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Foreword

Alberto Ferlenga

Schools to live in

The relationship between buildings designed for school on the one hand and teaching practices on the other has never been a mechanical one. Even today, when two sciences – like that of building and that of educating – intersect to give rise to a construction that will house a school, each of them brings a legacy that derives from its own history, and from their autonomy from one another. In fact, no true, permanent encounter has ever taken place between architecture and pedagogy in defining buildings intended for teaching. For centuries, school architecture has used forms developed for other uses; first gymnastic, then religious, and then even industrial, taking from each of these uses the rigidity typical of structures created for managing processes or practices that admitted no degrees of freedom.

On the other hand, and perhaps also because of this, pedagogically innovative ideas have rarely over-committed themselves in defining consequent spaces, and have developed by experimenting with new gestures rather than with new walls. Whether applied outdoors and thereby recovering the ancient origins of knowledge transmission, or in home environments, the new educational practices have expressed themselves by upsetting the established ways in which tools or furniture are employed, or, in general, by making a different use of shared spaces and objects; and architecture, in different forms, has served as the background for all this.

Architectural action and pedagogical action have always had different durations over time – the former being longer, as it easily survives as functions are modified, while the latter is more subject to changes in society. This aspect, too, has contributed towards making a stable relationship between the two essential components of a school building difficult to achieve: the only moment when the architectural and pedagogical points of view coincide may be said to take place in the brief period of design and construction when, in the best cases, the different cultures of those who will take part in creating and then managing the school confront one another. But a few days after it opens, the building's second life has already begun, as it aims to add to – if not to overturn – what is drawn in the architects' plans; unforeseen possibilities for use are often found in the planned articulations of the various premises, thereby enriching the school space with a parallel life no less interesting than its official one. This relative independence between the architectural portion and the portion having to do with education and management also explains why the landscape of existing schools in Italy is far more varied than elsewhere. This landscape features the simultaneous presence of: genuine architectural masterpieces (not a great many, truth be told, and a possible future for them will be discussed below); serial models now obsolete but in a good state of conservation; containers conceived in accordance with old schemes but whose use has transformed the original structure, giving rise to new spaces; and a few examples of acceptable convergence between planned and actually practised modes of operation – some of which are included in this collection.

As takes place in many other aspects of Italian life, if the lack of a national strategy has, in the field of school construction, generated a certain confusion, today this set of failed experiments, rare cases of excellence, and architectural mediocrity is, in its non-uniformity, our starting point for trying to outline a new role for the school building of the future.

A great many factors suggest it is time to do so. First, a large number of existing schools in Italy (more than 48,000) would require refurbishment interventions, with greater or lesser degrees of necessity. A second factor is the unsustainability

of buildings that, although perfectly equipped, operate for barely half the day; this results in the equally unsustainable separateness between school buildings and urban nuclei – the wholly Italian sign of a defeat that began the very moment when, starting in the post-War period, schools were no longer made the pillars of urban regeneration processes that could have had their best ground for experimentation in the peripheries. Last but certainly not least, there is a clear inconsistency between the interior spaces customarily introduced by a school building's design (spaces still dominated by the corridor-classroom relationship) and advancements in pedagogical thinking that increasingly requires environments that are flexible, interchangeable, and open to one another and to the outside. But while it is above all the state of progressive obsolescence of most of the existing school building stock that tells us we have reached a point of no return in this area, today it is the general meaning of school buildings that ought to be reconsidered. In fact, it is not just the buildings' rigidity that hampers the optimal performance of teaching activities in accordance with up-to-date educational criteria (and their state of maintenance presents a hazard for pupils and school personnel alike); more generally, construction criteria aimed at environmental sustainability have become established in architecture, too. The circumstance that it is precisely the schools themselves that fail to express these criteria is an anachronism.

Today, then, it is not a matter of introducing some new buildings to correct a situation of general suffering (which would not harm things, but would not change the situation, either). It is the entire process that results in building or upgrading schools that ought to be reoriented towards precise goals. In this perspective, the first question to be raised is what role we intend to assign to this fundamental segment of society, as far as its built part is concerned, in the near future. Only in this way can partial interventions, like those that have to be applied to existing buildings, also become pieces in an overall change. Only in this way can the recovery or rebuilding phase that awaits us not be transformed into yet another defeat, or into a sum of palliative remedies with little effect.

What, then, must the role of an innovative school be today? Some themes have already emerged: there is general agreement, for instance, that, like all other architecture, school architecture will have to be increasingly oriented towards sustainability in all its forms – something made even more necessary by the educational value that interventions of this kind have in the school setting. To cite an example connected to this aspect, while the energy production criteria in existing schools will doubtlessly have to be upgraded, the adoption of renewable energies (such as solar, geothermal, and wind) and of special modes of distribution (such as district heating) means both emphasizing the adopted solutions so that virtuous practices might multiply by example, and sharing the generated energy with the surrounding areas.

Schools, then, will increasingly have to take on the features of civic centres by implementing ideas relating to their role beyond their institutional one – ideas born in the early 20th century, and reaffirmed in the guidelines in force, but never put into practice. This can be achieved by imagining their use over the course of the entire day and available to the citizenry, as they become new hubs to all effects, supplementing their purely didactic functions with those that can be shared with the rest of the population – like libraries, food service, gyms, auditoriums, and so on. Their exterior spaces – at present often used as car parks or left abandoned – will have to be seen as parks open to citizens rather than enclosures they are barred from using. From the pedagogical perspective, interventions on existing structures as well as those done from the ground up will have to gradually overcome the rigid classroom-corridor relationship, to give rise to spatial articulations enabling different levels of learning: from the collective class to individual learning, and from small groups to learning between class groups. Lastly, an important portion of the interventions will have to relate to architectural quality which, although not the chief objective in the past, will have to be recovered (to the extent possible, in existing structures, too) through improvement interventions combining aesthetics with didactic performance, in the awareness that the school's symbolic role also requires particular attention to this aspect.

Changes of this kind entail transitioning from interventions approved in accordance with one-size-fits-all architectural models (like those that contributed towards disseminating the country with buildings similar to one another in pursuit of low architectural quality) to design actions conceived case by case, on the basis of the characteristics of each building or place.

In this case, too, the school's symbolic role comes into play. In a country like ours, this role ought, in host buildings, to express not only the school's connection to the national education community, but also the cultures and differences of the various places where the school is located. In Italy, one of the world's richest repositories of architectural and scenic variety, this takes on special importance. Such diverse climates, construction traditions, and landscapes have brought about a unique architectural variety in our country, and it would make no sense for schools themselves to water down these differences and values – as has unfortunately taken place until now. Once again, it is not a matter only of aesthetic issues in and of themselves, but of the importance and multiplicity of relationships that, from the school as a building of quality and open to its own setting, can reverberate to the rest of society or its host environment, thereby contributing to the latter's social and physical betterment.

However, if we want to accomplish this through the shaping of an innovative process that goes far beyond a technical or technological upgrade and grapples with all aspects of the problem, then the decision-making processes leading to

the creation of a school building or its renovation must also be radically changed. For example, it is wholly counterproductive for the various actions resulting in the creation of a new school to be segmented into urban-planning, architectural, management, and educational aspects, and for these aspects only rarely to find moments of dialogue and sharing at the decision-making level. If one of the causes of a non-optimal outcome for school constructions in Italy lies in a lack of dialogue among the various components overseeing their implementation and, later, their management, then operative confrontation and mutual listening must be an inescapable starting point from which to combat the formation of cultures that are separate from and tend to be suspicious of one another, within a process that by its nature ought to be unitary.

All the issues connected to the new role that school will find itself performing ought to be given simultaneous attention, from the first urban-planning decisions, which define the size and placement of the plots to be occupied, to the endowment of equipment, the urban role, the definition of interior space, and so on. We must no longer conceive school through buildings that express a sort of precariousness, but through permanent constructions, sustainable ones of evident quality and generous towards the various settings they belong to, while also considering the effects of their enduring over time, which is one of the characteristics of good architecture. We must no longer think of schools as immutable buildings but as an initial segment in a process that can recognize – and in fact will have to foresee – transformations. This, then, implies a certain basic flexibility, also considering, as we have seen, that pedagogical practices will be dealing with briefer time frames for modification and adjustment than buildings will. It is, then, the start of a path shared by different spheres – a path to be planned when designing or renovating a school (the start of a process more than a definitive act), and that continues over time, does not end with the mere construction of a container, allows change, and does not rule out possibilities.

The considerations made thus far elicit the idea of a school that opens to the territory to become a sort of educational hub that concentrates a multitude of activities, and that generates paths that amplify the school's presence by connecting and including buildings of different kinds. Although in many cases, even in Italy, the campus model of the English-speaking world has been borrowed especially for upper secondary schools and universities, the Italian school tradition is rather that of a diffuse model that has contributed towards requalifying problematic areas in historic centres, as has taken place for many university locations. In the case of other schools, especially the upper secondary schools preparatory for university education (*liceo*), this diffuse model, even when the reuse of existing buildings has been contemplated, has not been transformed into an opportunity for sharing functions, or into mixed uses. Our schools, lower or secondary as they may be,

have always maintained a separateness from one another and from the rest of the city – a separateness accentuated in the case of complexes built like campuses; there, the shared parts have frequently been quickly abandoned, transforming into something quite similar to the peripheries they would have wished to separate from in order to build protected enclaves.

The network concept is based on slow progress and diffuse activities, on open hubs and on the requalification of the schools' appurtenant areas. It includes the idea of school parks connected to one another and strongly integrated with the city and landscape, that strengthen the schools' modes of operation while at the same time helping create fruitful relationships with everything that surrounds them.

All this constitutes the design of an open and innovative school, and relates not only to the common use of its endowments, but the very nature of its spaces. Long based, as already discussed, on the classroom-corridor relationship originating from the cloister, today the environments where education is practiced must be diverse. It is not a matter of abolishing the classroom as such, as the cause of all ills, given – among other things – the role it still has as a point of reference; it is, rather, a matter of changing its features and creating, also inside it, more articulated spatial geographies that discontinue the exclusive presence of the current relationship between distribution and classrooms. For example, a new generation of classrooms will have to reverse their current introversion. The classroom's boundaries may include portions of the outside, which can be used as class vegetable gardens, lab areas, and winter gardens; its doors and windows will have to be oriented towards including the outside landscape rather than defending itself from it. Moreover, its performance, in terms of acoustics and light, aeration and climatization and, of course, digital technology, will have to ensure a comfortable stay and advanced equipment, while the relationship with the other parts of the school will have to be based on a greater permeability – both visual and physical. In their turn, the distribution elements, using variable sections and articulated patterns, may be considered as integral parts of a teaching space that alternates defined environments with other, more flexible ones. An open use of the school will also have to include adding to or adjusting its shared parts: libraries, classrooms, lunchrooms, gyms, but also labs and surrounding areas; in fact, these are the environments that promote visits from the outside, accentuating the school's role as a local reference point.

This means the possibility for a lunchroom to become a place for food “literacy”; for a library to be able to foster integration among the various age groups; for a gym to be able to promote the encounter between competitive sports and physical education; or for an atrium or auditorium to be able to accommodate, on a continuous basis, community events that do not involve making major variations

to the school's ordinary structure, but rather entail conceiving its spaces in a new way, starting from a different perspective on its role in the territory.

A final question relates to the issue already discussed, of the schools of good architectural quality present in the country, albeit not in great numbers. Excluding the most recent ones, generally already involved in innovative actions, the issue of reuse relates to historic architecture – in some cases genuine masterpieces – whose formal characteristics and structures, however, make it difficult to introduce adjustments that do not end up distorting the building. It would be a question of implementing, in the first place, a conservative action of genuine restoration of the modern element, and then identifying forms of reuse linked to the buildings' history and characteristics. A network of buildings of high quality and belonging to different eras, rescued from disappearance and from being turned into museums, would, for example, be the best placement for centres studying school phenomena in all their senses, and the best basis for promoting research and exchange activities, and for imagining future developments.

Present in the various territories, buildings of this type might also become the place for constant monitoring of the state of school construction in the country, and for research on school practices in general, in collaboration with existing institutions, universities, and local communities.

Indeed, as is the case for many other aspects in Italy, the actual state of existing buildings, the real needs and potential for transformation, or even a simple mapping of the best educational practices, are data still only partially known, and above all unverified with the continuity that their importance would require. Remaining with the buildings' physical condition, which is what I deal with, only a homogeneous, comparative assessment that evaluates not only technical problems but pedagogical and urban ones as well, might lay the groundwork for interventions that truly aspire to an overall reconsideration of the school-territory-education relationship, and are not limited to episodic actions that are often unjustifiable for the framework of actual priorities.

To conclude, a new season in the sphere of an overall reconsideration of school buildings and their role might be forthcoming, and some of the examples illustrated in this book raise great hopes. But the occasion of "ordinary maintenance" can also be transformed into much more than that only if awareness of the issue's importance not only grows in general, but also leads to new forms of permanent dialogue between the culture of building and the culture of teaching, within an idea of co-stewardship that accompanies all phases of a school's life.

Premise

Samuele Borri

Indire's avenue of research on the relationship between pedagogy and architecture was initiated in 2007 with the *Abitare la scuola* ("Inhabiting the school") project¹ and, since the beginning, it has dealt with some issues currently being given attention by the scientific community: the need for an educational project, the role of the school community, the participatory approach to design, the need for dialogue between diverse professional and disciplinary settings, spaces for outdoor education, environmental protection, and eco-sustainability. Since its beginning, the *Abitare la scuola* project has focused on studying the concept of innovation through the presentation of case studies illustrated with abundant photographic documentation. Each school has been examined in greater depth based on certain analysis categories, such as, for example, participation, biocompatibility, interior and exterior environments, and so on. *Abitare la scuola* is thus certainly a precursor of the photographic documentation initiative that is the subject of this book.

1. The *Abitare la scuola* project, under the scientific responsibility of the architect Maria Grazia Mura, can be found at: <<https://www.indire.it/progetto/abitare-la-scuola>>

Starting in 2011, Indire conducted a research effort aimed at creating a knowledge platform for fuelling a scientific and cultural debate over school architecture, on the eve of the initiative, promoted by the then Minister of Education Francesco Profumo, to develop new construction guidelines². The research results inspired the *Quando lo Spazio Insegna* (“When Space Teaches”) conference held in May 2012, in the press room at what was then the Ministry of Education, University and Research (MIUR). There, three case studies were illustrated, representing three examples of school architecture differing in their underlying educational vision. In particular, the Vittra TelefonPlan schools in Stockholm and the Ørestad Gymnasium in Copenhagen were two prototypes capable of influencing school construction design in the future.

The Swedish school was an instance of a vast educational landscape³ that serves as an example of a more informed and calibrated revisitation of the well-known concept of open space. The environment called for massive reliance on the flexibility of furniture in order to delineate areas of learning diversified in accordance with the theoretical paradigm developed by David Thornburg, who identified four major types of learning environments: *The Campfire* (learning from an expert), *The Watering Hole* (learning from peers), *The Cave* (learning through introspection), and *Life* (learning by doing)⁴.

Meanwhile, the Danish school presented a brilliant example of a school organized in genuine learning zones, diversified in a more structured and permanent way⁵. The environment was characterized by continuity between closed and open settings, and between formal and informal ones efficiently managed by means of a diffuse and cloud-based technology infrastructure. In a setting of this kind, teachers were encouraged to design micro-activities diversified for students as they took on an active role in their own paths of study.

In 2013, the working group promoted by then Minister of Education Francesco Profumo and coordinated by Indire produced the new framework technical regulations for school construc-

2. The guidelines for school construction are contained in the Ministerial Decree of 18 December 1975 containing *Updated technical regulations on school construction*, including the indices of didactic function, construction, and urban planning, to be complied with in the performance of school construction works.

3. A didactic landscape may be defined as the abandonment of conventional classrooms in favour of large, completely or partially open areas. See: SEYDEL, O. (2018), “Classroom – Cluster – Open Learning Environment. Three Different Lines of Development to Redesign Schools in Germany”, in BORRI, S. (ed.), *The Classroom has Broken*, Indire, Florence, 2018.

4. The four types identified by David Thornburg have inspired numerous schools on an international level. The “*Campfire*” is the space for learning with an expert. Thornburg points out that storytelling is the world’s most ancient and engaging teaching method. With multimedia support, this space becomes a genuine environment for learning through engagement. The “*Watering Hole*” is the peer space. Learning among peers means going to the source of knowledge along with one’s travelling companions. In this path, the students are teachers and students at the same time, and help one another in their paths of learning. The “*Cave*” is an individual protected space where the student can retreat and focus in order to perform personalized activities or work individually with a tutor. “*Life*” is the lab space for learning by doing. Knowledge is applied to real situations in such a way that the students can go beyond abstraction to give immediate and concrete meaning to what they are learning. For more, see: THORNBURG, D. (2013), *From the Campfire to the Holodeck: Creating Engaging and Powerful 21st Century Learning Environments*, Jossey-Bass, San Francisco, CA.

5. In particular, the individual spaces, group spaces, and informal spaces of the Ørestad school are paradigmatic of a set of new types of complementary spaces underlying a vision of school alternative to the classrooms-corridors scheme. For more, see the case study: MOSCATO, G. (2016), “Uno studio di caso: Ørestad Gymnasium, per una nuova concezione degli spazi della scuola”, in BORRI, S. (ed.), *Spazi educativi e architetture scolastiche: linee e indirizzi internazionali*, Indire, Florence, 2016.

6. MINISTRY OF EDUCATION, UNIVERSITY AND RESEARCH – MIUR (2013), *Norme tecniche-quadro*, contenenti gli indici minimi e massimi di funzionalità urbanistica, edilizia, anche con riferimento alle tecnologie in materia di efficienza e risparmio energetico e produzione da fonti energetiche rinnovabili, e didattica indispensabili a garantire indirizzi progettuali di riferimento adeguati e omogenei sul territorio nazionale, MIUR, Rome.

tion,⁶ which diverge from the prescriptive style of the previous ones. The new, performance-related logic makes the design criteria adaptable to the didactic and organizational needs of a school in continuous change. The document reconfigures the school's spaces, proposing new modes of organizing the space depending on the needs of modern didactics and on the opportunities offered by digital and networked technologies.

A school made of complementary functional spaces that can be articulated by the designer on the basis of an educational project is the underlying idea of the *1+4 Spazi educativi per la scuola del terzo millennio Manifesto* ("1+4 educational spaces for the school of the third millennium," hereafter referred to as *1+4*)⁷ published in 2016 by the Indire research group on school architecture. The *Manifesto* has a dual function: on the one hand, it is a tool that can be used to design new schools; and on the other it functions as a promoter of a shared reflection for school communities in the area of already-existing school buildings. The *1+4 Manifesto* is adopted on many occasions by local authorities to promote innovative school construction initiatives and in particular to activate situations of participatory design in which the school is asked to contribute towards developing an educational project that can inform the new school. In fact, with its characteristics of flexibility and adaptability, the *1+4 Manifesto* lends itself to helping bring together professionals in a variety of professional fields, and to encouraging dialogue between architecture and pedagogy, by providing a point of encounter among political decision-makers, designers, and educators.

This new vision of the school's spaces has also reached the OECD (Organisation for Economic Co-operation and Development), where Indire has joined the Group of National Experts on Effective Learning Environments (GNEELE), contributing towards the drafting of a protocol, Learning Environments Evaluation Programme (LEEP), addressed to political decision-makers, heads of school, designers, and researchers. Its goal is to assess the impact that an investment in school construction has in terms of the best educational outcomes, well-being, social relations, and a more effective and efficient use of resources. In this setting of cooperation with other institutional partners, the Institute is dealing for the first time with the issue of assessing the school's physical spaces, opening a new area of research alongside that of designing and reconfiguring school environments.

The idea is therefore taking hold of a school no longer configured upon a structure consisting of classrooms and corridors (spaces of containment and spaces of passage), but inhabitable in every phase of the day, during moments of lessons and moments of social interaction and informal encounter. Multifunctional and flexible environments used in every moment of school life, that can be occupied for education-

7. The poster was presented at the international conference DGfE-Kongress 2016 *Räume für Bildung. Räume der Bildung* at the University of Kassel in 2016: BORRI, S., CANNELLA, G., MOSA, E., MOSCATO, G., TOSI, L., "Five Learning Spaces for New Generation Schools in Italy", 2016.

al action but also for extracurricular activities, are needed. Internationally, the *1+4 Manifesto* dialogues with other models of post-industrial schooling and, in 2016, Indire, joined by the Rome Order of Architects, organized the conference *Dall'aula all'ambiente di apprendimento* ("From the classroom to the learning environment"), where experts from various countries presented the results of research on the issue of school architecture. The same year saw the publication of the book by the same name, in which the new architectural solutions inspired by educational paradigms are contextualized within a historical path of progress on the issue of school construction; there is an interesting focus on school furniture which, precisely during these years, appears to be taking on a renewed role in supporting and promoting school innovation. Furniture is increasingly becoming the subject of specific reflection by the schools themselves, which, for the first time in Italy, are presenting themselves as subjects able to guide and encourage local authorities' choices and purchases, while emphasizing educational needs and demands. The conference aims to stimulate reflection and dialogue among architects, educators, education researchers, heads of school, and local administrators on the need to overcome the traditional "classrooms and corridors" school model, in order to propose examples and configurations that take account of the results of educational research, and with particular attention to the quality standards in terms of comfort and well-being⁸.

Moreover, the school's spaces have also been given attention by ministers of education, who have traditionally been more interested in issues – like the curriculum, aspects of teaching methods and content, school organization, and the professional profile of the school's personnel – that can be managed through legislative interventions or reform actions. School construction takes on new importance thanks precisely to the latest results of educational research that has highlighted the impact that the physical environment and the use of furniture can also have on the broader landscape of the school system. Investments in new schools, innovative furniture, and technologies take on a strategic role, and governments are activating national plans, projects, and financing initiatives as a lever for a broader action of innovation through light construction interventions, or full-blown structural interventions. Along with the other representatives of the *European Schoolnet* (EUN) consortium,⁹ Indire contributes towards developing prototype spaces and Guidelines¹⁰ that can raise awareness in the educational sector and among political decision-

8. Examples, models, and results of the activities to assess the most recent experiences are collected in the volume: *The Classroom has Broken*, op. cit., Indire, Florence, 2018.

9. *European Schoolnet* is a network of 34 European ministries of education, headquartered in Brussels. As a non-profit organization, it aims to promote innovation in school systems through collaboration with the sector's various stakeholders: ministries of education, schools, teachers, researchers, and industry partners.

10. See the material produced by the EUROPEAN SCHOOLNET's *Interactive Classroom Working Group* (ICWG) with Indire's contribution and available on the *Future Classroom Lab* website (<https://fcl.eun.org>). In particular, some documents produced between 2018 and 2020 are interesting for framing the new interest in innovative school spaces. Noteworthy among these are *Costruire learning lab e ambienti di apprendimento innovativi* (2018) and *Makerspace nelle scuole* (2021) by JILL ATTEWELL and *Linee guida per il ripensamento e l'adattamento degli ambienti di apprendimento a scuola* (2020) by DIANA BANNISTER.

makers on the issue of the physical spaces of school, while guiding interventions in light of a new awareness.

The need to concentrate research more on the needs of the school community receiving new buildings and innovative environments has led Indire to develop a specific focus: the role of educational spaces in educational design and in the performance of curricular activities. In fact, the Italian school's institutional documents of reference assign the learning environment a strategic role also in pursuit of learning goals and skills targets. The document *Indicazioni nazionali e nuovi scenari* from 2017 clearly emphasizes this aspect:

«the features of the learning environment described in the 2012 *Indicazioni nazionali* ("National guidelines")¹¹ are an indispensable condition for the development of the pupils' skills, and are therefore characterized as implicitly "binding".»

The avenue of research on didactic design in the area of new models for organizing spaces develops the theoretical basis of didactics for scenarios of providing schools with a mode of design that can also include educational spaces among the variables subject to didactic design – alongside content, teaching strategies, supports, and educational tools, and with all the aspects traditionally programmable by the teachers. Clearly, the teachers' skills must also include the ability to set up and adjust the educational setting, while intervening on spaces, furniture, and tools in order to pursue the preset goals as effectively as possible. In fact,

«Acquiring knowledge requires a flexible use of spaces, starting from the classroom itself, but also the availability of equipped places that facilitate operative approaches to knowledge.»¹²

11. MINISTRY OF EDUCATION, UNIVERSITY AND RESEARCH – MIUR (2012), *Indicazioni nazionali per il curricolo della scuola dell'infanzia e del primo ciclo d'istruzione*, Rome.

12. MINISTRY OF EDUCATION, UNIVERSITY AND RESEARCH – MIUR (2017), *Indicazioni nazionali e nuovi scenari. Documento a cura del Comitato Scientifico Nazionale per le Indicazioni Nazionali per il curricolo della scuola dell'infanzia e del primo ciclo di istruzione*, Rome.

13. The term "didactic situation" is to be understood as the set of relationships and roles of one or more parties that, in order to communicate, use what is referred to as the milieu, which is to say those physical, cultural, and social objects that belong to the environment and condition learning. The didactic situation is defined as the "silent actor," or the third element that, along with the teacher and the student, contributes to developing the didactic action. See: CANNELLA, G. (2019), "La mappatura delle situazioni e dei setting didattici", in TOSI, L. (ed.), *Fare didattica in spazi flessibili*, Giunti Scuola, Florence, 2019.

The Indire research group developed a series of conceptual devices to design and plan the settings in a targeted way, both from the educational standpoint and from the standpoint of the spaces' organization and of the arrangement of the furniture. This gave rise to didactic situations¹³, a range of 14 educational situations described in terms of physical space, active parties in a learning situation, and analog and/or digital tools capable of speaking to the teachers and designers. Around the didactic situation, learning units or educational paths can be planned, design projects for interiors can be drawn up, and the most appropriate furniture can be identified based on the expressed educational needs.

This path involved a survey of the literature, the modelling of didactic practices observed in the field, and a phase of review and validation by a sample of innovating teachers; when it was completed, Indire published a “toolkit”¹⁴ for schools, with the objective of providing a tool for integrating, to all effects, educational spaces among the variables over which school claims decision-making power in terms both of design and of choosing furniture and arranging the environments.

The issue of the assessment of the educational spaces’ impact on learning processes, and on school life more generally, undertaken as part of cooperation with the OECD, took on a key role for Indire when the Council of Europe Development Bank (CEB)¹⁵ decided to use the *1+4 Manifesto* and the theoretical framework developed by the Institute to assess the school buildings constructed with CEB funds in some European countries. Collaboration with the CEB led to the publication of some assessment reports¹⁶ and fuelled a new avenue of the Institute’s research, already undertaken on the national level as well¹⁷, that relates to analyzing the school’s spaces after their occupation by the school community. This avenue focuses mostly on the interaction between the school’s inhabitants and the physical spaces, and seeks to identify critical issues and innovation facilitators through the analysis of the learning environments in their concrete use for teaching purposes.

In the educational architecture research group’s various areas of investigation developed thus far (design, interior decor, training, post-occupancy assessment), photography and documentation in general have always played a crucial role, even if thus far considered only as instruments at the service of design, arrangements, training, and analysis of the inhabited spaces.

The *PROSA – Prototipi di scuole da abitare* (“Prototypes of Schools to Live in”) project, financed by the Minister of University and Research with PRIN (“Research Projects of Significant National Interest”) 2017 funds, allowed this issue to be examined in greater depth, in a research setting characterized by a strong synergy between architecture and pedagogy¹⁸. This volume takes on the issue of documentation of innovative school construction with the use of photography as the main language for conveying a knowledge that

14. The *toolkit* was published in: Tosi, L. (ed.), *Fare didattica in spazi flessibili*, Giunti Scuola, Florence, 2019.

15. The Council of Europe Development Bank (CEB) is a multilateral bank with social purposes, headquartered in Paris. Created in 1956 to provide aid to solve the refugee problem, its scope of activities gradually expanded to other sectors, in order to make an increasingly incisive contribution towards strengthening social cohesion in Europe. Alongside the European Investment Bank (EIB), it is one of the main entities from which international funds for funding school construction are derived.

16. DUTHILLEUL, Y., CARRO, R., TAPANINEN, R., TOSI, L. (2020), *School Design and Learning Environments in the City of Malmö, Sweden*. «Thematic Reviews Series». Council of Europe Development Bank, Paris. DUTHILLEUL, Y., CARRO, R., TAPANINEN, R., MASLAUSKAITE, K. (2019), *Design and Learning Environments in the Department of Seine-Saint-Denis, France*. «Thematic Reviews Series». Council of Europe Development Bank, Paris.

17. CANNELLA, G., BORRI, S., CHIPA, S., “A post occupancy evaluation attempt: The Italian way”, in IMMS, W., MAHAT, M. (Eds.) (2019), *What are teachers doing (well) when transitioning from traditional classrooms to innovative learning environments? Proceedings of international symposia for graduate and early career researchers in Australasia, Europe and North America*.

18. In addition to Indire, the PROSA project’s partners include Iuav University of Venice, Polytechnic University of Milan, University of Campania Luigi Vanvitelli, the University of Sassari, and Marche Polytechnic University. The project’s objectives include identifying architectural solutions that are pedagogically significant and able to promote active teaching methodologies.

straddles the divide between different settings of investigation. The work aims to continue the path inaugurated with the *Abitare la scuola* (“Inhabiting the school”) project, and aspires to usher in a research setting with a function that cuts across the various research sectors.

The challenge is to apply tools and categories of pedagogical documentation in the setting of school architecture in order to succeed in developing a new approach in which the visual language aspires to convey a sharing of experiences and meanings that stand at the intersection of different professional settings and sectors of knowledge. The hope is that a shared ground might be created in which local administrators, technical services, heads of school, teachers, families, and students can dialogue about ideas and lines of action that might be understood in the shared intent of nourishing a school that looks to the future, and no longer to the past.

Introduction

Leonardo Tosi

In recent times, the school's spaces have become the object of growing attention from the perspective of educational research. Interest in school buildings is no longer limited only to the aspects related to architecture, interior design, the use of materials or the assessment of technical and energy performance. The bond between architecture and pedagogy is the object of research, and analysis is not limited to the design phase and to the contribution that the school and local community can make in terms of participating in or sharing the architectural design. The need for an educational project, or at any rate for a vision of the school, that provides a sense of inhabiting from the perspective of pedagogy and didactics, is increasingly emphasized both in scientific texts and in the projects and tenders underlying the construction of new schools.

The school building is a continuously developing ecosystem. Reducing the contribution of pedagogical analysis to the design phase alone is certainly limiting for a process that calls for moments of training, adaptation of the spaces, assessment of the use of occupied environments, and numerous other aspects of school life in which the success of an architecture – and the impact it can have on the teaching and learning processes – is determined.

The OECD has introduced the concept of Innovative Learning Environment (ILE), focusing attention on the idea of innovation and making reference to some characteristics connected to physical space but closely correlated with the ways of using it for educational purposes. The flexibility of spaces; the possibility of diversifying environments with a view to their use; the need for a new generation of school furniture capable of effectively supporting didactics; the ability to integrate digital and online technologies in an extensive and efficient way; the role of informal environments and of their functionality for learning; and the importance of movement for the students' mental and physical growth: all have become subjects of analysis.

This landscape opens a debate in the sphere of research on the pedagogical documentation of the school's spaces – an area of investigation that continues the avenue of research carried out by Indire (formerly *Biblioteca di Documentazione Pedagogica*) and that extends to the school experienced in its spaces. It is not enough merely to consider how a school community can inspire a school's architecture, but it is necessary to investigate how educational spaces are adopted by the school community and then personalized and adapted to the needs of didactics and transformed by the school. This, then, gave rise to a volume on "educational architecture," which aims to propose a possible approach to the pedagogical documentation of learning environments, so as to enrich and be a complement to all those instruments that describe and classify school buildings from a technical and architectural perspective.

At times,

«architecture claims to represent itself impersonally, adhering as much as possible to the design rendering, as if the space were not conceived to be inhabited, but were only metaphysics»¹.

In this case, the intent is to document physical spaces through a pedagogical reading based not only on the design's intentions, but also by collecting the traces of the space experienced in light of the vision of school developed by the school community, of the practices enacted by teachers, and of the way in which the designed spaces have changed their configuration through habitation by the users (heads of school, teachers, students, tech-

1. BRAGA, S.S. (2018), "Obiettivo architettura: intervista ad Andrea Botto", «AD», 21 marzo 2018. Also available in: *Obiettivo Architettura: Intervista ad Andrea Botto* by BRAGA, S.S., March 21st 2018 < <https://www.ad-italia.it/luoghi/architettura/2018/03/21/obiettivo-architettura> >

nical and auxiliary administrative personnel, and other possible stakeholders). The documentation work focused on recently constructed school buildings so as to be able to dialogue with the concept of innovation attributable to the characteristics of the ILEs described above, in use at the moment of the investigation and inaugurated over the last fifteen years; in particular, it analyzed fifteen schools with the intent of offering a reflection that was meaningful from the standpoint of educational documentation. These, then, are not “selected schools,” but a group of schools that, for the most varied reasons, propose interesting points for reflection from the standpoint of the interaction between physical space and the use made of it, in pedagogical and didactic terms. For example, it includes schools that have just been inaugurated, and schools that have been “experienced” for fifteen years with no assessment either of the architectural quality (no consideration of architectural standards of quality or of performance indicators was made), or of the didactic quality, or of the offered services. The book aims to make a contribution to the scientific debate on the relationship between architecture and pedagogy and on the need to document educational spaces, giving visibility and emphasis to those aspects of the learning environment that require a pedagogical reading, with no claim to identify schools of excellence or models to be emulated, but casting light instead on individual solutions or interesting cases in order to propose a more general reflection on the topic.

The fifteen institutions that were identified recount the most disparate experiences. There are schools in the *Senza Zaino* (“Backpack-free”) movement, which for some time have made the learning environment the focus of the educational project, and have specific guidelines and a pedagogical course structured for the network’s buildings. The same holds true for other schools in the “*DADA – Didattica in Ambienti di Apprendimento*” (“Didactics for Learning Environments”) network or *Avanguardie Educative* (“Educational avant-gardes”) for disciplinary workshop classrooms. Other situations can be attributed to an idea of environment that is now well-established in the literature, as in the case of the “Reggio Children” approach, where Loris Malaguzzi has termed space the “third educator.” In some experiences, the school building is the result of a structured and articulated participatory design, as took place for the *Torino fa Scuola* project; in other situations, the school community’s participation in the architectural design was less intense and more casual; and in other cases still, the school building was adopted with no possibility of influencing its structural characteristics, but the school community, after the fact, supplemented its own educational project, adapting the spaces and modifying them as a function of methodological and educational needs, and to an idea of educational innovation initially not integrated into the building’s structure. Preliminarily, the interview with the head of school often helped to include a given institution within the group of schools

to be documented, because the presence of the pedagogical component in the reading of the environment or in its re-reading (after the new building's delivery to the community) was considered a factor of primary interest for the research group that oversaw this volume.

Based on the experiences led by Indire over the past three years, a documentation protocol for analyzing the spaces has been set up. This protocol is based on photography and on the *1+4 Manifesto* as a key for interpreting the spaces' documentation. The principles identified by the Indire research group for developing a pedagogical vision² were used to analyze and report the salient features of the idea of school expressed by each documented situation, while the five functional spaces of the *1+4 Manifesto* were used to grasp the originality of the proposed "educational architecture"³ solution. The documentation of the formal spaces of didactics was based on typologies obtained from a survey of the literature⁴ that was able to grasp certain elements of innovation with respect to the more traditional category of classroom.

This documentary approach involved the analysis of documents capable of contributing towards the school's identity (where applicable: design tender, preliminary and final/extraordinary design, Three-year Educational Programme – *Piano Triennale dell'Offerta Formativa*, or "PTOF," and any other documents made available by the customer, by the designer, or by the school), a building visit with travelling interview, video recording of all school environments, and an interview with the designer and with the head of school.

In light of these premises, the attempt was made to capture the uniqueness and the specific nature of each institution, developing brief information units providing three, general document nuclei: (1) a brief, general framework, (2) an accounting of a pedagogical orientation (more or less formalized earlier), (3) an interpretation key for a virtual visit to the school, with particular attention to the use of spaces with a view to didactics. Lastly, a fourth part develops the three aforementioned nuclei in a photographic path in no way comprehensive of the analyzed situation, that offers a focus on some specific environments deemed of interest for providing stimuli, aiding in the formulation of proposals, and sparking reflections of use for the debate between pedagogy and architecture.

The work addresses readers interested in grasping, through the examples of concrete cases, the complex link between what is designed and what is lived, and in meeting the need to frame an investment in school construction within a broader project of educational innovation that involves not only architecture itself, but also contextual aspects of a pedagogical nature that require specific tools and interpretation keys. With the goal of leaving specialist language behind, the intention here is to propose ideas,

2. See: *Principles for interpreting the pedagogical approach of spaces* in the Appendix.

3. See: *Functional spaces of the school* in the Appendix.

4. See: *Types of educational environments* in the Appendix.

thoughts, and suggestions that can be gathered by the local administrator, by the political decision-maker, by the designer, and by the key players in school life; to “immerse” them in their own context of action or intervention; and, consequently, to frame the opportunities offered by a new school building or by environments that, although existing, can be reconceived as a function of their actual potential. Borrowing the words of Herman Hertzberger, we can say that the book’s content

«relates to what lies between architecture and education, and how the two settings, under certain conditions, influence one another. These conditions are dealt with in these pages. Rather than being a litany of successful projects, [the book] shows how space can be a stimulus for learning»⁵.

One of the most important questions is linked to the language of documentation, to the

«narration of an experience that requires innovative solutions capable of not flattening what is a dynamic, multidimensional process that ought to be documented by resorting to all potentialities»⁶.

The objective we set in conceiving the final purpose of the information units draws information from what Erika Torello calls

«generative documentation, which is to say documentation capable of generating information, producing effects, leading to change on the level of behaviour, attitudes, and knowledge»⁷.

To achieve this objective, we have considered it indispensable to use photography as the main vehicle of content, reducing context information to the essential needed to interpret the photographs while giving maximum space to the individual experience’s characteristics of originality and meaningfulness.

Today, the new availability of funding and the inclusion of school construction among the strategic factors for modernizing the school system requires an even more urgent reflection upon what might be the most effective ways to make information, experiences, ideas, and good practices transferable and accessible to a large number of recipients involved in the design of new schools. The hope

is that the experiences documented in this volume might contribute towards making the best possible use of available resources, in order to adopt an approach that is critical, informed, and above all guided by a vision of the school of the future that accompanies and gives space to the leadership of the new generations.

5. HERTZBERGER, H. (2008), *Space and Learning* – Lessons in Architecture 3, 010 Publishers, Rotterdam.

6. BIONDI, G., *La documentazione come sistema di rappresentazione delle conoscenze* <https://www.indire.it/lucabas/lookmyweb_2_file/Biondi_rappresentazioni_conoscenze.pdf>

7. TORELLO, E., *La documentazione generativa multimediale a scuola*, «Rivista Scuola laD», no. 3 – 2011, Ricerca & Tecnologia, <<http://rivista.scuolaiad.it/n03-2011/la-documentazione-generativa-multimediale-a-scuola>>



MonguelFo / Welsberg Primary School

MonguelFo-Tesido

Cristina Vedovelli



MONGUELFO / WELSBERG PRIMARY SCHOOL

PARENT INSTITUTION

Monguelfo German-Language Comprehensive School

MUNICIPALITY [PROVINCE]

Monguelfo-Tesido (Bolzano)

SCHOOL LEVEL

Primary School

STUDENT CAPACITY

100

FINAL DESIGN

Klaus Hellweger Architect

CLIENT

Municipality of Monguelfo-Tesido (Bolzano)

YEAR INAUGURATED

2009

BUILDING SURFACE AREA

Ground floor: 435 sqm
First floor: 448 sqm
Second floor: 448 sqm
Total: 1,331 sqm

TOTAL AREA OF THE PLOT

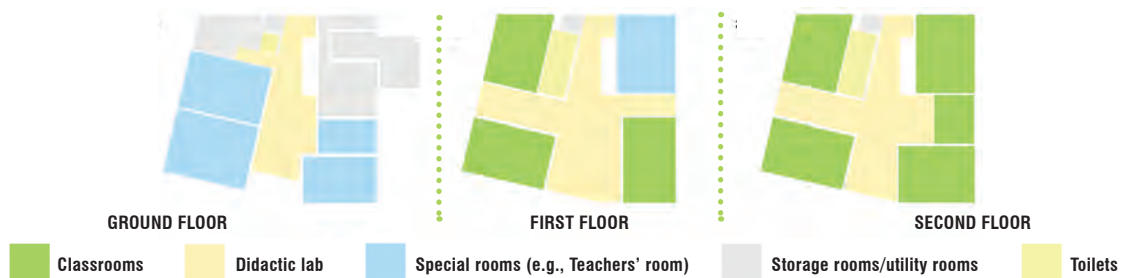
1,402 sqm

Longitudinal section through the entrance atrium and the corridors on the upper floors. Source: Klaus Hellweger. Functional block diagram: the same layout is repeated on every floor – a spacious central area onto which the classrooms open via two doors and a section of transparent wall. Source: Klaus Hellweger. Opposite page: general floor plan of the Monguelfo school. Source: Klaus Hellweger.

The school is located in Monguelfo-Tesido, an Italian municipality of approximately 2,800 inhabitants in the autonomous province of Bolzano, at an elevation of 1,087 m. It is surrounded by a natural landscape with a view of the Dolomites; behind it lies a wooded hill, with Castel Welsperg beyond.

The building is part of a broader project by the municipal administration: the creation of an educational/cultural complex placed at the site of the lower secondary school, which was intended also to accommodate the pre-school, the primary school, the music school, the library, and the auditorium. An economic assessment then led to the decision to relocate the pre-school to the old primary school building in the centre of town, and to construct the latter in an area adjacent to the lower secondary school. This would allow some infrastructure – in particular the library and gymnasium – to be shared. The municipal administrators immediately deemed it important to give a say to those who would be frequenting that school (specifically the teachers, students, and their families). The design was developed through constant dialogue between the architect, the municipal administration, and the head of school, who represented the pedagogical and didactic demands.

The architectural structure is essential and compact, in order to lighten its environmental weight and make it more home-like in its exterior appearance as well. The building follows the slope of the land in order to optimize the use of the thermal mass. The large windows linking the interior to the exterior along the building's perimeter offer glimpses of the pleasant atmosphere inside provided by the optimal natural lighting and the mountain views. Traditional building materials were used, in keeping with the setting. The idea around which the project took shape was the creation of spaces that, although flexible in their use and responding to current pedagogical and educational requirements, can always be readapted to future needs. The school currently accommodates 105 students between 6 and 11 years of age, for a total of six classes organized in two learning communities: the higher grades on the first storey (grades four and five) and the lower grades on the second storey (grade one, two second grade classes, and grade three). There are 16 teachers in total – some of whom are part-time.



The concept of an “educational landscape” permeates the pedagogical vision and shapes the environments. The open space onto which the classrooms open is the heart of a school that fosters a sense of responsibility, movement, and student inclusion.



Pedagogical approach of the spaces

The architect, the head of school, and municipal officials assumed a position of listening, trust, and respect for their mutual spheres of responsibility, with the aim of designing an environment where students could become open, critical, responsible, and independent citizens. This dialogue brought forth the idea of a school to be lived, where one feels at home, welcomed, and guided in the education of competent youths.

Around the principles of responsibility, movement, and welcoming, a pedagogical vision gradually emerged to shape the new school's architectural dimension.

The challenge was to design learning environments that favoured the students' self-determination and their ability to take action, make proposals in dialogue-based confrontation, and organize their own learning autonomously, individually, or in small groups. This gave rise to the idea of articulating the spaces so that the environments themselves would be able to allow effective implementation of individualized, personalized paths of learning. To convey this pedagogical vision, the concept of the “educational landscape” was developed, marked by a blurred, understated design that leaves open multiple possibilities for reconfiguration based on the pedagogical requirements and the students' educational needs.

The open, varied environment and the visual connectivity allow each student to find their own space and follow a personalized learning path, while simultaneously being with classmates, observing them, and feeling part of a group.



The Monguelfo-Tesido school has always assigned great importance to movement, devoting entire days to motor activity and excursions, and setting aside one week a year for skiing practice. The two doors looking out from the classrooms onto open space promote the students' movement, allowing them to shift autonomously between environments in order to perform activities on foot, seated at tables, or lying on the sills at the large windows, or on beanbag chairs, or even on the heated floor. The school's pedagogical approach devotes particular attention to the processes of inclusion. The opening of the two large educational landscapes, the portion of transparent wall present in every classroom, and the sliding glass door providing an acoustic separation between a "classroom plus" and the rest of the landscape foster a manner of teaching in which each youth, although following his or her own path, is at the same time joined by – and can observe – his or her classmates, and does not feel isolated or left out. Moreover, the shared space offers the opportunity to work with anyone, regardless of age. The multiple activities that take place here help strengthen different dimensions of intelligence and allows each student to discover his or her own strong and weak points. Heterogeneity thus becomes the norm, and leads to acceptance and tolerance.



The large windowsills in the educational landscape areas are the only pronounced design elements. Students love lying in this evocative space to read, chat, relax, and gaze at the landscape.

The school as an educational landscape

The architectural design of the Monguelfo-Tesido primary school took shape around the concept of “educational landscape.” On all storeys, classrooms are placed at the corners, with a large space in the middle onto which they face. On the ground floor, the central space is occupied by the atrium, with the students’ cloakroom on the right and a multifunctional classroom and art atelier on the left. The wooden staircases and a large lift provide access to the first storey, which accommodates the higher-grade classrooms and the teachers’ room. At the centre, through two large doors and a portion of transparent wall, the classrooms face out onto the irregular cross-shaped educational landscape. The same structure is repeated on the second storey, where the lower-grade classrooms are located. This same storey also accommodates a music room and a “classroom plus” that is acoustically separated from the open space by a transparent door occupying the entire wall.

The building’s focal points are the two large educational landscapes placed on the first and second storeys, shared environments whose mobile furnishings allow them to be reorganized at any time. Here, most of the school’s functions are of distributed nature. In particular, the library spans in different areas of these two large, open spaces. Similarly, the multimedia islands are placed on mobile carts, and can be moved around as needed. Moreover, the students can relax here, for example by lying down on the heated wood floor, or on the sills at the large windows, on the stairs or on the beanbag chairs scattered about. Students can work individually or in small groups by pulling the mobile tables together, thus fostering discussion, dialogue, and teamwork skills.

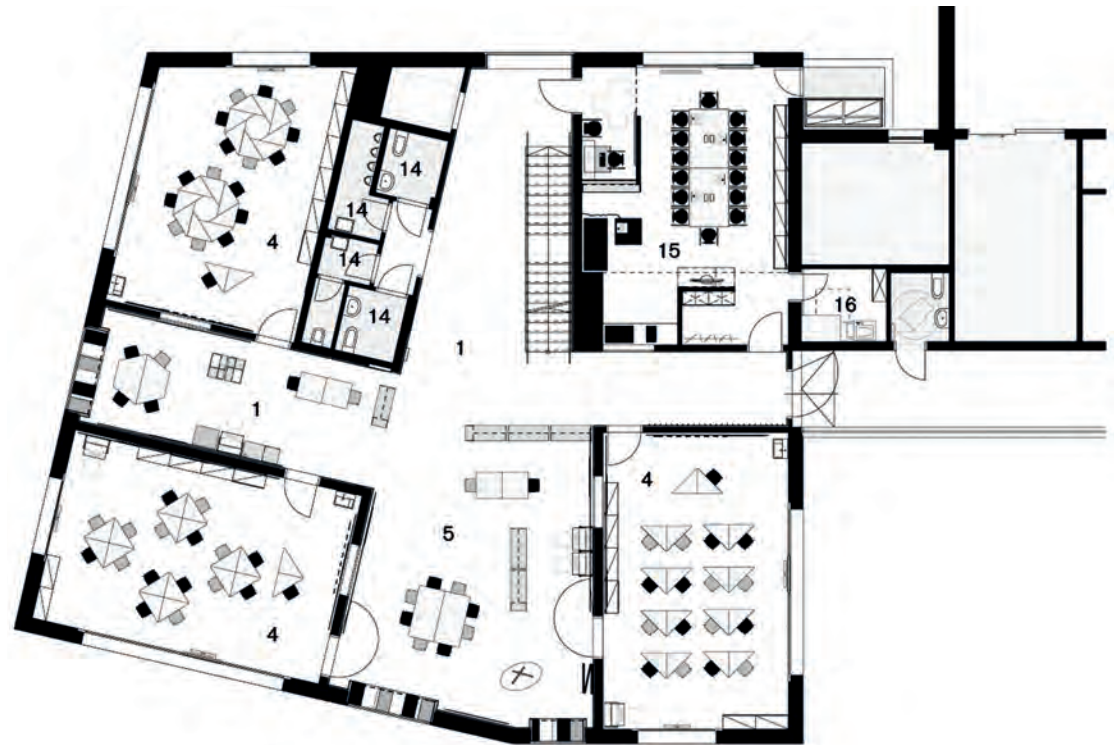
These settings can be easily transformed into auditoriums or meeting rooms. The hooks on the ceiling allow a curtain to be put in place for theatre activities. The wooden walls have steel tracks that the blackboards run on, and the products of the students’ work can be displayed. Electrical and internet outlets are installed on every wall. Physical and mental well-being is ensured by a variety of factors: optimal lighting conditions afforded by the classrooms’ position and large windows; mechanical ventilation; the warm, embracing wood panelling that promotes a sense of familiarity; the good acoustic conditions; and, not least, the presence of numerous plants.

Placed on the four corners of the two educational landscapes, the classrooms also have flexible furnishings, and there is no teacher’s station. The centre of learning thus becomes the students themselves, wherever they happen to be.

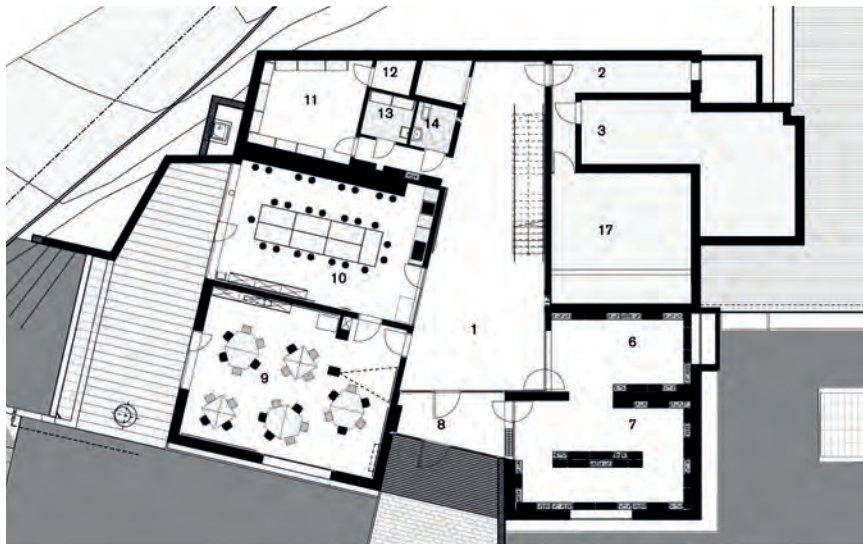
The first floor opens onto the atrium; to the right is a large cloakroom for students, while to the left are a multi-purpose room and an art atelier. The classrooms, two large open-plan educational areas, a "classroom plus", the music room, and the teachers' room are located on the first and second floors. Source: Klaus Hellweger.

LEGEND

- 1 Corridor/foyer
- 2 Technical room
- 3 HVAC room
- 4 Classroom
- 5 Classroom plus
- 6 Cloakroom
- 7 Cloakroom
- 8 Secure entrance
- 9 Multipurpose room
- 10 Art atelier
- 11 Storage room
- 12 Technical room
- 13 Cleaning room
- 14 Restrooms
- 15 Teachers' room
- 16 Photocopier room
- 17 Boiler room



FIRST FLOOR PLAN



GROUND FLOOR PLAN



SECOND FLOOR PLAN

The classrooms are equipped with movable, triangular desks that allow for various configurations to suit teaching needs. There is no fixed teacher's station; instead, the teacher moves among the desks and can intervene from anywhere in the room, aided by sliding whiteboards installed on every wall.

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The compact size of the desks allows for freedom of movement and better organization of materials: items not needed at a particular stage of the lesson are stored on open shelves.

Each classroom is equipped with a sink and a transparent section of wall that allows for the observation of activities within the educational landscape.

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On the second floor, within the educational landscape, an inclusive “classroom plus” is separated from the open-plan area by a large, transparent sliding door. Inside, desks are arranged in a circle; a soft seating area has been set up for relaxation or reading, and a large window offers a view of the natural landscape. It is an acoustically secluded space where one can work in small groups or one-on-one, while still remaining connected to the activity outside.



The music room is located on the second floor. There are no desks, only chairs, drawer carts for storing smaller instruments, music stands for all the students, and a cabinet for larger instruments. It is also used for extracurricular projects that take place one afternoon a week.

The ground floor houses the cloakroom area, where children can remove their shoes and jackets and put on slippers, just as they would when returning home. The space is large, with a designated area for each class. The cloakroom declutters the living areas and lends the school a welcoming, home-like atmosphere; it also serves as a setting for fostering basic independence and developing the students' peer-tutoring skills.



The teachers' room is spacious and comfortable. A large table sits in the centre, where teachers work and hold discussions. A small kitchenette area – equipped with a sink, fridge, and kettle for breaks – is located in one corner of the room, alongside a sofa for conversation or relaxation. There is a computer workstation, and, as in all the classrooms, visual connectivity is encouraged through a transparent section of wall. The photocopier is located in an adjacent room.

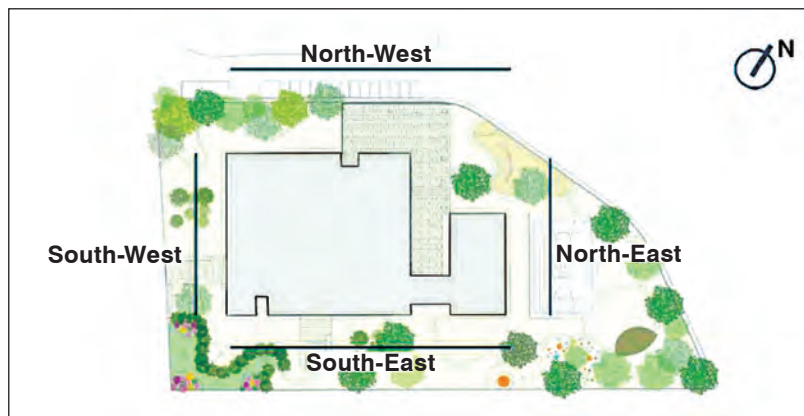
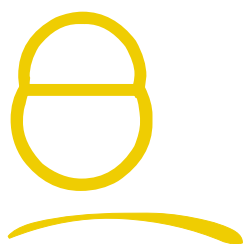




San Carlo Primary School

San Carlo Canavese

Raffaella Carro



SAN CARLO PRIMARY SCHOOL

PARENT INSTITUTION

Ciriè 2 Comprehensive School

MUNICIPALITY [PROVINCE]

San Carlo Canavese (Turin)

SCHOOL LEVEL

Primary School

STUDENT CAPACITY

250

FINAL DESIGN

Settanta7 Studio Associato

CLIENT

Municipality of San Carlo Canavese
(Turin)

YEAR INAUGURATED

2021

BUILDING SURFACE AREA

Single floor:	2,039 sqm
Gym:	306 sqm
raised ground floor:	180 sqm
Total:	2,525 sqm

TOTAL AREA OF THE PLOT

9,000 sqm

The San Carlo Primary School is located in a small town 25 km from Turin, rising on a plateau of morainic origin. Today, the town has about 4,000 inhabitants; its central zone comprises the municipal hall, schools, the church, the post office, and some shops. There are also a number of districts at various distances from the town centre.

The intervention was carried out on a strategically placed site identified by the municipality, with space available for future enlargements of the primary school and of the new lower secondary school. The area of intervention is therefore intended to become the new cornerstone in the lives of the children residing in the Municipality of San Carlo Canavese.

In the 2021/2022 school year, the school complex consisted of 9 classes for a total of 198 students, but is designed to contain 250. There were 23 teachers (17 ordinary teachers, 3 special needs teachers, 1 teacher on the Covid-related support staff, 1 religion teacher, 1 teacher on a fractional contract), plus 4 auxiliary, technical, and administrative staff members.

The building was designed starting from the preliminary demands provided by the Municipality of San Carlo Canavese and from consultations with the school teachers; a leading role was played by the Mayor who was first to imagine a school as a gathering place on the territory, with special meeting spaces. In particular, the choices were inspired by the demand to create a flexible, multifunctional, and dynamic educational environment that might overcome the “school/corridor” idea to stimulate creativity and social interaction. Another key aspect is that of humanizing interior spaces with solutions designed to create a sense of belonging and promote well-being. Lastly, the permeability between interior and exterior spaces, obtained via direct access to the garden and thanks to the presence of large glazed surfaces, constantly maintains the relationship between indoor and outdoor teaching.

The school occupies a single storey that accommodates reception, administrative offices, lunchroom, 10 classrooms, and the computer lab. Moreover, all these environments face a glass-walled central block, which contains the agora/library, a multifunctional classroom, the patio (winter garden), and, at a raised level in a sort of turret, another multifunctional space. All around is a large garden (currently a lawn with some still-youthful trees), the educational vegetable garden, and some drinking water fountains. This green area offers countless possible uses.

Elevations. The school is single-story, except for one classroom – a sort of vantage point overlooking the local area and the surrounding natural environment. Source: Settanta7 Studio Associato. Opposite page: site plan. Source: Settanta7 Studio Associato.



SOUTH-EAST ELEVATION



NORTH-WEST ELEVATION

The characterization of the common areas, inspired by Antoine de Saint-Exupéry's "The Little Prince", makes the environment welcoming and colourful.

The colour and graphic choices characterizing each space transform the walls into open books of educational and symbolic value.



Pedagogical approach of the spaces

The San Carlo Primary School is an example of a town school that makes contact with the territory and community a cornerstone of its vision. One of the places – along with the main square, the municipal hall, and the church – that symbolize the town, the school is the institution that takes care of young people. This responsibility of the school institution takes concrete shape in the values of welcoming and inclusion, alongside the principle of movement understood as a constant relationship between inside and outside, between classroom and garden, and between school and territory.

The school concept may be recognized in the inputs the designers received for developing the building: a dynamic place of knowledge and growth, endowed with flexible, multifunctional environments; a connective space as a place for gathering and social interaction, but also as a place for learning and for developing creativity; interiors endowed with solutions shaped by concepts of welcoming and a sense of belonging; an important relationship between interior and exterior.

The central space is the connector par excellence: with its spacious environments furnished with comfortable, flexible chairs, it satisfies the need both for informal encounters and for alternative, multifunctional spaces for multi-class teaching and common projects, but also as a place for concentration and relaxation. The large, glazed walls make these central settings visible and inclusive, placing emphasis on shared activities.

The principle of movement is also exemplified in the building's structure; although it has a plaza footprint, its interior features an oval space that connects all the school's areas in a sort of spatial continuity.

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The classrooms all open onto this common space while simultaneously enjoying direct access to the garden, creating an indoor-outdoor connection that is both physical and educational.



The relationship with the territory and nature is the basis for this school's principle of movement. Classrooms with direct access to the garden help shift teaching from the classroom to the outside, and present a window onto the territory – a constant presence thanks also to the large glazed walls.

The building's central part has an open-air zone defined as a "patio" or "winter garden," where plants will be put in place, to be tended to by the children themselves.

The spacious garden will be the subject of a subsequent design that, as planned by the school and the local authority, may become a kind of open-air classroom for developing a relationship with nature, between play and knowledge. Lastly, a privileged outlook onto the territory is provided by the classroom in the central turret, designed for the activity of observing the surrounding environment and intended to become the creative atelier.

The school also frequently organizes excursions for outdoor education, thanks to the proximity of a nature reserve within walking distance, where the children perform activities along with their teachers and experienced guides.



The seamless connection between indoor and outdoor spaces is realized through classrooms that all feature large windows providing direct access to the garden. The windows – whose silhouette evokes that of an elephant – belong to the first-grade classrooms and define the building's façade.

Permeability of interior and exterior spaces

Designed in a square layout on a single storey, the school includes a large, transparent block that accommodates the library/agora, two multipurpose classrooms, and a winter garden. The central volume, in addition to featuring the space for encounters, creativity, and open class activities, has the function of bringing light inside the connecting environment. The latter is designed not to be a passageway, but as an integral part of the school's system of education and identity, representing a considerable portion of the structure's total volume. The only setting on a raised level is a circular classroom rising in a sort of turret recognizable from the exterior because of its yellow colour. The classroom offers a panoramic view of the territory, and the school design assigns it the purpose of being the creative atelier.

Another special feature of the design is the "humanization" of interior spaces, based on colour and on the graphics that transform the walls into open books.

The school building is configured as a sort of cluster, with the classrooms placed around multifunctional and lab spaces. All the teaching environments follow the principle of opening towards the exterior garden and towards the interior connecting space, establishing a relationship between the classroom and the multiple alternative spaces. Detached from the teaching structure is the gymnasium, accessed both from an interior corridor and from the outside (so it can also be used by the local community). The classrooms are all furnished with single-person desks that can be easily grouped into islands during lessons, and are designed with anti-noise systems to reduce any disturbance originating from adjacent classes to a minimum. Each class has an IWB which, in the words of one teacher, serves as a symbolic window onto the world, completing the vision of openness to the outside – one of the school's special features.

Lastly, although located in the immediate vicinity of the town centre, the school is surrounded by greenery. In particular, it has a spacious garden, where some still-youthful trees will create shaded areas in the future. The municipal council, acting in concert with the school, plans to invest in this space in order to have open-air classrooms for outdoor teaching. At the moment, the garden is equipped only with drinking water fountains and with three basins for the educational vegetable garden, which the students inaugurated during the first year of occupancy, planting flowers on the occasion of the arrival of spring.

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The classrooms are bright and equipped with individual desks – which can be grouped into clusters depending on the activity – and interactive mul-

timedia screens connected to the Wi-Fi network. Lighting adjusts automatically to ensure a welcoming environment at all times.



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In the central oval, in addition to the library, there is a room equipped for small-group activities; it is also used by the teaching staff for collaborative lesson planning and internal training sessions.



A feature stemming from the flexibility of the spaces is the presence of a sound-proof movable partition between the computer lab and the adjacent classroom. Consisting of two folding panels, the partition folds up accordion-style whenever a large, open space is required.

Only one room is located on an upper floor: the panoramic classroom, which offers a privileged view of the surrounding landscape and is slated to become an atelier in the future. During the 2021/2022 school year, it was used as a classroom for children with special needs and their support teachers.



The distribution of vegetation was designed based on principles of functional spatial organization and implemented through diverse plant arrangements intended to foster children's appreciation of nature's diversity. The vegetable garden area plays a significant educational role, where children learn respect for nature and the seasonal cycles through experiences that combine hands-on activity with the acquisition of scientific knowledge.





G. d'Annunzio Primary School

Celano

Giuseppina Cannella



GABRIELE D'ANNUNZIO PRIMARY SCHOOL

PARENT INSTITUTION

State Comprehensive School of Celano

MUNICIPALITY [PROVINCE]

Celano (L'Aquila)

SCHOOL LEVEL

Primary School

STUDENT CAPACITY

500

FINAL DESIGN

1AX Architetti Associati

CLIENT

Municipality of Celano (L'Aquila)

YEAR INAUGURATED

2017 (extension 2018)

BUILDING SURFACE AREA

Ground floor: 2,205 sqm
First floor: 1,585 sqm
Total: 3,790 sqm

TOTAL AREA OF THE PLOT

9,436 sqm

Part of the Celano comprehensive school, the d'Annunzio primary school came into being by uniting the office of the head of school with the lower secondary school (part of the former omni-comprehensive school in Celano) in September of 2009, following the issuance of the Legislative Decree on the sizing of the school network.

The comprehensive school is distributed over the territory in the following complexes:

- Offices of the secretary and of the head of school, Via Mulino Vecchio;
- Lower Secondary School, Central Location: Via Mulino Vecchio;
- Primary School, Location: Via Granatieri di Sardegna;
- Piccolomini Pre-School, Location: Via Piccolomini;
- Madonna delle Grazie Pre-School, Location: Via Mulino Vecchio;
- Tribuna Pre-School, Location: Piazza Aia.

The recently constructed building is located in Celano, between Via Mulino Vecchio and Via Granatieri di Sardegna. It was built in an area that was home to the city's sports field (stadium), a point of reference for youths and adults, and the meeting place for competitive and recreational activities.

The comprehensive school includes 140 teachers and 966 students, 7 secretarial personnel, plus 6 administrative assistants and about 20 caretakers. A high percentage (17.62%) of the school's student body are foreign nationals (Kosovars, Romanians, Serbian/Montenegrins, Macedonians, Moroccans, Russians, Poles, Ukrainians, Lithuanians, and Chinese).

The new construction has a lunchroom, a gymnasium, a multifunctional, open-air field, an agora (called "Te-Atrio" because it serves as both a theatre – teatro – and as an atrium, or entrance hall), labs for experiments and manual work, a video/media library, a library with reading room connected to the "Santa Maria Valleverde" library, a soft classroom, a multifunctional/study hall, as well as gardens and the plaza in front of the main access. These spaces were designed for potential public use. The school building's body is in the form of a courtyard open towards the outside.

In small towns, where the rural or suburban landscape is an important element, L-shaped or U-shaped open courtyards are often used.

One of the construction elements characterizing the building relates to the infrastructure consisting of prefabricated modules. The choice of modules of this kind arose in relation to the particular, highly seismic geomorphological setting, and allowed contained development costs and speedy project development to be maintained; on top of this, during the design phase, all the indications aimed at guaranteeing the utmost energy efficiency were followed, thanks also to the use of latest-generation technologies.



The building section highlights the school's various levels of use. The "Te-Atrio" serves as the point of separation between educational and public spaces. Source: 1AX Architetti Associati.

Opposite page: the building features an "open-courtyard" layout, creating a sense of protection for those outside while allowing those inside to feel part of the whole. The gym and the multi-purpose space have separate entrances; furthermore, the area in front of the multi-purpose space serves as a plaza that is also accessible from the outside. Source: 1AX Architetti Associati.

The agora is the heart of the building, a meeting point for the school community and the local citizenry (facilitated by the various access points to this spacious area).

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The agora is used not only for recreational activities but also for small-group educational sessions. It has been named "Te-Atrio" because it serves the functions of two spaces: a theater and an atrium.



Pedagogical approach of the spaces

The school is structured on two storeys, with the points of entry for students and school staff differentiated from those for citizens' access to the urban centre functions (library, multifunctional room, and agora). The circulation system on the ground floor extends from the "Te-Atrio" towards two zones – one dedicated to the offices of the school secretary and of the head of school, and another zone, on the opposite side, occupied by the spaces dedicated to educational activities. The upper storey accommodates the educational spaces that extend in blocks of classrooms interrupted by shared spaces for learning activities, both individual and in small groups.

The building has two morphological elements: the form of the courtyard open to the outside, and the "Te-Atrio" (agora) space inside. This shape has two main effects: in the first place, it makes a significant contribution towards creating a sense of belonging to the school community. In the second place, it guides the interior spaces' visual focus: the perception of being in a closed area, with different degrees of openness, generates a feeling of well-being.

The "Te-Atrio" is the point of visual convergence and of encounter both for school socialization and for play/game-based learning activities. Extending around it are the educational spaces on both the ground floor and the first storey. These aspects strongly

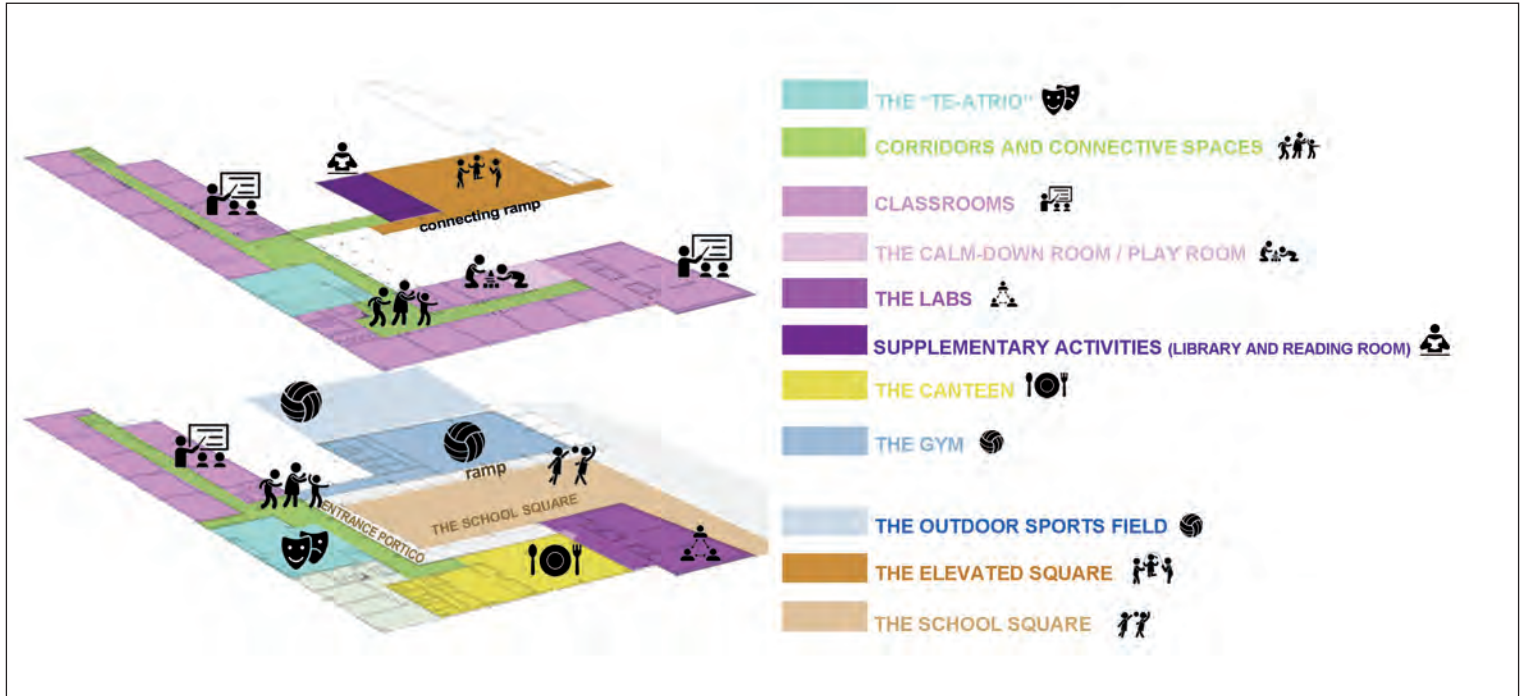
The “open-courtyard” layout inherently emphasizes the importance of outdoor areas, making them a central theme from both architectural and educational perspectives. The use of transparency in the spaces defining the building’s perimeter accentuates the relation-

ship between the school’s interior and exterior, transforming the outdoor area into an extension – almost a continuum – of the spaces traditionally dedicated to educational activities.



influence the characteristics of some spatial forms that are essential to the process of planning educational activities inside the building. These include, for example, classrooms coexisting with areas having diversified functions that, depending on needs, are transformed into semi-private areas or individual spaces, or small group reading spaces.

The school community took part in the building design process, expressing needs and desires that responded to the school’s educational vision geared towards student autonomy, towards inclusion understood in terms of welcoming and the responsibility of each and every person, and towards cooperation among students in such a way that no one is left behind. On the morphological level, these principles were realized through transit spaces that are well lit thanks to the presence of roofs that allow exterior light to filter through. The floors are in natural and environmentally sustainable material. The dimension of inclusiveness is supported by a set of communicating elements that characterize the accesses to the classrooms, representing an element of integration between architectural language and educational functions. The civic centre scale and the link between the interior portions and exterior spaces is guaranteed by the transparent walls of the shared spaces of the lunchroom, the library, the agora (“Te-Atrio”), and the gymnasium.



The school as a space for encounter and collaboration for cultivating trust and honesty

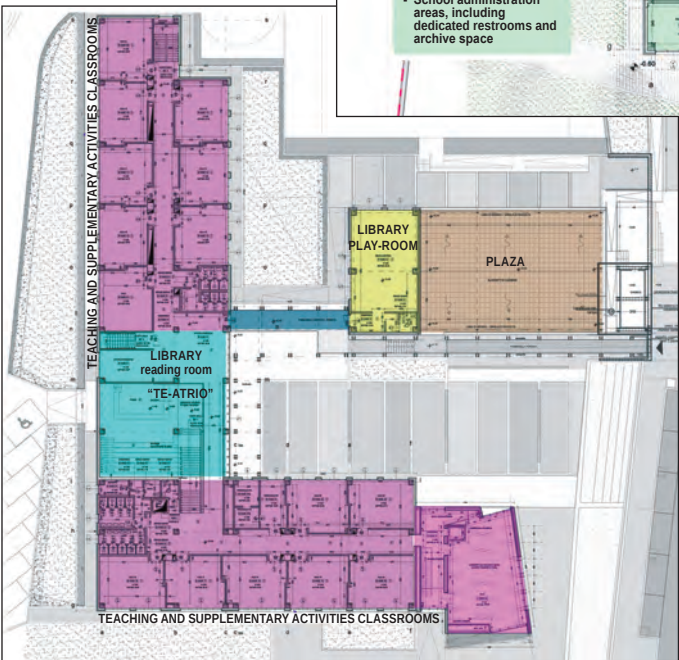
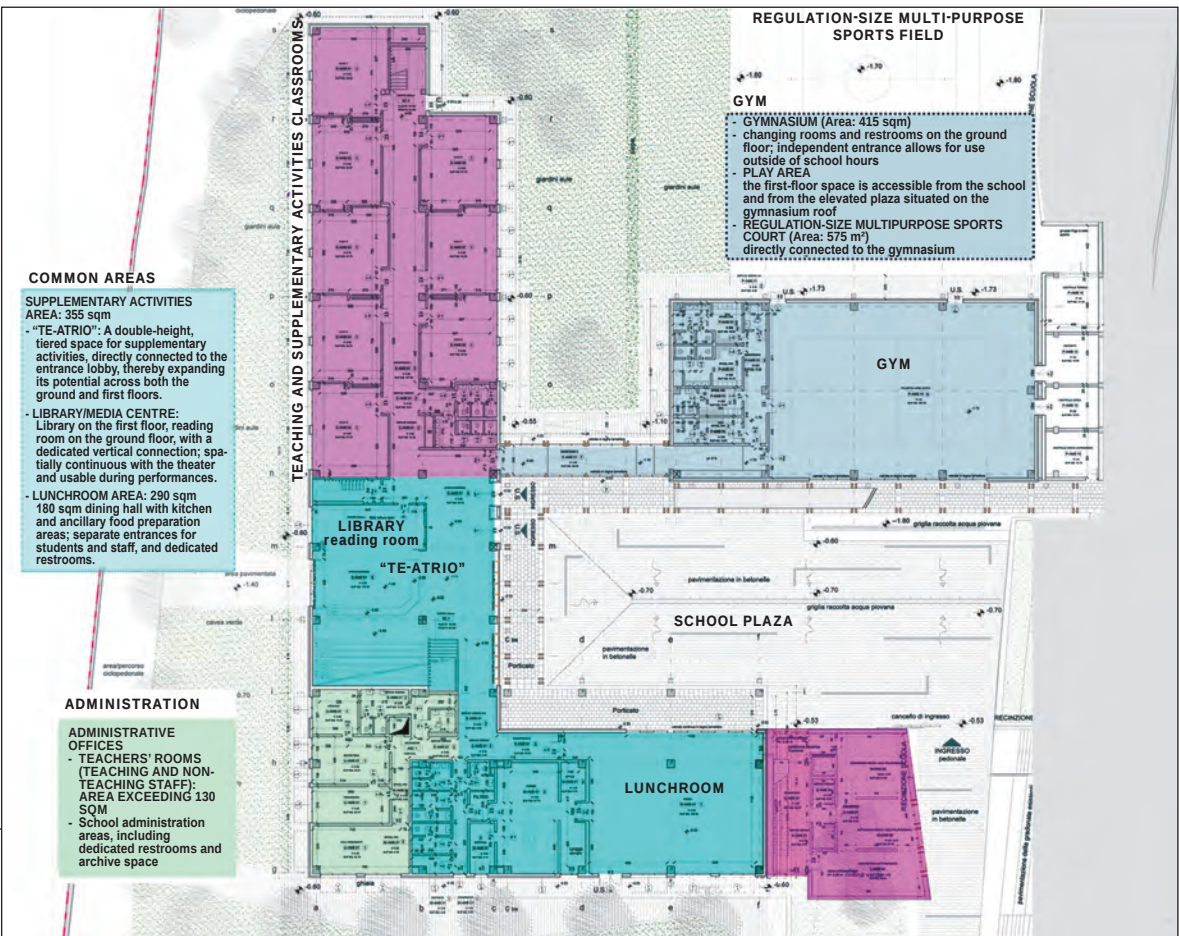
The building's predominant characteristics revolve around the agora, called the "Te-Atrio," and around the shared individual spaces located between groups of classrooms, following a spatial organization model that we may define as a "cluster." The agora is open, with a number of different access points from both inside and outside the building. The movable wings define its boundaries for use, and at the same time their mobility makes it open as relates to both access and educational functions. Moreover, its perimetral transparent panes of glass make it visible from the outside as well, creating a potential educational continuity between inside and outside the school. The individual spaces are linked by a gathering place, the unifying element towards which the pedagogical units are inclined, and that at the same time defines the building's public nature: the "Te-Atrio".

The individual spaces are situated between groups of classrooms on both the ground floor and first storey. They constitute a visual interruption along the transit spaces, and can become spaces for both individual and group learning. A consequence of this versatility might be that of conserving floor area. These cushion spaces play an essential psychological role for the students – especially the younger ones and those with disabilities – because they allow them to identify with a comfortable environment in which to work on an individual level or in small groups, before gradually moving on to the rest of the building. Thanks to the presence of furnishings designed specifically for these spaces, the spatial morphology generates a differentiated use of them, depending on the educational activities to be performed.

The exploration spaces are also placed on both storeys of the building, and have volumes suited to exploration activities in small groups. In particular, each space has technological devices and soft zones, and both digital and material-based, analog tools. The furnishing elements in each of the classes and exploration spaces are distributed in such a way as to create zones with specific functions, like the spaces for dialogue, concentration, and personal reflection. The collaborative dimension in the school's didactic programme has the goal of educating honest, responsible citizens. The library diffused in the transit spaces is one of the elements that stimulates the students both through individual, free reading, and reading in small groups.

Ground and first-floor plans. The colours indicate the functional areas described in the image on the opposite page. Source: 1 A X Architetti Associati.

GROUND FLOOR PLAN



FIRST FLOOR PLAN



The “Te-Atrio”, which spans two floors of the school, serves as a venue for theatrical activities – thanks to its tiered seating and stage – as well as a space for hosting events for the local community or parents, facilitated by a dedicated external entrance.

The educational spaces are distributed on the first and second floors along circulation areas that, through the use of niches and specific furnishings, can accommodate moments of study or relaxation.



The architectural language identifies innovative solutions aimed at overcoming architectural barriers through an inclusive approach that pays special attention to vulnerable users, young children, and people with disabilities.



