function is, the site needs to be built into a large public facility.



# Other combination types

The four types of renovation methods can be overlapped repeatedly in the same building or between multiple adjacent buildings. Two adjacent buildings can share a new foundation through simple roof reconstruction and convert between floor area ratios. In this way, the floor area ratio of the building can be increased even more. As shown in the figure, types 2 and 4 and 2 and 3 can be combined.



## Urban strategy over time

In the overall plan construction process, the plan is carried out over time. The time is assumed to be three three-year plans. In the first three years, one building renovation of each type can be implemented, and the feasibility of the plan will be verified, followed by the second three years and the third three years.

It is worth noting that each type is not in a fixed state. Even the density of the buildings built in the first three years will change over time, which is carried out simultaneously with the overall construction of the city. Residents can carry out independent construction after the project is launched.

In addition, the program prepares for variable factors in the future, for instance, the increase or decrease in population density, the change of the scope of transformation. Thus the public space strategy can cope with crises in different periods, etc.


## Renovation of the street

Based on the original streets, the streets on the west side planed to be improved. It seems Rimini tends to integrate parking spaces and use the city center as an elegant pedestrian space. Not only that, the pedestrian space will finally be integrated with the skyline of the reconstructed buildings.

In the strategy, the height difference with the building along the street was adjusted. Before the renovation, the height difference between the highest and the lowest of the building was 17 meters. After the renovation, the height difference was reduced to about 7 meters.

Generally speaking, the purpose of adjusting the skyline, the facade along the street. The outer contours of the buildings along the street will gradually become smooth, and the volume of the buildings is to create an elegant urban pedestrian space.

In the end, it is assumed that the project will be complete after nine years, with the transformation of squares, streets, and buildings. These four reconstructed types are combined and used for the whole site. In this process, the Air-Rights above the reconstructed building are redistributed and developed through residents' choice.













Building hight along the street (after renovation)







# Facade renovation (before and after)









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Type4



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Type4

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# The blank walls (before and after)

In the future, these buildings with blank walls will disappear through building renovation.









# Blank facade renovation (before and after)

The place where the street crosses are essential to the city environment. Adding the building volume helps to open the window of the wall, thus creating a more comfortable environment and view on the node.





# Empty ground (before and after)

The original blank square will be more abundant with new paths.





# 04 CON-Clusion

## Simulation in the whole city

Except for San Giovanni, buildings with uneven distribution of building density due to height differences also exist in the whole city center. As shown in the figure, the color building area is the distribution of these buildings, and they also have similar features in appearance: blank walls, jagged skylines and low building density. Among them, most of the types of buildings were analyzed in the project (Type 3, 4). Thus, they could be improved through the same transformation method, and the transformation strategy for several types of combination methods is also applicable in the future development process.



Tiberio

The city has a history;it is the work of a history, chat is, of dearly defined people and groups who accomplish this oeuvre, in historical conditions" ( Henri Lefebvre, 1996).

#### The end

The thesis is inspired by related authors, Henri Lefebvre and David Harvey, regarding city rights and use critical thinking to look at the city development. Henri cherishes the history and culture of the city and the people living in the city. He regards the city as a collective wealth and believes that people have the right to own the city they want. David also proposed that "the right to the city includes not only the individual right to obtain urban resources, but also the collective right to change and transform the city" (David, 2003). As a kind of human rights, Air- Rights can become a part of city rights. Its existence safeguards the right of people in the city to protect their space, and Air- Rights is a medium of this kind of justice.

In the thesis, strategies were made in the way of occupying Air-Rights. Occupying the Air- Rights does not mean that one will lose right but gives the residents and the collective the right to trade, choose and transform the space. This method is more humane than the crude use of Air- Rights to divide the vertical space. They have the right to develop and manage their property. The city has become a product of the residents' choice and creation through a free combination of space. As a result, the undeveloped area used for residents' needs and the decaying city will also improve the renovation process. Isn't this a good vision?

Purcell interprets the right to the city and points out that "urban space should not be valued as a commodity for exchange, it should be valued as an oeuvre that is created and recreated every day by the quotidian practices of urban inhabitants. The right to appropriation implies the right to configure urban space to value the city as oeuvre - to maximize use value for residents rather than to maximize exchange value for capital" (Purcell, 2003). The city right emphasizes the right to live and live in the city, illustrating city rights' collective and participatory nature. The right to the city is the right of human beings to transform cities collectively. Therefore, the strategies in the thesis respond to the interpretation of urban rights. Type one empowers residents to choose spatial modules, type two uses flexible structures to give residents the spatial form they want, and type three provides residents with different types of space. Type 4 provides the collective with the right to choose the kind of facilities they want, considers the residents affected in the transformation process for each category, and provides them with compensation space. In addition, the economic status of residents will also affect the spatial changes of the building and provide a long-term plan for future economic changes.

How cities should develop is a question that people have been exploring. This thesis puts forward the author's views on urban regeneration by the question of property. Although different intervention methods will bring an entirely different result, urban space should serve residents, and the transformation of the urban area requires residents' participation.

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