1. CONCEPT

The study of the existing building of the Scuola Secondaria di I grado Enrico Fermi di Torino shows a building with a very respectable quality of design. The attention to detail creates a very characteristic volume that should not be covered. There is also no need to demolish most of the later additions to the building, as they are part of its history and transformation.

This proposal aims to answer one question: how is it possible to solve the multiple problems of the building without changing its presence in the city?

2. CONSTRUCTION

Since the interior of the building is a result of a much broader approach to design and, with a few exceptions, lacks the singularity of the façade design, we propose to update the building from the inside out.

Insulation is the key factor in the resolution of the problems in the common use of the building. By creating an insulating layer around every surface of the building, it is possible to solve both the thermal and acoustical limitations of the original construction with a fraction of the cost of a new façade, even if it is necessary to create that layer on both sides of each element (walls/slabs/etc.).

The free height of the interior is enough to create a new reinforced slab over a polystyrene layer and to create new acoustic ceilings with glass wool.

The existing windows will be replaced by new windows with better thermal and acoustic behaviour.

3. INTERIOR SPACE

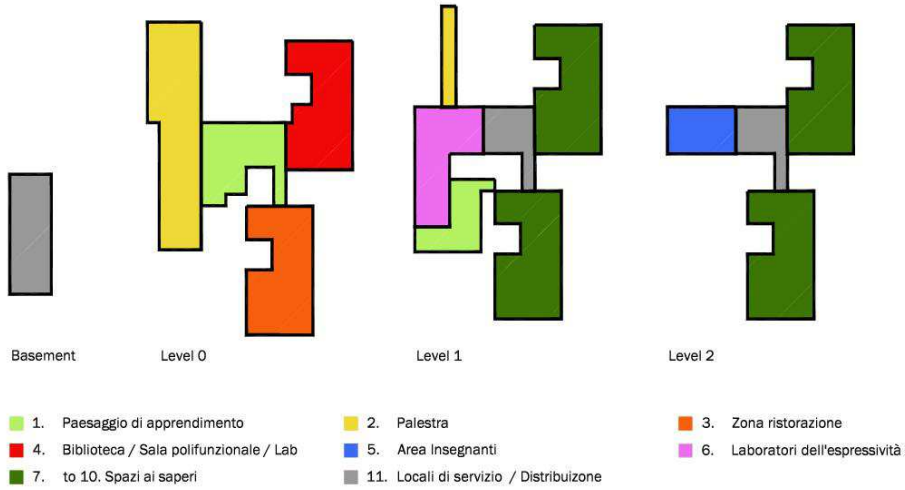
With the exception of the entrance lobby – Atrio - , the existing areas allow for the distribution of the school spaces respecting the existing organization. Two transformations are necessary in order to multiply the quality of the interior and the connections between every part of the school:

- Lowering the floor of the lower story allows for a direct connection with the exterior; therefore, every communal space is now located on that floor. A new stair/amphitheatre connects the street to the Atrio; The Palestra is in the same location as today, the Biblioteca is located in block D and the Zona Ristorazione is located in block E.
- A new Atrio d'ingresso is created in direct connection to the street. That new space is directly connected to the Bidelleria and Locale fotocopiatrice and is the only area of expansion of the existing building.

The rest of the existing building is altered in order to distribute the school areas in a very intuitive manner: block D and E are the locations for the clusters (1 in each floor of each block) and Block A and B are occupied by the spaces of the Laboratori dell'espressività.

View of the new Atrio d'Ingresso

View of the new school entrance



Schematic Distribution

4. EXTERIOR SPACE

The existing parking is divided in two areas, one to be kept as a small city garden with a fitness trail that during school hours will be used by students but outside of those hours will be open to public. The outside area for meals will be covered and have two small amphitheatres so that it can also be used for events for students or for the community.

The main efforts are to increase the green areas in the plot and to protect the existing patios that are an important part of the school's image.

5. SEISMIC PROTECTION

The necessity of excavation for lowering the floor in the lower story of the building will create an access to the existing structure that will allow for the implementation of a seismic isolation system. That system, already common in Italy, will lower considerably the seismic risk without compromising the interior space, which would happen if a reinforcement solution around existing structural elements was used.

Example of Structural Seismic Protection Solution

6. ACCESSABILITY

By creating a new access to the existing lift shaft from the school entrance, every floor and every space of the building, with the exception of the underground technical areas, will be accessible by wheelchair or by people with compromised mobility. The existing lift will be replaced by a larger model with 180º access, guaranteeing that everyone can use the building. At the same time, every sanitary installation will allow the use in a wheelchair.

7. SUSTAINABILITY

Insulating every existing element of the building to be kept will create a new barrier that will eliminate drafts and thermal bridges, allowing for a full control of the interior air quality and reducing the need for heating/cooling. That reduction of energy consumption to a minimum, both in heating and in lighting through the use of led lights in every space, is the most sustainable approach to everyday use.

In order to attempt to creat a zero-energy building, solar and photovoltaic panels will be installed the roof of block B, to generate energy and hot water.

8. CONCLUSION

Keeping the external shell of the existing building and creating an insulating layer in the interior solves every problem of the everyday use of the school and guarantees that the original design, the history of transformation, and the city presence of the building is protected.