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Public space and historic architecture: A case study of Borgo dei Rizzi (Udine, Italy)

Enrico Pietrogrande, Flavia Vaccher

Abstract—As part of more general research into the recomposition of urban spaces in small towns and villages in the region of Friuli in the North-East of Italy, the urban structure of the village Borgo dei Rizzi near Udine is presented. The method adopted is based on analysis of the history of the urban morphology of the village in order to understand it. The physical specificity of the urban form is explored with the aim of elaborating a design process to reinforce the public space as a reference point for the community. This was one of the subjects the students on the course at the Department of Building Engineering specifically investigated as an opportunity to redesign the unity of the historic village that had previously been lost.

Keywords—History as a tool for the project, identity of the community, memory, public space.

I. INTRODUCTION

BORGO dei Rizzi is a small village near Udine whose equilibriums have been seriously compromised by traffic composed of lorries and cars that ceaselessly cross the only piazza in the village. The construction of a very invasive and disjointed building volume near the church has recently been added to the general confusion and to the acoustic degradation caused by the traffic. Fortunately, enough traces of the previous physical reality remain for the morphology that underpinned the urban evolution to be recognized and read. The students on the course at the Laboratory of Architectural and Urban Design at the University of Udine adopted a method to recompose the unresolved condition of this public space damaged by building speculation based on analyzing the history of the village to understand its urban morphology.

This is an indispensable tool in discovering the underlying reasons for the development of the urban structure, which forms an indelible reminder made in the image of the community. The first phase of the project was composed of analyzing the land registry survey map, a written, pictorial, and photographic record, in order to re-establish the piazza and study the relationship between architecture and urban structure.

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II. THE CONTEXT

A. Borgo dei Rizzi as an urban place

Various pieces of archeological evidence show that the territory of Udine was settled from at least the XIV century B.C., in the middle Bronze Age. In particular, the River Cormòr has contributed to the development of the area around the city, a river that is now dry but was once fairly well fed and along which houses and a small harbor were built.

Several written documents provide evidence for Medieval times, providing information on the territory of Ucelluto da Savorgan and other lords. At this time Borgo dei Rizzi did not exist but there must have been a pond on this site that formed a meeting point for farmers and shepherds who brought their animals to drink.

The Republic of Venice occupied the area in 1420, and the Venetian family Rizzi settled here in the XVI century. Various members of the family settled around Udine at that time. A study of the village reports "Nicolò Rizzo da Antivari has been a citizen of Udine since 6 March 1514, Nicolò da Venezia's son Giovanni since 10 December 1520, Marino Rizzi de la Mota since 17 April 1632, and lastly, the Rizzi brothers of Venice since 24 April 1677" [9]. The official date for the founding of the village is 1536, which is sculpted in a well on the site but the family must have already been active in the area for some decades, partly settled within the walls of Udine, and partly in the very place from which the Rizzi family took their name. A richly frescoed shrine at a crossroads named in documents for the first time in 1656 is still there today, which seems to date no later than the XV century.

The first church in the village dates back to the eighteenth century when the community had evidently grown to the point of the village being a place of worship appropriate to having its own church without needing to turn to the churches in neighboring parishes.

Today Borgo dei Rizzi is at the center of an area in which the conditions for life are perceived to be favorable. The population increased by 17% (from 1462 to 1715 inhabitants) between 2001 and 2008, the percentage of elderly among the population is relatively low (20%) whereas there is a large presence in the population of people aged 15 to 39 years of age (28.6%). Strong poles of attraction composed of intermunicipal facilities have risen to the south and west of the village in recent years, namely the scientific university, the

stadium, and the sports center named after the Friulian Primo Carnera. Furthermore, the motorway connecting the region with Austria passes nearby. However, Borgo dei Rizzi has managed to keep its well-defined identity.

B. The piazza (main square) in Borgo dei Rizzi

The presence in the past of a pool on what is now the site of the piazza leads to the hypothesis that there were small settlements around it by Medieval times. The pool has become a distant memory, having been replaced by a fountain and a watering trough.

The open space that corresponds to the present-day piazza became defined to the east by the front of the houses in the village that were established there. The buildings on the historical maps are coherently connected together by articulation that has been preserved up to the present day, and the road structure on the land survey map of 1811 can be superimposed on the maze of narrow streets in the current structure and layout of the village (fig. 1).

The form of this urban space started to be consolidated between the end of the eighteenth century and the middle of the nineteenth century with the construction of monumental architecture that yet again demarcated the limits. The small village church was built on the northern edge of the piazza in the last few years of the eighteenth century (fig. 2) and was juxtaposed with a tower of much larger proportions.

Following this, the important residence of the Rizzi family was built on the southern edge of the piazza from the second to the forth decade of the nineteenth century.

Fig. 1 Map of Borgo dei Rizzi, 1811. The church is isolated on the left of the image with an axis running north-south. The village piazza is developing between the built-up area, the church, and the Rizzi residence (to the south of the church, not indicated on the image because it was built later, before 1843).

Its lengthy façade delineates the piazza as a place. The church maintained the connection to the north even when, due to its size having become insufficient, it was demolished and rebuilt with orthogonal axes and with the façade now facing the houses to the east, rotated 90° around the tower, which was preserved and acted as a pivot.

The west side between the church and the Rizzi residence remains open to the countryside. The site of numerous functions but without a pre-established function, and given the will of the villagers not to define the situation unambiguously, until recently the history of this urban place was characterized by the availability for use that it offers. This is a free space in the old village in which the inside and the outside of the village meet and are articulated, the rural and the urban territory, where the natural meet the formal-logical elements. The iconographic maps and documents picture an image of the place in which the water in the pond, the rows of mulberry bushes, the stone walls that demarcate the division of the land, and the sinuous lanes and paths all integrate with the architecture overlooking the sides of the piazza.

In concrete terms this centuries old condition of equilibrium, brusquely destroyed by recent decisions to construct buildings and roads, presents itself in a physical presence of water, green grass, walls, along with minor and emerging building jobs. The physical elements in the construction of the piazza contribute to giving this place a coherent form that is recognized by the population of this village situated close to the northern edge of the city of Udine.

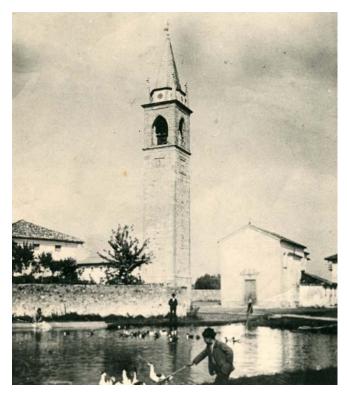


Fig. 2 Photograph 1895. The church built in the piazza in Borgo dei Rizzi at the end of the eighteenth century covering a large part of the bed of the pond.

To quote the words of Aldo Rossi in a similar context, this place has "resulting formal, landscape, and hydraulic questions but above all the will not to define a situation unambiguously that is already an urban fact in itself and where one is dealing with intervening without freezing their availability"[5]. The space in the piazza and its empiricism, well documented in photographic evidence from the time, make the village participate intimately in the countryside through the network of footpaths and lanes, the canal and river systems in the area, and via the markets.

The area lying behind the church saw its vocation to hold community services confirmed in the second half of the twentieth century. Among the public facilities present today are the primary school where the number of pupils attending has doubled in recent years from 56 to 109, the infants school has about 50 children registered, and in 2009-2010 the private kindergarten had about thirty babies. Furthermore, an area dedicated to sports facilities is accessed from the road that serves the schools, the football field, and a basketball court, and there is the building with equally green facilities housing the cultural club in nearby via Brescia.

C. Morphological and typological elements

The first church of the village was financed and built by a priest in the area called Domenico Rizzi. A photograph shows it to be a modest construction, small in size, severe and simple in form, with the façade facing south. The building had a life of a little more than a century as it was demolished between the 1920s and 1930s and was replaced by a very much larger new church with three spans seen when comparing the height of the two buildings compared to the church tower (figs. 2 and 3). Facing east, the new church remained stone until 1938 when it was entirely rendered.



Fig. 3 The new church built at the start of the twentieth century laid out orthogonal to the old church. As can be seen in the image, which looks north, the tower was preserved. Image pre-dating 1938.

No other significant modification has been made to the sacred building since then and its marked neogothic style is still the point of reference for the religious life of the villagers.

The Rizzi residence is the second architectural emergence in the piazza. It is configured like a farmhouse on a farm holding with secondary volumes used as stalls and storehouses. Its façades are void of a courtly character and their height is similar to that of the other buildings in the village so above all the importance of this house arises out of its surface area and the expanse of countryside belonging to it. As a testimony to the pragmatic spirit that drove the family that lived there, there are no sophisticated architectural details compared to the usual buildings in the area.

With regard to the general characteristics of the buildings in the village, which arose out of the work culture and construction skills in the place, the houses are above all arranged in rows of terraces along the roads that structure the territory, being articulated in the form of courtyards and rights of way for thoroughfares. Consequently the recently built detached houses are extraneous to the historic construction methods, disengaged, their autonomous disposition revealing an indifference by their planner to the traditions in the locality. The continuity of the façades and the stone walled enclosure that follow the direction of the roads and that separate private from public property corresponds to the juxtaposition in line with the old houses.

On the one hand these are simple and measured façades with windows arranged in orderly lines but which on the other hand are quite rich in architectural elements when they overlook the internal courtyards rather than the street, and there are service spaces for the cultivated fields on which the volumes of secondary structures, whose form is enriched by balconies and verandas, are articulated.



Fig. 4 The piazza of Borgo dei Rizzi framed in a photograph of the period showing the abutments of the church facing south. The Rizzi residence can be seen in the background to the right. The shadow of the new church and the tower appear in the foreground to the right.

III. CRITICAL ASPECTS

Having been transformed into an area of mobility with traffic running through it, the piazza in the village has for some years now been a mediating space between the rows of terraced houses and the surrounding countryside. The opening of an invasive dividing north-south route that facilitates the flow of commercial vehicles has transformed the piazza into an undifferentiated area of maneuvers by motor vehicles focused on a crowded roundabout at its center (fig. 5). The church is now isolated between branching roads as if it were a central reservation. The problem of the high speed with which the piazza is crossed, the worsened safety conditions, the disorganized parking, the worsened protection of disabled users, and the discontinuity in cycle lanes and pedestrian walkways are critical aspects that are also recognized by the local authority in the municipality who have studied them.

There is no remaining trace of the fundamental physical presence of the water accessible to the community that marked this place for centuries. The large pond is documented in nineteenth century photographs, and was regulated at the start of the twentieth century by the construction of a fountain with a water pump situated in front of the church. Having survived the recent alterations to this environment, an area of green bushes still remains in front of the Rizzi residence. Boundary walls and old mulberry bushes are still present in the limited areas of countryside that still remain.

In recent years a permanent four-story building has been erected on the western edge of the piazza between the tower and the Rizzi residence whose rigid shape completely ignores the historic residential features that stretch along the opposite side.

Built where the parish priest's house once stood, this out of scale building is near the tower and presents all the aspects of low-quality production by the construction industry that has become increasingly widespread in Italy, essentially the fruit of marketing and financial operations. Among the more evident characteristics of the building, whose planning completely ignored its context, are porticoes, balconies on all floors, a roof cornice that juts out, a lift shaft that emerges on the roof, and roll-up doors and windows shutters (fig. 6). Without rules or references, this building is a result of market forces and the whim of the person who proposed it in completely confused disorganized disconnection from both detail and overall context, indifferent to the main settlements and the historic features of the architecture around it.

Partially hidden by trees, a second contemporary building of more modest size and more composed language stands between the first and the Rizzi residence. Notwithstanding its minor impact in the context of the majority of projects developed in the avenue, this building joins the first one in its virtual removal from the piazza and negative evaluation.

The distortion of this shared space in the village deprives the population of a shared place in which their own history can be recognized, and where they can meet in their leisure time. There is an opportunity to make this public space cohesive by studying the relationship between the unchanging historical features of the piazza and the aspects of consolidated recent deterioration. The students were asked to put forward planning reflections on the critical elements, researching into the evolution of the piazza through time in order to obtain the information required to recompose it from its current unresolved condition.



Fig. 5 Borgo dei Rizzi, planimetry of the piazza. current state. The urban space is now cut by an important arterial road and a new building out of scale with its environment was built a few years ago to the south of the tower on the west side of the piazza near the church. The L-shaped nineteenth century Rizzi residence can be seen on the southern edge.

Fig. 6 Borgo dei Rizzi, view from the east of the recently constructed new building near the church. The size of the new building ignores the role of emergence that is due to a sacred building.

IV. THE DIDACTIC EXPERIENCE

A selection of the planning projects developed by the students is now presented. The brief stated the need for a general reorganization of the areas and redefinition of the space between the area of the piazza serving the church, the villa, and the village buildings that had lost its urban and social identity through the decades. However, in order to encourage the maximum scope in confronting the problem, precise planning instructions were not given to the students.

The images submitted do not exhaust the illustration of the individual proposals but show the planning strategies adopted based on knowledge and urban facts gleaned from a historical and formal analysis of the place. All of the projects reflect on the urban morphology, the history of the transformations occurring in the place with particular reference to the spatial relationships in the original and current configurations. The projects are therefore abstract and without constraints but act on a specific urban situation, recognizing the value of identity and represent attempts to put forward new solutions as well as paying attention to and measuring the value of contemporaneity compared to history.

The results do not always bring resolution in that they resolve the questions in play but do nothing about the remaining aspects. Above all, what emerges is the formulation of a plan, the transformation of an idea or more simply, that a problem exists is shown in the plan.

The in-depth study and development of the strategies to fulfill the aims, which are only partially defined here, was also carried out for its didactic value as an important moment of comprehension and verification of the role of the plan in relation to its context, in constructing dialogue with the place within which the plan itself becomes a moment of insight.

A. The wall as a planning instrument

The idea behind the plan in the following two projects is developed around the theme of the wings of the wall that defines and encloses the public space, the first wall is continuous in height but the second is variable, with both walls being permeable to movement and to examination from which privileged insights can be gained in the context.

The first proposal was developed by Michelangelo Pico. The composition of the built environment originates in the study of the typology of the construction of the old city that provides elements of knowledge from which planning cannot exclude the historic façades along the sides of the piazza from the design and its reworking. The openings are evenly arranged according to proportions that hide the surrounding built environment from the analysis but which are subsequently reinterpreted with the intention of marking the synchronicity of the transformation, avoiding an attitude of mimesis and copying the old architectural style (fig. 7).

The analyses used in the study of the façades examined the themes outlined below in a logical sequence.



Fig. 7 View from the east of plan to redevelop the piazza of Borgo dei Rizzi. A continuous row of terraced houses, provided with smaller volumes, interprets the building of the place. At one time the wall enclosed the piazza and was permeable to and from the nearby green area.

From the work of the student Michelangelo Pico.

Above all, the rhythm determined by the various buildings along the rows of terraced houses affected by the transformation, a rhythm given by the actual size of the façades and by their height/width relationships. Then the order of the openings, their size relationships with various floors, and lastly, the formal elements in the façades such as balconies, verandas, cornices, wainscots, chimneys, roller blinds over the windows and the main door, and railings. The constructions details of the old houses in the village were analyzed individually on a series of forms for the purpose of finding the common features of the existing architecture.

The wall, from which the considerations and rethinking originate, then becomes a façade, and the traditional stylistic elements of the types of building in the village are followed and reproposed incessantly. In order to be presented as a compact marker, it defines and protects the most internal space of the piazza, seeming to close it off, marking the limit towards the park (figs. 8, 9).

Thanks to this area, the heart of the piazza has the typical internal size of a simple protected meeting place: the small volumes at the foot of the wall with functions of a bar and exhibition space (fig. 9) breathe new life into the public space that takes its place in the landscape powerfully, generating a space that can be passed through freely, permeable layouts and transits whose stopping places open up glimpse views that are always different. This space shelters moments of joy, contemplation, and melancholic expectations, always leaving those who pass the time there with a free choice such as the opportunity to lie in the shade, sit in the sun, or chat at the tables outside the bar.

A diagon Adilla Suca billa fireza

This helps to make the scale of the piazza human. According to this plan, the currently abandoned Rizzi residence should be restored as small flats.

The project provides for a kind of open-air theatre in the central space in the piazza, an arena to show films and stage theatrical events in the summer.

The transformation strategy contemplates closing the historic village center to vehicular traffic and the parking of motor vehicles, only allowing transit to the emergency services, delivery vehicles, and residents in their vehicles. Appropriate parking areas for residents and urban activities are planned around the edge of the piazza and reorganization of vehicular mobility entering and leaving the historic village center.

The second project proposed by Francesco Fabris and Stefania Virgilio interprets and marries forms and suggestions by studying the area and the recovery of elements belonging to the history of places such as the presence of water and the enclosing walls (figs. 10, 11, 12, and 13). In particular, the students attempt to make all parts of the transformation recognizable and to give them strength of expression in both their relationship with the environment and in the use of the internal spaces through precisely defined organization of the routes and the connecting spaces.

The idea underpinning the project is to make a pedestrianized public piazza with a wider surface compared to the current one, maintaining light through traffic considered indispensable for businesses located in the rows of terraced houses in the old village on the other side of the piazza opposite the church.



Fig. 8 Study drawings for the organization of the piazza in Borgo dei Rizzi, from the work of student Michelangelo Pico.

Fig. 9 Plan to redevelop the piazza in Borgo dei Rizzi, view of the planned wall that opens out on the west side, framed by the church.

From the work of the student Michelangelo Pico.

The aim is to transform this place of transit into a place "to stay" by creating a pedestrianized area that will satisfy the need for an area at the side of the piazza to serve the church and a public space that encourages the meeting of people.

The wall, with its concrete in view, forms the main element of the project allowing the various elements composing the piazza to be kept together, closing the area serving the church to the north by using an inclined flat area that provides a sense of function to a place that would otherwise be ruined. Furthermore, it marks the boundary between the pedestrianized area and the lanes of the road network in addition to screening the new architecturally low quality building.

This makes sure the transformation has unity while a high-level footpath allows access and distribution to homes and exhibition spaces set aside on the first floor of the Rizzi residence that therefore becomes the subject of restoration and reuse. A small bed & breakfast is planned for the secondary wing of this building while the central body that gives onto the piazza will be used for exhibitions and will also host various laboratories creating perfect symbiosis between these two different functions.

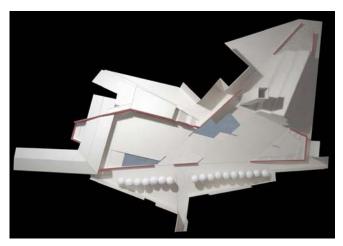
The only building of new construction is a small two-story glass volume juxtaposed to the wall. It contains a small bar on the ground floor as a pole of attraction in the island-piazza while various functions such as exhibitions can be hosted on its first floor.

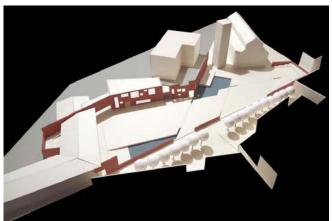
Spatial and material unity is also achieved through a *ground project*. New paving reconfigures the open spaces and perceptibly integrates with the context. A sunken cutting crosses it, generating a new spatial director that terminates in a basin located just inside the wall. The cutting retraces the old course of the now filled in canal and remodels the slope of the ground. The new paving slopes slightly, which is perceptible to users, and drains the rainwater into the cutting that ends with a small sheet of water. The seats are arranged close to each other so that users are situated near each other and provide an opportunity for this space to be lived on the basis of real needs.

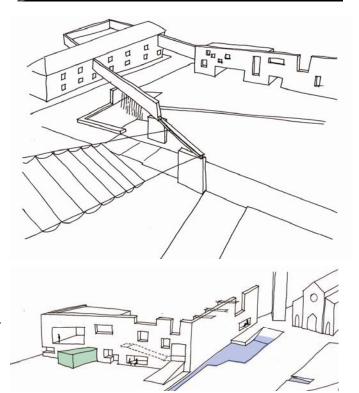
B. The project as variations in the height of the land

In this case the project recomposes, redevelops, and improves the urban territory using meaningful architectural masterpieces that do not conflict with the landscape but coexist and draw their strength from it.

The transformation studied by Germano Guglielmin and Nicola Sartorello uses a system of sunken and underground restorations that is not perceived as a massive emergence but as an architecture immersed in a park with osmotic/natural relationships that are only uncovered on entering the area of the piazza serving the church. The only elements that can be seen from the outside are the recreational rooms and the reading room, which in the purity of their shape, rise as elements of mediation and dialogue. A system of routes through which the functional blocks are reached unravels from the two entrances with ramps at the area of the piazza



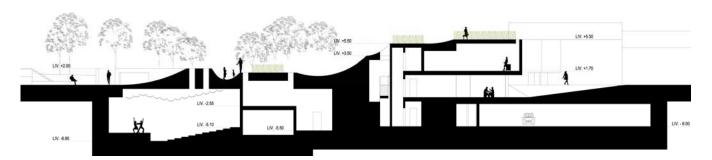




Figs. 10, 11, 12, and 13 Planning proposal of the students Francesco Fabris and Stefania Virgilio. View of the model and study drawings.







Figs. 14, 15, and 16 Plan by Germano Guglielmin and Nicola Sartorello. View of the model and section through the underground spaces.

serving the church. In some cases the functional blocks can be accessed from the park and then flow into the central space of the auditorium placed 4.5 meters underground.

The land use designation as a cultural center favors fragmentation of the volumetry into bodies of minor construction having specific uses (figs. 14, 15, and 16). The road through the piazza in this case is underground, restoring the continuity of use on the surface.

The volumes in the plan are partly excavated underground and partly emerge from ground level through modeling of the terraces on the surface, a texture all of its own. In fact, positioned at different levels and with no aspect along the vertical sides of the route, these underground volumes have no architectural façade.

The natural ventilation and illumination in most cases occur through skylights and chimneystacks that reach the surfaces, integrating into the layout of the green spaces.

The above-described system is to be implemented by surface transformations that designate a large lit urban garden with a slight change in the contour lines.

The entire transformation of the surface is solved by a uniform gesture and presents itself as a strong landscape element.

The second project was developed by Alessandro Azzano, Paolo Peronio, and Andrea Sinigaglia who propose complete reorganization of the road network node at the roundabout in front of the church and new organization of the stopping places in order to guarantee total pedestrianization of a substantial part of the piazza on the one hand and the reestablishment of the historic villa of the Rizzi family on the other. The solution adopted keeps the same directions of traffic circulation and the capacity of the existing roads, optimizing and improving traffic flow along the current lanes facilitating the connection between the two parts for pedestrians by lowering the level of the piazza in correspondence with the road surface (figs. 17, 18).

The road network having been reorganized and the parking system reordered, from the point of view of completely reestablishing the connection of the space in the area of the piazza serving the church with the historic village, the public space could be planned by imagining a plurality of functional capabilities at different times of the day and night, to be safely and easily used by promoting socialization and cultural vivacity.

The central space of the piazza is sunk 3 meters below the level of the countryside and becomes the natural continuity of the area of the piazza serving the church and is connected to the Rizzi residence by a large sloping flat area offering various possibilities for aggregation, restoration, and recreation.



Fig. 17 Solution for the new appearance of the piazza in Borgo dei Rizzi put forward by students Alessandro Azzano, Paolo Peronio, and Andrea Sinigaglia. View of the model of the houses in the village. The piazza is at a slightly lower lever while the layout of the through road passes over it.

The piazza has shops, a restaurant, and an auditorium. The latter is used for musical and cultural events promoted by the Local Council (Municipality) and stands as an independent volume on space in front of the Rizzi villa with which it dialogues in a relationship. On the opposite side of the road is a minimalist building containing several rooms for music practice on the lower level, and a toy library, a multifunctional room, and a bar on the level of the park. The versatility and variety of spaces represents a considerable opportunity to enrich the cultural offer in the village.

The last planning solution was presented by Fabio Ronchese and Nicola Vecchiutti (figs. 19, 20, and 21). It makes use of the articulation of the land on different levels so as to order the volumes of the new architecture to host the civic library, an auditorium, and environments for the public associations and societies in the village.

As in the other cases previously considered, the plan is based on the assumption that the recently built construction near the church clashes strongly with the features of the historic local building style in terms of both size and architectural details being removed from its location.

The rerouting of the traffic along a peripheral route makes redesign of the piazza possible due to which organization along green lines with terraced lawns and the planting of trees in addition to the paving of the section next to the church, the traditional meeting place of the population, is possible. A game of linear routes in the public parks and gardens distributes the accesses to the various volumes for which ample underground parking spaces are provided at the southern entrance to the village.

The strong organization provided by the two students in the general design of the transformation is given to the remains of an old wall bordering the agricultural land (fig. 19). This L-shaped enclosure delineates the transformation to the south and west, forming a fundamental element in the planning process.

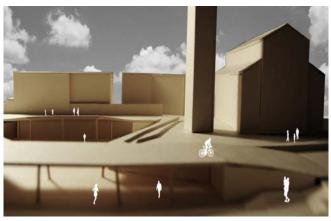


Fig. 18 Solution for the new appearance of the piazza in Borgo dei Rizzi put forward by students Alessandro Azzano, Paolo Peronio, and Andrea Sinigaglia. View of the model from the south-east with the entrance to the auditorium in the foreground and the flat area that slopes towards the sunken piazza on the right.

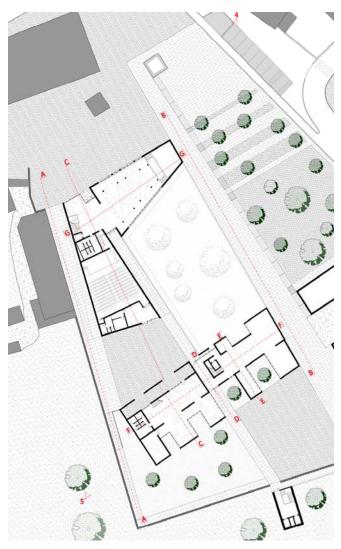


Fig. 19 From the work of the students Fabio Ronchese and Nicola Vecchiutti. Organization of the piazza with the plans of the buildings in the project.



Fig. 20 From the work of the students Fabio Ronchese and Nicola Vecchiutti. General view of the piazza.

V.CONCLUSION

On the basis of the planning assumptions illustrated above, the relationship between culture and architecture in the city has been studied with the conviction that it is didactically fundamental to promoting a synthesis of analysis and the planning project between architecture and urbanism, and between knowledge and action. In particular, the relationship between architecture and the city, between architectural body and urban structure cannot be avoided, a theme shared by students, planners, analysts, and operators.

Put into practice with respect for its history, the crossreferencing the reference marks of the city forms the starting point to constructing both investigative strategies and to developing a planning theory according to the principle by which the planning of a building begins by understanding its environment.

Therefore, comparison with the pre-existing history and environment in the framework of an ample historical-building cornice is assumed to be the fundamental didactic value. This didactic experience relates to the main characteristic of teaching practiced in the Venice school of architecture since the second half of the twentieth century where even in the 1940s the Director, Alberto Samonà, required students on his Elements of new construction course to modify the existing buildings whenever they are in conflict with the surroundings. This statement assumes that history is an instrument in opposition to the museumification of the historic city and in favor of its transformation since in terms of structural features it accepts the insertion of new buildings in the historic urban fabric on condition that these are planned by studying the preexisting organization of the space, the construction system, and the urban relationships of the buildings with the environment from a planning point of view.

The experience gained with the students at the University of Udine, whose action was based on the concreteness of history, confirms the effectiveness of this didactic statement in forming cohesive relationships between teachers and pupils.

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Fig. 21 From the work of the students Fabio Ronchese and Nicola Vecchiutti. View of the building on the southern edge of the piazza.

REFERENCES

- S. Muratori, Studi per una operante storia urbana di Venezia. Roma: Istituto poligrafico dello Stato, 1960.
- [2] C. Dardi, "Processo architettonico e momento tipologico", in Aspetti e problemi della tipologia edilizia. Documenti del corso di caratteri distributivi degli edifici, a.a. 1963-64. Venezia: Cluva, 1964.
- [3] G. Canella, Sulle trasformazioni tipologiche degli organismi architettonici. Milano: Istituto di Composizione della Facoltà di Architettura del Politecnico di Milano, 1965.
- [4] G. Grassi, La costruzione logica dell'architettura. Padova: Marsilio Editori, 1967.
- [5] A. Rossi, "Caratteri urbani delle città venete", in M. Lena, La città di Padova. Saggio di analisi urbana. Roma: Officina Edizioni, 1970, p. 482.
- [6] G. Grassi, "Analisi e progetto", in L'analisi urbana e la pprogettazione architettonica: contribute e al dibattito e al lavoro di gruppo nell'anno accademico 1968-69. Milano: Clup, 1970.
- [7] A. Rossi, L. Semerani, Progetti per la città veneta 1926-1981. Vicenza: Neri Pozza. 1982.
- [8] G. A. Caleffi, G. Malacarne, Progetti veneziani. Milano: Clup, 1985.
- [9] G. C. Taverna, Rizzi. Una comunità udinese. Dalle prime tracce al XVIII secolo. Feletto Umberto (Ud): Tipografia Graf80, 2006, p. 21.
- [10] A. B. Menghini, V. Palmieri, Saverio Muratori. Didattica della composizione architettonica nella facoltà di architettura di Roma, 1954-1973. Bari: Poliba Press, 2009.
- [11] M. Caja, M. Landsberger and S. Malcovati eds., Tipologia architettonica e morfologia urbana. Il dibattito italiano – antologia 1960-1980. Milano: Libraccio, 2010.