



Comune di
Milano



MILANO IN CRESCITA **SCIALOIA**
CONCORSO INTERNAZIONALE DI PROGETTAZIONE SCUOLE



Preliminary Design
Document

CONTENTS

PREFACE	4
1 MAIN GOALS OF THE COMPETITION	6
2 SITUATION	8
2.1 THE URBAN CONTEXT	8
2.2 CURRENT PROJECT DEVELOPMENT CAPABILITIES IN THE CONTEXT	10
3 IDENTIFICATION OF COMPETITION CONTEXT	13
3.1 CURRENT STATUS	15
3.2 ACCESSIBILITY	17
3.3 DELIMITATIONS OF THE AREAS OF INTERVENTION	19
3.4 PROJECT INPUTS AND RESTRICTIONS	21
3.4.1 PERIMETER 1A: THE NEW SCHOOL HUB	21
3.4.2 PERIMETER 1B: PUBLIC GARDENS IN VIA PELLEGRINO ROSSI	23
3.4.3 PERIMETER 2 THE PUBLIC SPACES AROUND THE SCHOOL	24
4 PROJECT FUNCTIONS AND REQUISITES	27
4.1 MORPHOLOGY OF BUILDING COMPLEX	28
4.2 RECOGNISABILITY, IDENTITY AND RELATIONS WITH THE CONTEXT	28
4.3 CONTINUITY AND PERCEPTION OF THE ENVIRONMENTS BETWEEN OUTDOORS AND INDOORS	30
4.4 ORGANISATION OF SPACES AND PATHS	31
4.4.1 MEASUREMENTS: BINDING DATA AND FUNCTIONS	32
4.5 MATERIALS AND FINISHES	38
4.6 SET-UP AND FURNISHINGS	39
4.7 THE ARCHITECTURE OF SYSTEMS AND PLANTS IN THE BUILDING COMPLEX	40
4.8 RESILIENCE, CIRCULARITY AND SUSTAINABILITY	42
5 FINANCIAL LIMITS AND ESTIMATION OF WORK COSTS	45

6 REGULATORY FRAMEWORK..... 46

PREFACE

Buildings used, conceived and lived as relationship spaces at any time of the day: real civic centres. That is how we dream that schools can be in Milan. Open spaces for the area where the environments become educations and welcoming for the youngest citizens.

It is at school that both younger and older children spend most of their day time, like in a second home. That is why these buildings must be safe, practical and beautiful. Beauty is inherent to education.

Milan has a considerable amount of experience in school constructions, accrued in particular during the demographic boom years (1960s and 1970s): during this period, 230 structures were built, on the rationalist type-project pattern that, while within the limits of dedicated resources and limited realisation times that, knew how to effectively respond to the city's growth, often anticipating the 1975 national technical standards with a fair level of quality.

This historical patrimony is now obsolete for many reasons: a large part of the schools were built with prefabricated parts with a 30-year life, the structures often contain materials that have been found to be harmful to health over the years (asbestos and artificial glass fibres) and the overall maintenance of the buildings is becoming less and less sustainable. For these reasons, the city's administration has set up a gradual replacement programme for the oldest school buildings.

The goals of the projects can be summarised into three macro-topics: the practical quality of the spaces, the building's technological performance and the redevelopment of the context.

The practical quality of the spaces can be traced to a new pedagogical approach aimed at making the school a living environment first and foremost, the educating community location, a learning environment that is open to changes in teaching models and able to encounter personal development processes, so that each student feels acknowledged, supported and valued for their uniqueness. Furnishing these new environments to aid relational conviviality and flexibility of use for these spaces are elements that can drive new teachings styles, consistently with the most indications, including those from MIUR (Italian Ministry of Education, University and Research). A renewed relationship with nature, that is earth, sky and light, is just as important for learning.

As part of the technological performance, we expect that the new building is state-of-the-art in its choice of materials (bio-architecture, circularity, sustainability), in the energy field (nearly zero energy building), in structure safety (seismic resistance) and maintainability (building management system).

Lastly, the role of the school as a public building in an urban context deserves special attention: reconstructing a school building inevitably takes on the matrix characteristics for a broader redevelopment, both concerning the quality of the architecture and pertinent spaces, and for the renewed usability and openness with the local area, also for using the structures for extra-scholastic activities (sports hall, library, cultural appointments etc). In today's urban realities, alongside the architecture and its own function, the new school building acts as a stimulant for social renewal and favours inclusion and participation policies.

The project can also be the opportunity to identify a new school model that is repeatable in other urban contexts in Milan, which require similar substitution-redevelopment interventions.

There are several reasons to conclude that thinking about the new school deserves an international design competition, to pursue the highest quality in architecture and at the same time to make Milan an attraction point in Milan and overseas, that is able to gather contributions from architects all over the world.

Laura Galimberti

Councillor for Education and Learning at Milan City Council

1 MAIN GOALS OF THE COMPETITION

The city council's goals to be pursued with the design competition for the new school complex in Via Scialoia can be above all found in the desire to respond to the growing demand for schools in the area, given the deep **socio-demographic transformations** that are taking place in the area of City Council Area 9. The competition also originates from the need to **renew the existing school assets** that are now aged, both from a technical-structural point of view, due to some construction elements having reached end of life, and from a practical point of view, referring to the need to think of educational spaces in a more versatile way. At the same time, the objective of the competition is also a cultural one, as it is aimed at pursuing the best quality in school building design, in terms of pedagogical approach, technical-functional requisites and architectural expression, consistently with the city council's strategic goals for its current term of office.

The area of Via Scialoia/Via Trevi is one of the sites for which the city council has decided to undertake a path of renewal for school buildings, requiring the demolition of existing buildings and the construction of a new school hub. The project for said work will form the result of the international design competition. Designers are called upon to optimise the design, complying with the criteria that guide bodies and institutions which provide the various sources of funding, and that characterise the renewed concept of school spaces with a vision of quality and innovation. In particular, the offer of **innovative spaces** for education are required, suitable for the most recent indications issued by the Ministry for Education, University and Research; a **flexible and autonomous use** of the various functions inserted into the new school buildings; enhancement of suburban and non-suburban areas through the realisation of **extra-scholastic activity centres**, aimed at creating local social activity centres; an increase in **energy efficiency** aimed at creating NZEB (*Near Zero Energy Building*) buildings; control of the **summer micro-climate** and thermal well-being in this season in particular; BIM design, as a need for the gradual implementation of legislation but also as a strategy aimed at the future management/scheduled maintenance of the buildings.

The intervention must not be limited to designing a building with a precise architectural identity that can answer modern functional and educational needs, but must also and above all be a reference "**model**" for the future construction of new schools in the Milan area, in particular concerning the repeatability of typological-distribution, construction and performance solutions.

The competition is divided into two separate areas, allocated to house the new school hub in one part, and on the other the expansion of the park in Via Pellegrino Rossi, further to demolition of

the nursery school of the same name. The urban context theme therefore takes on an essential role, intended as an action to **transform the urban fabric** into a system that connects the two areas by forming a renewed public framework for the local area. The project must therefore be a reference point for the redevelopment of the surrounding public areas. Certainly, the creation of a school hub, with annexed facilities (auditorium, sports hall, library etc) that can also be used by residents in non-school hours, intended as a place for the promotion of culture in the broadest sense of the world, for aggregation, cohesion and social inclusion, could be a strategically important action for the purpose of the broader redevelopment of the area.

The designer will therefore be asked to rethink the areas of Via Scialoia, Via Trevi and Via Pellegrino Rossi so that they can take on a role of urban centrality, for cultural purposes, offering great potential for urban and social development in the area. The goal is **to transform the area into an identity-creating and aggregating location open to the local inhabitants**, with the aim of expanding opportunities and occasions for the use of public spaces and therefore increasing the level of safety for those living those same spaces.

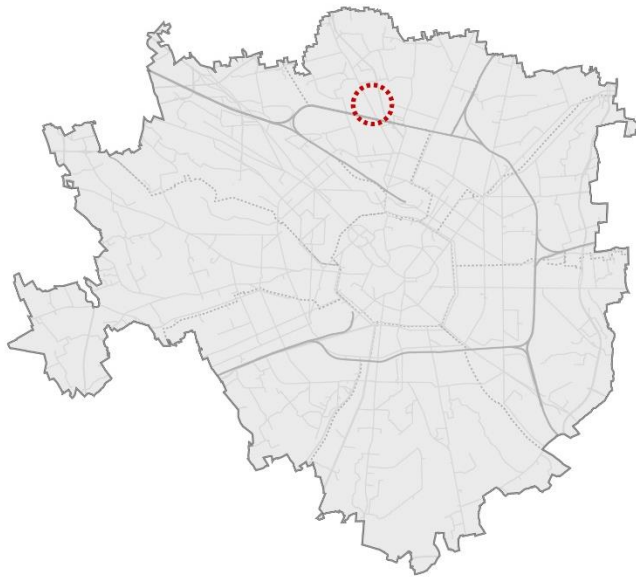
For this very purpose, it is necessary to equip the new school hub with suitable indoor and outdoor spaces for social relations, such as an auditorium, library, training and information spaces, play and sport areas: spaces that favour access to culture and sport for the whole community, encouraged to explore, use and therefore frequent the new spaces provided for the local area by the City Council at various times of the day.

The new school hub is therefore the opportunity to reflect on project solutions that involve the closest context, such as the park in Via Trevi/Valeggio and the public gardens in Via Pellegrino Rossi. In this sense, the design of the **connecting spaces** between the various educational areas take on an important role, as well as the outdoor spaces adjacent to the school building used for outdoor activities.

2 SITUATION

2.1 THE URBAN CONTEXT¹

The project area is located to the north of the city of Milan, on the boundary between the city areas of **Dergano** and **Affori**, and is a part of City Area 9. Dergano connects to the south with the tram ring and to the east with Viale Enrico Fermi, a connection route to the regional roads. It forms, in fact, the start of the Milano-Meda Highway and the Comasina road that connects Milan, in Piazzale Maciachini, to Como and Switzerland. The far southern part of Parco Nord also lies along Viale Enrico Fermi. This is a semi-urban metropolitan park of over 600 hectares that stands in one of the most densely urbanised contexts of Europe. The area of intervention is located just to the north of the railway line known as the “Linea di cintura”, at this point distinguished by an east-



west longitudinal stretch that is next to the route of Viale Enrico Fermi.

Dergano and Affori, historical areas of Milan, were originally independent municipalities, included in the city around the end of the 19th and start of the 20th centuries. The Dergano area is historically linked to industrial development, which took place between the second half of the nineteenth century and the second half of the twentieth century. After the gradual closure of the industrial areas, which began at the end of the last century, the urban layout of the two area has

¹ For further information, please consult Annex 5.3 “Further information on historical-urban aspects”

changed significantly. In the last twenty years, the former industrial areas, which no longer have any production sites, have given way to new mainly service and residential sites.

From a demographic point of view, this area contributes to the new development phase that the city of Milan is undergoing, where the population has been increasing once again since 2008 and even more noticeably since 2014. Like all semi-suburban areas of the city, this city area also has a high level of multi-ethnic resident population. The percentage of foreign residents stands at around 30%, and mainly comprises residents of Chinese, Egyptian and Philippine origin, which reflects on the social and cultural variety of the city area.

2.2 CURRENT PROJECT DEVELOPMENT CAPABILITIES IN THE CONTEXT

Territorial Zoning Plan (PGT)

The City Council's strategic vision for this part of the city concentrates above all on optimising the historical fabric of Dergano and Affori. The Territorial Zoning Plan (PGT) acknowledges that such a public spaces system that form these “**Historical external centres**”, can play a potential role of a supporting structure for collective city life, based on the identity of the various city areas, favouring pedestrian and cycling mobility, and aiding the set up of small shops and private services. Redefining the relationship between road and ground floors of buildings is considered to be a central point. In addition to the interventions intended to limit vehicle traffic and to optimise pedestrian space, the plan supports the safeguarding and creation of local shops, private facilities and catering activities all facing onto the public areas.

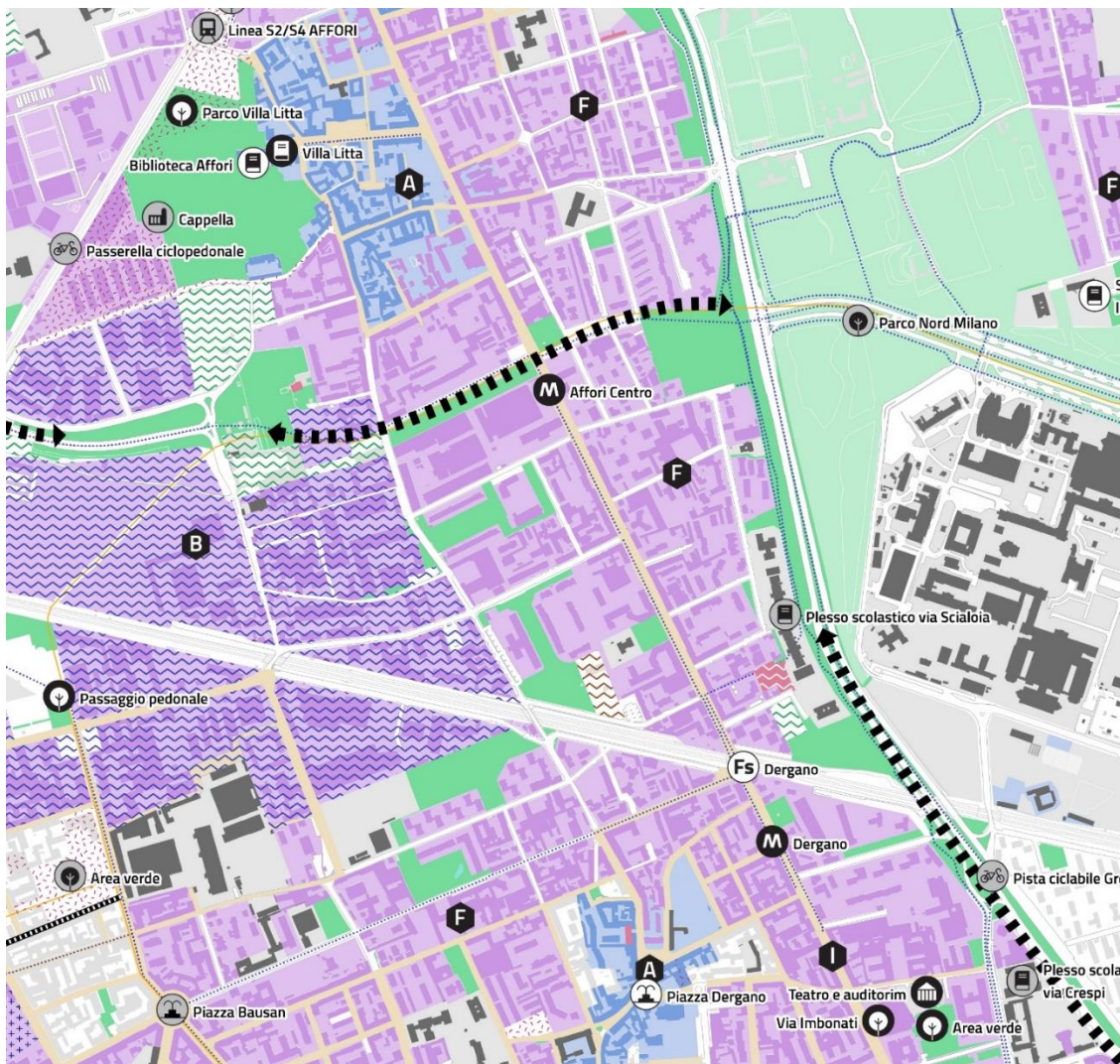


Fig.1. Extract of the “Atlas” of the planned interventions around the competition area, as governed by the Territorial Zoning Plan for Milan 2030.

With regard to the new functions set out in the Territorial Zoning Plan for some specific areas, a presence of an areas classified as an indirect reserved area, allocated to public park, located along Via Trevi must be emphasised. Immediately adjacent to the competition area, the plan also identifies an area that is a part of the new council-owned areas where new social residential housing will be built.

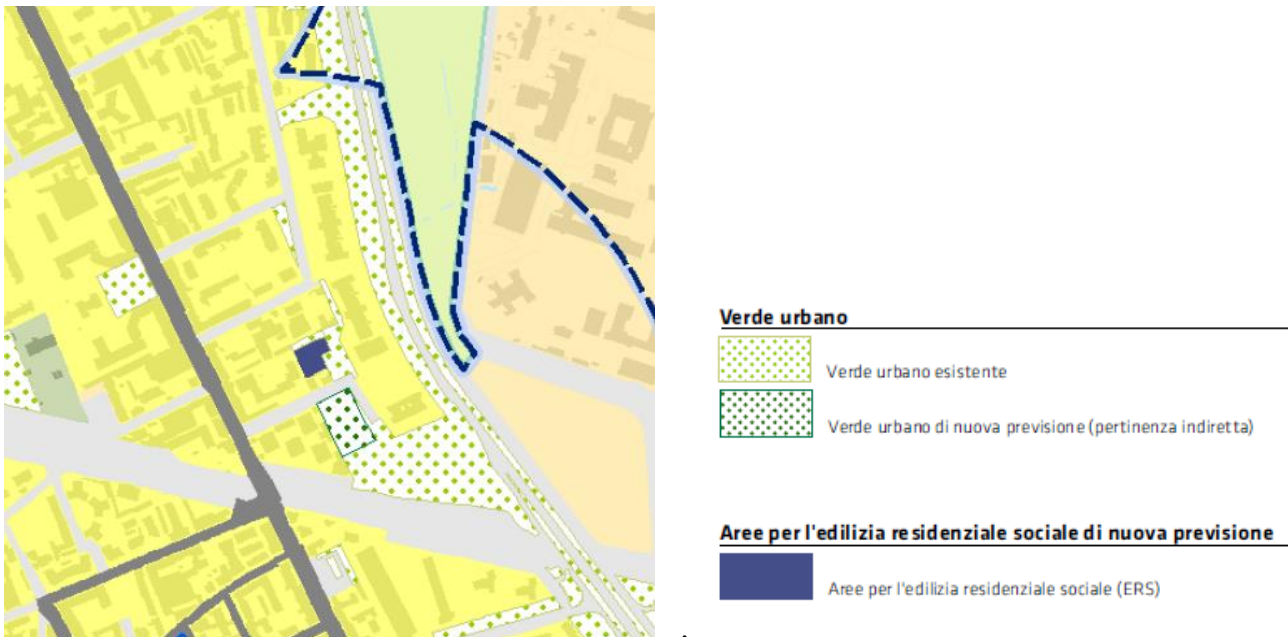


Fig.2. Extract from the diagram “O3PR_R02_Indicazioni_urbanistiche” from the new Milan 2030 Territorial Zoning Plan. Note there are also plans for a new social residential housing area and public green areas that touch the project area to the west

PUMS

The plan for new social residential housing is linked to the current and future level of accessibility for the area. In fact, in the future, Dergano may be served by a railway station to the north of the area, close to the project area, as a new part of the “**Circle Line**”, a project included in the Programme Agreement for redeveloping the disused railway stations and by the Milan 2030 vision also adopted in the new Territorial Zoning Plan (PGT), and the PUMS, the Urban Sustainable Mobility Plan. The “Circle Line” project foresees an increase in the use and accessibility of the railway belt, in order to establish a complementary transport system for the subway and the loop, by creating new stops, interchanges and railway services, and bringing the quality standards of the stations and the services closer to the standards of the subway lines. The Urban Sustainable Mobility Plan, approved by City Council Resolution no. 38 of 12.11 2018, therefore provides for a new

station along the railway belt, at the point of Via Imbonati/Via Pellegrino Rossi, intended as a place of interchange with the Dergano stop on Subway Line 3. An extension of the metro-tram line 7 is also planned along the route of Via Ettore Majorana, which runs to the north of the area in an east-west direction. Connecting on one side to the Certosa station, and on the other side to the Cascina Gobba station, will further increase accessibility by using public transport in the area.

The sustainable Urban Mobility Plan (PUMS) has set itself the objective of creating safety, liveability and quality of public spaces, at the same time guaranteeing efficiency conditions on the mobility system. Making movement (using any means of transport) safe is therefore the common thread connecting the plan's specific actions. The PUMS also indicates a plan showing that the project area will be crossed by part of the **priority cycling itineraries** network, that will link to the cycling path along Viale Enrico Fermi and will connect to the existing cycling path on Via Pellegrino Rossi, turning into Via Filippo Balducci and then reconnecting with the rest of the network in Piazza Bausan.



Fig.3. Sustainable Urban Mobility Plan: Extract from Diagram 6 – Cycling Mobility (source: PUMS Milan – 2018)

3 IDENTIFICATION OF COMPETITION CONTEXT

The intervention area includes the areas of pertinence to the state comprehensive school in Via Scialoia - of approximately 24,000 m² - and some adjacent areas - of approximately 6,000 m² - owned by the city council, which are currently used for roads and green areas, and which will partly be used as green areas reserved for the new buildings, to achieve the required edification standard for the new school hub.

The current school complex includes a nursery, with its entrance at Via Trevi no.16, and the nursery school, primary school and junior high school which have their respective entrances at Via Scialoia nos.15, 19 and 21. The nursery school named after the road it stands on, Via Pellegrino Rossi no. 17 is also located here, which will be relocated inside the new school hub. After demolishing the nursery school, the area will be annexed to the adjacent public park, which will be the subject of a specific project proposal as part of the herein design competition.

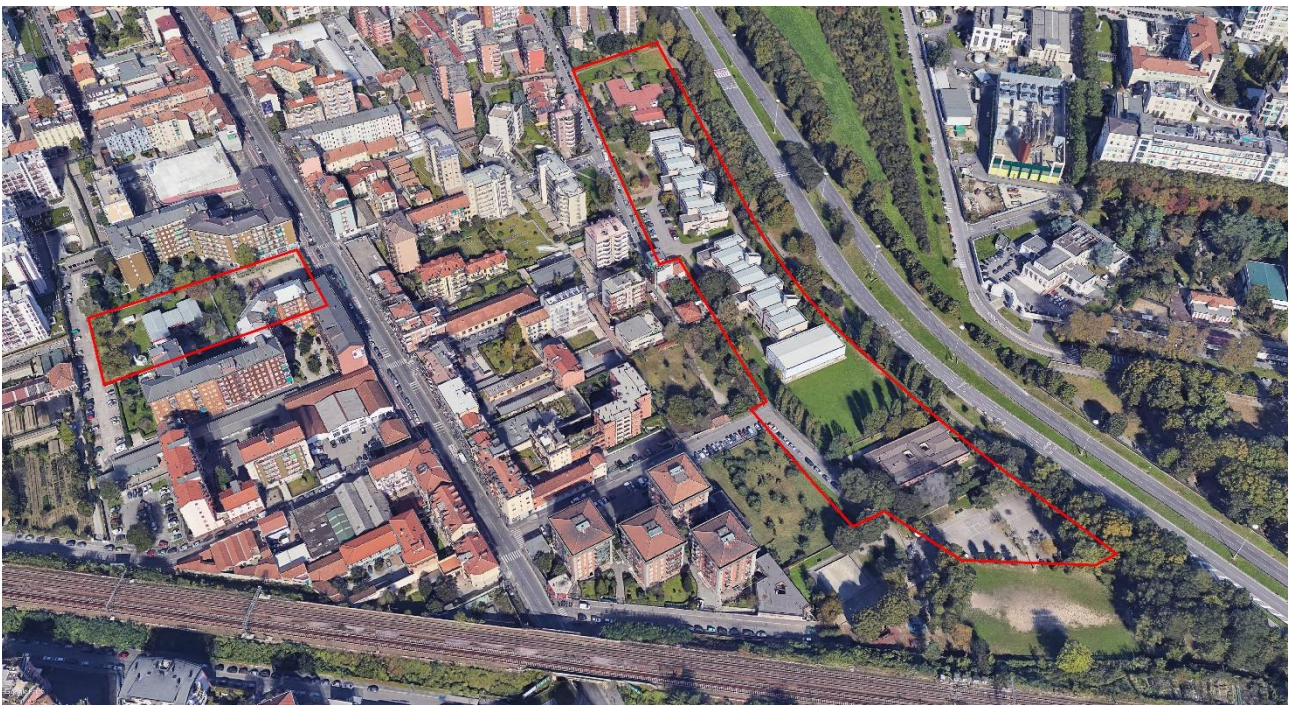


Fig.4. Aerial view of the urban context inside which the competition area falls

The planned interventions consist of:

- **reclamation** and disposal of items containing asbestos and A.G.F. (Artificial Glass Fibres) in the existing school buildings (Nursery in Via Trevi, 16; Nursery School in Via Scialoia, 15; Nursery School in Via Pellegrino Rossi, 17; Primary School in Via Scialoia, 19; Junior High School in Via Scialoia, 21);
- **demolition** of the existing school buildings (Nursery in Via Trevi, 16; Nursery School in Via Scialoia, 15; Nursery School in Via Pellegrino Rossi, 17; Primary School in Via Scialoia, 19; Junior High School in Via Scialoia, 21);
- **Construction** of new buildings that will house the Nursery, the Nursery School, the Primary School and the Junior High School.



Fig.5. Map of the area involved in the competition, showing the nursery (pale yellow colour), the two nursery schools (dark yellow colour), the primary school (orange colour) and junior high school (red colour), with respective outdoor areas of pertinence. The primary school and the junior high school have a common area of pertinence.

3.1 CURRENT STATUS²

The school buildings that are to be demolished are mainly prefabricated, although of different types: heavy (nursery in Via Trevi 16), mixed (primary school and junior high school in Via Scialoia 19 and 21), light (nursery school in Via Pellegrino Rossi 17).

The prefabricated school building were built in Milan in the 1970s/80s in response to the considerable, rapid rise in city population in that period, as they responded to the need to construct buildings in a short space of time, at low cost, exploiting the “light and mixed” prefabricated technology”. This type of building, used in several areas of the city in that period to create all types and levels of schools, was designed to last on average approximately 20 years.

Actually, almost all the prefabricated schools of that era, apart from a few rare exceptions, still exist and are still open (more than 50 years after their construction), creating increasingly serious issues from a maintenance point of view and also creating enormous inconvenience to the users, and clear diseconomy for running plants and systems contained within them.

The city council has carried out a report on the school buildings involved in the area of intervention, regarding the monitoring of items containing asbestos pursuant to current safety laws, and the following situation has been identified:

Name of building	Census report	Presence of asbestos	Presence of hazardous Artificial Glass Fibres
Nursery Via Trevi, 16	no. 1327 of 1.08.2017	Tech. Area flange *	Tech. Area - Laundry Room - Crawl space
Nursery School Via Pellegrino Rossi, 17	of 7.09.2012	/	**
Nursery School Via Scialoia, 15	No. 1240. of 16.10.2017	under the roof	Technical centre and crawl space
Primary School Via Scialoia,19	No. 1241. of 2.11.2017	/	Insulation of false ceilings and walls
Junior high school Via Scialoia,21	No. 1242. of 6.11.2017	Perimeter coverage panel	Insulation of roof and false ceilings and walls

*The floor of the Nido Trevi, 16 containing asbestos, according to the censure of 1.08.2017, has been removed.

**The 2012 survey, carried out at the pre-school in Via Pellegrino Rossi no.17 was not aimed at searching for Artificial Glass Fibres, however the presence of the latter is suspected in the wall and roof insulation.

Once the existing buildings have been cleared, they will be completely demolished:

² For further information, please consult Annex 5.3 “Further information on historical-urban aspects”

Name of building	Type	Year of construction	m3
Nursery Via Trevi, 16	prefabricated in steel/concrete mixture	1980.	4,650.
Nursery School Via Pellegrino Rossi, 17	Light prefabricated	1973	1,994.
Nursery School Via Scialoia, 15	Prefabricated in reinforced concrete	1973	3,635
Primary School Via Scialoia,19	prefabricated in steel/concrete mixture	1973.	18,008.
Junior high school Via Scialoia,21	prefabricated in steel/concrete mixture	1973.	23,485.

The existing buildings have 4 underground fuel tanks to feed the central heating system that is no longer in use - the approximate location of which is shown on the maps as found in Annex 3.6 "Survey of tanks and central heating system" - which have been emptied but not yet removed. Costs of removal, which must take place prior to the new construction work being carried out, may vary depending on the presence of any residue and/or leaks into the ground.

3.2 ACCESSIBILITY

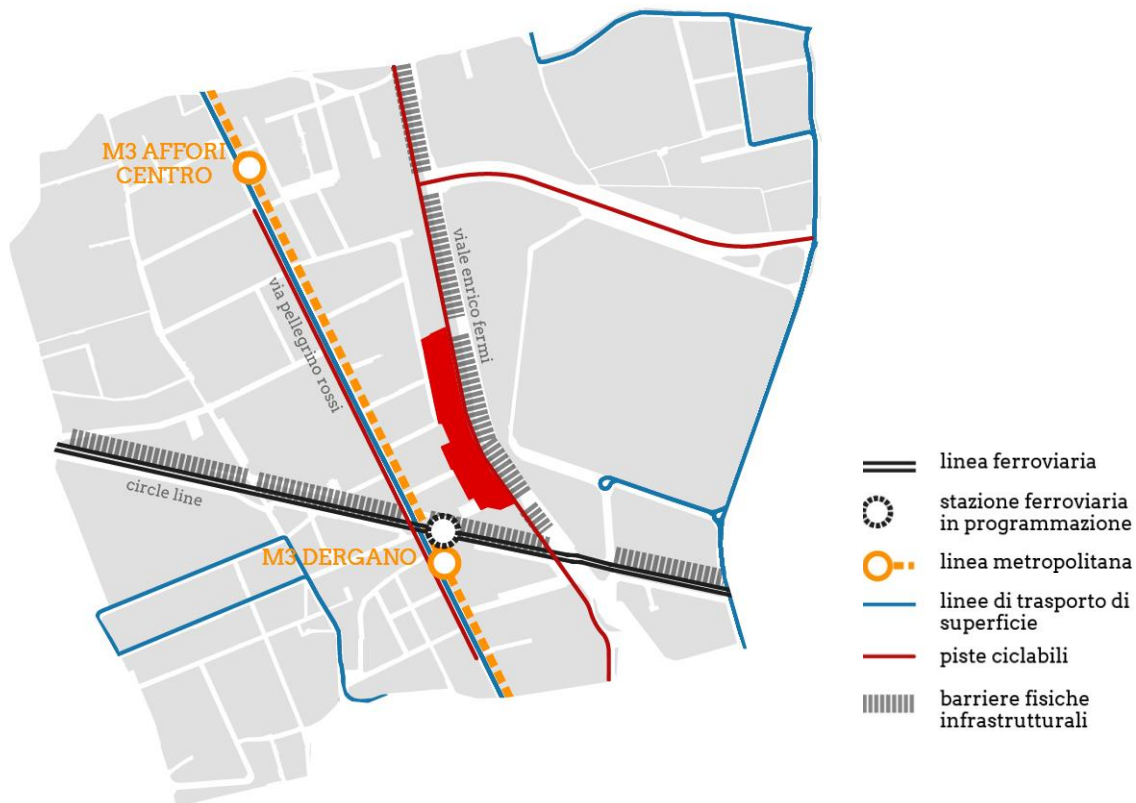
With regard to accessibility using public transport, the intervention area is served by both the subway lines and the overground transport. There are two subway stations on the M3 subway line in the area, with the Dergano stop at a distance of approximately 350 metres and the Affori Centro stop at about 700 metres. In relation to the city overground transport surfaces, there are stops for the 70 bus route from Cimitero di Bruzzano to Maciachini (suburban line) in a radius of about 250 metres from the plot of land that will host the new complex:

- Via P. Rossi/Via Semplicita'
- P. Rossi/Via Trevi

There are also stops for the 82 Bus route from Bovisasca to Zara M3 M5 (suburban line) in a radius of approximately 500 metres:

- Via Baldinucci/Via Tartini
- Via Tartini/Via Carnevali
- Via Candiani/Via Tartini

Vehicle access to the project area is ensured from Via Scialoia, Via Trevi and Via Semplicità, that can be approached from Via Pellegrino Rossi, while there is no possibility of access from the side



of Via Enrico Fermi.

3.3 DELIMITATIONS OF THE AREAS OF INTERVENTION

The area covered by the competition is defined in the table 3.2 “Table showing the delimitation of the area of competition” and is separated into two sub areas of intervention:

- *Delimitation 1: Red colour*

The areas for which the competitors are called upon to produce a **technical-economic feasibility project** are shown in red:

- **Area 1A** is the one allocated to hosting the new school complex, its direct appurtenances, and possibly some immediately adjacent public spaces. The actual construction plane of the new school buildings and the outdoor areas connected to them must be within the boundaries of this area. The project must set out in detail the outdoor area that are connected to the new buildings and the larger ones that are strategically connected to both the new school complex and to the surrounding equipped park area, keeping in mind the delimitation boundaries. Area 1A has a surface area of about 30,000 m² and borders to the north with a private area, to the east with green areas next to Viale Enrico Fermi, to the south with the public park in Via Trevi and to the east with some building plots allocated to mostly residential use, a public green area where a Social Residential Building project is planned and the roads Via Scialoia and Via Trevi;
- **Area 1B** includes the public park in Via Pellegrino Rossi and the area currently belonging to the kindergarten, that must be demolished: a technical and economical feasibility project must be produced for the organisation of the public park, to annex to existing park area, for which the upgrade must be designed. Area 1B has a surface area of approximately 6,500 m² and borders to the east with Via Pellegrino Rossi, to the north and south with two building plots allocated to residential constructions and to the west with a residential car park.

- *Delimitation 2: Green colour*

In this area, as “guidelines”, the following must be developed the roads and public areas projects in support of the new school complex, in order to define an overall picture of synergical, integrated work with the quarter, in addition to the project designs for the areas inside *Delimitation 1*.

The area corresponding to *Delimitation 2* has an overall surface area of approximately 23,000 m², and in addition to the roads that act as access routes to the school complex, also includes the green

areas immediately adjacent to the school complex: the public park between Viale Enrico Fermi, the railway and Via Valeggio and the green area along Via Trevi, allocated to be a public green area.

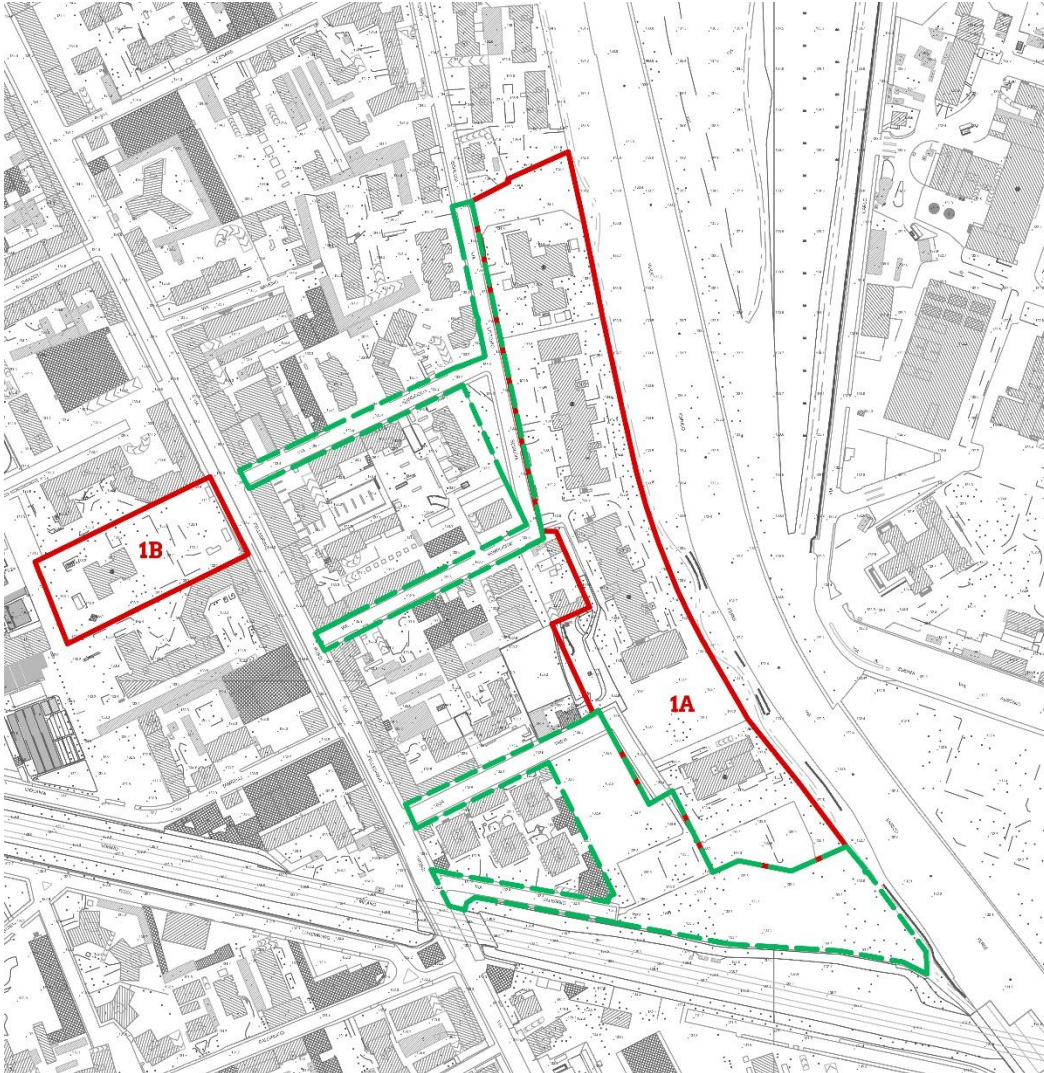


Fig.6. Map of the area involved in the competition, which also shows Delimitation 1 (technical and economical feasibility project) in red and Delimitation 2 (guideline project) in green.

3.4 PROJECT INPUTS AND RESTRICTIONS

3.4.1 PERIMETER 1A: THE NEW SCHOOL HUB

From a pedagogical point of view, the changes made in the changeover from industrial society to society of knowledge also have an effect on the school educational system, that now requires methods, scenarios of use, instruments and diversified spaces. The increasingly ever-present technology in communication processes in social and educational contexts requires new attention in defining spaces, equipment and the possibilities of transformation and adaptation of school environments for educational programmes and the possible changes in educational needs. In this scenario, project attitudes and solutions are to be sought that provide suitable degrees of flexibility of school spaces, accompanied by the search for structural and constructive modularity that allows a reconfiguration of the spaces based on the activities to be carried out and the need to respond to changes in organisational and distribution needs over time, with regard to educational programmes. All this without renouncing a comfortable connotation of the spaces, where students can “be happy at school”, develop cooperative attitudes and ties that help the active involvement and participation of each person in a collective group.

The project solutions must take into consideration the most recent national and international research on the learning methods and potential in school spaces. One of these is the research path of the *Istituto Nazionale di Documentazione, Innovazione e Ricerca Educativa* (INDIRE) that led to the proposal of the model **1+4 spazi educativi per il nuovo millennio**, where “1” is the group space, the multifunctional learning environment of the group-class, the evolution of the traditional classroom that opens onto the school and the world. An environment with flexible spaces connected with other school environments. And where “4” are the complementary school spaces, no longer subordinate, for the daily teaching environments: the gathering place, the informal space, the individual area and the area for exploration³.

³ For more information, please see the research project “school architecture” and the attached volume 8.3 “Educational spaces and school architecture: international ideas and guidelines” (<http://www.indire.it/progetto/architetture-scolastiche/>).



Fig.7. Manifesto “1+4 spazi educativi per il nuovo millennio” (Istituto Nazionale di Documentazione, Innovazione e Ricerca Educativa - INDIRE)

To sum up, the project solutions must take into consideration the guidelines expressed by the Guidelines for school building as set out in the Interministerial Decree of 11 April 2013 and respond satisfactorily to the following purposes and objectives already expressed by the Ministry for Education, University and Research in the Call for Participation entitled “Concorso di idee per la realizzazione di #scuoleinnovative” in 2016:

- realisation of innovative educational environments;
- Environmental, energy and economic sustainability, i.e. speed of construction, recyclability of basic materials and parts, high energy performance, use of renewable fuels, ease of maintenance;
- Presence of usable green spaces;
- relationship with natural environment, landscape and reference context also in an educational sense;
- Opening of the school to the local area, as the school must become a place of reference for the community;
- Permeability and flexibility of spaces;
- Attractiveness of spaces to combat school dispersion;
- concept of the building as an educational tool aimed at developing technical and sensory skills;
- presence of spaces for the professional collaboration and individual work by teachers;

- Concept and creation of spaces for individual well-being.

The design must also take into consideration the connection between the future school hub and the surrounding public spaces, increasing the sense of unity of the site, using a proposal of installation and morphological solutions that favour both longitudinal and cross permeability of the open public spaces in an urban context that is heavily affected by the presence of the railway infrastructure and the main traffic artery that is Viale Enrico Fermi.

In order to limit the heavy inconvenience and impact on the school population, due to its being temporarily moved to allow the complex to be demolished and rebuilt, the project should provide for and show the **feasibility of dividing the intervention into two or more separate lots**, to be arranged so they can be carried out in consecutive timeframes.

The division into functional lots must pursue the following objectives:

- Reduction of the number and duration of movements of the school population into temporary locations;
- Non-simultaneous execution of the primary school and junior high school construction sites;
- Absence of interference between the completed functional lots (that will then welcome back the school population) and the building site of the subsequent lots.

3.4.2 PERIMETER 1B: PUBLIC GARDENS IN VIA PELLEGRINO ROSSI

Being physically separated from the Via Scialoia area, the area in which the nursery school in Via Pellegrino Rossi no. 17 currently stands will be fully allocated to being a public green area, to compensate for the area acquired by the new school hub. This new allocation would allow a larger, more attractive park to be created, thanks to the integration of the area of the current nursery school with that of the existing park: the future green area that will be created from demolishing the nursery school, in fact, must be a continuity of the adjacent gardens, which will form the “entrance”, as the new park would only be accessible from Via Pellegrino Rossi.

Of the existing park, the area looking onto Via Pellegrino Rossi can be redesigned, with special attention to the matter of the **entrance** and the fencing of the perimeter space, also considering the side entrance paths leading to housing (vehicle entrance) and other shops, which must have access that is not restricted by the park's closing time. A perimeter fence 2.30 metres high and both pedestrian and vehicle entrances must be planned for the new area of the park. The aeration

grids belong to the subway line M3 that are currently found on the pavement in Via Pellegrino Rossi should be removed from the perimeter of the gate area.

The current division between green areas and paved areas should be taken into consideration when reorganising and created new equipped areas, in order to avoid having to waterproof the new floor. Designers are also asked to make an effort to provide **identity** to the various areas that are allocated to existing and planned **play-sports areas**, which must be preferably positioned in the western area, a distance from the housing area. Considering the fact that the existing green space does not permit any area for dogs, expanding the surface area of the park would now allow such an area to be included: in fact, we can point out that in the Via Pellegrino Rossi area, there is a high need for spaces reserved for dogs and therefore a suitable space should be evaluated, located so as not to interfere with the play areas and if possible also a distance from the housing.

The existing trees must be maintained as far as possible, and new ones can also be planted. If some trees and plants are removed, approximate agronomic indications are requested about any transplant or removal, which anticipate any agronomic report required subsequently by the Regulations for the Use and Protection of Public and Private Green Areas. If removed, the project must provide for suitable compensation with suitable replacement species of plants. The trees that must be safeguarded and which cannot be transplanted or cut down are shown in the diagrams and maps attached. General guidelines are available as part of the documentation provided, for the design of the furnished green areas and the correct evaluation of the future routine maintenance. The guidelines have been drawn up by the Parks, Agriculture and Urban Furnishing Department (see Annex)

3.4.3 PERIMETER 2 THE PUBLIC SPACES AROUND THE SCHOOL

Competitors are called upon to design some public spaces, as “guidelines” that border with the school perimeter, in order to construct significant relations with the local area, providing continuity to the design of spaces, and spreading quality to all parts of the city around a real competition area. In particular, the public garden in Via Trevi can be connected with the **new school complex**, also with a view to functional synergy. The public garden can be considered as a part of the educational path, given its position adjacent to the new school complex and the configuration of the park, “protected” on two sides by infrastructural barriers. The design of the surrounding public spaces surrounding the new school hub can be notably improved by the future acquisition of the green area situated between Via Trevi and Via Valeggio, that would allow better distribution of spaces and connections with the new school hub

A longitudinal pedestrian route could be created, continuing from Via Scialoia, that acts as a connection between the residential areas and the green areas and increases pedestrian

permeability in the area, possibly not tied by the closing times of the park and the school perimeters.

Designers are also asked to produce guidelines for handling the roads that run in an east-west direction between Via Pellegrino Rossi and Via Scialoia. Considering the fact that the catchment basin for the school complex mainly travels along Via Pellegrino Rossi (served by public transport), Via Candoglia, Via Semplicità, Via Trevi and Via Valeggio, they are configured as access routes to the school centre. Of these - and Via Scialoia - the section could be redesigned as a "30 zone". The city council's goals for the roads that serve the schools are for the improvement of pedestrianisation and the limit of vehicle speed. In the above-named roads, pedestrian mobility must be favoured over vehicle circulation and a reconciliation of the former with types of mobility that typically involve school pupils can be considered, such as bicycles, tricycles, scooters, roller skates etc.

In particular, in the stretch of Via Scialoia from its intersection with Via Semplicità to the boundary of Delimitation 2 to the north, regulation works could be planned, inserting traffic-inhibiting elements (e.g. Pilomat) to establish a temporary "no traffic" area and "no parking" area on the road during school hours ("car free" road). There should be some disabled parking on the car free road, next to the main entrances to the buildings. Competitors are asked to think about redevelopment of the roads and pedestrian routes and, if necessary, about increasing the public lighting along the pedestrian paths.

In order to allow children to enter safely, the spaces immediately adjacent to the **school building entrances** must be of a suitable size and compliant with the regulations on the elimination of architectural barriers. Children must exit vehicles accompanying them to school in suitably-sized spaces that do not require them to cross roads or do not cause conflicting situations with traffic routes.

In reference to the definition of the guidelines, competitors are asked to bear in mind the following topics:

- in designing the guidelines for the green space, designers are asked to pay attention to and safeguard existing trees as indicated in the technical document *3.3-Diagram of Current Status*;
- using specific trees and bushes that are characteristic of the Milan urban landscape, easy to maintain and suited to public spaces, as integrations of existing trees. We would like to remind you that management costs of public green areas in Milan including the cleaning of areas is 2.00 Euro/m²/year;

- the new green areas will have public lighting, which will mainly be positioned along the pedestrian paths and will serve to increase existing lighting;
- Completing, partly replacing and extraordinarily maintaining paving, borders and plants with the aim of recovering and enhancing the existing green sections. Any hypotheses for changing large areas of paving must also be evaluated by the competitors from an economic point of view;
- Urban furnishing (seats, benches, waste baskets, speed bumps, parapets etc) must of the same type already used in Milan's parks and public gardens;
- Use long-lasting, easy to maintain materials as a continuation of existing materials. Also thinking of types of flooring material that can easily be restored after part demolition and restoration works due to repairs on subservices;

Inside the two delimitations, the restrictions that exist are a number of pre-existing trees. There are precious **trees** inside the competition area, in fact, that must be conserved, trees that can be moved using a transplant procedure and others that can be compensated for, therefore can be cut down. For the indication of type and classification of the trees, please refer to the technical document *3.3-Diagram of Current Status* attached to the herein Call for Participation.

The area of the competition partly includes areas involved by rare flooding, classified as "P1 – Rare scenario (L)" by Table R.09 - Hydrographic network - distances and management plan for flooding risks (PGRA) of the Rules Plan, therefore, in the definition phase of the executive project, an evaluation of the local conditions of danger and risk will be carried out. Part of the competition area is defined as geological feasibility III, as it is a realm of old quarry, by Table R.01 – Feasibility and geological, hydrogeological and seismic prescriptions.

4 PROJECT FUNCTIONS AND REQUISITES

The building complex that will house the future schools and their facilities must have suitable architectural attention and a number of general requisites that will be especially important for the efficacy of the project itself. The main factors to consider in the design of the new school complex are energy limitation, safety, acoustic and thermal well-being, especially in relation to the summer micro-climate, interactivity and social aggregation, intended as use of the structures in out-of-school hours.

Once the clearance and demolition of the existing building have been carried out, the new building must be produced in full observance of the NTC 2018 in seismic area 3 and, above all, must be classified in NZEB class with regards to energy limitation. With the herein international design competition, the city council intends to search for the most modern and high-performing project solution in relation to the ones that are the current technologies available on the market, especially regarding energy limitation.

The architecture of the new building must look to the future both in terms of design and in terms of the use of cutting-edge materials and technologies, at the same time connecting with the existing context.

The work must comprise a high level of functional flexibility, potential transformability and plant implementability. Functional flexibility means a design that allows both the definition of spaces the use of which can be organised for various activities (e.g. offices, meeting rooms, classrooms, laboratories, etc) and excellent transformability over time when faced with newly-occurring necessities.

Proposals that - for the primary school and the junior high school - foresee innovative distribution solutions will be rewarded, ones that, by the easily reversible and non-permanent separation of groups of classrooms into independent centres, allow the future division of the complex into two schools of different levels, if necessary, each of which has its own entrance and internal distribution, possibly equipped with communal collective spaces.

The choice of technologies and building and finishing materials must be made by the above-stated concepts, taking care to guarantee suitable living comfort and high energy and environmental characteristics.

Aside from the functions that will take place in the building, the designer's common thread must be "the school in relations" as the educational trend that the 2013 School Building Guidelines assumed as its functional objective to direct new construction.

For this purpose, as far as possible, ample space must be given to the horizontal connections, where the corridors can be used as both aggregations places and as places for various types of temporary educational activities.

The buildings will have the requisites provided for in current legislation on town-planning, construction, plant and equipment safety, fire prevention (on this matter, the evolution towards performance legislation rather than prescriptive legislation, also for school buildings, is highlighted), lightning and bad weather prevention, heat and acoustic insulation performance, and legislation on the elimination of architectural barriers.

4.1 MORPHOLOGY OF BUILDING COMPLEX

The building complex can have a maximum extension in terms of indoor surface area of 1/3 of the overall surface area of the relative plot. With regard to the morphological aspect, the school complex, which must however show a recognisable unity of intervention, can be separated into several buildings, considering the fact that allocations of use such as sports hall, auditorium and library, which can also be used by the local community in out-of-school hours, it is preferable to dedicate spaces and relative separate entrances from the ones strictly connected to school activities. The new school complex must therefore be set out as autonomous buildings from a functional point of view, but conceptually connected if referring to the path of school growth, that starts with the nursery and then continues through the nursery school and primary school, reaches the junior high school.

The nursery and the nursery school must be designed on a single storey above ground, while the primary school and the junior high school can be developed over maximum three levels above ground; if considered necessary, a basement floor is permitted, to be exclusively allocated to storerooms and technical areas.

4.2 RECOGNISABILITY, IDENTITY AND RELATIONS WITH THE CONTEXT

The designers' proposals must lend a precise architectural identity to the new school complex. The complex must be recognisable as a single system from the compositive, architectural and stylistic point of view, but not necessarily comprising a single building, also due to the limitations imposed by the need to construct in stages.

Therefore, the buildings must have their own recognisability and identity that make them a **reference point** for the local area. The building in question must be easily visible from the approaching roads, whether arriving on foot, by bicycle or by car, considering the fact that all the lot entrances are located on Via Scialoia and Via Trevi and the closest main road is Via Pellegrino Rossi.

The complex must be easily identifiable in its various parts, as must the **entrance routes from the surrounding areas**, in order to aid the user's **orientation** and movement in the school population and the local area. The designer must pay special attention to the study of pedestrian paths and external connections, and connections with the surrounding public spaces. A main entrance must be designed for the various schools, and entrances for the sports hall, auditorium and library that are separate and easily identifiable from the outside, so as to avoid interferences among the various allocations of use. Once entering the building, all the departments will be clearly "legible" in order to naturally guide the school populations along their paths, to reduce the number of signs required to a minimum.

The building's new image must conjure up that of a friendly and culturally alive place without "psychological" entrance barriers, whose aim is to promote the meeting of ideas and people, exchange, learning and creativity, especially regarding the activities that can be carried out by local citizens in out-of-school hours. The designer is therefore invited to reflect on the topic of the building in relation to its time of use and the perception, in the eyes of those visiting the area, of a building alive "7 days a week", even if not always in its totality.

In line with the goals set nationally to open up the school to the local territory, the school centre must be designed as a place of reference for the community, and must configure as a **civic centre** that can bring quality to the surrounding urban fabric and act as an "engine" for the territory. Overcoming the idea of a school as a place where "lessons are held" in favour of a concept that sees the school as an expression of the community, the schools are configured as active parts of an alliance with the territory, that can provide a full range of curricular, extracurricular and citizens' activities (INDIRE, *Research Report. Educational spaces and school architectures: international ideas and guidelines*. Indire, Firenze 2015).

In addition to enriching the school service with further activities for the citizens, this concept means overcoming the layout of the school complex as a physically isolated and self-referential block that can create a break in the urban fabric.

The new **openness with the city** must be clearly calibrated with the need to protect many of the spaces dedicated to education. The organisation and distribution of the various areas making up the new school (primary school, junior high school, collective functions such as the auditorium etc) will therefore be considered, also in accordance with the appropriate degree of contact with the city. This analysis will translate into spaces distinguished by various thresholds of

separation/permeability towards the surrounding area. In particular, the collective functions, such as the auditorium and the sports hall must be considered as true service facilities for the area, easily and autonomously accessible compared to other school functions. The areas of pertinence to the schools must be protected by a dual fence, where the distance between the two barrier parts prevents the passage of any object from the outside to the inside of the school fence. Given the difficulty of maintaining the cavity area, we recommend the use of barriers (e.g. Hedge) that make it inaccessible from the outside and that improve the visual aspect.

Distribution of the reserved school areas must be arranged so that there is possible an east-west **connection**. A cycling connection between the existing cycling path along Via Pellegrino Rossi and the cycling-pedestrian path amidst the green area that runs north-south along Viale Enrico Fermi is required: this connection - part of a priority cycling itinerary identified by the PUMS - cannot be restricted to school opening hours, or those of the fenced-off public gardens, and will therefore be positioned outside the perimeter of the areas pertinent to the school. The existing pedestrian permeability between Via Scialoia and Viale Enrico Fermi at the far north of the competition area must also be maintained.

Designers must evaluate the possible opening up of a new cycling-pedestrian permeability route in a north-south direction between Via Scialoia/Via Semplicità and Via Trevi, which can be additional to or a replacement of the existing path. Lastly, pedestrians must still have the possibility of accessing the public park to the south of the competition area from Via Trevi.

4.3 CONTINUITY AND PERCEPTION OF THE ENVIRONMENTS BETWEEN OUTDOORS AND INDOORS

Some of the most interesting pedagogical directions work on the horizontal sharing of educational experiences and the physical transparency of school environments; we must also consider that the outdoor spaces always become a more educational element in the students' growth path. The topic of internal/external relations and more generally with the context is not, in these areas of though, a relationship of closure, but of communication, also of the visual kind, between the various parts of the school complex and between the school and the territory that it is a part of.

There are several examples in Milan of schools located in densely urbanised contexts or with a less dense urbanisation where it is possible to have a direct visual relationship with some school environments (e.g. classrooms) or with the school's outdoor areas. In this case too, we believe that all visual relations between indoor and outdoor school environments (educational spaces, outdoor

classrooms, etc) and the surrounding buildings should not be precluded a priori. On the other hand, it is possible to imagine that through artificial wings for the indoor parts (shading systems for the windows) or natural wings for the outdoor parts (trees), this relationship can be modulated according to need.

The designer must pay special attention to the characteristics of **continuity and integration between the building's indoor spaces the reserved outdoor spaces, public urban spaces and private outdoor spaces**. The "indoor/outdoor" relationship can be translated into a number of precise architectural choices; for example by emphasising the transparency or permeability of some parts to allow a "far-reaching" view towards the green and a partial view of the spaces and indoor activities, structuring these spaces without interruption between inside and outside, by using the same materials for pedestrian paths that - from the outside - could continue inside the building. It will be possible to create "hybrid spaces" that can be used partly inside and partly outside.

The green area, that is a basic principle for the design, can be used as an element of integration and continuity of the building with the urban context and can penetrate the interior of the constructed space (also with greenhouses, conservatories) or "be incorporated" through the use of innovative technologies (e.g. green roof).

Another fundamental aspect of the project in this type of building is certainly that of **natural lighting**: sunlight, if correctly controlled, in fact, can be a great resource for creating visual comfort for the school complex users, but if neglected, can turn into a disturbing elements for teachers and students. To create maximum ease for users and to reduce electricity running costs the designer must pay the utmost attention to the phenomena of direct sunlight on the transparent parts of the building, studying optimal solutions for sun ray refraction or for controlling the light.

4.4 ORGANISATION OF SPACES AND PATHS⁴

The new state school complex will be the location of School Autonomy and will include: a nursery school, a primary school and a junior high school. The internal organisation and distribution of school activities must be clear and well-structured, according to the provisions of the Ministerial Decree 18 December 1975. The municipal nursery, will managed separately, must have

⁴ PFor more information about the functional programme, please refer to the Annex 5.1 "Project indications - new school complex in Via Scialoia"

indoor/outdoor connection spaces with the entire school complex, for which it is the starting point for the approach to the “school system” by user, and must be planned in reference to the Regional Administration Decree instructions. No. VII/20588 of 11.02.2005.

Considering the size of the plot, the new school complex can include:

- Nursery: no. 3 sections, making a total of 72 children (60 children according to the Regional Administration Decree + 12 further available place);
- Nursery School: no.9 sections, making a total of 270 students, considering 30 students/section (25 standard students + 5 further available spaces);
- Primary School: no.20 sections, making a total of 600 students, considering 30 students/section (25 standard students + 5 further available spaces);
- Junior High School: no.12 sections, making a total of 360 students, considering 30 students/section (25 standard students + 5 further available spaces);

The number of people in the school is completed by about 146 teaching staff and about 41 auxiliary staff (reception, offices, collaborators etc).

When designing the building, it is necessary to bear in mind the orientations expressed by the 2013 guidelines for building schools. In particular, it is necessary to consider the possibility of modifying the configurations of teaching spaces (for example imagining that some classrooms can be joined together or separated by mobile walls). The connecting elements (corridors and foyers) must have characteristics that can also be used for educational activities or further study activities to be carried out in small groups.

4.4.1 MEASUREMENTS: BINDING DATA AND FUNCTIONS

TYPE OF SCHOOL/CAPACITY	Nursery	Nursery School	Primary School	Junior High School	TOTAL
No. classrooms/sections	3.	9.	20.	12.	-
No. students per classroom/section	20.	25.	25.	25.	-
Max no. students per classroom/section	24.	30.	30.	30.	-
Max. total number of pupils	72.	270.	600.	360.	1,302.

No. teaching staff	13.	approx 130	approx 143
No. auxiliary staff (reception, offices, collaborators, etc..)	3+3 (Part time)	approx 35	approx 41
Maximum hypothetical crowding			approx 1,486
N.B.	For all the schools' environments, suitable escape routes must be planned, in accordance with current legislation.		

GENERAL DATA	
Gross Plot in Via Scialoia/Trevi (Delimitation 1A)	31,395 m ²
Gross Lot via Pellegrino Rossi (Delimitation 1B)	6,500 m ²

NURSERY STANDARD (Regional Administration Decree No. VII/20588 of 11.02.2005)	
Net surface area allocated to educational, recreational, rest activities, meal consumption and toilets for children (20 m ² + 6m ² /child)	380 m ²
Location: <ul style="list-style-type: none"> preferably on the ground floor; preferably directly communicating with the outdoor areas for the exclusive use of the nursery. No locations beyond the first floor or the mezzanine floor where such exists. The nursery can be created in multifunctional structures that have exclusive and separate spaces from other functions. A separate entrance is not necessary.	

NURSERY SCHOOL STANDARD (Min. Decree 18 December 1975)	
Minimum surface area of reserved lot	6,750 m ²
Maximum indoor surface area	1/3 of the surface area of the relevant lot
Gross surface area m ² /pupil* (approximate value)	6.60 m ²
Global net surface area index m ² /pupil**	6.65 m ²
Maximum number of floors above ground	1.

PRIMARY SCHOOL STANDARD (Min. Decree 18 December 1975)	
Minimum surface area of reserved lot	10,260 m ²
Maximum indoor surface area	1/3 of the surface area of the relevant lot

Gross surface area m ² /pupil* (approximate value)	6.84 m ²
Global net surface area index m ² /pupil***	5.21/5.58 m ²
Recommended number of floors above ground	1/2
Maximum number of floors above ground	3.

JUNIOR HIGH SCHOOL STANDARD – 12 classes, 360 students - (Min. Decree 18 December 1975)	
Minimum surface area of reserved lot	6,840 m ²
Maximum indoor surface area	1/3 of the surface area of the relevant lot
Gross surface area m ² /pupil* (approximate value)	8.78 m ²
Global net surface area index m ² /pupil****	6.53/7.08 m ²
Recommended number of floors above ground	1/2
Maximum number of floors above ground	3.

(*) Ref. Min. Decree 18 December 1975 - Table 3/B – GROSS SURFACE AREAS BY SECTION, CLASS AND STUDENT

(**) Ref. Min Decree 18 December 1975 - Table 5 – STANDARD SURFACE AREA INDEXES: PRE-SCHOOL

(***) Ref. Min Decree 18 December 1975 - Table 6 – SURFACE AREA STANDARDS: PRIMARY SCHOOL

(**) Ref. Min Decree 18 December 1975 - Table 7 – STANDARD SURFACE AREA INDEXES: JUNIOR HIGH SCHOOL

The school must include the following mandatory minimum environments:

MINIMUM FUNCTIONS AND REQUISITES				
	Nursery	Nursery School	Primary School	Junior High School
Classrooms/sections	no. 3	no. 9	no. 20	no. 12
Ordinary laboratories	no.2 studios for drawing, painting, collages	-	no.15 (The primary school and junior high school can be conceived as a single body, in all cases the laboratories must be usable for both schools)	
No. 1 soundproofed	-	-	music laboratory (The primary school and junior high school can be conceived as a single body, in all cases the music space must be usable for both schools)	
Other laboratories		-	n. 1 psycho motor skills laboratory	n. 1 psycho motor skills laboratory
Changing rooms and toilet blocks	as per legislation (divided by students, teaching staff and auxiliary staff)			
Canteen/refectory divided into: <ul style="list-style-type: none"> Lunch area Clearing area Tableware washing Storeroom Changing rooms Toilets 	Yes Organised to work over 1 sitting:	Yes Organised to work over 1 sitting: 270 meals at the same time.	Yes Organised to work over 2 sittings: 360 meals at the same time. (The primary school and junior high school can be conceived as a single body, in all cases the canteen/refectory space must be usable for both schools)	
No. 1 management and control area	reception/info point with fire prevention visuals/management, placed close to the school entrance)			
no. 1 Reception - Principal's	Office (No. 1 VDT station)	(No. 1 VDT station)		
Administration offices	(No. 2 VDT stations (administration office)	no.15 VDT Stations (offices with 2/3 VDT stations)		
No. 1 waiting room	(next to the administration offices and principal's office and sized according to the number of users. Minimum 5 places serving the administration office and the principal's office)			
Meeting room/	-	Yes, with a minimum capacity of 150 people		

auditorium		(environment allocated to hold the teachers' panel with all members present and with architectural requisites that can be used by the local area too. The plants and systems must be sectioned and access must be independent from the outside.		
Administration Archive	Yes (sized for a current archive of at least two years. Plan for historical archives in basement rooms observing fire service standards)			
Staff room	Yes, for approximately 13 teachers.	Yes, for approximately 50/60 teachers, with the possibility of holding sets of drawers for 130 teachers, allocating 2 drawers per teacher.		
First Aid room (with waiting area and additional service spaces, as per legislation)	-	yes	yes (The primary school and junior high school can be conceived as a single body, in all cases the laboratories must be usable for both schools)	
Playroom/flexible space	-	n.1	-	-
Library	-	-	Yes (with architectural requisites that can also be used by the local area. The plants and systems must be sectioned and access must be independent from the outside. The primary school and junior high school can be conceived as a single body, but in any case the library must be usable by both schools).	
No. 2 type B2 sports halls (CONI)	-	-	(one of which at least must have regular courts for non-competitive activities and stands for spectators. The plants and systems of the sports hall and the rooms serving it must be sectioned and access must be independent from outside).	
Spectator stand	-	-	Yes, in the larger sports hall (approximately 100 places)	
no. 4 sets (M/F) of changing rooms for students/athletes	-	-	(2 for each sports hall, each with 1 disabled toilet)	
No. 2 set of changing rooms (M/F) for teachers/referee	-		(1 for each sports hall, each with 1 disabled toilet)	
No. 1 Sports hall first	-		In the larger sports hall (with toilet)	

aid room			and waiting area, as per legislation)
No. 2 equipment storerooms	-		(each (one dedicated to one sports hall)
Parking spaces reserved for employees	The school will be "car-free", with disabled parking and bicycle stands to a proportion of about 1/3 of employees and students from the junior high school.		
Green areas and outdoor sports activity areas	that are free and equipped according to current legislation in addition to spaces dedicated to educational vegetable gardens. n.1 sports court (basketball and volleyball)		
Waste areas	number and size according to current legislation		
Electrical transformation cabin	Yes, according to legislation		

There must be a sheltered link between school and sports hall, while for the outdoor spaces, an area will be created for outdoor sports activities, with a basketball/volleyball court, an area for the so-called "educational vegetable garden", green spaces (if possible with areas enclosed within the school, such as patios and interior courtyards).

Depending on these indications, the designer must conceive a project where the hierarchies of space and paths are such as to make internal circulation and department organisation immediately understandable. The building design must provide for **clear legibility of each part** and their connections. The internal paths must be short, easily identifiable, easily and directly accessible to everyone, clearly identifiable from the front entrance, in order to allow simple, and immediate sense of bearings. The paths for students, teaching staff, the auxiliary staff and external users must be differentiated; there must be adequate vehicular access, that is independent and does not interfere with the pedestrian access, the service vehicles (in particular with regard to the canteen service) and emergency vehicle access.

Proposals will be rewarded that enhance the **flexibility of spaces depending on their use**, with the possibility of delimiting real parts of the building to create "islands" that are dedicated to temporarily hosting different functions from the standard ones connected with educational activity. Internal distribution and articulation must therefore allow suitable division of the space, to allow diversified use over time of the various parts of the complex, especially for a worthwhile differentiation of systems and plants.

The plants and systems must be separate and sectionable by allocation of use (school, refectory, sports hall, auditorium, library etc), in order to guarantee an independent function, according to the following hours:

SCHOOL	Educational Spaces	Winter heating and summer cooling
	Administrative Spaces	Basic activation: Mon-Fri from 7 am to 4 pm (Nursery: 7.30-18.00)
	Refectory	Winter heating and summer cooling Basic activation: Mon-Fri from 10 am to 3 pm
SPORTS HALLS		Winter heating only Basic activation: Mon-Fri from 7 am to 4 pm Opening for non-school activities: Mon-Fri from 6 pm to midnight Saturdays-Sundays from 9 am to midnight
LIBRARY		Winter heating and summer cooling
MEETING ROOM - AUDITORIUM		Basic activation: Mon-Fri from 7 am to 4 pm Opening hours for non-school activities: Mon-Fri from 6 pm to 8 pm; Saturdays-Sundays from 10 am to 8 pm

4.5 MATERIALS AND FINISHES

The materials must be high-performing but also simple, long-lasting and practical. For example, when deciding on the windows, the **functional and aesthetic values** and the **technological** implications for the indoor climate (plant and energy cost), as well as the **management and maintenance** costs will be evaluated.

The designer is required to conceive the project by recalling all specific materials that they intend to use for the various parts of the building complex, with an eye on the construction technologies linked to building times, long-lasting effect, environmental sustainability and maintenance thereof. On this matter, the predisposition for the building to be clean and maintained thus both internally and externally must be given the utmost consideration, so that it can stay “like new” as long as possible, also discouraging any act of vandalism.

Inside the environments, the finishing materials will strongly affect the school’s quality and atmosphere: the colour and characteristics of the surfaces, rough or smooth, hard or soft, opaque or shiny; the way of absorbing or reflecting light, the sound that they reverberates or absorb, or that they emit on touch, being struck or trod on; the ageing, resistance to use and abrasion. These and other properties of the materials are the basis of the **perceptive experience** of the indoor space and profoundly involve the sensory nature of the people using it.

Through a careful choice of materials, lights, colours, the new school complex must be designed with the aim of reinforcing the perception of safety of the building itself and the surrounding spaces by the local area.

The designer must therefore identify the most suitable materials for the various areas of the building, evaluating both the aesthetic and practical values, considering all the inherent values of the materials themselves (e.g. sound absorption) and the best way that they can be used. They must pay particular attention to preventing fires and the choice of materials, furnishings and optimal finishes for each allocation of use. The designer must bear in mind the current legislation on Minimum Environmental Criteria (M.E.C.) for all the above-stated aspects.

4.6 SET-UP AND FURNISHINGS

The cultural paradigms of contemporary societies are continually transforming and school, which is one of the most involved institutions in this change is constantly transforming too. The new educational and pedagogical trends are experimented worldwide in new learning environments, where the spaces are designed according to a precise, shared pedagogical project. The structuring of the educational space and arrangement of the furniture, desks and teacher's desk directly influences both learning and the students' well-being.

In designing new schools, it is necessary to reason based on a pedagogical model that is shared with the teachers who will inhabit that school, in terms of learning environments and that gradually overcomes the logic of classrooms with parallel rows of desks with the teacher's desk at the front. There must be the possibility inside the classroom to have the students experiment with different styles of learning, because every student learns differently depending on their own sensory channel. For this reason, it is preferable to design **classroom-laboratories** with furniture that is suitable for activities that must be carried out and the preselected educational model, so that the formal configuration of educational environments meets the teachers' didactic needs. The three elements: structure, furnishings and actions must be in an interactive relation with each other, so that there is coordination between them. This is why it is fundamental that the design of the school space involves a sharing of the meaning of some basic concepts: flexibility, affordance and semantotopics.

Any indications about the choice of the furnishings must consider the following aspects:

- The furnishing must be flexible to allow for the settings being modified according to the teacher's didactic and methodological needs;
- they must have an affordance that "invites" the students to have actions and behaviour that is suitable for the context and their educational and learning goals;

- Through furnishings, it is possible to share the meaning of use that they have, so that it is understood by everyone.

The school's furnishing solutions are therefore an added value for supporting the pedagogical project, for creating the organicity of spaces and to guarantee the required practicality of the environments. Also, as is said for school environments, the furniture and fittings will provide maximum **flexibility** for making the spaces as versatile as possible; think, for example, of the temporary use of some areas of the school for meetings, events, conferences or even parties.

Therefore when designing the buildings, it is necessary to take into account the possibility of preparing and furnishing the environments, developing distribution solutions that provide for the use of "standard" furniture and "customised" furniture, however excluded from the design appointment and the costs of the work as set out in this design competition. The project for the interior spaces, therefore, must guarantee the space to be able to place furniture such as:

- Seats for adults and children;
- Benches, desks and table for teachers' and children's activities and for reading and consultation;
- Single/two sided shelving;
- container boxes;
- Containers with drawers;
- bases and mattresses for resting;
- Games, equipment, furnishings required for educational activities.

4.7 THE ARCHITECTURE OF SYSTEMS AND PLANTS IN THE BUILDING COMPLEX⁵

The architecture and size of the plants and systems in the buildings may be an added value for the building's realisation, having observed the legislative restrictions for functional and operational safety.

The main project criteria for plants and systems serving the new school buildings concern:

- Energy supply and connection to network plants: the buildings must have several supplies of energy with separate meters, for each type of facility (School, Milano Ristorazione, etc.). The supplies must be provided according to the indications given by the public network providers. As it is possible there is a new to supply electricity in medium voltage, there

⁵ For further information, please consult Annex 4.3 "Further information on historical-urban aspects"

must be an energy delivery and reception cabin. It must be architecturally integrated with the building project and with external systems, it cannot be underground, and will be positioned on the border with the public space and directly accessible from it.

- electrical and lighting systems: the environments that are the subject of the design must be classified, pursuant to current legislation, in order to define protection measures for direct and indirect measures provided for by technical regulations. The electrical system must be designed with preferably “star-shaped” and “zone” architecture, meaning the environments and spaces with the same allocation of use or function by zone. In order to encourage electrical mobility, the project must evaluate the possibility of positioning charging stations for bicycles and electrical vehicles.
- plants and systems powered by renewable energy sources: the structure must have energy production plants powered by renewable sources;
- automations serving the building: the project must include the presence of automatic external gate-opening systems, with anti-crushing safety systems and a system which provides direct visual surveillance or a video system in the gate porter’s lodge.
- Radiotelevision systems and aerials: the project must include the installation of DVB and SAT television channel reception devices;
- Electronic systems: electronic systems, such as fieldbuses and regulation systems, must use open systems that use standard protocols. The structure must have both landline and WI-FI LAN network systems.
- Summer and winter air-conditioning/heating systems: the structure project must correspond to the current legislation on the limitation of buildings’ energy needs. The developed plant and system solution must favour the adoption of systems that guarantee, with equal environmental conditions in indoor spaces, the highest possible energy saving. Proof of the project solution's validity must be provided by the calculation methods provided for in current legislation.
- Evacuation of productions of combustion and condensation: the exhaust fume terminals of combustion products must be thermically insulated and positions out of people’s reach, compatibly with installation conditions. In the event of use of terminals of a considerable height, they must be placed upwind in order to ensure stability.
- Ventilation and aeration systems of areas: this type of system must be designed adopting the same criteria used for heating and air-conditioning systems
- Person/item hoisting systems: should it have several floors above ground, the building must be fitted with systems for overcoming architectural barriers.

- **Fire protection systems:** the structure must have fire protection systems in accordance with current legislation. The fire prevention water system architecture, if required by current fire prevention legislation, must be ring-patterned.

Maintenance of plants and systems serving the building: the rooms and spaces served by the plants and systems must have access requisites for maintenance purposes that are compliant with the indications provided in Leg. Decree 81/2008.

4.8 RESILIENCE, CIRCULARITY AND SUSTAINABILITY

Projects are required that have an environmental sustainability approach involving the entire process from design to execution and its subsequent management and maintenance, in relation to the foreseen life cycle.

In this context, the building process sustainability is closely connected to an increasingly flexible, integrated design at all stages, the development of which is addressed with the aid of suitable computer systems, such as BIM (Building Information Modelling), able to accompany it during design, construction, management and maintenance in accordance with a principle of coordination and continuity of information on the building organism.

ENVIRONMENTAL SUSTAINABILITY

The designer must develop a project proposal that looks into aspects linked to “*green building*”, as a sustainable way to build the constructed environment.

Topics relating to energy, saving energy resources, using renewable energy sources, ecology and reducing environmental pollution must all be considered. The aim - now consolidated globally - is to significantly limit, or totally eliminate, the building's negative impact on the environment and the individual, harmonising with the context that it is part of as much as possible. It will be possible to foresee passive building strategies and evaluation protocols and environmental energy improvement. The competitors' project proposals must be aimed at identifying LEED certification goals, to be achieved during the process of subsequent project phases, the tender procedure for awarding the works and the actual realisation of the work.

The project must provide significant proposals about the following topics:

- **Energy consumption:** the new school will configure as a NZEB - Nearly Zero Energy Building - building, and therefore a broad use of renewable energy sources must be planned, inside a

high-performing shell and typical solutions for the school organism that corresponds to external factors (exposure, ventilation etc). From this viewpoint, the constructed building must be a tangible and innovative example of the integrated use of available technologies, in application of national and European regulations on building safety and energy efficiency.

- Bio-climatic design: study of typological solutions and performance of technological systems that best correspond to the site's environmental and climatic characteristics, and that also produce conditions of well-being inside the buildings, by standardising the systems' power. These objectives must be pursued, therefore, by means of an informed study of the site and in the use of available resources.
- Bio-construction: the project must take into consideration the item being built and the informed use of construction materials and techniques that have a low impact on the environment, and also the people who will use the building, therefore dealing with the physical and mental well-being of people in relation to the buildings and places where the former will be situated.
- Building automation design: the quality of the building automation design aimed at creating "smart" buildings must be taken into consideration, allowing a coordinated, integrated and computerised management of technological systems and plants (air-conditioning, distribution of water, gas and energy, security systems), of computer networks and communication systems, in order to improve management flexibility, comfort, safety, energy-saving in the buildings and to improve the quality of living and working in the buildings.
- Quality of indoor air: the quality of indoor air must be one of the factors to which the utmost attention must be given when choosing the furnishings and fittings, but also the types of air-conditioning and/or ventilation systems.
- Rainwater management: rainwater collection and distribution systems must be planned, to allow an integrated use of said water, also in relation to reducing the impacts of climate changes. The projects should aim towards the proposal of *nature-based solutions* that contribute to observing current regional legislation on invariance of water.
- Land permeability: pursuant to Ministerial Decree of 11.10.2017 - Minimum environmental criteria for the awarding of design and work services for the new construction, renovation and maintenance of public buildings, observing point 2.2.3, the design plot; " "must provide for a permeable land surface of at least 60% of the project surface area (e.g. green surfaces, paving with open grids or grilles etc); it must provide for at least 40% of the surface not built upon being green and 30% of the total surface area of the plot; in the public green areas, it must guarantee at least 20% tree coverage with native species, favouring plants that have

mainly entomophile reproduction strategies or that can produce amounts of pollen which are distributed by insects”.

RESILIENCE AND BUILDING CIRCULARITY

The project must also provide architectural and construction solutions involving “resilience” and “building circularity”, intended as the buildings’ capacity to withstand particular, unexpected natural and climate disasters, but also adapt to climate changes that are already happening and the possible need to transform the building for different uses. Aspects connected with extreme weather such as wind and rain, but also flooding, fires and the increase in global temperatures must all be taken into consideration.

The possibility of using construction solutions that provide for the use of parts made from recycled materials, consistent with the dismantling and end-of-life optimisation principle, made with construction standardisation and industrialisation, that provide for the use of factory prefabrication (off-site building) and on-site assembly, must be taken into consideration. This will mean significant savings of time and money during the building’s life cycle, starting with the construction phase and ending with demolition, implemented using “dismantling” processes and the consequent recovery of reusable building parts.

Said innovations in the realm of construction and building management will find their logical application together with integrated processes and the use of advanced computer tools such as BIM, that can aid the industrialisation of the entire construction process (Modern Methods of Construction - MMC) and subsequent (Building Management System – BMS). The integration of suitable building monitoring and management systems and its plants and systems is a decisive factor to ensure efficiency.

5 FINANCIAL LIMITS AND ESTIMATION OF WORK COSTS

The forecast maximum expenditure for creating the new school complex in Via Scialoia/Via Trevi and its area of pertinence is set at 49,000,000.00 Euro (VAT included). The quota referring to the works is set at 36,600,000.00 Euro (VAT excluded), including outsourced safety costs, amounting to 500,000.00 Euro (VAT excluded).

In the realm of the cited figures, the categories that make up the work are shown in the table below, that contain the composition of the work and the correspondences between:

- Classification pursuant to Presidential Decree 207/2010;
- Classification pursuant to Law 149/1949 as amended;
- Classification pursuant to Ministry of Justice Decree 17/06/2016.

Cost of works	Classification Presidential Decree 207/2010	Classification 149/1949	L	Classification by Ministry of Justice Decree of 17/06/2016
19,796,000.00.	OG1	IC		E.08
310,000.00.	OS24	IA - IB		E.17
110,000.00.	OS24	IC		E.18
3,610,000.00.	OG1	IG		S.03
577,600.00.	OS3	IIIA		IA.01
288,800.00.	OS4	IIIC		IA.03
2,021,600.00.	OS28	IIIB		IA.02
4,332,000.00.	OS30	IIIC		IA.03
1,330,831.77.	OG12	IC		E.20
3,723,168.23.	OS23	IC		E.20

TOTAL COST OF WORKS: € 36,100,000.00

OUTSOURCED SAFETY COSTS: € 500,000.00

TOTALLING: € 36,600,000.00

6 REGULATORY FRAMEWORK

Below is a list of the main technical and procedural laws to use as a reference for the design of the work as named in the competition. The list provided is indicative, with competitors having the burden of observing all applicable Italian technical legislation for the intervention, also in relation to the nature and specific details of the project choices.

Schools

- Min. Decree 18 December 1975 on “updated technical regulations on school building, including the indexes of educational, construction and urban functionality, to be observed when carrying out school construction work”
- Guidelines approved by the MIUR on 11 April 2013 regarding “Technical framework regulations containing the minimum and maximum indicators of urban functionality, construction also referring to energy efficiency and saving and production from renewable energy sources, and essential didactics for guaranteeing suitable and homogeneous project guidelines of reference for the entire nation”
- Regional Administration Decree No. VII/20588 of 11.02.2005 on the "Definition of minimum structural and organisational requisites for authorisation of social services for young children - (further to the administration committee's opinion).

Sports Halls

- CONI Regulations (Resolution no.149 of 6 May 2008 as amended) for indoor sports halls, defined in point B) “working sports facilities”;

Building procedures

- Leg. Decree no.50 - 18.04.2016 - Public contracts Code as amended;
- Presidential Decree no. 207 - 05.10.2010 as amended for the parts not yet in effect;
- Presidential Decree no. 380 - 06.06.2001 as amended. - Consolidated text of legislative and regulatory provision on building matters;
- Min. Decree 17.06.2016 – Approval of fee tables commensurate to the quality level of designs adopted pursuant to article 24, paragraph 8 of the Legislative Decree no. 50 of 2016;

Safety in the workplace

- Leg. Decree no.81 of 09/04/2008 - "Implementation of article 1 of Law no. 123 of 3 August 2007, no. 123, on safeguarding health and safety in the workplace" as amended as set out in Leg. Decree no.106 of 03/08/2009; in law no. 136 of 13/08/2010; in Leg. Decree 50/2016;

Local Regulations

- Milan City Council Building Regulations;
- Milan City Council Health and Safety Regulations;
- Regulations on use and protection of public and private green areas;
- Regulations on the city of Milan's integrated water service.

Green roofs

- Requisite Sheet no. 6 in annex B to the Building Regulations.
- UNI Standard 11235-2015.

Invariance of Water

- Regional Regulation no. 7 – 23.11.2017 - Regulation containing criteria and methods for observing the principle of invariance of water, pursuant to article 58 bis of the regional law 11 March 2005, no. 12 (Territorial governance law)

Structures

- 2018 Technical Construction Regulations as amended.
- 02.02.2009 - Ministerial circular no. 617
- Min. Decree 17.01.2018 - "Update of technical construction regulations"
- 22.12.2005 - Lombardy Regional Administration Resolution no. 8/1566 - Implementation of the Consolidated Text no. 380 of 06.06.2001 "Structural and Anti-seismic amendment"
- Regional Law no. 12 - 11.03.2005- "Prevention of Geological, Hydrogeological and Seismic risks" as amended, as set out in the Regional Law no. 5 of 10/03/2009, for the parts not yet in effect
- Law no. 1086 of 05.11.1971 - "Technical legislation governing reinforced, normal and precompressed concrete and metal structures".

Acoustics

- Lombardy Regional Administration Law no. 13 of 10.08.2001 - Lombardy Regional Administration Laws on acoustic pollution

- Prime Minister's Decree 05.12.1997 - Determination of passive acoustic requisites in buildings
- Law no. 447 as amended of 26.10.1995. - Framework law on acoustic pollution
- Prime Minister's Decree 01.03.1991 - Maximum exposure limits in living environments and the external environment

Energy limitation

- 12.01.2017 no. 176 DECREE BY THE EXECUTIVE MANAGER OF THE ORGANISATIONAL UNIT - «Amendment of provisions regarding building energy efficiency regulations and relative certification of energy performance as replacement of provisions approved with decrees no. 6480/2015 and no. 224/2016»;
- Lombardy Regional Administration Resolution VIII/5018 of 22.12.2008 - Decisions regarding building energy certification in implementation of Leg. Decree 192/2005 and articles 9 and 25 of Lombardy Regional Law 24/2006
- Leg. Decree no. 311 of 29.12.2006 - Corrective and additional provisions to legislative decree no. 192 of 19.08.2005 (Implementation of the directive 2002/91/EC regarding energy performance in building)
- Lombardy Regional Administration Law no.24 - 11.12.2006 - Legislation on the prevention and reduction of atmospheric emissions for the protection of health and the environment
- Presidential Decree No, 412 of 26.08.1993 - Regulation containing rules for the design, installation, running and maintenance of heating systems in buildings with the purpose of limiting energy consumption, as implementation of article 4 paragraph 4 of law no. 10 of 9/1/1991;
- Law no. 10 as amended of 9.01.1991. - Rules for the implementation of the national energy plan for the national use of energy, energy saving and development of renewable sources of energy

Minimum Environmental Criteria (MEC)

- Decree 11 January 2017 - Adoption of minimum environmental criteria for interior furnishings, building and textile products;
- Decree 5 February 2015 - Minimum environmental criteria for the purchase of urban furnishing items;
- Decree 13 December 2013 - minimum environmental criteria for awarding management services of public parks, for the purchase of soil conditioners, ornamental plants and irrigation systems, and the supply of electrical and electronic office equipment;

- Decree 11 October 2017 - minimum environmental criteria for awarding design and work services for the new construction, renovation and maintenance of public buildings.

Infrastructures and transport

- Leg. Decree no. 285 as amended of 30 April 1992
- Leg. Decree no. 495 as amended of 16 December 1992
- Ministry of Infrastructures and Transport Decree of 5.11.2001
- Ministry of Infrastructures and Transport Decree of 22.04.2004
- Ministry of Infrastructures and Transport Decree of 19.04.2006

Eliminating architectural barriers

- Presidential Decree 503 - 24.07.1996 - Regulations containing rules for the elimination of architectural barriers in public buildings, spaces and facilities
- Min. Decree Public Works 14.06.1989 n.236 - Technical instructions required to guarantee accessibility, adaptability and visibility of private buildings and subsidised public residential building, for the overcoming and elimination of architectural barriers
- Lombardy Regional Administration Law no. 6 of 20.02.1989 - Regulations regarding the elimination of architectural barriers and technical implementation instructions
- Law no. 13 of 9 January 1989 - Provisions for aiding the overcoming and elimination of architectural barriers in private buildings

Safety and fire prevention

- DECREE 12 April 2019 - Amendments to the decree 3 August 2015, containing the approval of technical fire prevention regulations, pursuant to article 15 of the legislative decree no. 139 of 8 March 2006
- Min. Decree 21.03.2018 – “Application of the fire prevention regulations for buildings and constructions used as schools of any type, level and order, and also buildings and constructions used as nurseries, in the Official Journal no 74 of 29.03.2018;
- Presidential Decree no. 151 of 01.08.2011 - Regulations containing the simplification of fire prevention procedure rules, in line with article 49 paragraph 4-quater, decree-law no. 78 of 31 May 2010, converted with amendments, by Law no. 122 of 30 July 2010;
- Min. Decree 07.08.2012 - Decree of Ministry of Home Affairs - “Provisions for the submitting of applications concerning fire prevention procedures and the documentation to be attached thereto, pursuant to article 2, paragraph 7 of the Presidential Decree no. 151 of 1 August 2011”;

- Min. Decree 3.8.2015 - Technical regulations on fire prevention, pursuant to article 15 of Leg. Decree no. 139 of 8 March 2006;
- Ministry of Home Affairs Decree 19.08.1996 - Technical Regulations for fire prevention in the design, construction and running of entertainment and public spectacle structures;
- Min. Decree 06.03.2001 - Amendments and integrations to Min. Decree 19.8.1996;
- Ministry of Home Affairs Memorandum no.1 of 23.01.1997 - Clarifications and guidelines for application of the Ministerial Decree 19.8.1996;
- Min. Decree 18.3.1996 - Safety regulations for the construction and running of sports facilities;
- Min. Decree 26.8.1992 - Fire prevention regulations for school building;
- Min. Decree 16.07.2014 - Technical fire prevention regulations for the design, construction and running of nurseries;
- Min. Decree 22.2.2006 - Technical fire prevention regulations for the design, construction and running of buildings and/or areas used as offices;
- Min. Decree 15.9.2005 - Technical fire prevention regulations for lift and hoisting system shafts located in activities that are subject to fire prevention controls;
- DCPREV note to protocol no.1324 of 07.02.2012 - Guide to the installation of photovoltaic systems;
- Note to protocol no. 6334 of 04.05.2012 - Clarification to note of 07.02.2012 to DCPREV protocol no.1324 - Guide to the installation of photovoltaic systems;
- Min. Decree 20.12.2012 - Technical fire prevention regulations for the active protection systems against fires installed in activities that are subject to fire prevention checks;
- Ministry of Home Affairs Decree 03.11.2004 - Provisions for the installation and maintenance of devices for opening doors installed along escape routes, regarding safety in the event of fire;
- Decree 06.12.2011 - Amendment to Decree 3 November 2004 regarding the installation and maintenance of devices for opening doors installed along escape routes, regarding safety in the event of fire;
- Min. Decree 30.11.1983 - Terms, general definitions and graphic symbols used in fire prevention.
- Memorandum no. 4 of 1.04.2002 - Guidelines for the evaluation of fire prevention safety in workplaces where disabled subjects are present;
- Min. Decree 09.03.2007 - Fire resistance of buildings in activities subject to controls by the national fire service and LC P414-4122 of 28-3-2008 for clarifications;
- Ministry of Home Affairs Decree of 16.02.2007 - Classification of fire resistance of construction products and elements used in construction work;

- Min. Decree 10.03.2005 amended by Min. Decree 25.10.2007 - Fire reaction categories for construction products to be used in works for which a safety requisite in the event of fire is prescribed;
- Min. Decree 15.03.2005 - Fire reaction requisites of construction products installed in activities governed by specific technical fire prevention provisions based on the European classification system;
- Min. Decree 9.5.2007 - Directives for implementation of an engineering approach to fire prevention safety; Memorandum Letter protocol no. 4921 of 17 July 2007 (first application guidelines); Memorandum Letter protocol no. DCPST/427 of 31 March 2008 (Transmission of guidelines for the approval of projects and data sheet drawn up by the Observatory);
- Min. Decree 10.03.1998 - General safety criteria for managing emergencies in the workplace;
- Leg. Decree no. 81 of 9.4.2008 coordinating - Consolidated Text on health and safety in the workplace, coordinated with amendments made by Leg. Decree no.106 of 3 August 2009 and subsequent provisions;
- Leg. Decree no. 758 of 19.12.1994 - Amendments to the sanctions rules on work matters; Memorandum Letter protocol no. 14005 of 26/10/2011 (Fire prevention and fire prevention safety surveillance in the workplace); Memorandum no. 3 MI.SA. (96) 3 prot. no. P108/4101 sub. 72/C.1.(18) of 23/1/1996 (Competences and fulfilments by the national fire service - C.N.VV.F.);
- Min. Decree No. 261 of 22.2.1996 - Regulations containing rules on fire prevention surveillance services by fire services at places of entertainment and spectacle” and various provisions on fire prevention surveillance services;
- Memorandum letter 13061 of 06.10.2011 - Regulations containing rules for fire prevention procedures, in accordance with article 49 paragraph 4-quater, decree law no. 78 of 31 May 2010, converted with amendments by law no. 122 of 30 July 2010. First applicational guidelines.
- Ministry of Home Affairs Decree 07.01.2005 - Technical and procedural rules for the classification and approval of portable fire extinguishers
- Ministry of Home Affairs Memorandum P741/4101 of 07.06.2001 - Remote transmission of clarifications regarding fire prevention activities.
- UNI EN standard 1992-1-2 - Designing concrete structures – Part 1-2 – General Rules - Structural fire prevention design;
- UNI VVF10779 - UNI EN 12845 - HYDRANT NETWORK
- Vertical regulations for single activities subject to fire prevention control.

Estimations

- Regional price list of public works 2019 - LOMBARDY REGION - vol. 1.1, 1.2, 2.1, 2.2, e vol. TECHNICAL SPECIFICATIONS
- Measurement and Evaluation Regulations contained in the additional part in volumes 1.1, 1.2, 2.1 and 2.2 the Regional Price List as above

And also:

- Leg. Decree no.17 of 27.01.2010 - Implementation of the directive 2006/42/CE, regarding machinery that amends the directive 95/16/CE regarding lifts
- Presidential Decree no. 459 of 24.07.1996 - "Machinery Directive", limited to articles not abrogated by Leg. Decree no.17/2010;
- Min. Decree of 01.04.2004 - Environment and Protection of Territory - Use of eco-active materials;
- Leg. Decree no. 152 of 03.04.2006 - Consolidated Environment Text
- Min. Decree no. 37 of 22.01.2008 - Regulations regarding implementation of article 11- quaterdecies, paragraph 13, letter a of law no. 248 of 2 December 2005, containing the reorganisation of provisions on the installation of systems and plants inside buildings, as amended
- Presidential Decree no. 462 of 22 October 2001 - Regulations for the simplification of procedures for reporting lightning protection and earthing installations and devices for electrical systems and hazardous electrical systems;
- CEI Standard 81-10/2 (EN 62305-2) – Evaluation of Fulmination Risk;
- UNI Standard 8612 - Regulations for motorised gates for various types of constructions;
- UNI Standard 8725 - Regulations for lifts in residential buildings;
- UNI Standard 9801 - Regulations for fixed hoisting systems for disabled subjects;
- CEI Standard 648 - 11/17 - Electrical system regulations;
- ISO Standard 9001 - Regulations for certifying quality systems;
- Specific UNI standards for particular performances provided for by project processes or materials.

The project will be completed by opinions as provided for by law. For example, but not limited thereto, ATS, VVF, CONI, etc.