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Crafting Urban Intervention
Mario Ridolfi's Postwar Works in the City of Terni

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Abstract

The reconstruction works of Mario Ridolfi and Wolfgang Frankl in historical centre of Terni, unlike their earlier practices known for neo-realism, are often marginalised from the mainstream of modernist architecture, probably because their historicist and craftsmanship approach both seemed to be outdated in postwar era and thus unlikely to provide new insights into the architects' concept. This thesis scrutinises the scarcely discussed relationship among these works, both temporally and geometrically, seeing them, including urban planning and architecture, as parts of a longterm exploration of a consistent compositional apparatus which was able to be applied in urbanism, architecture and construction details alike, which wasn't seen anywhere else in the architects' oeuvre. Emphasis is placed on two areas of urban intervention, San Francesco and Piazza Spada, as well as two related sets of built works and projects.

Craftsmanship might be the all-time concern when it comes to Mario Ridolfi's work. In Terni, with no exception, the architects skilfully crafted as many details for every project as for the houses in Marmore. But the critical parts still resides between each individual building and their environment, where volume, framework, and construction system was carefully organised as if form, material, and technics were organised in construction details, in order to build up connections of components and integrity, or to balance between consistency and multiplicity. In the field of urbanism, craftsmanship became a spirit of systematic way of composition that didn't rely on figure or proportion, but the detailing process translating geometric motif consistently into variegated urban-architectonic forms in different scales that went beyond singular material and buildings technology.

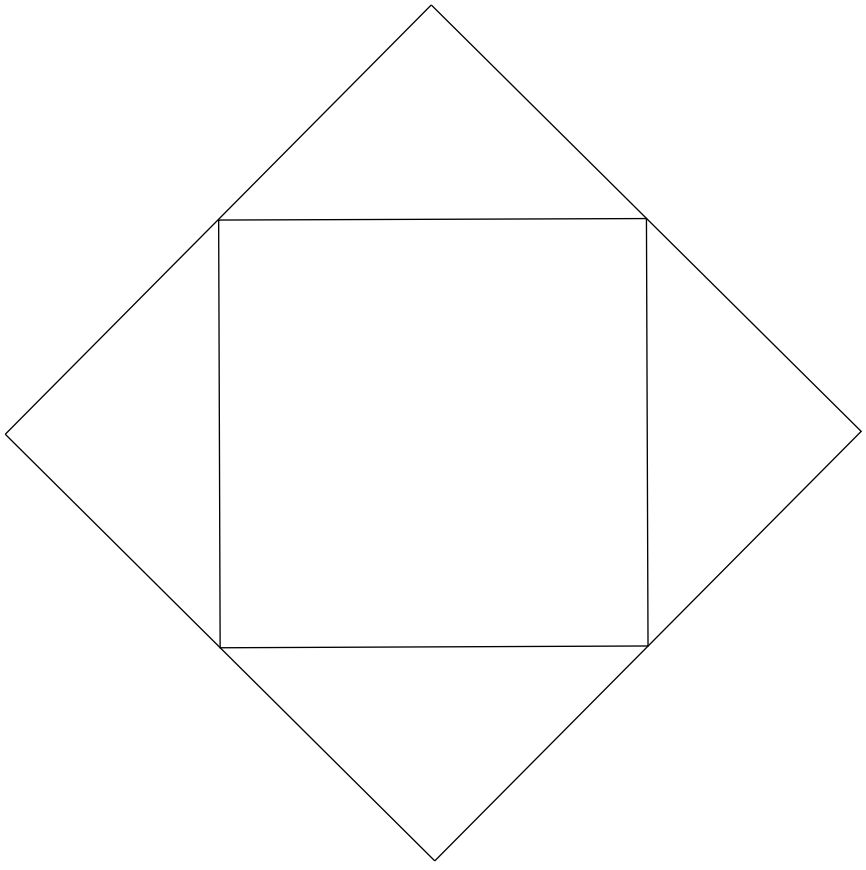
Meanwhile, through holding to a certain typology of mixed structure with visible concrete framework combined with various kinds of infill walls, Ridolfi's 'urban craftwork' extended to appropriation and reinterpretation of the construction system in accord with the position of the object in the relationscape. This thesis also discussed the origin, development, variation and culmination of this construction typology as it transformed along with the construction of urban environment.

In Ridolfi's conception of urbanism there existed an unsung theme which was scenography that functioned as visual control, since the buildings are always the backdrop of human activities on the square. Such conception witnessed the evolution of visual control from single axis in the first phase of the reconstruction plan to multiple ones that formed a panorama in the second phase of the detailed plans, and had, to some extend, pre-determined the form of geometric motif as well as the elements such as the asymmetrical backdrop, the diagonal axis and its destination, or the stage of theatre in a central plan.

Although ternian works are unique because of their non-repeatable prerequisite, they were still indebted to the accumulation of the architects in their profession and private experiences. There are huge amount of drawings but very few words left as the resources of this research, since Ridolfi was apparently among those architects who always do a lot but speak little. Therefore these works are also examined in relation to the architects' past and contemporary works and experiences.

Never considered major urban designers, Ridolfi and Frankl, nonetheless, provide through their play in various scales with geometric pattern and constructional form abundant materials for a different, architectonics-oriented urban intervention in Italian postwar reconstruction.

Introduction



1 Urban-architectonic Composition and Craftsmanship

'Terni, after those years being there, I have always continued to love this city; and to try to operate, I would say, in the best way, and to create, to give building codes that would give the possibility for those, who want to break the bread to others, to be able to do it as I did.'[1]

— Mario Ridolfi

1.1 Ternian works as an integrity

The reconstruction of the historical centre of the post-industrial, medium sized Umbrian city, Terni, could serve as an example of how urban identity was derived from long-term intervention of one single architect. Mario Ridolfi, an architect with opulent opus, on the other hand, had never done for anywhere else the kind of works he did for the historical centre in Terni. From mid 1940s to 80s, Ridolfi, along with his collaborators Wolfgang Frankl and Domenico Malagricci, had directed the urban planning at different stages, including reconstruction, general regulation, and detailed planning; They also finished five speculative residential projects, a middle school, a mixed-use complex and a part of the new municipal office. Despite that their urban envision was only partially realised, and the number of completed architectural projects were much less than expected, they still managed to set these works in an exemplary manner, covering different situations of urban environment, various scales and types of built form, exploiting the morphological and functional potential of a construction system, which has today led to an consistent image and defined the architectural language of the city.

The strong influences of these works relied on their consistency across space and time, and the close association between urbanism and architectural practices. It was clear that the architectural projects Ridolfi had completed in Terni went in two stages: Casa Chitarrini and the middle school began around 1950, directly after the approval of the reconstruction plan, while all the other four 'palazzine' as well as the hotel in 1959-60, following the plaini-volumetric definition from the variant of the reconstruction plan (which was in fact a predecessor of the detailed plan). Spatially, these projects, together with adjacent historical monuments, had formed four 'scenographic sets'[2] as public squares with backdrops. Among them Casa Briganti and the complex of Fontana brothers were more on their own[3], while the rest came in groups and formed two sets that had generally contributed to the urban structure and best exemplified Ridolfi's conception of urban and architectural composition: Situated on one of the not so many realised part of the reconstruction plan, Casa Chitarrini and the middle school worked together, flanking the visual axis leading to the bell tower of San Francesco, and as the vital core of the detailed plan, the cycle of works including Casa Franconi, Casa Pallotta and Uffici Comunali around the geometrical pattern on Piazza Spada, had defined a new centre of the city. 1T1

These two sets of works from consecutive periods also represented how Ridolfi's concept and tools of urban composition developed over time. When Ridolfi was first involved in the reconstruction, he didn't have the experience of building in historical centre of a city, nor any ready-made prototype to apply to. For instance the middle school could be an experiment, and possibly a successful one in regard of both urban and architectonic composition; The experience was derived not only from the study in-situ, but from various projects he realised elsewhere as well, namely the famous social housings in Tiburtino, Viale Etiopia, and condominiums in suburban Rome. On the other hand, the rapid pace of urban planning and construction in a historical period with high economic growth also produced operative loopholes in the procedure. Being both the planner of the city and the builder of individual edifices, Ridolfi became more and more aware of the possibility and potential of using political and economical resources to negotiate for more priority for 'architectural-cultural order' over others. With these efforts, Ridolfi became more composed and prepared than before, creating favourable conditions in the master plan for the upcoming architectural projects, otherwise there won't be Casa Franconi, or Casa Pallotta, which was some of the architect's most completed works that had culminated the his career in Terni.

An surprising fact was that Casa Chitarrini and the middle school of 'Leonardo da Vinci' were the only two project built in the centre of Terni that had been published on Casabella. In their prime time, Ridolfi and Frankl kept staying outside of the trend and debate of the academic world.[4] Their projects realised in this period accompanying the detailed plan in Terni (or later, the country houses), were more or less overlooked by the mainstream media at the moment they were completed. Some of them only appeared in the periodical *Edilizia Moderna* as a brief section of the compilation 'architettura italiana 1963', or Giovanni Gandolfi's book on new Italian architecture with exposed reinforced concrete. Others never surfaced until 1974 when *Controspazio* published a retrospective monograph of the architect, in which the ternian works were first examined as a whole. Ridolfi finally came back with the exhibition 'Le Architetture di Ridolfi e Frankl', which was held in state archives in Terni in

1979, whose catalog also contained some important essays featuring on his urban and architectural practices in Terni. The unfinished last project, Palazzo Uffici Comunali, gathered unprecedented attention from scholars, which had been published twice on periodicals, first on *Casabella* in 1983, and then, ten years later, after Ridolfi's demise, on *Zodiac*, when the project was relaunched and revised by Wolfgang Frankl. Despite all the attention and petition, they still failed to save this project from being suspended due to financial issues. As to urbanism, the essay written by Mario Coppa published on two consecutive issues of *Urbanistica* provided an informative overview of the urban development of Terni as a modern city since late19th century, including the whole process of Ridolfi's work from the pre-war competition to the variant of the reconstruction plan approved in 1959. These fragmented records or reflections weren't helpful in building up the whole image of Ridolfi's practice in Terni, whose value was only recognised decades later.

1T1 (Facing page) Architectural projects realised or partially realised by Mario Ridolfi in the centre of Terni. (1:7500)

Light grey Existing buildings Dark grey Planned buildings (based on Ridolfi's detailed plans) Black Ridolfi's projects

Area I will be focused in Part II of this thesis and Area II in Part III

1. Fontana Tacito (1932-3)
2. Casa Chitarrini (1949-51)
3. The middle school of 'Leonardo da Vinci' (1951-1961)
4. Casa Franconi, block A and B (1959-62)
5. Mixed-use complex of the Fontana Brothers (1959-66)
6. Casa Briganti (1959-64)
7. Casa Staderini (1959-65)
8. Casa Pallotta, Block A and B (1960-64)
9. New municipal offices (1960-73, 1978-82, 1993-)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5
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Area I
2
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Area II
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1.2 Literature: A new start from within the walls

One reason leading to this situation could probably be that neither Ridolfi nor Frankl spoke for themselves self or their works, just as Ridolfi had confessed that he 'could not be an actor and a judge at the same time.'[5] Ridolfi might have written the technical report for every project he did, but barely any description for publication. Their already scarce discourse on the ternian works was dispersed in dialogues with some scholars, evading all grand narratives and concentrating on personal experiences and ideas of detailing. The background and theoretical prerequisite of his ternian works could be compiled from two talks from Ridolfi himself, 'A Bitter Confession' and 'The Architecture in Front of Historic Environment and the monuments in urban centre', both published on *La Casa* in late 1950s, communicating with younger generations about his career and experiences in the past three decades. Without mentioning any of his projects, Ridolfi did disclose some of his propositions on urbanism by stressing the difference between practices within or outside the city walls:

'... [I]n the suburbs we became peasants, because in the suburbs we allowed ourselves anything, huge luxuries, because there was that freedom; but as we entered the walled enclosure, we had to settle down with our language that we had unfortunately lost.'[6]

In fact, Casa Chitarrini and the middle school were the first projects Ridolfi had ever realised within the walls of historian city. The development of concept and method in these works clearly indicated different approaches of urban intervention in contrast to, for instance, the palazzine in Rome. To Ridolfi, the practice in Terni had not only promised a more glorious context for architectural works, but also given the opportunity to re-evaluate his previous conception and methodology in thinking and practicing architecture. He was aware that the functionalism or rationalism axiom brought by 'the wind of the north' was inadequate in dealing with the project in a historical context, and started to recollect and resort to the knowledge derived from his formation, from the mentors such as Giovannoni, Piacentini that had once been strongly opposed. It seemed that even before the prevalence of high modernism, they had already offered 'a language richer in expression, and more responsive not to the absolute utility of things, but to solve the problems of architecture, considered not only under formal aspect, but also from the point of view of enrichment and beauty at the end'.[7] In fact, Ridolfi was outspoken in how his approach to urban design was indebted to Piacentini and his education back in 1920s.[8]

Also benefited from the formation years was the sensitivity towards informal built environment. Back in the time when Ridolfi was a student, Rome was enduring massive urban construction manifesting its archeological sites while taking down minor structures and neighbourhoods. In this circumstance, the value of the minor section of the city was discovered and reinterpreted by some of their teachers like Vincenzo Fasolo, or Gustavo Giovannoni[9], who imparted to this generation of students how to understand building style though practice and physical or cultural environment. The influences was reflected in the observation of Ludovico Quaroni, Ridolfi's collaborator in Tiburtino, and indirectly converted into their practices later labelled as neo-realism[10]. Coincidentally, Wolfgang Frankl's early experiences and formation also led him to be fascinated by the disorder in medieval city as the heritage of ancient culture and to seek for new solution for their time.[11] Taking the previous rationalism works as a wrong move, the residential projects in Tiburtino and Viale Etiopia had established their new orientation of architectural practice. Although these projects were indispensable to Ridolfi's later practices, there was still a long way to go from them to the works in Terni, considering the city walls lying in the middle. Terni had never been an importance city in Italy, but it was an ideal place of disorder thanks to the preserved ancient fabrics and the overlapping construction and reconstruction through different historical periods. It was not hard to notice that Ridolfi's approach here differed a lot from Tiburtino, since almost all architectural works were presented in perfect forms and strictly symmetrical, what actually contributed to the artificial disorder happened between the buildings and the city.

In 1970s the special case of Terni in urban planning was already recognised. There were basically two premises resided in policies and management, as Vanna Fraticelli had pointed out, that had ensured the continuity between the plan and architecture of the city. First of all, it was Ridolfi's full

intervention, his double role as planner and as architect, that 'had jointly dealt with the drafting of the general regulatory plan and the detailed plan of the historic center', which associated functional organisation such as circulation or destiny with real urban design, and zoning law with specified building regulation. Second, the government had invested a lot in acquiring or exchanging private properties for public use, applying building regulations to control individual speculative forces, which had effectively balanced public power and private initiatives. Therefore 'the Terni plan became an interpretation that solved the relationship between the different phases of intervention in the quantitative technical precision of the regulatory plan, and therefore presented itself as an executive plan, of which the detailed plans were possible corollaries.'[12]

The synergy between plan and projects was clearly represented in the detailed plan in the area of Corso del Popolo and the projects in Piazza Spada in 1960s, but Ridolfi's compositional tools utilised here were only recognised much later (although still inadequate), since they never seemed to be strong enough as his small houses later in Marmore, or clear enough to fit into any type favoured by the academic trend. Aldo Tarquini, in his two books on Ridolfi and Terni published in 1996 and 2005, had indicated how crucial this tool was in collaborating planning and architecture, since Ridolfi 'had always regarded urban planning as 'a more general compositional fact', that is 'as an architecture on a larger scale', and that he wanted to 'model the city as a house or a neighbourhood'[13]. In this regard, 'the same form of the plan and the rules, deliberately expressed only graphically and containing many urban and architectural simulations, is a valid model for the design of the built-up areas. Ridolfi and Frankl have constantly developed this method, from the reconstruction plan onwards, and have provided valuable examples also in the historical parts of the city.' In his retrospective essay on the practices of Ridolfi in Terni in a time frame of four decades, he also summarised the fundamental tools of composition: 'Ridolfi developed a project of the modern city that rejects the classicist and academic tradition, focused on the revival of a city structured by geometric and perspective rules, but does not adhere fully in search of a rationalist matrix (zoning, standard, typology, sociology, psychology, etc.).'[14] Although he didn't delve into details or actual examples, the 'geometry' mentioned here immediately echoed with the existing analyses of Ridolfi's formal operation particularly on central plans, it would be interesting to see whether Terni's plan was also related; And 'perspective rules' reminded of the narration by Ridolfi himself on how he experienced the environment and built up visual connection among objects by watching and taking photographs. Both indicated clear direction for further research.

Scholars also confirmed that 'Ridolfian works' in the centre of Terni had created a 'school' even if it wasn't being stated, just like the country houses he made in his late career. Thus the architectonic characters that commonly connected these projects were disclosed. For example, Portoghesi has defined 'three paradigms of Ridolfian language' regarding his ternian works[15]: The first, 'projecting the reinforced concrete structure outward', or, in other words, the exposed concrete framework. It's important that the frame was not an abstract grid but was given different thickness and specified plastic treatment to provoke architectonic meanings; The second, 'using 'living' materials as stratification', that the finishing system was part of the composition, reflecting the logic of construction and the spirit of the environment; The third, 'the crowing of the building', that's to say the roof/ attics was given much attention in regard of their status in the city. It was important that all these architectonic concerns were closely related to the ambient of the city. 1F1 Ridolfi had developed a lot of details in the projects in Rome and other places, but they were all updated and adjusted to the new context and converted into a consist referential system both for Ridolfi's works and epigones at the mean time or later sharing the same environment. There needs to be more analysis and discussion on the system of detailing Ridolfi had developed through the projects of Terni in regard of the urban environment.

It was commonly referred to Ridolfi's architecture as a craft practice. But Ridolfi's attitude towards craftsmanship was complicated, just like that towards normalisation. On one hand, he was accustomed to traditional way of design by 'facing every aspects of a building' to develop all

1F1 The wooden model of Piazza Spada showing the volume and architectonic features of Casa Franconi (bottom left), Casa Pallotta (bottom right) and Uffici Comunali (middle), Mario Ridolfi, Wolfgang Frankl, 1981.

the details, large amount of drawings were produced in this process, while on the other, he also wrote manuals and article promoting industrialised products and components. The artisanal skills in architectural production responded to the technical condition in the practical context of the architect[16], but Ridolfi didn't put craftsmanship on the opposite side of normalisation or prefabrication. Craftsmanship actually represented his mode of thinking and drawing. Both specialisation and normalisation were part the geometrical control in his design process, which was often a difficult task balancing order and disorder, repetition and particularity. The drawings of Ridolfi were well-calculated mental craftsmanship[17], or in Tafuri's words, 'the sign of craftsman skills transformed into style', using these as construction tool had already overstepped the default set-up of a craftsman[18]. Besides, as Tafuri had pointed out, 'the 'expressionism' of Ridolfi resides in the contradiction, experienced personally, between a non-power and a non-know-how to make architecture more than an artisanal craft, even richer in 'local' values in their most historical sense', that his works 'not only responded to a personal predilection for a geometric shape, but also presented unique analogy' to the spirit of city.[19]

If architecture was a craft and urbanism was an architecture in larger scale. It would be the deduction that urbanism was also a craft. Obviously the planning in Terni was never imposed with any overall geometric logic or normalised regulation, for every location, the plani-volumetric and architectonic attribute of each building there was specified treatment, but Ridolfi still had that larger image in mind to relate these variegated characters to the identity of the city. The detailed plans for Terni were extremely concise, combining information from every level of morphological control into one comprehensive and consistent drawing, but they were also effective in conducting the built result of each architectural project in details. Just like that Ridolfi could always interweave a number of drawings of various scale and content into an compositional integrity in a natural way, his crafting skills in urbanism also represented in the work of transition from fabric, axis and scale of the city to the form and architectonic details of singular buildings.

1.3 Subject and structure

Therefore the objective of this thesis is to study the formation and development of the architect's conception and methodology in urban-architectonic composition, based on Ridolfi's ternian works as an continuous integrity.

The first part of the thesis focuses on the city before reconstruction and Ridolfi's experience and practice before , in order to provide background information. The structure of pre-war Terni was formed in 1880s, when a modern road diagonally cut into ancient fabric. In 1930s, a new general regulative plan was approved, which had laid a foundation for the urban construction for the following decades, even though it was interrupted by the war damages. In this period Ridolfi also participated in some public competitions in Terni, including both planning and architecture, although in most cases he failed to get the commission or didn't play a crucial part.[20] Nonetheless Ridolfi did begin to learn about the history, geographical and built environment of the city, his relationship with Terni had since started, but only until after the war had his 'urban projects' actually been launched.

The second part would discuss the first tentative urban project of Ridolfi, departing from his reconstruction plan (1945-49) and finally well implemented on two architectural works, Casa Chitarrini (1949-51) and the middle school of 'Leonardo da Vinci' (1951-61)[21]. I would try to disclose how these projects were interrelated and gradually built up a consistent path of thinking and practicing, although they were not commonly related to each other. And this relationship, along with their interaction with historical environment, also contributed to sew up the wound of demolition, as a major achievement of the reconstruction plan. It is important to know that in this project Ridolfi didn't envisage everything from the onset, it was more an experiment, accompanied by uncertainties, to and fro, rejection and restart, but it had definitely provided indispensable experiences and preparation for the urban and architectonic composition in the future.

The third part would concentrate on the second urban project, a thoroughly planned urban system that took form in the square in front of Palazzo Spada, incorporating architectural works such as Casa Franconi (1959-62) and Casa Pallotta (1960-64), based on Ridolfi's first detailed plan which was issued as a variant of the reconstruction plan in 1955. The municipal offices (Palazzo Uffici Comunali, 1978-) to the west of the square was not originally part of the plan, but along with the studies over time, it had been more and more compatible with the system and eventually became the last piece of the jigsaw puzzle. This set of works were important not only for the manifestation of an architectural cultural that led to the new identity of the city, but also because they had rediscovered the structure of the city that went beyond the boundary of the square and extended to the whole city. In this period, especially around 1960, another works in centre of Terni were under construction, such as Casa Briganti (1959-64), Casa Staderini (1959-65), and the complex of Fratelli Fontana (1959-66) , which also played important role in the formation of ridolfian language of urban intervention, juxtaposing new buildings with historical monuments. This part is going to briefly analyse their concepts and methods as well, but the continuity of Ridolfi urban approach were already exemplified in the two major sets of works.

1.4 Methods and resources

Today we recognise Mario Ridolfi as the person who brought new identity to Terni in a life-long relationship, but it is also a fact that during those years he was engaged in the planning and architectural projects of the city, he always lived and worked in Rome. Only after 1967 had he shifted the concentration by moving to Marmore and inaugurated a new cycle of works. But before that, at the meantime of all the happenings in Terni there were Tiburtino, residential towers in Viale Etiopa, palazzine in Rome, prisons, nursery schools, and large residential area of social housing for INA-Casa all over the territory of Italy. As much as Terni was a continuous project, it was just one storyline of Ridolfi's whole career. Thus it was reasonable to believe that these projects could affect each other and cross over in various aspects. In fact, these mutual influences was an opportunity to learn more abut Ridolfi's design process, since the architect didn't speak for his own design much, especially for the projects in the centre of Terni. But the relevant conceptions used elsewhere could always add captions and notes to them. Drawings and documents from relevant projects is indispensable, for Ridolfi had that common ideas of composition or basic that was shared by different projects in various scales of practice, regardless of temporal and geographical factors. We could still learn from some fragments of interviews how details like balcony or a window were conceived, but Ridolfi seldom disclosed the entire process of his design thinking, let alone his methods of geometric operation and form generation. To build up the composition of his work, however, requires the study on the archive of his drawings, for the schematic phase, for the design development and for construction work (few preliminary sketches were preserved though). Most drawings and documents used in this thesis originate from Fondo Ridolfi-Frankl-Malagricci of Academia San Luca[22] and town planning department of municipal Terni.

Drawing itself, is another apparatus of the research. Through the years, the projects of Ridolfi have barely been redrawn for publications, as in Casa Chitarrini or the middle school, for instance, the published drawings kept all the dimensions and marked-ups to be almost identical to technical drawings, even if in some cases they didn't represent the status as built. Apparently the original drawings were irreplaceable for abundant layers of information, or unique approach to arrangement, but they were basically used to communicate with the client, the mayor or the contractors, or a winding journey of thoughts in the design process, where the real objectives of the architects were not usually in the destination. This thesis provides a new set of descriptive and analytic drawings in consistent format and scale, not to reproduce the original, but to complement the unfinished, to extract and represent information which was apt to be overlooked, as a crucial part of statement of this research.

Last but not least, there should be a statement of the status of collaboration with Wolfgang Frankl, since it was not fair to credit everything to Ridolfi. Most of Ridolfi's built works in centre of Terni were realised in the period from early 1950s to 1967 when he closed the studio in Rome to retreat in Marmore. This was also the period of close collaboration with Wolfgang Frankl, who returned to the studio in 1948 and immediately took part in the projects. Evidences show that not only had Frankl contributed to the survey of the historical centre in Terni, he also played an important role in the general regulative plan and detailed plans, as well as many architectural projects, Casa Franconi for instance. After Ridolfi's demise, Frankl continued the projects in Piazza Spada and completed the restoration of several renaissance palaces. To distinguish their individual contribution to each project is impossible, and not the main objective of this thesis. According to Frankl, in spite of their contrast in background, education, knowledge base and personal experience, the two architects had developed an ideal cooperation mode via long-term collaboration in researches on various issues of common interest such as medieval city, construction technics, detailing and craftsmanship. It was important that they always work close together in preparation phase of each project to make sure they reached agreement from the onset.[23] So here is a deduction on in the projects relevant to this thesis: The proposal related to researches on reconstruction should be credited to Ridolfi since most of the work started before Frankl's return; The general regulative plan and detailed plans were the result of cooperation; As to architectural projects, Casa Chitarrini and the middle school were more likely Ridolfi's work, as well as Casa Pallotta according to Portoghesi; Casa Franconi could be credited to Frankl, since it was based on the model of the middle school; Palazzo Uffici Comunali was also Ridolfi' work since at that time he had left the office and was working alone in his house in Marmore.

Notes

1 Carlo Doglio, Paola Venturi, *La pianificazione organica come piano della vita? Gli architetti della pianificazione organica in Italia 1946-1978*, (Padova, 1979), 406.

2 In the planning report Ridolfi applied the concept of scenography to describe his works of urban intervention.

3 Casa Briganti and Complex Fontana were also involved in historical contexts, respectively related to the romanesque church of San Pietro and the old Piazza Valnerina.

4 They probably had no other choice but to cut off the connection with academy and critiques, due to the fact that the historicism tendency, or technical backwardness, represented in their projects had deviated from the international mainstream of modern architecture and was harshly criticised in 1960s. See Federico Bellini, *Mario Ridolfi*, (Roma-Bari, 1993), 114.

5 Mario Ridolfi, 'Amara Confessione', in *La Casa* 6, s.d. 1959, 223.

6 Ibid, 225.

7 Mario Ridolfi, 'L'architetto di fronte all'ambiente storico e monumentale dei centri urbani', in *La Casa* 6, s.d. 1960, 351.

8 'Piacentini, Piccinato's assistant, has taught me the town planning; then he was too architect to be an urban planner, he did town planning as an architect does it'. Then, on planning of Casa Chitarrini: '… to say how the town planning was done then, it was done in the Piacentinian way.' See Carlo Doglio, Paola Venturi, ibid, 405.

9 Bruno Reichlin, Antony Shugaar and Branden W. Joseph, 'Figures of Neorealism in Italian Architecture (Part 1)', in *Grey Room*, No. 5, Autumn 2001, 96.

10 The informal urban composition was often regarded as 'minor roman baroque', or in Quaroni's words: 'The baroque spirit is the spirit of Rome. It is a spontaneous generation, a creature of the site: autochthonous. It uses, even in the order of architecture, the vital disorder of the life of Rome.' See Ludovico Quaroni, 'Caratteri di Roma', (1954) quoted in Bruno Reichlin et al., ibid, 94.

11 Wolfgang Frankl explained his experience with urbanism saying 'Since I was a child I was enchanted by the Middle Ages, later acquiring the taste for the Renaissance and 18th century, repudiating all the classicisms, appreciating more and more the liberty. I put all the strength of mind to understand our conglomerates of the city, the disorder, I wanted at least to see some glimmers of solution for our time.' See Wolfgang Frankl, 'La mia formazione di urbanista', in F. Cellini, C. D'Amato (ed.), *Mario Ridolfi all'Accademia di San Luca*, (Roma 2003), 357.

12 Vanna Fraticelli, 'Terni: progetto e città', in *Controspazio*, November 1974, 74-83.

13 This was also the idea Ridolfi 'managed to seduce the city's administrators.' See Aldo Tarquini, *Terni, città d'autore: Guida ad un percorso ridolfiano*, (Terni, 1996), 29. The author had termed the special type of work Ridolfi had done in Terni as 'plan-project' (piano-progetto). The conception was also confirmed by Portoghesi by pointed put that Ridolfi 'also recognised that 'the same [rule/method] is true for town planning; in which he puts into practice the Albertian and Palladian reflections that the city is a 'big house' just as the house is a 'small city'.

14 Aldo Tarquini, ibid, 22.

15 Paolo Portoghesi, 'Una città d'autore', in Tarquini (ed.), ibid, 20.

16 The preference on craftsmanship was on one hand the result of technical condition. 'The Architect's Manual and the best works of Ridolfi truly create 'school'. They are the manifestation of an ideology of architecture as a craft practice, in perfect synchronisation with the policy of public construction aimed at the absorption of unskilled labor, distributed in competing companies of a fairly low level of technology and in which the composition of capital is not very powerful.' See Manfredo Tafuri, 'El complejo ábaco del retraso tecnológico en Ridolfi', in R. Sanchez Lampreave, L. Recuenco Perez (ed.), *Mario Ridolfi (1904-1984). La arquitectura de Ridolfi y Frankl*, (Madrid, 1991), 187. This essay was originally published in *L'architecture d'aujourd'hui* 181, September-October 1975, 14-33. And also when asked of whether the Italian architectural culture had interiorised the mass industrial production, Ridolfi's answer was no. See Mario Ridolfi, '5 domande sull'industrializzazione', in *La Casa*, 4, s.d. 1957, 110. In other occasion he even thought that the trend of prefabrication won't last long.

17 Manuela Morresi, '"Questo è il vantaggio dell'artigianalità mentale". Mario Ridolfi: l'individuo e il collettivo', in *Casabella*, 684-685, December 2000-January 2001, 57.

18 'From the drawings you can clearly see the effort of research in all the details, as is my habit, which leads me to consider my work almost a "build on paper" and all the truth, considering the large amount of paper needed, because only in this way one can be sure of facing all the aspects of a building and one is conscious of giving oneself the joy of working and the executor of the work the indispensable tool for its execution. You would say that this is a traditional way of designing, and so it is. But it is not the craftsman, the executor of the artefact? Believe my dear that an intelligent craftsman who is aware of his abilities will be grateful to you for trusting him.' See Mario Ridolfi, 'Una lettera a Francesco Cellini e Claudio D'Amato', in *Controspazio*, ix, n. 3, September 1977, 2.

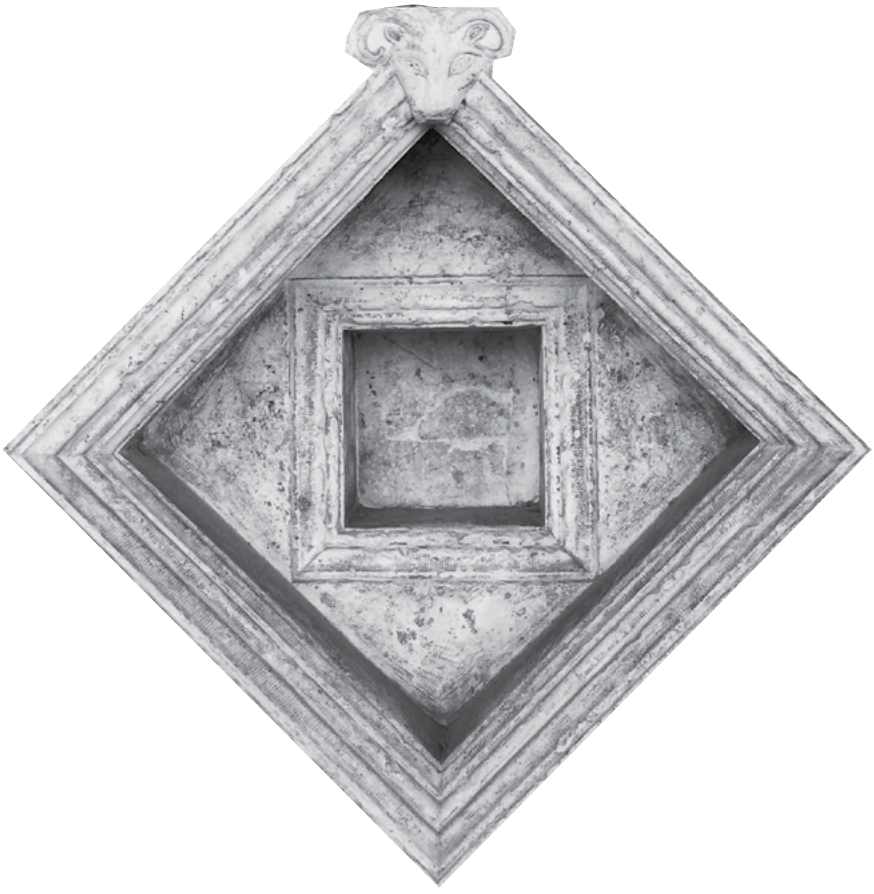
19 These texts were originally on Hotel Agip, but apparently applicable to many his other projects. Tafuri, ibid.

20 The monumental fountain in Piazza Tacito (Fontana Tacito, 1932-36) was the only project realised. As to the 'progetto salvatore' as the submission to the competition of general regulative plan, Ridolfi wasn't the dominating character in the group, and moreover the project didn't affect very much on Ridolfi's post war exploration and experimentation. According to Federico Bellini, *Mario Ridolfi*, (Roma-Bari, 1993), 80.

21 The design of the school was finalised in 1955 before the proposal of the variant plan.

22 The drawings in the archive of Academia San Luca are not accessible, but they provide open online database of scanned version in high resolution. http://www.fondoridolfi.org/opere-e-progetti.htm

23 'In the meantime, before going to the drawing board, there is the whole period of collection of the elements, of the information on the type of function of the building that must be designed: we study other similar projects, we talk with those who will use it. This is a work that we have always done together, filling up whole blocks of notes and ideas: so, already from the initial phase we arrived at a sort of agreement.' See Wolfgang Frankl, 'Il mio lavoro con Ridolfi', in Cellini, D'Amato (ed.), *Le Architetture di Ridolfi e Frankl* (Roma, 1979), 26-27.



2 Background

Mario Ridolfi was involved in the planning and architectural projects in Terni before the war. In 1929, immediately after his graduation, Ridolfi attended two competitions of the systemisation of Piazza Tacito, a new square of the city planned in 1886, among them there was the monumental fountain (1932-1936) on the centre of the square which was realised and had later become a landmark of the city.[1] And along with Gaetano Minnucci and many others in 1933, he also participated in the national competition of the regulative plan in Terni and won the second prize. These works, however, didn't end up being part of the 'città d'autore' since Ridolfi's postwar practices deviated from the rationalist route.[2] The preparation for the ternian project, however, originated in his entire personal history and professional experiences, including his early formation, the resistance to academic historicism, the exploration of craftsmanship and building technology, vernacular and the neo-realism, compelling him to reflect on technics and cultural tradition. The works in Terni didn't exist on their own; their compositional elements shared with projects built elsewhere provided indispensable references to understand the formation of Ridolfi's concept and methodology applied in Terni, which would be summarised in this chapter and scrutinised in details in the following parts.

The connection between the architect and the city was ancestral, since Ridolfi's mother was originated from Marmore, a small village on the east of city centre, near the upstream of River Nera and the artificial roman cascade. Moreover Terni was a place 'where people worked with enthusiasm, which was the opposite to what happened in Rome'.[3] After two decades building in the suburb Ridolfi felt the urgency to have his projects in historical centre, and overwhelmed by this unfamiliar environment at the same time.[4] Although Terni had never been a city of cultural or artistic glory, the historical context of the city was still intact at the time when Ridolfi was involved.

2.1 Terni before Ridolfi

2.1.1 The lost character of a medieval city

Unlike other major cities of Umbria, Terni is located on a plain field in the valley, geographically defended by the mountain constituted by the *Colle dell'Oro* on the north, and intimated embraced by River Nera and Serra from the east and south. It was originally built by the local Umbrian communities, later occupied by the Roman Empire, connected to the capital by Via Flaminia[5], as known as Via Roma and Corso Vecchio, that ran across the city from south to north. 2F1 Today's Terni consists of structures from every historical period, such as roman theatre, early christian churches, medieval towers and renaissance palaces, while the road network inherited from the cardo-decumano system is still explicit: Via Roma and Corso Vecchio are the cardo massimo, and Via Cavour and Via Giuseppe Garibaldi the decumano massimo, except for the form of these paths are not strictly straight and perpendicular, accordingly the districts of the city were not equally subdivided. The range of city centre hasn't changed very much from roman period to middle age, and to modern days, some of its walls, gates and fortresses are still intact on the west and north side. In 1860 Terni became part of the Kingdom of Italy and in the period between 1875 and 1890 it had witnessed the rapid industrial development, although because that the factories and mills were located in an independent area on the other side of the river, it didn't directly affect the urban form in the centre.[6] 2F2

But the ancient fabric, the appearance of the city centre had since changed irreversibly. To paraphrase Ridolfi's own theory in his planning report:

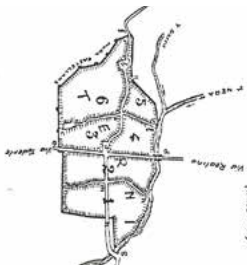
'The growth of the population of 50,000 anime from 1861 to 1934 amply demonstrates the formation of the urban fabric in a disordered and convulsive way, in constant pressure and without a real general urban plan, which could not exist then due to the lack of an operative urban culture. A city of the province before 1860, closed between its walls and its rivers, with its fourteenth-century and eighteenth-century historical quarters, its monumental buildings, its innumerable towers, Roman remains, its gates, witnesses the explosion of the industrial revolution unprepared and surprised. Terni offers its houses, the old dear houses of the fourteenth-century quarter, all built in the beautiful local stone, and let the destruction take place, in order to satisfy the desire for space and light of modern men in a ruin of external stairs, of contours of ornate windows, in a work of mutilation that is still evident today. The plaster cancels every chromatic effectiveness in an anaemic appearance.

Elsewhere, the invaders of secular seclusion pile up their homes in a disorder that is all pioneering and abusive to form unhealthy and ugly neighbourhoods, nor could the municipal authorities at that time control the fury of the arrogant, disorganised and disregarding newcomers of the existing environmental values.'[7]

It was clear that the consistent medieval landscape of Terni was gone, leaving only individual monuments such as palaces and churches dispersed in the city which became the new *status quo*:

'The urban centre has lost much of the characteristics that made Terni a medieval city, structured on a Roman road network. It is not very easy for the inexperienced visitor to find the glimpses of the ancient city, as these are now few and put aside by the arrogance of recent construction that, except for a few works of exceptional architectural value, has given poor results under all perspectives.'

2.1.2 From cardo-decumano to the new crossroads



What mostly changed the ancient fabric took place along with the emergence of Corso Tacito. In around 1850 Terni could be divided into six districts, following the subdivision of the crossroad and two secondary transversal roads. 2F3 Then the city started to expand towards north and a modern street was built and broke apart the historical blocks:

'The application of the Law of 25 June 1865 on public utility works for the connection of the City of Terni to the new railway line, conditioned the northern development of the urban core from 19 April 1869, but also marked the beginning of occasional and incisive interventions in the historical fabric of the city: the opening of Corso Cornelio Tacito cut the northern fourteenth-century district and only served to determine a directrix on the sides of which the construction industry was built in hasty and easy realisations, in just as easy and hasty transformations of traditional Umbrian construction.'[8]

The urban construction in this period was seen as an uncontrolled growth that had induced disorder in the centre. From 1880s to 1930s, many proposals for the regulative plan were put forward in order to re-establish the order in the progress of urban development, but eventually only ameliorations in small scale were implemented. Corso Tacito was originally planned, and had remained for many decades, as the only modern street for vehicles to access the centre. It connected the railway station to Piazza del Comune, the central square of the city, where *cardo massimo* and *decumano massimo* met. 2F4 Following the new road, street block planned in rigorous grid filled the blanks on the northwest of the city within the walls. The intentions to extend the transversal arteries that defined the different districts to the network of regional transportation failed to succeed, since the historical structures were always in the way and the viability was hampered by the form and width of the ancient streets. At this point, Corso Tacito, the new road appeared as a fifth ray that ran from the city centre towards its boundary that enhanced the radiating road system in the network.

In 1932, a national competition was held and the winning plan continued the errand of Corso Tacito and successfully devised a new structure for the city. It is worth mentioning that Mario Ridolfi was also among the participants with collaborators including Mario Fagiolo, Gaetano Minnucci among others, but they lost to the group led by architect Enrico Lattes. 2F5

'The Lattes-Staderini-Bravetti project won the competition because it responds to the issues raised in the announcement: the traffic of Via Flaminia is transferred to a new artery, Corso Littorio, later will become Corso del Popolo, enriched with valuable buildings including the Palazzo Spada which, however, exhibits the rear facade. Two main axes that intersect in the centre are conceived for vehicles: Via della Stazione - Corso Tacito, and Via Carrara - Piazza San Francesco.'[9]

In Lattes-plan, Corso Littorio extended the longitudinal from Corso Tacito to the south end of the city and beyond. Instead of expanding historical streets (as Ridolfi's group did to Via Roma), it deviated from Via Roma and cut across existing blocks exactly as Corso Tacito, connecting to the south bank of River Nera by a new bridge. The two streets joined in a series of squares, including the original Piazza del Comune and the new rectangular square between Palazzo Spada and San Salvatore. The transversal transportation relied on a new and winding path, which would be the only vehicle lane today that runs through the historical centre.[10] Its curved form consisted of multiple sections formulated by expansion of existing paths or opening up historical blocks, finding a way around historical monuments such as the church of San Francesco and San Pietro, and creating four squares in the centre. The longitudinal path created by Corso Littorio and Corso Tacito became the new Via Flaminia, slightly rotated from the historical one, while sharing the same centre, and the original *decumano*

2F3 Historical centre of Terni subdivided into six districts, 1859.

1. Rione Disotto 2. Rione dei Rigoni 3. Rione di Amengoni
4. Rione di Fabri 5. Rione di Castello 6. Rione di Adoltrini

2F1 Antique map of Terni, Pierre Mortier, 1663.

2F2 Map of the historical centre in Terni, 1854.

2F4 Map of Terni by the end of 19th century. The railway went from Rome to Spoleto and the industrial district was located on the east.

2F5 Project '613', the first pirze of the competition of regulatory plan of Terni, Enrico Lattes, Bravetti, Staderini, 1932

massimo was replaced by the new transversal streets which was shifted towards the north. The new urban structure was more clearly defined and seemed to be more effective comparing with the proposal entitled as 'Progetto Salvatore' by the group of Ridolfi, which contained a lot of *cul-de-sac*. However, both plans extended the street perpendicular intersecting with Corso Tacito at right angle at the fountain towards west, penetrating the the city wall, and created street blocks in dense grid in contrast with historical districts. In the end, although the original homogeneous fabric was interrupted and the centre became a mixture of old and new, the structure of the centre was still explicit. It could be interpreted as a radiating system made of the ancient cross and a diagonal cut, or a new crossroad system overlapping with the ancient one.

2T1 (Facing page) Terni before the bombardment, master plan of the city centre (1:7500).

2.1.3 Historical districts and monuments

It was not a coincidence that the boundaries of historical district complied with the crossroad system, which was similar to a coordinate that divided the city into four (unequal) quadrants, each representing the urban construction of a particular historical period. With the intervention of late 19th century urban construction and the new intention presented in the regulative plan in 1930s, the situation obviously became more complicated. But the division remained and later provided the framework for the detailed plans issued in four stages in the future.[11] 2T2

I. Quartier Clai, the northeast quadrant on the east side of Corso Vecchio, the only district where medieval houses were well preserved, in a conglomeration of high density and irregularity devoid of clear orientation. Two romanesque churches, San Lorenzo and San Pietro were also in this district, next to Corso Vecchio (Via Flaminia).

II. Quartier Popolo, the southeast quadrant on the east side of Via Roma, with 18th century edifices close to the centre, and hospital, large industrial plants added later on the periphery. The houses were about three or four storeys, with the height ranging from 11.5m to 15m, except for some glorious renaissance palaces like Palazzo Spada or Palazzo Montani with a larger volume, facing the old arteries. The church of San Salvatore was also in this district, hidden in small lanes. The proposal of Corso del Popolo and the square turned the inside of the blocks out and inverted the orientation of these building.

III. Quartier Duomo, the southwest quadrants, mostly built in renaissance period and 17th century, taking form of grand blocks with courtyards inside. Apart from the baroque cathedral which was built on the ruins of the original romanesque church, this area also accommodates several roman remains, such as Teatro Fausto and the roman theatre partially or completely built over by residential houses.

IV and V. Quartier Tacito, The northwest quadrant, a mixture of urban structures from every historical period. The intervention of the 19th century incurred new complexity. There was originally vast fields left over between the building and the city wall. The expansion in the 19th century broke up the boundaries and incorporated some of the fortresses in the neighbourhood following the orthogonal grid.

It is necessary to provide further information of these three historical buildings since they would be in close relationship to Ridolfi's work discussed in the following chapters.

2T2 Transformation of the road network in Terni.

a. The original cardo-decumano system
b. Corso Tacito in 1860s
c. New cardo-decumano proposed in Lattes-plan in 1930s

2T3 (Facing page) Transformation of the centre of Terni (1:7500).

Light grey blocks Terni in 1854. Solid line Terni in 1939. Dashed lines Extended longitudinal and transversal arteries planned by Enrico Lattes. Thick lines that form an irregular enclosure, both solid and dashed, represent the remaining and vanished city wall of the early medieval period.

1. Duomo 2. Church of San Francesco d'Assisi 3. Church of San Pietro 4. Church of San Lorenzo 5. Church of San Salvatore 6. Church of San Cristoforo 7. Church of San'Alò 8. Piazza del Comune 9. Piazza Solferino 10. Palazzo Spada 11. Roman Theatre 12. Amphitheatre 13. Porta Sant'Angelo 14. Porta Romana 15. Porta Spoletina 16. Porta San Giovani 17. Porta del Sesto 18. Fontana Tacito 19. River Nera 20. River Serra 21. Ponte Romano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The church of San Salvatore

Located on the slight slope between the centre and the river bank of Nera, it is one of the oldest churches that could be dated back to early christian period in 6th century. The church was built with local sponga stone on the foundation of a roman 'domus' which has never been fully excavated. The composition of the church was 'a fusion of two classical schemes of Romanesque architecture, the longitudinal and the circular'.[12] The longitudinal nave as the forepart consisted of two bays in square, covered by cross vault. The circular presbyteral area was covered by a dome with circular oculus at the top, resembling the pantheon of Rome, which was the most impressive part of the church, illuminated by four windows on each side. On the centre there was a small apse under barrel vault, covered by gable roof from outside. On the left side of the nave there were two small rectangular chapels added in 14th century.

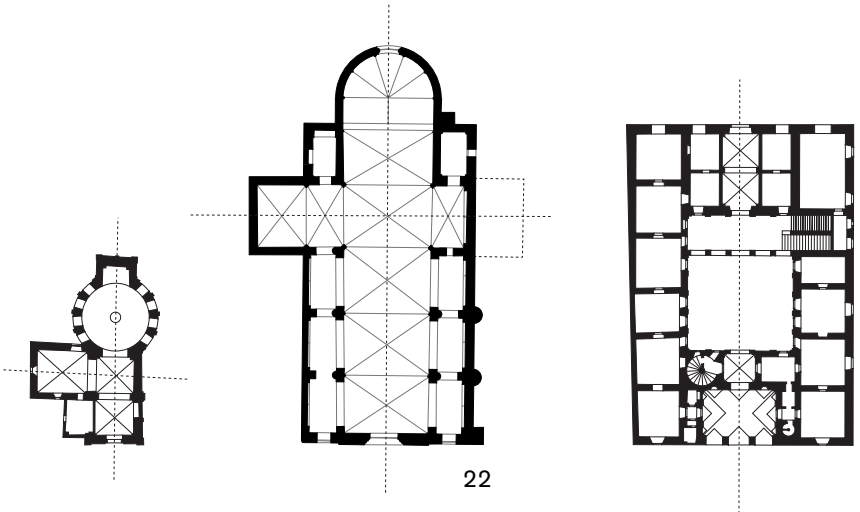
The church of San Francesco d'Assisi

It was originally built in 13th century in a typical franciscan basilica with single nave (like how San Pietro or San Cristoforo were preserved). Later the isles were added, which was also evident on the front elevation, since the facade on two sides was built with sponga on the bottom, the upper part was built with brick and mortar. The bell tower was built in 1445, with masonry embellished by triangular ceramic tiles, glazed and painted in green and blue. In the following centuries, two chapels were added to the end of the transept, although the chapel of San Bernardino on the right was demolished during the war and never restored.

Palazzo Spada

The building is usually considered as a posthumous work of Sangallo il Giovane, although the external appearance completely changed comparing to how it originally looked. It was the first palace with courtyard in Terni, with its front elevation facing Via Roma, two turrets on rear side towards the garden. The spatial relationship was inverted under the of Lattes plan. Because of Corso Littorio and the new square, the barely adorned orchard elevation would become the front of the building, and in Lattes' envision, overlooking the church of San Salvatore on the other end of the square. This elevation is tripartite horizontally and vertically: on the garden side there were originally two foreparts protruded, the space in-between was filled up later with portico and loggia, two rails ran through the elevation dividing the palace into three parts, the ground floor, piano nobile with the mezzanine, and the upper floors including the attics. In completion of the building there was also a mighty horizontal cornice added to the eave following the prevalent typology, which was common in other palaces in Terni. The two turrets used as pigeon houses above the cornice were added later, which also contributed to this atypical facade of a 16th century palace.[13]

2T4 Floor plan, the church of San Salvatore, ca. 6th century. (1:1000); Floor plan, the church of San Francesco d'Assisi, ca.13th century. (1:1000); Ground floor plan, Palazzo Spada, Antonio da Sangallo il Giovane, 1555-1576. (1:1000)



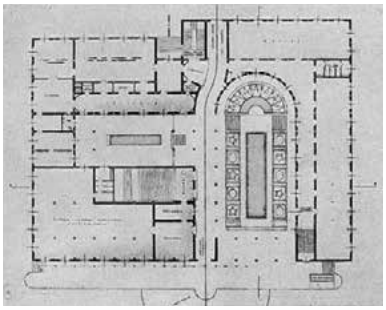
2.2 Ridolfi outside Terni

It was such a winding road Rifolfi went through, leading from his early professional experiences to the project of Terni. He used to be at the frontier of architectural debate, being involved in almost every movement that deeply affected the modern architecture in Italy, but ended up all alone by himself. The turning point at the beginning of 1960s. First, at that time Ridolfi was shifting the concentration of his practice from Rome to Terni, where a number of his major architectural works, following the approve master plans, were under construction at the mean time. Second, in 1960 he published two personal statements in the periodical La Casa, 'Amara confessione' and 'L'architetto di fronte all'ambiente storico e monumentale dei centri urbani', as a summary of his three decades of practice in architecture, which could also be seen as the preface of his works in Terni. After that he stayed away from media and published nothing for a whole decade. Moreover, in 1961, he suffered from a severe car accident, which caused him almost a year to recover. This year of inactivity was still productive, since all the introspection finally led to a new era of practice after Terni, which was the 'ciclo delle Marmore'. Generally speaking, everything happened before 1960 in Ridolfi's career could provide clues to his ternian works.

Like many other modern masters of Italy, Ridolfi was born in the first decade of 20th century, son of a craftsmen engaged in building decorative components. He enrolled in the School of Architecture in Rome (Scuola superiore di architettura di Roma), the first modern school of architecture in Italy, and graduated in 1929 with 105 out of 100 marks. During this period Ridolfi studied under the guidance of some most renowned scholars such as Arnaldo Foschini, Vincenzo Fasolo, Giovannoni, Marcello Piacentini, and formulated basic conception of architecture and the skills of architectonic composition, while other courses offered essential technics in studying and designing architecture, such as architectural drawing by Fausto Vagnetti, photogrammetry in the descriptive geometry course by the mathematician Francesco Severi. While on the other hand, this was also a period of resistance and conflict. In the school year 1927-28, Ridolfi didn't frequent courses in university, instead he worked on projects of his own and attended the exhibition of rationalists (I Esposizione Italiana di Architettura Razionale inaugurata a Roma, march, 1928) when he was back to school on the diploma work, the way he conceived and depicted architecture had changed drastically. Ridolfi later talked about his formation year not without regrets:

'In the majority, we were educated in a period in which the examples of architecture of the past were more to us consanguineous and the most recent architectural expressions presented, in a certain sense, a formal continuity, a continuity of language rather consequent to that of the past. But when we left the school, we found ourselves in a critical period, just when the wind of the North was spreading all the literature of modern European architecture: and it was that kind of revolutionary wind that pushed us against our teachers, still attached to it. To the cultural tradition.'[14]

This would explain why the approaches presented in the top project in this period, never recurred in Ridolfi's whole career. In 1933, Ridolfi finally won the National Competition of the Architectural Pensioner (il Concorso Nazionale del Pensionato d'Architettura). The winning project, the Italian Embassy in a city in Latin America, was appreciated for its 'intrinsic formative planimetric and volumetric quality'[15], which was basically an asymmetrical composition formulated by a rectangular street block subtracted with two courtyards of different shape. 2F6 Not only did Ridolfi went away



2F6 Ground floor plan, the Italian enbassy in a city in Latin America. Project for the National Competition of the Architectural Pensioner, Mario Ridolfi, 1930.

from the asymmetrical plan, he also abandoned subtraction as a compositional tool in his whole career.

However, the result of the prize was appreciable. With the pension Ridolfi was able to go on a three-week study trip to Germany and Switzerland with his new friend and partner Wolfgang Frankl. Frankl was a german architect on exile from the Stuttgart School, he introduced Ridolfi to the influential figures and projects in his formation, such as Paul Schmitthenner, Paul Bonatz, Emil Mörsch, Weimar school, Weissenhof Siedlung and so on. In this process Ridolfi not only contacted intimately with international modernism and german expressionism[16], but also developed the interest to the technics of reinforced concrete, traditional craftsmanship of architecture to rebuild the connection with the past. Following this path, he studied and developed many architectural details and products in the 1930s, including windows, doors and fixed wooden furniture. The standard window with concealed rolling blinds, which was written into the first manual book[17], was generally applied in Ridolfi's post-war projects and the buildings all over Italy.

After the war Ridolfi's office suddenly confronted with explosion of projects, and this situation was going to last for two decades. There were competitions of public buildings, social housing for INA-Casa all over Italy, 'palazzine' in suburban Rome, nursery schools and prisons in small towns and countryside. Many of them were overlapping in time frame and shared same motifs or methods with the planning and building works in Terni. First there was the structural expressionism, although they didn't win the competition of Terminal Station in Rome, the intention to expose the structure had extended to residential projects, not only as expressive or ornamental elements.

The residential district in Tiburtino (1950-56) and Viale Etiopia (1949-55), two representative works of Ridolfi's career, almost served as the vocabulary for Ridolfi's later practices. The composition of a group of buildings in variegated volume, the prototype of the exposed reinforced concrete framework, and numerous architectonic details all originated from these projects. Other similar projects for INA-Casa such as the residential quarter in Treviso (1956-63), or in Tivoli (1958-73) were more or less outshone. In these projects, Ridolfi had experimented different approaches of urban composition, including organic layout, centralised plan, or grid system and so on. It seemed that Ridolfi was testing out every extreme situation and the set of buildings in the detailed plans in Terni lied in somewhere in between.

The nursery school in Ivrea (1954-64) and Poggibonsi (1955-64) both adopted site specified composition consisted of multiple squares as basic unit. These two projects, done at the meantime of the detailed plan of the area Corso del Popolo and Piazza Spada, had inspired his works in Terni but also also gave him a lot of trouble. The latter was harshly criticised by Reynar Banham, accusing Ridolfi of the intention 'to build a pseudo-medieval style' with the trusses, the pillars made of bricks and travertine blocks, and particularly the stylised doric capital. Ridolfi wasn't affected by the criticism, since he kept on using historical references and never refrained from talking about it, but he did become cautious about the way he use them. Just like Bellini had discovered, that was the first and last explicit and direct quote to architecture in the past.[18] 2F7

2F7 Central hall of the nursery school in Poggibonsi. The truss, pillars made from bricks and travertine blocks and the capitals indicated historical references.

Although this thesis wouldn't discuss much about the functional aspect of Ridolfi's design, but it is still important to know that the architect always paid great attention to well-being, or humanised design. In the nursery school in Poggibonsi, Ridolfi had the argument with the officers on the height of the window sill, since Ridolfi insisted to make it 50cm enabling the sight towards outside when the children were sitting on the ground, even though it wasn't allowed by regulation.[19] Besides, the story of the corner window and the cat, or the reason behind the diamond-shaped balcony[20] were also examples that unveiled another layer of meaning in these special geometrical form or composition.

Many scholars saw the 'palazzine' Ridolfi built in Rome as the counterpart of those in Terni. They did have some similar historical references and architectonic details such as the horizontal concrete rail, or bay window on the corner, but they were never spatially related to each other as in the centre of Terni. From the vertical extension of Villino Alatri (1948-49) to the last house Ridolfi realised in Rome, Palazzina Mancioli II (1958-62), the projects formed a spectrum reflecting various conceptions Ridolfi had in different period. The contrast lied in the gap between suburb and the centre. Before Ridolfi entered the walls of Terni, with every single architectonic element in position, he still need to work out a new formal language that would consistently root the architecture in the city:

'When I say that we are suburban architects, I say the truth. And when I address myself to Piacentini and to others, I say: You have avenged yourself because you have relegated us to the periphery. It is the truth. We practiced in the suburbs, because in the suburbs a large part of the building was developed, but within the walls, we never entered. And, if we enter it now, we enter it with a language that is inadequate.'[21]

Notes

1 The other competition project was the Palace of the government and province of Terni (1929-1930) located on the north east of square. Both Ridolfi's proposal and the winning project (1930-1936) by Cesare Bazzani were conceived in a typical Italian classicism style.

2 Fraticelli saw the fountain irrelevant to the modernism or Ridolfi's own , since it . See Vanna Fraticelli, 'Terni: progetto e città', in Controspazio, November 1974, 74. And according to Bellini, the regulative plan presented in 1933 didn't actually incorporate the work of Ridolfi, who was probably brought into this group because of his family background. See Federico Bellini, *Mario Ridolfi*, (Roma-Bari, 1993), 80.

3 'Rome must be a city where people hate each other, I have seen this confusion, people pass you right and left without any respect …'. See Controspazio, 'Intervista a Ridolfi e Frankl', in *Controspazio*, November 1974, 97.

4 Before his involvement in the reconstruction of Terni provided him with opportunities to build in historical centre of a city, his realised projects were mostly in the suburban area or outskirt in Rome, planned in late 19th century or early 20th century. See Mario Ridolfi, 'L'architetto di fronte all'ambiente storico e monumentale dei centri urbani', in *La Casa* 6, 1960, 350.

5 To be precise it was the east branch of Via Flaminia. The original path that went through Carsulae, an ancient roman city to the northwest of Terni, was later abandoned. Today, Carsulae remains its roman look while Terni has changed over time.

6 '…[I]n Terni the choice of industrial areas, even at a considerable distance from the city centre, created first « fires "and then determined the linear urbanisation between the city and these fires, characterising the urban periphery, the rural environment, the road network basically remained at the Roman imperial age.'. Mario Coppa, 'Il Piano Regolatore di Terni', in *Urbanistica*, 34, September 1961, 72. The foundry was originally located in the north near the railway station and demolished before the expansion of the city.

7 Mario Ridolfi, 'Relazione al PRG', in *Terni*, I, December 1959, 7.

8 Coppa, ibid.

9 Danilo S. Pirro, *Enrico Lattes, l'architetto ritrovato*, (Rome, Gangemi Editore), 159.

10 Today Corso Tacito and Corso del Popolo are not connected, due to historical structures in the centre and Corso Tacito has later been transformed into a pedestrian street in the section between the two squares. Thus the traffic could only enter from two ends and never reach the centre.

11 S. Giulianelli, 'I Piani Particolareggiati per il centro storico di Terni', in Cellini, D'Amato, Valeriani, ibid, 24-25.

12 Valentino Volta, Ivana Passamani Bonomi (ed.), *Rotonde d'Italia: analisi tipologica della pianta centrale*, (Milan, Jaca Book), 136-137.

13 Maria Laura Moroni, Paolo Leonelli, *Il Palazzo di Michelangelo Spada in Terni*, (Terni, Commune di Terni, Il Circoscrizione - Interamma), 118-139.

14 Mario Ridolfi, 'L'architetto di fronte all'ambiente storico e monumentale dei centri urbani', in *La Casa* 6, s.d. 1960, 350.

15 Plinio Marconi, 'Il concorso per il Pensionato d'Architettura 1930', in *Architettura e Arti Decorative*, April 1930, 391-398.

16 'The German root of that bit of expressionism that we find in Ridolfi's post-war architecture after all has never had a demonstrative philological interpretation.' See Paolo Portoghesi, Renato Nicolini, 'A proposito di un centenario', in *Controspazio* 114/115, 2005, 19.

17 Mario Ridolfi et al. (ed.), Manuale dell'Architetto, CNR-USIS, (Roma, 1946). The manual was seen as a unique case in the history of Italian manual publications, being one of the few attempts made by an architect to succeed in influencing the production of building components, with an attentive eye to reconciling functional and aesthetic aspects. Valerie Palmieri, 'Mario Ridolfi. Manuale sugli infissi in legno, 1935/1940', in *Area*, 31, March-April 1997, 72.

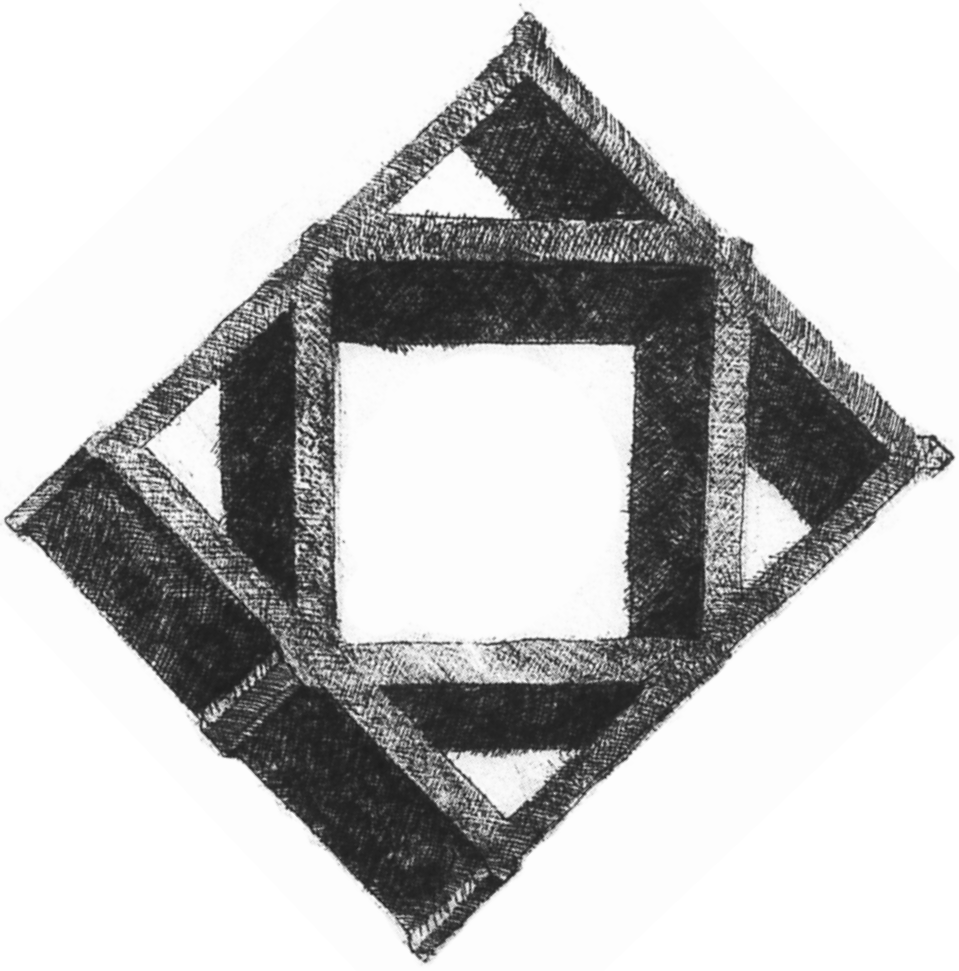
18 Federico Bellini, *Mario Ridolfi*, (Roma-Bari, 1993), 80.

19 Manuela Morresi, '"Questo è il vantaggio dell'artigianalità mentale". Mario Ridolfi: l'individuo e il collettivo', in *Casabella*, 684-685, December 2000-January 2001, 53.

20 The first story Ridolfi had narrated many times was used to explain why bay window diagonally set at the corner of a building was more comfortable and adaptable to different climate. The second was used in the social housing in Cerignola and 'Case Siamesi' in Terni, thanks to the balcony, half in the niche and half outside, with the kitchen on one side and the living room on the other, mother would be able to keep an eye on the child while cooking. Both stories could be found in Controspazio, 'Intervista a Ridolfi e Frankl', in *Controspazio*, November 1974, 2, 97-100.

21 Mario Ridolfi, 'Amara Confessione', in *La Casa* 6, s.d. 1959, 225.

Part II From the reconstruction plan to the middle school of 'Leonardo da Vinci' 1944-1956



3 The reconstruction plan: Realised and unrealised

In 1934 Enrico Lattes died in a car accident on Via Flaminia, his winning proposal, however, had survived and dominated the urban construction of Terni in the following decades. Ridolfi didn't openly criticise Lattes-plan, but without a doubt he wouldn't appreciate the idea of Corso del Popolo, just like how he despised Corso Tacito built in late 19th century, in regard that the damages to urban fabric caused by opening these arteries was totally irreparable. But he had to accept the fact that it wasn't operationally feasible to overthrow the new framework since it was approved and protected by law, that had become a new reality he had to live and fight with. The opportunity Ridolfi could resort to to compensate the loss didn't come from a new regulative plan, but from somewhere between the city and architecture.

As in other Italian cities, the reconstruction plan served as discipline and guidance for basic building activities. It consisted of two parts, the first was a demolition plan to assess the level of damages of the buildings, and the other was the actual reconstruction plan, but the portion of city under concern and the information it was able to provide were rather limited[1]. Considering there was no volumetric control, its contribution to the character of the city was no more than definition of streets and squares. Judging from the final approved version, it was prone to say that Ridolfi's reconstruction plan for Terni was almost the same case, or in other words, not above practical operations. But in regard of Terni as a medium-sized city and its special relationship with the architect, this plan could be more productive and significant than it seemed. First, during the research for reconstruction work, there were unpublished studies that went far beyond what was required by the planning law and reached 'urban-architectonic'[2] qualities, while Ridolfi's long term involvement in planning and building activities in Terni had allowed himself to retrieve these conceptions and make use of them in later stages. Second, before the variation to the reconstruction plan (which was in fact a detailed plan) came into consideration in mid-1950s, Ridolfi had already realised two buildings under the instruction of the reconstruction plan. These works, Casa Chitarrini and the middle school 'Leonardo da Vinci', had exemplified the architect's thoughts and methods of urban intervention in historical context in this period. Moreover, as an indispensable step of preparation and experimentation, they also provided clear direction for his later major works on Corso del Popolo and Piazza Spada.

3.1 The whole process

During the air-raid in August 1943, more than a hundred bombs landed on Terni and its surrounding areas. According to the statistical data, 63 percent of the buildings in the city centre suffered from damage to various degrees, while 20 percent was completely destroyed. Apart from the locations of industrial plants and warehouses, Ponte Romana, San Francesco (the house between the church and Corso Tacito), San Tommaso (where the new market was located), Ospedale (the future site of complex Fratelli Fontana) were among the most destructed areas, where edifices were razed to the ground, leaving large open spaces[3]. 3T1 These areas were also the mostly studied by Ridolfi and where his major works of this period were elaborated, apparently because they provided different prerequisite and new opportunities for the planning work, otherwise he had no other choice but to follow rigorously the already approved Lattes-plan first issued in 1930s. Under new circumstances, some of early planning envisions were made easier to achieve, since the houses in the way had been taken down by the bomb, while new possibilities also emerged, allowing the architect to incorporate his own conceptions.

In the winter of 1944, Ridolfi spent five months in Terni surveying the sites. He strolled among the ruins over and over, observing, sketching, taking photographs, trying to discover the relationships in the built environment that had been revealed by the destruction, and to record his immediate decisions made on site and transfer them directly into detailed design[4]. In early 1945, Ridolfi had already prepared in-depth reconstruction plans and report. Unfortunately we couldn't see very much of this version today, apart from rare sketches and some perspective drawings. But the architect's direction was clear. Mario Ridolfi didn't make effort to create something new, instead, the historical texture and the approved Lattes-plan still appeared to be dominant forces of the reconstruction work. In the report that accompanied the first version of reconstruction plan in 1945, large proportion of descriptions contributed to transportation, where lattes-plan was applied in most cases. Although it was a common fact that almost all early reconstruction works in Italian cities were first and foremost copping with technical issues such as viability and area of accommodation to meet the requirements of the planning law, while their chance of cultural contribution was comparatively slim[5]. In the same report, nonetheless, Ridolfi presented a list of locations where the planning work concentrated on the solution of architectonic character and monumentality.

3F1 The area of San Francesco after bombardment, with the bell tower of the church San Francesco d'Assis in sight among the ruins from Corso Tacito.

It may not be totally unnecessary to mention an incidence that happened during this early stage of planning. In fact, before the reconstruction work was commissioned to Ridolfi and the engineer Giovanni Possenti in 1946, the government had held a public competition since it was obligatory according to the planning law. In November 1945, Emanuele Caniggia, an architect and the professor of construction from Instituto Tecnico per Geometri in Terni, published his own proposal of reconstruction plan on the local newspaper[6], and strongly suggested that the government should choose his over Ridolfi's. In Caniggia's plan, the new opera house and the bus station had become extraordinary structures of the town, both endowed with enormous volume and monumental form, surrounded by large squares which could result in removal of many existing houses. 3F1 Such approach was of course irrelevant to the whole process of reconstruction, but it is interesting to see how much Ridolfi's works on urban renovation had differed from the then prevalent conception. On the contrary, Ridolfi's plan was rather modest to choose existing historical elements such as bell towers, churches and façades of palaces as the pivots of new arrangement. The only new monument proposed in this plan, a new church on Corso del Popolo near San Salvatore, wasn't fully depicted in those perspectives, only in the view leading from River Nera to San Salvatore its dome and bell tower shown up as part of the backdrop.

3F2 Reconstruction plan of Terni, Emanuele Caniggia, 1944. FRFM CD68/VIII. The red pencil traces might be added by Ridolfi, showing his intention to modify the boundary of the second square.

3T1 (Facing page) Demolition plan (1:7500)

Light grey Edifices completely destroyed Mid grey Edifices severely damaged Light grey Edifices partially damaged

1. Ponte Romano 2. Area San Francesco 3. Area San Tommaso 4. Area Ex Ospedale

This drawing came from the set of at least five perspectives Ridolfi made to accompany the list in order to deliver the architectonical and spatial qualities of his envision, which included:

1) Piazza del Mercato. 3F8
2) Zona S. Salvatore. 6F11
3) 'Ponte' fra Via Tacito e parallela ('The bridge' between Corso Tacito and the new parallel road, or Largo Villa Glori). 4F4
4) Centro cittadino (city centre, or Piazza de Comune). 3F5
5) Corso del Popolo. 6F9

In all these perspectives, enclosed, perfect form of space only appeared in Piazza del Mercato which would be discussed later, the rest four sceneries all presented some sorts of openness, unlike the atmosphere represented by the competition plan, the boundaries were made uneven, and the visual lines always led to landmarks far beyond. There was always one volume behind another to produce several layers for every view. In Piazza del Comune, for instance, three squares (including Piazza Europa and Piazza Spada, whose realisation needed another decade) actually appeared in one framework, which represented both Ridolfi's intention and his interpretation of the structure of the city. In Fraticelli's words, Ridolfi's reconstruction work in Terni was an ambiguous mixture of rationalism and academic tradition[7], very close to the square (Piazza della Vittoria) Piacentini did in central Brescia in 1929. Scenography was the word Ridolfi used to describe these works, which was obviously the course he took (at college in the fifth year) and taught in mid-1940s at *Scuola di Architettura Organica* to which he was invited by Bruno Zevi. But in order to achieve an ideal scenery, the architect had to carefully arrange a series of elements such as the passage, the stage, the backdrop, the sequence of spaces, chiaroscuro and the character of the boundaries. All the buildings that set the boundaries were carefully stylised with an unitary architectonic façade, which was a system of grids indicating the trabeation within. It could be reminiscent of the rationalism style once manifested in Ridolfi's awarded competition project, palace of the Italian Embassy in 1931. 3F3 But this time, as shown by the pilotis, it might be conceived as exposed concrete framework, which would later be applied to his major works in this period such as Casa Chitarrini, the residential towers in Viale Etiopia in Rome and the middle school 'Leonardo da Vinci' in Terni. The skilful combination of reinforced concrete and infilled masonry in these buildings, together with the contribution of other master architects, had provided an prevailing model both in technics and in aesthetics for the mass construction in post-war Italy. Although the use of concrete was initiated by early modernists in French and Germany, where Ridolfi had taken a study trip to and probably got familiar with some relevant works in early 1930s.

Unfortunately, these studies didn't have the chance to be realised in a pace as planned. As a result of the law of reconstruction plan enacted in March of 1945, claiming the reconstruction works shall generate no new damages to the existing condition, his works on many areas had to be halted.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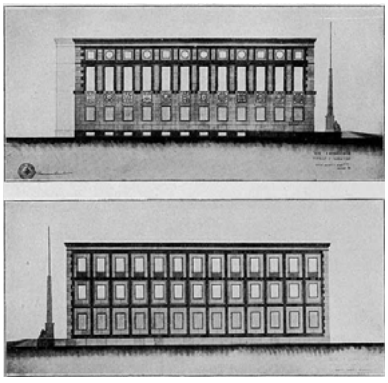
Although Ridolfi had argued with the mayor of urban planning that his direction was almost the same with the planning law that he was not willing 'to disturb the area with reconstructions', he had to make painful compromise to give up half of his work at this moment. Following this regulation, in 1947, Ridolfi submitted the second version of reconstruction plan and the revised planning report, in which only the planning in demolished areas remained. Ridolfi also used red dashed lines (in 3T2 the black dashed line) for the planning on the locations which were not completed destroyed that would not be implemented. The reconstruction plan was eventually approved in March, 1949. At a first glance, this plan might be the most boring one ever since Ridolfi was involved in reconstruction that lacked further information or architectural quality. But it was also an expedient mark of choices to leave room for the centre and the rest of places to be specified later in due course, and to shift the concentration to the peripheral areas like San Francesco and San Tommaso, the only places where he had the chance to exert his ability as an architect and to contribute to a larger scope of the city.



3F3 Sede ambasciata italiana (palace of the Italian Embassy), side elevations, Mario Ridolfi, 1931.

3T2 (Right) Reconstruction plan, approved version, in comparison with early intentions in balloons, based on 3F6 (1:7500).

Light grey demolished buildings Solid lines architectural profile based on approved regulative plan approved in 1937 Dashed lines alternation to previous regulative plan

3.2 The project set aside: The three squares

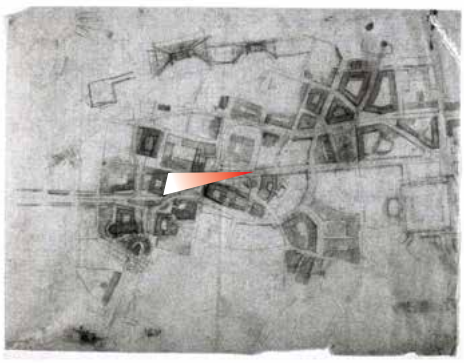
In the Revised draft of first planning report, we could find the first and most complete intentions of Ridolfi for the reconstruction. These descriptive texts explained very well the early sketches and the set of perspective drawings. Although many envisions were removed almost immediately for the sake of changing conditions and regulations, they definitely represented the architect's unchanged understanding of the city's structure and generally guided the direction in the future. Ridolfi was fully aware of the situation that the approved version of reconstruction plan would not be the destination, the initial ideas recurred from time to time, which always reminded him to fight for opportunities to circumvent the economical and political limitation and to speak for his own mind.

It was undoubtedly the demolition that led Ridolfi to interpret the centre of the city as a series of three squares. This was also an important prerequisite he tried to articulate in the planning report: "From the volumetric point of view it could be said that the center is formed by a system of three squares, linked in a longitudinal and diagonal way, animated by ornamental elements, in a volumetric composition that pivots on the Palazzo Spada and makes use of subsequent floors appropriately oriented, consisting of the front of important buildings existing in the area and other, important, new buildings." [8] But according to aforementioned conditions that the reconstruction plan should not lead to new demolitions, the 'three' on the draft version was overwritten by 'two', and on the approved plan in 1949 they were reduced to only one. 3T2 3T3

Piazza della Repubblica, or Piazza Vittorio Emanuele before WWII, which was 105m long and 50m wide, was the only existing central square before bombardment, where Via Roma and Via Cavour, the original cardo and decumano massimo intersected. On this square some major public buildings were located, among them there were municipal hall (city library nowadays), and central post office by Cesare Bazzani under his planning envision in early 20th century to expand the central square with arcades and galleries, although the post office was the only arcade realised, at the cost of a baroque church.

Piazza Europa, which is the name people use to call it nowadays, was an area between municipal hall and Palazzo Spada, once congested with houses, after the bombardment only two of which remained in the debris. These buildings had joined Palazzo Spada on the south and Palazzo Montani on the east to complete a huge trapezoid-shaped block. The northwest corner slightly opened and created a small square, as the diagonal extension of Piazza della Repubblica around the fulcrum of the city. Neither 'Progetto 613' nor 'Progetto San Salvatore' had expected the existence of this square, it was only a byproduct of the damage. If all the edifices were removed on this area, a larger rectangular square that was 70m long and 45m wide would emerge, rendering the two palaces as its backdrop.

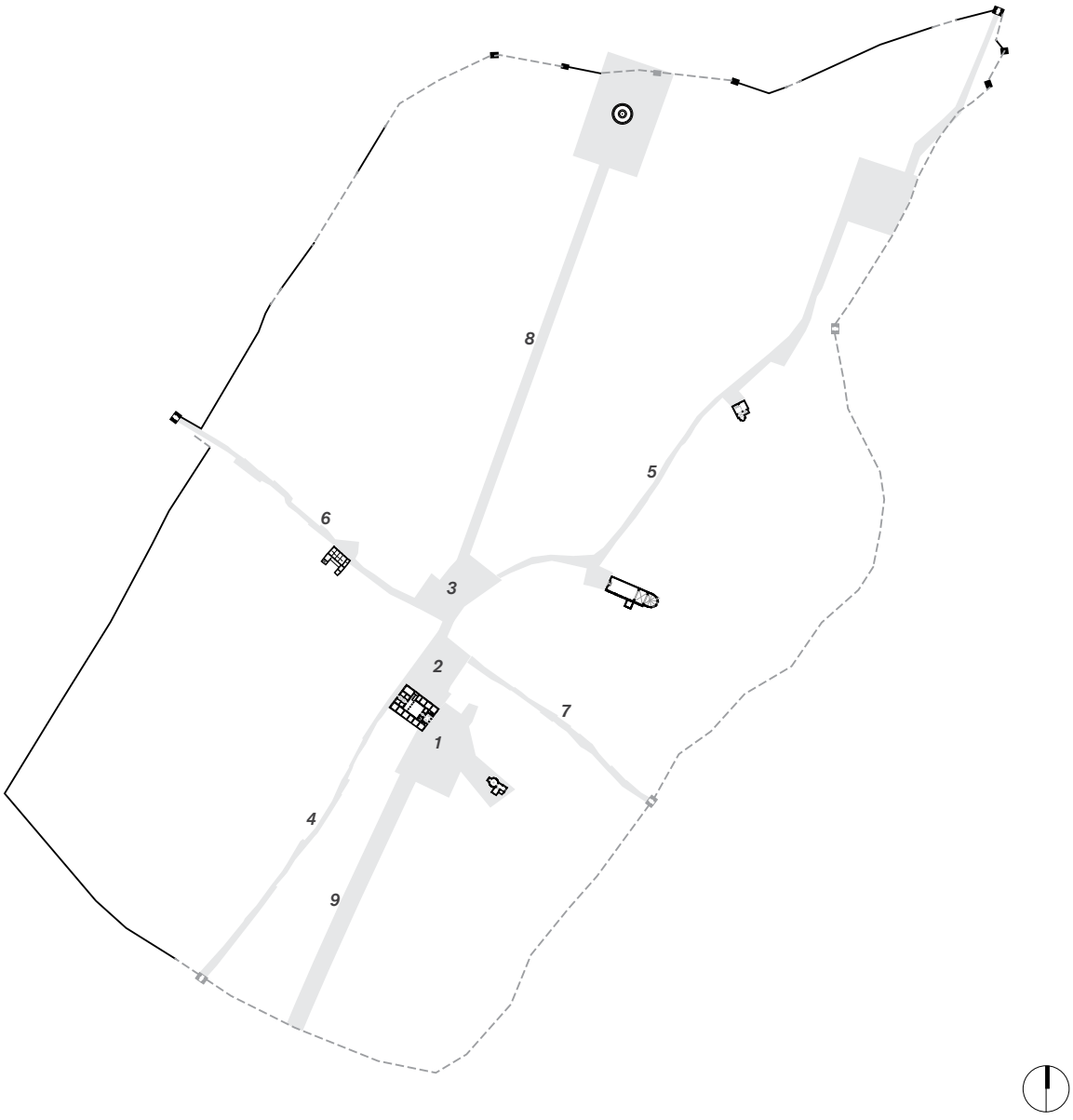
Piazza Spada, the third square, was the focus of pre-war planning. Although at that time it was still a backyard of Palazzo Spada, the private property of the monastery. After the conception of Corso del Popolo came into being, the government felt the urge to acquire this area from the monastery, to redistribute the properties, and to open the inside of the compound as a new square for the city. The plan has been approved but hadn't been executed thereafter. Until after the war it was still a damaged backyard.



3F4 Study of the riconstruction plan in the city centre of Terni, Mario Ridolfi, ca. 1944. Sight was added by the author.

3T3 (Facing page) The three square system (1:7500)

1. Piazza Spada 2. Piazza Europa 3. Piazza del Popolo 4. Via Roma 5. Corso Vecchio 6. Via Cavour 7. Via Giuseppe Garibaldi 8. Corso Tacito 9. Corso del Popolo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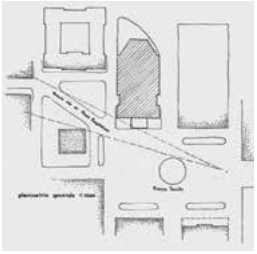
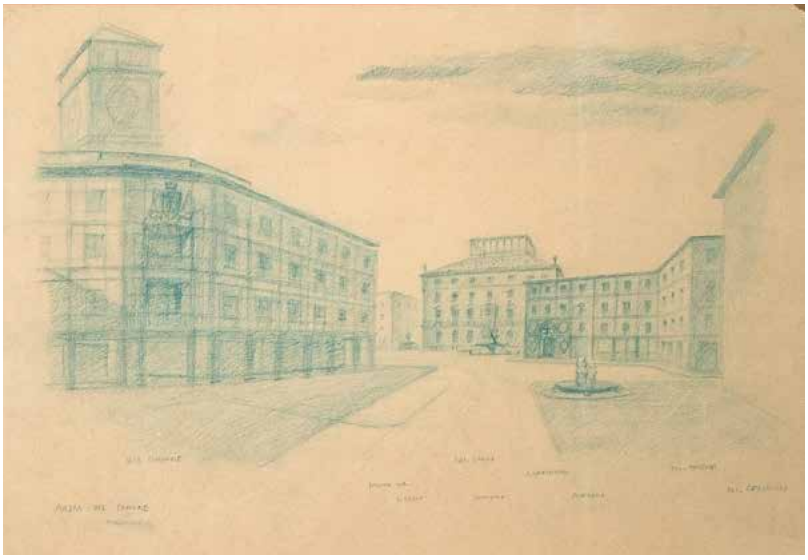
There are medieval towns like in San Gimignano that has several squares connected diagonally at the centre. Considering the quality of the historical monuments and the interfaces that defined the public spaces, Terni was nowhere near. In order to incorporate three squares into an overall system of urban space, Ridolfi redefined the boundaries, unified the composition of the façades, and above all, he carefully controlled the footprint of relevant buildings to make sure that all three squares were visually connected. The perspective of Piazza della Repubblica 3F5 was based on an early sketch studying the reconstruction of the urban centre in perhaps 1944. 3F4 On this sketch there were radiating lines across the squares showing the architect's examination on the range of the sight. And further, we can find that the profile of the building next to the municipal hall had been modified many times to let the sight pass without an obstruction. It ended up sharing the same line with the standpoint and the corner of Palazzo Spada, making an extreme situation when the far ends of the series of squares were connected. From the standpoint where Corso Tacito met Piazza della Repubblica, people were able to see the municipal hall and the bell tower, the newly planned houses with concrete framework, and from the open corner of the first square, the re-cladded side façade of Palazzo Spada stood on the centre of this image as the major monument of the view, moreover, on the left of the second square, part of the new church complex on the third square appeared in pale colour. Ridolfi also arranged fountains in variated forms for each squares to emphasise on the sequence from near to far.

Actually, visual planning was a common method of Ridolfi in the reconstruction period. It could be functional, as in the case of the solution to an unbuilt theatre as a part of systemisation of Piazza Tacito, a research work done in 1947. The front elevation of the theatre was carefully set back to the position where the entrance to the parallel road of Corso Tacito was entirely revealed in the vision of people standing at the entrance of Piazza Tacito 3F6, as to arouse the attention of the drivers to choose the streets other than the main artery. While in the case of central squares, the view had embodied the diagonal line of the three squares which Ridolfi had interpreted as the fundamental structure of the city. It is not only the enhancement of urban morphology that had been formed back in medieval times, but also as an extension of the movement along Corso Tacito, the planning in the 19th century.

Among all the unbuilt urban interventions, the plan of zone San Salvatore was also a major part the of the architect's scenography. Given the change of heights from Piazza Spada to the bank of River Nera, Ridolfi had conceived a series of terraced stairways and ramps, connecting the two locations, and allowing the view from across the river to penetrate into the city centre. 3T2 3F2 The church of San Salvatore, the most ancient church in the city, stood on the left side of the terrace, as the main object for attention, while the imposing back elevation of Palazzo Spada as the backdrop. This area, however, was never realised in this way even after the variation to the reconstruction plan.



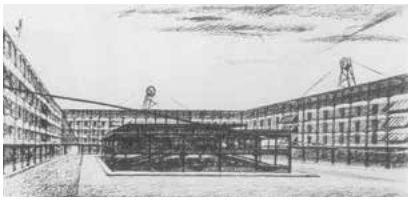


3F5 Veduta prospettica della piazza del Comune (Perspective view of Piazza del comune), Mario Ridolfi, ca. 1945, FRFM CD68/I/(2).

3F6 Master plan, Progetto per la sistemazione di un'area in piazza Tacito a Terni (Project for the systemisation of an area in Piazza Tacito in Terni), Mario Ridolfi, 1947. FRFM CD73/I/(4).

3.3 The project realised: Mediating the old and new

Considering the planning of Corso del Popolo and Ex Ospedale both went through major changes in the following years, in the reconstruction plan approved in 1949, the portion that survived and later continued in architectural practices was actually in the area San Francesco and area San Tommaso in the north, which were also the most damaged areas located between the historical center and the blocks in grids planned in 19th century. It was the fourth quadrant initially defined by the ancient crossroads, and interrupted by Corso Tacito. After many innovative intentions fell short in the reconstruction period, Ridolfi did realise something big to rebuild the image of the city centre. Largo Villa Glori in area San Francesco and the market square (Piazza del Mercato) 3F7 in area San Tommaso were under construction immediately after the approval of the reconstruction plan, which had radically redefined the urban fabric after it had been erased. They were seemingly two separate squares with contrast formal approach, but in fact there was definitely a larger scope in consideration.



3F7 Study on reconstruction of the market square, Mario Ridolfi, ca. 1945.

Although Ridolfi didn't comply with the demolished historical fabric, one passage way was carefully preserved and remained unobstructed. This passage consisted of several streets which contributed to internal transportation in the planning report, such as Via Goldoni, the diagonal street intersecting with Corso Tacito, and Via Angeloni, the streets passed in front of the Church San Cristoforo, whose borders had been unevenly defined by historical edifices. It actually started from Piazza Duomo, passing through all the ruins across the city, and ended eventually in the open space near Piazza Valnerina. 3T4 The passage was long since there, but never as clear as in Ridolfi's plan, since the demolition enabled him to broaden some parts of it and to modify very slightly some locations of the joints. Ridolfi preserved this historical path as the secondary artery or a part of the circular road system within the city, but moreover he used this path as a referential element for urban composition.

It is clear in the aerial view of the city in 1930s that, except for Corso Tacito, the grid system never went beyond this path, thus when the demolished areas around it were to be reassessed, the path could easily become a sharp boundary between the old and the new, with irregular medieval streets on one side and the grids on the other. But Ridolfi's approach was something different. The path certainly distinguished the periphery from the centre, but it was rather a blurred boundary. Following the direction of Corso Tacito, the perpendicular lines generated by the grids also penetrated the border, into the organic forms of the medieval town. Meanwhile, it is the same way around for the diagonal or irregular definitions, among which the most important was the visual axis leading from Corso Tacito to the bell tower of San Francesco d'Assisi that had diagonally cut through the grid system, leaving the starting point and the destination on each side. In this way the planning of 19th century merged with others, the city within the city walls therefore appeared even more to be an integrity. There were also urban features such as small streets, squares and urban blocks that repeated themselves on the other side of the paths. When the parallel road of Corso Tacito intersected with the path, for instance, two small triangular squares were created on each side. Same feature was to be found in the new market located on a perfect square with a dimension of 75 by 75 metres. In previous plan it was conceived with an organic shape, but ended up drastically in contrast with its historical context, so it has been interpreted as a refusal to ambientism by inserting completely foreign element into existing urban fabric.[9] It would be more reasonable however, if it could be seen as a counterpart of Piazza Tacito, part of an reciprocal permeation between the old district and the new. The market square then, was not only a new creation by the architect but an extension of the spirit of the 19th century planning and pre-war rationalism monumentality. As described in the report as well as the perspective drawing, the square was surrounded by buildings with "unitary architectonic solution" with arcades, the same way he drew the buildings for Largo Villa Glori.

Although the architectonic solution had changed with time and even most of the buildings were not commissioned to Ridolfi, the conception of the master plan fortunately remained.

This manner of composition, although not as explicit from the onset, was actually preserved and enhanced throughout the design development especially in the cases of Casa Chitarrini and the middle school of 'Leonardo Da Vinci'. As found in the final built environment, the axis was actually a visual path that went across the curved paths, connecting not only Corso Tacito and the church, but also the two major works of Ridolfi and the squares in front of each. The blocks which accommodated the two buildings, both had two sides that followed the grids and the other sides that did not. So was the squares presented in two trapezoids. In fact, Ridolfi had made use of elements and features in different scales to manifest the existence of the axis, but this relationship was not figured out at the very beginning. It had been more than ten years since the architect first detected the axis when he finalised the design of the middle school in 1956. Both the apartment building and the school had endured long and difficult process of changes and developments, it was the journey of the architect in search of a way to build his own works in the city centre for the first time.

3T4 (Facing page) The circular path and the fusion of fabrics on both sides (1:7500)

Light grey Traffic system joining the existing major squares in the reconstruction plan; Dark grey Minor squares conceived in the reconstrction period

1. Piaza duomo 2. Piazza Valnerina 3. Piazza Tacito 4. Piazza San Francesco 5. The middle schoool 'Leonardo Da Vinci' 6. Casa Chitarrini 7. New market 8. Corso Tacito (The new 'cardo massimo') 9. Road parallel to Corso Tacito 10. The visual path between Corso tacito and the bell tower of Church San Francesco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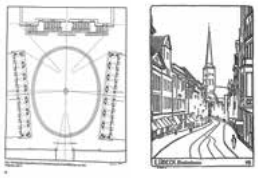
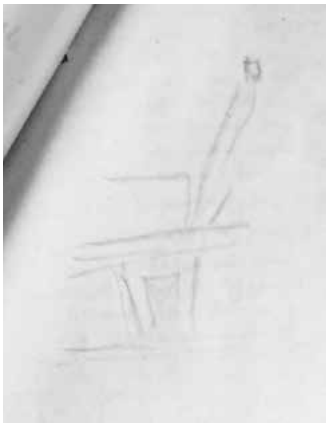
4 Design development of the area San Francesco

4.1 Early approaches to Casa Chitarrini and Largo Villa Glori

The Earliest attempt to systemise the area between Corso Tacito and its parallel road could be seen in Ridolfi's draft of the first planning report in 1945. There was a pale pencil sketch in the blank of the page beside the description of 'Largo di Unione fra Via Tacito a parallela' (under the category of solutions to the architectonic character of the monuments), showing the master plan of of a square[10]. 4F1 The two roads seemed to be precisely parallel to each other, making the square an isosceles trapezoid. According to the architect himself this plan referred to Campidoglio in Rome[11], but obviously he also took into consideration the character of a romanesque town, the winding small path and the church at the end of it, following the instruction of modern urban planner Camillo Sitte. 4F2 4F3 Since the buildings were places on the north, south and southwest sides of the square, leaving the northwest corner open. A path went beyond this corner leading to a small block which indicated the bell tower of the church of San San Francesco d'Assisi. Apart from the open corner, there was another element on this simple sketch that rendered it less symmetrical. Since the south side of the square was enclosed with double lines, it might stand for a building with arcade, which was the predecessor of Casa Chitarrini. It was simple to understand why the arcade was not on the other side, it's because only on the south side people were able to behold the bell tower through the long axis beyond the open corner; the arcade could performed as a frame of view. This plan might be totally diagrammatic, but it had already foreseen everything of the future practice.





4F1 Schematic plan of Largo Villa Glori, Mario Ridolfi, ca. 1945. FRFM CD68/VII.

4F2 Michelangelo's Campidoglio, master plan, Harmen Thies, 1982.

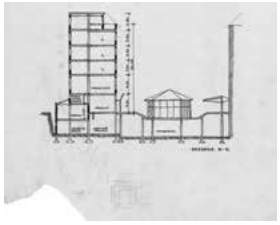
4F3 Breitestraße in Lübeck, Camillo Sitte, 1889.

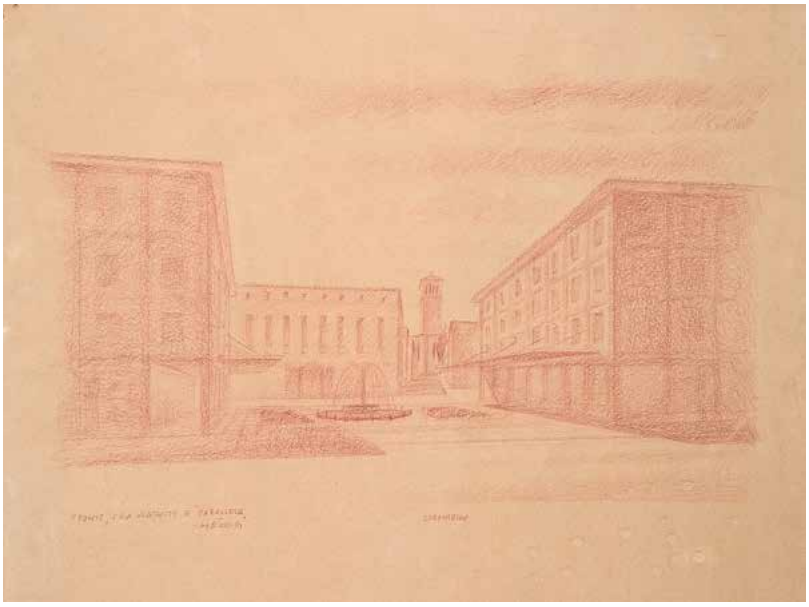
In reality, the roads were not strictly parallel, on the early version of the reconstruction plan, the monumental square was an irregular quadrilateral and much larger than later. 3T2 Ridolfi had initially envisaged an actual monument at the centre, dedicating to the memory of the war and the destruction. And the path leading to the tower was flanked by continuous elevation of the blocks. The size of the square shrank soon after the intervention of the mayor[12], probably because of inadequate built area. On the later version, both block expanded towards the square. The southern boundary was perpendicular to Corso Tacito, while the northern was diagonal, which was the opposite to the early plan. This situation was captured in the perspective drawing during studies of reconstruction, 4F4 and later the drawing on the cover of design report in an early stage of the project Casa Chitarrini, entitled 'the 'bridge' between Via Tacito and the parallel'. The architectonic feature in the had changed in the later version that the intention of structural expression was much stronger. The cantilevered upper storeys were supported by large protruding components, just like the bracket in historical buildings. It also continued the organic structures presented in the competition project of the terminal station in Rome and reiterated in the unrealised project of the residential buildings on the new market square in Terni.

'The bridge' was the concept Ridolfi chose to his design. On the one hand, the square presented as a bridge of vision, channeling the landmark to the artery, while on the other, at the beginning there was a ballroom for public entertainment as hypogeum under the square, and above was the recreation place for people to stay 4F5. The slab of the square sank to below, which was like some structure overhung across the place. On the bridge, there was entrance to the ballroom, presented

as a small pavilion, in the shape of an elongated hexagon. Although such arrangement had its symbolic meaning to express some sort of hollowness, it was abandoned for obvious reason; the property line was not clearly defined, there was a lot of blurred area between the public and private. So when the plot for Casa Chitarrini was acquired, the building was limited strictly to within the boundary, leaving the square untouched. Only the curved curb was showing some intention for people to stand on and admire the view of the bell tower.

Then the bridge became Largo Villa Glori, named after a historical building in this area that had obviously been destroyed. In March 1949, Ridolfi received the commission of two apartment building, both were on south side of the square, the longer one was Casa Chitarrini, and the smaller one on the southwest corner was Casa Fongoli. Both clients were contractors Ridofli had cooperated with. At the beginning, two buildings were studied together in order to produce unitary facade for the square. But years later the ownership of the plot of Casa Fogonli was transferred, which nullified the commission of that part. In the end, among all the buildings that surrounded the square Ridolfi only got a small portion. Fortunately it was the same building for which Ridolfi had drawn an arcade long time ago. To provide enough area for commercial use on the ground floor, however, it was no room for an arcade. Nonetheless, Ridolfi still managed to emphasise the southern facade of the square by adding an external continuous framework along the shopfront. The rest of the front elevation was almost flush, except for some protruding balconies in diamond shape, which was the same elements Ridolfi used earlier in INA-Casa houses in Cerignola and suburban area of Terni.





4F4 Veduta prospettica lungo via Tacito (Pespective along from Via Tacito), Mario Ridolfi, ca. 1945. FRFM CD68/I/(1).

4F5 (Above) Transversal section of Largo Villa Glori, Mario Ridolfi, ca. 1949. FRFM CD90/I/6'.

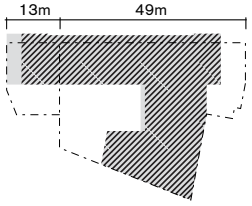
4.2 Four stages of the middle school[13]

It is known that the design process of the middle school 'Leonardo da Vinci' was a tedious and exhausting journey. It had been studied for years from 1951 to 1956, in four stages of schematic design, and each stage also included variations[14]. The four approaches contained radical experiments that would have led to totally different direction of urban intervention if executed, but the final work, in spite of being more conservative, had not only set an exemplary model for the construction of other singular public buildings, including Ridolfi's own works, but also responded to the envision of his reconstruction works, in collaboration with Casa Chitarrini and the systemisation of streets and squares, which contributed to reform the character of the city. The site of the middle school, situated in a destroyed area next to the romanesque church San Francesco d'Assisi, hadn't been studied as much as Largo Villa Glori in the reconstruction plan. It was a trapezoid-shaped property limited by existing streets (Via Fratti, Via Massarucci) and the line of sight leading to the bell tower (Via Lanzi), having been considered for schools in the approved reconstruction plan in 1949, since next to it on the opposite side of Via Massarucci it was the existing high school (Liceo Ginnastico). In 1950, there was as many as 1400 middle school students in the city of Terni, half of which were sheltered in temporal school buildings, so the committee decided to build a 26-classroom-school to accommodate 750 students, and acquired the site from its previous owners. Ridolfi accepted the commission form Municipal Administration of Terni in late 1951, shortly after the construction work of Casa Chitarrini had finished, and submitted a first draft early next year.

4.2.1 The first stage (January 1952 - July 1952)

It was clear from the beginning that the site purchased was inadequate for a school building as such. Both attempts issued in January and July trespassed the property line, although Ridolfi had reduced the bay width from 7m to 6.5m. However, the intention of the original masterplan wasn't completely lost. The west side of the property was originally in alignment with the block on the south, which produced a continuous public space between these blocks and the church. With the main body of the school building as a long volume located on the north and the gymnasium detached and situated on the southeast, Ridolfi only overstepped the boundary on the northwest and kept the rest of the compound within the property line, so the square still existed to the east of the church. The built area of the gymnasium precisely followed the southeast border, and the independent entrance to it was arranged in the leftover space between the main building and the border, which showed Ridolfi's attempt to make full use of the crooked shape of the east boundaries.

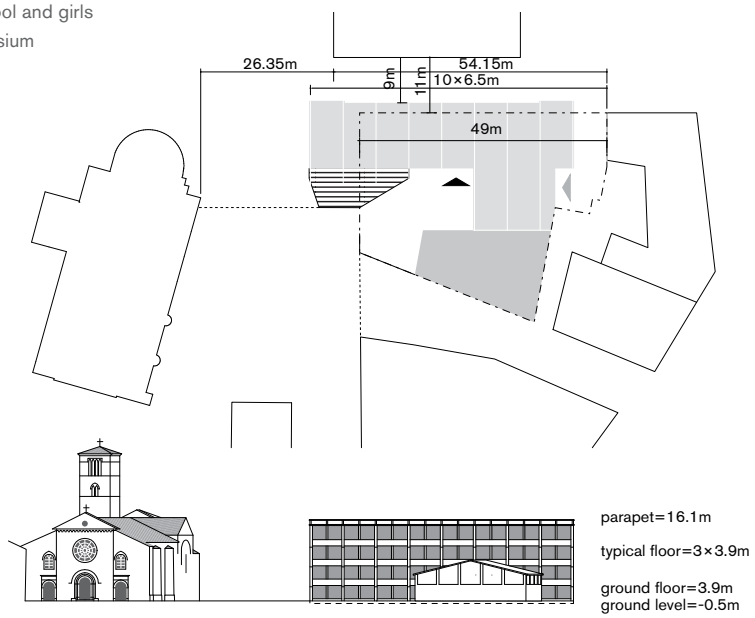
The volume of the main building was slightly tilted by gradual cantilever on the south and setback on the north, to assure that the high school on the north could obtain direct natural illumination. The architectonic character was obviously inherited from the row houses in Cerignola, part of a project Ridolfi had finished a year ago. Applying for school, Ridolfi had devised a special section in which the corridors were much lower than the height of each level so that the classrooms were illuminated from both sides. Like in the case of Casa Chitarrini, the exposed concrete frames were not flush with the infill walls, but protruded on the elevation. Ridolfi paid so much attention to these frameworks from the onset that the chapter of structure became the most important part of the report, discussing details such as the cost of formwork and the special way to finish the surfaces; Therefore the exposed framework became the only concept that had not been changed throughout the whole process. The structural frames were dispersed every 6.5m along with north-south direction, on which the slabs were set longitudinally. The height of the main building from the ground to the top of the parapets was 16.1m, slight lower than the nave of the church and the volume of the existing high school.

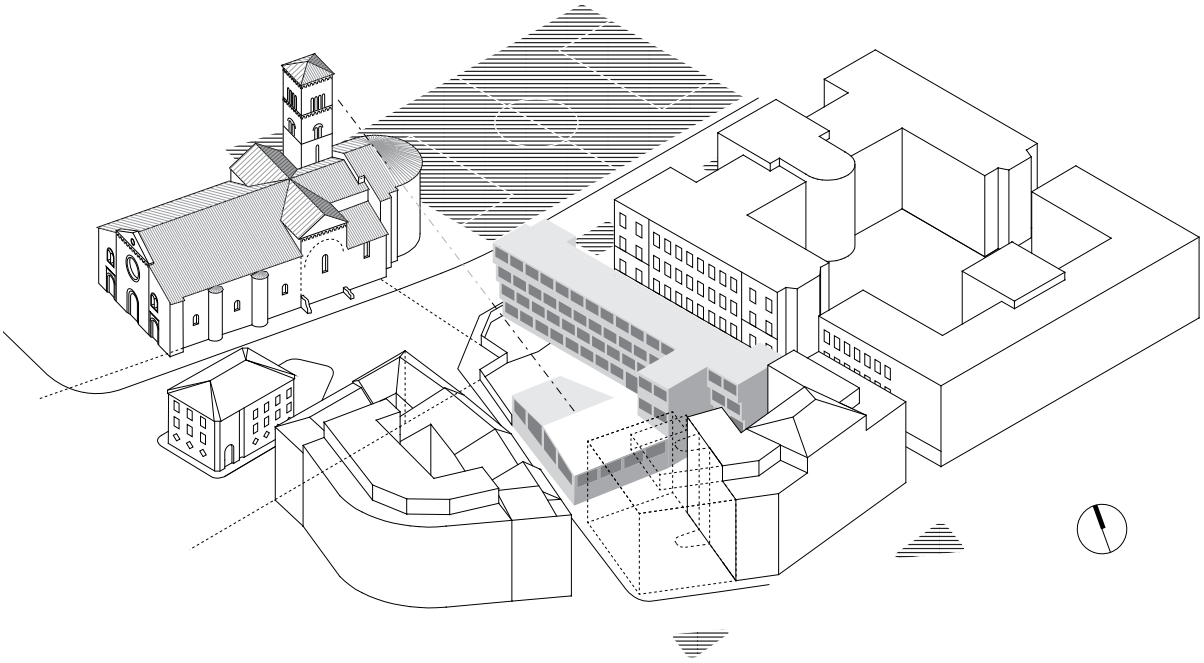


The gymnasium was a singular volume under pitched roof, resembling the main facade of the church in many ways, such as its breadth, its symmetry, but most of all, at the time when the budget was limited Ridolfi chose the gymnasium as the part cladded in sponga, the stone locally produced and used in most historical monuments in Terni, while the infill walls of the main building in coloured stucco.

4T1 Plan, front elevation and axonometrics of the middle school in the first stage (1:1500), including the comparison of two version of footprint, and the suggested additional property (1:2000).

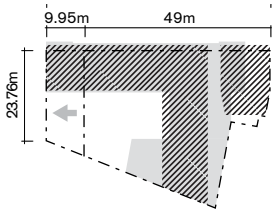
Black arrow main entrance to the school
Hollow arrow secondary entrance for night school and girls
Grey arrow independent entrance to the gymnasium





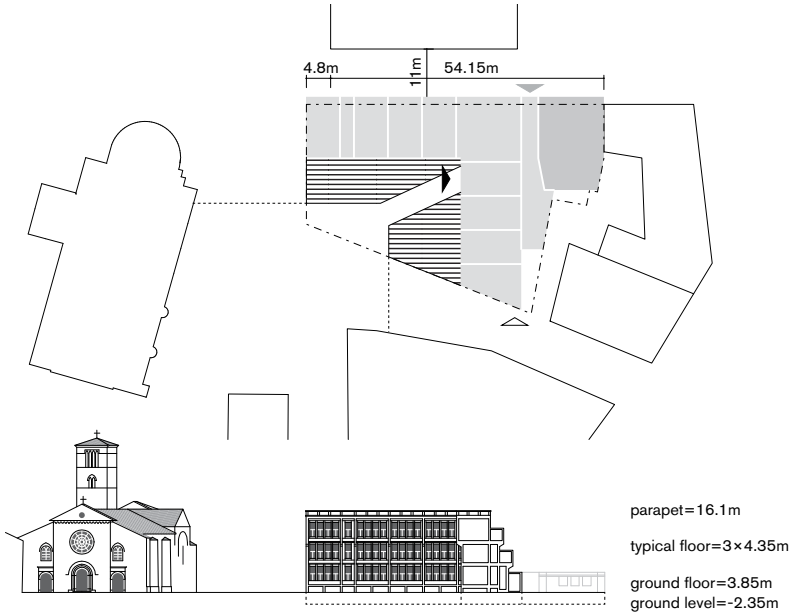
4.2.2 The second stage (December 1953)

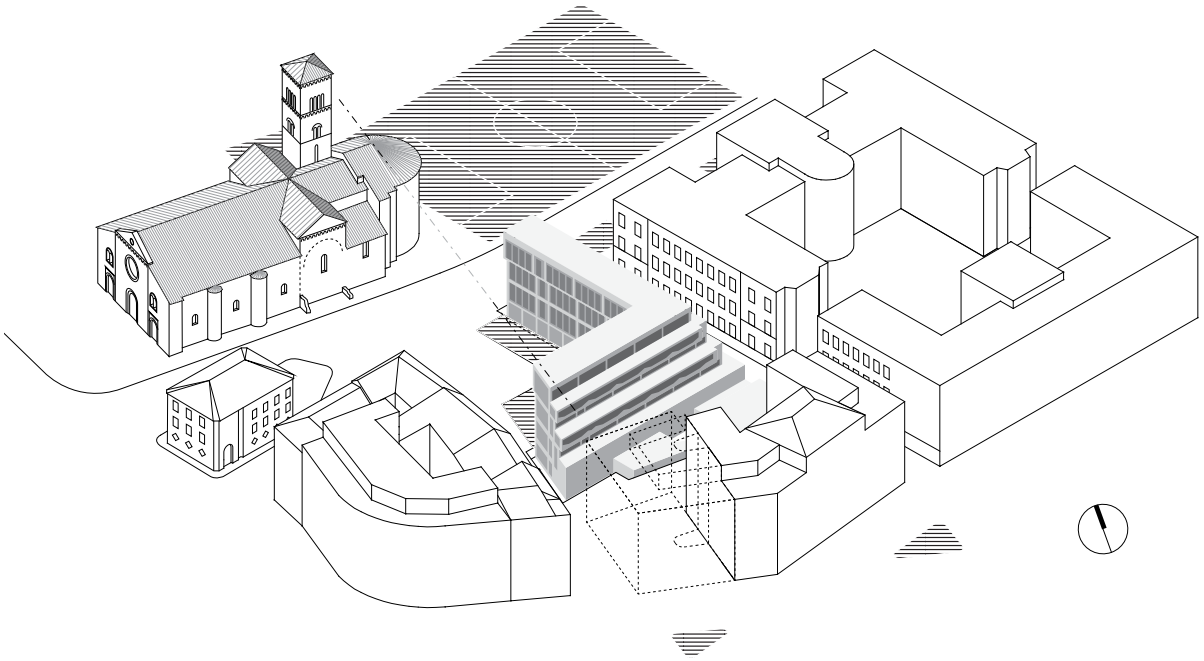
Following the architect's suggestion and with the technical committee's confirmation, the site expanded on the west thanks to additional purchase, increasing the length of the lot from 49m to 58.95m. Nonetheless Ridolfi's first schematic design had changed dramatically under the disagreements and negations from the committee. Firstly the main building became a L-shaped volume with the gymnasium hidden on the back side, making full use of the east border, apparently because the Superior Council of Public Works (OO.PP. di Perugia) didn't want a volume in front of the main building. Second, they insisted that the building should strictly follow the north property line to join the continuous elevation of Via Massarucci, although this requirement didn't represent in the works the at this stage. There were also internal modification on the circulation and the evacuation, considering this school would also accommodate girls' department and night schools, a secondary entrance and staircase was placed for them. More radical changes to the composition of the school probably came from Ridolfi himself. Probably under the influences of the concept open air school of the northern european countries, he increased the height of typical floor from 3.9m to 4.35m, and enlarged the size of the windows on both sides. In order to keep the building lower than the church, the ground floor became semi-underground. Comparing with the spandrels of the first design that formed horizontal strips on the facade, elements like pilasters and mullions were emphasised here, which had remarkably changed the composition of the building appearance by endowing the facade with verticality. The infill walls were still made from bricks with cladding, no stone was involved in this stage.



Although the layout was alternated, the urban feature of the site was in some way remained. Ridolfi endorsed the southwest corner of the lot to the city, creating a 'space' next to the church. It may be similar to previous approaches, but without the alignment required by the property lines, the open space extended towards east; its form echoed with the enclosure of the L-shaped school.

4T2 Plan, front elevation and axonometrics of the middle school in the second stage (1:1500), including the comparison of the built area of the first and second stage, and the expansion of the property (1:2000).





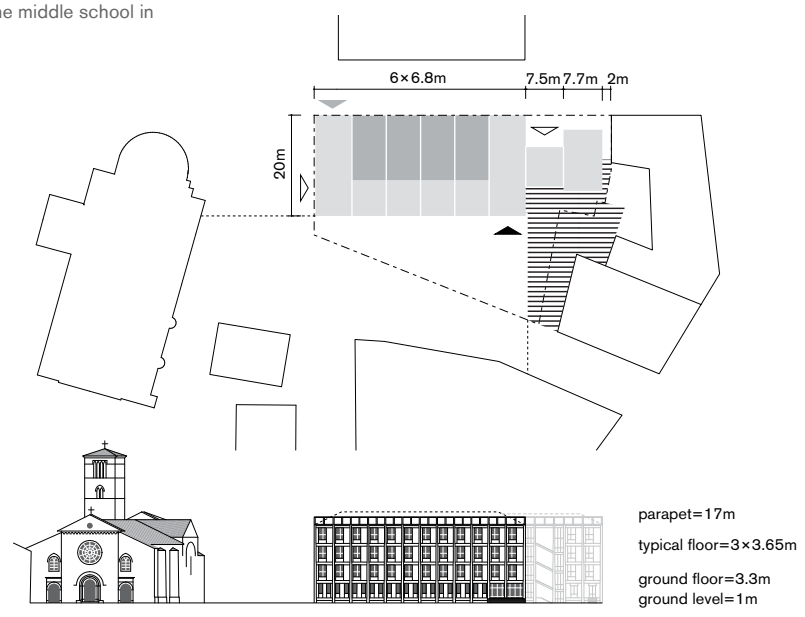
4.2.3 The third stage (December 1955)

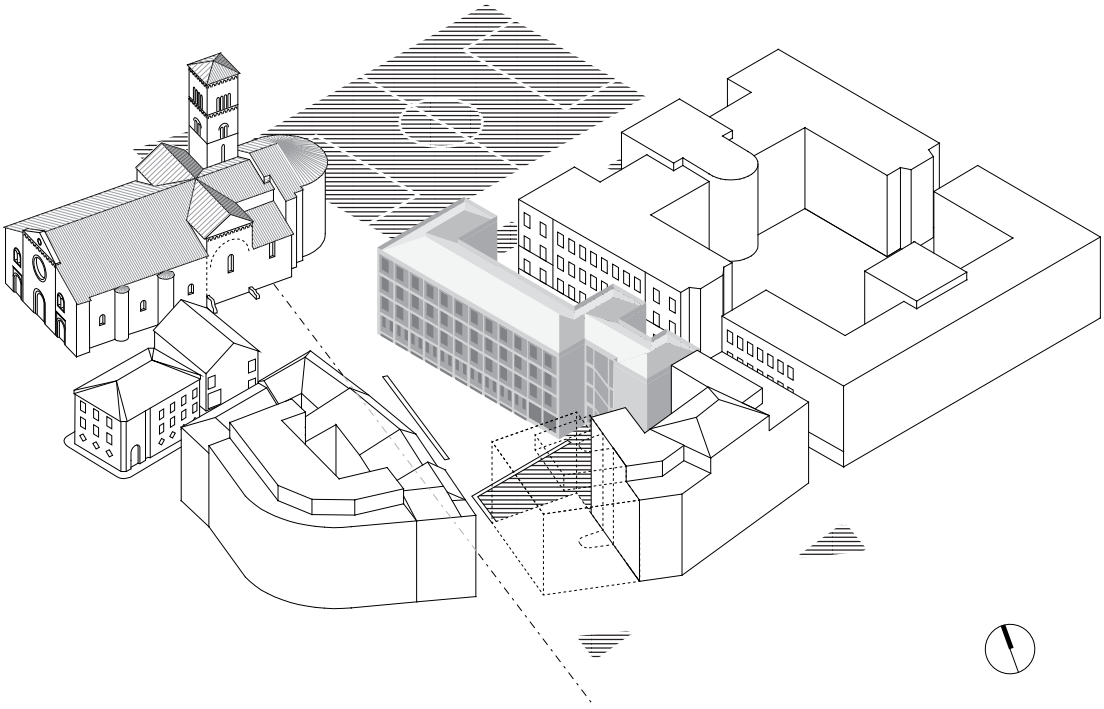
Between the second to the third project there was an appreciable discontinuity, since the former had been rejected in March 1953 by the Administrative Technical Committee for the peculiarity of its setting. The conception of the low corridors and illumination of the classrooms from both sides failed to impress, and the number of classrooms fell under the requirement. But first of all, the cost of the work exceeds the standard established by the ministry for the buildings of the elementary schools, thus the project was also rejected by the superintendent of public works. It was understandable that Ridolfi had tried to challenge the task of the assignment, since at that time, the prerequisite of a project, the property, the budget, and technical economical index weren't fixed, there was room for the architect to negotiate as to realise his own work. At this moment, however, Ridolfi had to compromise, while the good news was that the budget increased.

Site strategy had changed: following the regulation the building was aligned to the boundary on north and west side; on the east it kept a distance from the property line, being detached from its neighbourhood; and on the south, it left the diagonal border untouched, the green area across te border towards its adjacent buildings showed the architect's intention to define a square in front of the school, making a trapezoid out of it by keeping the northeast corner in right angle.

The most noticeable character of this project might be the disappearance of the gymnasium. It wasn't gone but had been incorporated into the main building, semi-underground, and covered by the same series of concrete framework, which was regarded as an economical solution. 'The building had a longitudinal development oriented east-west, as to expose the largest number of classrooms to the south and formed a U-shaped body of about 42 meters in front, containing 18 classrooms, and two 'arms', placed at the two ends, containing respectively 3 classrooms and 3 set of toilets, the rest 3 classrooms were located at the end of the east wing of the building which was recessed from both sides. A lot of essential features of the final project were defined in this stage, such as the raised ground floor, the recess of the infill walls on the ground floor, the pitched roof (still in wooden structure and screened from the outside by parapets), large window for the classrooms made flush with the ceiling, the inclined profile of the beam on the facade. But it still had a long way to go to reach the destination Ridolfi had set originally for his public works. The design was comparatively modest and functional; apart from the architectonic system that would later become a repertoire, there wasn't much character of the building in regard of the context, the historical monument or the local material. The main facade was homogenous showing dense pilasters and trabeation, since the transversal frameworks were dispersed evenly at every 3.4m. In a word, it was most likely a tentative approach Ridolfi made to see the preference of the committee and tried to get their consent in the first place.

4T3 Plan, front elevation and axonometrics of the middle school in the third stage (1:1500).

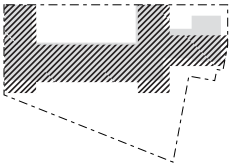




4.2.4 The final stage (July 1956)

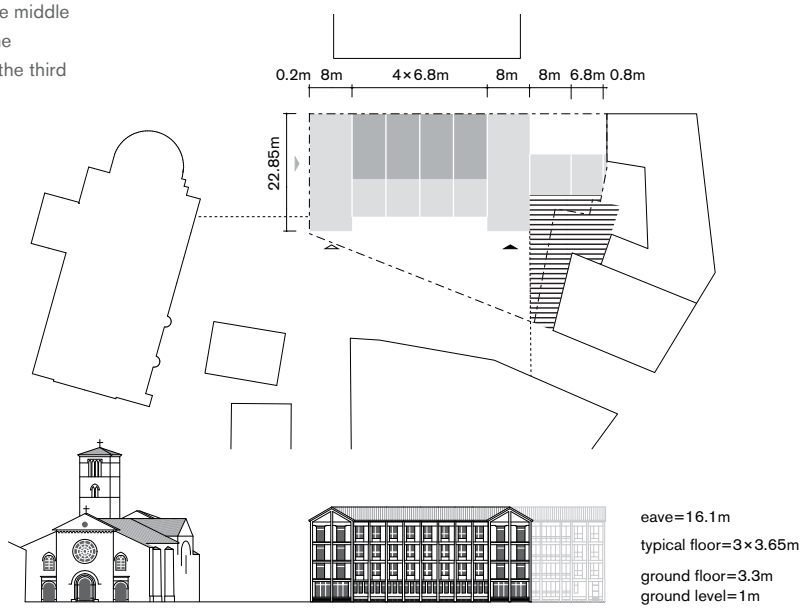
The third project was approved in April 1956, with the suggestions of adjustment only focusing on technical issues, for instance the dimension of two staircases, and the further study of reinforced concrete structure. In the report, Ridolfi for the first time discussed the direct relationship between the school and the church: since it was situated 'near a beautiful romanesque church: S. Francesco, therefore the designer was concerned with giving the building a symmetrical, regular volume, together with a rigorous and highlighted structural compartment, avoiding the use of non-natural materials.' Accorded with this symmetry, there were two major changes of the previous design. The first was the dispersion of the structure, the widths of two 'arms' of the U-shaped body expanded from 6.8m to 8m, so the distance between concrete frames increased from 3.4m to 4m, different from those in the middle. Second, the two entrances were set at the end of the two 'arms', in correspondence to the two lodges four-storey-high and surmounted by gable roofs. Ridolfi didn't provide other reasons why these two lodges in concrete framework seemed to emerge from nowhere[15]. But the location of the lodges spoke for themselves since they were quite perceptible on site, the lodge on the west was facing the path perpendicular to the building between the houses on the south; also at the far end of the visual axis on Largo Villa Glori the concrete framework of the lodge was partially revealed. The third entrance leading to the gymnasium, independent from the circulation of the school, was situated in the middle of the west side, opposite to the church. Since the breadth of arms increased while the building remained aligned to the west, the main body expanded slightly towards the east, accordingly the east wing also moved and was then in contact with the adjacent building by 3m.

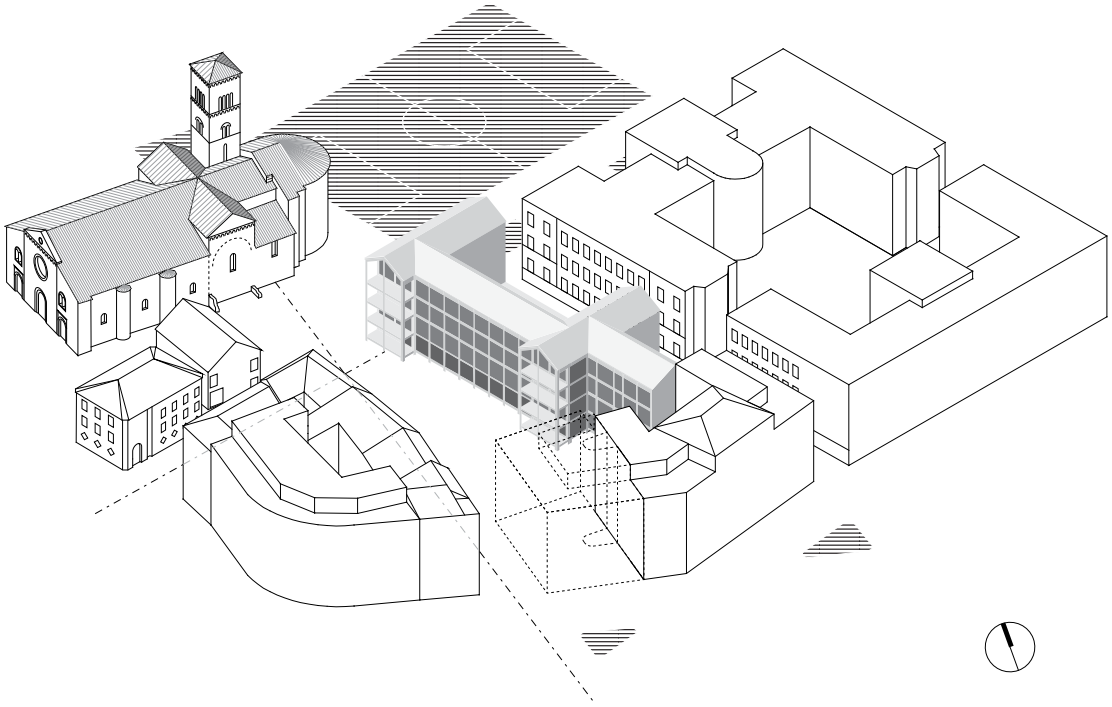
The structural and formal transformation of the roof represented some major change of conception of Ridolfi regarding the character, the frontality of the building. In previous report, Ridolfi mentioned that the roof should be kept behind the parapet 'to give the public destination a possible raised elevation'. It could recall the baroque facade of palaces for references, like the palaces flanking Campidoglio which Ridolfi had mentioned in the design report of Largo Villa Glori (and later of Casa Franconi). But In the final project, the gable roof was overhang above the whole structure and had strong sense of existence at the end of the volume. It was built from reinforced concrete in light trusses leaning on the end of the curbs of the third floor. Although Ridolfi didn't speak of the reason, it obviously had something to do with the romanesque church.



The biggest expense on structure was the part of the gymnasium. To incorporate a giant hall into the main body without external hint of existence, the frames across the gymnasium were in particular layout, which were 1m in height, for the large span, and for the pilasters of the upper volume to rest upon. At this time cladding material for all the infilled structure was sponge stone.

4T4 Plan, front elevation and axonometrics of the middle school in the fourth stage (1:1500), including the comparison of the footprint of the main body of the third and fourth stage (1:2000).





4.3 Two buildings by one axis

As much as the middle school was irrelevant to Ridolfi's earlier work in Terni at the beginning, it ended up in a close relationship with Casa Chitarrini several blocks away, and blended in the *genius loci* Ridolfi had envisaged for the area San Francesco. The was particularly clear seen from the master plan. When the square in front of Casa Chitarrini (the 'bridge' then) was conceived, it was strictly symmetrical, flanked by the glorious facades of ridolfi's own works. The visual axis leading to the bell tower and the arcade indicated on one side were two elements to break the balance. In reality, Ridolfi only built Casa Chitarrini as the southern front, and moreover, the shape of the square changed from a isosceles trapezoid to a right-angled trapezoid. The conceived monumentality was lost. However, following the design development of the middle school, Ridolfi had managed to re-establish the equilibrium and enhance the effect of the visual axis in a larger scope. Years later when the project was finally completed, another scene situated along the axis was created. The volume of the school was set longitudinally on site, following the same grid planned in late 19-century as Casa Chitarrini was doing, with its main elevation facing towards the axis. In front of the building there was another square in right-angled trapezoid shape and in similar dimension, on which the axis passed through diagonally. Thanks to the exposed framework and the colourful palette of materials, Ridolfi's building facade always delivered 'a noteworthy plasticity in strong chiaroscuro and rich chromatic contrasts'[16]. In this circumstance, a set of scenographic elements including a fancy facade, an open space and the tower in sight repeated twice in the sequence along the axis, one appearing as the counterpart of the other. When people tried to walk towards the church from Corso Tacito, he would first go across a square with Casa Chitarrini on his left, and later across another square, with the middle school on his right. The composition of the area was firmly controlled by the line of sight and, once again, become central symmetrical.

4F6 vintage postcards. Left Church San Francesco before bombardment with transept, vintage postcard; Right Church San Francesco restored.

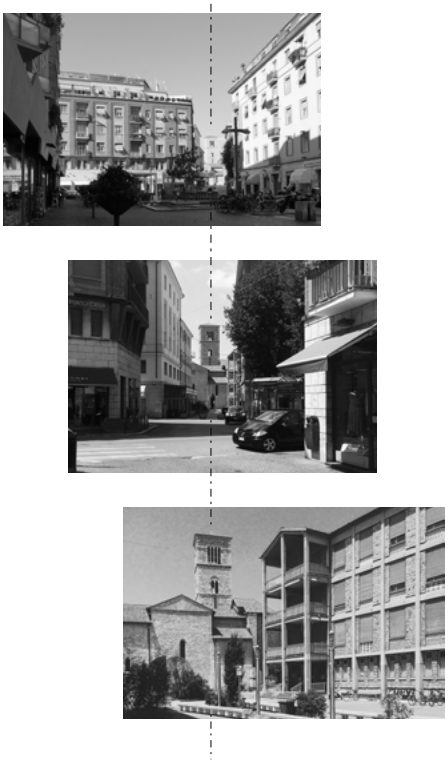
4T5 (Facing page) Demolition plan of area San Francesco (1:2000) White lines represent the axis along Corso Tacito and the visual axis leading two the bell tower of the church San Francesco.

Thinking about the spatial sequence along the axis, there was something people might wonder, and which was certainly the question Ridolfi had pondered over: what should be seen at the end of the axis. It was the bell tower for sure, but in front of the bell tower, some portions of the church was even more palpable, which was the transept embodied on the facade. According to old photos, the transept of San Francesco used to protrude from the nave by as far as 10m. 4F8 It was destroyed by bombs, leaving only foundation and small pieces of ruined walls above ground, but the volume under gable roof was still indicated as part of the elevation. When people approached the church along the axis, the profile of the destroyed transept gradually emerged from the left, while the southwest corner of Ridolfi's school emerged from the right. Then it would be easier to understand the existence of the two protruding lodges. The conception came into being together with the expansion of the two 'arms'; in fact 8 metres were the largest breadth they could reach within the property line to match the volume of the transept. The change from parapets to overhanging gabble roof also led to the same direction. So it was reasonable to believe that the protruding lodge was a reminiscence of the destroyed transept. The last scene people beheld at the end of axis also included two 'transepts' that were facing each other, one built in sponga in solidity, and the other of reinforced concrete, appearing to be a hollow framework. 4F10 Lodges as monumental elements also recurred later in other projects, for instance, the proposal on restoration of Palazzo Montani (1959) on Piazza Spada, and in the competition project of institute of industrial technics in Rome (1961) , which was based on the same programmatic and construction model of the middle school, where horizontal elements were emphasised instead.

From the early pencil sketch of the 'bridge' to the lodges added in 'last minute' to the middle school, Ridolfi had completed quite well his first envision of this area, although the final result was at some points unexpected. During the twelve years of planning and building from 1944 to 1956, the vision of

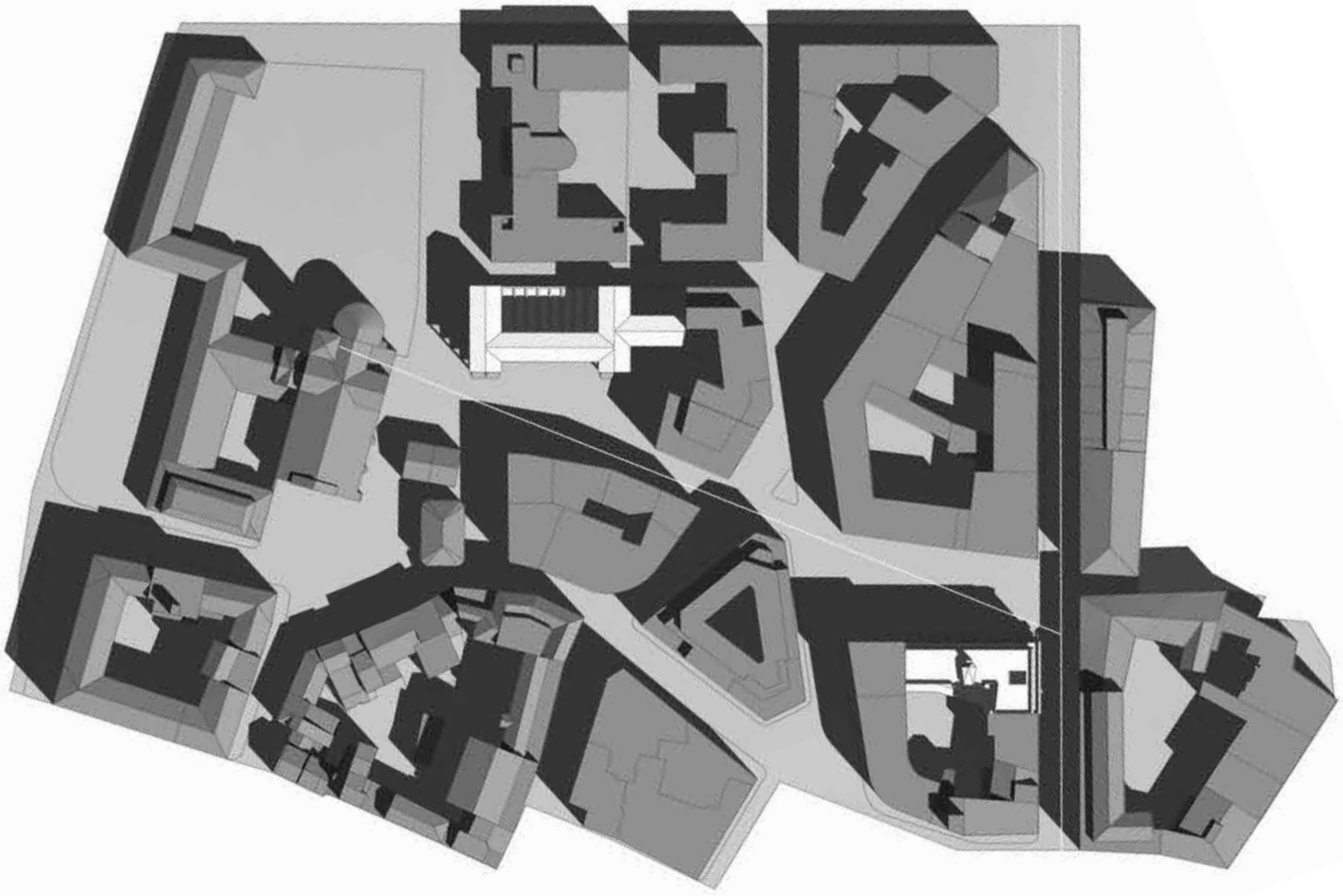
the bell tower had remained as the key task, no matter what major changes were made to the master plan. In this process, the architect couldn't predict how the property was going to be distributed or where he would have the commission to build, what he did was to make use of every resource to contribute to the same end. The commission of the middle school was definitely the turning point of the whole 'San Francesco project', although Ridolfi wasn't fully aware of the opportunity this building could provide from the beginning. In early 1950s, Casa Chitarrini was merely an fragment on an incomplete square, while the school still tried to be different and unique. As much as the architect preferred the second approach to the middle school, it had many flaws technically and formally. Thanks to the refusal of this approach, Ridolfi started to think about the relationship to the intimate context, and to Casa Chitarrini as the development and a counterpart of the latter, and transferred these concerns into totality and details alike.

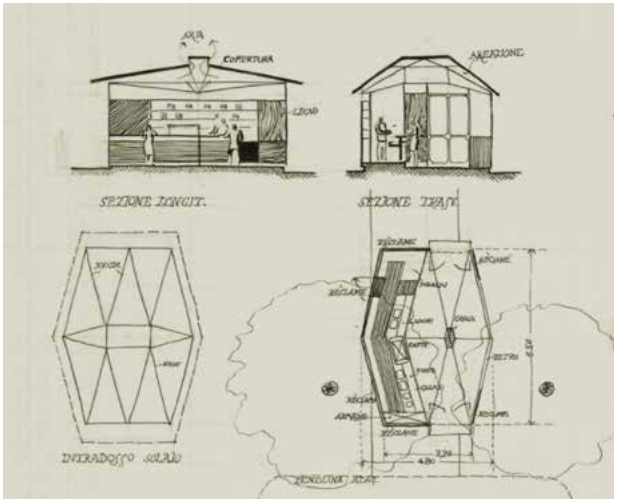
In regard that none of the landscape designs or facilities on the squares had been realised, all the resources of urban intervention were actually within the footprint of the building. The final projects of Casa Chitarrini and the middle school were based on the same construction model, and shared many aspects like materials and details in common. As an indispensable step in Ridolfi's exploration and refinement of an 'urbanistic-architectonic' model in the post-war years, these two buildings were special for their unique environment, especially the middle school. If we regard the residential towers in Viale Etiopia as an ideal model, since their site was almost free of context, then the school, situated next to a church and attached to adjacent buildings, provided example of variation to this model, in respond to the information Ridolfi had deciphered from its surroundings. It was a proof of the adaptability of the type of building in exposed concrete framework, making way for his future projects like Casa Franconi or Uffizi Comunali in central Terni, which remained to be the only site he could test this model in an urban context.

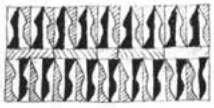


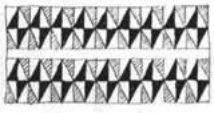
4F7 Views of the bell tower (and small portion of Casa Chitarrini and the middle school) walking from Corso Tacito towards San Francesco, aligned to the bell tower.

4T6 (Facing page) Reconstruction plan as built of area San Francesco (1:2000) emphasising on two Ridolfi's works.









5F1 Kiosk-bar in Piazza di Monte Savello in Rome, plans and sections, Mario Ridolfi, 1946. FRFM CD71/I/(1).

5F2 Patterns of ceramic tiles, residential towers in Viale Etiopia in Rome.

5F3 Structural framework, cometition project of terminal station in Rome, model.

5F4 Studies of street lamp forms, Mario Ridolfi, ca. 1946. FRFM.

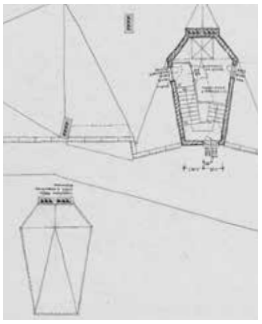
5F5 (Facing page) Attic floor plan and roof plan of the main staircase in Casa Chitarrini, Mario Ridolfi, 1951. FRFM CD90/I/6.

5.1 The composition of the buildings and their environment

5.1.1 Elongated polygons and subdivision

'It is part of the principles to study in situ the real effects that correspond to the conditions of altitude, environment and views, rather than imposing with preconceived geometric patterns,' said Gustavo Giovannoni, concerning urban intervention in historical context. He went on with rules such as 'to avoid the excessive regularity when it does not have a precise aim of aesthetics' or 'to follow the regional and local characteristics in regard of the style of mass and colour' [17]. As much as these principles were generally adopted by Ridolfi in the practices in Terni[18], in the design development process of the systemisation of area San Francesco, there were explicit forms and patterns of composition that came from his personal experiences which were foreign to the site but deeply rooted in his own practices. The influences from expressionism[19] had embodied in many projects in Ridolfi's post-war practices. Most direct references could be found in Palazzo Zaccardi in Via de Rossi (1950-51) or Palazzo Mancioli in Via Vetulonia in Rome (1952-53) where the balconies was shaped as rhombus or complex formwork of concrete was applied to create crystal-like surfaces. Apart from these appreciable evidences, Ridolfi's appropriation of expressionistic forms was more extensive and far-reaching in his post-war works in various scales. To generalise this formal motif, we could say that it was basically regular polygon or elongated polygon that was subdivided by diagonal lines. The aforementioned small pavilion on Largo Villa Glori had exemplified this pattern of composition.

The pavilion sheltered the entrance to the ball room underneath, as presented in plan and section in early schematic design drawings of Casa Chitarrini. Although we couldn't see any details apart from that, but the project of kiosk-bar in Piazza di Monte Savello in Rome provided us insight to learn more 5F1, since Ridolfi used to recycle his unrealised conceptions in other projects, since on both sites situated a romanesque church. The body of the pavilion was an elongated hexagon divided into small acute triangles. Same composition was applied to both the canopy and the pavement, skilfully incorporated with technical details like ventilation or the layout of fixed furniture. Ignoring the dimension of the works, the pattern recurred in different circumstances of this period, varying from megastructure such as the layout of the box beams in the terminal station in Rome(1946) 5F3 to ornament like the hand-made ceramic tiles covering the parapet below the windows 5F2 in the residential towers in Viale Etiopia in Rome (1949-56) . Later the tiles also appeared in Casa Chitarrini and the middle school as well, with variegated patterns composed in green, blue and white colour blocks, but one type of the basic division unit was the same long acute triangles. Same resemblance could be found in the central staircase of Casa Chitarrini and the sketches made for studies of street lamps in 1946. 5F4 5F5 The latter was clearly under the influence of expressionism with formal preferences, while the former was a transitional project blending the plastic forms with visible concrete framework. The plan of the staircase under pitched roof, composed from a half hexagon and an elongated half hexagon, resembled the elevation of the lamps. Such correlation was not necessarily in purpose, but it represented Ridolfi's potential principles of composition, which was that in the same environment, right pattern of forms were applied repeatedly in different situations, they didn't necessarily form an overall and all-embracing system and took command, but existed to be fragmental instead, breaking the limitation of dimension, type or hierarchy, one next to another, one within the other, and so on.



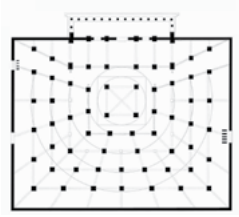
In the end, we should see the possibility that this pattern of form also presented on urban level. Since the built area expanded on the reconstruction plan, the original shape of the square in front of Casa Chitarrini was condensed into a long trapezoid, whose diagonal line was delineated by the visual axis. Then between the perfect hexagon and the elongated one (both had been transferred into functional models) the architect chose the latter for the small pavilion. The same case repeated itself in front of the school, there was attempt at one time to build some benches following a series of elongated hexagon[20], although the idea was soon abandoned. In the systemisation of area San Francesco, formal coherences had extended from urbanism to detailing.

5.1.2 The composition of Casa Chitarrini

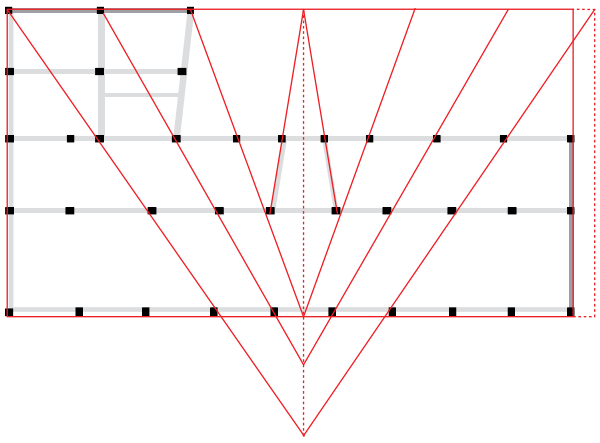
The site was enveloped in a 36.3m x 19.7m rectangle, from which the east and north boundary of the building was automatically derived. It was a L-shaped volume, consisting of a rectangular main body, containing two larger apartment on typical floor that shared a central staircase, and a trapezoid as its east wing containing a smaller one. The building was composed by a series of longitudinal axes in correspondence with its structural layout. The spacings in between increased gradually towards the square in the front.

Compositionally the building was central symmetrical, but the axis was not on the centre. The apartment on the east was slightly larger, so were all the counterparts it contained. In fact the three bays on the centre of north elevation (or on the typical plan) were strictly symmetrical, the farther it went towards both sides, the more the dimensions differed.

The location of the columns was seemingly random, since they wasn't in alignment transversally. But the existence of some non-orthogonal partition walls had indicated that there might be oblique links underlying, although functionally they had to comply with the allocation of apartment and rooms on each floor plan. The four columns around the staircase for instance, were located on two diagonal lines in symmetry whose starting point was the intersection of central axis and the south side of the rectangle. Following the same principle, other diagonal lines connecting these columns could be found as a series of radiating lines with common central axis. Altogether these lines formed a triangle within which the structural layout of the building (except for the east wing) was symmetrical, while the form of the east wing was also defined.



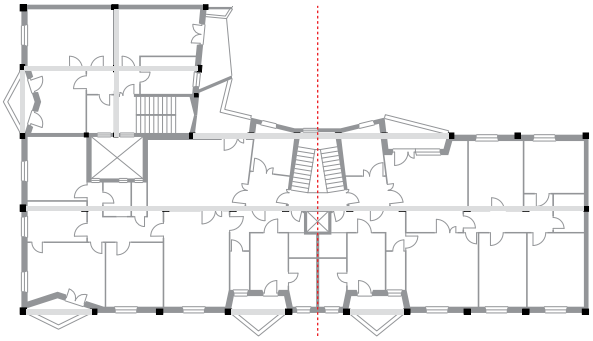
The particular way to layout the columns continued the geometrical motif of Ridolfi in early 1950s. But it also recalled the visual control of the columns in greek assembly hall, despite that the function was totally irrelevant. 5F6 The standpoint and sight lines were only used figuratively as compositional apparatus.



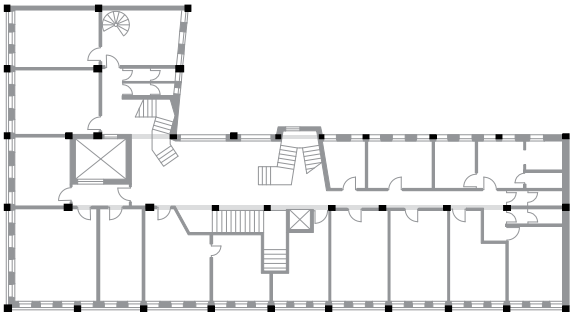
5F6 Plan of the Thersilion in Megalopolis, Greece, 370 BCE.

5T1 (Facing page) Geometrical control of the columns in Casa Chitarrini (1:500).

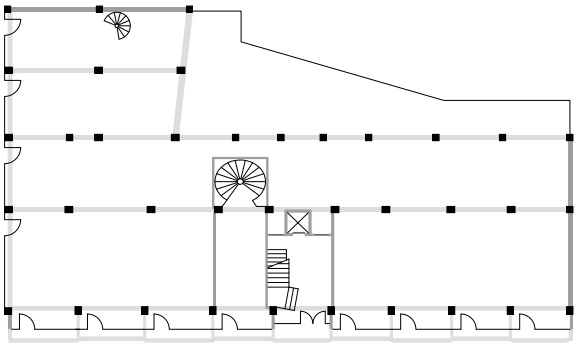
5T2 Plans, elevations and basic dimensions of Casa Chitarrini (1:500).



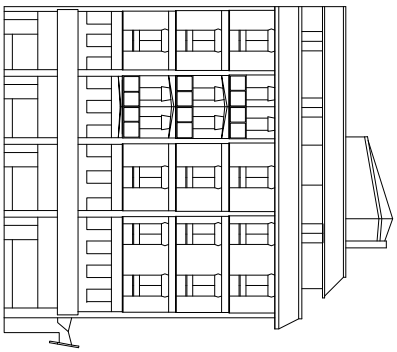
Apartment floor plan



Office floor plan



Ground floor plan



East elevation

North elevation

5.1.3 The composition of the middle school

The composition of the middle school wasn't purely geometric nor programmatic, but a mix of both. The two measurements it began with, a=8m, b=6.8m, had already taken into consideration specific function, structural performance and historical reference, based on previous studies and rejected approaches. The operation aimed at both the appearance of building in the city and allocation of spaces within. Similar compositional approach could be seen later in Casa Franconi.

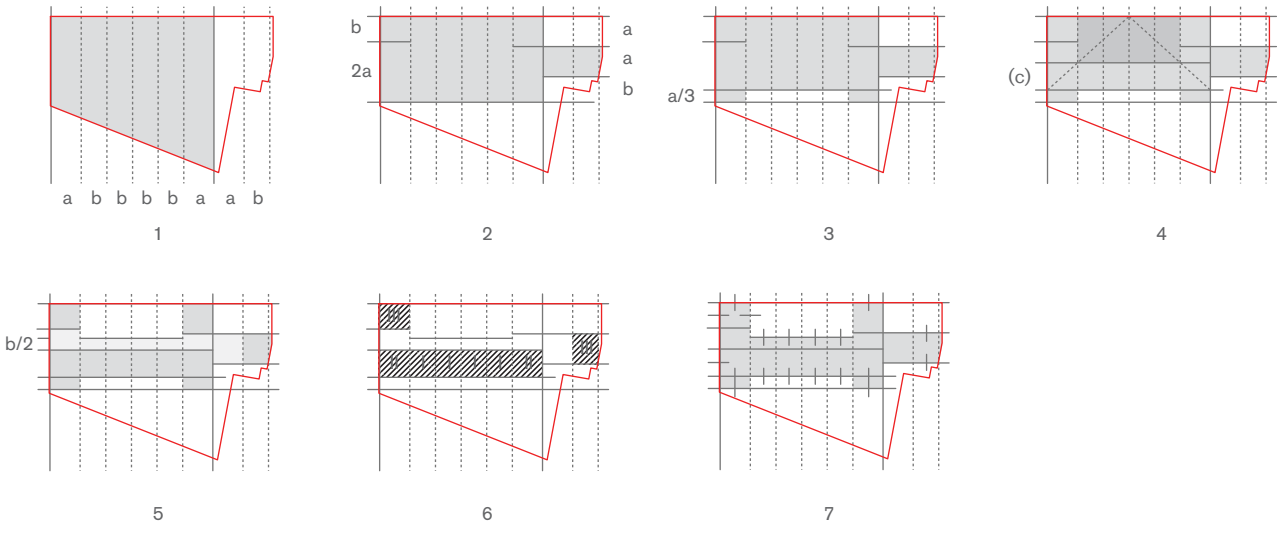
1) The site was divided transversally by the axis of the columns, into two types of spacing, a=8m, b=6.8m, both as the dimension of classrooms and the subdivision on the elevation. The building occupied almost the full length of the property which was 3a+5b=58m. The solid line separated the site into a trapezoid for the main body of the building (2a+4b=43.2m), and the rest for the east wing.

2) The width of the building was 2a+b=22.8m. So the main body was a 43.2m x 22.8m rectangle, which was close to the dimension of the San Francesco. Composition on two sides was different, on the east wing the volume was defined by a-a-b subdivision, the line between two a also extended into the east arm to define the toilet on typical floor. On the west it was firstly divided by b-2a, b for the dimension of the classrooms on the north, while a for further subdivision.

3) The depth of the protruding lodges on the two arms of a-spacing was a/3=2.65m.

4) The division between the gymnasium (darker grey) and the classrooms on upper storeys was defined by two diagonal lines connecting the corner next to the lodge and the centre of the north side. With this geometrical operation a third dimension was derived as c=7.6m. It was the depth of the classroom on the south and a spacing only appeared on the east elevation.

5T3 Composition of the middle school plan (1:2000); (Facing page) Comparison of the volume and composition of the church San Francesco and the middle school (1:2000).

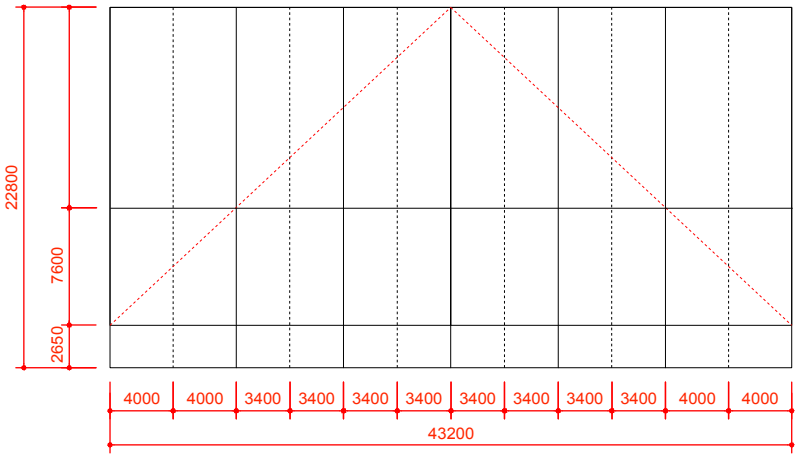


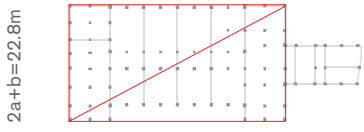
5) To the north of the row of classrooms, the corridor was given the width of b/2=3.4m. This also defined the depth of the longitudinal volume of the U-shaped upper part of the main body, which was c+b/2=11m. The area in-between these lines (lighter grey) served as transitional space. Thus the whole building was precisely defined.

6) Three types of classroom was derived from this composition, according to their different size. Type I = 6.8m x 7.6m; Type II = 8m x 7.6m; Type III = 6.8m x 8m. Their orientation related to the elevation was consistent.

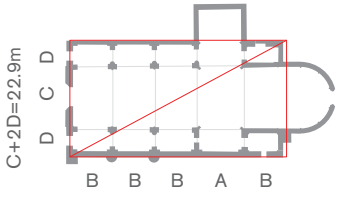
7) Division of all a, b and c spacings on the elevation into halves produced a/2=4m, b/2=3.4m, and c/2=3.8m, which were the final spacing between pilasters.

5T4 (Next spread) Plans, elevations and basic dimensions of Casa Chitarrini (1:500).

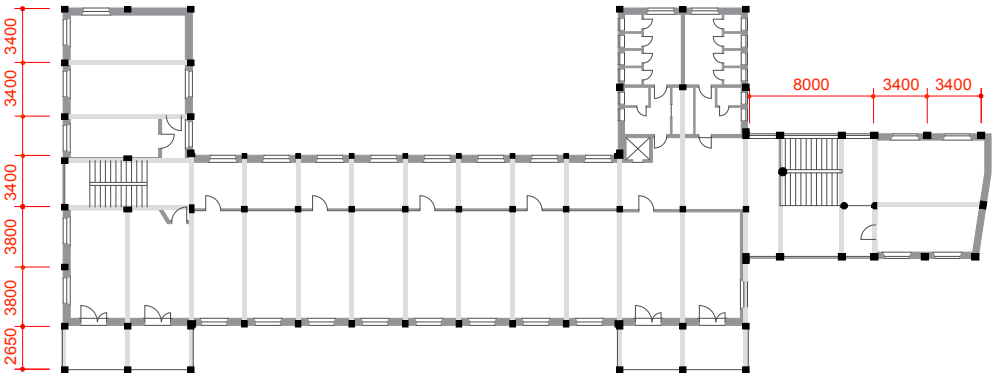




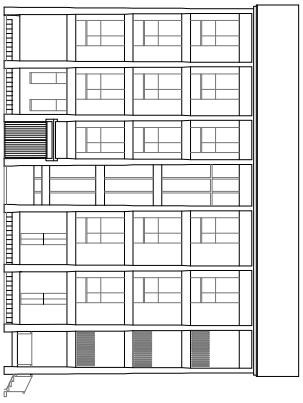
2a+4b=42.3m



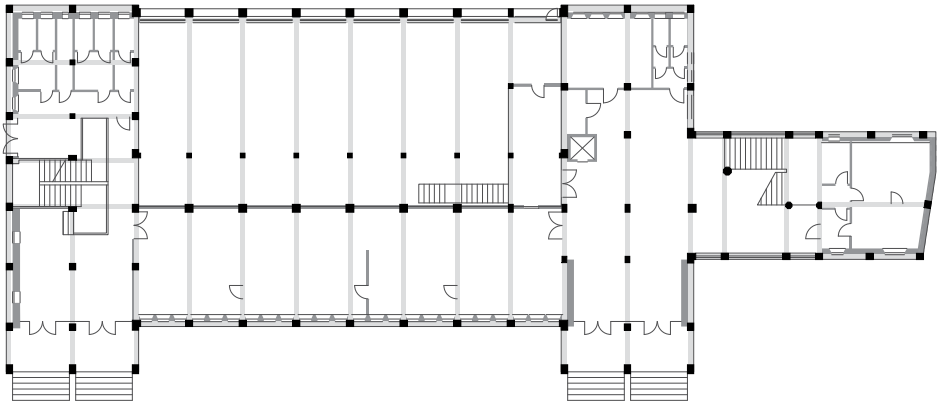
A+4B=42.3m



Typical floor plan



West elevation



Ground floor plan

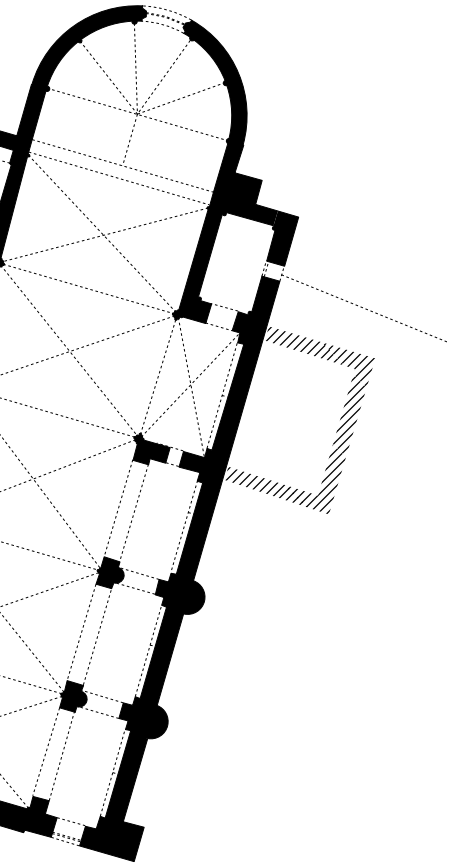
South elevation

5.2 Correlation and counterposition

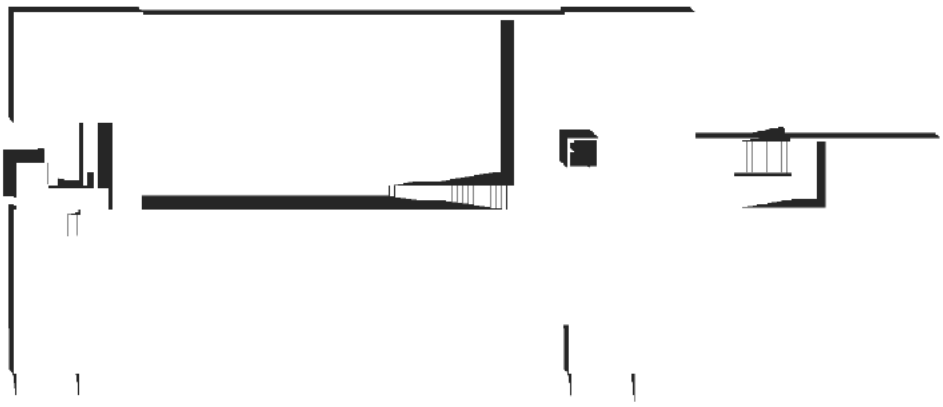
Few literature has broached any interrelationship between Casa Chitarrini and the middle school, simply because the architect never confirmed so and the projects were designed successively under different circumstances. The Casa was originally the left flank of Largo Villa Glori, while its counterpart on the right side was only realised much later and a hundred metres away on another site. Based on previous analysis we could already see that the two buildings served with the same purpose on urban composition, but after the overall layout had changed from axial symmetry to central symmetry, the interrelationship between them was changed accordingly that the school was not a mirror image of the former intervention as shown in early perspectives, but a counterpart with both coherences and contrasts, even though most formal operations of the school in relation to the site and the Casa were post hoc decisions. The following texts would discuss some aspects focusing respectively on transitional space, the typical floor plan, and structural system.

5.2.1 Circulation 5T5

The circulation of each building represented Ridolfi's urban concerns. Since both the two project were to some extent of mixed use; Casa Chitarrini had shops on the ground floor and offices on the first floor, while the gymnasium of the school was also accessible to students from other places and the public at certain times. Circulation and the staircases were a focus of the whole design process. Both entrances to the main buildings were on the square, in Casa Chitarrini, the ground floor accommodating shops was in the same level of the square, the office and the residence shared the same vestibule, from which an L-shaped flight of stairs led them to the first floor where the second vestibule was located. The second also served as the main transitional space, leading to the offices and two separate staircases for each section of the apartment. In the school there were also two staircases, each connected through the vestibule and the portico to the external steps on the square, since the ground floor was lifted up by 1m above the ground. The main staircase connected every storey from the gymnasium on the basement level, to the classrooms above, while the architect had skilfully devised the secondary staircase to separate it into two independent sections respectively for the gymnasium and the classrooms. The lower section brought people from the basement directly to the ground outside of the building. The location of this independent entrance to the gymnasium had changed several times through the design development, only in the final project the architect decided to move it from the back of the site to the side facing the church. Not accidentally, In Casa Chitarrini the orientation of the stairs also represented the concern of the church. When people left the building, walking down the stair from the transitional space to the square outside, they were walking towards the same direction of the visual axis.



5T5 Master plan of Area San Francesco showing the circulation of the two buildings (1:500). The schematic plan of ground floor of the middle school, transitional space to the gymnasium and to the classrooms on upper floors. First floor plan of Casa Chitarrini, the trasitional sapce to the offices and to the apartments above.



5.2.2 Ambiguous symmetry 5T6

The composition of the plan and elevation of Casa Chitarrini was an interesting case to see how the architect managed to incorporate architectonic elements into urban composition. Both Casa Chitarrini and the school consisted of a main body and a wing on the east. The main body itself was in some sort symmetrical. In the case of Casa Chitarrini it was topographically symmetrical. 5T2 The building had nine bays, with the entrance, the elevatore and the main staircase in the centre, two apartments on each floor, and all the windows aligned to the centre, except for the apartment on the east was slightly larger than the one on the west, which led to the deviation of the central axis. The width of the elevation was 36.3m, the central axis was 19m from the east end and 17.3m from the west. The distance between pilasters were gradually reducing accordingly, the ones on the east side of the axis were slightly wider than the ones on the opposite side. This arrangement could be functional, since the east half of the building also contained a patio for the ventilation and illumination of the residences on the back, but there were other architectonic elements both in the plan and on the facade that contributed to this ambiguous symmetry. The architect could have equally distribute all the components for the two apartment although they were different in size, but instead, he placed inharmonious elements like separation walls, doors, balconies only on one side, even if they could function very well without being different, so that the building became less and less symmetrical from the centre to the ends. For a building facing towards a square it was totally agreeable for the front to be monumental, thus the fundamental framework of the building was set. But Ridolfi also had in mind that the building had to incorporate itself into a larger image, which was the view that went beyond the square. Therefore in the second layer of composition, there existed detailing and minor operations that broke the balance and remodelled the building to orient towards one side.

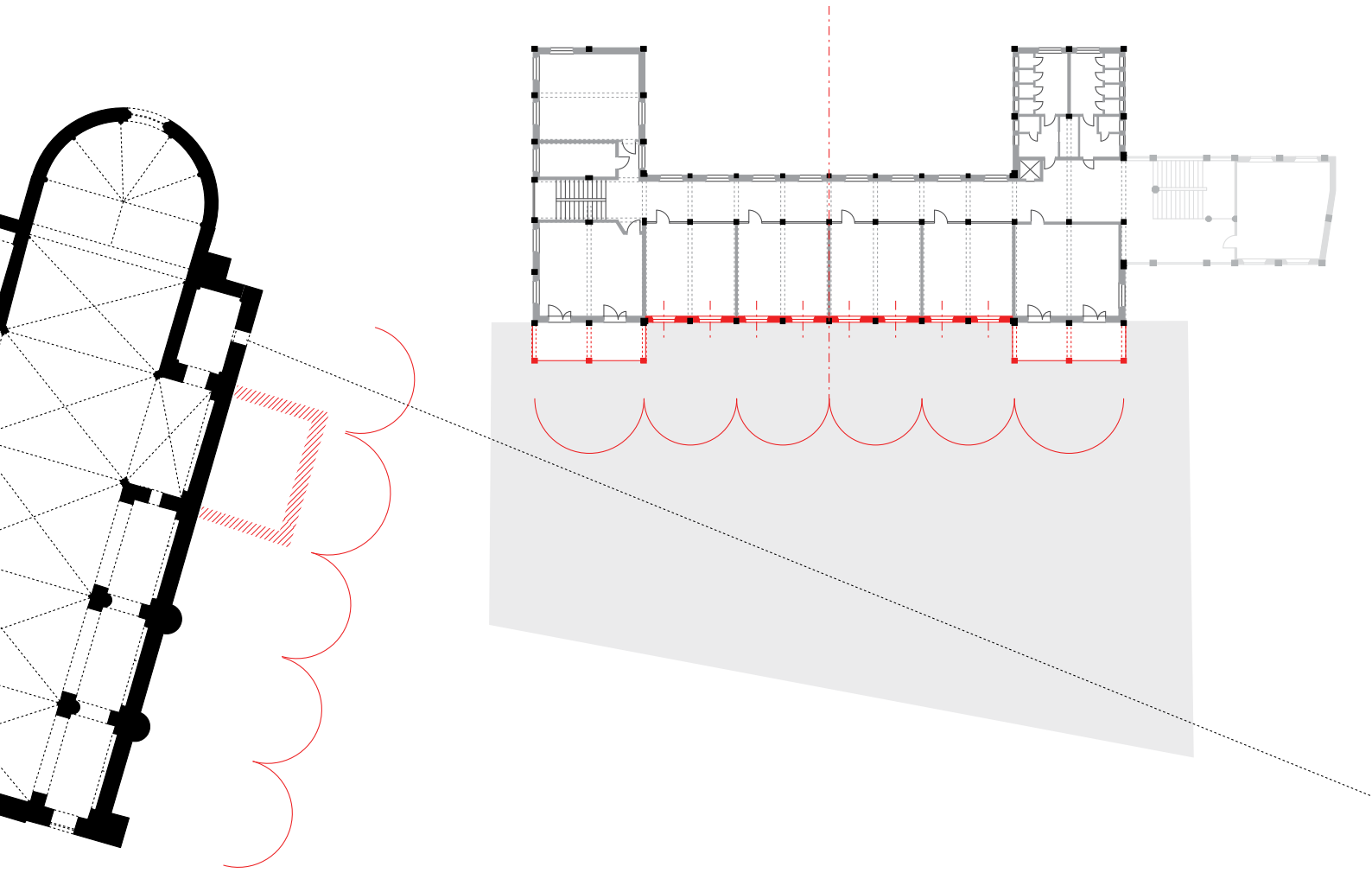
In the case of the middle school, the main volume of the building was almost symmetrical with only one exception, the windows. 5T4 These windows were the largest ones on the south elevation to illuminate the classrooms, arrayed in repetition between the lodges in a 8×3 matrix. The openings made for each window was 1.6m wide and 2.4m tall, if the area below the windowsill cladded in ceramica tiles was included, it would be 1.6m by 3.05m, while the distance between every two axes of the pilasters was measured as 3.4m. The openings were obviously off centre, since the distance from the central axis of the opening to the left was 1.4m, and to the right it was 2.0m. Unlike those of Casa Chitarrini, the subdivision of these windows were also unequal. The transom was positioned in the height where the opening sash below was operational, and the mullion was defined by the intersection of the transom and the diagonal line of the opening rectangle, with the wider glazing on the left fixed, and the sashes on the right. The de-centred mullions enhanced the asymmetrical effect of the windows. In the end the window was deviated from the centre by 0.3m, and the mullion by 0.47m.

The orientation of such deviation was again towards west, where the destination of the visual axis was situated. Under the framework of a symmetrical composition of the front elevation, there were different approaches underlying to achieve a certain degree of asymmetry, in correspondent to the orientation of the visual axis. In Largo Villa Glori the gradual change of bay width on the elevation intensified the perspective towards the end of the square, and the large windows off centre on the elevation of the middle school also created strong sense of direction, leading the viewer to move on to the destination in sight. In this way, architectonic elements of each building were also summoned by the architect to perform in collaboration with urban composition.

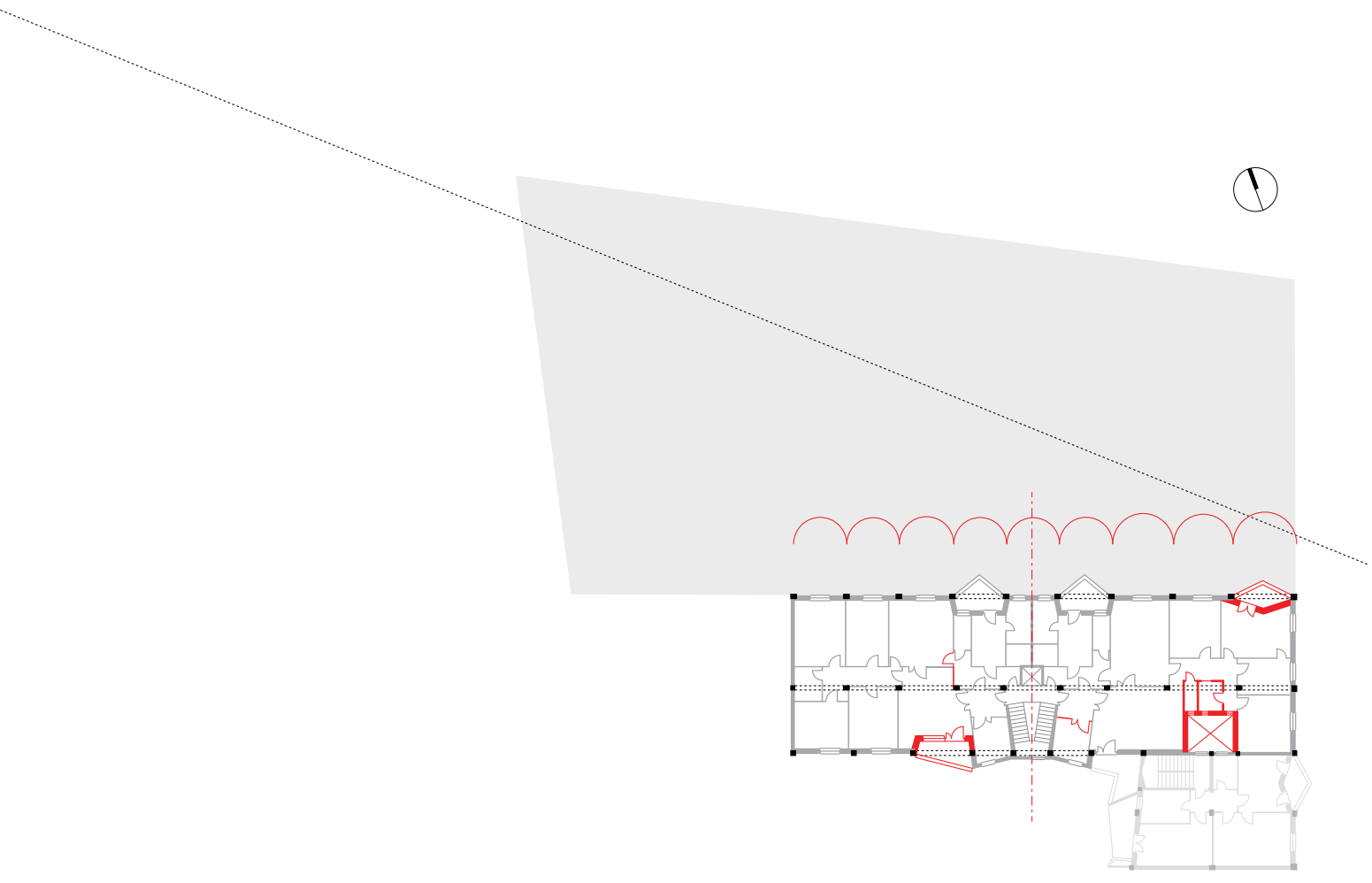
5.2.3 Structural orientation and its effects 5T7

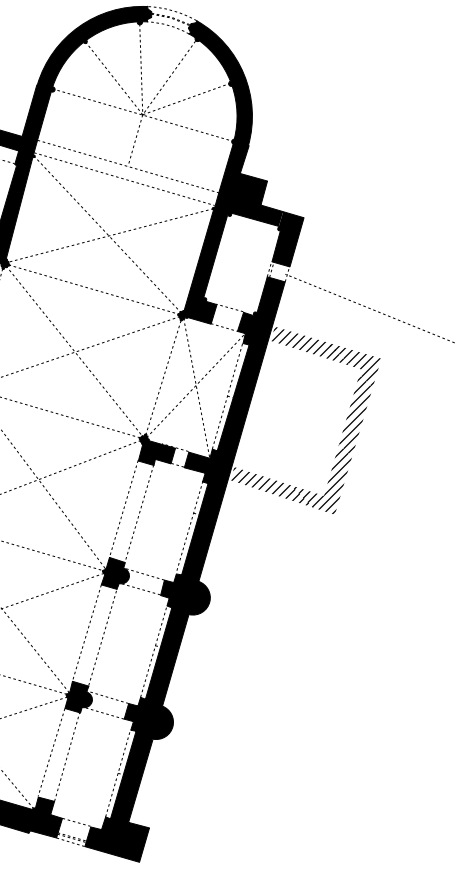
Comparing the load bearing system of the two buildings, another interesting connection would be explicit, which was represented as an contrast. Although the volumes of the two were set in the same direction on site, the structure of the middle school was mostly transversal to the body of the building, while in Casa Chitarrini it was longitudinal. Since both edifices followed the planning grid, their structural systems were perpendicular to each other. It wasn't totally unexpected considering the programmatic differences. For Casa Chitarrini, a residential building basically, it was reasonable to place the living room and the bedrooms on one side with a view towards the square, while the service areas on the opposite side, so that the longitudinal structure could work very well here (would be discussed in next section). As to the school, it was known that generic modern schools, which consisted of equal units of classrooms connected by long corridor, were apt to have a transversal subdivision represented in structural system. And in the case in Terni, this orientation, along with the close distances (3.4m) between every two piers, also allowed the floor slabs could be cast in situ in longitudinally with less reinforcement and lower cost[21]. As Ridolfi had explained in the report, the advantage of such arrangement was more than being economical. Since along the longitudinal direction there was no load-bearing necessity, the elevations towards the south and north were therefore freed from horizontal structures, allowing the windows to be taller and bigger than in other cases. Comparing with Casa Chitarrini, the major difference was the disappearance of the travertine slates covering the rolling blinds in the elevation of the school, the upper edges of windows were then made flush with the ceiling inside. 5T16 5T17 The beams exposed, which looked exactly the same as in Viale Etiopia, weren't the real beams but concrete slabs, while the real ones, as secondary and associating components, were set back and connected to the slabs as a box for the raised rolling blinds. Both function of the building and position in the urban environment had determined the structural composition, and the contrast of structural orientation led to nuances in relevant details.

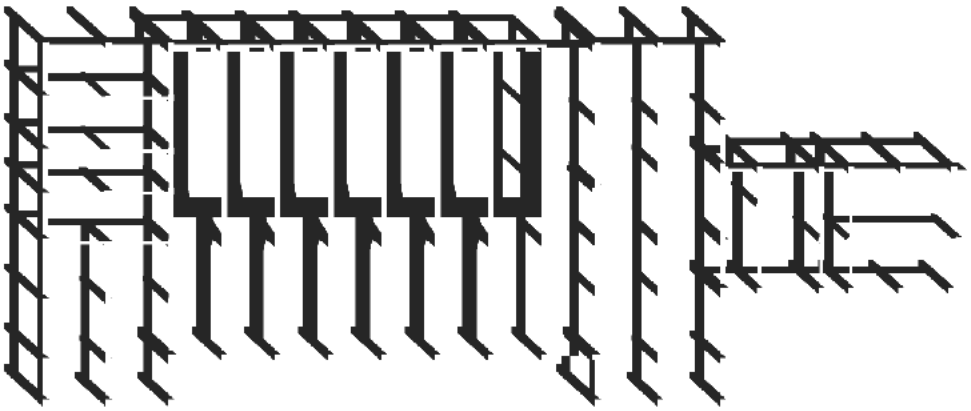
People might also noticed that in both cases there were small portions of the structural system that didn't follow the orientation. These exceptions were also noteworthy. In Casa Chitarrini, it was the east wing which accommodated a small apartment with independent staircase, and in the school, it was the east wing which contained the main staircase and the northwest part of the building containing a classroom and the secondary staircase. For transitional space, it wasn't necessary to apply the box-shaped beam to obtain more lights, since there was already cement slabs with glass brick inlay as the infill wall. And for the classroom and apartment on the far ends of the diagonal line, the major orientation was towards the streets on their sides. Therefore the orientation of load-bearing structures was adjusted accordingly, to achieve a certain degrees of frontally for the side elevations. Considering both buildings had at least two major elevations, one facing the square and the other towards the side, the structural expression was unitary so that it was hard to tell if the real structure existed behind from to their appearances. In Casa Chitarrini same construction detail was applied to both elevation, while in the middle school, the form of the end of slabs between each bay was rigorously differentiated, following the structural requirement, and in order to meet the various function of the space within. In this regard the logic of the architectonic representation was more consistent in the school.



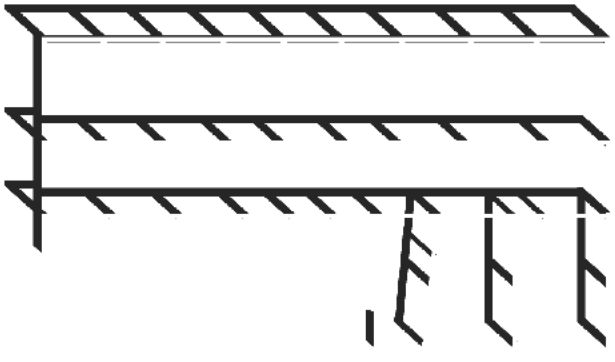
5T6 Master plan of Area San Francesco showing the typical floor plan of the two buildings (1:500).







5T7 Master plan of Area San Francesco showing the structural system of the two buildings. (1:500).



5.3 Exposed concrete, formation and development

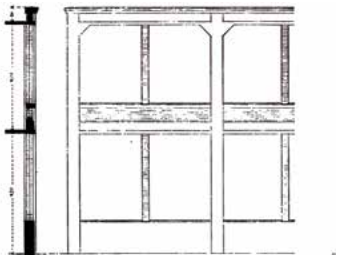
According to an interview with Wolfgang Frankl the construction system developed in Viale Etiopia had established a model of their own that they kept referring to in the experience of subsequent planning[22]. From this perspective, we could see the continuity in their practices that Casa Chitarrini was a preliminary exploration prior to the formation of this model, while the middle school was the development of this model in regard of new program and different urban environment. In fact, their attempt to expose the structural framework came into being much earlier, although at that time it wasn't accept by the contractor nor other architects. In the same interview Frankl also disclosed how this model was related to his knowledge of reinforced concrete from school education and applied to their projects in 1930s.

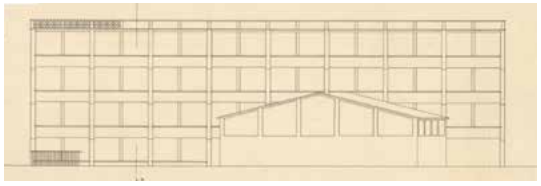
Emil Mörsch(1872-1950), the german civil engineer who was known for his study on reinforced concrete, was Frankl's professor on building structure in TH Stuttgart before his exile. Frankl mentioned that the continuous beam on the facade of the school in Pavia was inspired by his lessons on reinforced concrete. However their connection to Mörsch's work seemed to be more profound. In early 1900s, Mörsch had already devised a construction system with exposed beams and pilasters and built factory and office buildings 5F7, since he regarded this arrangement as superior to those who concealed the framework[23]. The composition of the elevation resembled that of the first approach of the middle school in Terni 5F8. Apart from the exposed framework, this system shared many aspects with Ridolfi's post-war exploration, such as the pilasters in the foreground, the position of the infill wall and its subdivision, the parapet, the bracket, and the change of profile of columns. The Manuale dell'architetto (The architects' manual) to which Ridolfi contributed his knowledge on construction provided the same model as an example of reinforced concrete structure, whose application could be found in their following practices like the residential towers in Viale Etiopia.

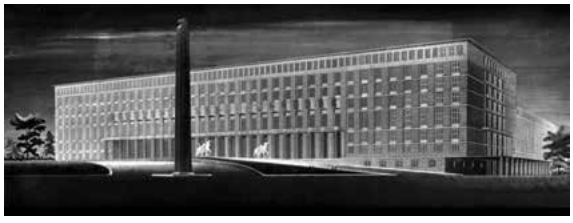
In 1930s Ridolfi and Frankl failed to expose the structure in many projects. Intention to compose these structural elements remained on models and drawings. Bordoni Institution in Pavia (1934) was more like an experiment. On the different elevations of the physical model, the architects were testing various ways to represent the structural system within 5F9. There were flushed external walls, grids of beams and pilasters extruded from the surface, and the H-shaped groove or protrusion formulated by the end of slab along with the spandrel extending from the side elevations, although none of them was realised in the built work. In the proposal of African ministry in Rome (1937) the language of structural representation became more consistent. Horizontal element was emphasised here, producing continuous concrete rails around the building. Infill walls were presented as vertical elements interrupted by windows and parapets, and protruded from the elevation creating strips of shadow on the concrete rails, similar to the solution they reached in Viale Etiopia. 5F10 The proposal was objected by their collaborators who preferred stone facade. In other residential projects like Palazzina Rea or Palazzina Colombo Ridolfi and Frankl also made efforts to reveal structural elements, but they all ended up in marble cladding or simply disappeared.

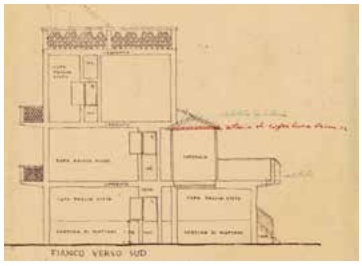
The first built work with real exposed concrete was the social housing in Cerignola (1950-1951). Dark cement representing the framework of the building was made flush with the infill walls cladded in tufa or masonry 5F11. It was more likely a pictorial expression since the jambs of openings on the elevation were also depicted in vertical strips of cement. In fact, the concrete framework wasn't the load bearing system of these buildings, while the real structure was the thick masonry wall behind. The elevation was built as flat surface on purpose, in order to eliminate the false differentiation of framework and infill. Same composition could also be found in early approaches to the middle school which was conceived in framework system from the onset, but its protruded version didn't come into existence since the proposal was abandoned and replaced by a more mature model that already functioned very well in Viale Etiopia.

Apart from recognition of this construction model, it is also important to discern how Ridolfi had reorganised the elements to comply with the context in Terni, and to correspond with different program of the building. In these cases the structure was not only exposed on the outside. It was via these operations the essential features of 'ridolfian style', little by little, came into being.









5F7 Office building of the firm Wayss & Freytag in Haardt, *Der Eisenbetonbau, seine Theorie und Anwendung*, Emil Mörsch, 1908.

5F8 The middle school of 'Leonardo da Vinci', first stage, south elevation, Mario Ridolfi, 1952. FRFM CD104/I/6''.

5F9 Physical model, Institution of Technics "Antonio Bordoni" in Pavia, Mario Ridolfi, 1934. *Controspazio* 112/113, 57.

5F10 Perspective, Italian African ministry in Rome, Mario Ridolfi, 1937-1939. FRFM.

5F11 INA-Casa residential district in Cerignola, Type D and E, south elevation, Mario Ridolfi, 1950. FRFM CD94/I/6.

5.4 Framework as mediation between interior and the city

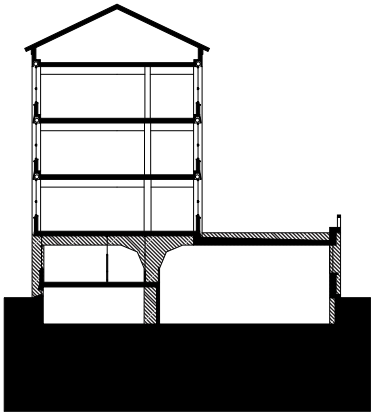
5.4.1 Experience of structural components from inside

In Casa Chitarrini the structural system complied with the program mostly on the ground floor with shops free for subdivision and the first floor with a row of offices. On the typical floor, the discrepancy between the program and the structural system was quite obvious; there were beams that went across rooms, balconies or above the toilet 5T2. Whether they were concealed later by suspended ceilings was not informed by the drawings in the archive, although there were similar cases in the architect's other projects showing his 'indifference' towards the structural components intruding into interior spaces[24], and the beams were often left undisguised. In fact the huge frames that went across the gymnasium in the middle school had exemplified this situation 5T8.

The gymnasium was embraced by the main body and its two 'arms', two storey high, occupying the spaces from the basement to the ground floor. Since the main body of the building and the gymnasium overlapped by a few metres, and the latter should be free from columns, the beams over the gym also had to support the pilasters on the north elevation. Therefore the structure of the ground floor was much deeper than that of upper floors that had formed a bridge-like frame. The frame had two spans, the larger one was the gym, and the smaller one accommodated the teachers' offices and the corridor. On the two sides of the spot where upper pilasters were supported, the positions of the floor slabs were different. The ceiling of the gym was flush with the bottom of the beam, while the floor of first floor was on top. So the height of the huge beam (1m) was revealed in the upper corner on the south of the gym, and above the corridor and offices. In the result as built, the piers in the middle of the frame had a longer profile than the ones on two sides. This difference was probably a technical advice from the engineer during construction since on the schematic plan all the piers were uniform[25]. Ridolfi was soon inspired by the dimension of the structure. He chamfered the internal corners of the frame twice, following the geometry of a octagon, endowing the central pier with an organic from. Because of the depth of the piers, he was able to create a row of balconies towards the gym, by placing the partition walls on the south sides of the piers, between the gym and the upper corridor. The partition walls were carefully designed; wooden mullions with delicate profile in hexagon divided the wall into doors, lights and opaque panels made of plywood. The subdivision was the same on both sides of the corridor, except for on the side of the gym it was more transparent since the lights were installed on the door, middle and upper level, while for the office only on upper level. Therefore it would be easy to imagine the experience of the structure when walking along the corridor: Huge beams 'growing' from the piers were almost within reach, since the space underneath was only 2.1m high. Its white-washed and solid look was dramatically in contrast with delicate wooden mullions of the partition wall, rendering the giant half arches too inharmonious to ignore in this otherwise cozy environment. 5F12 The transparency of the partition walls allowed the beams to penetrate the physical enclosure into larger and brighter rooms behind, towards the boundary where the architecture and the external space met. With the exposure of these components one would be prone to notice the existence of objects much larger than human scale, although he was only on a narrow corridor, which was a special place of the whole building where the structural system was superimposed and gradually unveiled to the interior experiences.

5F12 Interior view of the corridor in front of the offices.

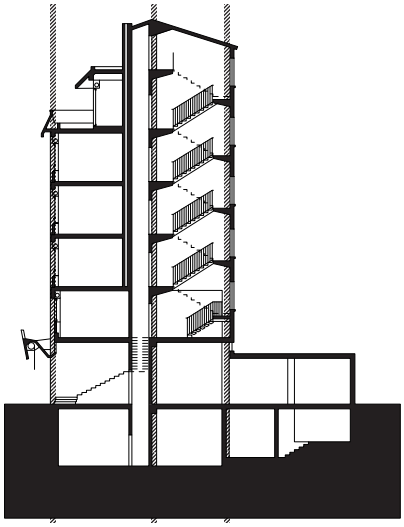
5T8 Transversal section of the Middle school (1:500)



Same cases could be found in Casa Chitarrini. Although the beams here were much smaller, but in certain places like the main staircase, the problem of the deviation between structure and enclosure was too well-solved to be unintentional. On the back side of the building, the distance between the two beams was only 4.6m, obviously inadequate for flights and platforms altogether. So Ridolfi expanded the stair well at both ends, and reasonably the profile of the beam would be exposed to the space. In that the floor slabs were cast in situ, Ridolfi made a clever move to convert the extruding beams into plastic element. When the platforms of the staircase were cast, Ridolfi made the soffit a slight slope inclining towards the wall, incorporating the beam inside. 5T9 5F13 With in mind that the staircase was conceived in expressionistic form like in the street lamps, the slopes apparently spoke the same language and added to the ambient of a crystal-like space. Considering the beam was of higher hierarchy in the building, it was not just formal consistency but also structural elements turing into ornamental details.

5F13 Interior view of the transitional space, showing the diagonal boundary of the staircase and the sloping soffit of the platform.

5T9 Transversal section of Casa Chitarrini, with dashed lines overlapping showing the position of longitudinal structures (1:500).

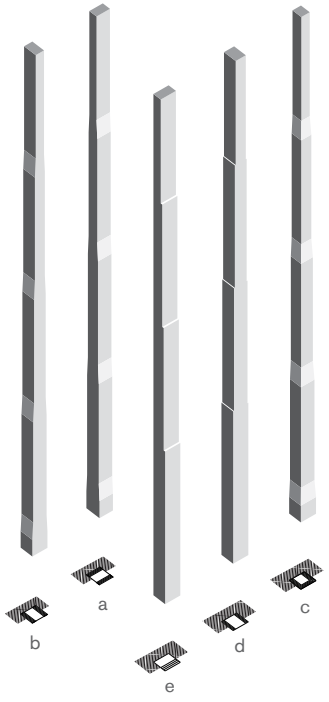


5.4.2 Variation of the pilasters

Inherited from the famous neo-realism construction model developed for residential towers in Viale Ethiopia in Rome, the exposed concrete framework was probably the first and foremost concern during the whole process of the middle school project. There is no need to explain in details how this model could function or how it was developed from a rather generic post-war construction prototype and endowed with historic and symbolic significances. For the school, Ridolfi definitely trusted in its compatibility. But he wouldn't appropriate the model to the site without a change, in fact, since exposed framework produced a certain degree of transparency, presenting the internal composition of the building to the city, the model also performed as a mediation between the program as a modern school and the surrounding historical environment. Therefore an examination on how the fundamental components of this model were alternated or re-arranged according to internal and external factors would be helpful to understand Ridolfi's approach to an ideal quality of 'urbanism-architectonics'.

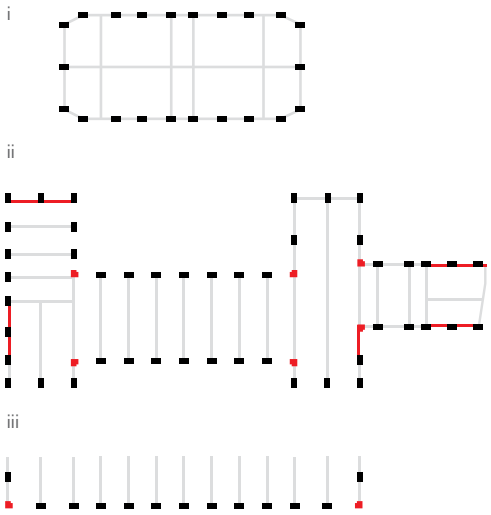
The construction model consisted of two parts: pilasters, the vertical elements, and the circular strips at the end of slabs, the horizontal elements. None of them stayed the same as in Viale Etiopia, since the school was no longer in compact shape and the the function was much more complex.

On the facades of the middle school there were two types of pilasters, or two different orientations to place them. Type a was tapered on both sides and flush on the front 5T12, so that the infill walls between pilasters obtained a gradual increase of width. Type b was flush on both sides and tapered on front and back, which was the opposite, the infill walls remained the same width. For Ridolfi the first type was always used on the main elevation, since the change of spacing and the dimension of structure recalled the steadiness in composition of the facade of classical palaces[26]. The second type was used on minor elevations. This organisation was best exemplified on the towers in Viale Etiopia, whose typical plan presented as a chamfered rectangle. Type a was applied to the pilasters on long sides and type b on short sides 5T10. Judging from their relationship to each other instead of the facade they were located, all the pilasters were actually set in the same direction. In situation of the middle school things were different; first the configuration of the building was more complex in regard of its multiple functions, and second, facades on the south towards the square and on the west towards the church were of equal importance, the side of building wasn't the same anymore. Following the principle, pilasters of type a should be applied to both facades. However, had design remained



5T10 Type of tapered pilasters.
a. Tapered on front
b. Tapered on two sides
c. Tapered on front and sides
d. Tapered as in Casa Chitarrini
e. Tapered as in projects by Franco Albini or Figini and Pollini.

as the third approach with a long, continuous south elevation, Ridolfi needed to develop a third type of tapered pilaster for the two external angles 5T11-iii. To solve this problem we could definitely see different ways from the architect to form this corner pilaster[27], but we wouldn't know which was his choice because of the protrusion of the two lodges in the final design. It was quite a clever decision because it resolved very well the transition between the pilasters on two adjacent facades in every situation. B type pilasters were applied at the ends of the 'arms', which were regarded as minor elevations in between major ones, while the actual third type of pilaster was located (and hidden) in the internal corners, without being tapered to aggravate the already-laborious formwork. Same and simple logic of organisation from Viale Etiopia continued here, and once again the lodges became the crucial part of composition. Along the visual axis towards the bell tower, the lodge faced the views with its side, thus the tapered sides of the three concrete pillars, free from infill walls, were emphasised to intensify the verticality of the structure.



5T11 Arrangement of different types of pilasters on the facade.
i) Residential tower in Viale Etipia in Rome
ii) The final version of the middle school of 'Leonardo da Vinci'
iii) The third version of the middle school (south elevation)
Dots in red represent the third type of pilaster for the corner;
Lines in red represent beams concealed behind the cases of rolling blinds.

5.4.3 The unification of the end of slabs

It was both formal and economical necessities to reduce the variations of components in counterpart, even if in Ridolfi's time craftsmanship and labour forces were comparatively cheaper. The elevations of the middle school had exhibited uniform strips appearing to be ring beam system around the building, since most external surfaces of 'beams' had the same height (55cm) and the same gradient (10/55), but unlike the towers in Viale Etiopia, there wasn't actually ring beam, and horizontal components on the elevation didn't function as supporting structure, thus they could vary according to the requirement of structure and the function of the rooms behind. From the viewpoint of program and structural representation, Ridolfi's approach to the composition of school facades would be a hard task, considering that the building didn't have a back side, every elevation should be equally monumental, and since the entire design was construction oriented so that every component exposed had to be real. Same issues didn't exist in his early rationalism works when the volume or the components of the building could be abstract. This was a new challenge to build in urban context, the solution was carried out quite well, from which we could find evidences that had inspired later practices in central composition.

Behind the same horizontal strip there were four variations. First, there were profiles with or without the case of rolling blinds. In transitional spaces that contained the staircases upturned beams were used on the facade, positioned at exactly the same height, resembling the appearance of concrete case of blinds. In the east arm of the building, classrooms were only on the south side, while on the north it was the toilets where blinds were unnecessary, so the slab and beam were conceived in a normal way with the strips below the datum, even if they remained the same heights. As in the case the slab ended with rolling blinds there were also two different situations: when the facade was on the short end of the bay, there was only a concrete case set above the datum by 20cm, forming a step in front of the window on which the radiator was located. When it was on the long end, there was a beam concealed behind the case to support the slabs (red lines in 5T11-ii), so comparing with the former situation the case looked wider, for example, at the two sides of the main body, the classrooms on the east wing and on the north side of the west arm, where additional brackets also emerged to bear the load 5T13, which was, although not quite noticeable, the only element to break the consistency of this trabeation system.

There was a balance between uniformity and being true to different situations behind, representing how carefully Ridolfi had observed every detail of the building. Although at the end of two arms on the north elevation the concrete strips can't be levelled with other parts, Ridolfi still managed to retrieve certain degrees of symmetry with rest of the elements. Considering on the east arm the infill walls were lower than on the west or the main body, windows and parapets could be lower accordingly. But instead of fitting in the same type of window, Ridolfi added another type to the window chart with shorter upper sashes, and increased the height of the parapets to keep the sill and transom on the same level as in the rests. Moreover, because of the colourful composition of the openings (wooden frame, blinds and ceramic tiles), the discrepancy in height of horizontal strips was barely noticeable.

5T12 South elevation of the middle school (1:200).
From left to right: textured elevation, framwork, delineation.

5.4.4 The 'node'

In light of pilasters, Ridolfi was known for tapered concrete off-form pilasters with strong plasticity. The way he made them was different from other Italian architects in the same period such as Giuseppe Samonà or Franco Albini[28], whose pilasters often had sudden change of profile and formed a series of steps on different levels 5T10-e. While in Ridolfi's case, although the framework concentrated on verticality that the pilasters were set in the foreground, but the architect paid equal attention to represent the joint of horizontal and vertical components. The change of profiles between different stories took form of oblique surfaces delineated within a certain height that corresponded to the height of the horizontal strips. Apart from gradual transition of dimensions, this composition also manifested formal connections between the pilaster and the trabeation.

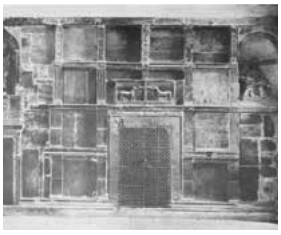
To deliver such subtle transition, delicate formwork and technics was indispensable. Although Ridolfi made discreet technical indicators[29] in casting the visible components, the results might not be ideal, since the texture on the surface had shown the unevenness of the planks and the seams between different phases of formwork.

In the residential towers, the formwork always paused at the joints, producing noticeable discontinuity by the seams between wooden mouldboards, which added to the impression of 'node' from all sides by the texture of material. It was apt to remind people of classical models where same joint stood out where the entablature met the pilasters in the foreground. In Arch of Constantine, for instance, the columns were detached from the main body with both entablature and plinth protruded as support, creating a strong sense of node at the intersection. This construction detail was also featured in baroque churches, as depicted in Ridolfi's study of Santa Maria Maggiore in Rome 5F14 for the course *Disegno da vero e Relievo di Monumenti* (Drawing from life and survey of monuments) as part of the school education. In the cathedral of Narni (a medieval town in the province of Terni, 13.4 kilometres

5T13 North elevation of the middle school (1:200).
From left to right: textured elevation, framwork, delineation.

5T14 West elevation of the middle school (1:200).

from the centre of Terni), there was the interior wall at the entrance to Sacello dei Santi Giovenale e Cassio (a small altar semi-underground) with marble inlay which represented a three-storey framework consisting of pilaster and trabeation 5F15. The components here were much simpler but the tapering of pilasters and the fold of entablature on top of them were clear enough to behold. Although no evidence had disclosed direct references to these precedents, but Ridolfi's version of framework definitely echoed with this model in many aspects. The tapered columns and the existence of the nodes were the inherited elements, while the continuity of the components and the form of the nodes were inverted. Comparing with the classical model where entablature was uninterrupted and the node was presented in an inverted trapezoid, since the cornices were always wider, the nodes in Ridolfi's model also appeared in the shape of trapezoid, in pure geometrical form, but they stood upright, following the continuous flow of the pilasters from the base to the eave. They could be the appropriation of expressionistic forms[30], just like in many other situations already discussed early this chapter, but were also the most straightforward solution of gradual transition between different profiles. Same attempts would develop in specific details in later projects on Piazza Spada.

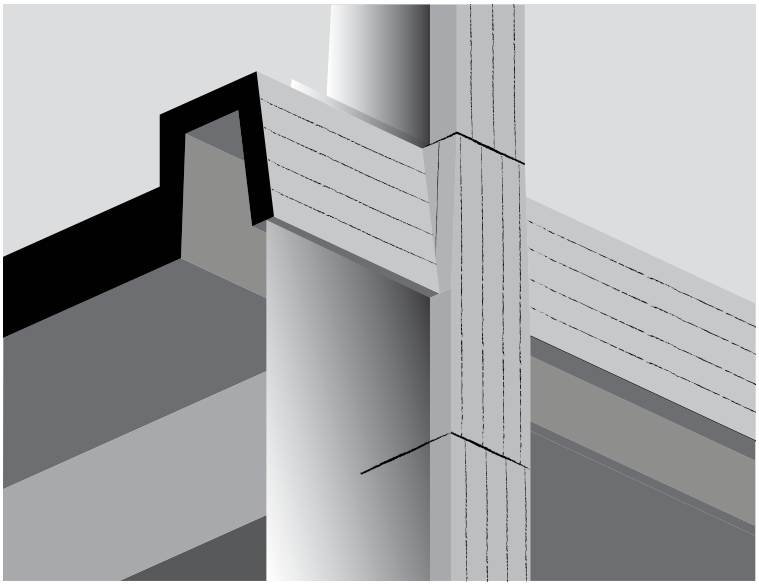


5F14 Drawing of Santa Maria Maggiore in Rome. Assignment to the course 'Drawing from life and survey of monuments', Mario Ridolfi, 1924-25.

5F15 Interior wall detail of Cathedral Chapel of S. Cassio with marble slabs (12th cent.), Narni.

On the elevation of the middle school, the intention to represent the node was equally clear but more complicated. The position of the seams was also due to the construction system. Although the height of the trapezoid complied with the entablature, but the lower seam wasn't aligned with the bottom of the strip. The distance between seams measured as 110 cm, which was two times of the height of the strip. Visually it was an elongated trapezoid, but it actually represented the height of the beam behind, since the beams were set transversally and lower than the strips on the elevation 5T15. It was easy to understand why the the tilted planes were rigorously limited to the same height, for otherwise the formwork would be too complicated, since the reinforced-concrete framework was cast in situ. It was the same logic of construction for the mouldboards to pause where the vertical component intersected with the horizontal, considering the skeleton was cast gradually from bottom up, layer by layer. Therefore, the lower seam was the only trace in sight, although minutia, to express how the structural system was differed from that of the towers in Viale Etiopia. When the tapered segment of the pilasters complied with the fake beam, the segment between seams still represented the true form of node.

These tedious formwork could be resolved with ease today by prefabrication, (or at that time in a place with advanced building technology), but same issue exists when components meet each other. The joint between them or between different phases of work was inevitable, although Ridolfi probably wanted the surface of concrete to be smooth like plastic. Nonetheless, the limitation of techniques was fully considered and transformed into compositional elements.

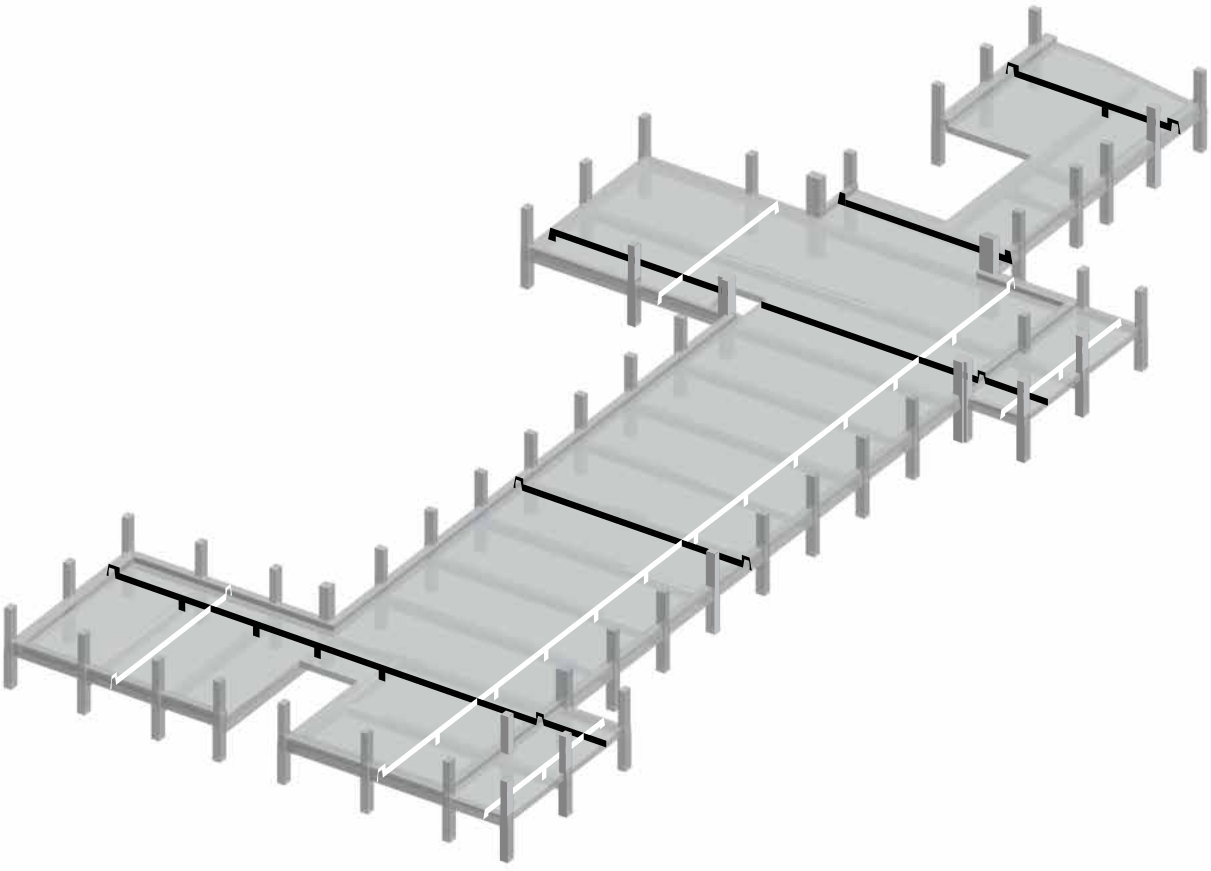


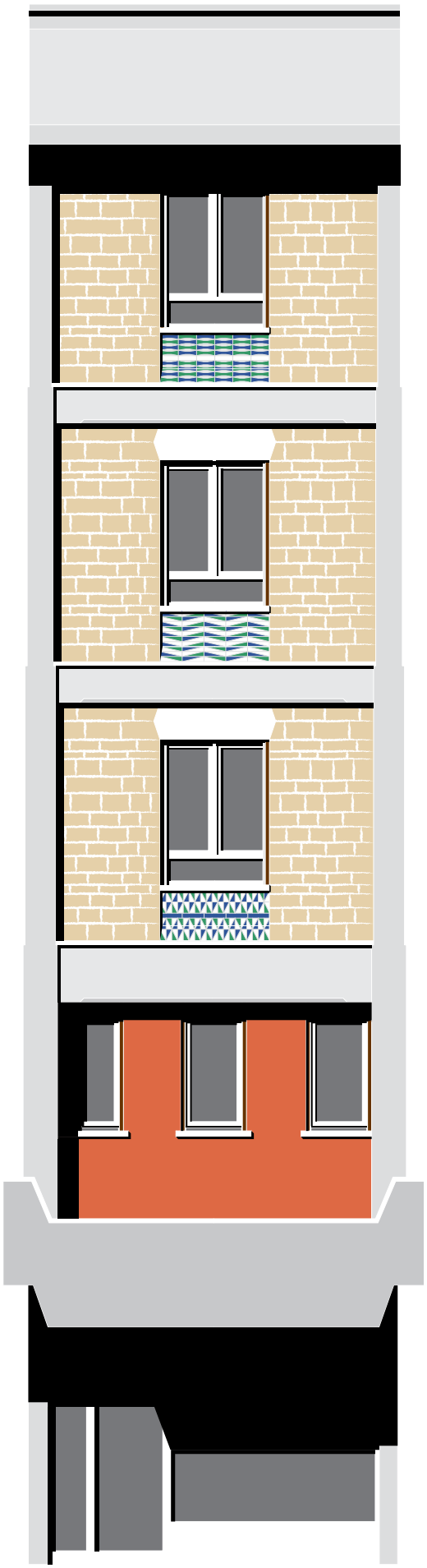
5T15 Detial of the 'node'.

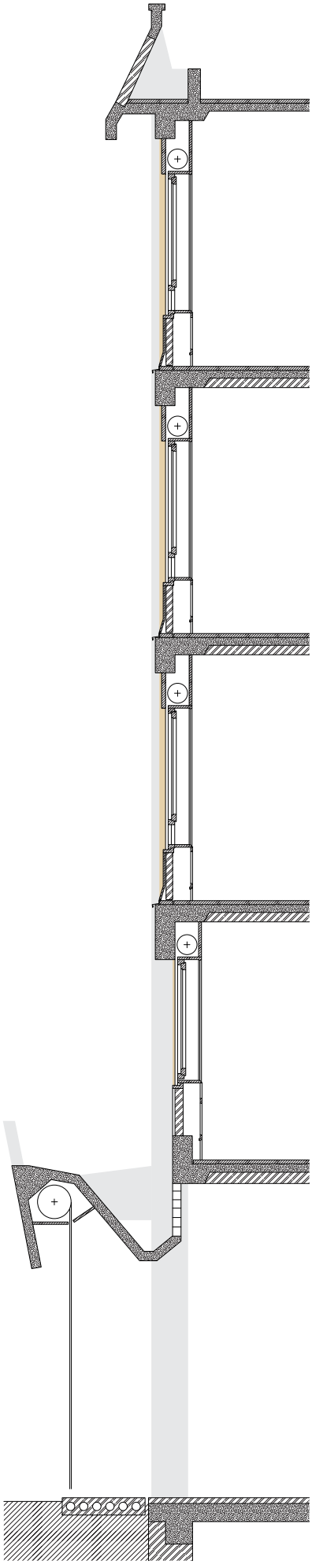
5T16 (Facing page) Various forms of the end of slabs of the middle school, along with the load-bearing system of beams and columns, taken the typical floor as an example. Black and white figures represent the transversal and longitudinal section of the slabs.

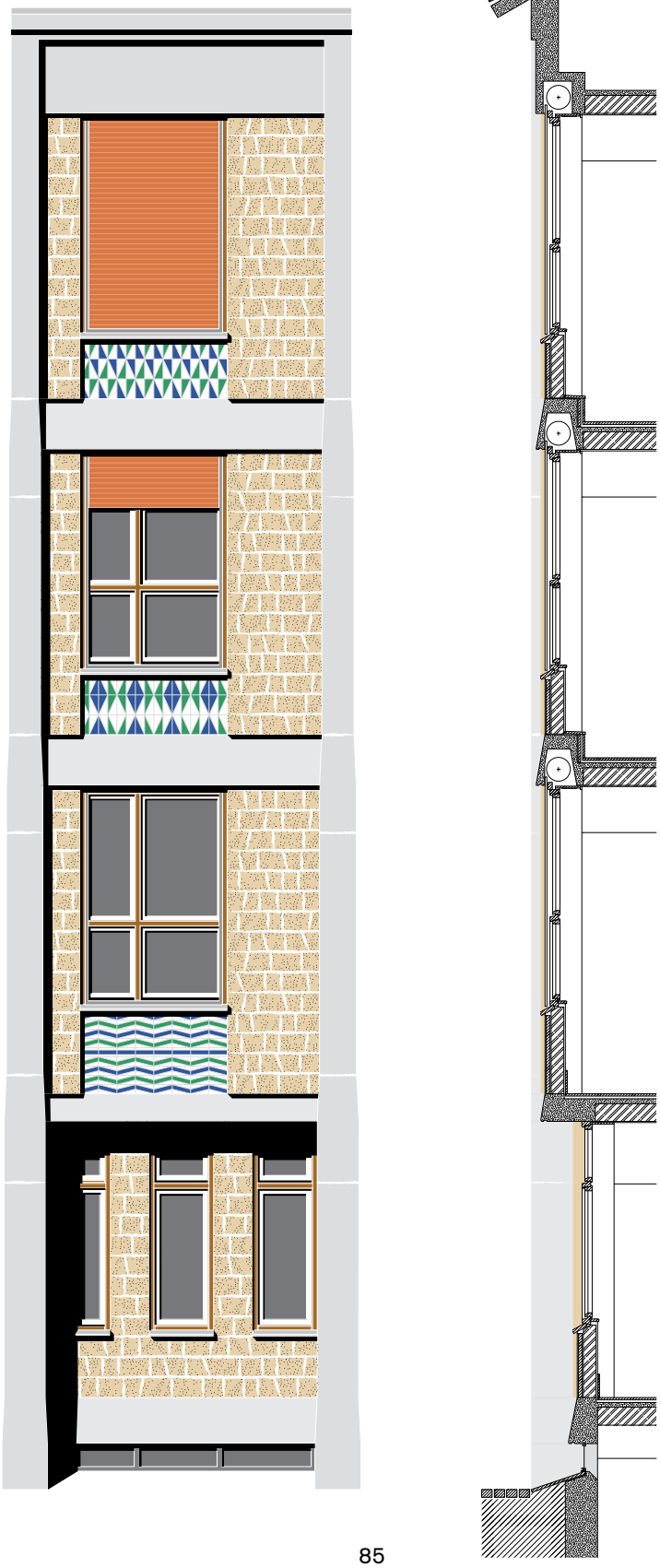
5T17 (Next spread) Detailed wall section and elevation of Casa Chitarrini (1:75).

5T18 (Next spread) Detailed wall section and elevation of the middle school of 'Leonardo da Vinci' (1:75).









5.5 The middle school, journey to a new compositon

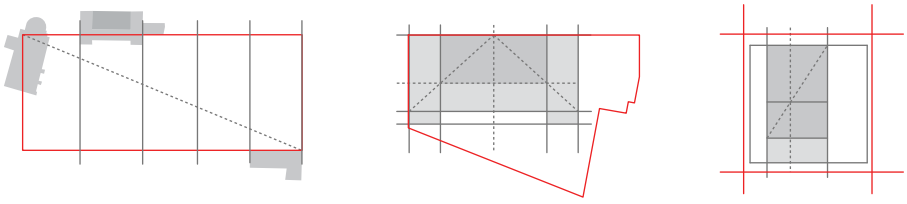
In the end the middle school of 'Leonard da Vinci' was a sophisticated project, not driven by any singular conception nor derived from exclusive prototype. The back and forth in the design process, the long-term study on program, context, structural system along with construction details had transformed the buildings from a rationalism stereotype to an autobiographical work that culminated Ridolfi's professional career in 1950s, reflecting of both his internal exploration of building typology and external reflection on historical urban environment. Together with Casa Chitarrini it provided the first models for urban reconstruction in Terni.

It was a interesting process how the functionalism model was infused with historical concerns; the play of symmetry was the key factor. The building has two different appearances when seen from above or from the square. In an aerial view, with the existence of the east wing, the symmetry of the building was not as explicit to ignore its program-oriented layout, while in the frontal look, when the east wing recessed and was covered by the crown of trees, the school appeared to a symmetrical volume with lodges on each side that formally resembled a renaissance palace such as Palazzo Spada in the city centre.

Differentiation of two dimensions was the major step leading to this transformation. At the beginning the masterplan bore no difference from his early work like Bordoni Institution in Pavia. Its asymmetrical layout followed the program of detached gymnasium and a row of classrooms with equal breadth. Incorporating the gymnasium into the embracement of the building could be economical, but introducing a second dimension (a=8m) to was definitely not a functional decision, it enhanced the integrity and independence of the main body by endowing it with a sense of symmetry, and provided historical and contextual references to the scale of the building and to the composition method. Comparing the school and the adjacent church volumetrically, it would be easy to notice the main body of the two, one defined by the two arms of the school, and the other by the nave and isles of the church 5T19, was enclosed in rectangles of similar size and proportion. Furthermore, the composition of the former via arrangement and combination of a set of fixed dimensions also resembled the composition of catholic church. Other references represented in construction details could be found in the recessed infill walls on the ground floor. By creating more depths and shadow, it emphasised the vertical structure as pilotis around the building so that the tripartition of the elevation was manifested.

At the end of this chapter, the significance of diagonal lines needs to be reiterated, after we've learned that they were the major compositional element in urban planning that connected the Casa, the school and the church, and the guidelines that had determined the location of columns in Casa Chitarrini. In the middle school it also played an important role since it marked the only dimension of the plan (c=7.6m) derived from geometrical operation. Not coincidentally, the diagonal line also defined the position of the mullion and transom of the classroom window on the elevation in a geometrical composition resembling that of the masterplan 5T20. Such formal consistency from urbanism to architectonic details had contributed to Ridolfi's methodology of composition.

5T20 (Facing page) The diagonal line as compositional element in urban plan (1:7500), the master plan of the school (1:2000) and the elevation of classroom window (1:200).



Notes

1 Paolo Avarello, 'Piano e Città nella Esperienza dell'Urbanistica', in Francesco Dal Co (ed.) *Storia dell'architettura italiana: Il secondo Novecento* (Milan, 1997), 320.

2 Urbanistico-architettonico was the original word Ridolfi kept using in his report and letters. See, for example, Mario Ridolfi, 'Relazione: Piano di Costruzione della Città di Tenrni', FRFM CD68/VI.

3 Mario Ridolfi, 'Ricostruzione della città di Terni', in Edilizia Moderna, June 1951, 37.

4 Carlo Doglio, Paola Venturi, *La pianificazione organica come piano della vita? Gli architetti della pianificazione organica in Italia 1946-1978* (Padova, 1979), 405.

5 Mario Coppa, 'Il Piano regolatore di Terni', in *Urbanistica*, 34, September 1961, 72.

6 Emanuele Caniggia, 'Il Nuovo Piano di Ricostruzione di Terni', in L'Umbria Democratica 15-22 Novembre, 1945. FRFM CD68/VIII. Part of the texts was underlined with red pencil probably by Ridolfi himself.

7 Vanna Fraticelli, 'Ridolfi e la città', in Cellini, D'Amato (ed.) *Le Architetture di Ridolfi e Frankl* (Roma, 1979), 20-21.

8 See FRFM CD68/ VII. Original texts: '*Dal punto di vista volumetrico si può dire che il centro è formato da un sistema di ~~tre~~ due piazze, legate fra loro in senso longitudinale e diagonale, animate da elementi ornamentali, in una composizione volumetrica che fa perno sul Palazzo Spada e si avvale di successiva piani opportunamente orientati, costituiti dalle fronte di importanti edifici esistenti nella zona e di altri, pure importanti, di nuova costruzione.*'

9 Vanna Fraticelli, 'Terni: progetto e città', in *Controspazio*, November 1974, 74-83.

10 FRFM CD68/VII

11 Federico Bellini, *Mario Ridolfi*, (Roma-Bari, 1993), 80.

12 Aldo Tarquini, *La città di Mario Ridolfi: Architettura, urbanistica, storia, arte, cinema, fotografia*, (Roma, 2005), 89.

13 This section is based on the project document archived in FRFM CD104, item A01 to A42. Texts within quotation marks are translation of the original.

14 There were eight variations in total, and the architect actually preferred the L version to the final one according to Bellini, iBid., 112.

15 According to Bellini, the idea classrooms connected to large balconies was taken from the school designed by Jan Duiker, namely the 'Open air school for the healthy child', Amsterdam, 1930. And Ridolfi subscribed the periodical in which this project was published. Bellini, iBid., 112.

16 Giovanni Gandolfi, *Cemento Armato in Evidenza negli Edifici Italiani*, (Roma, 1962), 133.

17 Gustavo Giovanni, *Vecchie Città, Edilizia Nuova* (Turin, 1931), 122.

18 Bellini, iBid., 110-111.

19 Guido Canella, Aldo Rossi, 'Architetti italiani: Mario Ridolfi', in M. Fabbri, A. Greco, L. Menozzi, E. Valeriani (ed.) *L'immagine della comunità: Architettura e urbanistica in Italia nel dopoguerra* (Roma-Reggio Calabria, 1982), 340. '*Ebbene si può affermare che l'unico architetto italiano (escluso il Muzio della « Ca' bruta ») che abbia studiato e sofferto in una sincera espressione formale la lezione espressionista sia stato Ridolfi.*' Well it can be said that the only Italian architect (apart from the Muzio of the «Ca 'bruta») who studied and suffered in a sincere formal expression, the Expressionist lesson was Ridolfi..

20 See the ground floor plan with landscape attached to the letter Ridolfi wrote to the mayor in December 4th 1957. FRFM CD104/ A61.

21 Ridolfi mentioned this advantage many times in the design report. See FRFM CD104/A29 A39.

22 Wolfgang Frankl, 'Il mio lavoro con Ridolfi', in Cellini, D'Amato (ed.) *Le Architetture di Ridolfi e Frankl* (Roma, 1979), 26-27.

23 Mörsch wrote in his book on reinforced concrete structure: '*Die Verkleidung der tragenden Eisenbetonkonstruktion durch vorgesetztes Fassadengemäuer gestattet jedoch nicht, alle Vorteile des Eisenbetons auszunützen; vielmehr kommen diese erst ganz zur Geltung, wenn die Wandträger und Wandpfeiler außen sichtbar bleiben und die so gebildeten Felder durch Füllmauerwerk oder dünne Monierwände ausgefüllt werden.*' (However, the cladding of the load-bearing reinforced concrete structure by facing façade masonry does not take full advantage of the reinforced concrete; rather, they only come into their own when the wall girders and pilasters remain visible on the outside and the spaces in between are filled with masonry or thin walls.) See Emil Mörsch, *Der Eisenbetonbau, seine Theorie und Anwendung*, (Stuttgart, 1908), 229.

24 In Casa Franconi which would be discussed in next part, the large beams that formulated a swastika also intruded into bedrooms and balconies.

25 The profile of piers were elongated by pencil sketches. FRFM CD104/I/12A, 12B.

26 Sergio Poretti, *Italian Modernisms: Architecture and Construction in the twentieth century* (Rome, 2000), 201.

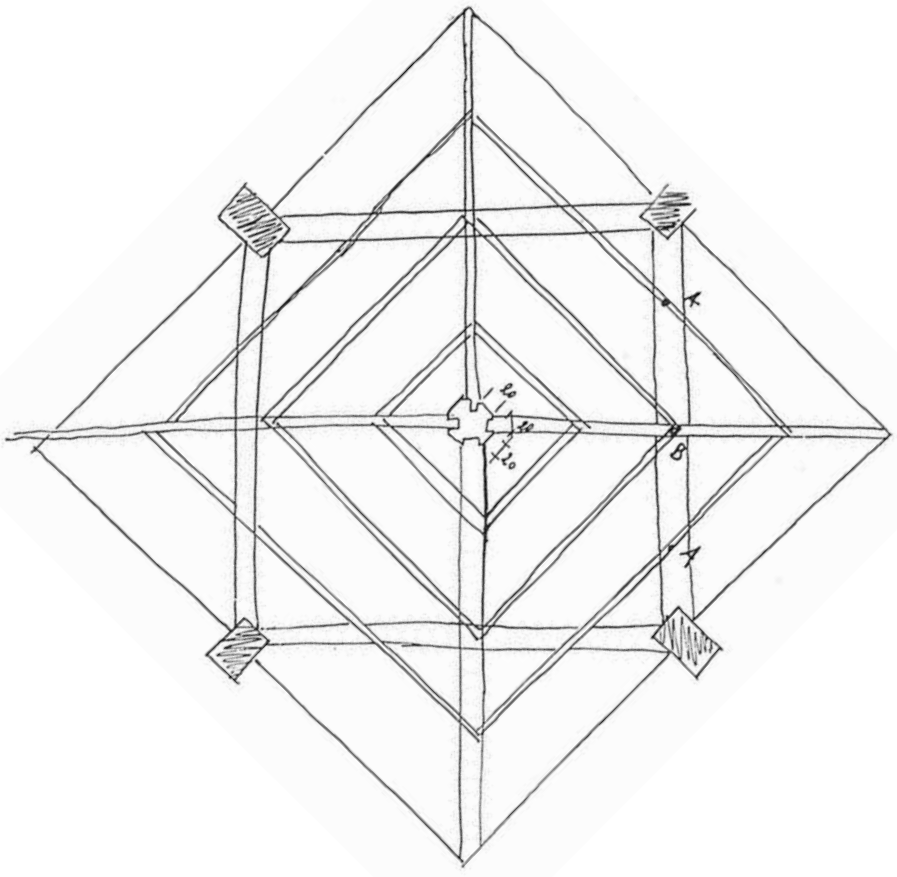
27 We know that according to the solution in Casa Franconi Ridolfi introduced pilaster rotated by 45 degrees, but such orientation definitely did not yet exist in the vocabulary in this period in the area San Francesco.

28 In Palazzo degli Uffici INA in Parma (1950-54) by Franco Albini or in Libreria Hoepli in Milan (1955-59) by Figini and Pollini.

29 'The reinforced concrete frame is designed for the visible parts off-form, without any application of plaster nor any retouching after demolding. Be cautious to use planks with uniform thickness for the sides of the formwork matching the visible parts, and to apply on these parts a non-mineral greasy substance such as "SFORMEOL" or similar type. It will be advisable to use vibrators for visible structures to give greater compactness to the cast. To the parts in view, all sorts of angle iron in the form will be abolished, to avoid the blunted edges.' Mario Ridolfi, Relazione del Progettista, December 22nd 1955. FRFM CD104/ A29.

30 According to Sergio Poretti these trapezoids also showed Ridolfi's influences from baroque or expressionism. Poretti, iBid,. 197.

Part III From the variant plan
to the unfinished municipal Offices
1955-1981



6 Variant of the reconstruction plan

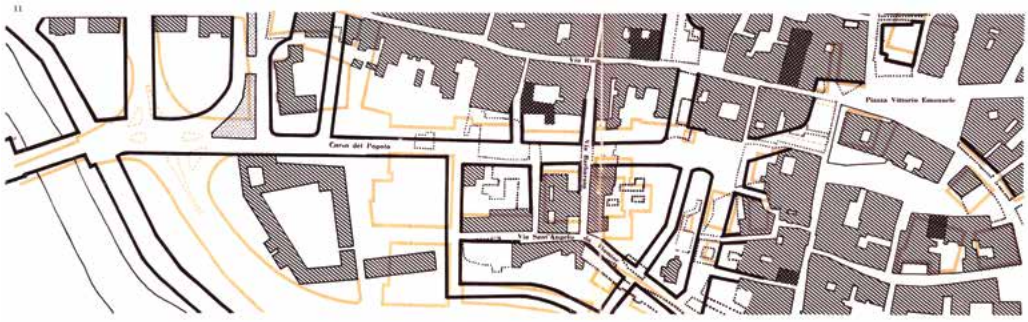
Ridolfi's work in Terni was dedicated to fill the gap between planning and architectural design, especially after the new axes, Corso Tacito and Corso del Popolo, had been imposed brutally on ancient fabrics of the city. Such intervention was only possible when the piano ricostruzione (reconstruction plan), piano regolatore (regulative plan, or general development plan), piano particolareggiato (detailed plan, or volumetric plan) were studied and carried out simultaneously at his command, while a series of architectural projects were also under construction[1]. Although Ridolfi had indicated that his approach to urbanism originated from the perspective of an architect, he still devoted himself to the areas other than architectural or urban design, like functional organisation of a city, as well as the strategy in dealing with bureaucracy or specific policies. These efforts, although quite invisible from the built environment, were in fact indispensable to the realisation of his works.

It was hard to calculate how much preliminary work Ridolfi had done for the series of detailed plans, since few sketches were archived. But without a doubt, unlike the case in planning of Casa Chitarrini and the middle school, the urban composition and the form of individual building were scrutinised and tested at the mean time, long before the master plan was carried out, to make sure that the plan was thoughtful enough to conduct all building activities, and every single building could be realised exactly the way they were conceived. From late 1950s onward, Ridolfi had directed four stages of detailed planning, covering the entire centre of the city, and realised five architectural projects successively. Among them of the highest degree of completion was Piazza del Popolo (now Piazza Spada, or Piazza Ridolfi), where he had envisaged a new city centre to establish some of his major architectural works. This chapter is dedicated to the analysis of the composition of this square, including urban spaces and architectonics.

6.1 Tactics of expediency

The new phase of urban planning began in 1957 when the Variant of the reconstruction plan of Corso del Popolo and adjacent areas was adopted. Since 1954 there were two variants having been proposed and approved, one concerning with the intersection of Via Goldoni and Corso Tacito, the other with the area between Via Cairoli and Corso Vecchia, both related to the long circular path conceived in the early reconstruction phase. These modifications contributed mostly to the completion or amelioration of the approved plan, complying with detailed requirements of transportation and building regulation. The variant of Corso del Popolo was another case; the proposal was issued formally in a master plan, whose graphic form, technical prescriptions and the normative contents differed from the previous reconstruction plan, but was consistent with the series of detailed plans (piani particolareggiati) that followed up.

The objective of this variant was to remodel the plan-volumetric attribute of the buildings alongside Corso del Popolo, turning the strictly aligned street facade into a series of blocks with various profiles and heights that defined the boundary of the street unevenly 6F1. In the beginning of the report, Ridolfi had explicated the reason and significance of the modification:



'The new study of General Regulative Plan in 1957, which covers the entire territory of the Municipality of Terni, has taken into account the characteristics of traffic in its three transitional spots of connection and penetration, therefore a road network has been set up so that in the center of the city it does not gravitate a massive mass of vehicles... The Corso del Popolo has lost, according to the informative concepts of the new P.R.G. (general regulative plan) its function as the longitudinal traffic artery of the city and consequently it was also necessary for aesthetic purposes to modify its characteristics... The road that has kept the same axis will no longer be bounded along the margins by a monotonous succession of buildings all of equal height, all the arcades, all arranged on the same alignment interrupted only by a wide, but will assume the more urban character, will represent the succession of several episodes of which the most important is the content between Palazzo Spada and Church of San Salvatore and that will have their conclusion in Piazza del Popolo.' [2]

The general regulative plan Ridolfi mentioned here functioned in two aspects: First, it organised the transportation of the whole region, connecting the city to its adjacent towns and villages via railway and motorway; Second, it introduced the zoning law, to regulate the volume of the buildings in the newly planned district; Neither touched upon the historical centre.[3] The variant could easily be seen as a remedy for the damage the new artery could have caused to the urban fabric, since Ridolfi had no choice but to follow the approved Lattes-plan and continue the idea of Corso del Popolo[4], which today has become a fiasco. With Palazzo Spada and Palazzo Montani in the way, Corso del Popolo could never join Corso Tacito to form a continuous artery for the longitudinal transportation[5]. Today, Corso Tacito is a pedestrian street flanked by boutique shops, but Corso del Popolo still bears heavy traffic, which stops on the square in front of the two palaces. The road is 22m wide, and with all

6F1 Reconstruction of Corso del Popolo. Approved version in 1949 in solid black lines, variant of the reconstruction plan in 1957 in light orange. Mario Coppa, 1962.

the margins it seems to be even wider. The ‘urban character’ (carattere cittadino) was well achieved by means of ‘volumes varied but at the same time harmonic’, even if its prerequisite fell short. It was clear that Ridolfi had inverted the cause and effect on purpose in the planning report and put it in a convincing way. In his real opinion the street should first apply unaligned backdrops and then be free from vehicles. But above all it was about the new composition.

Ridolfi’s previous design was represented in two early perspectives, one along Via Spada 3F2 and the other along the axis of Corso del Popolo 6F2, in which the variety was achieved through the different composition of the facade and uneven height of buildings, while their boundaries still generated some sort of continuous interface. Comparing with these attempts, the variant in mid-1950s obviously went even further that the buildings appeared to be independent from each other, with unique ‘plani-volumetric’ attribute, while their arrangement didn’t seem to follow any ready-made geometrical pattern.

This remarkable volte-face in urban composition wasn’t unexpected, considering that between the reconstruction plan (1949) and its variant (1957) the residential district in Tiburtino (1950-1956) was completed, in which Ridolfi played an important role. The planning in Terni could seek similar qualities for the new centre of a city where ancient irregularity was still preserved, as they preferred the disorder of minor architecture to conformity and refinement.[6] Content of this composition would be discussed in following chapters, but during the planning process the timing of this variant was also important that it was actually a strategy of Ridolfi’s project management. In fact, Ridolfi felt the urgency to broach his new conception at this moment, since the reconstruction work had already begun, modification would become more difficult if the street and square were realised following the earlier version. While on the bright side, Terni government had acquired the properties from private owners in this area in order to build infrastructure and other public facilities, all obstacles have been removed and demolished, setting the stage for redistribution and urban-architectonic composition. Whatever Ridolfi has done as an alternative plan belonged to the phase of detailed planning, which only happened after the authorisation of the general regulative plan.[7] But the construction couldn’t wait, that’s the reason why the detailed plan of area Corso del Popolo was issued as a variant to the reconstruction plan, which circumvented the norms of planning procedure, even though it wasn’t rigorous back in the 1950s. In this way, to paraphrase Ridolfi’s own words, ‘a considerable amount of areas will be soon available in the city center’, as a visible achievement of the government during urban reconstruction. Thus by the end of 1950s, Corso del Popolo and the piazza were already under construction, following the variant plan, despite that the surrounding edifices were still in debris. 6F3 6F4 At the mean time, however, an area much larger than the street itself was approved altogether, which was full of details that weren’t quite conspicuous in the drawing, some of them weren’t even mentioned in the report. Ridolfi always had a larger image in mind, and his studies of the urban composition in depth were always in advance of the planning progress. The approval of this variant plan had no doubt endued his works with priority to be realised as a integrity.

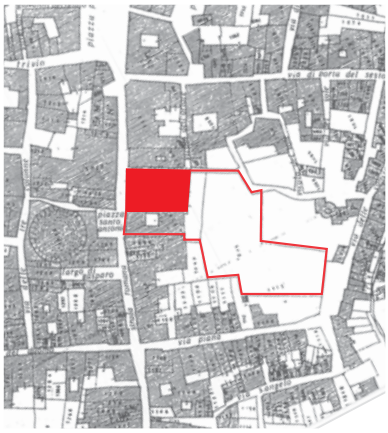
At this early stage of urban planning, many components in this plan seemed to be excessively meticulous. Apart from the carefully controlled misalignment along Corso del Popolo, the cycle of buildings around the square in front of Palazzo Spada were also in an elusive composition. With all

6F2 Piazza Spada under construction, ca. 1959. ACT PR. Palazzo Spada was on the left side, geometric pattern made from travertine inlay could be seen in light colour on the ground of cobblestone pavement.

the precise orientations and plani-volumetric features, they were too definite to be just schematic. It was most likely the consequence of an architect being the urban planner, since Ridolfi had not only made the zoning law but accurately defined each individual building in urban nucleus as well. He was fully aware of 'the need to prevent private initiatives and to set timely guidelines, alignments, volumes and anything else necessary to discipline the building in the centre of a modern city'.[8] In the end, most of the buildings were realised exactly as planned, including those designed by other architects. It was clear that for RIdolfi these buildings belonged to the city, so that their urban-architectonic quality should be determined along with urban planning, and not by each property owner. Except for the preserved historical buildings, the government purchased the rest properties from private owners for the new master plan. For instance, the public square, Piazza del Popolo, was previously taken by the monastery, who occupied Palazzo Spada and the large compound behind it for many years. 6F5 In December 1957, the government finally acquired the palace, along with the private garden behind, so that the palace could be used as the new municipal office, and the garden transformed into a new public square.[9] At this point Ridolfi and the government reached the agreement that in the variant plan the form of the property and the building were defined simultaneously. In the 1957's version of the plan, the only indefinite part was the area between Palazzo Spada and San Salvatore circumscribed in blue line (shaded area in 6T1), left for a public competition for urban-architectonic definition.[10] And then the property was acquired by Pallotta and Ridolfi once again got the commission, so the complete area was eventually at Ridolfi's command. As a consequence, both Casa Franconi and Casa Pallotta experienced quick and smooth schematic design stage, since there was literally zero argument between the architect and the clients over the layout, the height, or any volumetric features of the buildings, which was totally different from the case of Casa Chitarrini and the middle school, that Ridolfi was finally able to turn his envision of a larger scope of the city into reality.

After all, Ridolfi was fortunate to be part of a very unique circumstance that, to praphrase Frankl's statement, the project of Terni was 'a rare case of luck, which cannot be proposed as a general solution to the war between the two disciplines and which has given the office block exemplary protection from urbanistic interference, is the fact that we received the commissions for both the Detailed Plan for Corso del Popolo and the Uffici Comunali simultaneously.'[11]

6F3 The property of the monastery, Plazzo Spada and the lot behind. Based on Mappa del Catasto Pontificio, 1854.



6.2 The master plan and 'plani-volumetric' control

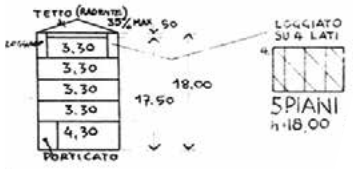
The variant plan package was quite simple, consisting of five sheets of drawings. The last two described the new project for the area around Corso de Popolo: a master plan with description and legend, and an unusual street profile along the axes.

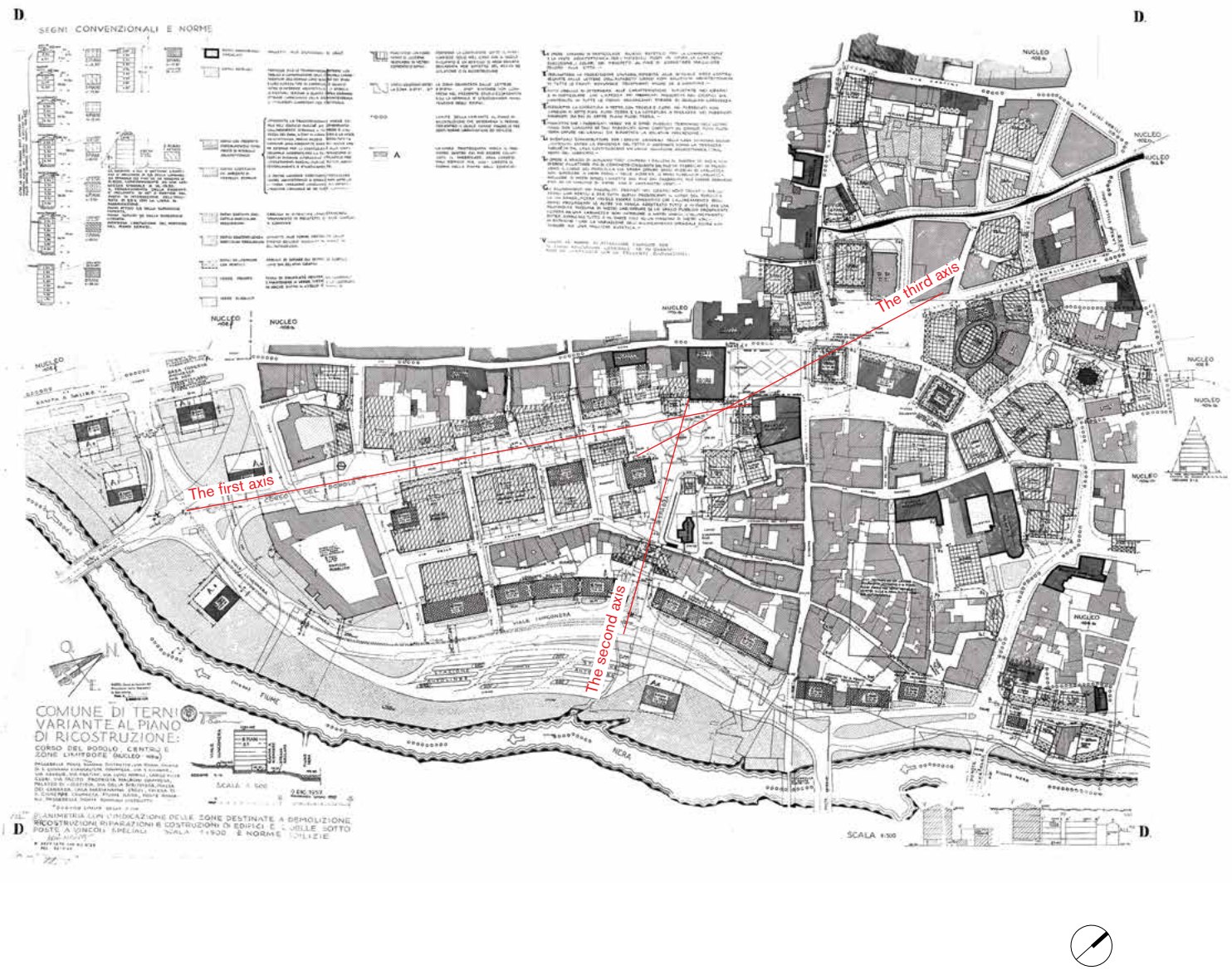
The masterplan was often seen in the publications on Ridolfi and the planning of Terni, with the small elevations on the margin cropped out, and the inscription and legend replaced by street elevations of Corso del Popolo. The original plan, however, concentrated on the plan itself, in which the information was highly integrated, without breaking it into a number of analytic drawings each concerning on an exclusive issue. Basically, it consisted of the existing buildings and the new buildings. Among the existing ones, historical monuments and preserved elevations were emphasised by darker shading, while the new ones were differentiated by hatching with a series of various shadings, each indicating a specified height, ranging from one storey to nine storeys. The location of arcades were also marked up. All new buildings were drawn with dimension and altitude on the corners. Since Corso del Popolo was based on demolition of existing urban districts, these demolished structures and properties were also depicted in solid lines and superimposed onto the master plan. The counterpart, new property lines and some paving patterns on the square were drawn in dashed lines.

The L-shaped scope of the master plan was purposeful. In Ridolfi's words, 'The Corso del Popolo does not represent a complete urban planning solution if it is detached from what has been defined as the heart of the city where the streets that in the Roman period were the cardo and the decumano still unite; therefore it was considered absolutely necessary to expand the study until reaching the river Nera in the north to the Via Carrara in the west the Via Petroni.'[12] Via Carrara was another new road originally designed for vehicles, the variant included the east half of the road and carefully depicted the open spaces and buildings alongside. Therefore the plan was issued under the title 'Variant of the reconstruction plan: Corso del Popolo, centre and adjoining areas', and extended towards north to include not only half of the new cardo-decumano but also the three squares in the centre of the city. Considering they were first studied in mid-1940s and suspended later by the architect due to planning laws, it was the opportunity to bring back the original proposal in a less noticeable way as a by-product of the main theme. Instead of Corso del Popolo, these squares were the real focal point.

Although two new arteries formed the framework of the plan, transportation wasn't its major concern. Instead, the plan dedicated to define a new look of the city centre precisely through plani-volumetric control. Ridolfi didn't follow the norm of urban planning that one should first define each properties and then describe the volume via zoning law, which was actually the case in peripheral areas in the regulative plan, instead, he directly approached the exact footprint and height of almost every single building, as if he was commissioned with all the architectural projects. Only in this way the correspondence between planning and design of the city, or the continuity between zoning and building regulations was ensured[13]. For instance, in the property of Palazzo Spada acquired from the nuns, 'there were the assignment of the right to build 21,000 cubic meters, which belonged to Terni on the basis of war damages relating to public buildings destroyed by bombing'[14]. That was precisely the total volume of three blocks of Casa Franconi complex as planned and as built, even though block C was not entrusted to Ridolfi and Frankl.

6F4 (Facing page) Variant of reconstruction plan: Corso del Popolo, centre and adjoining areas, Mario Ridolfi, 1959.




SEGNI CONVENZIONALI E NORME
The first axis
The second axis
The third axis
COMUNE DI TERNI
VARIANTE AL PIANO
DI RICOSTRUZIONE:
CORSO DEL RODOLO, CENTRO E
ZONE LIMITROFE (NUCLEO 1954)
PLANIMETRIA CON L'INDICAZIONE DELLE ZONE DESTINATE A DEMOLIZIONE
RICOSTRUZIONI RIPARAZIONI E COSTRUZIONI DI EDIFICI E LORO SOTTO
POSTE A VINCOLI SPECIALI SCALA 1:500 E NORME DI POLIZIE
SCALA 1:500

Ridolfi's preference for compact form and independent layout of urban architecture was actually favourable to the precision of plani-volumetric control. In the master plan, all new buildings were composed by regular forms, whose three dimensions measured the integer multiple of 0.5m. For example, the height of buildings from two storeys to nine storeys was controlled as 8.5m, 11.5m, 15m, 18m, 21.5m, 25m, 28m, 31.5m, which was achieved by adjustment of the height of the parapet between the last floor and the eave. 6F6 The planimetric dimensions also followed a regular pattern, which was the combination of two numbers from 8.5m, 10m, 12.5m, 15m, 17.5m, 20m, 21m, 22.5m, 23.5m, 26m, 29m, 30.5m, 42m, 47m, which was close to several series of numbers with equal distance at 2.5m. 6T1 The choice of the number was interesting because it not only kept the numeric regularity but also covered the dimension of two historical monuments, the palace and the church. It was important to see that the chart not only disciplined the height of buildings, but also indicated some architectonic features such as the loggia on top, or arcade facing the street or square. With these factors together there would be no identical individuals even though they were composed within a limited range of dimensions.

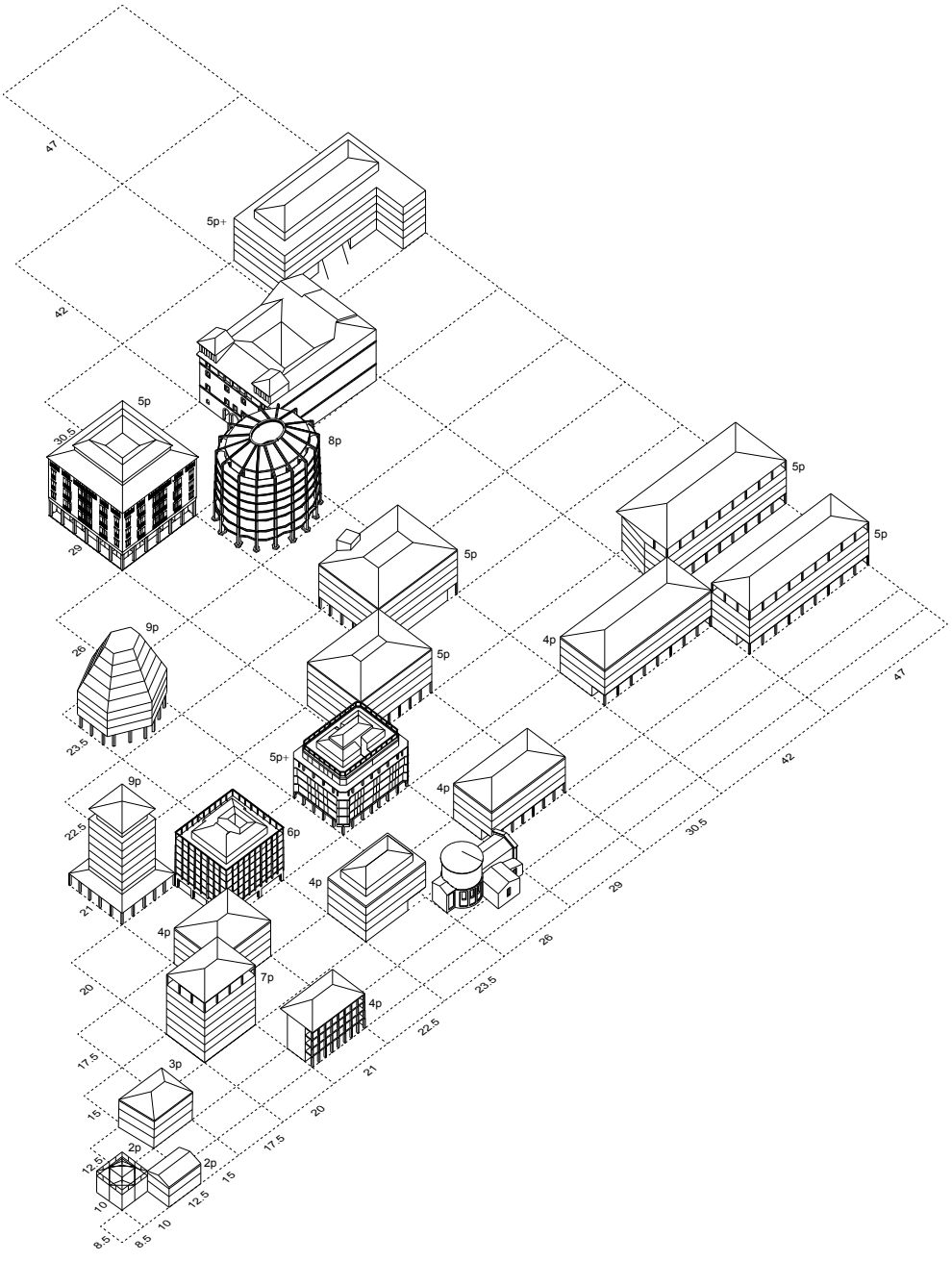
There was some detailed technics of volumetric control to achieve the overall variety of an urban environment. If we put all individual buildings in a form according to their planimetric dimensions, there wouldn't be two buildings located successively in a row or a column, instead the connection was always diagonal, which meant for the buildings with comparative scale, the architect had avoided consecutive dimensions in the series of numbers. 6T1 Same principle was applied to the distribution of the heights, like along Corso del Popolo the building on the opposite sides always contrasted with each other in heights. The only exception existed at the south end of the road, where buildings of equal height almost formed a continuous interface indicating the entrance to the city, referring to the historical situation of the city which was then preserved at other gates like Piazza Valnerina. In other cases, Ridolfi didn't limit the height of new buildings to match the historical context. In the norms of volume of edifices, the number of storeys varied from two to nine. Two nine-storey towers was located in the very centre, surrounded by a series of squares, that became landmarks which could be seen from afar. Ridolfi thought some high-rises were necessary so that the mist lingering in the city could be surmounted.[15] These towers actually resembled the office of national insurance institution (*Palazzo dell Istituto Nazionale delle Assicurazione*) designed by marcello Piacentini for Piazza della Vittoria in Brescia.

Ridolfi didn't hold back in disclosing the connection with his teacher. In fact, the variant plan for Corso del Popolo was indebted to in many aspects, such as the arcade, the asymmetry and unevenness in the enclosure, and the variety of built forms. In general, Ridolfi sought to experiment his conception of plani-volumetric control systematically in a larger scope, based on the manipulation of number and form, notwithstanding that historical and geographical factors also played indispensable role.

6F5 Master plan, Piazza della Vittoria, Marcello Piacentini, Brescia, 1927-1932.

6F6 Palazzo dell Istituto Nazionale delle Assicurazione, Marcello Piacentini, Brescia, 1927-1932.

6T1 (Facing page) The planimetric and volumetric chart of all the new buildings in the variant plan. (Unit: Metre)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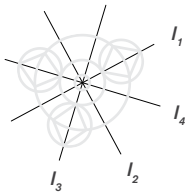
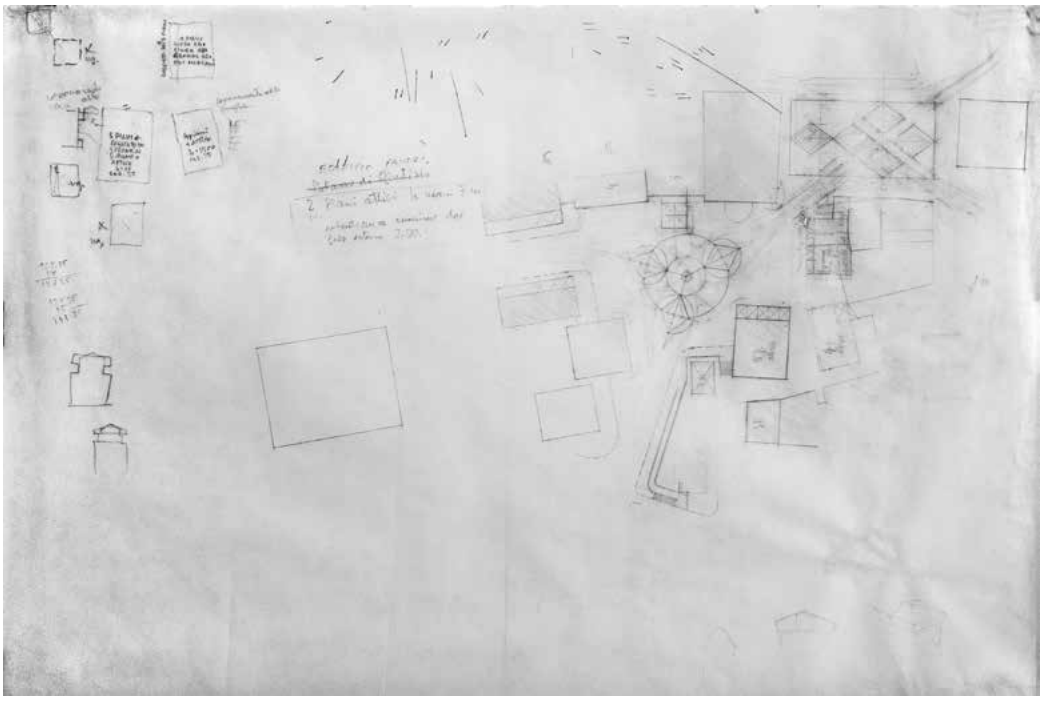
6.4 Finding the centre of the new city centre

Piazza Spada was supposed to be the new centre of the city, while on the centre of the square there was the paving pattern. Although never been broached anywhere, it did belong to those elements on the plan which were firstly built. It was the opposite case of Largo Villa Glori, because in the latter the design of public space remained indeterminate for a long time after the buildings were established. But at the time when Corso del Popolo, the square as well as the pattern were under construction, there were literally nothing around but debris.

The idea of the pattern emerged after 1957, since the early variant plan only defined the location of the central point. An early sketch showed how the geometric form of paving pattern and the volumes of surrounding buildings were studied simultaneously. 6F11 Since it was almost identical as built, the pencil traces actually represented how determinate each part was: The centre, concentric circles and three directions were more definite, while the shape of the rhombuses and the existence of other decorative details were determined at last. There were five smaller triangles in the space between the rhombuses that oriented otherwise; together with the three that transformed into rhombuses, the reference line actually had eight directions. It seemed that the design process was a reduction of elements since the peripheral figures were eventually reduced to three.

The final pattern was formulated by three concentric circles. Tangent to the middle circle were another three circles in equal size, each had a inscribed rhombus, which intersected with the outer circle precisely on their vertices. It was through these rhombuses senses of direction were delivered. Previous evidences already proved that the direction of the long diagonals of these rhombuses was carefully set. Geometrically, two of them were at right angle, while the third in 135 degree with both. If we add a fourth axis perpendicular to the third through the centre and extend all the axes (l1, l2, l3, l4) on both directions, it turned to be eight gradient directions, that equally divided the city into eight segments, two times of the quadrants defined by the *cardo-decumano* system. Only within the scope of the entire city centre, the relevance of these axes beyond the square and streets could be discerned: 6T7





6F7 Sketch of the composition, esp. the paving pattern of Piazza Spada, Mario Ridolfi, ca. 1958.


m_3
l_3

l_1 - the longitudinal axis indicated by the arrow towards north. It went across the three squares diagonally.
l_2 - the horizontal axis perpendicular to l_1, which wasn't incorporated in the paving pattern. It could be extended westward to the bell tower of duomo, and east ward close to Porta del Sesto.
l_3 - the diagonal axis indicated by the arrow towards southeast. It complied with the central axis of Viale Spada, met Palazzo Spada at its south west corner, and could be extended further to Porta Sant'Angelo.
l_4 - the diagonal axis indicated by the arrow towards southwest. It could be extended northward to the bell tower of the church San Pietro, and to the opposite direction intersected with the city wall next to Porta Romana.

To postulate reversely the formation of the geometry, Ridolfi must use the connection of the corner of Palazzo Spada and the location of Porta Sant'Angelo, in the first place, to define the orientation of Viale Spada. Then he drew the diagonal line of the three squares, when the angle between two axes reached 45 degrees, the centre of Piazza Spada was derived. The correlation of the two churches and the axes may be just coincidental, nonetheless they could also serve as referential factor to adjust the exact location of the central point.

It's hard to tell if the whole planning was driven by this radiating geometry, but it definitely added more depth to the composition system, incorporating various references such as historical monuments, transportation, sceneries, planimetric and volumetric arrangement. In the light of the fact that Corso del Popolo seemed to be the only element irrelevant to the system, Ridolfi's objective of this variant plan might become more explicit, that instead of the re-arrangement of one single street, how the architecture and open spaces of the new centre could be related to the entire city was the real concern.

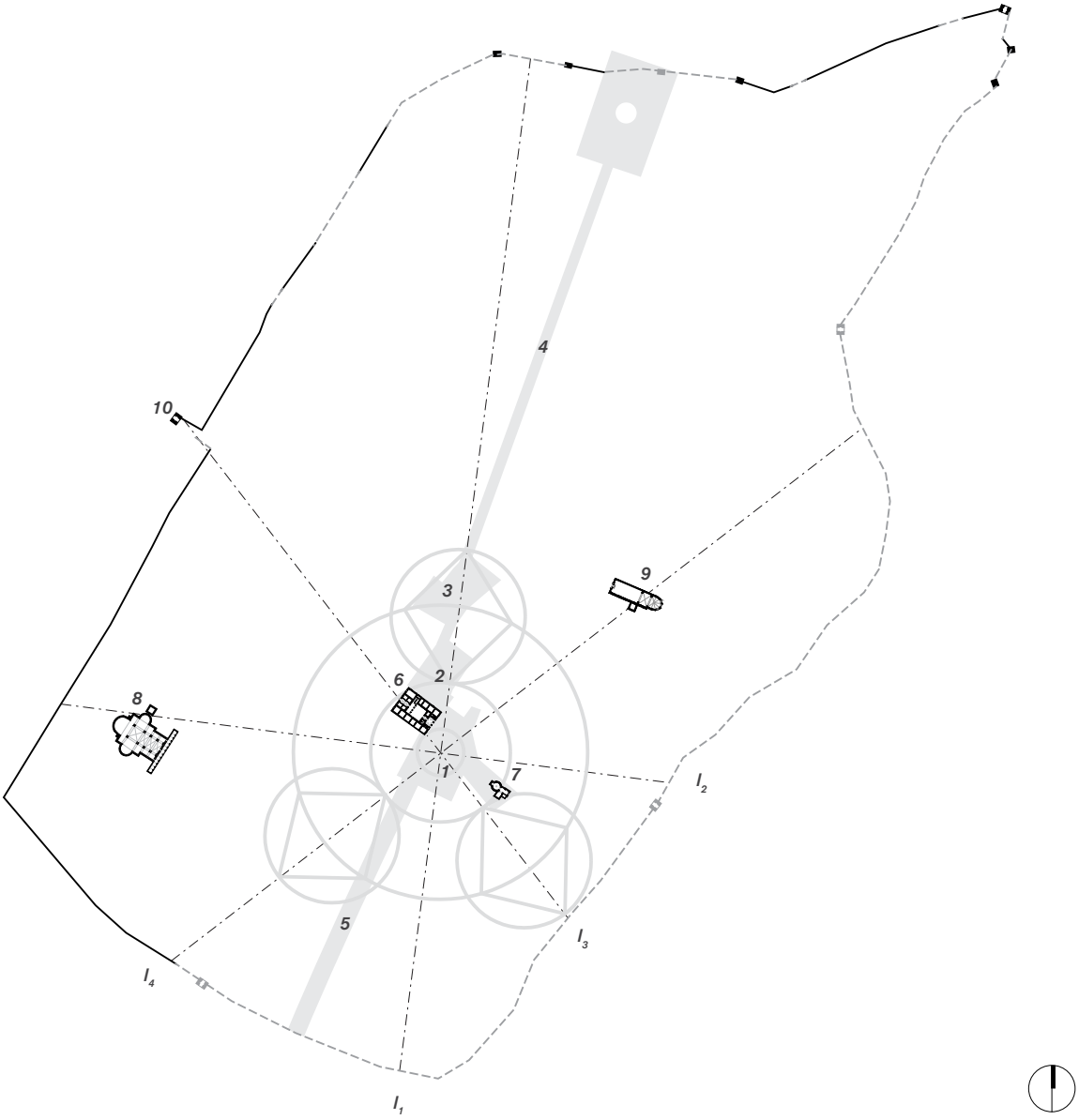
6T6 (Previous page) Variation to reconstruction plan of Corso del Popolo and adjacent area, approved version, 1959. (1:7500)

Light grey Existing buildings; Dark grey New buildings; Black The buildings different from 1957's verson; Dashed lines Planning on the reconstruction plan.

6T7 (Facing page) The paving pattern on Piazza Spada and its radiating axes (1:7500).

Grey blocks The new artery and squares in the reconstruction plan Thick Grey lines The paving pattern of Piazza Spada (expanded)

1. Piazza Spada 2. Piazza Europa 3. Piazza Comune
4. Corso Tacito 5. Corso del Popolo 6. Palazzo Spada
7. The church of San Salvatore 8. Duomo 9. The church of San Pietro 10. Porta Sant'Angelo


10
4
3
9
6
2
8
1
7
l_2
5
l_3
l_4
l_1

6.3 Axes and visual control

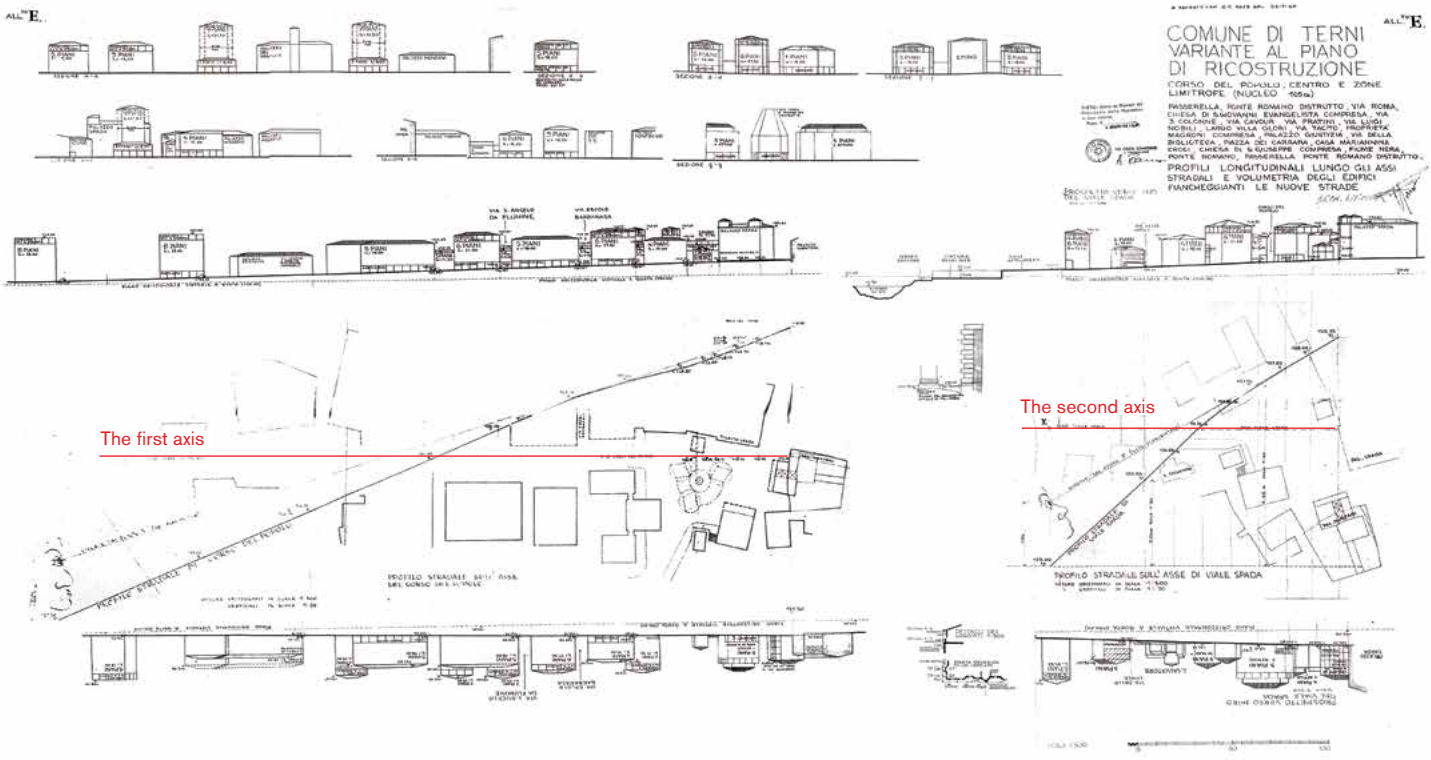
The other sheet of drawing featured on two streets within the scope of planning, Corso del Popolo and Viale Spada. The drawings described all the essential elements that defined the view along the streets, the slightly sloped territory, central axes, edifices in the flanks, and the terminal objects. In Ridolfi's words, 'particular care has been taken in the study of the levels on the road axes, so as to allow the complete view of the entire road belt up to the final purposes of the two roads: Palazzo Montani for the Corso del Popolo and Palazzo Spada for the Street that flanks S. Salvatore.' [16]

Similar to Ridolfi's usual layout, this enormous drawing consisted of drawings of different scales, with topics varying from urban district to building details. The plans of two streets were in 1:500, occupying most area of the drawing, flanked by elevations on both sides. There were also elevations from other districts on the master plan, making use of the blank on the top left corner. As supplement, a detail drawing of the base of Palazzo Spada (1:50) and small plan and section of the loggia (1:200) were also included. Considering that most information had already been incorporated in the master plan, this drawing must function as analysis, in order to explain the visual effect created by the plani-volumetric control, it still provided some different insights to Ridolfi's approaches to urban intervention, the visual composition from the perspective of human eye. The longitudinal profiles of the streets were superimposed onto the plans, represented in two thick lines with vertical measurements in the scale of 1:20, while the horizontal scale remained as 1:500, intensifying the change of heights. The sight line connecting the human eye and its destination didn't intersect with the profile of the road surface, so that a full height of the destination could be taken in sight. The plan of Viale Spada had the altitude at the foundation of Palazzo Spada as a supplementary information, in order to examine the actual relationship between the building and the square.

In the technical drawings of Ridolfi in this period there was barely any human figure, but in this plan he did draw two human faces as well as their eyes for each axis of the street, as a demonstration that human perception actually took part in the process of urban planning. These imaginary people stood on one end of the axes (marked up as point X and Y on the drawing), with their eyes set at the height of 1.5m. On the other end of the axes there was an monumental object, preserved as historical heritage or newly planned by the architect. For Viale Spada it was the splendid east elevation of Palazzo Spada, and for Corso del Popolo, it was the new lodge of Palazzo Montani, a four-storey structure composed by concrete columns and slabs. This could be typical axial composition except that the alignment of axes and terminals was deliberately deviated that the axes were conducted off-centre towards one end of the front elevation of the destination structures, which was sited obliquely from the perspective along the axis, to avoid centralised view and symmetry.

On middle bottom of the sheet next to street elevation there was also a small drawing depicting the form of loggia. Similar to the detail of Palazzo Spada, the content of these drawings in juxtaposition were usually interrelated through the architect's design process. Arcade and loggia were architectonic features inscribed in building regulation. While the former seemed to be borrowed from other historical cities, the loggia on the upper floor was actually a prevalent feature of local residences in Terni, it would be easier to understand why the architecture paid so much attention to it in reconstruction of this area. 6F10

6F8 Variant of reconstruction plan: Longitudinal sections along the street axes and elevations of building volumes beside the new streets, Mario Ridolfi, 1959. Part of the unpublished part of the variation of the reconstruction plan. The archive of department of urban planning, Terni.


ALL.TO E.
COMUNE DI TERNI
VARIANTE AL PIANO
DI RICOSTRUZIONE
CORSO DEL ROMULO, CENTRO E ZONE
LIMITROFE (NUCLEO 105a)
PROFILI LONGITUDINALI LUNGO GLI ASSI
STRADALI E VOLUMETRIA DEGLI EDIFICI
FIANCHEGGIANTI LE NUOVE STRADE
The first axis
The second axis
PROFILO STRADALE SULL'ASSE DI VIALE SPADA

6.3.1 The first axis: Corso del Popolo

Corso del Popolo was no doubt the main focus of the plan, although it had been hypothesised in the past and long awaited for many years. The new road cut through the sixteenth and seventeenth-century nucleus, connecting the new bridge and the square in front of Palazzo Spada. On both ends there were historical buildings such as the previous hospital (ex ospedale) and the two palaces, while the newly planned buildings was located in the middle, staggered, producing a changing breadth varying from 18m to 27.5m. On the west side, new structures were fused into existing blocks through lower and irregular volumes, and facing the street with relatively independent cubes of various dimensions. At the end of the axis was the renovated facade of Palazzo Montani, a four-storey-high portico composed by concrete columns and slabs, unique in this district but similar to the protruding loggia of the middle school of 'Leonard da Vinci'.

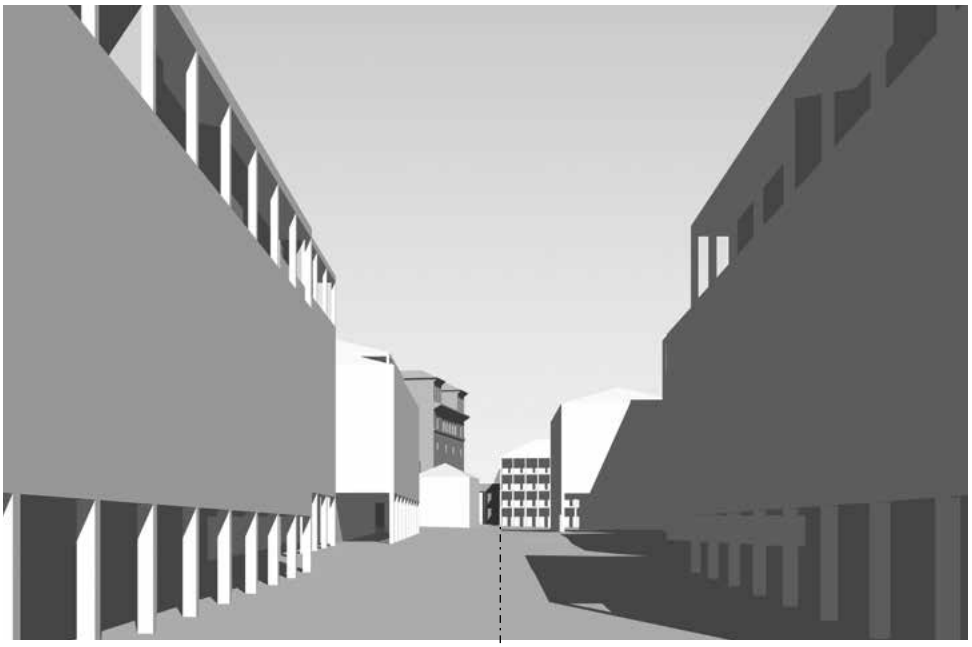
The staggered boundaries reduced the depth of the space and dissolved the monumentality a street like this could easily bring, especially when the axis was deviated and the decorative portico as terminal was partially blocked on the right. 6T3 This arrangement wasn't quite far from the sketches in mid-40s, except that the fountain in front of Palazzo Spada was replaced by a two-storey pavilion of unknown usage. This pavilion was visible from both axes, paired with Palazzo Spada, but always in the way as an obstruction. It could be pure compositional element, as a means to balance the volumetric palette and to add on more layers to the image.

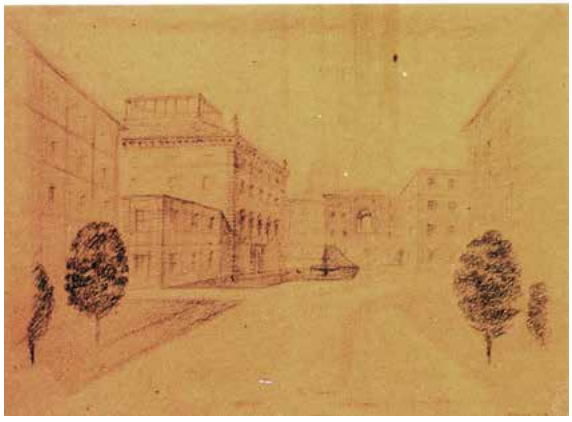
The overall composition of Corso del Popolo stills recalled the works of Piacentini, such as Sabaudia, Via Roma in Turin or even Via della Conciliazione in Rome. Ridolfi actually mentioned the last project in an interview to demonstrate the connection with his teacher.[17] Both streets was initiated in a period when minor historical structures could be taken down for new monumentality of the city. After the attitude towards history was alternated, Ridolfi still positively strived for a compositional solution between contrast and affirmation.

6T2 (Facing page) Digital view of Corso del Popolo towards Palazzo Montani according to the variant plan.

6F9 Ariel view of the centre of Terni, 1908-09. The outstanding edifice in the middle was Palazzo Spada. Most of the surrounding residential buildings had loggia under at top floor.

6F10 Perspective view of Corso del Popolo, Mario Riodolfi, ca. 1945. ACT PR.





6.3.2 The second axis: Viale Spada

On the centre of Piazza Spada, there was a pattern composed by rhombuses and circles of various size, drawn in dashed lines without further explanation. The geometric form contained three arrows, each pointing towards one of the three openings of the square, Corso del Popolo, Viale Spada, and the space between Palazzo Spada and Palazzo Montani. It was, in fact, a paving pattern made from travertine inlay on the cobblestone ground. The arrow pointed south seemed to be irrelevant to the axis of Corso del Popolo, but the arrow pointed east corresponded precisely to the axis of Viale Spada.

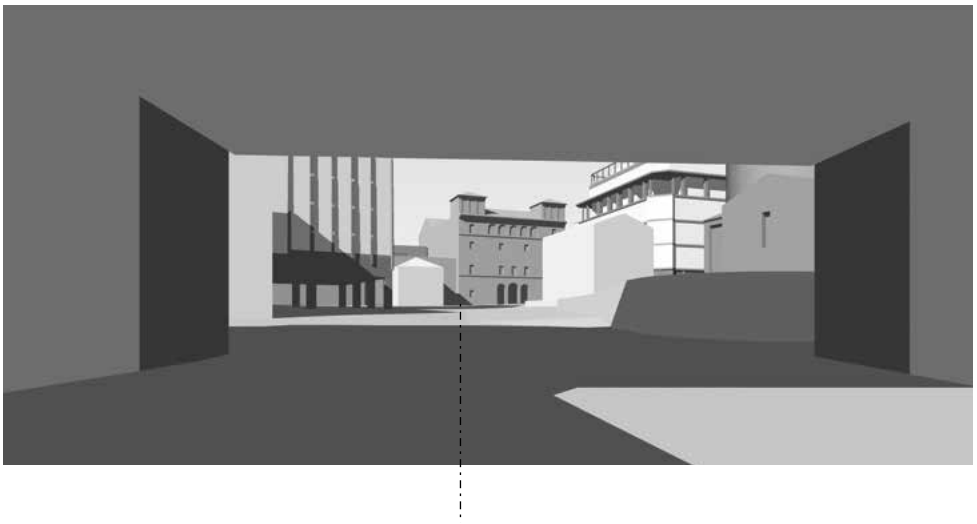
Unlike Corso del Popolo, the conception of Viale Spada didn't originate from Lattes-plan, nor did it belong to Ridolfi's early proposal. The distinction between variant plan in 1950s and early studies was the presentation of Palazzo Spada when approached from the east. In Lattes-plan, a rectangular square was created right in front of Palazzo Spada, with the church on the opposite side, and staircases leading to lower part of the city. Ridolfi's preliminary planning was similar. He created a series of terraces with ramp, connecting the square to the river bank, when people walked along the ramp to access the square, the palace was also presented in front view. This situation had changed in the variant plan where the path was shifted to the south of the church, connecting the riverbank to the square 5 metres above, which constantly led to a diagonal view of the palace. 6F11 The street was spanned by some houses in the half way to frame the view according to the 1959' version of the plan, although these houses had never been built. The buildings in sight, including two historical monuments, however, varied in form or height that it seemed that Ridolfi was meant for such disorder. 6T3

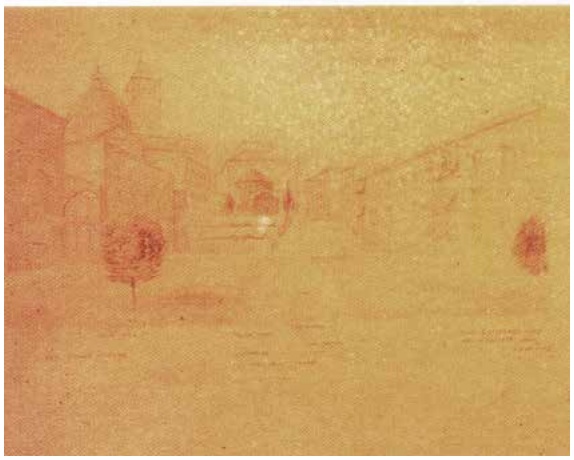
An intriguing detail of the two axial plans was that the paving pattern seemed to appear on the wrong side. Ridolfi delineated the entire pattern in the plan of Corso del Popolo, rather than in that of Viale Spada, where the pattern and the axis actually coincided with each other. The possible reason could be that the architect didn't want to explicate this correlation, or how the visual control of the street was embodied in the form of pavement. The detail itself might be trivial, but there was considerable information underlying, since it had revealed a compositional formula that could very well be repeated elsewhere; it's like a window to Ridolfi's manner of urban design the architect felt obliged to close before it had spoken too much. And perhaps for the same reason, this entire drawing was kept from revelation. Ridolfi never, nor did he mention anything of it when narrating his planning works in Terni.

6T3 (Facing page) Digital view of Viale Spada towards Palazzo Spada according to the variant plan.

6F11 Perspective view of Viale Spada, mario Ridolfi, ca. 1955. FRFM.

6F12 Perspective view of San Salvatore from Lungonera, Mario Ridolfi, ca. 1945. ACT PR.





6.3.3 The third axis: diagonal line of three squares

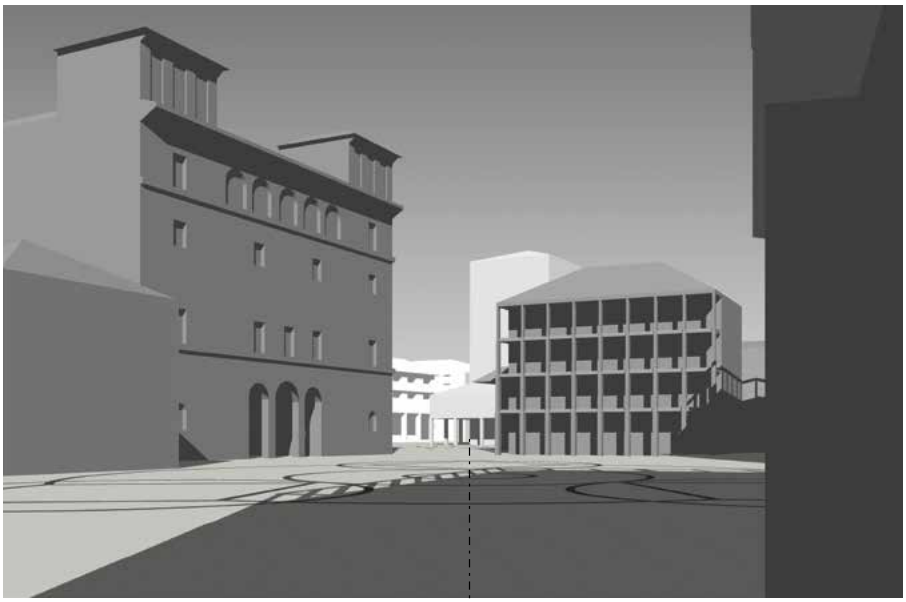
Following the directions indicated by the arrows of the paving pattern, there was indeed more to discover within the scope of the entire city centre. In the centre of Terni there are actually four squares, including the one behind the ex municipal hall, which is the Piazza Solferino where the ancient market was located[18]. Although Casa Briganti and other newly planned buildings had close relationship to this square, Ridolfi didn't seem to put enough emphasis on it in the master plan. Instead, the diagonal connection was his all time concern of the urban structure. In mid-1940s, the three squares were connected by a perspective view. 3F5 3F6 In the early version of the variant plan in 1957, the view was defined by an axis (l_1) which clearly started from the centre of Piazza Spada, passing through the opening between the palaces towards the diagonal end of Piazza Repubblica.

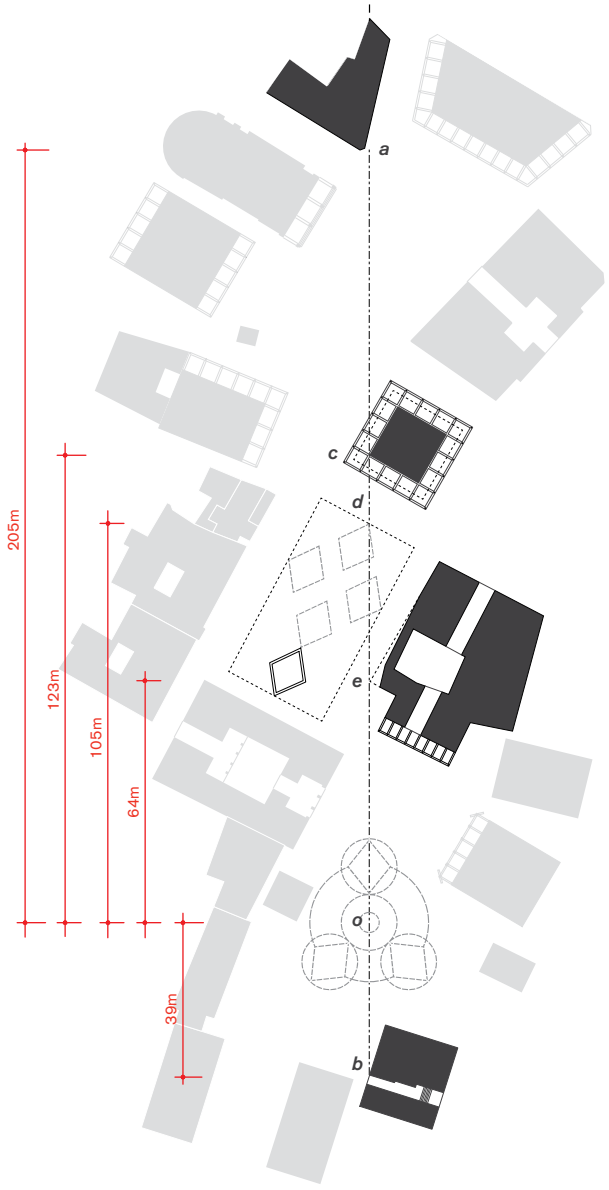
In the final version of this detailed plan the axis became more definite and explicit than ever, since more elements had been related to it. 6T4 The centre of Piazza Spada still existed, but it was defined by a paving pattern formulated by rhombuses and circles of various size. Its geometric form also resembled an arrow, which clearly pointed to the opening between Palazzo Spada and Palazzo Montani, and oriented diagonally towards the far end of the series of squares. If we mark up this diagonal line and extend it on both directions on the master plan, we could find that it went through a lot of referential points of compositional elements. First, the axis started at the centre of Piazza Spada which was emphasised by the concentric circles of the paving pattern. Then, the corner of the eaves of Palazzo Montani, which was the only case on the plan that the projection line of eaves was depicted and didn't follow the shape of the footprint of a building. Ridolfi wrote a line of caption to explain the meaning of this line, only to show its importance in the urban composition. Then on Piazza Europa, the pavement of the square consisted of five rhombuses that altogether formed a fish-like figure enclosed in a rectangle. The mouth of the fish, or tip of figure was fastened to axis who passed through the square in the midpoint of its shorter side. On the other end of the square, the newly planned tower was also under control of the axis. The southwest corner of the main volume of the building was located on the axis, so that the mass was completely on the east side of the axis allowing the sight to extend through or above the loggia to reach the space beyond. In the end, the axis reached the end of the Piazza del Popolo, the destination was the corner of another building, rather than the opening leading to Corso Tacito. So it was reasonable to deduct that the view wasn't planned for the people who was standing on the centre of this street.

The stand point for the designed view was actually at the other end of the axis, if we extend the axis towards south. The axis finally approached the corner of the square defined by the two blocks of Casa Franconi, who had just finished the phase of schematic design when the detailed plan was finalised in June 1959. Then it would be easy to understand that the the axis also corresponded to the layout of Casa Franconi. The view was envisioned from the standpoint of a resident who stood at the entrance of his apartment building, which was a quotidian spot he passed by over and over without noticing, but also a monumental place to capture the whole structure of the city within a glimpse. 6T5 Unfortunately this view wasn't realised, due to the fact that the building in the place of the nine-storey tower didn't follow the footprint planned by Ridolfi, but kept the historical property lines instead.

6T4 (Facing page) Digital view from the entrance of Casa Franconi. Based on the approved version of the variant, 1959. Edifices on Piazza Spada rendered in darker grey, on Piazza Europa in lighter grey, on Piazza Repubblica in white.

6T5 The three squares connected by the axis (1:2000). Based on the approved version of the variant, 1959. Elements in arker grey were directly joined by the axis.




a
b
c
d
e
o
205m
123m
105m
64m
39m

6.5 Integration of detailed plans as conceived

From 1965 to 1981, detailed plans for the rest three sectors were consecutively. Considering in this period Ridolfi was officially retired, the job was probably done by Frankl and Malagricci, following Ridolfi's previous conception. The scope of the plans followed the historical period represented in urban district, instead of corresponding precisely with the quadrants. 6T8 Integrating detailed plans of all four stages to derive an imaginary plan of the centre of Terni, it was clear that the direction followed the image Ridolfi had envisaged in the reconstruction plan. The curved path in quarter Tacito was still explicit, separating two contrast approaches to urban structures. Beyond this border the general regulation (Piano regolatore generale di Terni, 1960) was applied. The buildings planned for this district were mostly independent towers of various heights, usually resting on a podium, set back from the property line, as exemplified by Complex of Fontana Brother[19], that had created a sharp distinction in the city between the old and new. 6T10 Quarter Duomo, the most intact district, was free from modern structures. The intervention concentrated on the clearance and re-organisation of the interior of large blocks. As seen in the block built over roman theatre, the planner had removed the informal structures and restored the semi-circular borderline once defined by the auditorium.[20] At one time, the planner also tried to open up a new square in the middle of an medieval neighbourhood of high density in Quarter Clai, introducing a language totally foreign to all existing approaches. The project, however, didn't last, so it would be hard to know if it was merely sudden impulse.

There was some overlapping areas with modification, showing that the planners kept adjusting their projects to the new status quo, but generally, most of the planning remained on paper, and also in this period, Ridolfi had no longer built any other architectural project in the centre of Terni.

However, it seemed that Ridolfi had foreseen this situation that setting aside these detailed plans didn't prevent his conceptions from affecting the urban reconstruction. By mid-1960s, Ridolfi had realised all his built works in Terni, including Casa Franconi(1962) and Casa Pallotta(1964) in Quarter Popolo, Casa Briganti (1964) and Casa Staderini (1962) in Quarter Clai, and Complex of Fontana Brothers (1966) in Quarter Tacito. Similar to Casa Chitarrini and the middle school built earlier, these works were carefully selected to cover different programs, to occupy important locations in the city and to form a set of works with historical monuments. Casa Briganti was a mixed-use residential block with a large department store in its basement, ground floor and mezzanine, and apartments on upper floors, situated on Corso Vecchio, next to the church of San Pietro; Casa Staderini was pure residential building on the new transversal artery next to a planned (but unrealised) square; Complex of Fontana Brothers was a hybrid of shopping mall, hotel and residence, located on Piazza valnerina near Porta Spoletina. It was impossible to built these projects without scrutinising and re-organising their environment. In fact, the planning of adjacent areas of these architectural projects was carefully preserved in the detailed plans and ended up being the only areas where the conception of the architects remained intact, extending from the building itself to the urban context. The influence of Ridolfi's work on the visual and spatial identity of Terni didn't rely on the completion of his masterplan, but resided in somewhere between architecture and the city.

6F13 View of Casa Briganti from Piazza Solferino, before the apartment on the east side of the square was built. Arrow 1 on the master plan.

6F14 View of Complex of Fontana Brothers from Piazza Valnerina. Arrow 2 on the master plan.

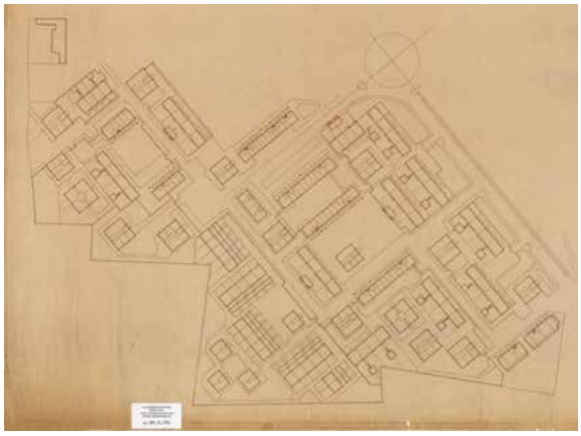
6T8 (Facing page) Integrited detailed plan of the historical centre in Terni, Mario Ridolfi. Including: Quartiere Popolo 1955-1959, Quartiere Duomo 1970, Quartiere Tacito, 1970, Quartiere Clai, 1973. (1:7500).

Dotted lines Borders of each detailed plan.

Light Grey Existing buildings; Dark grey Newly planned buildings; Historical monuments and Ridolfi's built works in schematic plan.


Duomo
Tacito
2
Tacito
Clai
1
Popolo
Clai
Duomo
Popolo


ROMA QUARTIERE TIBURTINO K7

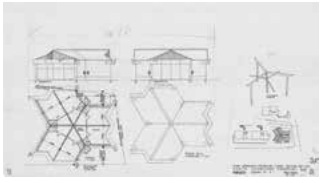


7.1 Premise and reference

Zooming in on Piazza Spada, the radiating axes also served as a major compositional apparatus. These axes may not seem to recur in other planning works of Ridolfi, but they did recall some of his architectural works based on central plan and polygonal geometry. It is already discussed that in Ridolfi's works, same compositions were apt to be applied in different scales, manipulating elements varying from urban planning to architectural details. Thus it would be helpful to see how the architect responded with the geometrical theme with every singular buildings. In 1950s, the prevailing geometrical composition in Ridolfi's works was two types of centralised pattern: hexagonal based and octagonal based figure, or *ad triangulum* and *ad quadratum* geometry, which were exemplified in two residential districts, Tiburtino and Treviso.

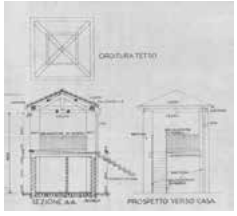
7.1.1 Ad Trianguglum geometry (The threefold division)

In the master plan of Tiburtino (1950-56), although the layout was not often recognised as regular, there was certain pattern to be found, like when the large residential blocks trifurcated, the branches were always at 120 degrees. 7F1 This composition was based on the joint units developed by Michele Valori, which was three living units arranged around the staircase enveloped in equilateral triangle. Quaroni extended them on three directions to form continuous and winding row houses. Ridolfi's own interpretation of this geometry was represented in the seven-storey residential towers, in which the three living units were organised more like a pinwheel, with trifurcated axes visible in between. Apart from the overall plan and composition of basic building units, three point geometry was also applied in some secondary structures in this district. In Ridolfi's drawings there were these shops based on a structural framework of six radiating axes, dividing the building into six units, continuing the compositional motif. 7F2



7F1 (Facing page) Master plan n. 6, residential district in Tiburtino, Roma, Mario Ridolfi, Ludovico Quaroni and others, 1951. FRFM CD 99/I/(c)/. Ad triangulum geometry was vastly applied, like the long winding blocks and Ridolfi's towers on the right, with the exception of the blocks on bottom left.

7F2 (Facing page) Master plan, residential district CEP in Treviso, Mario Ridolfi, ca. 1956. FRFM CD 120/I/(n)/.



7F3 Shops of group n. 2, plans and elevations, residential district in Tiburtino, Roma, Mario Ridolfi, 1954. FRFM.

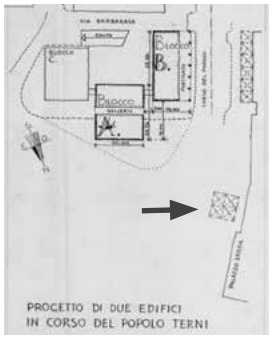
7F4 Storehouse type b, plan, elevation and section, residential district CEP in Treviso, Mario Ridolfi, ca. 1956. FRFM CD 120/I/2^{XII}/.

Ad Quadratum geometry (The fourfold division)

This arrangement was more explicit in the residential district in Treviso (1956-63), since the project didn't incorporate others' works. The difference in the composition between the two consecutive projects was the theme figure; In the Treviso plan it was the square. Buildings and infrastructures followed the orthogonal coordinate, defining central open spaces as regular quadrilateral, there were also courtyard houses equally divided into four units. 7F3 In respond minor structures such as the storage houses of the row housing were all roofed in pyramid hip. 7F4 The geometry was further exploited in details. Thanks to the ironwork craftsmanship, Ridolfi was able to customise a series of decorative pattern for the grille of the light in the front door, based on *ad quadratum* geometry, 7F5 just like variegated mosaic forms based on fourfold geometry seen in roman houses or early christian churches.

7.1.2 Mess hall, pavilion and the square

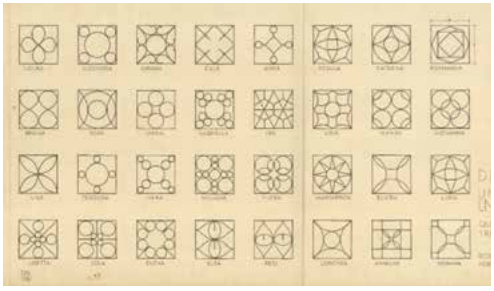
Both hexagon and square motif recurred in many other projects of this period, the former appeared especially in the planning and architecture of prisons (Cosenza, Nuoro) and social housing, while the latter was used mostly in nursery schools (Ivrea, Poggibonsi, Treviso). In the variant plan of Corso del Popolo, the two motif also existed, even though they were found in some less noticeable spots. At the south end of Corso del Popolo, a small building, probably a kiosk, was depicted in a hexagon, while next to Piazza Spada there was this two-storey, 10m-by-10m pavilion. Although it seemed to be random choice of form and had never been built, it did present some information relating to the compositional motif of the square, if we believe that Ridolfi would use common theme for the square and singular structures alike.

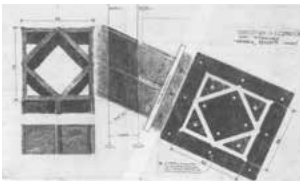


The pavilion was already developed in place at an early stage before other major buildings of the square. According to the preliminary study of Viale Spada, it was covered by a pitched roof, with arches on the ground floor and vertical windows on the first floor, almost like a market building in the central square of a medieval city. 6F10 Later in the master plan of Casa Franconi, Ridolfi actually indicated the structural layout of this building, the trusses followed the diagonal lines and a smaller square inscribed in the larger one. 7F6 This framework immediately recalled the visible structural system of the mess hall in the nursery school in Poggibonsi, a project with controversy for its pillars of historicism. The four pillar of this hall weren't located on the corners but in the middle of four sides. The trusses that supported the hip rafter of the pyramid roof rested on top of these pillars, formulating a smaller square that had turned 45 degrees, freeing the four corners of the hall from load-bearing structure. Not only the structural layout corresponded to the delineation of the pavilion of Piazza Spada, the two structures were actually of the same dimension (10m×10m), Ridolfi must have thought of and referred to the mess hall when conceiving the design of the pavilion, even if the idea never left the paper. The planimetric pattern of this structure was typically an example of *ad quadratum* geometry that recurred in many of Ridolfi's design. In fact, the pavement of the hall made from polychromatic ceramic tiles, repeated the pattern as if it was projected from the ceiling to the floor. 7F7 In this way Ridolfi had merged compositional, structural and spatial system into the same course.[21] No wonder when the project was published with its floor plan on the front cover, it was the paving pattern that was emphasised instead of the solid walls that could represent the delicate composition of the classroom units. 7F8

This pattern was used more explicitly in the projects in Terni. In the residential block of Complesso Fratelli Fontana (1959-66), for instance, there was this decorative structure suspended from the ceiling of the entrance hall, positioning the series of rotated squares on different level. 7F9 More well-known detail was the latticed window cut diagonally from terracotta tube whose transversal section represented the same pattern, 7F10 which was applied not only in country houses but also the facade of Casa Franconi on Piazza Spada. The pattern of the mess hall was comparatively complicated, the position of the beam not only indicated the sequence of inscribed squares but also incorporated a rotated square congruent to the one delineated by the trusses (the largest square in red to the one in black). These figures altogether emphasised on the mid-points as well as the endpoints of the space, pointing towards eight directions, just like the axes of Piazza Spada.

7F6 Master plan of Casa Franconi, with the small pavilion in pyramid hip roof next to Palazzo Spada, Mario Ridolfi, June 1959. FRFM CD131/I/(a). In this drawing, the structural system of the pavilion was represented in dashed lines.





7F5 Chart of the geometric patterns developed for the ironwork of the light of the front door (*Rostrine inserite sui portoncini*), residential district CEP in Treviso, Mario Ridolfi, ca. 1958. FRFM.

7F7 The multifunctional hall of the nursery school in Poggibonsi, Mario Ridolfi, 1955-1964.

7F8 The front cover of Casabella-continuità 249, March 1961, featuring on the ground floor plan of the nursery school in Poggibonsi, the paving pattern of the central hall was highlighted.

7F9 Suspended decorative structures in the foyer of the residential block, the complex of Fontana brothers, Mario Ridolfi.

7F10 Making of the typical unit of lattice window from terracotta tube, Mario Ridolfi.

7.2 The visible and invisible order

The situation would be much more complicated when it came to the buildings immediately around Piazza Spada, where the order was relatively obscure. The composition had much to do with the aforementioned radiating axes, while at the same time it also resulted from a synthesis of multiple factors, such as historical fabrics, volumetric control, visual and topographical connections. Inasmuch as Palazzo Spada was chosen as the city's town hall, the environment in its immediate vicinity was to be reorganised, transforming the backyard into a new urban space with the help of existing historical palaces and church, and a cycle of architectural intervention (marked up in 7T1-a), including Casa Franconi consisting of three blocks, Casa Pallotta of two, a new monumental elevation added to the rare side of Palazzo Montani, a two-storey pavilion next to Palazzo Spada, and other buildings more as backdrops.

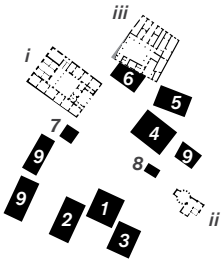
"Here the task was not simply to harmonise the old with the new, but also to create a new public space the citizens of Terni would be able to identify with - in addition to Palazzo Spada, the medieval Rotonda di S. Salvatore to the east and the eighteen-century Palazzo Montani to the north also had to be taken into consideration. The first step towards transforming this amorphous area into genuine urban space had already been taken as far back as 1959-63, when Ridolfi and Frankl built the Franconi and Pallotta Houses to the east... these new buildings harmonise not only with each other but also with the Rotonda and the other existing buildings without detracting from the flexibility of the existing arrangement. But the area still lacked coherence - it had no formal or functional focus and so no real identity."[22]

It is generally believed that the composition of the square was not complete until new town hall (Palazzo Uffizi Comunali, 1963-70, 1978-) was conceived, which is not true, because the idea of the new town hall emerged before the completion of the entire cycle of works, that had interrupted the system conceived in 1950s. In 1963, Casa Franconi and Pallotta were already under construction, but the buildings on the opposite side were permanently suspended, Ridolfi started to study the new town hall instead; it was the same case with the renovation of Palazzo Montani. Therefore to understand how the square was originally envisaged, we still had to go back to the variant plan.

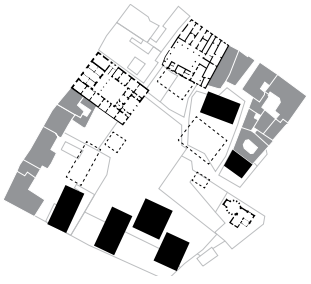
7F11 Piazza Spada in 1930s. White line The axis of the new street Viale Spada.

7T1 The composition of the buildings around Piazza Spada (1:7500).

a. Historical monuments and new buildings of the variant plan. i. Palazzo Spada ii. San Salvatore iii. Palazzo Montani 1-2-3. Casa Franconi Block A, B & C 4-5. Casa Pallotta Block A &B 6. New elevation of Palazzo Montani 7. Two-storey pavillion 8. Rectory of San Salvatore 9. Other buildings
b. Relationship with th existing and demolished.
c. Orientation and alignment.
d. Topography of the square.



a



b

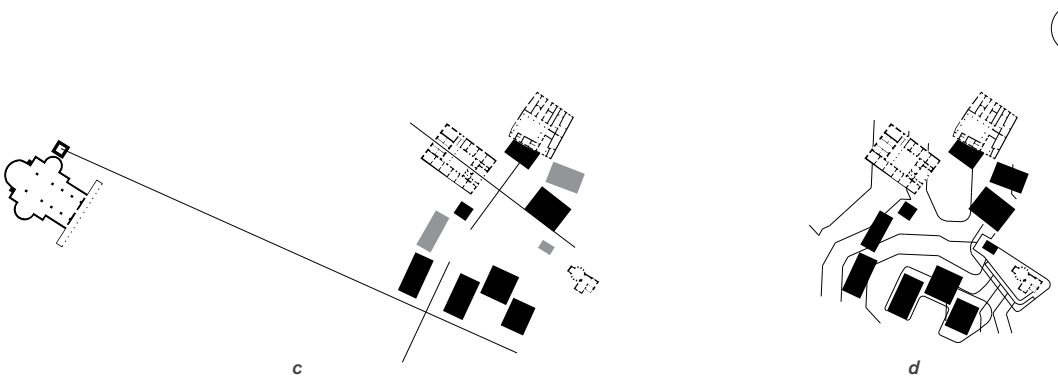
7.2.1 The context

Comparing these new buildings with demolished urban fabrics, there were some obvious correspondences. 7T1-b The orientation of block B of Casa pallotta followed the border defined by remained residential blocks. The buildings on the south side, although staggered, followed the historical property line and maintained the original street view to the bell tower of the duomo far beyond. 7F12 7T1-c The orientation of the buildings was also established by visual axes. Accordingly the set could be divided into two groups of buildings, one was Casa Franconi and the house on the opposite side of Corso del Popolo, which followed the axis to the bell tower; while the other, including block A of Casa pallotta, the Pavillon, and the new elevation of Palazzo montani, accorded with the orientation of Palazzo Spada. The relationship between the central axis of Palazzo Spada and Casa Pallotta was the same case as the axis of Corso del Popolo and Viale Spada. Two monumental buildings were not axial aligned but deviated instead, with the central axis of one building conducted to the corner of another. This relationship was later enhanced by the corner composition of Casa Pallotta, which was the terminal object in sight in the atrium of Palazzo Spada. 7F13 Both group of buildings created an almost rectangular semi-enclosure with the pavilion at the centre, together with the space between Casa Franconi and pallotta, the square extended to three directions in correspondent with the arrows of the paving pattern.

Topography was another major concern. It was also the part that endured the largest alternation. Before the war, the church, the palace, as well as the gardens in between, were situated on the same level, while the street in front of the church was several metres below the terrace. A narrow and winding lane to the north of the church connected the different level and accessed the church from the north. 7F11 Viale Spada was completely new to this area, breaking through the gardens and connecting the square and the lower part of the district via a giant slope. 7T1-d S. Salvatore was kept on a triangular terrace accessed from the south through a ramp and a staircase. The slope extended towards south and created a topography different from the group of buildings on the north. The major block of Casa Franconi were situated on a gentle slope, without a levelled slab of the ground floor as the datum as in Casa pallotta.

7F12 View of the bell tower of duomo from the back street of Casa Franconi (Via Ercole Barbarasa). Block B of Casa Franconi on the right.

7F13 View of the corner of Casa Pallotta (block A) from Palazzo Spada's atrium.



c

d

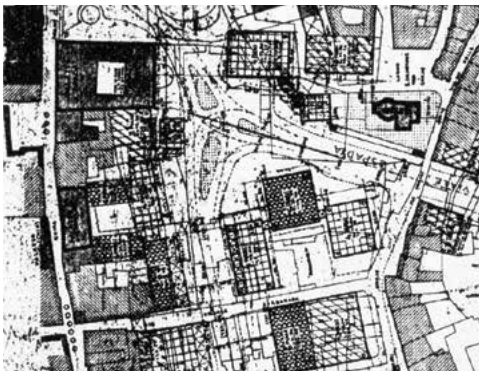
7.2.2 The centre

The geometric scheme of Piazza Spada never appeared in any of Ridolfi's drawings nor sketches that dedicated to the project, but its numerous connections to his works on the square were more than coincidence. The remaining question was: when did the architect came up with this idea, and how the idea was implemented step by step. On the other hand, the scheme could be divided into three relatively independent components, the central point, the axes and the figures, which would be helpful to understand the design process and ponderation of the architect.

The idea of a literal central point, or the origin of composition, stemmed from the concept of building a new city centre in Piazza Spada. It was clear that the centre came into being as early as the initiation of the variant plan. In 1957 version of the plan, despite that the paving pattern didn't exist, the central point was already in place, indicated by several green islands that separated the traffic (at that moment when Piazza Spada was still conceived as a node of transportation). 7F14 The location of this centre was not independent but relied on the intersection of axes as discussed in previous texts. Ridolfi utilised monumental objects dispersed in the whole city as resources to establish the centre of Piazza Spada, while at the mean time the square found its place in the city.

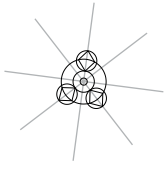
Ridolfi expounded the existence of this centre in a straightforward manner but didn't seem to disclose the relationship between the centre and adjacent edifices on his plan. The circumcircle of the paving pattern (circle 0) made of travertine had a radius of 21.9m, which was also the distance from the centre to the southwest corner of Casa Pallotta (block A). This correspondence was probably the only non-axial correlation between the pattern and the layout of the buildings. 7T2

From the paving pattern to the imaginary axes, there was a gap between the number three and four. The pattern pointed towards three directions, while the skeleton it took form from was a fourfold division. The former represented the actual site, the latter, an ideal geometric motif, which was the key to unravel the layout of the square and the set of buildings.



7F14 The early version of the Piazza Spada on the variant plan, Mario Ridolfi, 1957.

7T2 The centre, the axes and the geometric relationship to built works. (1:7500)



7.2.3 The axes

Without a doubt the axes were the medium between old and new. They were derived in different period of the project, and based on the relationship between the potential centre of the square and the monuments in the city. As a summary of previous analysis, an interesting feature of the four axes (or eight, considering the division resulted in eight lines from the centre to the periphery at equal angles of 45 degrees.) was that they were realised in different ways, including:

l_1 - A diagonal line connecting three squares.

l_3 - The central axis of a new road initiated by Ridolfi.

l_2 l_4 - Two sight lines towards different bell towers in the city.

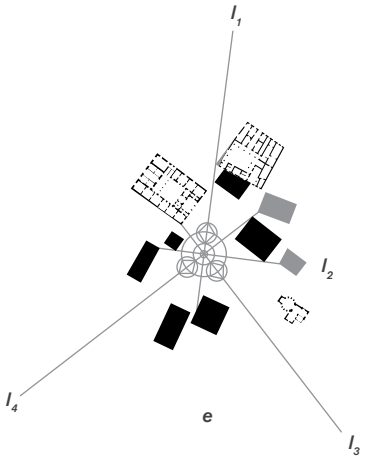
While Corso del Popolo, as the main concern written in the title of this project but not an idea appreciated by the architect, was not in the system.

Thus the multiplicity created by variegated form of individual buildings also presented in the significance of the axes.

Moreover, after all these operations it seemed that the composition of the set of buildings still maintained a certain degrees of flexibility in complying with the radiating axis system. Apart from the two axes (l_1, l_3) already discussed in last chapter, which brought Palazzo Montani, Spada and Casa Franconi into the system, the placement of Casa Pallotta and other secondary structures also followed the same rules. Every building in this set contacted with the axes on at least one endpoints, but none of them followed the direction of the axes. 7T3

Imagine someone standing at the centre of the paving pattern and looking along the eight directions indicated by the axes, between every two axes there would be a major elevation (blocks in black and the historical buildings) in sight which was fastened to an axis by its corner.[23] These elevations didn't overlap at all but formed a continuous visual enclosure, disregarding the depth of field. The secondary buildings (blocks in grey) were also linked to the axes by their corners but did not present any frontality.

In reality, this composition becomes hard to perceive, not only because of the incompletion of essential parts or interruption of superfluous elements, like plantation blocking the view, or the pole of street lamp occupying the centre of the pattern to make it unreachable, but the geometry was at the first place an implicit order the architect made little effort to manifest. With the topographical operation and the relationship with historical context and existing monuments on the foreground, the radiating geometry was kept like a secret language Ridolfi spoke only to himself.



7T3 The axes and the buildings. (1:7500) Black blocks Buildings between the axes; Grey blocks Buildings on the axes.

7.2.4 The figures

From the centre of the square, different options of central plan could be developed as compositional apparatus, but it would be promising to believe that it had something to do with the ad quadratum geometry of the pavilion. In examination of the distances between the buildings and the centre of the pattern, even more correspondences were found that the location and orientation of the buildings was never arbitrary but carefully studies. This was impressive considering that Ridolfi didn't start with a blank sheet, there were historical buildings, streets already defined, thus how to incorporate new and old into a consistent system was the problem of utmost importance.. The analysis below unveils the interaction between every singular objects on the square and the components of an overall abstract geometric pattern.

Circle 1, r_1=40m

The two major residential blocks built by Ridolfi, block A of Casa Pallotta and Casa Franconi, shared a common distance to the centre from some of their corners. For Pallotta it was two corners on its diagonal line, and for Franconi two corners of its compositional units that formed a swastika-shaped plan (structural system of singular building was involved here which would be discussed in details in following texts). Thus a circle with a radius of 40 metres was derived that passed through the two buildings.

Square 1 & 1', $l_1=20\sqrt{2}$m

Two congruent squares could be derived based on the circle and the axes, rotated by 45 degrees, that defined a basic pattern of the ad quadratum geometry. Some volumes in the cycle of buildings were related to these squares. For instance, Palazzo Spada, the corner where the building met the axis of Viale Spada was also on the mid point of a square. And the small pavilion as well, one of its corners was also fastened to the square. The rectory of San Salvatore was related to the intersection of the two squares.

Square 2, l_2=80m

The second square was circumscribed about circle 1. Some secondary structures were related to this square, such as block B of Casa Franconi, a building in trapezoid shaped plan attached to existing houses behind Pallotta, and the new monumental facade of Palazzo Montani. The diagonal line of the square was also the diagonal line of the three squares. The cantilevered eave of the existing part of the palace touched this diagonal line.

Circle 2, $r_2=40\sqrt{2}$m

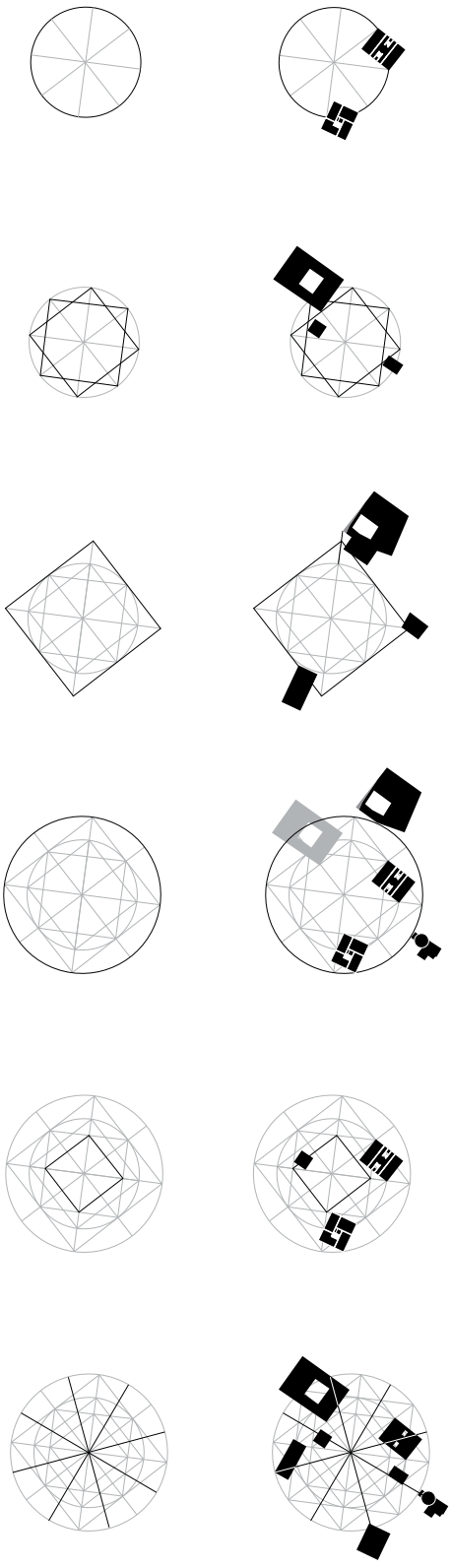
To develop the pattern outwards, circle 2 which was circumscribed about square 2 was found. This circle almost set a border between old and new. The existing part of Palazzo Montani and the church of San Salvatore were located outside of the circle, whereas the two major works of the architect, block A of Pallotta and Franconi, were just inside.

Square 3, l_3=40m

To develop the pattern inwards, there was this third square inscribed within square 1. It was like the real scope of the open space since it was mostly free from built object. The major blocks of Pallotta and Franconi were just located outside of the square. The exception was the small pavilion, which was right on the boundary of the square at its very centre.

Four secondary axes

Apart from the four major axes already scrutinised in previous chapter, there were also four secondary axes defined by the intersections of the two congruent square. Together these axes divided the space into sixteen sectors. Similar to the major ones, these axes also bore close relationship to the objects on the square. However, it was the centre and midpoint of the volumes that mattered. First of all, the axial relationship between the pavilion and San Salvatore. One of the axes seemed to pass through the centre of the two buildings (for church the dome), with the rectory building deviated on one side. Another axes also went through the centre of Casa Pallotta, the midpoint of the rear side of Palazzo Spada. Moreover, the intersection of these axes and circle 2 also accorded with corner and boundaries of the objects.



7T4 Diagram of the composition of buildings on Piazza Spada.
(1:7500)

7T5 Demolition plan, southeast quadrant of Terni, overlapped with the four axes. (1:2000) Solid black lines Property lines in 1930s. Pale white blocks Houses demolished during and after the war.

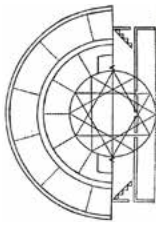
7T6 Renovation plan, southeast quadrant of Terni, overlapped with *ad quadratum* geometry, based on Ridolfi's variant plan in 1959. (1:2000) Darker volumes Existing buildings; Lighter volumes New buildings.

7.3 The city placed on stage

7.3.1 The dimension and composition of a theatre

Similar to what he did to the middle school, Ridolfi once again utilised the nearby monuments as the reference for dimension. In Quartiere Duomo, not far from Piazza Spada, the relics of roman theatre was occupied and built over by a residential block, whose curved form was still visible from the shape of the block. The ancient theatre hasn't been excavated, but Ridolfi carefully delineated the form of its foundation on his detailed plan for this area. To compare its dimension with Piazza Spada, it was surprising to see that the circles who defined both forms were almost identical, in a radius of 40m. It was the boundary of the roman theatre, and, according to previous analysis, also the circle 1 where Ridolfi's major built works on Piazza Spada were related.

There was even more references to theatres in the city. On the opposite side of Via Roma, the main body of Teatro Politeama (built in 19th century, destroyed and restored as a cinema) was also enclosed in a circle, whose dimension (radius approx. 22m) corresponded with the lower auditorium of the roman theatre. This circle (circle 0) was borrowed to define the dimension of the paving pattern on the square. With these references the concentric circles on Piazza Spada literally stood for 'a theatre within theatre'.



The geometric scheme developed from the 40m circle on the square continued to follow the scheme of ancient theatre, especially the two congruent squares inscribed within the circle, complying with the direction of the axes, which could be related to greek or roman theatres described as a circle containing equilateral triangles (or squares, or other polygons, depending on dimension and the number of the sector) centred on the orchestra, which provided the basic unit of measure for laying out the stage and auditorium. 7F15

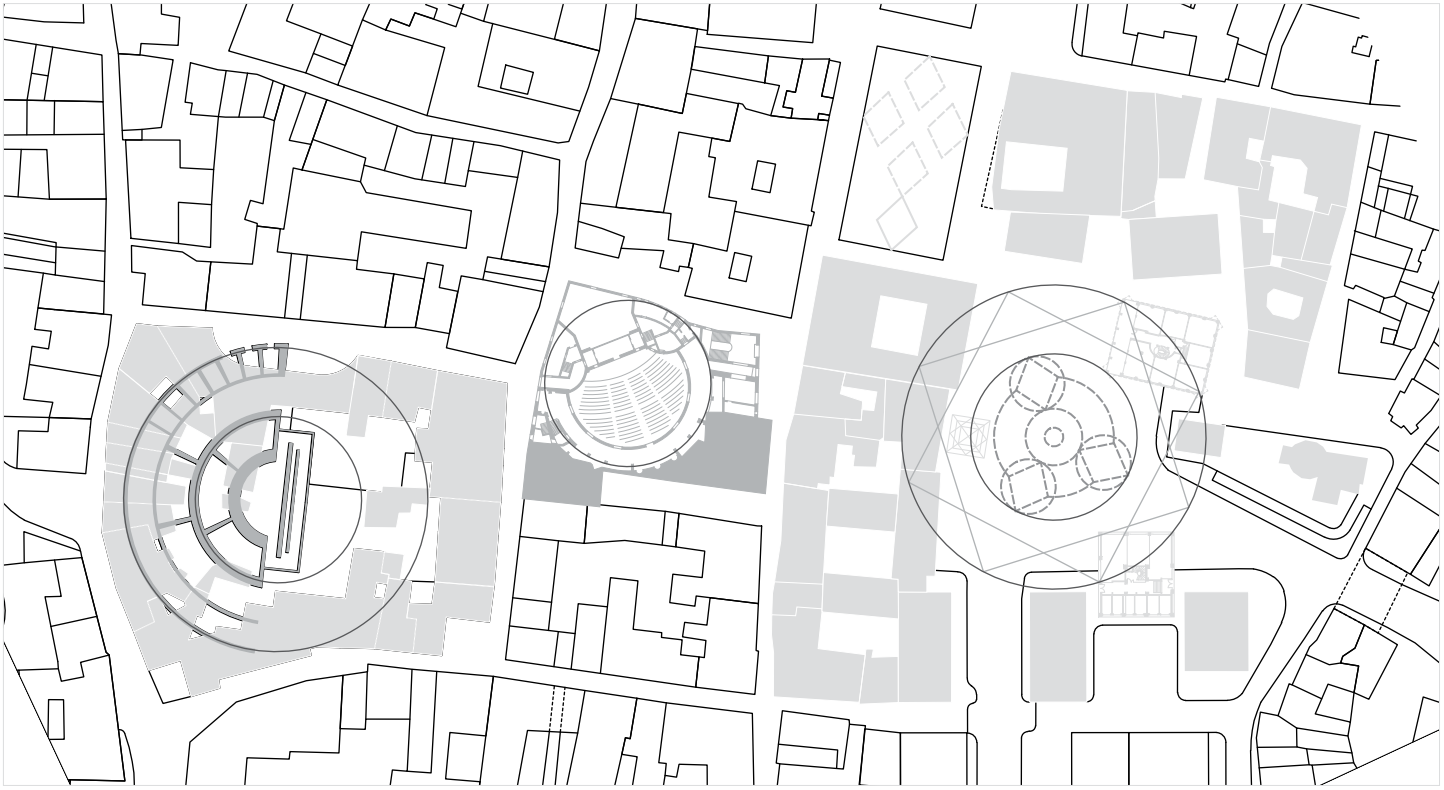
The reference of theatre wasn't a random choice, considering that Ridolfi had always considered his of approach to urban intervention as scenography, in which the standpoint and sight lines played an important role in visual control, so that the audience could see exactly what the scenographer had calculated. The visual axis connecting Largo Villa Glori with San Francesco discussed in Part II already exemplified this manner. In Piazza Spada there were eight axes as such, and the buildings around the square as a 'scenographic set' were all related to them. So if the square was a theatre, where should the audience stand and what could they see? Ridolfi had already described two scenarios via long street sections and perspective drawing along the axes, namely Viale Spada and the diagonal line across the squares, but the rest of the view could only generate from the geometric centre of the square, indicated by the paving pattern which was similar to the spot marked up by a marble plate on the ground of the church, to provide the best perspective to appreciate the fresco on the dome or the ceiling above the nave. Thus Piazza Spada became a panoramic theatre with the auditorium located in the centre.

The central plan of a theatre was also a metaphor of the world, which was particularly meaningful in Ridolfi's works in light of his conception that compositional apparatus was consistently appropriated to every aspect of the project, from construction details to the scope of an entire city.

7F15 Geometric composition of a typical roman theatre.

7T7 (Facing page) The comparison of dimension of the 'three theatres' in the centre of Terni. (1:2000)

a. Relics of roman theatre under a residential block, ca. 1st century; b. Teatro Politeama di Terni, 19th century, based on the restoration plan of Luigi Piccinato, Marcello Piacentini, 1927; c. The paving pattern and the geometry of Piazza Spada, Mario Ridolfi, 1959.



a *b* *c*

7.3.2 A window, a courtyard, a square and a city

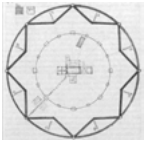
The geometric pattern based on fourfold division was a common iconography shared by various cultures, which was widely used to construct the image of the world. In Terni, it was first and foremost a symbol of the framework of the ancient roman city, established on the *cardo-decumano* system. The subdivision, eight point star created by two congruent squares inscribed in a circle, as well as the depth of the fractal structure, matched the image of ideal city in renaissance period based on the theory of Vitruvius. The figure itself symbolised the idea of a city. 7F16

However, there was also a direct reference of this pattern in the facade of the cathedral in Terni. Under the portico of the cathedral, on the left side of the portal, there was an decorative niche, lozenge-shaped, with a further square inscribed to form a deeper concave. 7F17 A head of a lamb was engraved on the vertex of the frame, which was obviously a religious symbol. This unusual feature could be dated back to 12th century when the sculptor contributed it to a patron whose ashes were preserved in the crypt of the church.[24] As an architect who was involved in the projects in Terni since 1930s, it was impossible that Ridolfi would have ignored this outstanding detail and stayed irrelevant. It was transformed into a certain type of window found in many built works such as the complex of Fontana brothers, or the small houses in the suburbs, as well as the prefabricated terra cotta tube as a basic unit which was generally applied in his projects.

The motifs didn't remain merely as construction details. As a matter of fact, the mess hall at the centre of the nursery school existed since the very beginning, conceived as a 'temporal courtyard' (*cortile provvisorio*), while the L-shaped corridor assumed the character of a short portico.[25] The geometric figures used as a reflection from the roof trusses to the polychromatic pavement, represented the atmosphere of a pubic space. A city's square is a 'large courtyard', the geometry once adorned the mess hall became the dominating but invisible order of Piazza Spada.

As the figures were derived and accumulated in Piazza Spada, the basic geometry scheme became almost identical to that of the mess hall of the nursery school in Poggibonsi, as well as in the small pavilion, since Ridolfi probably appropriated the structural system developed for the mess hall to the pavilion. 7F20 The same pattern was represented twice, in different scale, once in a reflected ceiling plan and the other an overall plan of the square. Since the side length of hall/pavilion was 10m, while their counterpart in the pattern of composition (square 2) was 80m, the ratio intermediating between the dimension of architecture and the city was 1:8.

a



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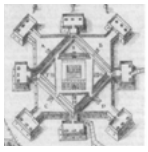


c

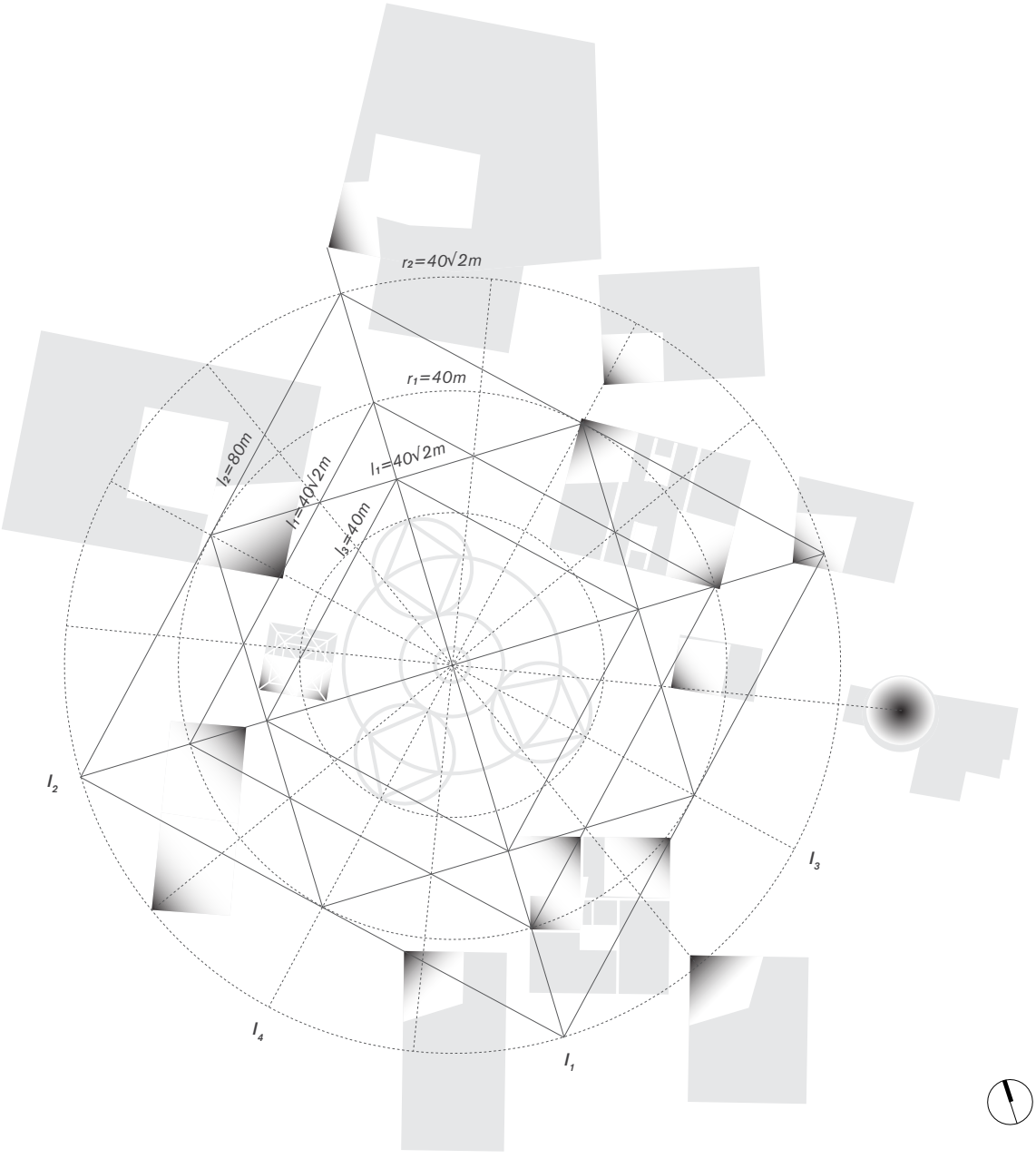
It was remarkable that in Ridolfi's works, same geometrical motifs recurred in various scales, but what's more important was the process of making. It was the same case as the roof trusses or terra cotta tube, the presence of a symbolic figure was never claimed without a proof. It could be the delicate construction system or the performance of material in support so that the form actually functioned. The underlying geometry of Piazza Spada was derived from the interrelationship of existing and new elements rebuilt on site, allowing all the individual edifices, although never aligned or attached to each other, to coexist in a intangible integrity.

7F16 a. Cardo-decumano system, the theoretical base of Roman city consisted of two axes, four quadrants; b. Plan of Sforzinda, a visionary renaissance ideal city, Antonio di Pietro Averlino; c. Plates from the treatise Il cavaliere (Vicenza, c. 1 550), Giovan Battista Minio.

7F17 The lozenge-shaped window in the wall on the left of the portal, Cattedrale di Santa Maria Assunta, Terni.

7T8 (Facing page) Superimposition of the *ad quadratum* pattern to the master plan of Piazza Spada. Corners of the buildings related to the axes and figures are marked in darker grey. The pattern and the structure of the small pavilion were figures of similar type, size of which at the ratio of 1:8. (1:1000)

Variant of the reconstruction plan



7.3.3 The oblique view

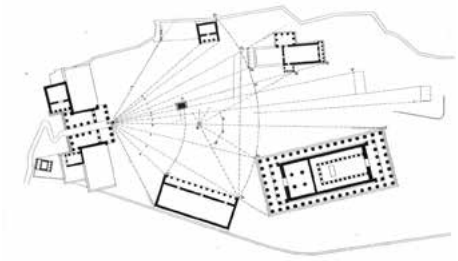
The correlation between the pavilion and the overall geometry in the square was another proof that the same compositional apparatus was appropriated consistently to the elements of various scale in Ridolfi's works, except that in Terni it was a special case. Here the appropriation of geometric scheme was simply straightforward yet so obscure. In other cases like Tiburtino and Treviso, Ridolfi never imposed the entire geometry of a single building onto the masterplan but rather continued the same geometric attribute in variation. In Piazza Spada, however, the geometry, although applied without modification, was deliberately concealed from untrained eyes, devoid of any superficial regularity. The motivation behind could easily be attributed to the particular context Piazza Spada, in contrast with planning projects based on tabula rasa, so that Ridolfi would probably like to attempt something different and more site-specified.

The means to achieve such vagueness was actually quite simple. Although every building on the square was related to the pattern, there wasn't a single facade overlapping with the figures nor the axes. All the connections took place at endpoints, while the orientation of buildings was constantly oblique. The only embodiment of this order, the paving pattern, deviated from representing the true form of the overall composition, which was reasonable to believe to be on purpose. Judging from the discrepancies between the final version (1959) of the variant plan and the early version (1957), the layout of the square was not carried out as a whole. The location of Casa Pallotta and the small pavilion was shifted towards the referential lines presented by the figures. By overlapping the two plans, the direction of design development was clear that these buildings were eventually adjusted to correspond with the geometry at their endpoints.

This manner of composition of a set of buildings could be related to the theory of the composition of greek cities, which was seen in the interpretation of August Choisy and later, the analysis of Constantinos Doxiadis. They defined the principle of 'geometrical relationships between a fixed point (a pole) and certain points in the perimeter which were geometrically determined according to their distance and angle from this fixed point'[26], so that from the viewpoint, the monuments could be situated at different distances and in various orientations, but still form an overflowing backdrop rather without overlapping with each other. 7F18 The compositional apparatus was obliqueness combined with the displacement of axes. As a result the layout represented a concept of well-balanced picturesque order, instead of rigorous symmetry, axial alignment or uninterrupted enclosure.[27]

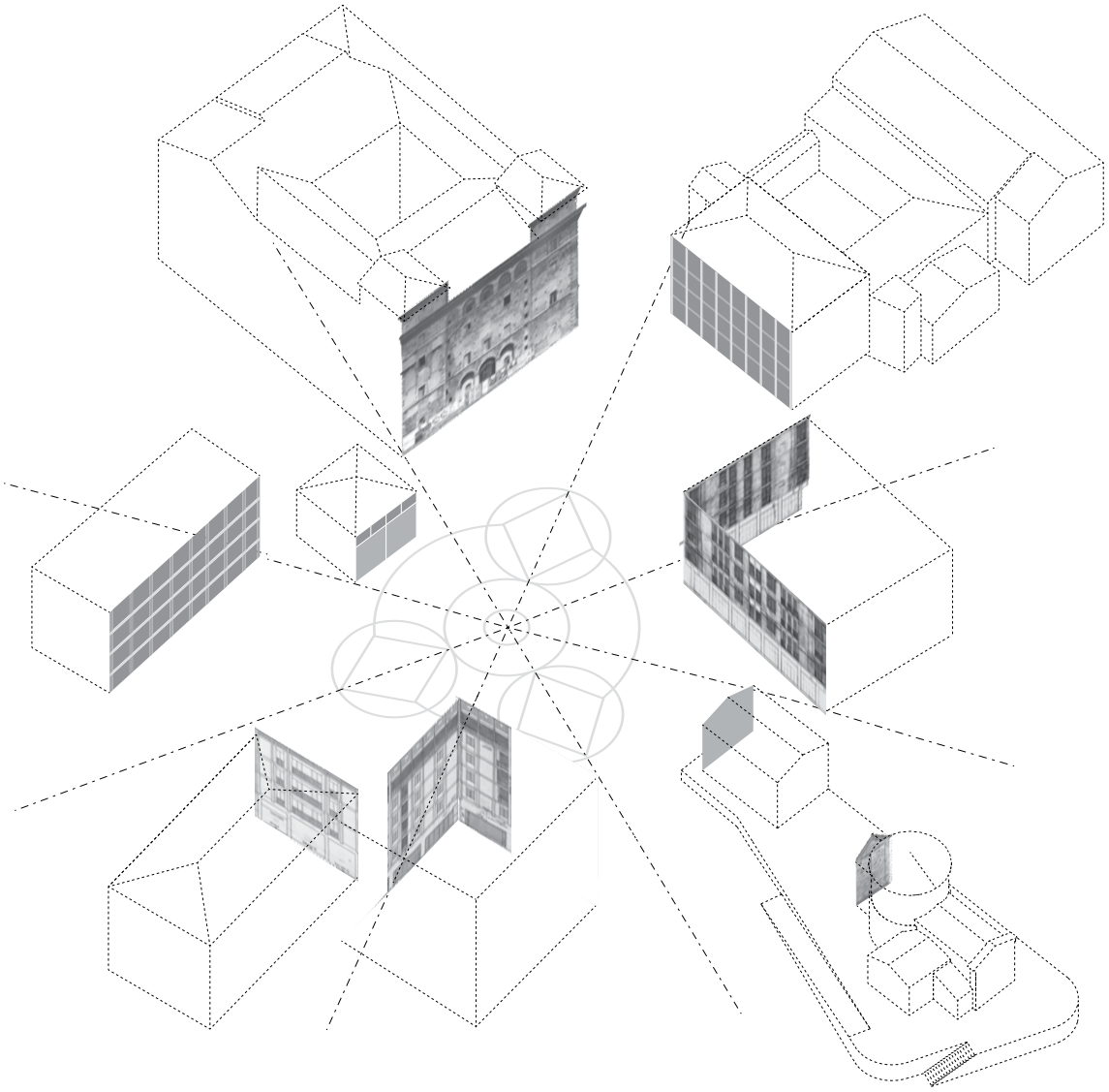
In the end, Piazza Spada had presented a carefully calculated irregularity on the base of a central plan. Despite that all compositional apparatuses Ridolfi had resorted to were deeply rooted in history, the combination of centrality with obliqueness was a novel experiment in Ridolfi's career that took place exclusively in Terni.

7F18 First view of the Acropolis; First View of the Parthenon. Graphic analysis of the geometric principle in the composition of Acropolis, Auguste Choisy, *Histoire de l'architecture*, 1899.



7T9 (Facing page) Axonometric diagram of Piazza Spada, showing the relationship between the radiating axes and the building façades.

Variant of the reconstruction plan



7.4 New master plan with the municipal offices

The project of the new municipal office didn't break the balance of Piazza Spada. Although the final result led to a mansion even more grandiose and monumental than the existing two, Casa Franconi and Pallotta, or even Palazzo Spada, the study of this project never stepped away from the overall composition of the square and successfully established a new order of trinity.

The design process was long and tedious, during which numerous versions had been produced[28], some seemed to be totally tentative and irrelevant, almost in the same course like what Ridolfi did for Casa Lina, except that the driving forces behind these variegated approaches were much more complicated than the architect's own will. Examination on the site strategy of the project and its relationship with the whole square would be helpful to unravel the puzzle.

Another important factor was the history of the site. The project started in mid-1960s after the mayor acquired the three heavily damaged renaissance palaces (Palazzo Fulvi, Fabri and Pierfelici) next to Palazzo Spada and attempted to transform the whole complex into a new municipal hall. In the process of cleaning up the site the remains of a small chapel were revealed which was supposed to belong to Spada Family. Since then the project was driven by requirements from the preservation of these historical buildings.

The different versions of the project could be categorised in three directions. The first took place in 1964, whose main conception was to contain the relics of the chapel within the new building. The apse of the chapel was coincidentally located on one corner of square that formulated the geometric pattern of Piazza Spada, so the main body of the new municipal hall as the receptacle was also related to this figure, taking its corner as the central point. In this stage, it was conceived as a 6-storey volume in a rectangular plan of 25m by 27.5m, comparable to that of Casa Franconi or Pallotta. The restored palaces at a height of three stories was treated like a podium. Although the tower had different choices of location, it remained within the border defined by the largest circle (circle 2) in the pattern.

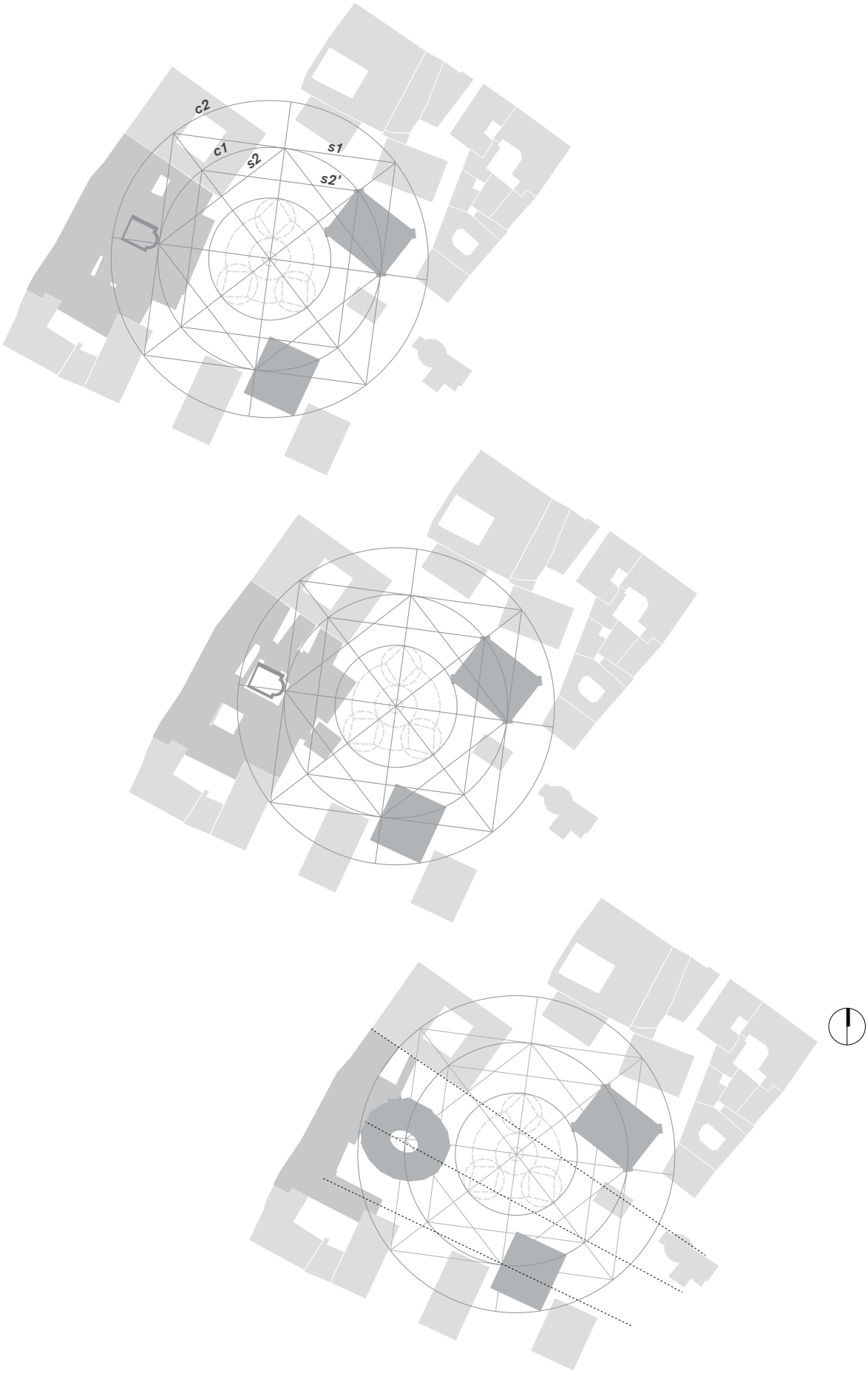
The second group of approaches appeared in 1967, which dedicated to preserve the chapel in an courtyard. The footprint of the complex increased, while the 'box' was reduced to a church-like object in a central plan (18m by 18m) accommodating merely the council hall (sala consiglio) as an attachment to the podium, and projecting into Piazza Spada. The conception of this structure was similar to the small pavilion on the variant plan to balance the the square, since at one time Ridolfi even relieved the pavilion as the entrance loggia of the municipal hall. In regard of the whole pattern, the new hall was inscribed in circle 1, sharing the same location at corner with square 2. Both the first and second group didn't preserve much of the palaces apart from the facades and the stairwell.

After a long interruption the project resumed in late 1970s, when the prerequisite of historical preservation inverted. The chapel was eliminated from preservation but the structures and interior spaces of three palaces had to be intact. In this respect, the program of the new building was once again compacted into a monolithic volume, this time, a polygonal tower of six stories and an attic, attached to the palaces only through the stairwell. The form of the building evolved from an elongated octagon into a sixteen-sided figure close to an ellipse, both echoed with the geometric motif of the square. The location continued the early conception that had much to do with the geometric figure of Piazza Spada: the centre of the elliptical plan was on one of the axis at the corner of square 2, while the entire floor area was contained within circle 2, just like Casa Franconi and Pallotta. But

7T10 (Facing page) Site strategies of Palazzo Uffici Comunali, with superimposition of the floor plan categorised in three groups. (1:2000)

Group A: Small chapel preserved within the new building, four versions, 1964.
Group B: Small chapel preserved on the ouside, five versions, 1967.
Group C: Small chapel not preserved, three versions, 1978-81.

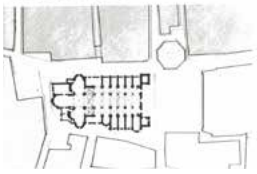
Variant of the reconstruction plan



contrast with the two, the new building occupied two of the eight sectors instead of one, claiming its dominating position on the square, and the new focal point of the city.

The final version, which was signed by Ridolfi in 1982, was polygon divided into sixteen sectors enveloped in a rectangle of 30.5m 26.5m, whose dimensions intermediated between that of Casa Pallotta (20m by 26m) and Palazzo Spada (29.1m by 41.7m). The volume, usually described as an oval (uovo), or according to the architect himself, the 'bin' (bidone), was flanked by convergent interfaces that resembled a classic setting of urban architecture, like the baptistery building seen in Parma, Cremona, or Florence. The central axis of the oval equally divided the angle defined by the interfaces. The oval element already existed in many of Ridolfi's projects, such as his early competition project, Palazzina Signorile in 1927, or Complesso immobiliare INA Assicurazioni in Campobasso (1949-52). 7F22 While in Terni, Ridolfi also had the proposal in the variant plan (1957) to insert an semi-underground cinema under an oval canopy inside the block next to Piazza Europa. 6T8

In the end, neither the variant plan in 1959 nor the new municipal office has been completed. The location where the office should erect are left over in a void. The incomplete status definitely affected both the perception and function of the square.



7F19 Master plan of Piazza Duomo, Parma.

7F20 Model, Complesso immobiliare INA Assicurazioni in Campobasso, Mario Ridolfi, 1949. FRFM.

7T11 (Facing page) Renovation plan, southeast quadrant of Terni, overlapped with *ad quadratum* geometry, based on Ridolfi's variant plan in 1959 with Palazzo Uffici Comunali. (1:2000) Darker volumes Existing buildings; Lighter volumes New buildings.

8 The duality of Casa Franconi and Pallotta

The attention Casa Franconi and Pallotta had obtained from professional media didn't match their position in the reconstruction project of Terni. As the culmination of Ridolfi's career before his retreat (besides the unfinished Palazzo Uffici Comunali), they were barely seen in any publications. Obviously, their historical references combined with low technics and craftsmanship didn't ingratiate themselves with the volte-face of architectural practice taking place in mid-1960s, but it was more convincing that they were not published as much as Casa Chitarrini and the middle school because they didn't initiate anything but simply appeared as the combination and reinterpretation of the architects' repertoire. In regard of the general regulations Ridolfi made for the detailed plan, both two buildings ended up deviating from the norm in favour of their outstanding position. Nonetheless, the significance of Casa Franconi and Pallotta didn't reside in singular built works, but in their interrelationship with each other as a set of interrelated buildings on the square and the approach to re-organise the architectonic elements to conform with the scenario.

8F1 Piazza Spada, from the perspective of Viale Spada. Casa Franconi on the left, Pallotta on the right.

In the light of the overall arrangement of Piazza Spada discussed in the previous chapter, the composition of singular building would be easier to understand. Since the objective was to produce multiplicity from each individual element while maintaining the consistent compositional motif. Following the fourfold division of the square, the pavilion repeated the same pattern on a smaller scale, while the schemes of Casa Franconi and Casa Pallotta delved into the variations of ad quadratum geometry.

Both projects were speculative condominium with mixed use on lower storeys, commissioned to Ridolfi in late 1950s, conforming strictly to the plani-volumetric regulation made by the variant plan. As a consequence, there wasn't much necessity of plastic operation on the building volumes; studies of these projects concentrated on internal organisation, development of structural system and presentation of architectonic features.[29]

Each of the commissioned projects consisted of a primary and a secondary block, named as Blocco A and B. Judging from their appearance, the two blocks of Casa Franconi would be easier to be recognised as a set, while block B of Casa Pallotta was the least adorned, probably because of its less favourable location in the corner. But in regard of composition, in order to put more emphasis to the major ones, both secondary blocks were kept simple and less relevant to the geometric theme. Unlike the pavilion, Casa Franconi and Pallotta were rectangular, and responded to the geometric theme in different approaches, which was evident in their structural layout. Casa Franconi, often attributed to Frankl, had an unusual swastika-shaped plan, in which each slab was divided into four sectors orienting differently, with the patio and staircase located in the centre. The plan of Casa Pallotta was like a square elongated in both directions. Four original quadrants of the square were kept identical at the corners of the building, while the space in between was differentiated. The emphasis of the structure was on the corners, where the protruding bay windows oriented diagonally.

8.1 *Palazzina*, from Rome to Terni

8.1.1 Palazzina romana

Palazzina romana, according to Portoghesi, was a type of freestanding residential building whose form and volume were defined exclusively by the planning law in early 20th century during the urban sprawl, devoid of any functional or technological requirement. Although unlike earlier works in Rome, the buildings on Piazza Spada were called '*casa*' instead of '*palazzina*', they did share many aspects with this tradition and could be seen as the variation and development of this typology.

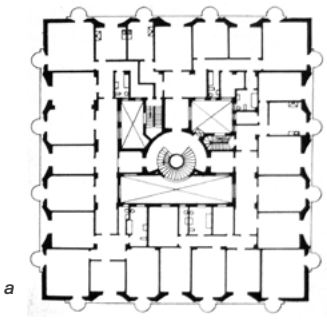
The conspicuous difference between a *palazzo* and a *palazzina* would be the size; following the reduced planimetric dimension, the central atrium of a *palazzo* was shrank to some narrow patios in palazzina for merely ventilation and illumination. The appearance of *palazzina romana* followed the orientation of the site, which was typically continuous rectangular properties with only one or two sides facing the main streets. Therefore it was common that the architect left the rear facade unadorned, in contrast to the others, such as in Palazzina Nebbiosi in Lungotevere Arnaldo da Brescia by Giuseppe Capponi (1927). There were also exceptions when the building confronted with more urban context, the four facades of the palazzina were equally adorned with identical features, such as Palazzina de' Salvi in Piazza della Libertà by Pietro Aschieri (1929-30). 8F2-a Both cases were featured in the essay of Portoghesi, addressing their canonical composition and 'kinship with the minor building of the Baroque city'.[30]

Palazzina of 24 apartments was one of the projects Ridolfi presented at the second Exhibition of Rational Architecture in 1931, later published in Architettura e Arti Decorative, along with the projects by Aschieri and Capponi.[31] This project, although never been built, could be seen as a model that inherited from the tradition of palazzina romana and his later works in Terni. First, it contained some direct references to Palazzina de' Salvi, especially in the circular form of the balconies and the continuous cornice that connected them. 8F2-b The former was familiar since it had been translated into expressionistic angular forms in Casa Chitarrini (1949-51) as well as many other projects, while the latter was found in like Palazina Mancioli II (1958-62) or Casa Pallotta(1960-64). Besides, there were other characters of this model, such as the syncopated window on the main facade and the loggia on the sides, that had prefigured the same features in Casa Pallotta. 8F2-c

Between this imaginative project and the buildings on Piazza spada, Ridolfi had accomplished in Rome a number of residences which were actually named as palazzina. These works could easily be separated into two groups according to the timeframe defined by the war: one was Ridolfi's rationalism period, including the renown Palazzina Rea (1934-36) and Palazzina Colombo (1935-38), the other

8F2 Typical plans and perspectives of palazzina.

a. Palazzina de' Salvi in Piazza della Libertà, Rome, Pietro Aschieri, 1929-30;
b. Palazzina of 24 apartments, Mario Ridolfi, 1931;
c. Casa Pallotta, Terni, Mario Ridolfi, 1960-64.



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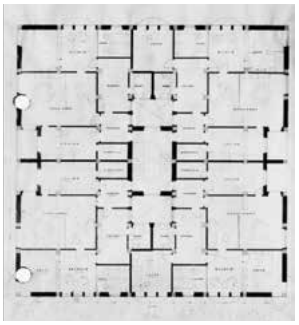


b

was the postwar expressionism period, including Palazzina Zaccardi (1950-54) and Palazzina INAIL (1952-56). Many compositional and tectonic elements of the buildings in Terni had been gradually formulated and developed through the practice and experiments of these works in Rome. Unlike the two precedents Portoghesi addressed, these projects were located in typical generic suburb, in a disjointed environment without true urban structure. There were certain response to the genius loci that all these projects were based on a function-oriented layout, with jagged configurations, and highly differentiated elevations that followed the program. However, an interest towards quadrilobe-shaped plan was already developed in these projects since the dimension of the palazzina was apt to be divided into four units per storey.

The appropriation of *palazzina romana* to the new centre of Terni had created something both old and new. Casa Franconi and Pallotta were set up in similar dimensions and heights as Ridolfi's *palazzina romana* in the past decades[32], while considering their compact volume and symmetrical composition, they were clearly distinguished from their precedents, and seemed to return to the start point when the architect provided the ideal model of a *palazzina* for the exhibition. In Terni, the independency of *palazzina* was appropriated to a severely destroyed and fragmented city centre, formulating a variegated set of buildings integrating historical and modern. Monumentality was retained in these buildings by means of symmetrical composition, to balance the austerity inevitably caused by the usage of economic materials. The application of exposed framework Ridolfi had experimented for years in public building and social housing had enriched the language of the prototype, along with the nuances of infill structures, enabling the buildings to interact with their environment in different expressions.

From the plasticity of early *palazzina romana* to tectonic expression in Terni, the architects had been engaged in a long-term but unsung exploration of typology, urban context, historical forms and building technics, in order to integrate geometric composition, constructional form and material character to create a new and consistent identity for the civic architecture in Terni, in which the inspiration of many conceptions and features could be dated back to the previous works in Rome.

c

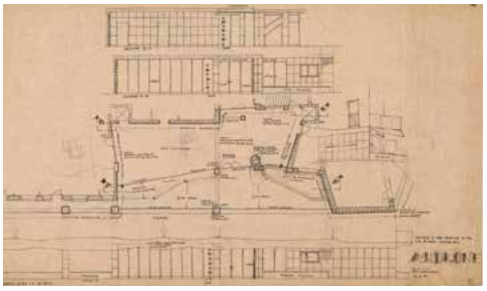
8.1.2 The pilotis and the entrance hall

In critics' eyes, the concrete framework of Casa Franconi almost sent medieval vibes through the verticality created by those buttress-like tapering pilasters on the elevation. This construction system was clearly a development of that of the residential towers in Viale Etiopia and the middle school of 'Leonardo da Vinci', with the exception of the parapets on top and the pilotis on the ground floor. The former, made by concrete frame with terra cotta lattice, temporarily existed in the earlier design of the middle school, where the pitched roof was hidden behind, and according to the architect, it was inspired by renaissance architecture to manifest the urban character of the building[33]. Comparatively, pilotis was a reference to modern architecture, as Ridolfi already intended to blur the differentiation between pilotis and pilaster in the middle school, but with transparency of shopfront in mixed-use buildings and the voids created by cut-out or setback, the existence of pilotis became more manifest. Thanks to these two elements, the tripartition of the facade was clearly defined.

Pilotis, in these cases, was often related to the accommodation of the entrance hall (*androne*), a threshold space between the public and private. Both Casa Franconi and Pollotta had provided unique approaches to this transition, whose precedents could be found in Ridolfi's roman works. In Palazzina Zaccardi, for instance, the pilotis and the architrave facing the street were already separated from the main body of the building, cladded in varnished and hammered cement in pearl grey, in contrast with the smooth and consistent stucco covering the rest of the surface. Similarly, the pilotis of Palazzina INAIL was also emphasised by the roughness of hammered slate (*botticino martellato*). These projects provided a typical solution to enter the building from the street, which was also seen in Casa Pallotta, where the entrance to the shops and apartments above was connected to the public realm by a loggia, that marked up one of the main orientation of the building.

In Casa Franconi it was more complicated since the building was located on a gentle slope, and due to the swastika layout of the load-bearing system, the quantity of the pilotis was reduced. Similar to Palazzina INAIL, where the loggia accommodated both the passage way and the ramp leading to the basement, the height difference of the site was also absorbed into the transitional space. The entrance hall was conceived as an internal lane that separated the shops in the front from the garages in the rear side. In original conception, the internal facade of the lane was also the shopfront enclosed by curtain walls of glass, joined by the entrance to the staircase leading to the residential area on the centre. The steps on one side of the lane had defined the hierarchy of the two ends.

Apart from vertical components, the architrave also belonged to this system, creating a special area for shop signage, as a character of a residential building with mixed-use. In previous works such as Casa Chitarrini, it took from of a longitudinal veil cantilevered from the facade, while on Piazza Spada it was integrated into the volume: In Pallotta it was the beam in-between columns, and in Franconi, as a thick continuous strip in the place of spandrel that together with the pilotis formed the base of the whole building.



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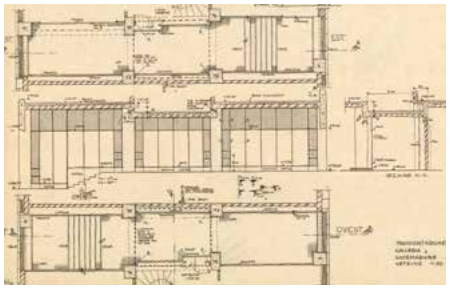


c

8F3 Entrance hall of Ridolfi's palazzina, views and plans.

a. Palazzina Zaccardi, Rome, 1950-54;
b. Palazzina INAIL di Viale Marco Polo (Casa delle Streghe), Rome, 1952-56;
c. Casa Franconi, Terni, 1959-62.

8.1.3 The curb and sopraelevazione

The horizontal stratification in composition of Casa Pallotta resembled Palazzina Manicoli II in Rome, and was later seen in Casa Staderini several blocks away in Terni, that would establish another type of construction form of civic architecture. Two characters could be discerned in this type:

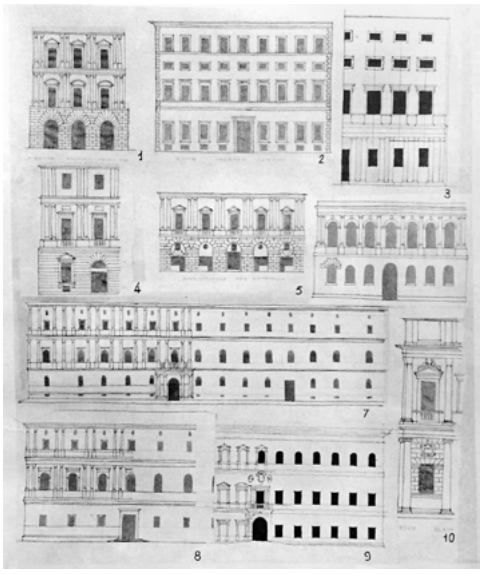
1) Exposed horizontal elements of the structural framework;
2) The constant change of form and dimension of the floor plans.

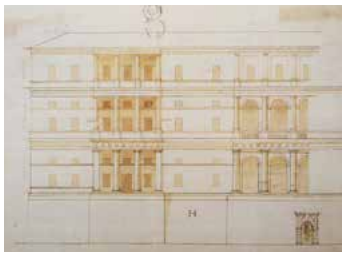
These characters were exemplified by Casa Pallotta, since it almost appeared to be two different buildings had it separated from the middle, which reminded of the image of early projects of vertical extension (sopraelevazione) of existing buildings Ridolfi had completed in Rome, namely Casa Alatri (1948-49) and Villino Astaldi (1955). 8F4

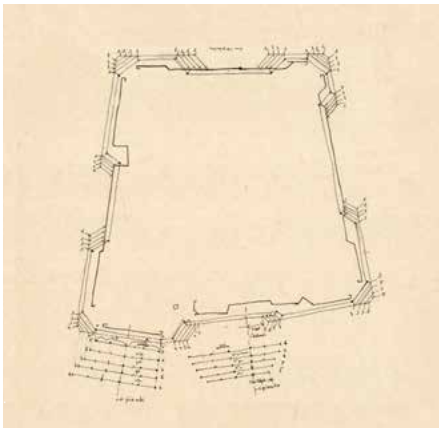
It might not be a coincidence that both existing parts of the building were built in suburban Rome in early 20th century, with an eclecticism style. The additional stories of the house, usually attics or penthouse, took the place of original roof or other upper structures, and sat on a plain and wide platform. In this process the horizontal continuity got emphasised since the end of slabs were always in sight. The extension not only gained more spaces but also fulfilled the requirement of a new way of living which was embodied in 'free plan'. Therefore these parts were usually fluid, spacious and never followed the existing structural or programmatic layout, and with the same respect, the architect had no intention to diminish the contrast of old and new appreciable on the elevation. 8F8 8F9

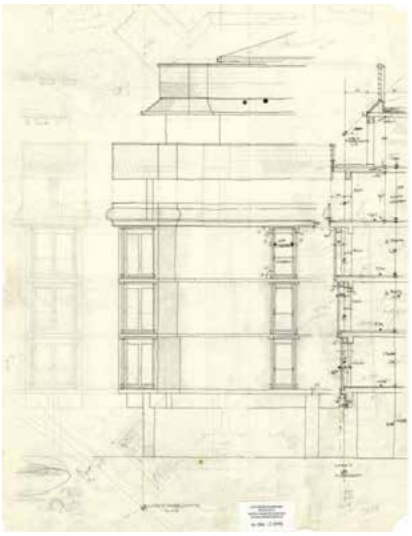
To some extent, Casa Pallotta was also a project of vertical extension, in which two additional attic floors were attached to earlier version volumetrically regulated by the detailed urban planning. Eventually, it was a building consisted of pilotis, three standard floors, loggia, terrace and two stories of attics; the variety of types and components was impressive, even among the standard floors existed subtle changes. From the first floor to the third, the configuration of the plan gradually expanded on all four sides, while the bow window on the corners remained in place. This composition was just the opposite of Palazzo Mancioli II, where the profile of the balconies on the four corners changed from floor to floor, while the facades were aligned. 8F7 'Ridolfi related this building, taking account of the continuous expansion or retreat of its balconies, to Palazzo Farnese that, in effect, in the three stratifications changes in size.'[34] With such reference in mind, it would be easier to relate the curb / exposed ends of slabs to the cornices of renaissance palaces, which was also a key feature of the adjacent Palazzo Spada. Apart from the tapering volume, the distribution of solid wall and perforation on the infill structure was also indebted to classical masterpieces, especially the tripartite loggias of the standard floors were almost identical to that of garden façade of Palazzo Farnese in Piacenza, in the proposal of Vignola. 8F6 However, Ridolfi never focused on such historical reference, since the principle and example inherited from classical buildings was internalised as a fundamental approach to architectonic composition. It would be easy to find the resemblance in composition of Casa Pallotta to the instruction given by Vincenzo Fasolo in the course *Storia e Stili di Architettura*, where large amount of references and analysis was presented[35]. 8F5 After all it was still about how to appropriate certain forms or to construction technics and urban environment.

8F4 Sopraelevazione del villino Alatri, Roma, Mario Ridolfi, 1948-52. FRFM CD83.









8F5 Illustrations from the textbook *Analisi Grafica dei Valori Architettonici*, Vincenzo Fasolo, 1920. Number 9 The front elevation of Palazzo Farnese.

8F6 Proposal of garden elevation of Palazzo Farnese, Piacenza, Jacopo Barozzi, 1560.

8F7 Planimetric scheme of Palazzina Mancioli (II), Mario Ridolfi, Roma, 1958-62. FRFM CD125/I/122.

8F8 Preliminary study of the profile and elevation of Casa Pallotta, Terni, 1960-64. FRFM CD134/I/10b.

8F9 Overview of Casa Pallotta. FRFM.

8.2 Background and design development

8.2.1 Casa Franconi
(Design: APR - DEC 1959; Construction: MAR 1960 - JUN 1962)

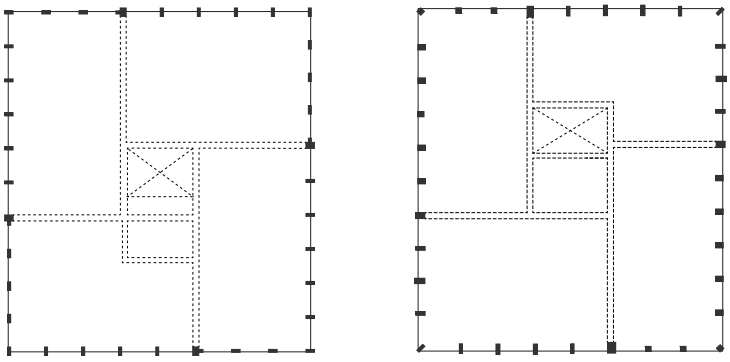
Casa Franconi was originally planned as a group of three residential blocks, but the speculator only invested in two. The third bock was built years later in ridolfian style but definitely not comparable. The project started right after the approval of the variant plan in April 1959 and went through two consecutive phases. But apart from the program and some architectonic features on the facade, the direction was quite consistent. The two buildings had the similar scheme, in which the structure was set in the longitudinal way, two units per storey, with living area in the centre, bedrooms and services on both sides. The layout and orientation also considered the view of adjacent historical monuments and natural landscape from afar.[36]

From June to October 1959, Ridolfi and Frankl made two different version of the projects. Evident differences were presented in the program of the block A. The number of apartment on the standard floor was reduced from 4 to 3, and finally to 2, but the structural layout remained as a pinwheel with four leaves. The staircase was changed from two flights to a spiral one, still enclosed in a rectangular space. Moreover, the 'bridges' connecting three blocks (they were in fact balconies serving two secondary blocks) were eliminated, so that the blocks became absolute monolithic.

The most important alternation between the two version was actually the form and direction of the pilasters. In earlier design, except for the four pillars that supported the giant beam, all the pilasters were identical, it was the orientation of the placement that made the difference. In this way pilasters also complied with the direction of the swastika-shaped plan. In every sector, they protruded on one side, and kept flat on the other. However, in the built version, the pilasters varied, both in their dimension and in the form of the tapering. Two sectors of the four, was conceived with pilasters protruding on both elevations, while the rest the opposite. The difference was more evident on the four corners, since the pilasters now oriented diagonally, which didn't exist in previous plan. 8T4

The mysterious nuances among all these pilasters didn't seem to have a rational explanation. But the new orientation on the corners, was clearly a response to the geometry of the square which was established on a four-fold division and the diagonal orientation was constantly emphasised. Without these pilasters, Casa Franconi wouldn't bear a direct reference in itself to the site in which it was situated.

8T8 Design development of the archtectonic features in Casa Fraconi, block A. The plan shows the profile of slab of each floor and the tapering pilasters in superimposition. (1:500)



June 1959 October 1959

8.2.2 Casa Pallotta
(Preliminary: Jan 1960 - MAY 1961; Finalisation: JAN - DEC 1962;
Construction: JAN 1963 - DEC 1964)

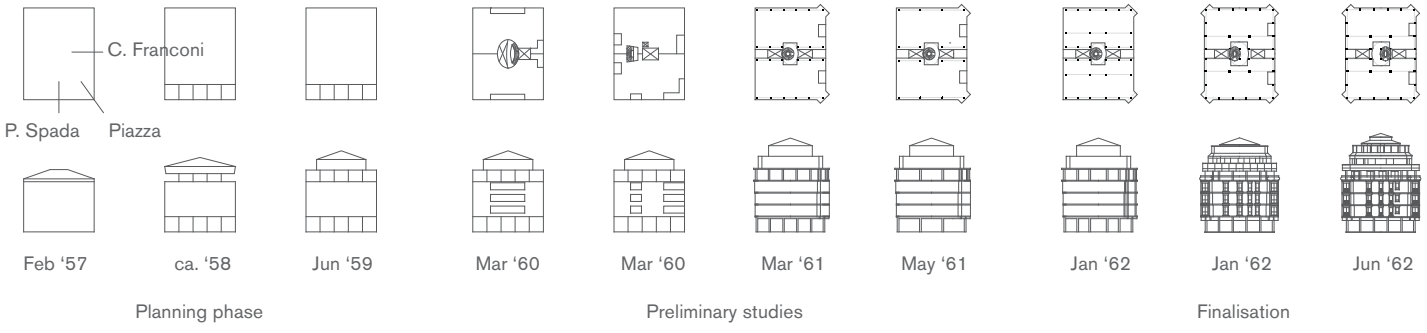
Casa Pallotta was temporarily named after the speculator Immobiliare Torinese as Casa I.T. until 1962, then, after the engineer Pallotta as what it's known today. The project also contained a block A as the major volume and a block B the secondary, which shared a two-storey underground garage whose entrance was located in between. Since the site of Casa Pallotta was a relatively plain field of the whole square and the basement had been re-systemised, the two blocks was actually situated on even platforms. Unlike Casa Franconi, the hierarchy of the two was already explicit in their architectonic expression, as the secondary block not exposed much to the square didn't have with a visible structural framework.

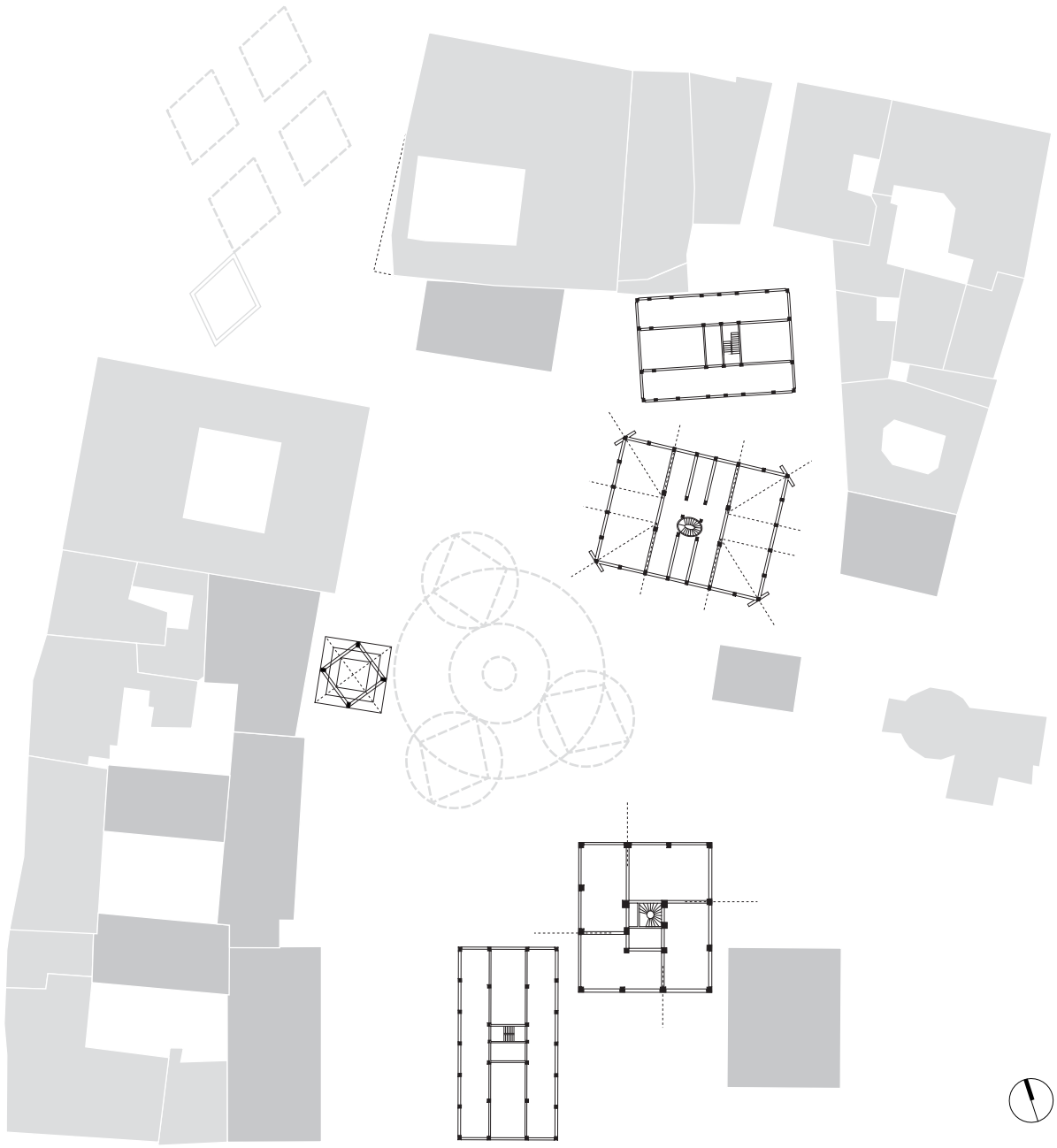
Comparing with Franconi, the development of Casa Pallotta was a long process, during which the ideas were built up gradually to reach the final status. At least the building was not as symmetry as it seemed in the end. Starting from the profile defined by the planning regulation, the volume grew towards two directions: the above and the corners.

The building had two major orientations, one towards Palazzo Spada, the other towards Viale Spada and Casa Franconi. Ridolfi put more emphasis on the first orientation in the planning phase by placing a loggia on the east side of the building, then he studied different options of the location of balconies on the south elevation. The concentration was gradually shifted to the corner pointing towards the square, where the idea of a bow window was first applied, continuing the same architectonic element developed in early 1950s, as in Case INCIS a Messina (1949-52) or Palazzina Mancioli a Roma (1952-54). The bow window eventually occupied all four corners of the building and redefined the order of the grid system. Following the emphasis on the corners, the load-bearing structure had changed from parallel rows of columns, to a closed circle following the footprint while the position of the columns was symmetrical at each corner, taking the diagonal line as an axis.

Although the design process of Casa Franconi and Pallotta didn't overlap, the shared concentration on the corner and diagonal orientation might be the evidence of how they were interrelated, representing the continuity of geometric motif embodied in various scales and objects.

8T9 Design development of Casa Pallotta, block A, from Feburary 1957 to June 1962. Floor plan and west elevation. (1:2000)

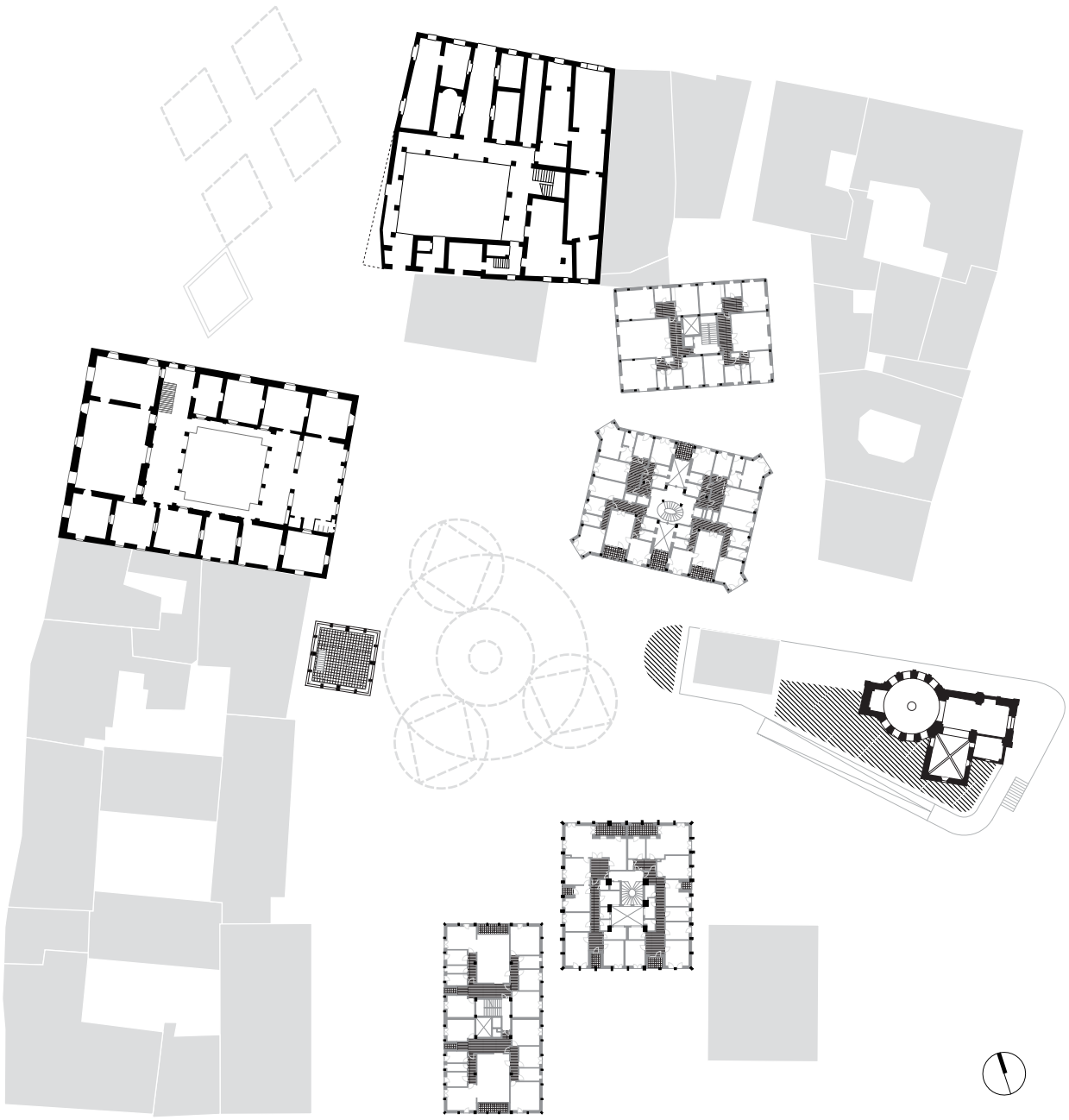




8T4 The master plan of Piazza Spada, based on the variant plan of 1959. Casa Pallotta and Casa Franconi shown in structural layout. (1:1000) Lighter grey Existing buildings; Darker grey Planned Buildings.

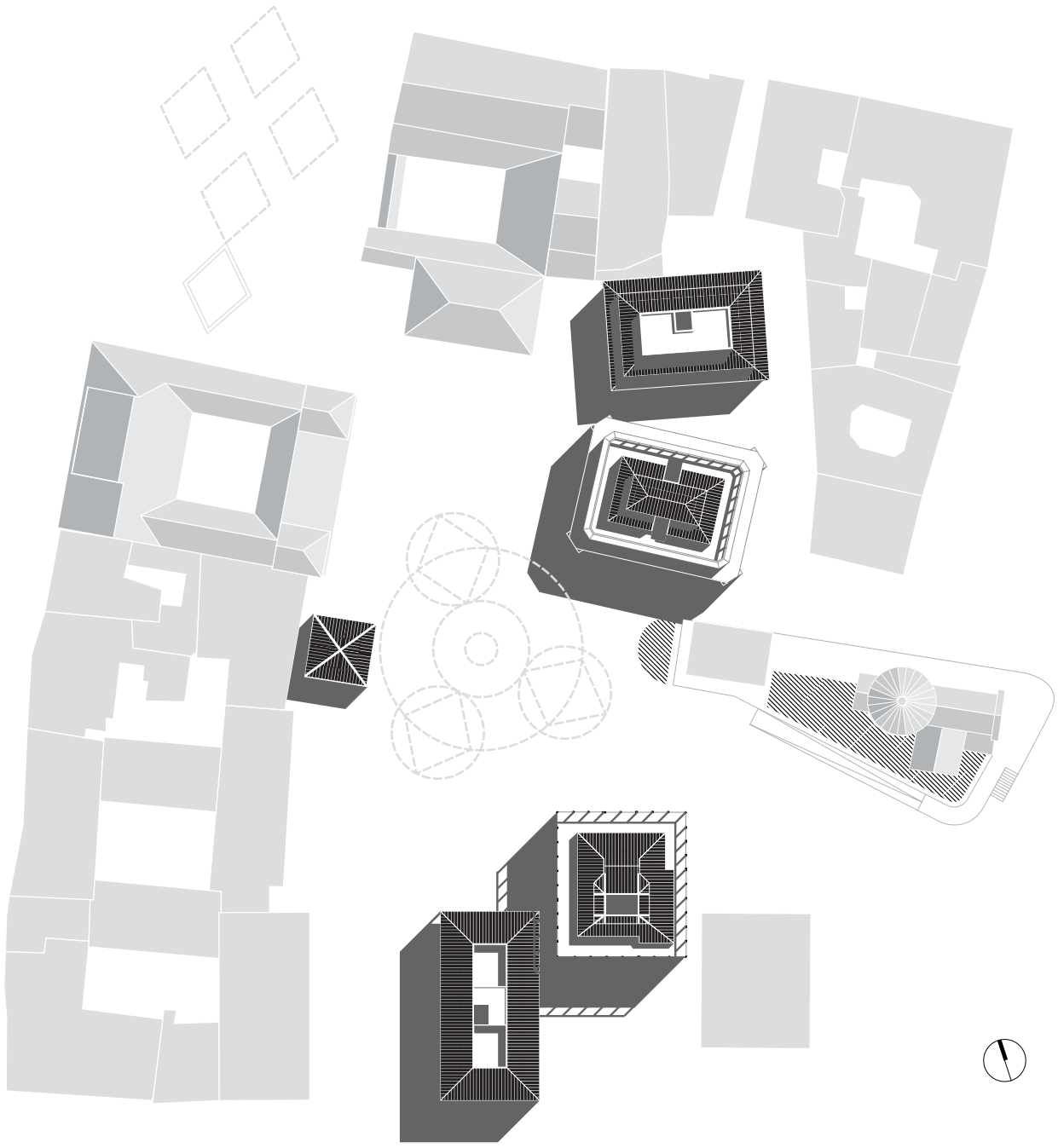
8T5 (Facing page) The Ground floor plan of Piazza Spada, based on the variant plan of 1959. (1:1000)


B
A
A
B



8T6 The standard floor plan of Piazza Spada, based on the variant plan of 1959. (1:1000)

8T7 (Facing page) The roof plan of Piazza Spada, based on the variant plan of 1959. (1:1000)



P. Montani C. Pallotta Pavilion C. Franconi

8T2 Site elevation and section A of Piazza Spada, based on the variant plan of 1959. (1:1000)

8T3 Site elevation and section B of Piazza Spada, based on the variant plan of 1959. (1:1000)

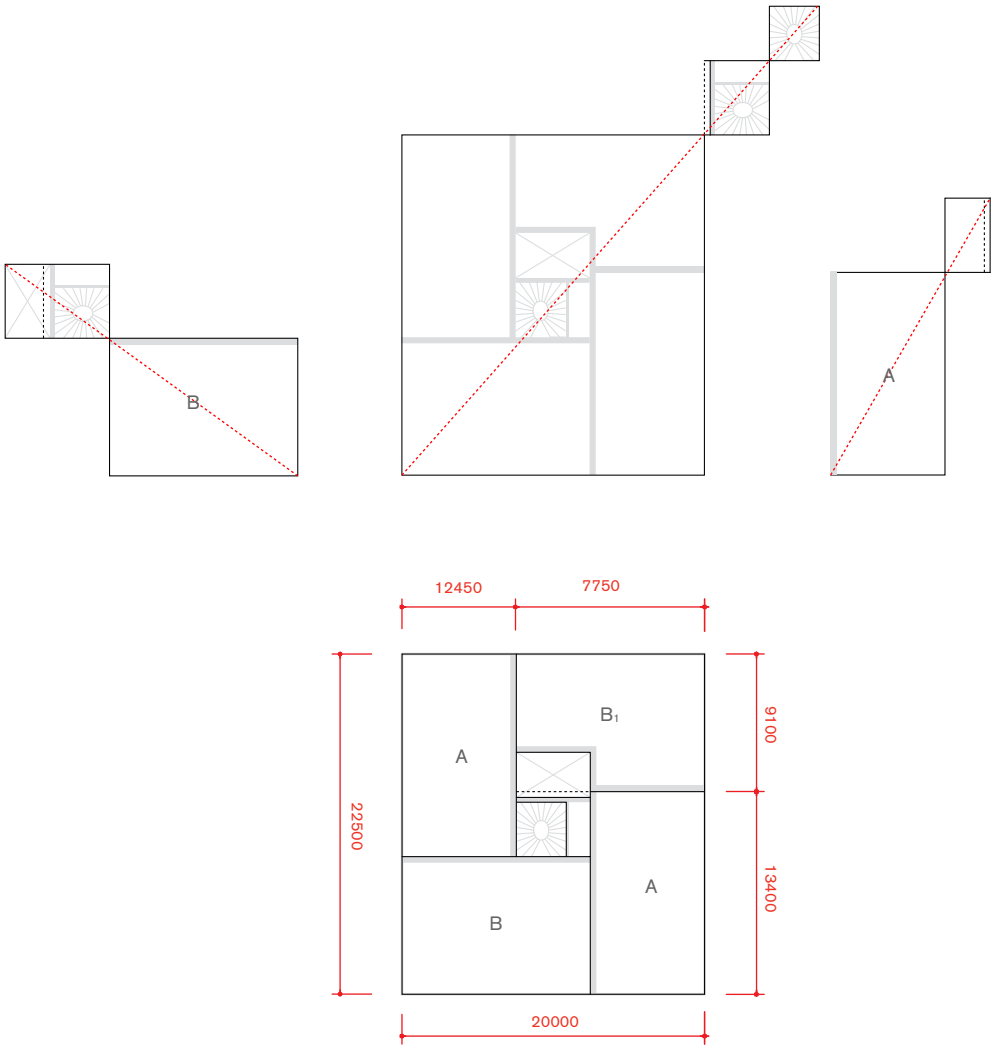
P. Spada P. Montani C. Pallotta S. Salvatore

8.3 The geometry of Casa Franconi and Pallotta

8.3.1 The planimetric composition

The composition of the Plan of Casa Franconi based on the subdivision in the form of a swastika. The original rectangle, in a ratio of 8:9 (20m × 22.5m), was divided into a core and four units arranged like a pinwheel. The two units on the opposite corners were identical. The dimension of the core was then extended, in order to accommodate a patio, a foyer, and a staircase, producing a series of rectangles next to each other, or within another. The trick of the composition relied in the ratio of these rectangles. When the architecture made the first subdivision, the original core (indicated by the dashed line) continued the proportion of the whole plan, and further, the same ratio was repeated in the smaller rectangle that enclosed the staircase. The proportion of the two types of units also existed in smaller scale that the rectangular patio was delineated in the same ratio of unit A, while the extended core as a whole in the same ratio of unit B.

8T10 Planimetric composition of Casa Franconi. (1:500)



The composition of Casa Pallotta:

1) The original rectangle
The footprint of of Casa Pallotta was a 26m × 20m rectangle defined in the variant plan. Following the central axes, the plan could be divided into four equal quadrants with identical composition.

2) The corner squares
The square on the corner with side length of 8.05m was approximately defined by the diagonal line the the half rectangle (20m × 13m), dividing the short side of rectangle in a ratio of 8:5 (8.05m to 4.95m), and the long side in 2:3. Same was applied to the other three corners.

3) The columns in the corner
The columns within the squares were aligned to their central axes, including the ones on the corners to the diagonal lines.

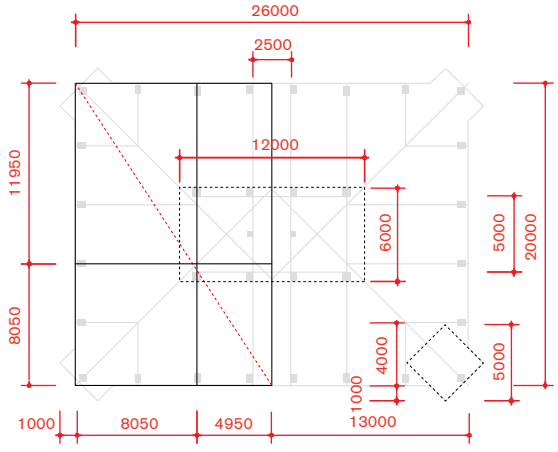
4) The columns on the centre
The rest columns presented another way of alignment, which was the alignment on one side. The four columns at the centre of the long side were set at the distance of 2.5m, while the eight columns that formed a inner circle at the distance of 5m. The intersection of these axes formulated two similar rectangles in the same ratio of 1:2 (2.5m × 5m, 5m × 9.9m), which also defined the dimension of two patios and the attics.

5) The attic
The rectangular boundary of the attic was defined by the four diagonal lines and their extension, which consisted of two identical 6m by 6m square, in a proportion of 1:2.

6) The bow window
The protrusion of the bow window was part of a square whose diagonal line was also 5m, protruding from the original rectangle by 1m. Thus the ratio between the protrusion and the length of the squares was 1:8.

It was clear that in Casa Pallotta the proportion of golden section was generally applied, since the fibonacci numbers such as 1m, 5m, 8m, 13m and 21m prevailed among all the measurements. The diagonal line as the compositional apparatus could be traced back to the middle school, which was consistently used in Ridolfi's projects. 5T3

8T11 Planimetric composition of Casa Pallotta. (1:500)



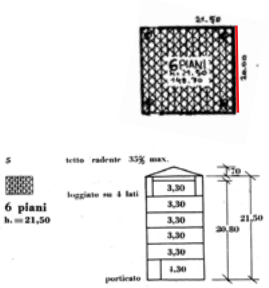
8.3.2 The volumetric control and the elevation

The volumetric control of Franconi and Pallotta represented the creativity Ridolfi had in making and following regulations. Since the two main building blocks were compact volumes rigorously complying with the property lines, the geometry of the elevation took form from the preset regulation, which was clearly defined in the detailed plan in 1959. The realised buildings, although slightly varying from the conceived version, still successfully delivered the original conception to combine the elevation with the plan, and further, with the built environment.

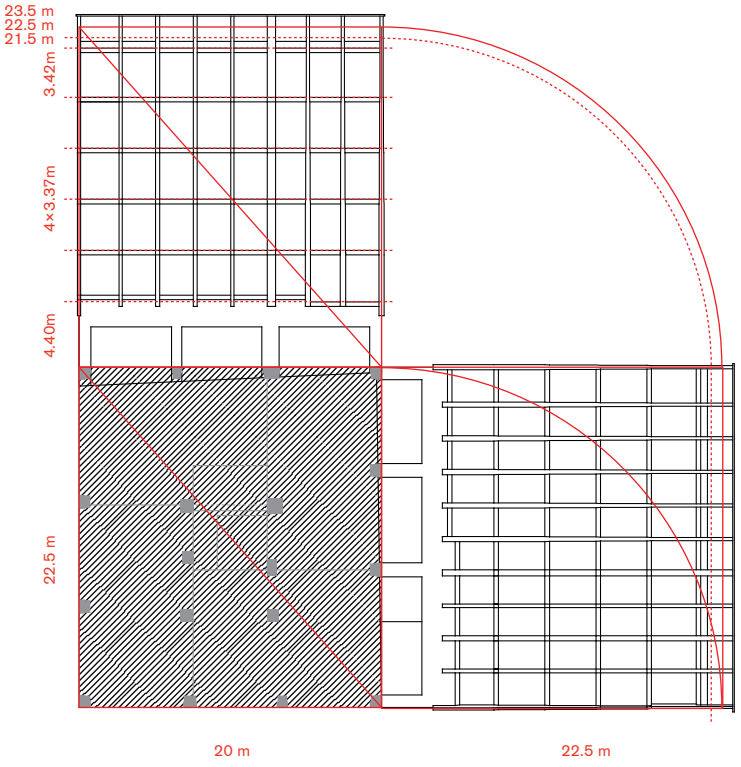
Comparing the detailed plan of the two buildings with their regulation (segni convenzionali e norme), some intentions were already explicit at this early stage. It to notice, that the plan and the elevation had shared the same dimension, which was both the height of the elevation (from the ground floor to the parapets) and the length of the side of the plan. 8F10 8F11 For Franconi it was 21.5m and for Pallotta 20m, which meant, for both blocks:

1) The main elevation was defined by a rectangle identical to the one who also defined the plan.
2) The side elevation was defined by a square.

The square hidden in the elevation was such a crucial compositional element to connect the geometry of individual buildings to the compositional motif of the piazza, since their plans were delineated as equilateral. Above all it was the dimension of 20m, which was shared by both projects, that had directly connected the scale of the buildings to the piazza, in light of 20m being half of the 40m radius (r_1) that encircled the two buildings. 7T8



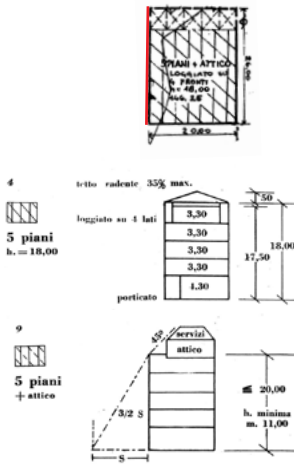
8F10 Regulation of six-storey volume in the detailed plan, Mario Ridolfi, 1959. Main elevation marked in red.
8T12 The geometry of the elevation of Casa Franconi. (1:500).



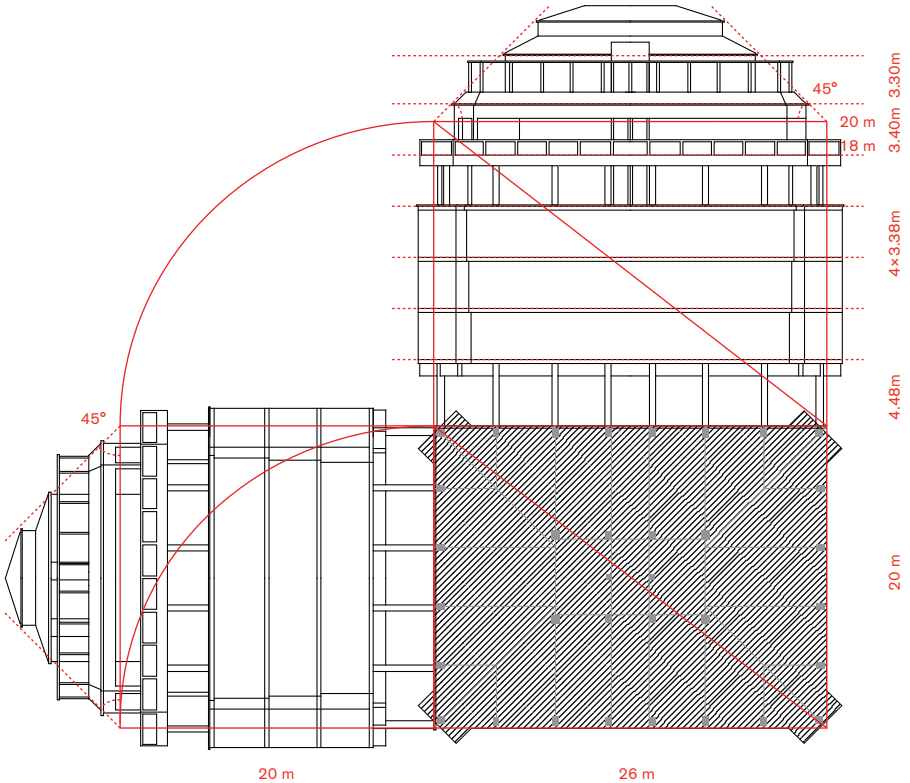
In reality, both projects as built differed from the plan in dimension or composition, while the squares and rectangles still remained. As in Franconi, 21.5m was the breadth of the side elevation and height of the top of the parapet. However, the dimension of this building changed to 20m by 22.5m, and the height raised accordingly. In the end, the height of the elevation was 23.5m and 21.5m was the bottom of the parapet. The breadth of the side elevation, 22.5m, existed in between. 8T12

Casa Pollotta was originally conceived as an ordinary five-storey building whose elevation measured 18m. Due to its unique position, Ridolfi had invented a new type particularly for this building and raised the height of it by adding many stories of attics. In the end the building was five-storey with additional three-storey attics. The volumetric envelope was also unique, since it was defined by 45-degree exposure plane above 20m basic height, while in others it was usually 30 degrees. As a result, the eaves of upper attics strictly followed the boundaries defined by the plane. Considering the geometrical motif of Casa Pallotta which was based on the diagonals of a square, it would be reasonable and a consistent approach to introduce or borrow the angle of 45 degree for the profile of its elevations. In this case 20m was not embodied in any concrete components of the building, but appeared as a compositional elements. 8T13

The volumetric control represented in the dimension and the form of the elevation was clearly an approach to keep the individual buildings in line with the composition of the whole square, while the consistency of the same formal manipulation applied to both projects enhanced the integrity of the buildings in this cycle.



8F11 Regulation of five-storey volume, with and without attics, in the detailed plan, Mario Ridolfi, 1959. Main elevation marked in red.
8T13 The geometry of the elevation of Casa Pallotta. (1:500).



8.4 Urban-architectonic features of the construction system

8.4.1 Casa Franconi

The plan of Casa Franconi was a superimposition of several systems of information. It seemed that the architect made no effort to eliminate the conflicts among them.

First of all, the apartment building on its standard floor was separated into two units per storey, while the load-bearing system had divided the plan into four sections of slabs, set in different orientations, following the form of a swastika. As a consequence, the huge beams (8T13 thick grey lines) in some cases appeared in the middle of spaces, such as balcony or corridors, instead of defining the boundaries in other cases. These conflicts, already existed in Casa Chitarrini and the middle school, however, could be seen as a intentional choice to juxtapose every day spaces with structural components, especially those in considerable dimension no one could overlook.

As mentioned in previous texts, there was also discrepancy between the orientation of structural layout and the pilasters, since the latter, in the realised building, emphasised on the diagonal lines in the corner instead of the direction indicated by the swastika, in order to build up some connections with its companion on the opposite side of the square.

The upper edge of the concrete base was not even, nor did it follow the subdivision of the four units. To arrange the changes of height, the architects deliberately avoided the major columns, in order to create an interweaving quality within the structural framework. Similarly, the tapering plasters met the base in a protruding profile, as if they were tectonic joints rather than being poured altogether.

The interaction between the structural framework and infill walls could be the most impressive operation of this project. The framework itself didn't contain any hint of orientation, since the four elevations were almost identical. This situation altered as soon as the infill walls were inserted, since the enclosure system contained different elements such as solid walls, windows and large openings for the loggias. The hierarchy of orientation was realised via the nuances in the composition of solid walls and openings in different elevations. The symmetrical arrangement of a series of loggias on the north elevation had established the frontality of the building, echoing with the gradually cantilevered slabs of Casa Pallotta by increasing the breath of openings from lower stories up. 8T15 On the rear side of the building there were also two loggias, in smaller size, where the relationship between the pilasters and the openings was quite intriguing. The pilasters, instead of being in the centre, seemed to appear randomly in front of the loggias, blocking the view or creating some unusual apertures, although the size of the loggias was the same from storey to storey. 8T13 This operation had clearly differentiated the rear from the front. Moreover, the structure of the building could be discerned from inside in other forms. On the rear elevation, the windows of the master bedrooms were set on both sides of the pilasters, leaving this structural component in concrete unadorned and exposed to the interior.

The front elevation of Casa Franconi was mostly symmetrical, although there was a series of inharmonious elements not noticeable at a first sight. First of all it was the enormous column, the only structural component, to the right of the centre, in contrast with the thinner one in the counter position. Then, the height of beams also changed on different side of this column, since the direction of slabs differed from within. Last but not least, there was the window of office toilet on the first floor, guised behind terra cotta lattices, which appeared only once in this building. Similar to those on the parapet, the patter was an indirect reference to the geometry of the square. Although some of these elements were not expected in the design phase, the architect didn't try to eliminate them to achieve formal purity but still managed to obtained a well-balanced image.

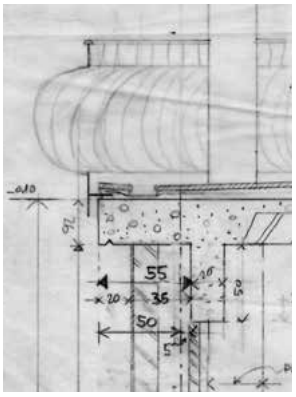
8.4.2 Casa pallotta

Unlike Casa Franconi, the structural system of Casa Pallotta corresponded with its programmatic layout. The load-bearing system of the building was the one-way slab with beam set transversally, dividing the plan into five sections. From centre to both ends these sections corresponded with the traditional space, service areas and the living areas. In the central area there was the staircase, two identical patios, and the service balcony that reconnected the facades.

The apartment building had four units per storey, but the layout of each was not identical. For the special location of the building, Ridolfi defined a main elevation which confronted with Casa Franconi, and a secondary elevation towards Palazzo Spada. The balconies connected to the living room with exposed concrete columns in lozenge profile only appeared on the main elevation, thus the orientation of the units on back side was shifted towards the sides. As a result, although the building appeared to be strictly symmetric, there was nuances even on each elevation of the standard floors. 8T14

The basic module of the infill structure was the ceramic tile, whose breadth (b) and height (h=2b) measured 11.5cm and 23cm, in a proportion of 1:2, which was part of the overall proportion system that appeared multiple times in different scale. Installed in a seamless manner, all breadths of the openings and intervals were set as integer multiples, for example, the height of lintel was 1b, all breadths of the chamfered corners was 1h, the dimension of the chimney was 7b by 5b, the size of the window varied from 10b, 14b, to 22b, the height of the infill walls of the standard floor was 13h+b… Therefore in most cases it was not necessary to cut the tiles.

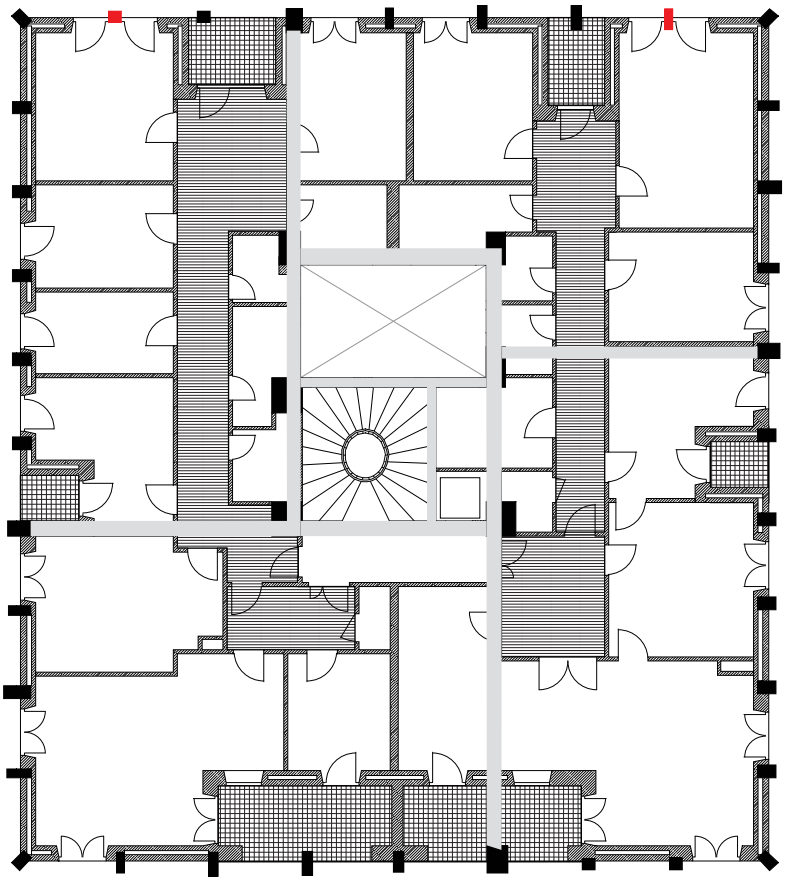
The measurement of exposed concrete framework had another system of proportion, which was exemplified in the dimension of the horizontal curbs, the component representing the overall composition of the building. The height of the curb was 26cm, which one hundredth of the length of the plan. The architect made this detail on purpose since the thickness of the end of slabs was relatively flexible. What was remarkable was the slab of the fourth floor, by which the upper loggia and attics of the building and the lower standard floor were separated. 8F12 The depth of cantilever was 20cm, different from the 15cm that happened in lower floors, thus the height and depth of the slab formed a rectangle whose proportion was identical to that of the floor plan (26m by 20m). It was a typical manner of composition that the coherent proportion recurred in most crucial part of the building.



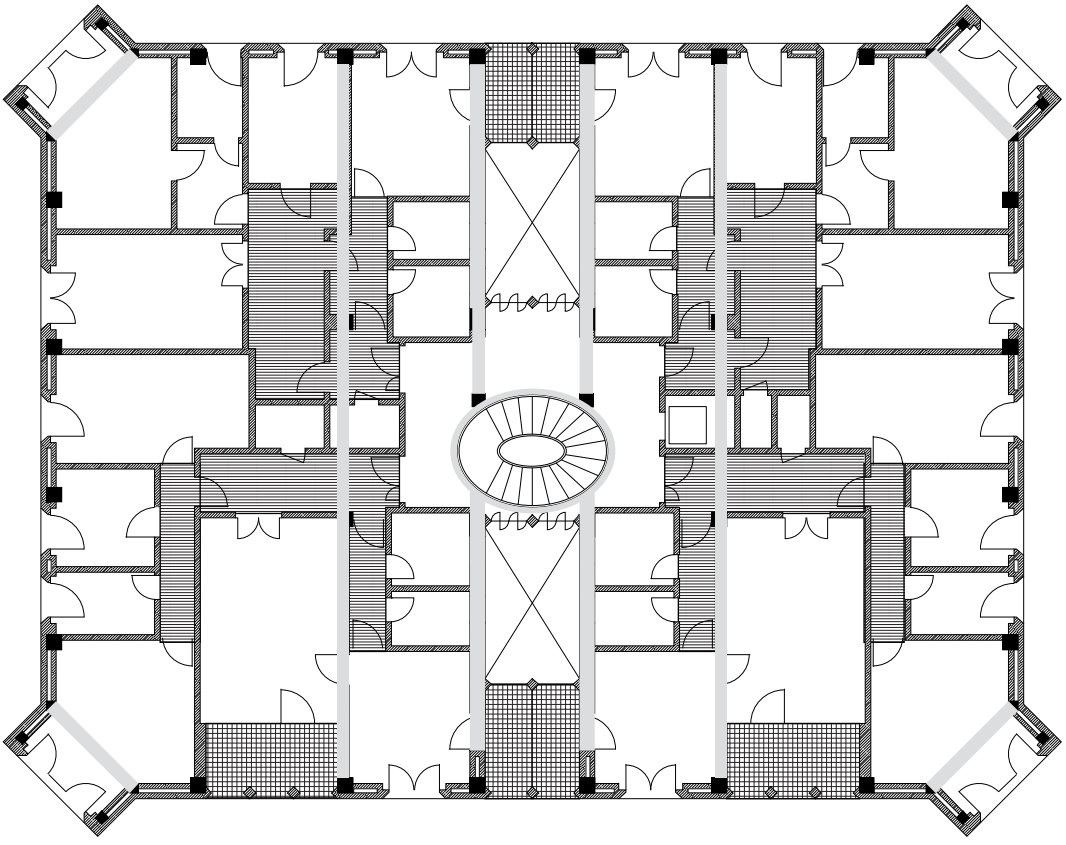
8.4.3 Material and colour

The palette of the elevations of the two palazzine inherited the richness of Chitarrini and the middle school. Apart from off-form concrete, in Franconi, the cladding material that set the tone was mainly sponga stone, while in Pallotta it was yellowish ceramic tiles, similar to those of Palazzo Mancioli II. Prefabricated Terra cotta units was applied in both buildings, as the lattice of the parapets or balustrade. Dramatic change of colour appeared around the openings on fixtures pertinent to windows and doors, including the painted metal balustrade, wooden louvre, white panels (Eternit) to encase the louvre, ceramic tiles in various colour and shape for the jamb or spandrel, and marble as the lintel in pallotta. It was noteworthy that the colours of these elements were actually selected from Le Corbusier's colour palette published in 1959, such as the honeydew green-yellow for the jambs of the windows and doors, sea foam green for the 'hinge' represented by lozenge-shaped tiles for the windows on second and third floor, brown for the rolling louvre, and blue for the painted ceiling of the loggia (not visible in the elevation). 8T15 8T16 It seemed that Ridolfi had followed the trend of modern architecture closely despite his retreat.

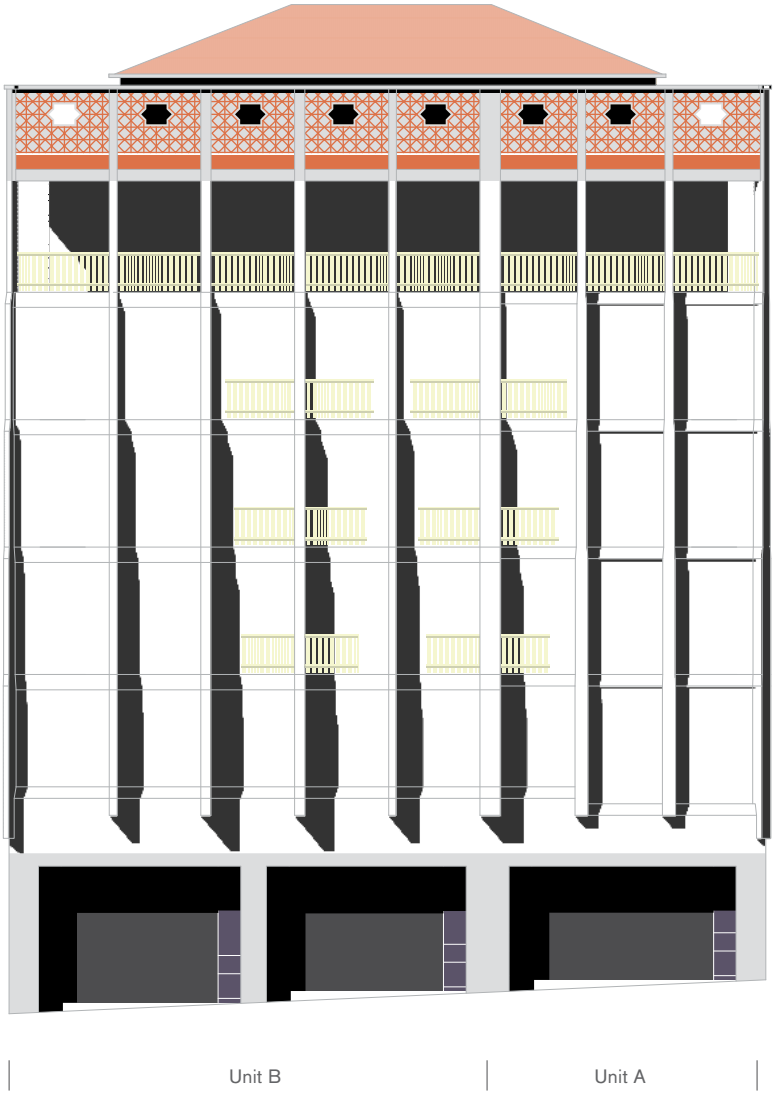
8F12 Detail of the wall section on the fourth floor, Casa Pallotta, Mario Ridolfi, October 1962. FRFM CD134/I/100.



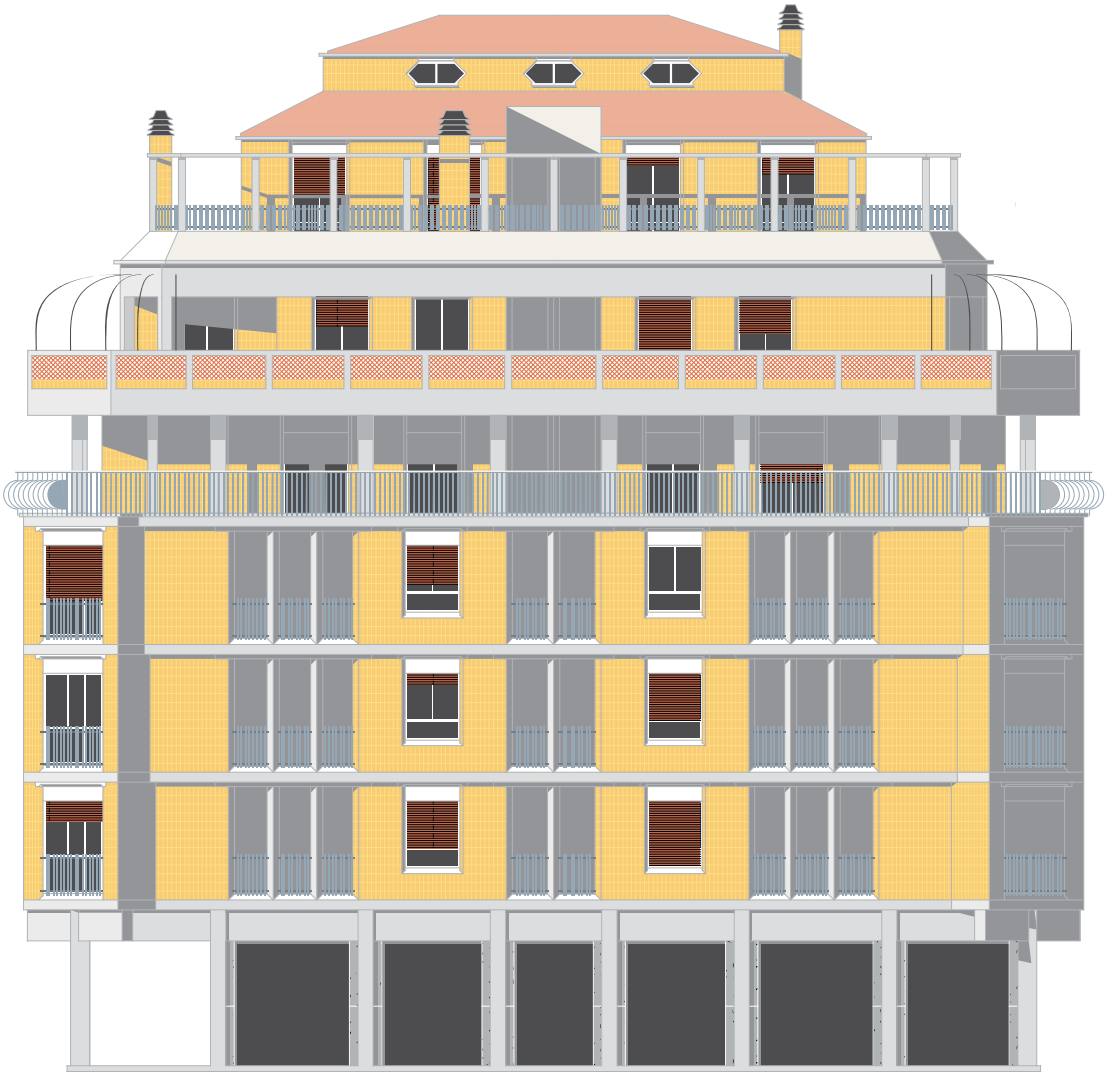
8T13 The standard floor plan of block A of Casa Franconi. (1:200)



8T14 The standard floor plan of block A of Casa Pallotta. (1:200)



8T15 Front elevation of block A of Casa Franconi (1:200), with Le Corbusier's colour palette in 1959, selected colours marked with white dot.



8T16 Front elevation of block A of Casa Pallotta (1:200), with Le Corbusier's colour palette in 1959, selected colours marked with white dot.

8.5 Architectonic form I: the vertical and the horizontal

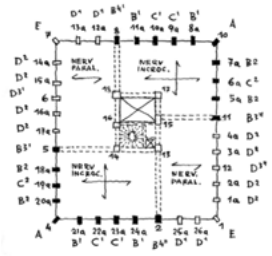
By mid-1960s when the two major works of Piazza Spada were completed, two major types of ridolfian civic architecture were gathered in the new centre of the city. These types, which was represented in architectonic forms, as well as their best examples, were:

Type I: Visible horizontal and vertical structures
Residential towers in Viale Etiopia, Rome (1949-55)
Middle school of 'Leonardo da Vinci', Terni (1951-61)
Casa Franconi, Terni (1959-62)
The complex of Fratelli Fontana, Terni (1959-66)

Type II: Visible horizontal structures
Palazzina mancioli II, Rome (1958-62)
Casa Staderini, Terni (1959-65)
Casa Pallotta, Terni (1960-64)
Project for Motel Agip, Rome (1968-69)

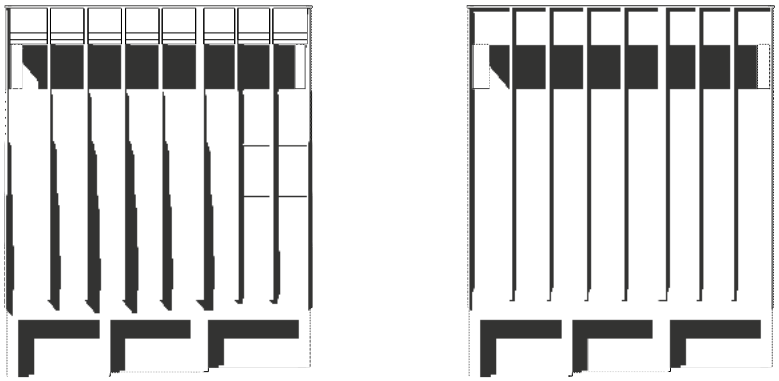
To continue the principle of counterposition already explored in the area of San Francesco, Casa Franconi and Pallotta had to be contrast with each other in every way. But first of all, it was the contrast between vertical extension and horizontal superimposition. Every other details followed these preset architectural forms.

Although Ridolfi had designed a number of projects with complicated geometry and inexplicable forms, Casa Franconi might still have the largest number of variations of structural components. Although these components followed two basic units of slabs defined by the four principal beams, but the actual form of pilasters varied as type A, B1, B2, B31, B32, B41, B42, C1, C2, D1, D2, D3, and E, in total, thirteen of them; nuances in between might not even be noticed from distance. 8F13 Each type of pilaster had its unique way of tapering, in unit A they were tapered from sides while in units B from front and back. Moreover, there was also extremely subtle changes of periphery of plans from floor to floor, particularly in unit B (left side of the major column), where the end of slabs was actually tilted to connect the surfaces of these infill walls which were not in alignment. The formwork must have made great efforts to achieve such variety, which was only feasible in a pre-industrialised construction. But the result was intense, the depth of infill walls became more and more remarkable from top to bottom, as the consequence of overlapped effects of taper and cantilever. If we cancelled most of the types, and keep the profile of pilasters unchanged as a blank control, the necessity of variation would be self-evident. 8T17



8F13 The index plan of external pilaster types in block A of Casa Franconi, Mario Ridolfi, 1959. FRFM CD131/II/(8).

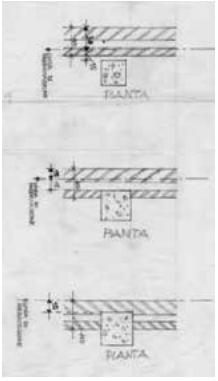
8T17 Front elevations of Block A of Casa Franconi, showing structural components with shadow. (1:500) Left Structrual framework with variated profile, as built; Right Immaginative structrual framework in unified profile.



It was clear that the architectonic forms were more likely formal strategies than actually construction system, since the real structure behind could vary from case to case. According to the analysis in Part II, it is known that although Casa Chitarrini and the middle school had similar appearance, their structural layout was actually the opposite. Same situation happened between Palazzina Mancioli II and Casa Pallotta. In the former, there wasn't side beams around the periphery of the building so the profile of the slab remained even. Thus infill walls could be placed anywhere, since there was always enough room for the louvre case. As to Casa Pallotta (Staderini as well), continuous side beams had taken the place of the louvre case, so the slabs must cantilever from the beam to allow enough opening area for the windows. In this circumstance vertical structures were concealed. As a result of the cantilevered slab, the boundary of the standard floor plan slightly expanded, while the columns of the building remained in the same place. In this case the relationship between the structure and enclosure changed accordingly (these columns also had a tapering profile). 8F14 On first floor columns were half buried in the walls, while on the third they were almost detached. Such consequence also proved the attitude of the architect towards structural elements, that he didn't seem to bother concealing beams or columns in the wall, but sometimes utilised these structural component as apparatus to define or the spaces.

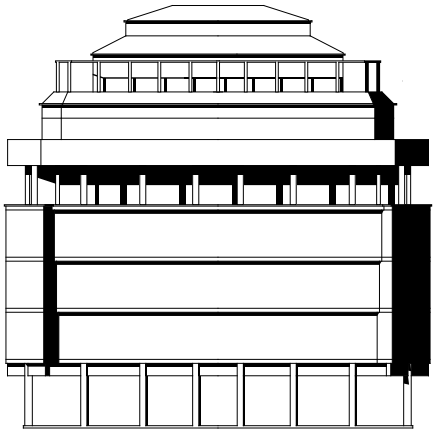
Neither were Casa Franconi and Pallotta the culmination, nor the best examples of these two types, but rather the appropriation of them in certain context. Casa Franconi had modified the base, while Pallotta the top, to obtain more heights and to formulate a monumental image to match the atmosphere set by historical buildings in the city centre.

Both types of constructional forms were developed later in other projects. In the complex of Brother Fontana, the architects explored the enlarged base as a podium, where the towers were situated, as an extension of the structural framework. The horizontal type was further explored in the project of Motel Agip, where the displacement of floor plans generated two situations, the taper and the cantilever, which were skilfully translated into construction details via geometric operation. In the end, all these details were integrated and concluded in Palazzo Uffici Comunali.



8F14 Different situations of the relationship between the columns and the infill wall. From bottom up: First floor, second floor, third floor. Wall section, Casa Pallotta, Mario Ridolfi, October 1962. FRFM CD134/I/100.

8T18 Front elevations of Block A of Casa Pallotta, showing structural components with shadow. (1:500)



8.6 Common figures I: The lozenge

Examine Casa Franconi and pallotta from overall scheme to construction detail, it would be easy to find one shape that constantly took place in almost every scales, which was the lozenge, a square that turned 45 degrees. Based on previous analysis, it is already known that this was the geometrical motif that controlled the composition from the whole square all the way to the small pavilion. While in the two *palazzine*, it was applied to various components, including the windows of the attics, hinges of iron balustrades or window frames, perforated terra cotta tiles on the parapets, the cut on the marble lintel, the ironwork of the chimneys, the chamfered edges of the concrete beams and columns in Casa Pallotta, the green ceramic tiles that decorated the window jamb in Casa Franconi. But most of all, it appeared on the corner of a building where Ridolfi had paid so much attention to that had created an underlying relationship of the two. That was the corner pilasters of Casa Franconi, and the bow window of Casa Pallotta.

In Casa Pallotta, the bow windows were developed midway to expand the area of master bedrooms since the apartments in this building were not quite spacious. But more important thing was, they had established a two-way relationship between the building and the site: From interior the window provided astounding views to the square and historical monuments; while from the square, especially through the central axis of palazzo Spada, the bow window made a perfect terminal object. 7F13 Obviously, Casa Pallotta wasn't the only or the first building the architect designed that had a open corner. In fact, the corner of a residential building was always a special place for Ridolfi, as he had mentioned in multiple interviews.

"Yesterday I went to Via Marco Polo, saw my own house (Palazzo INAIL)... There are the corner balconies ... I thought of them one night sleeping in Messina. It was a very hot night. That night I remember that I suffered from a terrible heat. In the house there was a loggia, ... just a corner balcony, and I was thinking of the cats that always put themselves in an outer corner ... I remember that I took the mattress, I put it out and I could sleep ... Here I enjoy doing these things, detail on detail, because it's as if I were doing it with my hands, it's joy..."[37]

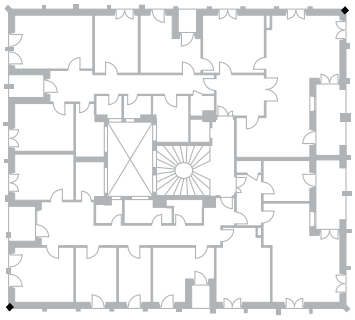
Certainly the bow window at the corner didn't belong to any classical languages, but a wisdom of vernacular buildings that was discovered by modern architects and manifested with various built forms in modern architecture. In social housing of Messina (1949-52), Ridolfi first developed an unique form of bow window in the manner of expressionist geometry. The moulding work of this window was not easy since the cubic style of the form was achieved by very thin concrete shell that grew from structural components and held the wooden window frames inside. Same bow window was also applied in Palazzina INAIL, as it did match the geometric theme of works in this period. 8F15-a

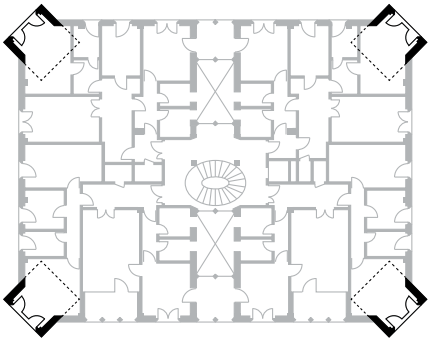
In Palazzina Mancioli II, the treatment to open corner had changed along with to the style of the building itself. As the structural components such as the end of slabs were separated from the main body of the building to celebrate a tectonic apppearance, the corner now became an extension of the slabs, as linear balconies alongside the apartment. Not only the thickness but the profile of the balcony was identical to that of the concrete curbs on the elevation. The corner was chamfered, with

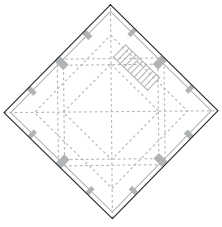
8F15 Chamfered corner of RIdolfi's residential projects.
a. Case INCIS, Messina (1949-52)
b. Palazzina Mancioli II (1958-62)
c. Edifici a torre INA Assicurazioni, Roma (1949-55)

8T19 (Facing page) Lozenge as the common figure incorporated in the 'trilogy' of Piazza Spada in different scale, marked up in black. (1:500)
In C. Franconi: A pair of the corner pilasters;
In C. Pallotta: Corner bow window;
In the pavilion: The whole footprint.

a b c







two columns exposed on the surface, running through the standard floors down to the diagonal beam of the ground floor. This composition was already similar to the bow window of Casa pallotta, since the corner pillar stayed on ground floor, leaving the view of upper floors wide open. 8F15-b

In this respect, the rotation of corner pilasters of Casa Franconi by 45 degrees could be seen as a self-referential move, since the very same component didn't exist before Piazza Spada. In the towers of Viale Etiopia for instance, although the corner of the buildings was cut diagonally, the orientation of pilasters was consistently longitudinal. 5T11-i 8F15-c In Casa Franconi, there were actually two pairs of corner pilasters, only one of those was in the shape of lozenge. Not coincidentally, it included the pilaster pointing towards Piazza Spada. Although these pilasters had a changing profile, but basic dimension at the bottom was a 350 mm by 350 mm square. 8T19 8T20

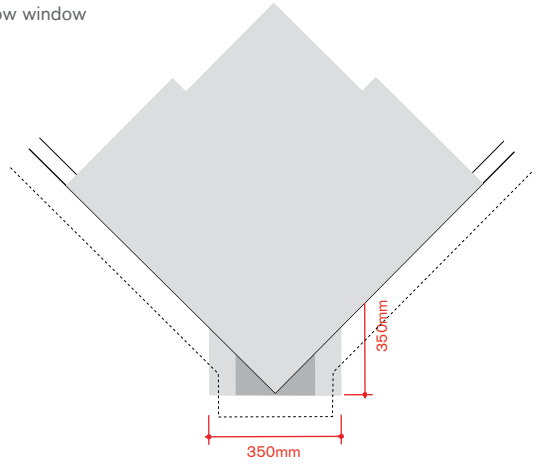
The size of the bow window of Casa Pallotta was a 3536 mm square, approximately ten times of the pilaster. The measurement was not integral because the form of the bow window was derived from a lozenge whose diagonal line was 5-metre long. This lozenge was not embodied in the floor plan , but the diagonal line was used as a compositional apparatus: 1 meter of the diagonal line protruded from the elevation while the rest 4 metres was kept inside to define the boundary of the master bedroom on the south side of the building. 8T19

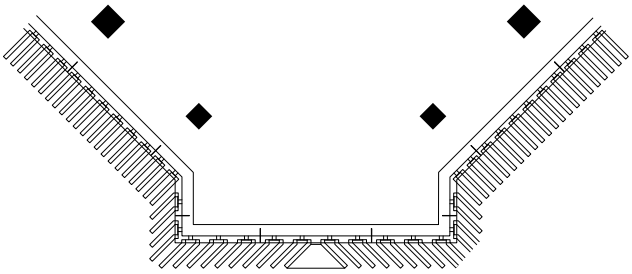
The shape of lozenge was a direct response to the numeric theme of four, but what the architects did was much more than formal appropriation. A perfect example could be seen in the construction of the balustrade of Casa Pallotta on its loggias floor. Ridolfi used to made this type of balustrade which arched outward to give room for the plantations on the terrace. But with the existence of the bow window the configuration of the terrace was crooked, if the arches were kept in right angle to the boundary the corner situation would not be applicable. The solution was straightforward but impressive: the direction of all balustrade followed the orientation of the elevation they were located, the change of direction only happened in the middle of the bow window, producing only left-over slot in the shape of an olive, which were filled up by the architect with arched iron plates. In this end, the four plates returned to the start point of the overall composition of the whole building to emphasise on the four diagonal orientations. 8T21

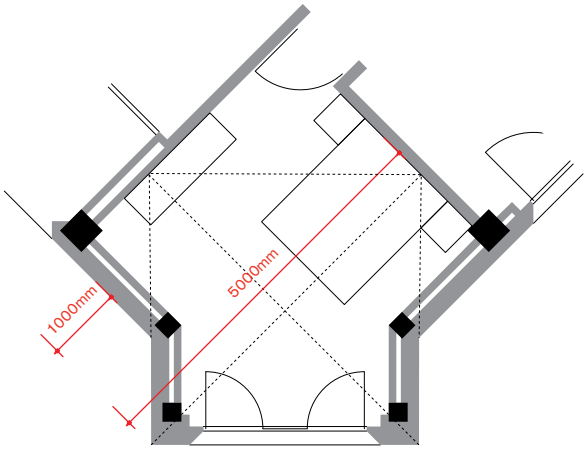
The form of the balustrade along with the layout almost became a showing-off of compositional skills which was very much site-specific. Such detailing works never took place at the beginning of a project, they emerged during the process of not compromising on complexity, as the creation of expediency.

8T20 Detailed plan of the corner windows of block A of Casa Pallotta (1:20).

8T21 (Facing page) Detailed plans of the corner area of Casa Pallotta. (1:100) Bottom up Beam on the ground floor, bow window of the standard floors, corner of the terrace.



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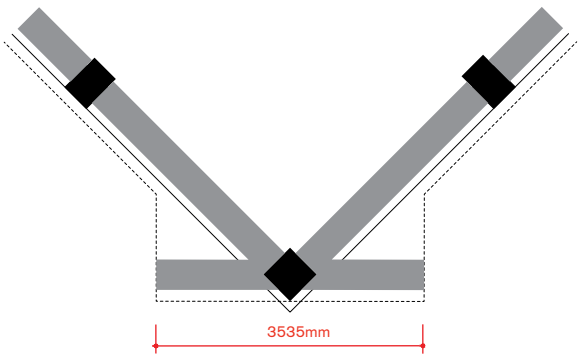
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9 Palazzo Uffici Comunali, the ending and a new start

As the conclusion and an epitome of Ridolfi's professional career, the unfinished Palazzo Uffici Comunali, has been studied over and over in the past few decades. This thesis, instead of repeating the background and basic information of this project, however, would continue to focus on its role in a set of existing edifices, historical or previously built by the architect himself, the relationship between the building and the square, and the geometric and architectonic form inherited and developed from his earlier works in this set. Moreover, this study will only concentrate on phases of the project in which Ridolfi was actually involved.

9.1 The transformation from lozenge to an oval

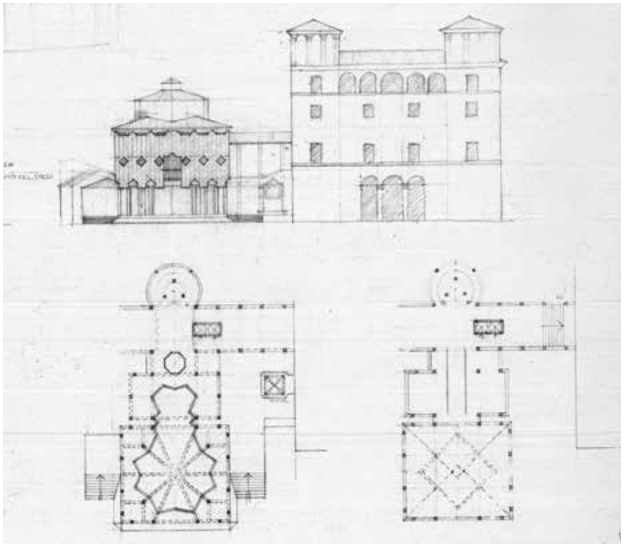
The design of Palazzo Uffici Comunali could be divided into three phases. The first started in 1964 and ended in 1970 during which Ridolfi came up with about ten different versions, none of which was finalised due to realistic issues that the project had to be suspended. The second phase began in 1978 when the projected was relaunched with more definitive program, thus the direction became much clearer that the design was paced with consistency from the first to the fifth and the final version in 1982. The construction work finally began in 1992 due to economic issue, almost a decade after Ridolfi's demise, which opened the third phase, since the original design was already dated thus it was completed revised by Wolfgang Frankl following the new *status quo*.

In the first phase the needs changed with years, versions came up one after another bur none of them managed to stay, so the process of design development was similar to that of Casa Lina (1964-67), a project almost taking place in the mean time consisting of equal amount of variations.[38] These versions were like constellation of concepts, all developed into a complete set of drawings, provisional but definitive. But among them version 7 and 8 stood out, not only because they were the most developed, but also represented a clear connection to the geometry of Piazza Spada, as well as the three buildings originally conceived.[39] Moreover, there were a large amount of pencil sketches randomly drawn in the blank area of the drawings, showing potentials of transformation into the definitive version of the project in the second phase. Therefore, instead of examination and comparison of the approaches in each version, a collection and re-organisation of these small sketches would be more helpful to discover the design development of the project. 9F1 These sketches were not organised chronologically, but according to the sequence in transformation of form.

In this version, the new council hall was conceived as a volume independent from the offices accommodated in the preserved renaissance palaces on the west, connected these historical structures (including Palazzo Spada) by a back corridor. It seemed that, except for the differed dimension, this volume not only took the place of the small pavilion on the 1959 detailed plan in a similar relationship to the axes of the square (already discussed in 7.4), but also inherited its geometric composition that the plan was defined by one lozenge inscribed in another, which was also prevalent in projects in Treviso or Ivrea. The same with the columns on the ground floor and the pitched roof, which became a decorative element to represent the geometric motif. 9F2-1/2

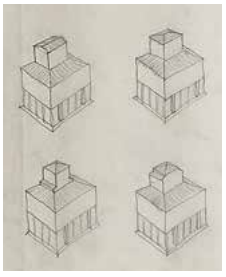
Then the plan was elongated, while the lozenge remained in the centre, defined by four diagonal lines. In this respect, the plan of the council hall resembled that of Casa Pallotta, whose attic was defined in a similar manner. 9F2-3/4 8T11

Then Ridolfi made two attempts to modify the boundary of enclosure. The first, seen in 9F2-5/6/7, was to cantilever the bay areas, as if the plan was inflated into circle, while the second, as in 9F2-8, was to



9F1 Plans and elevation of Palazzo Uffici Comunali, version 8, Mario Ridolfi, 1967. ACT.

1



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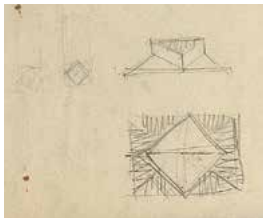

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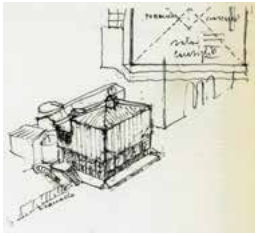

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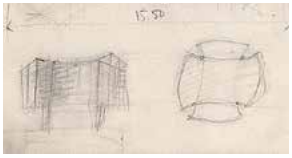

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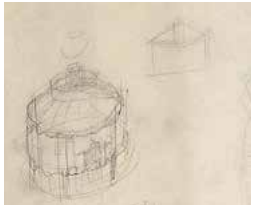

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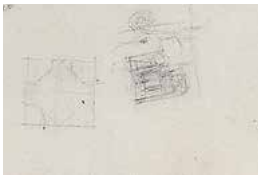

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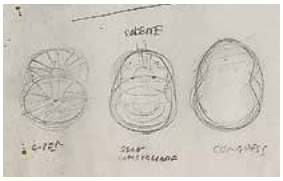

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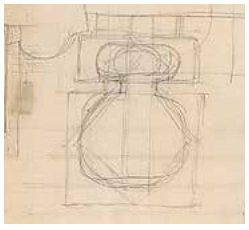

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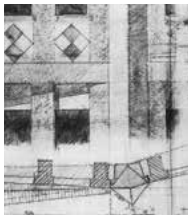


9F2 A collection of preliminary studies and sketches of Palazzo Uffici Comunali, Mario Ridolfi, 1967-80. ACT.
1-4 Version 7, September 1967;
5-10 Version 8, October 1967;
11 Version 9, June 1978;
12 Version 10, December 1980- January 1981.

9F3 Early study of the structural and decorative components of Palazzo Uffici Comunali.

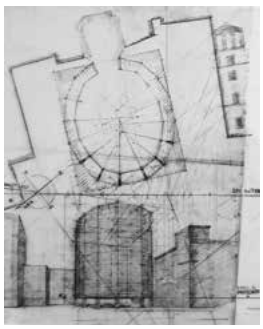
chamfer the four corner of the lozenge, producing an-eight pointed star, combining both convex and concave in the configuration. It might be pure mannerism approach to geometric composition, but it did mark the start of forms different from lozenge that will result in the final version.[40]

The situation became more intriguing when the circular object was also developed from within. In some sketches accompanying the standard technical drawing the architect studied the form of the space in concern with the function and performance of a council hall. This time it was completely circular, obtaining a shape of ellipse by overlapping two identical circles as in baroque geometry. 9F2-9 This experiment led to a double skin which was presented in the result: A larger circle for the hall, and a smaller one for the service area. This conception almost remained intact in the definitive version, except for the outer skin, the original lozenge, which became a abstract rectangle, only existed in geometrical composition. This transformation was marked up by an in-between solution, in which the rectangle was interpreted as a podium where the circular tower was situated. 9F2-11

Hence the direction was more definitive when the project was relaunched in late 1970s, the circular/oval composition became the exclusive approach, as if it was a new beginning. In fact, Palazzo Uffici Comunali was usually known as the 'bidone' (bin) as how the architect called it. But was it the actual inspiration? Or a post hoc interpretation to make up for the identity of the project?[41] The sketches revealed that the genuine conception stemmed from existing geometric motif, creating forms both familiar and novel. The trace of lozenge motif still remained in early studies in the profile of pilaster and the pattern on the spandrel, although these elements didn't last long. 9F3 Practically, the change of motif might not be a 'choice', but a consequence as a combination of all factors such as the structural arrangement, the programmatic scheme, as well as the meaning of form.

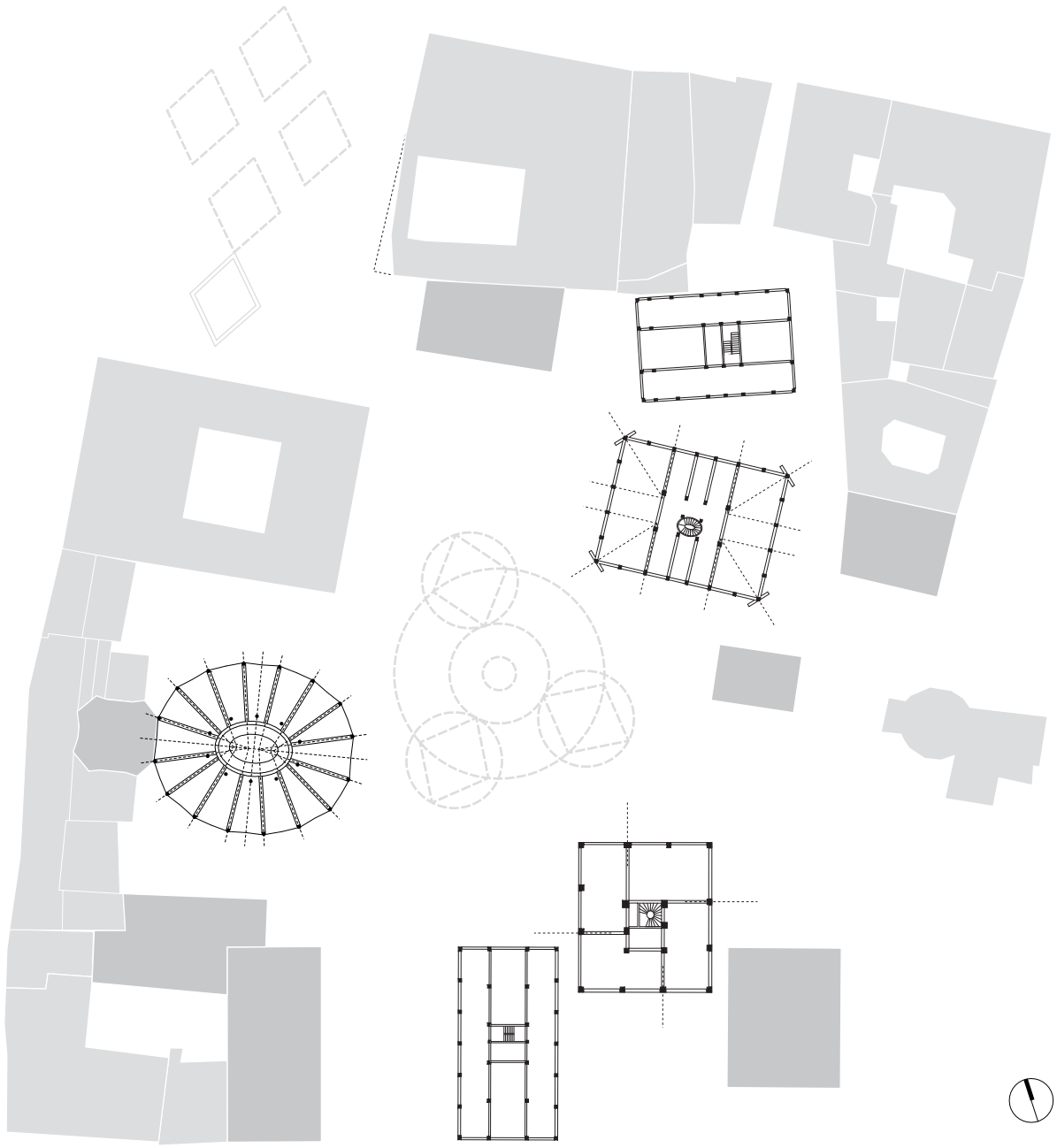
Besides the evidences disclosed by the sketches, there were also preconditions that had prepared for such result. Not surprisingly ellipse was always the geometric form Ridolfi liked and used so well, but the resemblance between Uffici Communal and his early competition project Palazzina Signorile (1927)[42] was still remarkable. The new project had reproduced not only the elliptical volume with a circumscribing rectangle but also the topography that the building was lying in a basin. 9F5 Like what Motel Agip (1968-69) did to the restaurant tower (1928), Palazzo Uffici Comunali also recycled an early conception of an imaginary project in Ridolfi's late career. Nevertheless the contrast was also remarkable, since it actually represented the volte-face of the architect from rationalism to neo realism. Ridolfi stopped making smooth curves as in the post office on Piazza Bologna after he exploited the potential of exposed concrete framework. Unlike in Palazzina Signorile, the 'oval' of Palazzo Uffici Comunali was technically a polygon of sixteen sectors, established by visible pilasters and curbs.

Another basis of this project was the development of construction apparatus of central symmetrical buildings. In 1960s, Ridolfi delved into this field with a series of projects with central plans, and especially thanks to Casa Lina and Motel Agip, a lot of geometric and architectonic issues had been solved. The variety caused by morphological movement such as rotation and displacement, were skilfully translated into architectonic form. In due course, Palazzo Uffici Communal was but another step forward.



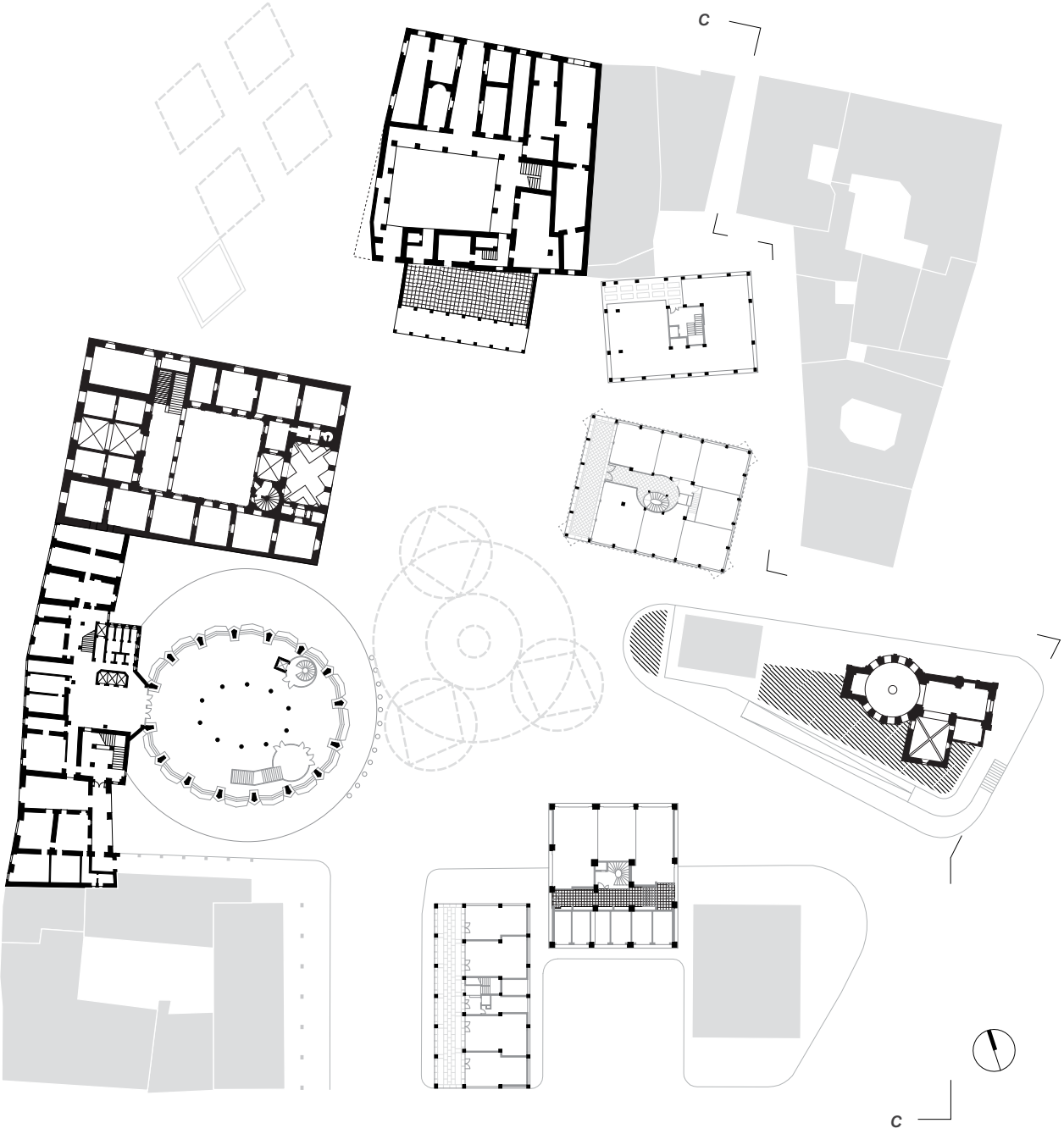
9F4 Cartoon of the perspective drawing of Palazzo Uffici Comunali for the photomontage, Mario Ridolfi, 1980. The horizon was set at the height of 2.7m (altitude 129.2m), the bottom of slab of the mezzanine.

9F5 (Above) Axonometric drawing of Palazzina Signorile, competition project, Mario Ridolfi, 1927.



9T3 The master plan of Piazza Spada, based on the variant plan of Corso del Popolo in 1981, with Palazzo Uffici Comunali. Casa Pallotta and Casa Franconi shown in structural layout. (1:1000)
Lighter grey Existing buildings; Darker grey Planned Buildings.

9T4 (Facing page) The Ground floor plan of Piazza Spada, based on the variant plan of Corso del Popolo in 1981, with Palazzo Uffici Comunali. (1:1000)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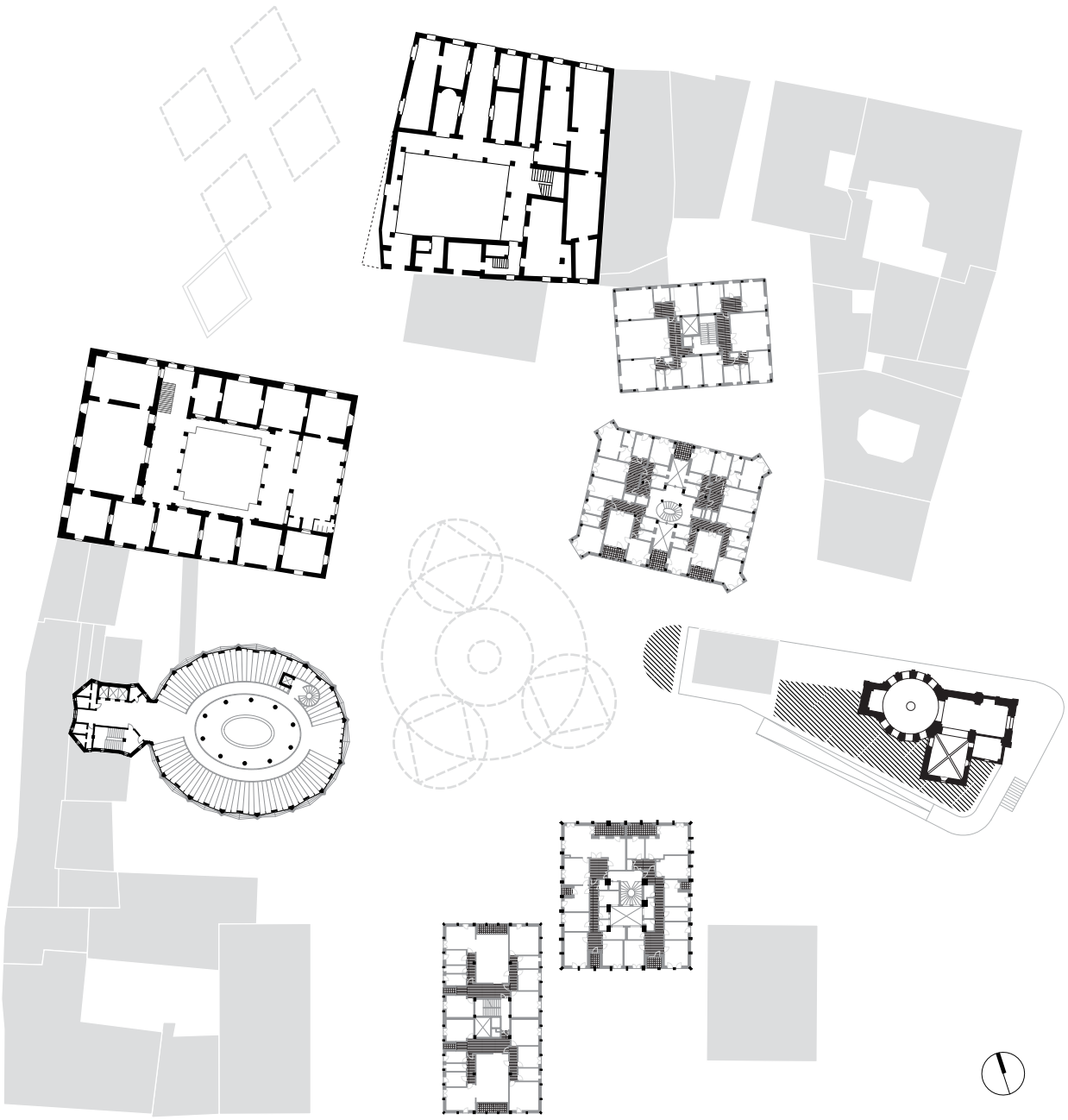
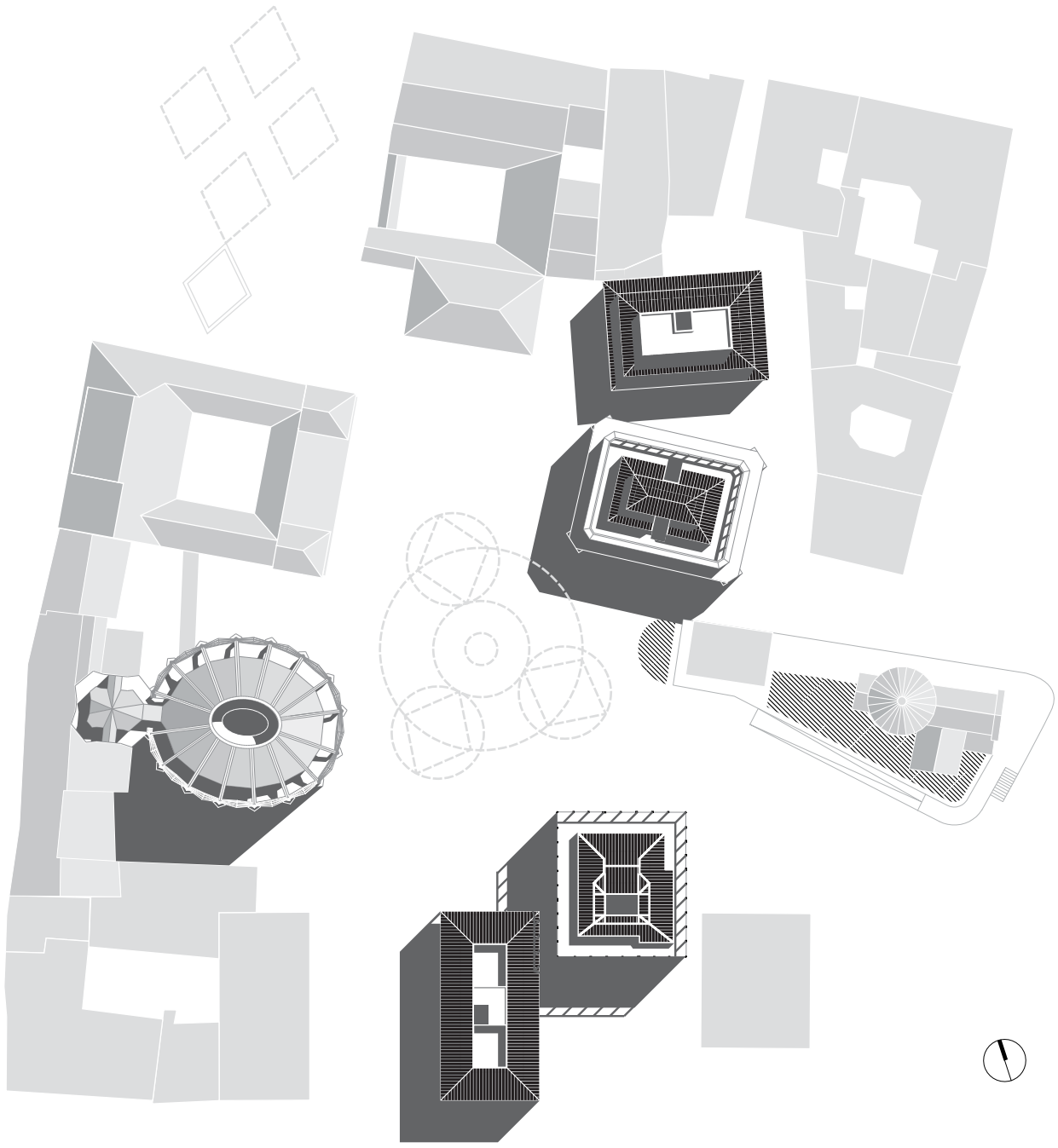


9T5 The standard floor plan of Piazza Spada, based on the variant plan of Corso del Popolo in 1981, with Palazzo Uffici Comunali. (1:1000)

9T6 (Facing page) The roof plan of Piazza Spada, based on the variant plan of Corso del Popolo in 1981, with Palazzo Uffici Comunali. (1:1000)



9.2 The tower of continuity and contrast

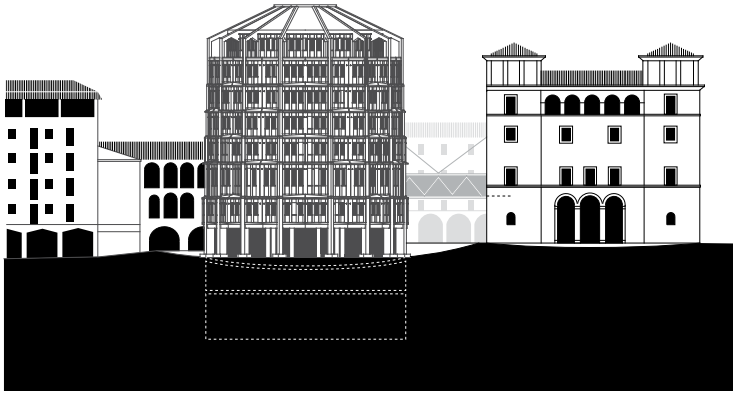
After the decision was made in early 1960s that the new municipal hall should be next to the existing one, Palazzo Spada,[43] the renovation within the the acquired properties for the extension was halted, including the restoration of Palazzo Fulvi Fabbri and Pierfelici, new residential buildings originally planned, and most of all, the small pavilion that used to accompany Casa Franconi and Pallotta to make a set of three volumes embracing the square. The emergence of this project would actually produce another variant to the Variant to the Reconstruction Plan of Corso del Popolo that had already approved. Since then, a huge gap was left over at the corner of Corso del Popolo, on one side of Piazza Spada, and Ridolfi's quest was to fill it as his office was commissioned with the project. Palazzo Uffici Comunali must be the last jigsaw in the puzzle, not just to complete the composition of Piazza Spada, but also put an end to their decade-long urban-architectonic project in Terni.

With the image of the whole city in mind, it would be easier to understand why the new building had to be monolithic, had to be the new culmination of the square emulating the existing ones. The oval, or the polygon consisted of sixteen sectors still echoed with the motif based on four-fold geometry. Looking back from the final proposal, even the architects themselves thought that early approaches were 'too jagged and messy and fortunately were not realized'.[44] In the definitive version, the contrast between old and new was intense, although the stair tower with an eight-pointed star plan between the oval and historical palaces could serve as a transition. However the building had many connections with the historical environment. First, the first floor with raised height accommodating the boardroom was in the same level with piano noblile of Palazzo Spada, which allowed a suspended passage to connect the two buildings. Then, behind the central bay of front elevation, the space was not occupied

9T1 Front elevation of Palazzo Uffici Comunali, with flanked structures including Palazzo Spada, on the west side of Corso del Popolo. (1:1000)

9T2 (Facing page)The overlapped elevation (section C) of all buildings around Piazza Spada, with Palazzo Uffici Comunali in the background. (1:1000)

9F6 View of the huge square, one of the visual centre of the district, Unità residenziale della Via Tiburtina a Roma.



by offices but connected to the ring-shaped corridor, providing the best view overlooking the square, and to admire the church of San Salvatore on the opposite side. Last but not least, the loggia also provided a panorama of the historical context.

The building had a unique way of entry. The main entrance was located behind all pilotis on the stair tower, one should first go down into a basin also in oval shape but much larger than the building. The boundary of the basin was even raised from the square, producing a circle of pointed ridge as if the visitors were going over a small hill to approach to the building. This setting enhance intensified the monumentality of the central plan, or in Ridolfi's word, made 'you think of a sovereign sitting on his throne'.[45]

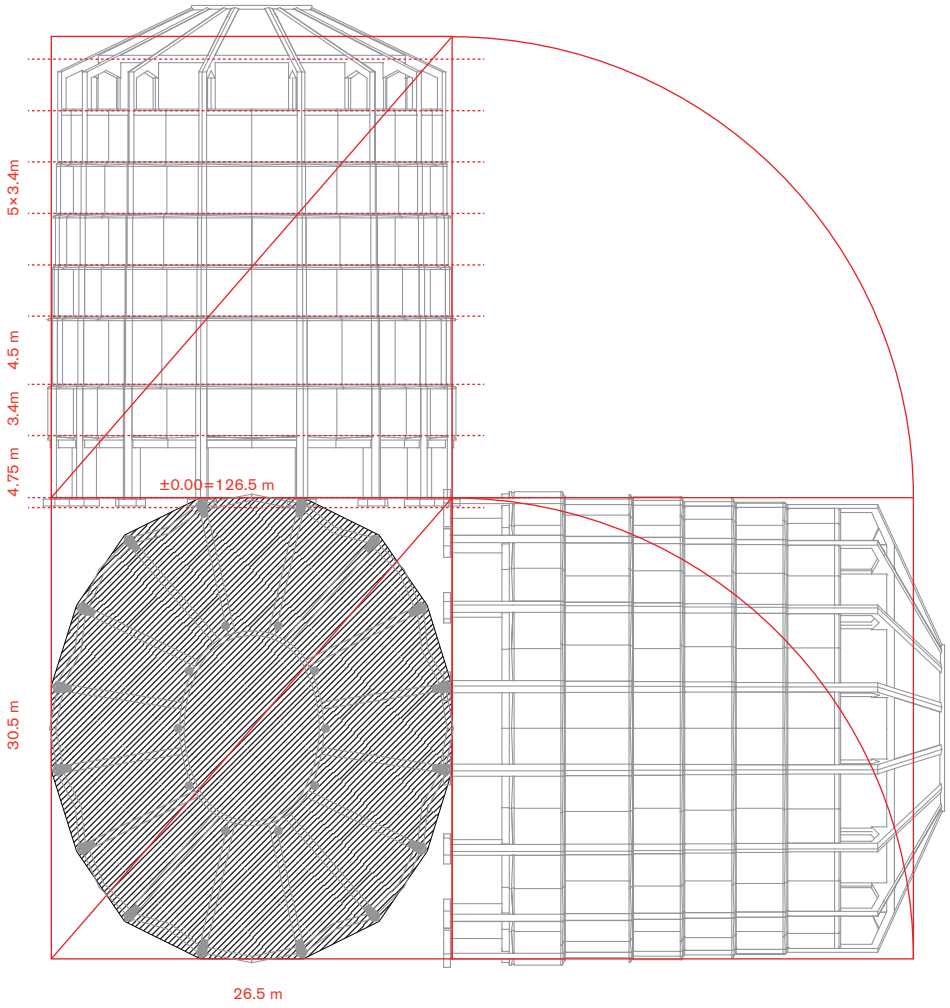
In regard of the new palazzine of the square, the oval, or the polygon consisted of sixteen sectors still echoed with the motif based on four-fold geometry. It had the tapering pilasters of Casa Franconi, and the curb of Casa Pallotta that dropped shadows, but overall the composition was different. As Ridolfi had envisaged, the material and colour palette were in contrast with previous works. Apart from off-form concrete framework, the infill walls were made of prefabricated concrete panel with pebble inlay[46] and travertine slate above and below windows. Moreover, the fixture of window frame and rolling louvre were also updated from wood to aluminium and plastic. Another notable difference was the joint of the

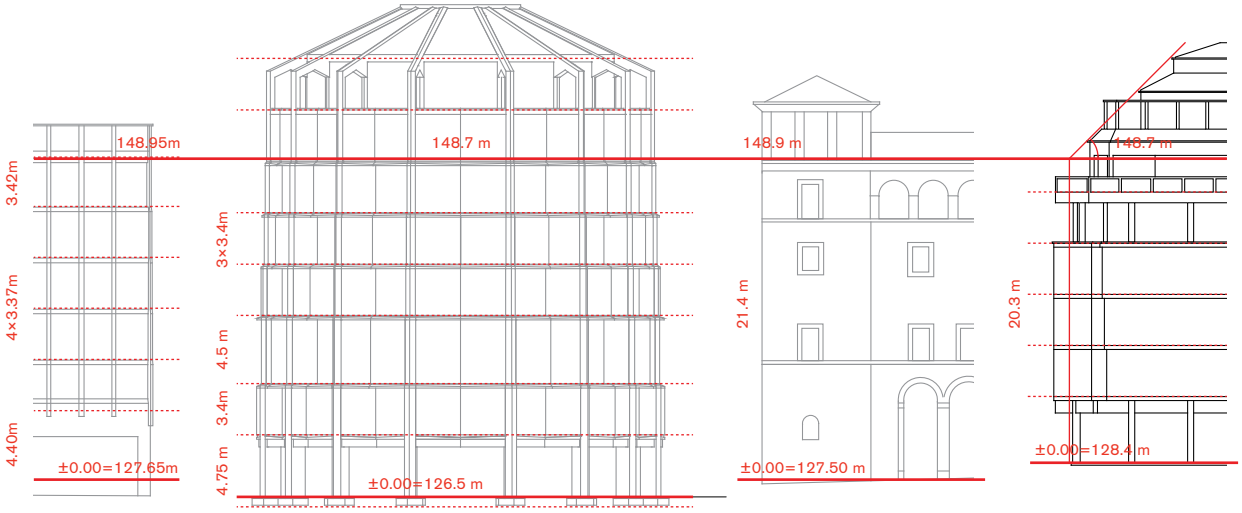
concrete framework, a special cast iron shell was applied at these positions, to clad and protect the concrete structure, to achieve the sharpness of angles.

If Uffici Comunali were built as conceived, the square would become a landscape of multiplicity, with three major volumes varying in shape, height, colour, material, and the composition of the framework and infill structure, that reminded of the views of the visual centre in Tiburtina. 9F6 Ridolfi was able to create such artificial irregularity as if they were spontaneously formulated for urban environment both high and low.

Following the two precedents, Uffici Comunali continued the same manner of volumetric control: the front elevation shared the same scale and proportion with the plan, while the side elevation was defined by a square, since the height of the building was approximately the depth of it. 9T9 The dimension of the basic rectangle, 26.5m by 30.5m, was apparently the development of Casa Pallotta's 20m by 26m, in the same way as the latter being the development of Casa Franconi's 20m by 22.5m.

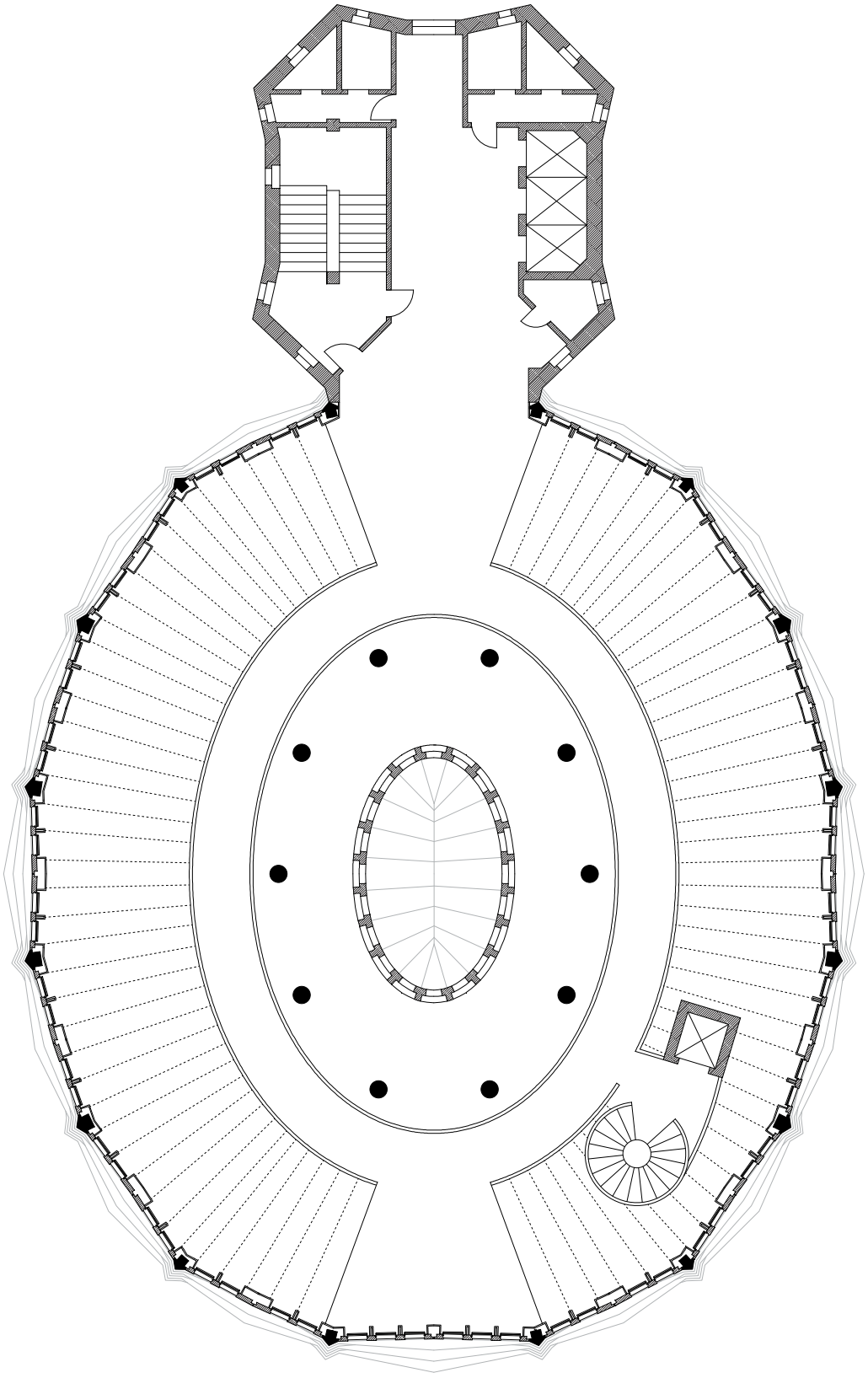
By comparing the altitude, the storey height, and the control point on the elevation among the cycle of buildings around Piazza Spada, another approach to integrate this set of buildings was unveiled. Although the datum plane of the four buildings were situated at different altitude due to the slight slops, there actually existed a common plane at the height around 149.8m all four buildings made use of. In another word, Ridolfi had set the height of the huge cornice on the elevation of Palazzo Spada as a referential height, and made adjustments of the storey height, and the datum plane in his works to match it. In Casa Franconi, it was the height of the terrace, in Pallotta it was the turning point of the volumetric envelope, and in Uffici Comunali the height of the last standard floor below the loggia. 9T10





9T9 The geometry of the elevation of Palazzo Uffici Comunali. (1:500)

9T10 Height comparison between Palazzo Uffici Comunali, Casa Franconi, Casa Pallotta and Palazzo Spada. (1:500)



9T7 (Facing page) The standard floor plan of Palazzo Uffici Comunali. (1:200)

9T8 The front elevation of Palazzo Uffici Comunali. (1:200)

9.3 Common figures II: The oval

The ‘uovo’ (oval) was only a figurative description, it could be elongated polygon, like Palazzo Uffici Comunali, or just ellipse as in other cases. So after all, the oval wasn’t foreign to the formal vocabulary on Piazza Spada, if only the scrutinisation weren’t restricted in the scope of a whole building. Lozenge, as a geometric motif, recurred in the set of three buildings in three level of scales. So did the oval. In Casa Franconi it was the void in the middle of the stairs; In Pallotta it was precisely the shape of the staircase, and in Uffici Comunali, the whole body of the tower. 9T11 Ridolfi might be known for ellipse-shaped staircases, but among the three major buildings on Piazza Spada, the way he used this element was too calculated to be unconscious choices.

In the staircase of Casa Franconi it was not the flight but the void in the middle elliptical. Its dimension, 1.3m by 1m, had the same ratio as in the plan of Casa Pallotta. (1.3m : 1m = 26m : 20m = 13:10) While that void in the staircase measured 1.8m by 0.8m, which precisely consisted of two equal rectangles in the same ratio with the plan of Casa Franconi. (0.9m : 0.8m = 22.5m : 20m = 9:8) 9T12-a/b Such reciprocal reference was in fact very since the dimension of the staircase had to follow the regulation on transitional space and the composition of the building where they were located. But it was still possible since the two projects was developed almost at the meantime.

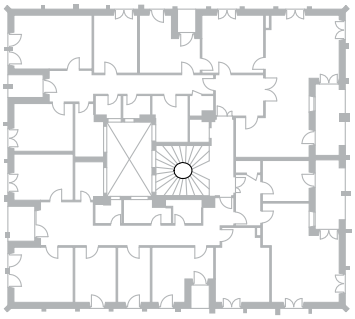
Apart from proportion, the compositional apparatus that underlay the oval forms was also consistent, even though the connection was more subtle than it appeared to be. The similarity between the plan of the staircase of Casa Franconi and the plan of the tower of Palazzo Uffici Comunali was quite evident even at a glance. Both plans was based on an oval with its circumscribing rectangle. The oval was then subdivided into two types of sectors that varied in size. In the former they were 1.2m and 0.508m, and in the latter 6.8m and 5.6m. The larger sectors were located at both ends of the major axis, in Casa Franconi they were the platforms of the staircase, while in Uffici Comunali they were the enlarged junction of traditional space. The rest of the sectors, the smaller ones, which were all equal, were all situated at two sides. Composition slightly differed in the staircase of Pallotta, where the larger sector appeared only on one end, since there wasn’t any half-way platforms.

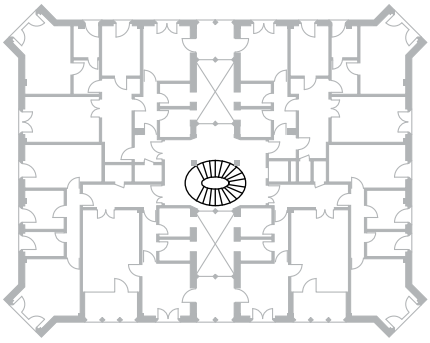
To realise the composition in Franconi and Pallotta was not hard. One first get the outer rectangle, defined by the existing structural layout and the thickness of the cladding, or simple by an ideal proportion. The inscribed ellipse was also derived. The inner ellipse was defined by the constant breadth of the stairs, which was 1.1m, fulfilling the regulation. The the inner ellipse was equally divided by the number of stairs per storey, while in the outer ellipse, range of the platforms, or in the case of Pallotta, the only platform, were firstly marked up, then the rest length of the ellipse, was divided by the number of stairs subtracting that of the platform. Finally, the two ellipse were divided into equal numbers of sectors, but varied in types. Connecting the relevant points, the form of each step was delineated. It was noteworthy to point out that only the breadth of the platforms were numerically controlled, the rest, the depth of each step was geometrically derived, not having a integral dimension, since the only concern was to be in an acceptable range under regulation. 9T12-a/b

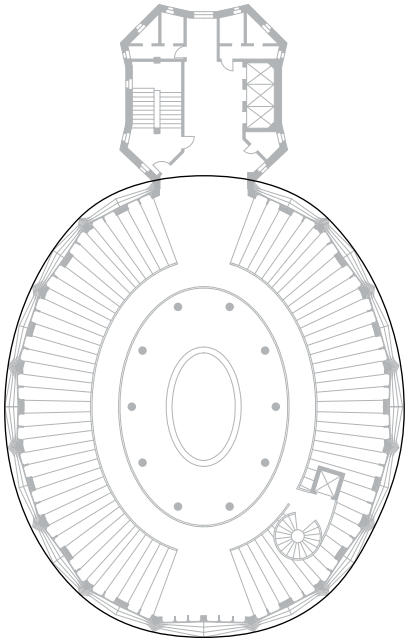
In the case of Palazzo Uffici Comunali, the situation became more complicated. The dimension of the sides and the dimension of the circumscribing rectangle were actually a group of associated variables, all of which had to be precisely under control, in order to comply with the modular of each components and their combination, since their dimension would be eventually represented on the elevation. In fact, Ridolfi tested several groups of dimensions as preliminary study, only to find out the proper one for the context, the program, the structure, as well as the construction process, and everything else.

9T11 (Facing page) Oval as a common figure incorporated in the ‘trilogy’ of Piazza Spada in different scale, marked up in black. (1:500)

In C. Franconi: The void in the middle of the staircase;
In C. Pallotta: The staircase;
In P. Uffici Comunali: The configuration of the tower.

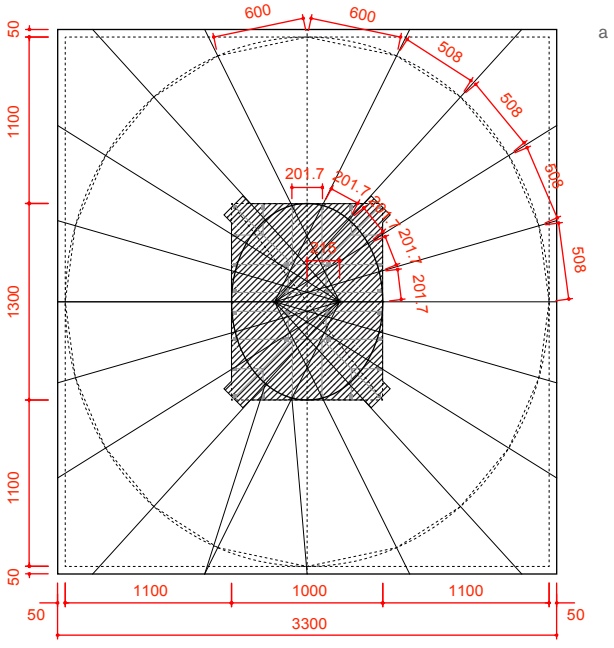






Thanks to the axial symmetry, and the polygon already had four sides overlapping with the rectangle, architect had to determine the position of only two points in one quarter of the whole figure. (A, B or E, F in 9T12-c) However, If the architect used the same method to equally divide the ellipse, then it would be impossible to derive the predetermined dimension for all sides. The solution was not quite unpredictable, because the polygon was not approximating an ellipse. (And that's why oval was the right term) If we draw an ellipse (in black dashed line) to connect as many points as possible, there would always be four corners out of place. (Corner A, F, I … in the drawing) These corners were the points of inflection that divided the curve into four separated arches. (Arch ABCDEF and arch FGHL, in red solid line) As a consequence, side EF and side FG, although in equal dimension, were not sharing a common arch.

This was what Ridolfi did to find the location of the two points: he firstly defined the location of the centre P, as if in the four-centre method to build an ellipse, with the help of the arch that went through C and D and intersected with the two 5.6m-radius circles based on central point D and G, the last two corners of polygon were defined. In this way, sector AB, BC, CD, DE, and EF could all be identical. But the question was, there were other locations for centre P to derive a smoother oval, why was Ridolfi sure that he had made the right choice?

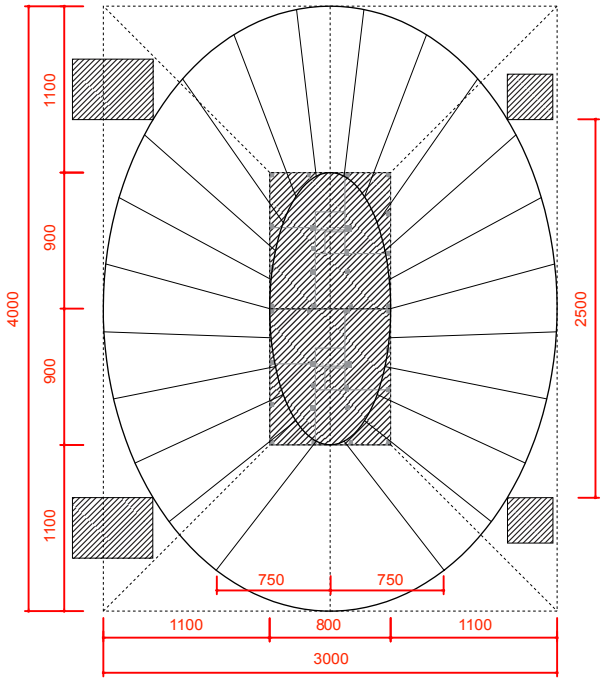


9T12 The Geometry and construction of the oval, with the plans of the three buildings overlapping.

a. The staircase of Block A of Casa Franconi. (1:50)
b. The staircase of Block A of Casa Pallotta. (1:50)
c. The main tower of Palazzo Uffici Comunali. (1:400)

A hypothesis was that the location of P actually produced some important proportions in the same way as in the composition of the staircases. After the polygon took form, the next step was to delineate the 'spokes', or the boundaries between sectors, so that the pointed pilasters could follow the direction. The spokes could, but not necessarily use the four centres that had defined the arches, just like the cases of corner B, C, D and E. The rest was a little different, since Ridolfi modified the orientation of the spokes that they didn't pass through the central point Q of the arch FGHI, but the subdivision of the sectors was more even. The other end of spoke G and H were relocated to the centre O, while F and I to Q1 which had never been defined before. A close examination showed that the distance of point P and Q1 to the centre O actually repeated the ratio of the rectangular circumscribing the polygon. (6.1m : 5.3m = 30.5m : 26.5m = 61:53) Thus the rectangle defined by these four points could fit in exactly two polygons in similar shape to the entire plan. The composition of Palazzo Uffici Comunali had secretly reiterated that of the two staircases, but in a self-referential way.

b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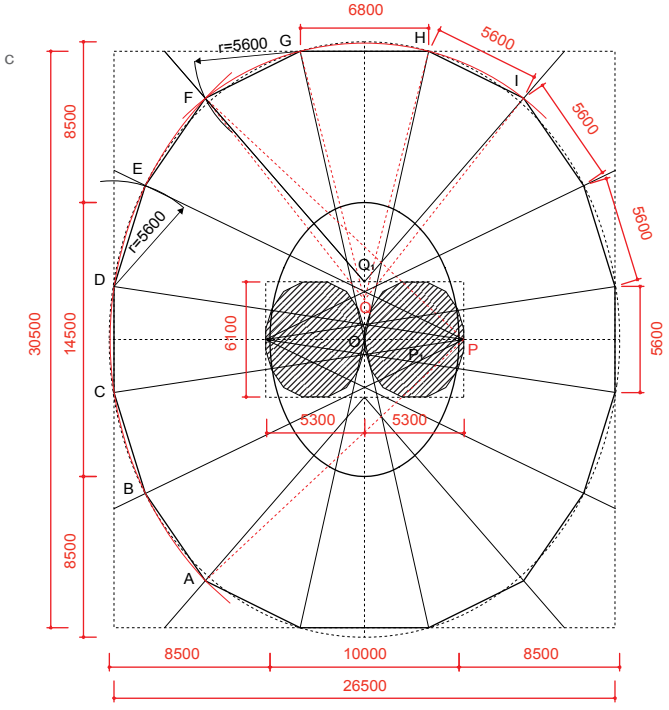
6800
r=5600
G
H
5600
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I
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O
P1
P
5600
C
5300
5300
B
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A
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10000
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26500

9.4 Architectonic form II: The node

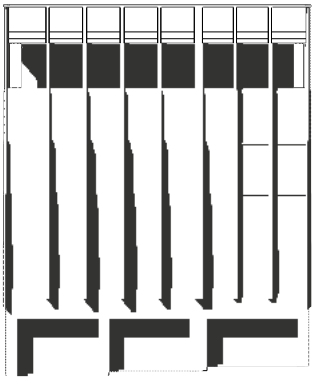
9.4.1 Prefabrication and the new component

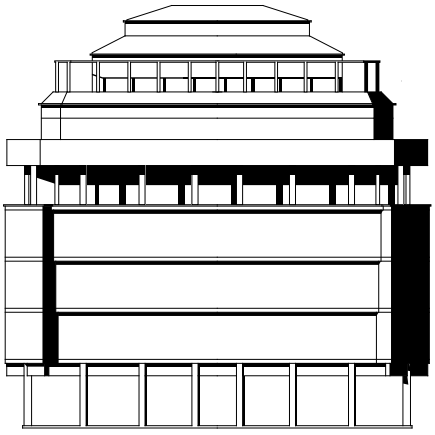
The node of concrete framework, already mentioned in the last chapter of Part II, had once been indicated by the seams of formwork in the pilasters of the middle school 'Leonardo da Vinci'. But in general, the existence was not as evident. The canonical model set by the towers in Viale Etiopia and the middle school had the pilasters in the foreground, generating continuous vertical lines, while the intersection with the slab was hidden behind. The construction system of Palazzo Uffici Communal was like a hybrid of the Casa Franconi and Pallotta that both horizontal and vertical components were in the foreground, thus their intersection became unprecedented visible.

In Palazzo Uffici Comunali, the node was separated from framework, and transformed into a new piece of component, which, according to existing construction drawing, was a special shell made in cast iron (pezzo special in ghisa). This change of material might have a plain reason: In Ridolfi's works realised in 1960s, the formwork of the pilasters usually couldn't reach the accuracy as suggested by the drawings, the tapering and the plastic quality wasn't really evident even when the structure was newly built. The pilasters of the Palazzo had even more delicate form, thus metal would definitely be a better choice for where the profile changed to provide sharp edges.

From a technical perspective, the meaning of the interruption of homogeneous framework was more profound. It actually witnessed the change of construction system from in-situ to prefabrication. It was a shame that the project was not built before Ridolfi's passing (not so much as 37 years later), because we didn't get a chance to see the definitive version of all the detailing since Ridolfi often developed them during construction. The prefabricated components, as well as some of the material indicated in the drawings were probably tentative, but they did light up a new architectonic form which was delicate enough to outshine the older members of the square, as much as they had inherited from those. In the construction drawing Ridolfi had meticulously visualised the form and organisation of most components, except that how the special piece of node in cast iron was joined to the concrete framework remained ambiguous. It was reasonable to believe that, as the detailing developed, every component in this system, including the pilasters and the end of slabs should become a part of prefabrication, because it was the best way to materialise such a complicated yet highly-integrated composition.

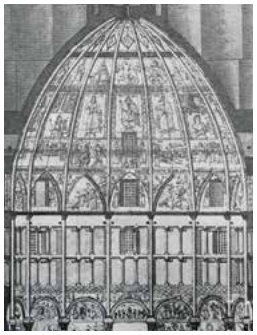
The composition of the elevation of Palazzo Uffici Comunali must be the most extricate and effective geometrical system Ridolfi had ever figured out (perhaps only Motel Agip could compare). It had combined the tapering pilaster of Casa Franconi with the change of configuration of floor slabs of Casa Pallotta. The infill walls and the form of the slabs between two pilasters were pointed, protruding outward and retracting inward alternately from bay to bay to produce a undulating effect on the





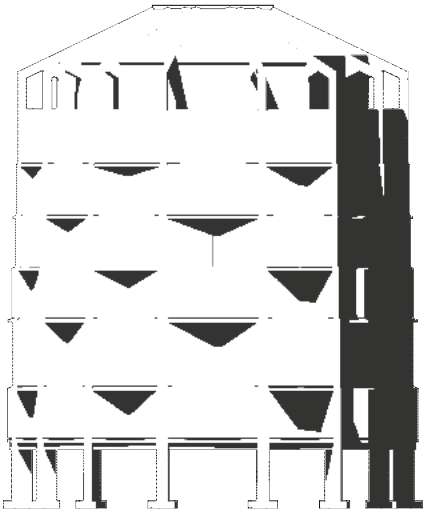
elevation. While from lower storey up, the amplitude was gradually reducing, until the fifth floor below the loggia the configuration of plan almost turned smooth. This effect was conspicuous comparing the shadows they created with Franconi and Pallotta: On the elevation of the Palazzo the shadows were no longer vertical or horizontal strips but discrete triangular patches whose form and dimension varied not only from bay to bay, but also from storey to storey. 9T9

Some historian had mentioned the resemblance between tower of Palazzo Uffici Comunali and the baptistery of Parma Actually these two buildings were similar in many ways. Not only the proportion of the static volume and how it was placed in its context, but also the special pointed form of the infill walls. Not coincidentally, the cupola of the baptistery was also divided into sixteen sectors, but the interest part was, the folds of roof surface of the cupola was not hidden behind the ribs but instead situated in the middle of two ribs. So the surfaces between ribs were also pointed, which was difficult to notice under the disguise of all the frescos, but still revealed some evidences when the folds met the apertures. 9F7



9T13 Front elevations of Block A of Casa Franconi, Casa Pallotta, and Palazzo Uffici Comunali, showing structural components with shadow. (1:500)

9F7 The internal elevation of the bapistery of Parma. The folds of roof surface were depicted in solid lines.

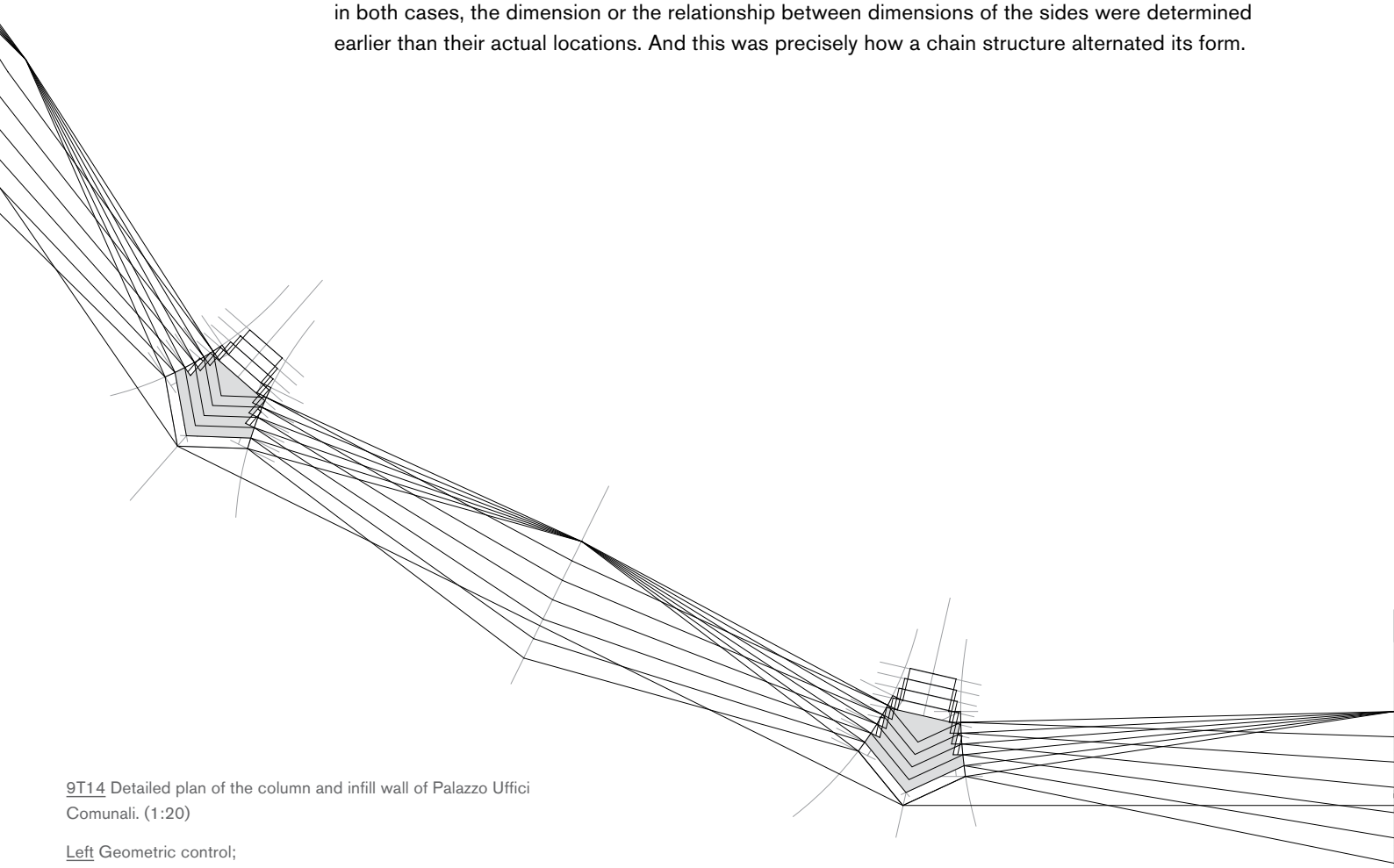


9.4.2 Geometry

To achieve such variation in appearance of the building, the architects had devised an extremely clever geometric system, to reduce the quantity of variants, so that the prefabricated components could perform to their best. Wolfgang Frankl had disclosed every detail of this geometry step by step in an article written for the commencement of construction in 1993,[47] which wouldn't be paraphrased here. But the result was, all the bay areas in the same breadths could be filled up with only one type of modules, except for the first floor due to the difference in storey height. As a consequence, of the components between every two pilasters, all profiles and boundaries were changing except for one, which was the vertex of the concave.

This geometry might have a clear reference that made it seem more natural and less calculated. In an earlier essay Ridolfi had written about the bicycle chain as an analogue to the configuration of the plan. 'The broken line that undoes along the outer perimeter is like a Galli chain, that of bicycles to be understood, arranged flat and that spreads or tints with its rods and its knots, auctions of shorter length at the sixteen main pillars and of longer length at the spans between pillar and pillar, salient spans and part of a basket-patterned weaving, spans made with prefabricated end of slab. The only points located on the same vertical are those of the vertices of the concave spans.'[48]

Although he didn't associate it with the construction of the geometry, but it was very likely that both definitions of the sixteen-sided polygon and the undulating form of infill walls were indebted to it, since in both cases, the dimension or the relationship between dimensions of the sides were determined earlier than their actual locations. And this was precisely how a chain structure alternated its form.



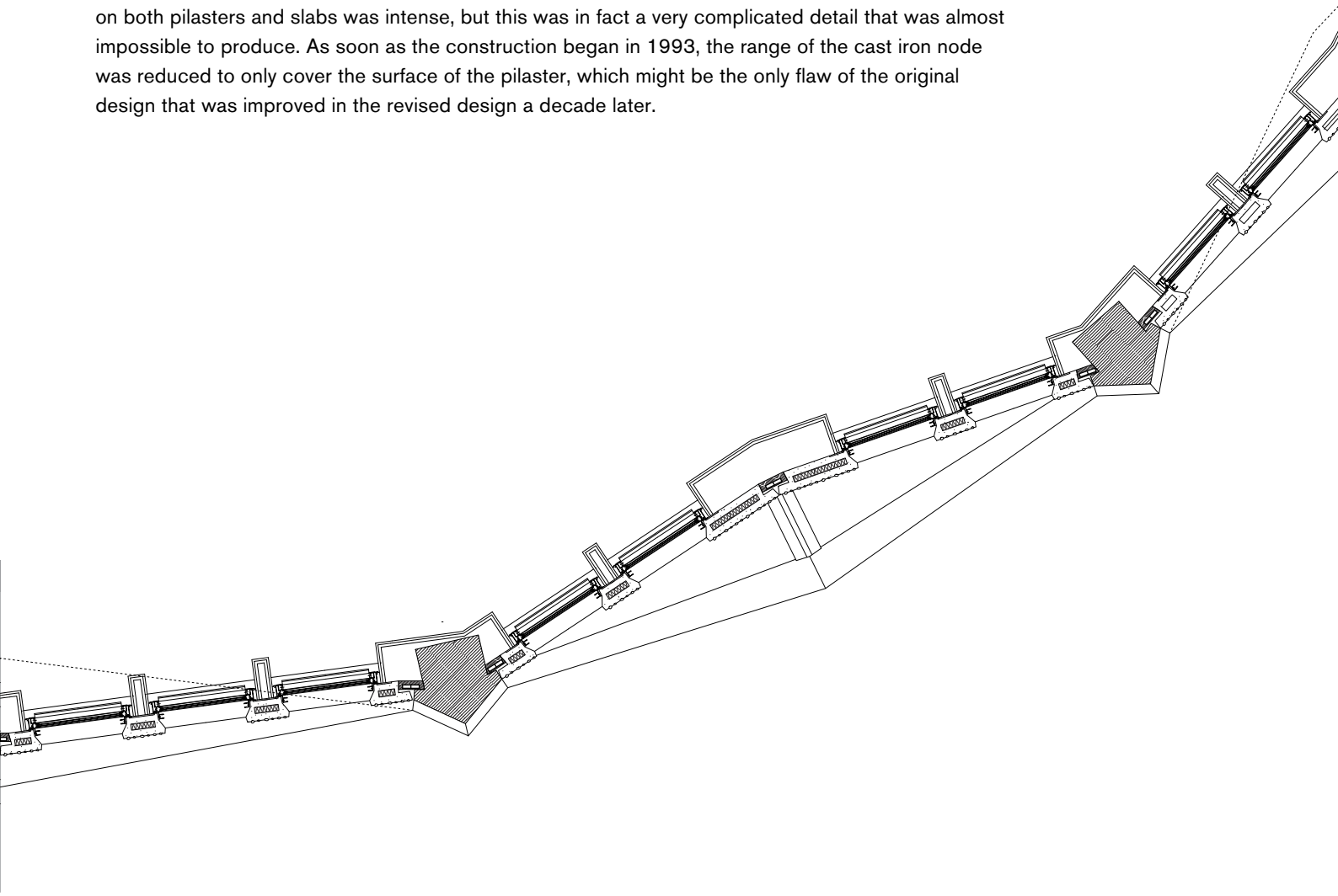
9T14 Detailed plan of the column and infill wall of Palazzo Uffici Comunali. (1:20)

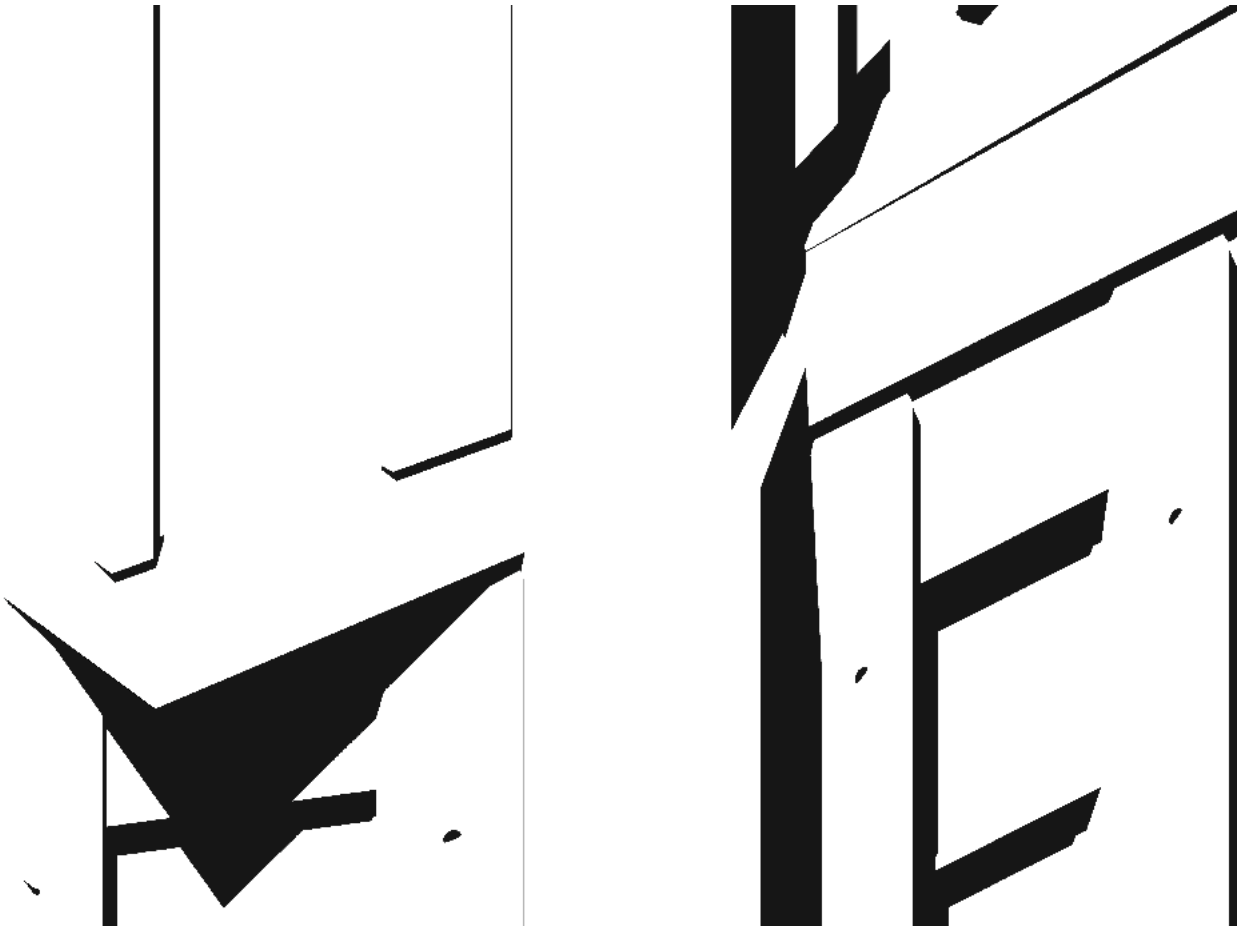
Left Geometric control;
Right Construction details.

9.4.3 Construction

The variation of geometric form sometimes entailed technical issues that could only be solved by construction details. For instance, when the floors of different configuration overlapped, there were some infill walls protruding like bow windows, where the detail of drainage was in need. Thanks to the projects of Motel Agip, in which the star-shaped floor slabs rotated and overlapped in a similar way, Ridolfi had developed standard details for these situations. In Palazzo Uffici Comunali, the thickness of the slab was 30 cm, which was the same as the heigh of cast iron node. And this height was further subdivided into three sections. The upper section of the node was the profile of the upper pilaster, while the lower was that of the lower pilaster. These two sections respectively corresponded to the inner edge and outer edge of the floor slab. In between, the tapered section of the node corresponded to the slops of slab, which were tilted in two directions, draining water to the pointed vertex. As a result, in the end of slabs the heights of the three sections changed gradually that the middle of the slab became the thinnest. In the situation where upper bays were protruding, the upper section of the slab was also interlocked with the tongue of prefabricated wall panels that by appearance the slabs looked thinner. 9T14-a While in the situation where the lower bays were protruding, an extra small roof made by travertine slate was introduced, to drain the recessed area of upper floors. And in this case, the slabs seemed much thicker than they actually were. 9T14-b

In the end, the node became a crucial link of the construction system since it was the traditional element of both vertical and horizontal components. In the construction drawing made by Ridolfi in early 1980s. The node was depicted as a shell which not only cladded the joint of pilasters but also extended on both sides to form sheathes for the end of slabs. Although the intention to put emphasis on both pilasters and slabs was intense, but this was in fact a very complicated detail that was almost impossible to produce. As soon as the construction began in 1993, the range of the cast iron node was reduced to only cover the surface of the pilaster, which might be the only flaw of the original design that was improved in the revised design a decade later.

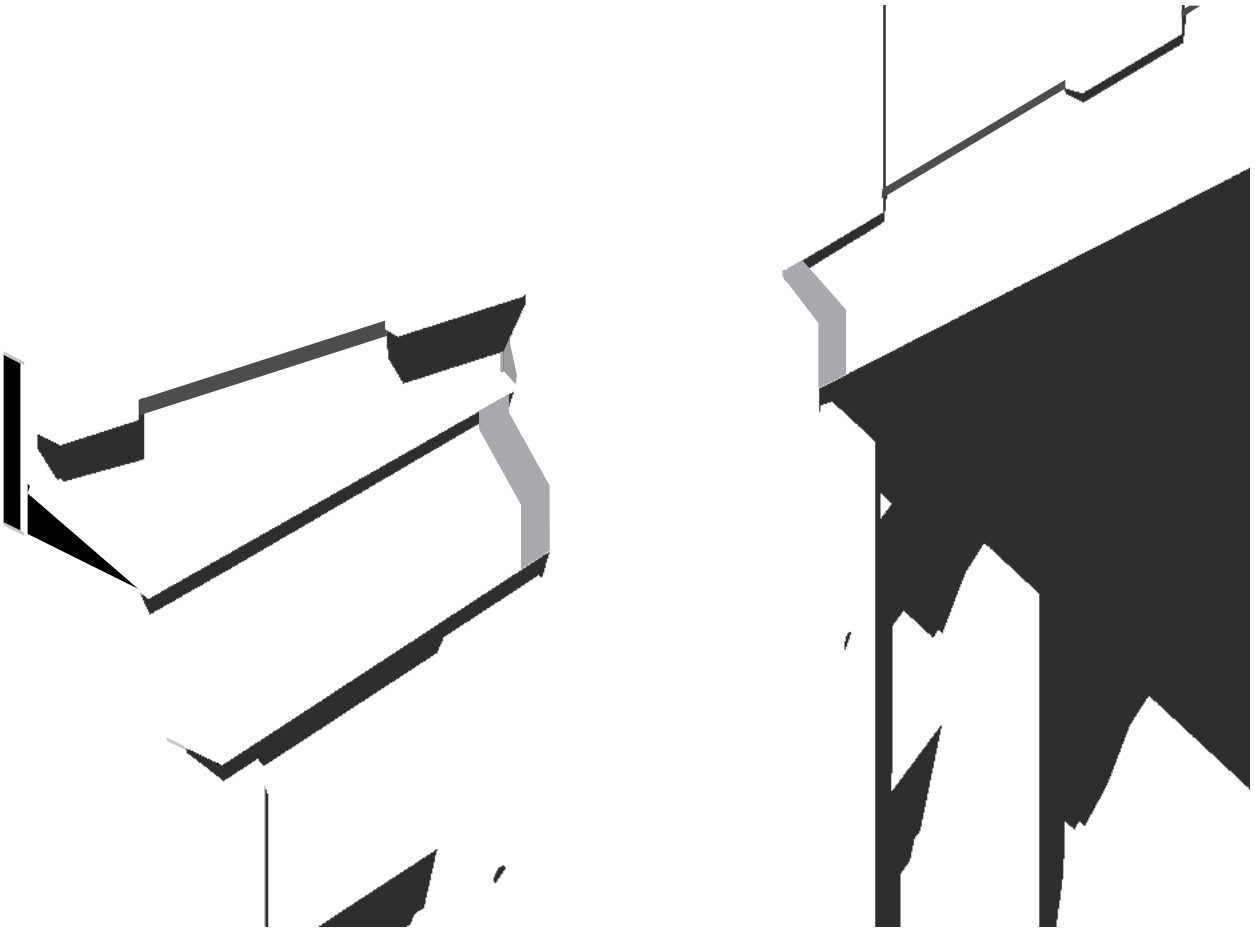




9T15 Axonometric drawing of two different types of the curb detailing, according to the relationship of infill walls of adjacent floors.

a. The ‘canopy’ situation.
b. The ‘roof’ situation.

9T16 (Next spread) Digital view of Via Spada based on the detailed plan of Palazzo Uffici Comunali in 1981.



Notes

1 The envision of piano regolatore concentrated purely on economical and political issues, usually considered as unpractical, while the regulation of piano particolareggiato was often unnecessarily detailed for each architectural project to follow. Thus the gap existed not only between the overall development and the actual form of the city, but also between the urban composition and individual building. Ludovico Quaroni, 'I principi del disegno urbano nell'Italia degli anni '60 e '70', in *Casabella*, 487/488, January/February 1983, 82-86.

2 Mario Ridolfi, 'Relazione: Variante al piano di ricostruzione Corso del Popolo Piazza Popolo e zone adiacenti', Terni, 15 September 1957.

3 The separation between the urban design and functional organisation takes place with the introduction of zoning as an operational category and the consequent distinction between the general regulatory plan and detailed execution plans, ratified in Italy, by urban law. See Vanna Fraticelli, 'Terni: progetto e città', in *Controspazio*, November 1974, 170.

4 As discussed in previous texts, it was known that, in some portion of the approved reconstruction plan, including Piazza Popolo and Corso del Popolo, Ridolfi didn't manage to incorporate his own design, but instead adapted the counterpart in the Bravetti-Lattes-Staderini Plan finalised in 1937, since according to the planning law, if a city already had approved master plan before the war, and the status quo of demolition didn't conflict with such envision, the old plan should be adapted. That's the reason why in the entire quarter of Popolo, the instruction for reconstruction remained vague. Apart from the property lines, no footprint of building was defined. And to the south of Piazza Popolo (where Casa Franconi is situated nowadays), a large area was left over for church construction in the future.

5 Although the longitudinal artery was once seen as the new Via Flaminia, it never functioned as expected, since the real Via Flaminia, was deviated 'to the north of the city, which has numerous advantages, both for internal and external traffic, shortening the current route and avoiding the crossing of a big city center'. See Mario Ridolfi, 'Relazione al PRG', in *Terni*, I, December 1959, 15.

6 'The road loses its monumental character and alludes, instead of novelty, to the tradition of a slow construction of the historic center as the result of a gradual adaptation to the needs of the community.' See Aldo Tarquini (ed.), *La città di Mario Ridolfi. Architettura, urbanistica, storia, arte, cinema, fotografia*, (Roma, 2005), 160. Also see Ludovico Quaroni, "Caratteri di Roma" (1954). Quoted in Bruno Reichlin, Antony Shugaar and Branden W. Joseph, 'Figures of Neorealism in Italian Architecture (Part 1)', in *Grey Room*, No. 5, Autumn 2001, 78-101.

7 The general regulative plan was finally approved in 1967.

8 Mario Ridolfi, 'Relazione: Variante al piano di ricostruzione Corso del Popolo Piazza Popolo e zone adiacenti'.

9 Il Palazzo, comunque, era di proprietà dell'Istituto delle Suore della Provvidenza, che aveva accettato di aprire una trattativa. Il consiglio comunale decise quel 28 dicembre 1957 di accettarne i termini. Si stabilì un sistema abbastanza articolato di permute: il Comune acquisiva Palazzo Spada, l'orto giardino di sua pertinenza, più un'area in via dell'Annunziata che era del Demanio Vescovile. In cambio alle suore andava un'area edificabile in via Curio Dentato in passato occupata dalla Caserma Brignone, più un'area di via Mazzini, l'ex Cavalerizza, anch'essa edificabile, e un'area di via Barbarasa. See Red. UmbriaSud, 'Terni, il Comune compra Palazzo Spada', https://umbriasud.com/2015/12/28/terni-il-comune-compra-palazzo-spada/.

10 See Il ministro segretario di Italia, per i lavori pubblici, Div. 23, N. 260, 1959.

11 Wolfgang Frankl, 'Corso del Popolo a Terni. Confine tra urbanistica ed architettura', in Casabella 489, march 1983, 51.

12 Ridolfi, 'Relazione', Terni, 1957.

13 Which was in contrast with '33 project, who referred to the typical way in which the city grew, the block, through the subdivision. See Vanna Fraticelli, 'Terni: progetto e città', in *Controspazio*, November 1974, 75.

14 The agreement reached with the Episcopal Demanio and with the Sisters was approved by the city council and there began the process that led to the transfer of the municipal residence at Palazzo Spada and the Corso del Corso with Piazza della Repubblica. See UmbriaSud, 'Terni, il Comune compra Palazzo Spada', https://umbriasud.com/2015/12/28/terni-il-comune-compra-palazzo-spada/.

15 From this assumption comes the need to build tower buildings and forms that urban image of Terni that, even in this case, is very different from other Italian cities. But this choice was also the result of a Ridolfian image that he loved to tell: he said he wanted to raise the homes of Terni from that foggy, damp and sometimes dusty layer, which many years ago was very intense in the parts closest to the river and therefore more contiguous to the historical centre. Aldo Tarquini, *Terni, città d'autore: Guida ad un percorso ridolfiano*, (Terni, 1996), 54. These high-rises were not realised.

16 Ridolfi, ibid.

17 'Piacentini made the corridor to go to St. Peter's, right? They have smashed two roads, they have rebuilt the houses they had demolished, the villages, no? But they opened this big road. Then the most wise urbanists, they said it was stupid, like for example doing the Renaissance course, right? But we must also understand the period in which this stuff was made.' Ridolfi also said, 'to say how the town planning was done then, it was done in the Piacentinian way.' See Carlo Doglio, Paola Venturi, *La pianificazione organica come piano della vita? Gli architetti della pianificazione organica in Italia 1946-1978*, (Padova, 1979), 405.

18 Piazza Solferino was designed by Carlo Aymonino. The architect also had an unrealised three-square-project in 1985, integrating all the squares except for Piazza Spada. See Carlo Aymonino, *Piazze d'Italia: Progettare gli spazi aperti*, (Milan, 1988), 111-119.

19 Tarquini, *Terni, città d'autore*, 57.

20 Tarquini, La città di Mario Ridolfi, 193.

21 Francesco Tentori, 'Opere recenti di Mario Ridolfi', in *Casabella-continuità* 249, March 1961, 4-5.

22 Christoph L. Frommel, 'Sul progetto di Mario Ridolfi e Volfango Frankl a Terni', in *Zodiac* 10, 1993-1994, 115-117.

23 Block A of Casa Franconi seemed to be the only exception which is going to discussed later.

24 'Sulla sinistra del portale c'è una curiosa finestrella a losanga su cui sI inscrive un'ulteriore apertura quadrata, forse utile ad indicare la sepoltura

del patrono Sant'Anastasio, le cui ceneri ora si conservano, dopo varie traslazioni, in un'anfora posta nella controfacciata della Cripta'. In Daniela Ricci, 'Relazione didattica: Santa Maria Assunta - Duomo di Terni', march 2018, https://leora.gov.it/wp-content/uploads/sites/78/Relazionedidattica.pdf.

25 Paola Signori, 'La scuola materna di Poggibonsi e l'arretratezza dell'edilizia scolastica italiana negli anni cinquanta', in Fabrizio Brunetti (ed.), *Mario Ridolfi : 1984*, (Poggibonsi : Lalli, 1988), 25.

26 Kostas Tsiambaos, 'The Creative Gaze: Doxiadis' discovery', in *The Journal of Architecture*, Volume 14, Number 2, 2009, 255-275.

27 Richard A. Etlin, 'Auguste Choisy's Anatomy of Architecture', in Javier Girón and Santiago Huerta (ed.), Auguste Choisy (1841-1909): *L'Architecture et l'art de bâtir. Actas del Simposio Internacional celebrado en Madrid*, 19-20 de noviembre de 2009, (Madrid: Instituto Juan de Herrera, 2009), 151-181.

28 14 versions was according to Giacomo Polin, '' in *Casabella* 489, March 1983, 48. Or 16 versions, according to Aldo Tarquini, La città di Mario Ridolfi: Architettura, urbanistica, storia, arte, cinema, fotografia, (Roma, 2005), 229.

29 Specified in the commission letter of Casa Franconi (originally Casa Mascolo): 'Preliminary project of the two buildings to be built in Terni on areas facing the new Corso del Popolo, about the height of Palazzo Spada, already verbally specified and indicated in the variant to the reconstruction plan with the approximate dimensions of 20,00x21m, 50m and 28.50x15.00m.' See, 'Incarico progettazione fabricatti in Terni', 4th March 1959, FRFM CD131/A1.

30 Paolo Portoghesi, 'Palazzina romana', in *Casabella* 407, novembre 1975, 17-25.

31 Plinio Marconi, 'I recenti sviluppi dell'architettura italiana in rapporto alle loro origini', in *Architettura e Arti Decorative*, XV, November 1931, 761-815.

32 Based on the planning law, the palazzina was usually '25 meters of limit extendable to 35 provided that there are partial withdrawals; maximum height 17 meters, including three floors in addition to the ground, raised or at ground level; attic surface equal to 3/5 of the covered area; detachments from the internal borders of 5.70 meters', which was closed to the solution Ridolfi unravelled in detailed plans of Terni.

33 'The spirit of the standard implicitly admits the use of façade-edged crowns used for decorative purposes to mask the roof covering behind. There are many examples of the Renaissance and subsequent periods such as the Library of S. Marco of Sansovino in Venice, the buildings of the Conservatories and Capitoline museums and the Palazzo Odescalchi in Rome.' See Mario Ridolfi, Letter to the mayor, 18th October 1959, FRFM CD131/A14; and 10th February 1960, FRFM CD131/A

34 Paolo Portoghesi, Renato Nicolini, 'A proposito di un centenario', in *Controspazio* 114-115, 2005, 19.

35 Vincenzo Fasolo, *Analisi Grafica dei Valori Architettonici*, Roma : Istituto di storia dell'architettura, 1955, 23-24.

36 'The living room located in the heart of the house (Block B of Casa Franconi) determines its character, with the loggia centred at the headboards with views towards Palazzo Spada and towards the Collescipoli hills to the south.' FRFM CD131/A3.

37 'Intervista a Ridolfi', *Controspazio* VI, 1974, march, 97, 100.

38 The approaches to Casa Lina were carefully categorised into several groups, A, B, C, D E and so on, in each group the design was developed consistently. While in the first phase of Palazzo Uffici Comunali the approaches seemed to be less targeted. The sequence and categorisation into different versions was only organised years later and published in Casabella 489, 1983.

39 In fact, version 7 and 8 were often regarded as eclecticism and 'inutile addentrarsi a decifrare', thus never given much attention. See, Giacomo Polin, 'Mario Ridolfi, Wolfgang Frankl, Domenico Malagricci, Nuovo Palazzo per uffici del Comunali a Terni', in *Casabella* 489, March 1983, 48.

40 Gianmichele Panarelli, 'Il Progetto del Nuovo Palazza per Uffici Comunali', in Luigi Cavallai (ed.) Ridolfi e Frankl, Progettare e Costruire, il Nuovo Palazzo per Uffici Comunali a Terni, Quaderno DiTAC, 4, Università G. D'Annunzio, Dipartimento di tecnologie per l'ambiente costruito DiTAC, Pescara 2000, 74.

41 '[Y]ou also have to be a little ironic with architecture; and also self-deprecating: the municipal building of Terni that we are finishing to design, we called it 'bidone', because, if we are the ones who call it 'bidone', no one else can say anything worse about its shape. But, in fact, it is very beautiful, because it resembles the cista Ficoroni, that beautiful copper vessel that is located at the Etruscan museum in Rome.' Mario Ridolfi, 'L'incontro di giugno', in Fabrizio Brunetti (ed.), Mario Ridolfi : 1984, (Poggibonsi : Lalli, 1988), 69.

42 With this project, and 'A library in the garden', Ridolfi won the special prize of encouragement in the competition of Pensionato artistico in 1927. The jury's comment was that both projects concentrated too much on the visual appearance while sacrificing other aspects, but they successfully gave new life to the architectural classicism. See Luigi Piccinato, 'Il Pensionato artistico 1927', in *Architettura e Arti Decorative*, February 1928, 271-279.

43 'It was the then post-war mayor Ottaviani who began the process by buying the administration, first the ancient Palazzo Spada and then planning the restructuring of the three adjacent buildings on Via Roma "Fulvi Fabbri and Pierfelici", and then complete in court area of the same that overlooked the new street, with a new building that was both the center of gravity and hinge of the entire political and administrative complex of the city.' Luciano Marchetti, 'L'Uovo di Ridolfi', in Tarquini (ed.), *Terni, città d'autore: Guida ad un percorso ridolfiano*, (Terni, 1996), 229.

44 Wolfgang Frankl, 'Corso del Popolo a Terni. Confine tra urbanistica ed architettura'.

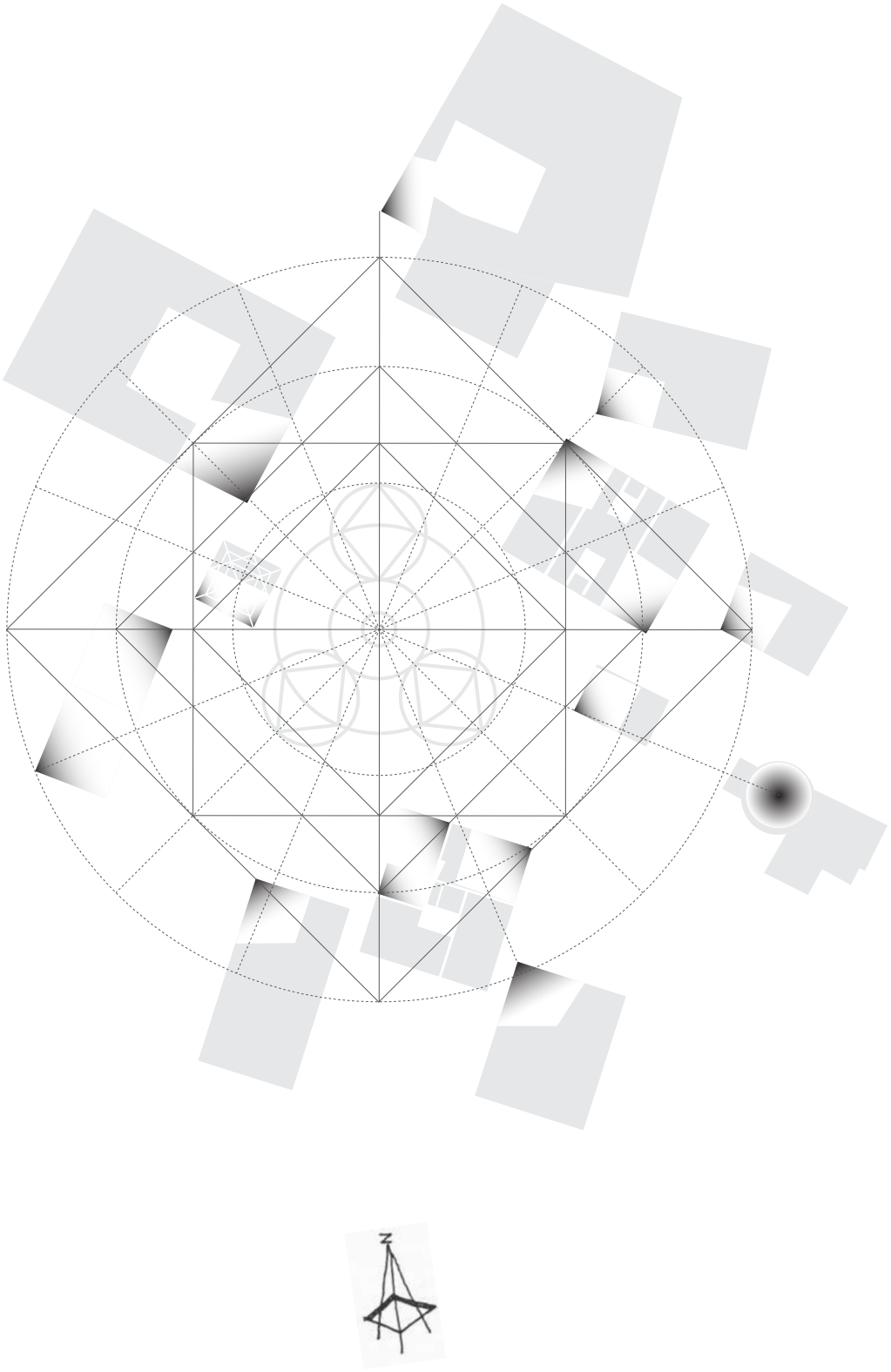
45 Mario Ridolfi, 'La torre della continuità', in *Casabella* 489, March 1983, 50.

46 The same as the panel used in the Complex of Brother Fontana in the north of the city, or what was planned for in Motel Agip.

47 Mario Ridolfi, Volfango Frankl, 'Palazzo degli uffici comunali a Terni', in *Zodiac* 10, 1993-1994, 101-105.

48 Mario Ridolfi, 'La torre della continuità', in *Casabella* 489, March 1983, 50.

Conclusion



The project of Terni was not only a unique case in Ridolfi's oeuvre, but almost non-repeatable in modern or contemporary urban-architectural practices, although the prerequisite leading to this uniqueness were never seen as positive. In the architects' words, the centre of Terni was destroyed twice, once by the brutal intervention of modern urbanism, the other by the war. Ironically, the superimposed effect of the two was less disturbing as they relatively alleviated the possible damage caused by each other, while the architect/planner was allowed to make shift from the mistakes made by the original planner decades before, 'turning a straitjacket into an elastic bandage without, however, having to give up the starting setting.' [1]

The 40 years of devotion and exploration since the first survey among ruins until his passing leaving the project of new municipal offices, was not just a remedy. Since this was sadly the only location in historical centre among all the planning and architectural projects of the architects, they kept practicing and learning, from the battle against interweaving forces between urbanism and architecture, making adjustment of previous moves, in order to carry out their projects as complete as had envisaged. In this concern, Ridolfi had not only circumvented prevailing regulations to alleviate the damage, but also deviated from the rules they set for themselves to reach a more accurate result.

There were two decisions Ridolfi made that had changed forever the urban identity of Terni. The first was the variant to the reconstruction plan put forward in 1955, which clearly brought the whole project onto a new stage. The second was the application of a consistent construction system, the combination of visible framework with infill walls developed earlier and elsewhere, in contrast to the sculptural volumes of *roman palazzine*. The correlation of the two represented the fundamental conception of Ridolfi's unification of urban and architectonic intervention.[2] If possible the architects would design the city in the same way they design every building of the city, which was exactly how Ridolfi did in the beginning, but in reality, the enormous gap between urbanism and architecture was still marked up by a technical operation called plani- volumetric control, which was obviously disdained by the architects.[3] Ridolfi's approach to fill the gap, instead, was *architettonica-urbanistica* in a spontaneous manner, since the architects already had in mind the basic constructional form to appropriate to each building with modification complying with the actual context, or to embody the relationship in between them. Therefore the instructions written on the detailed plans had defined not only the form of the framework, but also its relationship with the enclosure (loggia, depth of setbacks), as if they were simplified version of schematic design. And for the same reason, constructional form of the projects as built could also deviate from how they were conceived, as in the case of Casa Franconi and Pallotta.

It was not a coincidence that Ridolfi's ternian works gathered on the old and new longitudinal road of the city centre, Via Roma - Corso Vecchio and Corso del Popolo - Corso Tacito. Casa Briganti and the Complex of brother Fontana on the latter weren't discussed much in this thesis, since these two projects came along in a more predestined environment, medieval and modern respectively, where the architect worked mostly as an architect. While the other two set of works, in the area San Francesco and Piazza Sapda, exemplified the essence and development of Ridolfi's approach to urban intervention in two stages.

Before the variant plan, in the first stage of ternian project, Ridolfi had already concerned intensely on how to participate in existing conversation with architectonic features, which underlay the counterposition of the middle school and Casa Chitarrini, even if they seemed to be two separate buildings. The connection and contrast in architectonic composition of the two was remarkable and perfectly represented the symmetrical situation of how they were placed in the city. In the end the constructional form of the two buildings infused with artisanal details was probably not that isolated.[4]

These two early projects made a perfect prelude for the works on Piazza Spada, since they already presented all possible conceptions and methods to be exalted later in the following years, one of which was definitely the visual control in definition of urban structure. It was noteworthy that this was not an independent approach, but related to a major analogy between city and theatre, as well as Ridolfi's

10F1 Systemisation of Largo Villa Glori, Mario Ridolfi, ca. 1949.

10F2 Piazza Mercato in Terni, Orneore Metelli, 1920. In the background the highest structure was the turret of Palazzo Spada.

compositional apparatus indebted to scenography. The way Ridolfi envisaged the urban environment resembled, both concept and method wise, Orneore Metelli's depiction of the historical centre in Terni,[5] where squares were captured as stages of public happenings, with that picturesque quality created by variegated edifices including a high-rise arranged irregularly in different layers as the backdrop. 10F1 10F2 Largo Villa Glori in front of Casa Chitarrini was almost set in the same manner, while the view to the bell tower had defined the axis of the whole area and the reference of the two buildings. Piazza Spada itself was a reference to theatre, both in its dimension and composition, whose backdrop was defined by not one, but eight axes incorporating historical monuments and new civic architectures into a a panoramic scene.

On the set of works around Piazza Spada, there was not only the correlation between the constructional forms, the components in counterposition, such as curbs and pilasters. Ridolfi also explored another apparatus to bury the relationship deep behind the appearance. Scrutinisation on geometric composition of the square, singular building and construction details had eventually revealed an almost paranoid isomorphism approach in which the same figure / pattern was incessantly applied in various scales and translated into urban and architectonic forms. Such compositional preference was already disclosed in Ridolfi's late statement: 'The ancients have always been our great masters; and this is really a fact to take into account, even if you didn't always want to recognise it. When they were designing, I mean, to give an example, to what I did here in this room, the ancients really reproduced the roof in plan; and it is very important that they want to establish this bond between the floor and the roof. It is as if the environment was already in itself furnished, already prepared, in a certain sense, to accommodate the furniture, the arrangement of which became, in some way, closely linked to this relationship.' [6] In general interviews Ridolfi talked about function, technics, or people's experience, but never about these compositional relationships because the compulsion of definition and organisation of these relationships was so natural and immanent that didn't need to be addressed.[7] Ridolfi's representation of his was always down to earth, sometimes the decorative pattern was applied straightforward that was almost too finicky to be part of the whole. But the ternian works, however, definitely showed a integral concerns between each individual buildings and between them and their environment, where volume, framework, and relationship was meticulously organised as form, material, and technics were organised in construction details. The systematic way of thinking and making went beyond pictorial amenity, which must be an insuperable gap that distinguished Ridolfi's works from ridolfian works.

Ridolfi was more sensitive to built forms rather than metric or mathematic geometry. There wasn't a consistent proportion system underlying his works, even though he had preference towards certain ratios or numbers. What he consistently resorted to to integrate each component in a building, or individual building in a set of urban scenario, was the process of appropriation of geometric leitmotif into variegated urban-architectonic forms. The motif could be meaningful in itself, as with the inscribed lozenges Ridolfi abstracted from the facade of the cathedral, but after all it was justified by the approach of materialisation.

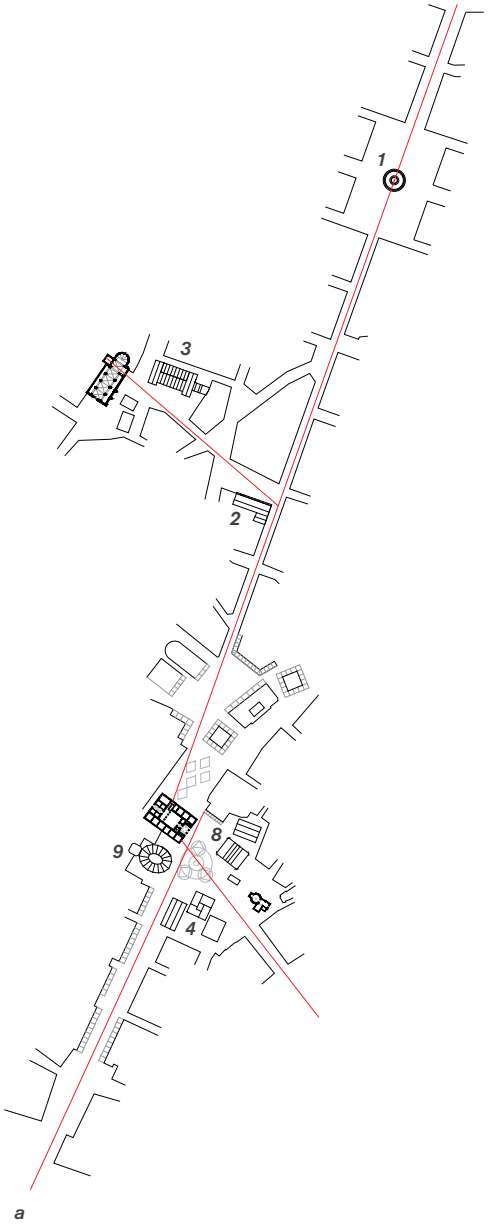
When Ridolfi and Frankl's works were featured in 1980 Biennale in Venice, it was difficult to recognise the relationship between them and their environment, especially when most attention

was paid on detailing and the buildings were represented as freestanding volumes in central plans, instead of organic, site-specified forms.[8] However, the ternian project proved that craftsmanship in the operation of architectonic details was a reflection of its position in the city where form and context was equally pondered, towards a result that the individual centralised form was internalised and inherited from genius loci of the urban environment. There's nothing wrong arguing that the technical experience Ridolfi had carried out in Terni was outdated. In fact, even if it were realised in time, the project of Palazzo Uffici Comunali was already old-fashioned; A building of this kind could have been built in the sixties, the same period of Albini's La Rinascente. After all Terni is not Rome or Milan, but just that could an architect have the privilege to build a square as if it were lattice of a window. Ridolfi will always be remembered as a master of detailing, but it is the craftsmanship as a systematic way of thinking, dealing in fields from construction details to urbanism alike that allowed Ridolfi's ternian works to be timeless.

10T1 Ridolfi's ternian works and historical monuments connected by the old and new decumano massimo, based on the 1959 version of detailed plan. (1:7500)

a. Corso del Popolo and Corso Tacito
b. Via Roma and Corso Vecchio

1. The fountain Tacito
2. Casa Chitarrini
3. The middle school of 'Leonardo da Vinci'
4. Casa Franconi, block A and B
5. Mixed-use complex of the Fontana Brothers
6. Casa Briganti 7. Casa Staderini
8. Casa Pallotta, Block A and B
9. Palazzo Uffici Comunali



Notes

1 Wolfgang Frankl, 'Corso del Popolo a Terni. Confine tra urbanistica ed architettura', 51.

2 'Between urbanism and architecture there was not always that deep division, overshadowed by prohibitions, laws and decrees, as we see it today. Some time ago Pope Alexander VII client and urban planner could talk with his architect Bernini in front of the great plastic of Rome and meditate on the great interventions such as Piazza S. Pietro, Piazza Navona, Scala di Spain, Little Ripetta and we today admire the perfect harmony between urban planning and architecture; indeed, we hardly notice that these are two distinct disciplines.' iBid.

3 'For the mass of the architectural production I am not in favour of the "Planivolumetrico". Important decisions - the choice of volumes - must be made before the needs analysis can be made, and this condemns the method itself. Too strict prescriptions can prevent many solutions before birth and do not stimulate a general vision.' iBid.

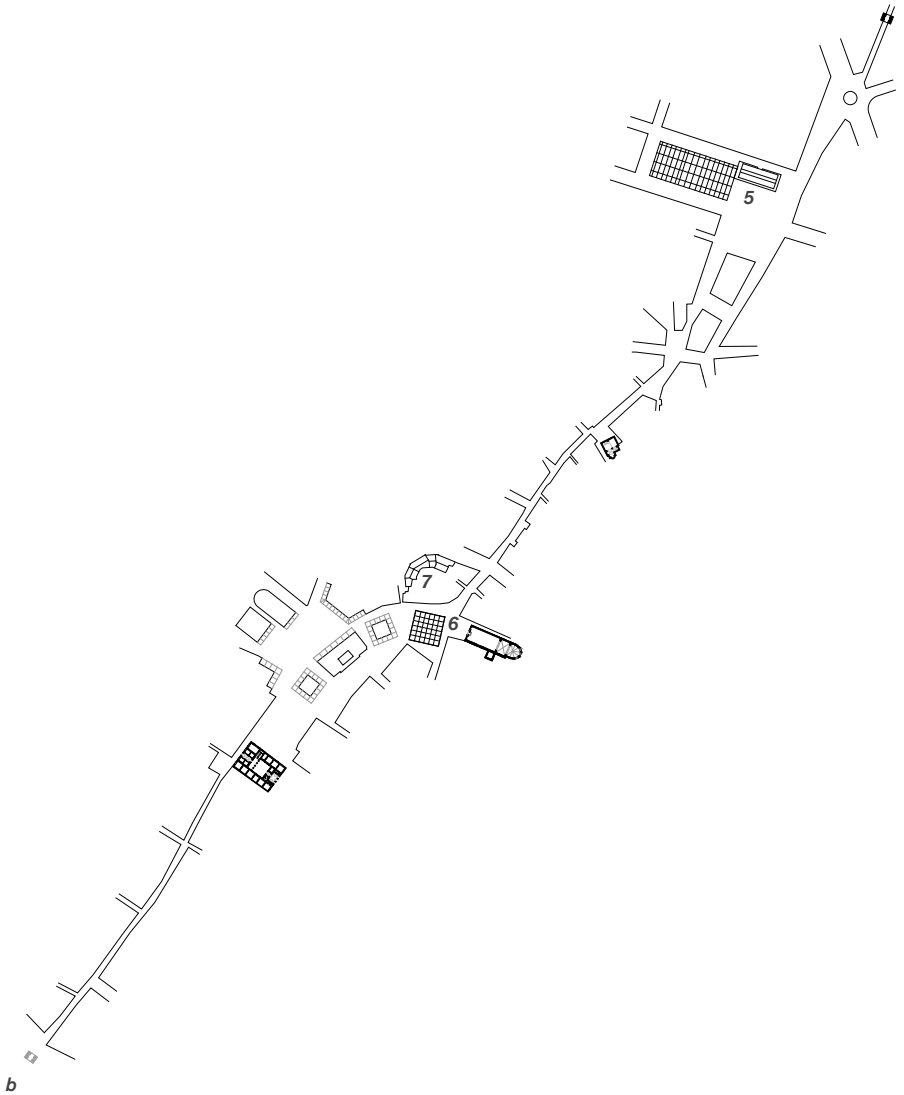
4 Reviewing Ridolfi ternian works, Tafuri had stated that, especially in comparison with roman palazzine, 'Ridolfi's philosophy of "doing well" lost its baroque nuances, especially when applied to reweaving the urban fabric of Terni, which had been chosen as the site of a mediation between differing worlds meeting in the poetics of the increasingly isolated craftsmanship of form. That philosophy did, however, recharge itself with unexpected expressive "furor" in a singular project, which became Ridolfi's definitive farewell to the cultural battle.' Manfredo Tafuri, *History of Italian Architecture, 1944-1985,* (Cambridge, Massachusetts: The MIT Press, 1989), 86-87.

5 Orneore Metelli (1872-1938) was a native umbrian who lived in Terni and a self-taught amateur painter.

6 Mario Ridolfi, 'L'incontro di giugno', in Fabrizio Brunetti (ed.), *Mario Ridolfi : 1984*, (Poggibonsi : Lalli, 1988), 69.

7 As an explanation of the detail of metal inlay of the staircase in Casa de Bonis I (1971-74), Ridolfi said, 'those who see this staircase will find a small circle of bronze on the ground floor, set on the ground floor, and all those who visit this staircase think that this is the point of the geometric origin of the whole constructive system. That's not so guys that circle is actually a small box that contains a seed, the seed is that tree that sooner or later will sprout!' See Luciano Marchetti, 'L'Uovo di Ridolfi', 30. This detail reminded of the pattern that marked up the centre of Piazza Spada, which could be merely a light pole but at the same time an unsung compositional mark.

8 'In fact, the retrospective allusions, due to the shift from technology to traditional morphologies, have earned him the recognition of being a forerunner of the post-modern current (so it was presented, along with Gardella and Johnson, in the 1980 Biennale in Venice).' See Leonardo Benevolo, 'Ricordo di Mario Ridolfi', in *Casabella* 508, December 1984, 30.



Appendix

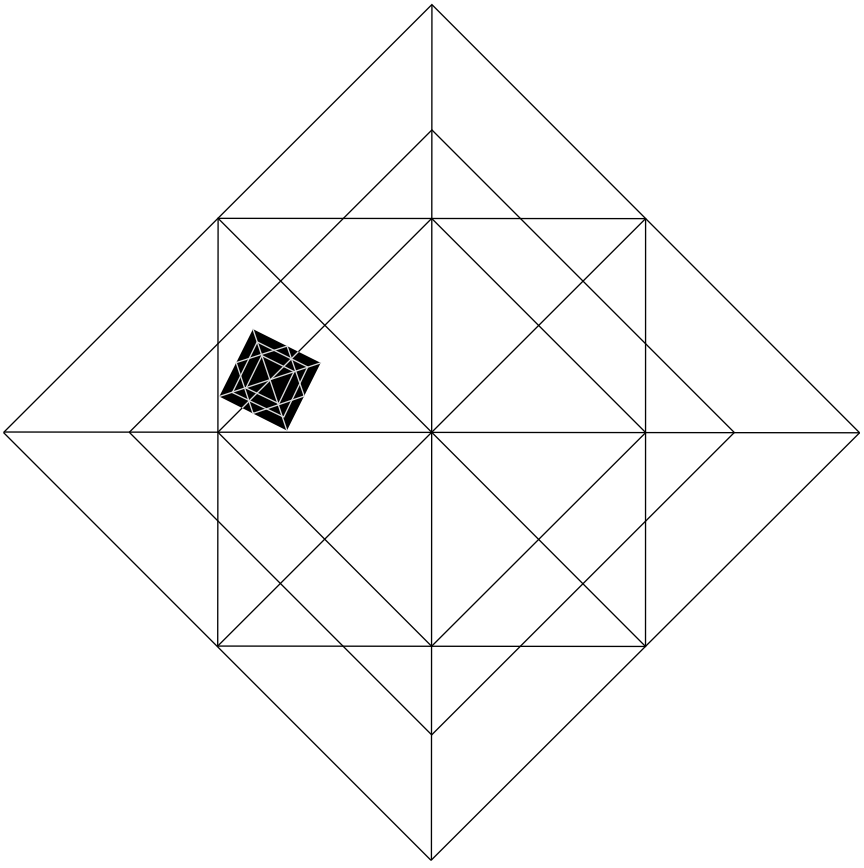


Illustration credits

FRFM = Fondo Ridolfi-Frankl-Malagricci, Accademia Nazionale di San Luca
ACT = Archivio Comune di Terni, Palazzo Spada

All vector drawings: 1T1, 2T1-3, 3T1-4, 4T1-6, 5T1-20, 6T1-8, 7T1-11, 8T1-21, 9T1-16, 10T1, AT1 by the author.

1F1 Vista de la maqueta, from *Arquitectura. Revista del Colegio Oficial de Arquitectos de Madrid* 271-272, 1988, 146.

2F1 Pianta della città di Terni nel sec. XVII, stampa di Pierre Mortier (Amsterdam), from M. Ridolfi, 'Relazione al PRG', in *Terni*, I, dicembre 1959, 10.
2F2 Pianta del centro storico del 1854, from A. Tarquini (ed.), *Terni città d'autore. Guida ad un percorso ridolfiano*, Terni 1996, XX.
2F3 Mappa di Terni fine XVIII secolo, from A. Tarquini, *Terni città d'autore*, XX.
2F4 Piano regolatore di Terni, Enrico Lattes, 1933, 'Progetto 613', from A. Tarquini (ed.), *La città di Mario Ridolfi. Architettura, urbanistica, storia, arte, cinema, fotografia*, Roma 2005, 69.
2F5 Schizzo demostrativo della divisione in 'Rioni' della città di Terni nell ex stato pontificio (anno 1859), from http://www.terninostru.it/rioni-della-citta/.
2F6 Concorso per il pensionato nazionale 1930, progetto vincitore, Arch. Mario Ridolfi, Progetto per la sede di un'ambasciata in una città dell'America latina, pianta del primo piano, from Architettura e Arti Decorative, VIII, aprile 1931, 393.
2F7 L'aula centrale, from F. Brunetti (ed.), *Mario Ridolfi 1984,* Poggibonsi 1988, 42.

3F1 Bombe zona San Francesco, from https://umbriasud.files.wordpress.com/2018/08/bombe-zona-san-francesco-2.jpg.
3F2 Planimetria della zona centrale della città, Emanuele Caniggia, 1944, form FRFM CD68.
3F3 Fianchi, from *Architettura e Arti Decorative*, VIII, aprile 1931, 394.
3F4 Schizzi di studio di Mario Ridolfi relativi al Piano di Ricostruzione della zona del centro storico di Terni, 1944 circa, from Tarquini, *La città di Mario Ridolfi*, 89.
3F5 Veduta prospettica della piazza del Comune, Mario Ridolfi, ca. 1945, FRFM CD68/I/(2).
3F6 Progetto per la sistemazione di un'area in piazza Tacito a Terni, Mario Ridolfi, 1947, FRFM CD73/I/(4).
3F7 Studio per l'attuazione de Piano di Ricostruzione, la Piazza del Mercato, Mario Ridolfi, ca. 1945, from *Controspazio*, 3, novembre 1974, 172.

4F1 Schematic plan of Largo Villa Glori, Mario Ridolfi, ca. 1945. FRFM CD68/VII.
4F2 Michelangelos Kapitolsentwurf. Umzeichnung des Grundrißstiches von 1567, from Harmen Thies, *Michelangelo, das Kapitol*, (München: Bruckmann, 1982), 26.
4F3 Breitestraße in Lübeck, Camillo Sitte, 1889, from XX
4F4 Veduta prospettica lungo via Tacito, Mario Ridolfi, ca. 1945. FRFM CD68/I/(1).
4F5 Transversal section of Largo Villa Glori, Mario Ridolfi, ca. 1949. FRFM CD90/I/6'.
4F6 Church San Francesco before bombardment with transept, Church San Francesco restored. Vintage postcards.
4F7 Views of the bell tower (and small portion of Casa Chitarrini and the middle school) walking from Corso Tacito towards San Francesco. Photograph by the author.

5F1 Chiosco-bar in piazza di Monte Savello: planimetria generale, piante, prospetti, sezioni, vedute prospettiche, Mario Ridolfi, 1946. FRFM CD71/I/(1).
5F2 Patterns of ceramic tiles, residential towers in Viale Etiopia in Rome, from *Casabella-continuità*, 215, aprile-maggio 1957, 24.
5F3 Vedute del modello, Concorso per il completamento del fabbricato viaggiatori della nuova stazione di Roma Termini, 1947, from Controspazio, 3, novembre 1974, 95.
5F4 Studi per lampioni, Mario Ridolfi, ca. 1946, from FRFM.
5F5 Attic floor plan and roof plan of the main staircase in Casa Chitarrini, Mario Ridolfi, 1951. FRFM CD90/I/6.
5F6 Plan of the Thersilion in Megalopolis, Greece, 370 BCE, From http://socks-studio.com/2018/12/27/the-thersilion-in-megalopolis-greece-370-bce/.
5F7 Office building of the firm Wayss & Freytag in Haardt, from Emil Mörsch, *Der Eisenbetonbau, seine Theorie und Anwendung*, 1908, 229, 232.
5F8 The middle school of 'Leonardo da Vinci', first stage, south elevation, Mario Ridolfi, 1952. FRFM CD104/I/6''.
5F9 Physical model, Institution of Technics "Antonio Bordoni" in Pavia, Mario Ridolfi, 1934, from *Controspazio* 112/113, 57.
5F10 Perspective, Italian African ministry in Rome, Mario Ridolfi, 1937-1939, from FRFM.
5F11 INA-Casa residential district in Cerignola, Type D and E, south elevation, Mario Ridiofi, 1950. FRFM CD94/I/6.
5F12 Interior view of the corridor in front of the offices. Photography by the author.
5F13 Interior view of the transitional space, showing the diagonal boundary of the staircase and the sloping soffit of the platform. Photography by the author.
5F14 Drawing of Santa Maria Maggiore in Rome. Assignment to the course 'Drawing from life and survey of monuments', Mario Ridolfi, 1924-25, from *Controspazio* 114/115, 26.
5F15 Interior wall detail of Cathedral Chapel of S. Cassio with marble slabs (12th cent.), Narni, from Corrado Ricci, *Romanesque architecture in Italy*, (New York: Brentano's INC.), 119.

6F1 Reconstruction of Corso del Popolo, from M. Coppa, 'Il piano regolatore di Terni', in *Urbanistica*, 35, marzo 1962, 66-67.
6F2 Piazza Spada under construction, ca. 1959, from ACT.
6F3 The property of the monastery, Plazzo Spada and the lot behind. Based on Mappa del Catasto Pontificio, 1854, from M. L. MORONI, P. LEONELLI, *Il Palazzo di Michelangelo Spada in Terni*, (Comune di Terni: Il Circoscrizione - Interamma, 1997),

118.

6F4 Variant of reconstruction plan: Corso del Popolo, centre and adjoining areas, Mario Ridolfi, 1959, from ACT.

6F5 Master plan, Piazza della Vittoria, Marcello Piacentini, Brescia, 1927-1932, from Renato Pacini, 'La sistemazione del Centro di Brescia', in *ARCHITETTURA rivista del sindacato nazionale fascista architetti*, XI dicembre 1932, fascicolo XII, 651.

6F6 Palazzo dell Istituto Nazionale delle Assicurazione, Marcello Piacentini, Brescia, 1927-1932, from *Rassegna di Architettura, Rivista Mensile di Architettura e decorazione*, Anno IV, 15 Novembre 1932 XI, Numero 11, 454.

6F7 Variant of reconstruction plan: Longitudinal sections along the street axes and elevations of building volumes beside the new streets, Mario Ridolfi, 1959, from ACT.

6F8 Ariel view of the centre of Terni, 1908-09, from https://www.inasaroma.org/patrimonio/wp-content/uploads/2017/10/RICCI-TERNI-9128-RECTO.jpg.

6F9 Perspective view of Corso del Popolo, Mario Ridolfi, ca. 1945, from ACT.

6F10 Perspective view of Viale Spada, Mario Ridolfi, ca. 1955, from FRFM.

6F11 Perspective view of San Salvatore from Lungonera, Mario Ridolfi, ca. 1945, from ACT.

6F12 Variante al Piano di Ricostruzione - studi preliminari, Mario Ridolfi, ca. 1958, from ACT.

6F13 View of Casa Briganti from Piazza Solferino, before the apartment on the east side of the square was built, from *Casabella* 489, March 1983, 61.

6F14 View of Complex of Fontana Brothers from Piazza Valnerina, from iBid.

7F1 Master plan n. 6, residential district in Tiburtino, Roma, Mario Ridolfi, Ludovico Quaroni and others, 1951. FRFM CD 99/I/(c)/.

7F2 Master plan, residential district CEP in Treviso, Mario Ridolfi, ca. 1956. FRFM CD 120/I/(n)/.

7F3 Shops of group n. 2, plans and elevations, residential district in Tiburtino, Roma, Mario Ridolfi, 1954. FRFM.

7F4 Storehouse type b, plan, elevation and section, residential district CEP in Treviso, Mario Ridolfi, ca. 1956. FRFM CD 120/I/2XII/.

7F5 Chart of the geometric patterns developed for the ironwork of the light of the front door (Rostrine inserite sui portoncini), residential district CEP in Treviso, Mario Ridolfi, ca. 1958, from FRFM.

7F6 Master plan of Casa Franconi, with the small pavilion in pyramid hip roof next to Palazzo Spada, Mario Ridolfi, June 1959. FRFM CD131/I/(a).

7F7 The multifunctional hall of the nursery school in Poggibonsi, Mario Ridolfi, 1955-1964, from *Controspazio* 114/115, 149. Photograph by XX.

7F8 The front cover of Casabella-continuità 249, March 1961.

7F9 Suspended decorative structures in the foyer of the residential block, the complex of Fontana brothers, Mario Ridolfi, from F. Moschini e L. Rattazzi, *Mario Ridolfi: la poetica del dettaglio*, (Bali: Edizioni Kappa, 1997), XX.

7F10 Making of the typical unit of lattice window from terracotta tube, Mario Ridolfi, from Bellini, *Mario Ridolfi*, (Roma-Bari, 1993), Fig. 116.

7F11 Piazza Spada in 1930s, from Tarquini, *La città di Mario Ridolfi*, 201.

7F12 View of the bell tower of duomo from the back street of Casa Franconi (Via Ercole Barbarasa). Photograph by the author.

7F13 View of the corner of Casa Pallotta (block A) from Palazzo Spada's atrium. Photograph by the author.

7F14 The early version of the Piazza Spada on the variant plan, Mario Ridolfi, 1957, from R. Nicolini (ed.), *Mario Ridolfi architetto 1904-2004. Atti del Convegno*, (Roma: Electa, 2004), Fig. 156.

7F15 Geometric composition of a typical roman theatre, from https://www.bible-history.com/ibh/images/fullsized/scheme_roman_theatre.jpg.

7F16 a. Cardo-decumano system, the theoretical base of Roman city consisted of two axes, four quadrants, ; b. Plan of Sforzinda, a visionary renaissance ideal city, Antonio di Pietro Averlino; c. Plates from the treatise Il cavaliere (Vicenza, c. 1 550), Giovan Battista Minio.

7F17 The lozenge-shaped window in the wall on the left of the portal, Cattedrale di Santa Maria Assunta, Terni. Photograph by the author.

7F18 First view of the Acropolis; First View of the Parthenon. Graphic analysis of the geometric principle in the composition of Acropolis, from Auguste Choisy, *Histoire de l'architecture*, 1899.

7F19 Master plan of Piazza Duomo, Parma, from *Arquitectura. Revista del Colegio Oficial de Arquitectos de Madrid* 271-272, 1988, 136.

7F20 Model, Complesso immobiliare INA Assicurazioni in Campobasso, Mario Ridolfi, 1949, from FRFM.

8F1 Piazza Spada, from the perspective of Viale Spada, from *Zodiac* 10, 1993, 113.

8F2 a. Palazzina de' Salvi in Piazza della Libertà, Rome, Pietro Aschieri, 1929-30, from http://www.archidiap.com/beta/assets/uploads/2015/02/; b. Palazzina of 24 apartments, Mario Ridolfi, 1931, from *Controspazio* 114/115, 39; c. Casa Pallotta, Terni, Mario Ridolfi, 1960-64, from FRFM CD134 and *Controspazio* 114/115, 134.

8F3 a. Palazzina Zaccardi, Rome, 1950-54, from FRFM CD93; b. Palazzina INAIL di Viale Marco Polo (Casa delle Streghe), Rome, 1952-56. Photograph by the author, drawing from FRFM CD106; c. Casa Franconi, Terni, 1959-62. Photograph from Giovanni Gandolfi, *Cemento armato in evidenza negli edifici italiani*, (Roma: 1962), 147.

8F4 Sopraelevazione del villino Alatri, Roma, Mario Ridolfi, 1948-52, from FRFM CD83.

8F5 Illustrations from the textbook *Analisi Grafica dei Valori Architettonici*, Vincenzo Fasolo, 1920.

8F6 Proposal of garden elevation of Palazzo Farnese, Piacenza, Jacopo Barozzi, 1560, from R. J. Tuttle, *Jacopo Barozzi da Vignola,* (Milano: Electa, 2002), XX.

8F7 Planimetric scheme of Palazzina Mancioli (II), Mario Ridolfi, Roma, 1958-62. FRFM CD125/I/122.

8F8 Preliminary study of the profile and elevation of Casa Pallotta, Terni, 1960-64. FRFM CD134/I/10b.

8F9 Overview of Casa Pallotta, from FRFM CD134.

8F10 Regulation of six-storey volume in the detailed plan, Mario Ridolfi, 1959, from Variant of reconstruction plan: Corso del Popolo, centre and adjoining areas, Mario Ridolfi, 1959, from ACT.

8F11 Regulation of five-storey volume in the detailed plan, Mario Ridolfi, 1959, from Variant of reconstruction plan: Corso del Popolo, centre and adjoining areas, Mario Ridolfi, 1959, from ACT.

8F12 Detail of the wall section on the fourth floor, Casa Pallotta, Mario Ridolfi, October 1962. FRFM CD134/I/100.

8F13 The index plan of external pilaster types in block A of Casa Franconi, Mario Ridolfi, 1959. FRFM CD131/II/(8).

8F14 Different situations of the relationship between the columns and the infill wall. From bottom up: First floor, second floor, third floor. Wall section, Casa Pallotta, Mario Ridolfi, October 1962. FRFM CD134/I/100.

8F15 a. Case INCIS, Messina (1949-52) from FRFM CD87; b. Palazzina Mancioli II (1958-62) from *Casabella-Continuità* 225, 58; c. Edifici a torre INA Assicurazioni, Roma (1949-55) from Gandolfi, *Cemento armato in evidenza negli edifici italiani*, 134;

9F1 Plans and elevation of Palazzo Uffici Comunali, version 8, Mario Ridolfi, 1967, from *Casabella* 489, March 1983, 55.

9F2 A collection of preliminary studies and sketches of Palazzo Uffici Comunali, Mario Ridolfi, 1967-80, from ACT.

9F3 Axonometric drawing of Palazzina Signorile, competition project, Mario Ridolfi, 1927, from FRFM.

9F4 Cartoon of the perspective drawing of Palazzo Uffici Comunali for the photomontage, Mario Ridolfi, 1980, from ACT.

9F5 Early study of the structural and decorative components of Palazzo Uffici Comunali, from *Lotus International* 37, 1983, 23.

9F6 View of the huge square, one of the visual centre of the district, Unità residenziale della Via Tiburtina a Roma, from *Casabella-Continuità* 215, aprile-maggio 1957, 29.

9F7 Sezione verticale del Battistero di Parma, P. Scotili, from *Il Battistero di Parma*, (Cassa di Risparmo di Parma: 1960), 31.

10F1 Systemisation of Largo Villa Glori, Mario Ridolfi, ca. 1949, from FRFM CD68.

10F2 Piazza Mercato in Terni, Orneore Metelli, 1920, from *Orneore Metelli,* (Ivrea: Olivetti & C. S.p.A, 1964), tavola 3.

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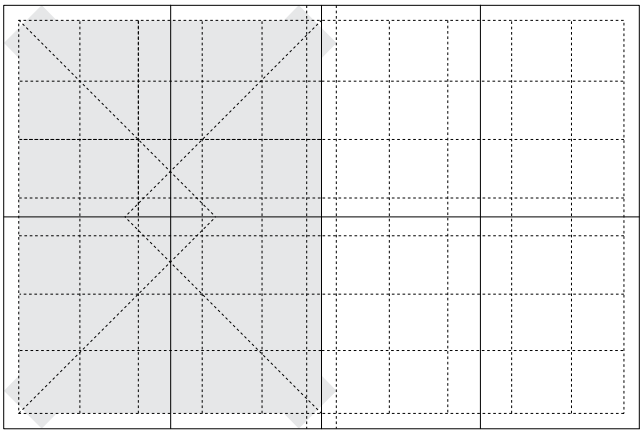
AT1 The grid system of this thesis based on the plan of Casa Pallotta. An aproximation to the golden section and Fibonacci sequence.



Perché in fondo la gioia sta nel fare, e non nel raccontare quello che uno ha fatto. (Because basically the joy lies in doing, not in telling what one has done.)

Mario Ridolfi