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Renovation of an Old Istrian Building

Brina A. Lukić and Inge Kalan Lipar

Abstract

The seminar paper focuses on transforming a historical stone structure in Istria into a boutique restaurant, adhering to the principles of cultural and architectural preservation. The research encompasses the history and traditional construction methods of the Istrian peninsula, analyzing types of vernacular architecture and the use of local materials like stone. It emphasizes the importance of preserving historical elements while incorporating modern design to meet contemporary standards. The research outlines a detailed process for renovation, including theoretical research, and site analysis. It highlights the historical and cultural significance of Strunjan, where the project is located, linking the building's renovation to the broader development of tourism in the area. The project not only restores a neglected structure but also redefines it as a vibrant cultural and culinary destination, enhancing the region's identity while respecting its heritage. This work serves as a model for sustainable preservation and adaptive reuse of historical buildings.

Keywords: renovation, drywall construction, stone processing, Strunjan, restaurant

Istrian Peninsula

Istria, which is the largest peninsula in the Adriatic Sea, presents a notable diversity of morphological aspects. From a geological point of view, we can roughly distinguish three parallel belts running from northwest to southeast, conventionally called White, Gray and Red Istria. White Istria (the northernmost), this stretches from the Trieste Karst towards Kvarner, the Kvarner Bay and is mountainous, with a series of reliefs ending at Učka. The soil is calcareous, partly barren and rocky, and partly overgrown with bushes. Ćićiarija, which represents the lower part of White Istria, is interrupted in many places by cultivated depressions (vratačes). Gray or Yellow Istria makes up the central belt of the Istrian territory and is of a sandy-marl character. The relief consists of green hills and wide valleys, and the soil is composed of yellowish-gray clay. Some of the peninsula's waterways originate here. Red Istria (the southernmost) is located below the line running from the tip of Savudrija to Plomin. It is a vast limestone plateau with frequent rounded depressions (vratači), verticals (foibe), covered with a surface layer of fertile reddish soil, covered with lush Mediterranean shrubs, suitable for growing vines and olive trees, despite the relative lack of water resources (Starc, 2012, p. 19).

The Istrian coast is rocky and rugged, but mostly low, except for the northeastern part. The landscape is not rich in water, there are only a few short rivers throughout the territory, of which only the Mirna reaches fifty kilometers in length. Water supply is problematic especially in the southwest, where there are practically no surface watercourses and in many places the average annual rainfall is just over 500 millimeters. The climate is mild in the coastal and inland areas, becoming colder only in winter, when the bora, a cold and violent wind from the east to the northeast, sets in (Starc, 2012, p. 19).

The density of the Istrian population was always low due to the infertile soil. The best conditions for settlement were offered by the coastal strip, which was relatively favorable for agriculture and maritime communications. The continental areas, which were only suitable for extensive farming, were generally less and less populated. According to the last census before World War II, the average density of the Pula region (which included a large part of the peninsula) was approximately 80 inhabitants per square kilometer, higher than in the Balkan regions, but significantly lower than the average of the Italian regions. The lowest values were found in the mountainous municipalities of the northeastern part of Istria, where only 30 inhabitants per square kilometer were recorded (Starc, 2012, p. 19).

Types of Istrian Houses

The traditional construction style and appearance in the Istrian region, both Croatian and Slovenian, were influenced by the available building materials sourced from the natural environment of the rural population: stone, wood, gravel, and marl, which is called "dead stone" because it is prone to crumbling and difficult to shape. This very material defined the look of buildings in Istria, as they were once entirely built from this stone. However, limestone was also added to door frames, window sills, lintels, cornerstones, and roof cornices. Marl, which came in the form of layered slabs, was often used for roadside fences, enclosures for pigsties, manure pits, and ponds, while white limestone was used for household, garden, or even settlement structures that are still preserved today—wells (štirne), boundary markers (kunfini), chapels, and kažuni (round stone huts in fields and vineyards) (Nikočević, 2009).

In traditional Istrian architecture, all buildings had walls made exclusively of stone (which was often not of a regular square shape, except for the stone used for corner construction and the stone exposed without a limestone coating), including both white limestone and yellowish-gray sandstone. The use of these materials depended on the geographical location and the availability of resources in different areas of the peninsula. In White and Red Istria, buildings were constructed from limestone, while in Gray Istria, houses were built from sandstone. However, some parts of the most valuable homes (primarily door and window frames and portals) were made of white stone. In the inland areas of Istria, at the borders between two geological zones, houses can also be found with structures made from mixed stone. For centuries, stone was extracted and processed exclusively by hand using tools such as wedges, splitting bars, hammers, and chisels. The best white stone quarries can still be found today in the western part of Istria, from where the stone was historically exported, mainly by sea, to Venice (Starc, 2012, p. 38).

The roofs of houses were usually gabled with a slight slope (hipped roofs were very rare) and covered with curved tiles, or less commonly with stone slabs (called scrile in the Italian Istrian dialect, and škrilje or škrle in Croatian and Slovenian dialects). Thatched roofs were occasionally used, mainly in the Labin and Liburnian areas, until around the 1960s-70s. All types of Istrian houses belong to the Southern European (or Mediterranean) architectural group (Biasutti, 1938, p. 23), with the exception of a house type that once existed in the Podgrad area until the mid-20th century, but has not been preserved to this day (Starc, 2012, p. 38).

Use and Processing of Stone

Natural stone was readily available to builders at the construction site itself. In the coastal regions (Brda, Soča Valley, Goriška, Vipava Valley, Karst, Slovenian Littoral, Brkini, and part of Inner Carniola), where forests are rare and more of an exception, stone became fully established and prevailed in all branches of construction. Natural stone prepared for use in construction must be sound. This means it should not have cracks, fractures, rotted areas, or nests, and must be free of knots, lumps, and ribs. When struck, it should produce a clear sound, and the fractured surface should have a clean and fresh color (Deu, 2019, p. 82).

Differently processed natural stones, assembled in various ways and bonded with lime mortar to form solid walls, contribute to the local characteristics of our identity in construction. The difference between stone walls is not determined only by the type of stone. Both the stone processing and the construction method are important. Both are closely connected to the type of stone, but also to other factors, such as the developed standards and values in local construction practices, the level of stone masonry craftsmanship, and the financial means of the builder. Wealthier individuals chose the best local stone for the walls of their homes and entrusted the construction to stonemasons, who processed it with masterful knowledge. Poorer individuals, however, built on their own, gathering, digging, and breaking the stone themselves, and settling for poorer craftsmanship (Deu, 2019, p. 83).

According to the method of processing, the stone elements used for wall construction are classified into:

- Unprocessed (broken stone – roughly broken, flatly broken, gravel or cobblestone),
- Roughly processed (finished, partially processed broken stone, rough stone, or even worked stone),
- Processed (semi-dressed and dressed stone, dressed stone).

The different processing of stone into shaped stone walls is evident in their appearance, which stands out primarily in unplastered, unprotected walls. Based on the processing of the stone elements, stone walls are divided into two groups. The first consists of stone walls made from unprocessed and roughly processed stone, while the second group includes walls made from processed stone (Deu, 2019, p. 84).

Walls Made of Unprocessed and Roughly Processed Stone

In the first case, natural stone obtained from a riverbank, quarry, or natural gravel pit is incorporated into the wall construction without special processing. The rubble, pebbles, or cobbles are arranged in the wall without regular layers (irregular masonry). The gaps between the larger stones are filled with smaller, equally unprocessed stones (Deu, 2019, p. 84).

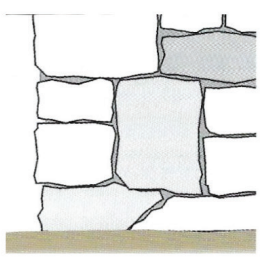
In the second case, broken stone is shaped at the site with a hammer to fit each stone's position. The front face of the rough-hewn stone is simply leveled. These walls lack regular layers, and their appearance depends on the type of rubble and the precision of the work. Often, especially with flatly broken stones, horizontal layers are emphasized, a technique rooted in Romanesque and earlier ancient masonry. This layered construction method was preserved into the 19th century, especially in regions with a strong stone-carving tradition, as it requires skill and expertise (Deu, 2019, p. 84).

The binder is lime mortar, made from locally burnt lime and sand, which was readily available in the immediate vicinity of the construction site. This gives the mortar its characteristic color. Often, crushed stone and earth are also added to the lime mortar (Deu, 2019, p. 86).

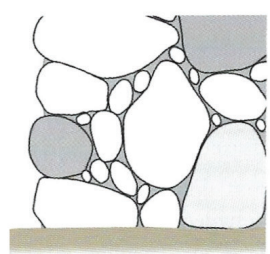
Stone walls are typically 50 to 70 cm thick and can be single or multi-layered. A multi-layered wall consists of three layers: both the outer and the inner building sides of the wall are made of stone. The inner layer or the intermediate space is filled with smaller, unprocessed broken stones and stone gravel (Deu, 2019, p. 87).

Figure 1

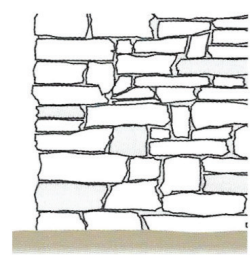
Appearance of stone walls made from unprocessed and rough-hewn rubble (Deu, 2012)



wall of roughly dressed rubble stone; irregular masonry



wall of undressed stone – cobbles / rounded stones; irregular masonry



wall of roughly dressed flat rubble stone; coursed masonry (layered construction)

Walls Made of Hewn and Partially Hewn Stone

Overcoming the resistance of stone material and shaping it into bricks of regular forms is difficult, demanding, and time-consuming work. If the stone wall is covered with a layer of plaster, this work becomes unnecessary (Deu, 2019, p. 88).

In the case of partially hewn stone, the front face and side surfaces are leveled up to a length of 15 cm. A wall made of partially hewn stone is leveled, and the construction method is no different from that of walls built with unworked or rough-hewn rubble (Deu, 2019, p. 88).

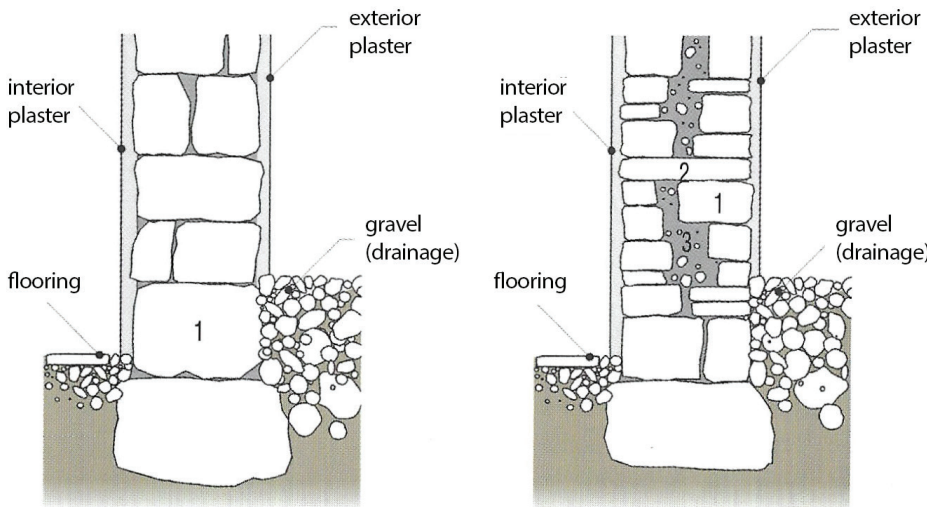
Hewn stone is used for masonry and is carved into a regular-shaped block with smooth sides. Stonemasons carve the stones, or precisely shaped blocks, from rough-hewn or sawn stones, rough-cut stones of irregular shapes. The rough stone is first carved into a regular block, then the sides: the upper surface, called the soft bed, the lower surface, called the hard bed, both side or joint surfaces, the front or face surface, and the back or wall surface are leveled and smoothed. In the past, the only tool used for smoothing the stone was a chisel, but today, stonemasons use machines for this work (Deu, 2019, p. 88).

The front surface of the block is usually not smooth but is finished in various ways. It is especially carefully worked if the hewn stone is intended for the construction of an unplastered envelope structure or its part (foundation). With stonemasonry tools and techniques, different textures can be achieved, ranging from very rough to completely smooth and polished. The diverse stone surface treatments are grouped into three main categories: natural rustic, flat rustic, and smooth surfaces (Deu, 2019, p. 89).

The hewn stones are then laid in the wall by placing stone upon stone in a specific order, following the rules for brick masonry. The vertical joints of each layer must not align with the vertical joints of the layer above, and the offset joint should not be smaller than 10 cm. The front surface of the block can be finished in various ways. When building a wall from stones of different sizes, the height of the hewn stones in each layer of the wall must be the same. The size of the rectangular hewn stone, or the ratio between its height, width, and length, is related to the type of stone (Deu, 2019, p. 89).

Figure 2

Cross-section of a single-layer and triple-layer stone wall. Even in the triple-layer wall, larger stones were placed across the entire thickness for reinforcement at regular intervals. (Deu, 2019)



1 Rough-hewn broken stone (single-leaf wall)

1 Roughly dressed rubble stone
2 bond stone
3 lime mortal - bound infill (rubble fill)

Dry Stone Masonry

Dry stone constructions have invaluable cultural and aesthetic value; they are an indispensable design element of traditional landscapes and settlements. On a symbolic level, they are monuments to the perseverance, resilience, and survival of many generations who lived in harmony with nature (Orbanić et al., 2015, p. 6).

Figure 3

Dry stone construction. (Macuka, 2019)

In dry stone construction, in the strictest sense of the word, only natural material—stone—is used. Since it was always gathered from the nearest surroundings, the diversity of the stone composition means that dry stone walls differ almost from village to village. Part of the effort within this task is focused on determining the typology of dry stone construction based on the type of stone (predominantly sandstone) and local building peculiarities (Orbanić et al., 2015, p. 9).

The most common forms of dry-stone construction that surround us include free-standing walls, retaining walls (terraces), pavings (streets, catchment areas), stone roofs, tombs (tumuli), viewpoints, shelters, and refugees of various shapes. In settlements, dry stone techniques were used to build courtyards, roadside and garden walls around wells, wells themselves, stone pavings for courtyards and some village paths, smaller agricultural buildings such as pigsties, chicken coops, sheds, etc. Courtyard walls were built in the same way as dry stone walls in the landscape, except they typically used more carefully selected and processed stone (Orbanić et al., 2015, pp. 9–10).

Strunjan

Strunjan is a small coastal town in Slovenia, located between Izola and Piran, to which municipality it also belongs. It is known for its natural beauty, salt pans and cultural heritage, as its construction reflects the rich history of the area and includes various architectural styles and historical monuments.

The oldest evidence of settlement on the Strunjan peninsula dates back to the ancient period, where they were found in the area of St. Bas and Cape Ronek: a Roman villa rustica (an estate with a farmhouse and associated outbuildings), the piers of the former port, which are now submerged after the rise in water levels over the centuries, and smaller individual architectural remains. The area begins to be mentioned in archival sources in the 11th century, when the Patriarch of Aquileia, Popon, left it to the Aquileian Monastery of St. Mary. In 1284, the place name Strungano was first recorded in the sources, which comes from the Latin word Stronnianum meaning "Stronnian's". Since it was common in the 4th and 5th centuries to name areas after owners of large estates, we can conclude that Stronnianum was the name for an estate owned by a person named Stronij (Latin Stronnio). Finally, the Slovenian name - Strunjan - was derived from the Italian toponym. (Strunjan Landscape Park, n.d.).

Over the centuries, the town lived in close interdependence with its neighboring Piran. While Piran developed into a typical medieval town on the foundations of a late antique settlement, Strunjan, with its excellent climatic conditions for salt production and fertile soil for growing crops, vegetables and fruit, olives and vines, was always its natural economic hinterland. During the heyday of Trieste at the end of the 18th century and until the end of World War II, farming was the key economic activity of the town. The people of Strunjan mainly transported early vegetables and fruit to the Trieste markets by ship, which, due to the special microclimate, thrived perfectly on sunny plots and terraces. Later, the farmers focused more intensively on the production of olive oil, wine and persimmons, and a few years ago they also started growing artichokes and developed shellfish farms in the coastal zone. (Strunjan Regional Park)

For the position of Strunjan, which was tied to the port of Piran for major transport, the construction of the narrow-gauge railway Trieste - Poreč with a railway station in the town was of exceptional importance at the beginning of the 20th century. By establishing more favorable land trade connections, this enabled the economic progress of all of Istria, especially the inland, higher-lying areas, which

had until then been almost cut off from the coastal towns. At this time, several villas and guesthouses also grew up in Strunjan. Although the railway line was discontinued in the early thirties, the construction of various tourist facilities in Strunjan continued, as the lost railway connection was replaced by motor vehicle traffic, and the progress inspired and encouraged revived tourism in neighboring Portorož. (Strunjan Landscape Park n.d.).

Architectural Features

Strunjan's most valuable architectural features lie in both the overall settlement pattern and its examples of folk architecture. Houses and smaller building clusters are scattered across the valley and hillsides in neighborhoods such as Sveti Duh, Center, Karbonaro, Ronek, Punta, and Pacug. Although oral tradition attributes several centuries of age to some homesteads, most surviving traditional buildings date from the late 19th and early 20th centuries. These are complexes of residential and agricultural structures forming linear or enclosed courtyard arrangements that reflect both craftsmanship and the social organization of farming families (Hojer et al., 1986).

The built heritage is a basic document of the knowledge and taste of the inhabitants, and it also tells us about their way of life in the past and today, about economic activities and opportunities, and about social relations. The formation and development of the entire settlement is also inextricably linked to the demographic and social past of the place. For example, many houses were originally inhabited by colonists, mezzadri (colonnat, mezzadria). They entered into a special relationship with the local landowners, in which temporary lease was combined with wage labor. When such a colonist acquired enough of his own funds, he bought the house. At that time, the simple buildings underwent their first changes and improvements (Hojer et al. 1986).

Today, illegal construction and other new constructions, especially weekend houses built from unsuitable materials, on the most beautiful viewpoints, in exposed places, represent a violent breach in the material culture of Strunjan. They have an even worse impact on local social life, as they introduce foreign elements and unacceptable phenomena of social differentiation into the neighborhood (Hojer et al. 1986).

Preservation of Cultural Heritage

According to Article 2 of the Natural and Cultural Heritage Act, natural and cultural heritage is real estate, movable property and their groups, areas and individual parts of nature that have cultural, scientific, historical or aesthetic value for the SR Slovenia or its narrower area. Subject to the condition from the previous paragraph, natural heritage is, in particular, geological formations, mineral and fossil deposits, geomorphological forms, surface and underground karst phenomena, gorges and gorges, glaciers and forms of glacial activity, springs, waterfalls, rapids, lakes, swamps and bogs, streams and rivers with banks, the sea coast, rare and characteristic ecosystems, habitats of plant and animal species, relict, endemic, rare and characteristic plant and animal species; trees, landscape areas, viewpoints and picnic areas, mountain peaks, objects of garden architecture and designed nature. (Natural and Cultural Heritage Act, 1992)

The natural and cultural values of Strunjan have already been defined in the Urban Plan for the City of Piran (amendment 1976) and in other municipal urban and spatial documentation, in which they are verified with the protection category of a landscape park, and part of the area with the protection category of a nature reserve of national importance (Hojer et al. 1986).

With its characteristics in the settlement structure, with preserved folk architecture, which is of high quality and functional design, with the heterogeneity of the ethnic composition and with the cultural continuity of the population, Strunjan is a unique area in our ethnic space and is protected in its entirety. Taking into account the fact that it is possible to develop the settlement while preserving the existing characteristics, that the settlement has already begun in its testimony due to inappropriate interventions and that the activities in this area (agriculture, salt production, fishing, shellfish farming) are part of the existing situation that must be protected. The area is under the supervision of the monument service and its consent is required for any intervention.

Guidelines for the further development of natural heritage must ensure the preservation of physical-geographical characteristics and thus also the natural heritage and cultural landscape values of the area. Uncoordinated intervention in the space would degrade the physical-geographical identity and thus devalue and impoverish its landscape image (Hojer et al. 1986).

We followed all the written values and guidelines dictated by the recommendations of experts and legislation in the design and adaptation of the old Istrian building,

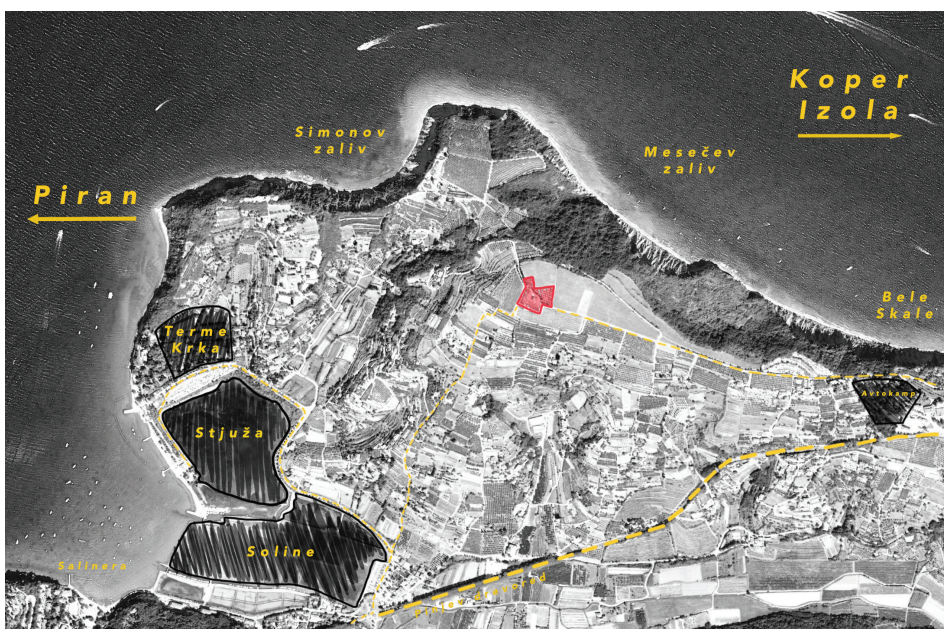
located at the top of the Strunjan Peninsula, and tried to attract new tourists who would contribute to local development.

Concept Design for Restaurant

The old Istrian house is located in the municipality of Izola. The building offers a beautiful view of the Stunjan Bay, Piran Punta and Cape Ronek to the west, and Izola and Koper to the north. The plot extends in the area of Dobrava, which borders the Strunjan Landscape Park. The property is accessible by local road from the Belveder-Strunjan and Strunjan-Belveder directions. Behind the plot is the Strunjan footpath, which is part of the Strunjan landscape park. It is a connection between the municipalities of Piran and Izola.

Figure 4

Analysis of the studied area



The three-story building is currently used for storing tools. The owners are engaged in agriculture and are well-known producers of olive oil under the brand name "Kmetija Ronko Izola". They also once lived there. Due to wear and tear, the house is in quite poor condition. It needs a complete renovation. It has utility connections, but they are not connected to the building.

Figure 5

Existing condition of the building's exterior

The only joinery on the building is represented by doors, and the window portals are covered with metal bars that prevent break-ins and the entry of animals. Despite constant repairs, the roof is dilapidated and needs to be replaced. The walls of the house are built of double drywall and, given its age, have no thermal insulation. The floors, which are covered with concrete on the ground floor, have begun to crack over the years, and with the addition of extensions, the owners did not pay attention to the same pressure level. The floors are connected by steep stairs that lead to a connecting corridor between the left and right wings of the building. From there, impassable, crumbling stairs lead to the attic. Due to the poor condition of the wood, the floors on the first floor are also impassable in some places. provided access to the attic. Due to wood deterioration, parts of the upper floors are impass-

able. The plot is surrounded by cypress trees and an olive grove, enclosed with a metal fence separating it from neighboring properties. The access road is directly connected to the main road.

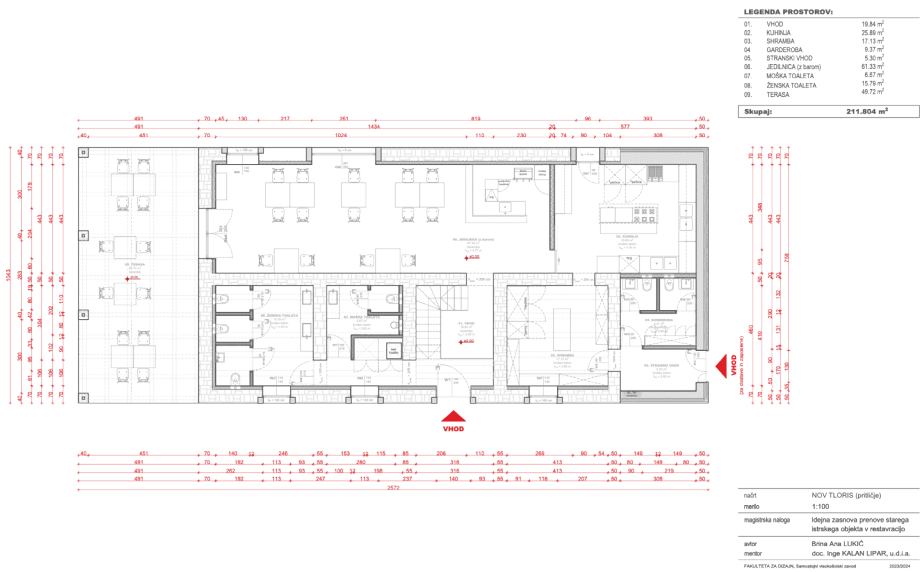
Figure 6

Existing condition of the interior

After consulting with the clients, they decided to renovate the dilapidated building into a boutique restaurant with local produce and food that is traditional to the local area. With the renovation, we have strived to preserve as much of the existing architectural features of traditional Istrian construction as possible and to renovate poorly preserved exterior elements. The renovation included replacing the roof with local roofing, "korci", and a new canopy over the terrace, which will serve as the outdoor part of the restaurant. We have removed the plaster from the building to expose the raw stone, which we will restore appropriately. This will bring the Istrian house back to life and give it its original appearance. We will design a parking lot for guests and employees on the plot, and renovate the courtyard to match the new appearance of the building.

Figure 7

Ground floor plan of the conceptual design



The interior will be expanded into the existing auxiliary buildings, ensuring that the facade remains unchanged. The floor levels will be equalized to make the ground floor accessible for people with mobility impairments. The new layout will include a kitchen, storage, staff changing rooms, and restrooms, a dining area with a bar, and restrooms for guests. The upper floor will have separate areas for private groups and an office. The entire interior style will feature traditional Istrian architecture with modern furniture elements. The modern kitchen and dining area will have the capacity to serve twenty guests. We enlarged the interior within the dimensions of the existing auxiliary buildings, while ensuring that the appearance of the facade was the same as the existing one. We equalized the height levels of the rooms so that the entire ground floor is suitable for people with disabilities. The new layout includes a kitchen, storage, cloakroom and toilets for employees, a dining room with a bar and toilets for guests. On the upper floor there are two separate booths for closed groups and an office. The overall style of the equipment is in Istrian architecture with modern elements of furniture pieces. The modernly designed kitchen and dining area have a capacity for twenty guests.

Figure 8

Visualizations of the conceptual renovation design (Lukić, 2025)

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