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POST-DISASTER RENEWAL. REVITALIZATION OF VAL POLCEVERA AFTER PONTE MORANDI BRIDGE COLLAPSE IN GENOVA

ODNOWA PO KATASTROFIE. IDEA REWITALIZACJI VAL POLCEVERA PO KATASTROFIE MOSTU PONTE MORANDI W GENUI

Abstract

The article describes ideas for the revitalization of the Val Polcevera in Genoa, an area affected by the recent Ponte Morandi bridge collapse. It presents the view of the city authorities on the directions and possibilities of regeneration of sites affected by the tragedy. In response to these postulates the author describes concepts developed in *academia* following the *research by design* method with the participation of students of architecture from Politecnico di Milano. The design of an experimental model combining microenterprises, microproduction as an economic base with dedicated urban design (housing + production units, workshops etc.) has been developed.

Research methods used: *research by design* as a leading method, site visit, bibliographic analysis of the history of spatial development of the area, functional and spatial analysis of the area, drawing inventory, photographic inventory.

Keywords: post-disaster revitalization, artisan village, production park, integration through parklands

Streszczenie

Artykuł dotyczy rewitalizacji obszaru Val Polcevera w Genui dotkniętego niedawną katastrofą mostu Ponte Morandi. Przedstawione zostało stanowisko władz miasta w zakresie kierunków i możliwości odnowy obszaru dotkniętego tragedią. W odpowiedzi na postulaty Miasta opisano koncepcje powstałe w środowisku akademickim, zgonie z metodą *research by design* z udziałem studentów architektury Politechniki Mediolańskiej. Zaproponowana została koncepcja eksperymentalnego modelu łączącego mikroprzedsiębiorczość i mikroprodukcję jako podstawę ekonomiczną nowego osiedla z dedykowaną strukturą urbanistyczną (jednostki produkcyjno-mieszkalne).

W pracy przyjęto następujące metody badawcze: *research by design*, wizja lokalna, analizy bibliograficzne dotyczące historii rozwoju przestrzennego rejonu, analizy funkcjonalno-przestrzenne terenu, inwentaryzacja rysunkowa, inwentaryzacja fotograficzna.

Słowa kluczowe: rewitalizacja po katastrofie, integracja poprzez zieleń parkową

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1. INTRODUCTION

Both natural and construction disasters share a very dramatic human and social dimension. Nonetheless they often present an opportunity to re-shape urban and architectural space, with spectacular reconstructions seemingly intended to overshadow the scale of the calamity. The opportunity to regenerate, improve and implement visions is undoubtedly the only positive aspect of such traumatising situations which exact a steep toll on human lives and the collective sense of a community.

The article is devoted to ideas of functional and spatial transformations in the Polcevera river valley as a consequence of the Morandi Bridge collapse in August 2018. Sites which were previously far from the attention of authorities and investors, in the context of general political and media interest are reincarnated through big-budget, technologically advanced projects. Residential, production and commercial buildings as well as road and rail infrastructure were destroyed in the wake of the disaster, resulting in serious consequences for city's transport system and no access to Genoan ports. For decades the bridge was the most important element of the city's transport infrastructure due to its importance in linking regional traffic with the city's system of roads and motorways as well as access to port areas. On a macro scale, the bridge flung across Val Polcevera was a corridor towards North Italy and Europe. Symbolically it stood for the integration of Genoa metropolitan area's districts and communities.

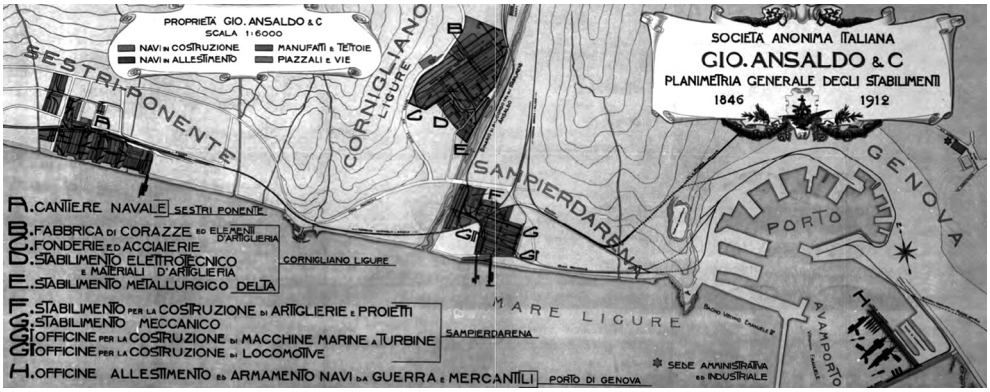
In 2018 the Genoa City Council opened an urban planning competition for revitalising areas of districts at the foot of the collapsed structure and the construction of a bridge at the same location was entrusted to Renzo Piano. The Stefano Boeri architectural studio from Milan won the first stage of the urban planning competition.

2. HISTORICAL CONTEXT: DEVELOPMENT OF GENOA CITY AND DEVELOPMENT OF INDUSTRY IN POLCEVERA RIVER VALLEY

To this day the development of Genoa city is dependent upon the functioning of ports. Its urban layout is a by-product of their location, topography and the course of transport routes across the Apennines towards North Italy. Val Polcevera is a natural topographic opening towards Po Valley.

Between the 11th and 17th centuries, Genoa city was a Maritime Republic, encompassing Liguria, Piedmont, Sardinia and Corsica. It had full control over Tyrrhenian Sea. Trade, shipbuilding and the banking system meant that it commanded one of the larges Mediterranean Sea fleets. The influence of Genoa's banks stretched far and wide. Merchant and financial activities caused two waves of growth. The first came in the Middle Ages: its remains can be seen in the historic city centre's unique urban structure, dominated by viccoli – characteristic narrow streets. The San Lorenzo cathedral is an important Gothic building of that period. The second growth phase left its footprint in the form of a Gothic city: the Strada Nova (New Street) was established, with palaces designed by famous architects: Giovanni Battista Castello built Palazzo Llomellino, and Pietro Antonio Corradi – Palazzo Rosso. In the nineteenth and twentieth centuries Genoa became the hub for metallurgy as well as the mechanical and shipbuilding industries. As a result of immigration fuelled by increasing industry employment, it developed both in the spatial as well as demographic sense. Topography is an important factor determining the characteristic, linear growth of the city: along the narrow band between the coastline and steep mountain slopes. Porto Antico (The Old Harbour) lies at the heart of the

historic as well as contemporary city. The quality of the harbour space and its relationship with the commercial and residential buildings within the scope of Piazza Caricamento (The Loading Square) dictated the quality of the city centre space. Since the eighteenth century, the port was an open area and to a large extent accessible to the general public: a place for work, trade, social integration, seamen and travellers. The character of the port changed immensely in the nineteenth and twentieth centuries. Loading and unloading techniques became mechanised, industrialization had its own demands on transport and warehousing space. The port became an area fenced off from the city, the historic sea – city relationship was severed. The 19th century saw the start of waterfront industrialisation in Porto Antico, and by 1992 production and logistics zones spread taking up western parts of the city. The Genoa airport was built in the 1960s on a pier parallel to the coastline, in the Sestri Ponente district. The throughput of communication arteries was increased and the rail network expanded to ensure sufficient services for the airport and the industrial zone. These elements further expounded the city's separation from the sea. Solutions to this problem were sought as early as in the 20th century, and particularly for the key area – Porto Antico, the heart of the city. Initial contests focusing on this issue were held before World War 2, and then in the 1950s and 1960s. Following decades of efforts, the area was revitalised, its inauguration taking place in 1992, the year of Christopher Columbus – the 500th anniversary of the discovery of America.[2]



Ill.1. Outline of Genoa's west coast together with the Polcevera river confluence. Ansaldo company property is marked in red, with the Campi steelworks its largest production plant, in the Cornigliano district (up along the Polcevera river). As cited in: Biasetton P., Rosato G., *La pressa di Genova Campi*, Soprintendenza per i Beni Storici Artistici ed Etnoantropologici della Liguria, Genova 2013

Urban development in the Val Polcevera area was associated with its location; the valley is a natural communication route towards Lombardy, North Italy and then further onto Europe facilitating access to Genoa's ports. For centuries agricultural production for the needs of Genoa city had dominated the valley. The 1849–1856 period was a breakthrough moment in the valley's settlement history, with the construction of the Genoa – Turin rail link. This triggered the region's industrialisation process. A convenient location on the outskirts, near railways and with periodic water access meant that the area became an attractive site for

[2] Bonenberg A., *Industrial areas support concepts in waterfront revitalisation designs for Genoa city in Italy* [in] *Object – Architecture – Environment : environmental design problems. Vol. 3 Environment*, Faculty of Architecture, Gdańsk University of Technology, 2018.

steelworks and factories primarily spread along the right bank. Since the mid-19th century the area has maintained its highly industrial character, and only the recent decades have seen a reconversion towards trade and goods handling, to a large extent performed by small businesses. A large concentration of megastores associated with building, refurbishments, interior design and furniture, such as Ikea, Maison du Monde, Scavolini Lube and others ensued in the Campi region on the site of historic steelworks demolished in 1982. The largest press from the former Campi steelworks dating back to 1914 was left in its original location as a reminder of its industrial heritage. It is currently located on the axis of the entrance to a Leroy Merlin store. Rail, road and motorway infrastructure converges in the region, with the aim of servicing the coastal belt and Genoa's ports.

3. THE DISASTER AND ITS DIRECT CONSEQUENCES

The Morandi Bridge disaster occurred on 14 August 2018. 43 people lost their lives. The structure collapsed due to a disintegration of load bearing elements: extensive corrosion of cable stays: in some places their cross sections were reduced by between 50 to 100%. Construction defects during the project execution stage also contributed to the disaster. The viaduct opened in 1967, after 4 years of construction works. For decades it was considered to be a milestone in the history of Italian motorways, both in terms of the complexity of its technical solution as well as its aesthetics. The construction itself was a difficult technical task, due to the fact that almost all the land under the planned viaduct was developed. That problem was brilliantly solved by a refined structure with two main spans (on its east side), supported by three tall towers, with smaller, traditional size spans joining from the west. The bridge was 1182 meters long and 45 meters high. It served as a link between the Sampierdarena and Cornigliano districts, passing over the rail network, roads and residential blocks of flats. The structure was designed by Riccardo Morandi, a well-known Italian civil engineer. The bridge was a dominant element of the entire, wide Polcevera River valley and was an unquestionable distinctive feature of the town's region.


DOMENICA DEL CORRIERE

Anno 66 - N. 9 - L. 60 Settimanale del CORRIERE DELLA SERA 1 marzo 1964

Genova risolve il problema del traffico

L'incubo dell'attraversamento di Genova per gli automobilisti provenienti da Est, Nord e Ovest diventerà soltanto un brutto ricordo. Il disegno di Molino mostra come avverrà il raccordo fra l'autostrada dei Fiori e l'autostrada per Savona. I primi piloni di acciaio di questo ardito collegamento sono stati infissi in questi giorni. Alle pagg. 22-23 un servizio sui progetti di soluzione del traffico a Genova e in varie città italiane.

Ill. 2 Cover of March 1964 „Domenica del Corriere" with an illustration of the future bridge. This publication appeared to celebrate erection of the first structural elements. Source: http://www.abitare.it/it/news/2018/09/24/ponte-morandi-genova-cinque-domande/?refresh_ce-cp

The disaster was widely reported in the media, and as such there is a significant political aspect to the revitalisation issue, particularly in the context of liability of the authorities for insufficient control and cooperation with the company that manages the bridge: Autostrade Italia. When it comes to rebuilding the bridge and revitalising the surrounding areas – the expectations are huge, proportionally to the scale of the disaster.

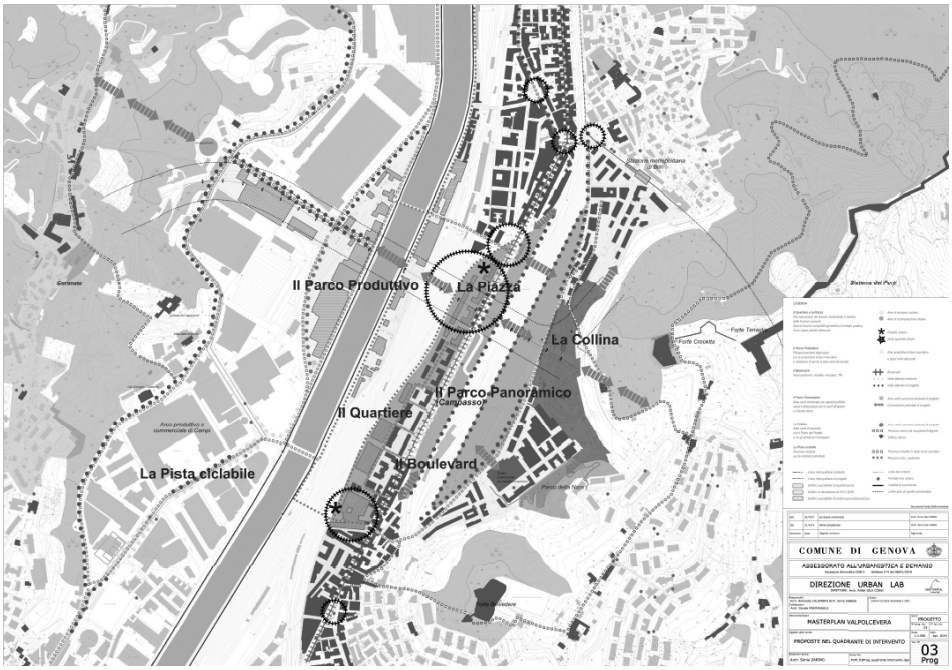
4. INDUSTRIAL AREAS SUPPORT CONCEPTS IN WATERFRONT REVITALISATION DESIGNS FOR GENOA AND VAL POLCEVERA

Thus far the priority in revitalisation plans for Genoa lay in regenerating waterfront areas and a more sustainable association between general access areas and water. In light of the bridge disaster these objectives had to be redefined and practical interest in revitalisation expanded by the Polcevera valley area. Just as for waterfront designs created after 1992, here support for industrial areas is also an important item. The city's cumbersome topography, expansion within the relatively narrow band between the sea and the mountains results in a shortage of areas which easily yield to construction including industrial and production construction. The new Polcevera development concept is a valid continuation of concepts which transpire in coastal complexes – keeping production within the city boundaries.

Renzo Piano designs for Genoan coast: Genova Waterfront and Blueprint transform production and industrial areas to make them friendlier from the urban planning composition point of view and in the perception of the city from the point of view of tourists and residents. For example the Blueprint concept developed by Renzo Piano entails linking the Porto Antico area with the Foce and Genoa Trade Fair and Exhibition Centre regions. A short three kilometre distance, connecting two locations of major importance in the city is currently not very pedestrian friendly, and this neglected zone drives tourists away. Partially the closed industrial areas of the two active ship-repair yards neighbouring Porto Antico are to blame. A significant objective of the Blueprint is to improve the conditions for the operation of these shipyards, by providing them with more usable area whilst at the same time improving the aesthetic and landscape qualities of shipyard architecture. Amongst others, this objective is to be attained by constructing a navigable channel between the shipyard and land, which, together with new vegetation plantings, pedestrian and bicycle communication will enhance the landscape qualities of this part of the city. Under these circumstances the shipyards will became autonomous – an island location naturally restricts unauthorized access and the use of high fencing, unattractive from the landscape point of view, becomes superfluous. An opportunity to sail around a shipyard and observe the process of building and repairing medium sized vessels from the deck of a ship might be attractive. The tourist and industrial functions do not have to collide, if the general design solves the spatial conflicts.

A thorough reconstruction is in store for the area to the east of Porto Antico. There are a number of buildings here which have to be retained and accentuated, such as the Blue Pavilion (Padiglione Blu) dating back to 2009 by Jean Nouvel, which stands within the Genoa Trade Fair and Exhibition Centre (Fiera Di Genova) area. Another significant structure is the Trade Fair and Exhibition Centre rotunda dating back to the 1960s. The architectural and urban planning Blueprint Competition announced by Genoa Metropolitan Council in 2016

aimed to elaborate on the details for further Blueprint concept units.[3] Hence, publishing the competition means handing over the decision as to the final appearance of urban space to the young architects generation. According to its originators, the Blueprint Competition is to constitute an instrument in obliterating "vacuum" in the urban fabric. Analogously to national and international urban planning experience, a decision was made to return the International Genoa Trade Fair and Exhibition Centre areas to the residents. The goal is a reconstruction according to *rammendi* principles, a word which in Italian means the practice of meticulous and attentive repairs and improvements. A practice, which has to be reflected in today's desire to reconstruct the urban fabric by filling in the voids. Another Genova Waterfront Renzo Piano concept entailed moving the airport to an artificial island, located in the vicinity of today's location. Apart from the consequences of moving a burdensome noise and pollution generating function further from the waterfront, the idea was to acquire the current airport areas for the needs of a new container terminal or development of the Shipyard in the Sestri Ponente – Fincantieri district. Today, a congested railway line with national, regional and local significance intersects the shipyard, which limits the maximum possible dimensions of the ships built by the shipyard. As in recent years Fincantieri customers included shipowners of large cruise ships, limiting the dimensions of ships evidently puts the company, which is a major employer in the city, at a competitive disadvantage. Its cost and lack of enthusiasm



Ill. 3. General design concept for the areas stricken by the disaster. Source: "Il Parco del Ponte. Concorso internazionale di progettazione per il masterplan dirigenerazione del "quadrante Polcevera" e lo studio di fattibilità del nuovo parco urbano". Comune di Genova, Reggione Liguria

[3] Competition terms and conditions: "Blueprint competition – competition notice" Genoa Metropolitan Council 2016, http://www.blueprintcompetition.it/sites/default/files/BlueprintCompetition_brief_eng.pdf (access: 13.05.2017).

from Autorita Portuale Genova authority means the idea to move the airport is quite unrealistic at the moment. However, the situation is different when it comes to a section of the waterfront located to the east of the City Centre, developed according to the new Blueprint.

Maintaining and expanding industrial zones became a the Val Polcevera revitalisation objective, as it is still a specialised production region: research and technological innovation. The revitalisation aims to achieve post-disaster regeneration within the scope of an improvement to the quality of urban space, enclosed within the framework of an ecologically cohesive urban design. Greenery is to bind all the urban fabric elements. The expansive area with small businesses, sports and recreation facilities and co-working spaces is to get a new lease of life promoting sustainable development in various forms: environmental, economic and social. The town's local plan pays heed to a priority strategy which aims to focus efforts on developing high technologies, environmental sustainability, reorganising and increasing the density of some residential estates. To that end the plan specifies support of science and technology parks, business incubators and start-up type enterprises. Important support for the research chain and the industry relies on the presence of the Italian Institute of Technology as the driving force behind businesses conducting research and innovating.

The function and character of park greenery within the scope of the design are varied, depending on the nature of given areas. The entirety will be integrated through a system of crosswise links, facilitating straightforward and safe communication. Local communication will be arranged between the agricultural use class Coronata ridge to the west and historic forts lying to the east. The gentler western slopes of the valley have a particular identification value and are environmentally attractive.

The aim of the production park ("production in a green area" or "Il Parco Produttivo") which is to grow on both sides of the Polcevera stream is to integrate residential estates and industrial facilities. Important production centres are already located on the site of the future park: Ansaldo and Seigen. Public and private services can also be based there in order to improve the quality of work and lives of both people engaged with production activities as well as the local residents. Currently a building known as BIC stands in the southern part, home to an active FILSE Business Incubator. Buildings owned by various companies and the AMIU Group can be found in the central part. This area lies within the buffer zone of the new Renzo Piano viaduct.

The Campasso Panoramic Park is a spatial continuation of the Production Park within which a significantly scaled down railway function remains, vegetation will be added to the remaining areas, will not be built upon, with sports and recreation functions.

Geomorphologic and hydrogeologic concerns dictate a reorganisation of greenery on the eastern slopes of the valley. At the same time a renewal of tourist paths to the Forti ridges and an improvement of the Parco della Nora public green areas are planned.

4. *RESEARCH BY DESIGN* – THE VAL POLCEVERA AREA AS A RENEWAL VISION IN EXPERIMENTAL ACADEMIC DESIGNS

The design process constituting an important part of the research process lies at the heart of the *research by design* method. Such a take on urban and architectural design furthers observations which yield new knowledge. Application of the method to spatial solutions in

Val Polcevera may be a source of significant conclusions primarily due to an opportunity to juxtapose different design possibilities.

In economic terms, support for micro enterprises is an important strategy to quickly improve the quality of life of large groups of people. There are many methods for acquiring financing for it within the scope of European Union funds and national programmes. Micro enterprises are a fast growing sector of the economy, where new jobs are created contributing to a reduction of the unemployment rate – a very important matter in Genoa's social context. Micro enterprises are flexible and can quickly adapt to market needs. Innovation, a desired economic quality, is becoming an ever more common condition for success.[4] Micro and small enterprises are already quite active in Val Polcevera. The author's concept entails establishing an low intensity urbanisation model which supports small scale serial production, the functioning of small businesses, crafts, design and fashion labs and possibly art related activities. The goal is to create an architectural and urban idea which effectively supports this model.

Within the scope of Politecnico di Milano classes at Architectural Design Studio1, student design teams overseen by Prof. Agata Bonenberg and Prof. Marco Lucchini researched the potential of the areas affected by the disaster. The terms and conditions of the competition organised by the Genoa City Council became the starting point. A built-up belt directly under the bridge which is ultimately to become the "production in a green area" ("Il Parco Produttivo") proved to be the main point of interest. The era spans the right bank of Polcevera, bounded on one side by the river and on the other by a railway line. The following were carried out in order to examine the site:

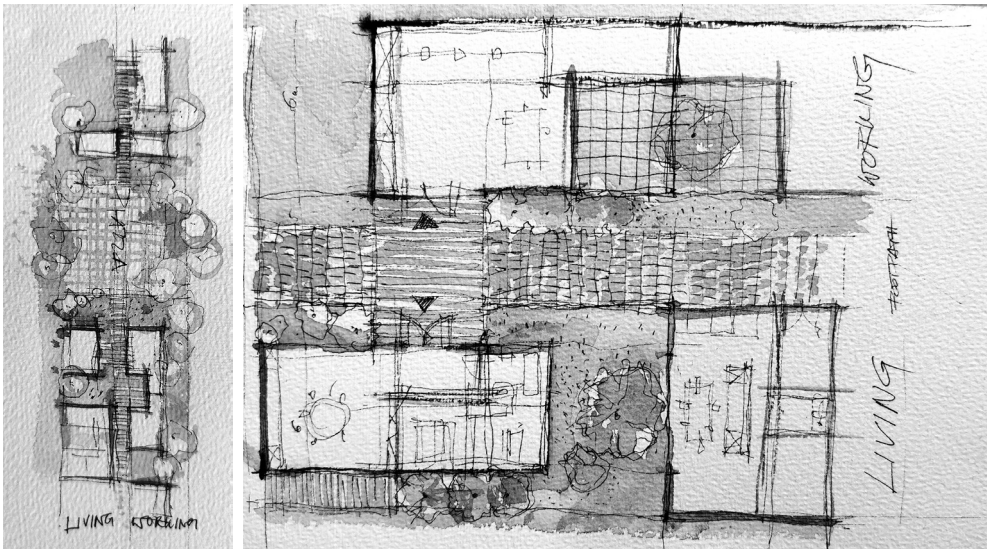
- a site visit starting from the Brin metro station
- bibliographic analysis of Val Polcevera's spatial development history
- functional and spatial analyses of the site
- sketch survey
- photographic survey

Based on the results of research, site and surrounding area analyses as well as local conditions it was determined that the concept entailing construction of small residential and craft workshop units in the centrally located "production greenery" belt ("Il Parco Produttivo") achieves a large number of goals; including the most important one – economic activation of the area. Design suggestions pertaining to the "Il Parco Produttivo" area assume an experimental urban planning structure:

- with an artisan craft (studio, laboratory) function or a small industrial function (workshop),
- with small residential spaces accompanying the studio, laboratory or workshop,
- with a network of open outdoor areas (patios) which can be adopted as a work or residential zone,
- with a common public square, where residents could integrate and which could be sued as a venue for commercial events: trade fairs, exhibitions promoting the effects of production, craft or artisan works.

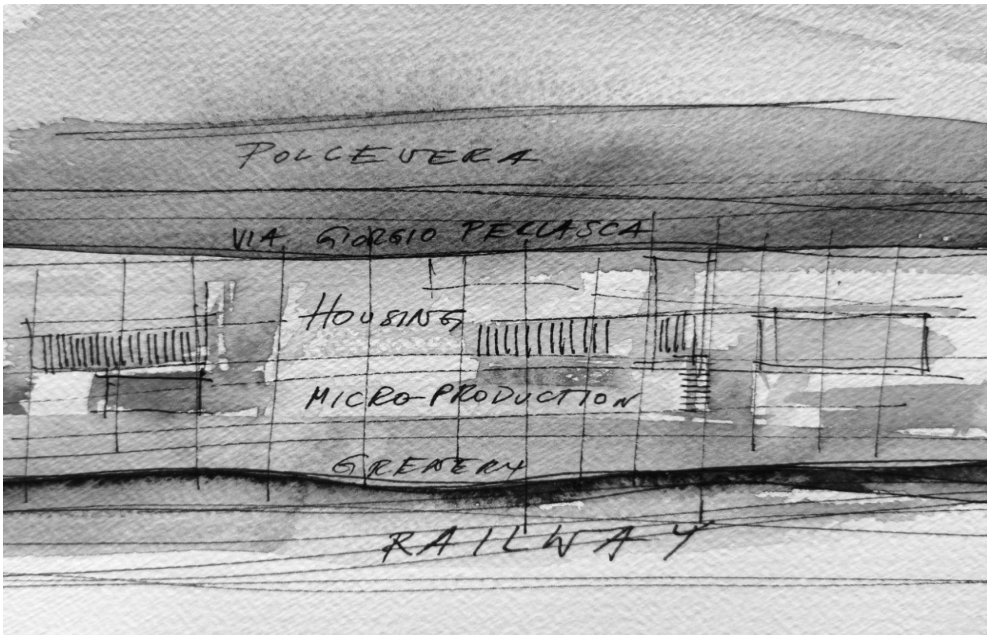
[4] Wilimowska Z., *Wstęp* [in:] Z. Wilimowska, K. Urbańska, *Funkcje mikroprzedsiębiorstw, Uwarunkowania działalności mikroprzedsiębiorstw na polskim rynku*, Oficyna Wydawnicza PWSZ w Nysie, Nysa 2009, pp. 7–9.

Ill 4, 5 and 6. Spatial concept; a system of units comprising a residential zone, production zone and a patio which may be adopted for the neds of either of the two. Source: A. Bonenberg



Ill. 7 and 8. A system of units comprising a residential space, production space and a patio which may be adopted for the neds of either of the two. Source: A. Bonenberg

Such a formula achieves a number of goals specified for the areas. Firstly it addresses the green space concept, which is to be the dominant element of the new landscape. It achieves the postulate of residing close to a workplace, reducing commuting. Although primarily it is a continuation of the local production traditions. In the economic dimension, locating small scale craft production in the vicinity of large furniture and construction trade facilities adds to what the region already has to offer within this scope.[5]



Ill. 9. Sketch of the development: a green belt on the side of the railway line, then workshop and production patios, residential space, residential patio, green belt, read and Polcevera river. Source: A. Bonenberg

SUMMARY

Renewal of the Val Polcevera area in Genoa stricken by the Ponte Morandi disaster became a priority for the city authorities. There are a number of reasons why changes are more welcome in a widely discussed enterprise at the focus of political interest, such as this one. Renewal provides an opportunity to further redefine the industrial town. The economic, social and political settings of European cities expressed in the 2030 Agenda is conducive for keeping and supporting industrial areas. The urban and architectural model, put into practice within a small "production in a green area" ("Il Parco Produttivo") fragment is geared towards micro enterprises and small scale production, as micro enterprises constitute a dynamic and flexible sector of the economy which relies on innovation. And that is an important quality in Genoa's social context. And last but not least, when working on design

[5] A large concentration of megastores associated with building, refurbishments, interior design and furniture, such as Leroy Merlin, Ikea, Maison du Monde, Scavolini Outlet, Lube, IperCeramica and others ensued in the Campi region.

solutions, a conclusion comes to mind that improving the quality of space in industrial areas primarily entails eliminating conflicts between macro and micro production areas, residential areas and those dedicated to leisure. Thus far Genoa's waterfront designs have supported and bolstered industrial areas functioning within the city in spatial and infrastructural terms. Thus the lead concept of retaining and developing industry in Val Polcevera is no surprise. Whereas the experimental and original concept of re-establishing small scale industry as well as art and craft activity within a part of the Parco Produttivo delivers a new functional and spatial quality to the city.

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[7] Competition terms and conditions: *Il Parco del Ponte. Concorso internazionale di progettazione per il masterplan dirigenerazione del "quadrante Polcevera" e lo studio di fattibilità del nuovo parco urbano*. Comune di Genova, Reggione Liguria.

[8] http://www.abitare.it/it/news/2018/09/24/ponte-morandi-genova-cinque-domande/?refresh_ce-cp, (access 7.11.2019).

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