ANTOINE DE RUFFI SCHOOL: OCCUPYING A STRATEGIC SPOT

Posted on December 29, 2021 by xavigonzalez

Categories: Contributors, Densities, Formats, Middle Density, Project, TAUTEM, Territory and mobility, Topics, Urban Paradigms

Tags: Bioclimatic façade, Children, Concrete, Context, Design strategies, France, Leisure, Marseille, Natural Lighting, Natural materials, Performative Envelope, Project, Stereotomy, Thermal comfort, Urban landscape, Ventilation

ISSN : 2575-5374

What is the best way to approach the commission for a school in Marseille, a unique, multifaceted city and France's gateway to the Mediterranean?

The Antoine de Ruffi school group occupies a strategic spot between the entrance to the new Méditerranée district, and its "inhabited park" coordinated by the urbanist Yves Lion. Its situation offers, on the one hand, a view over the developing suburban fabric, with scattered warehouses, silos, soap factories, large-scale housing estates from the 1970s, and in the distance, the Massif de l'Etoile. In the other direction, towards the west, one sees the port and its huge ships, the towers by Zaha Hadid and Jean Nouvel, as well as the continuous sweep of the highway viaduct. To the south, the docks, the new housing developments and the business district set the tone for the future neighborhood.

ISSN : 2575-5374

ISSN : 2575-5374

ISSN : 2575-5374

ISSN : 2575-5374

ISSN : 2575-5374

ISSN : 2575-5374

The Rythm of the Colonnade

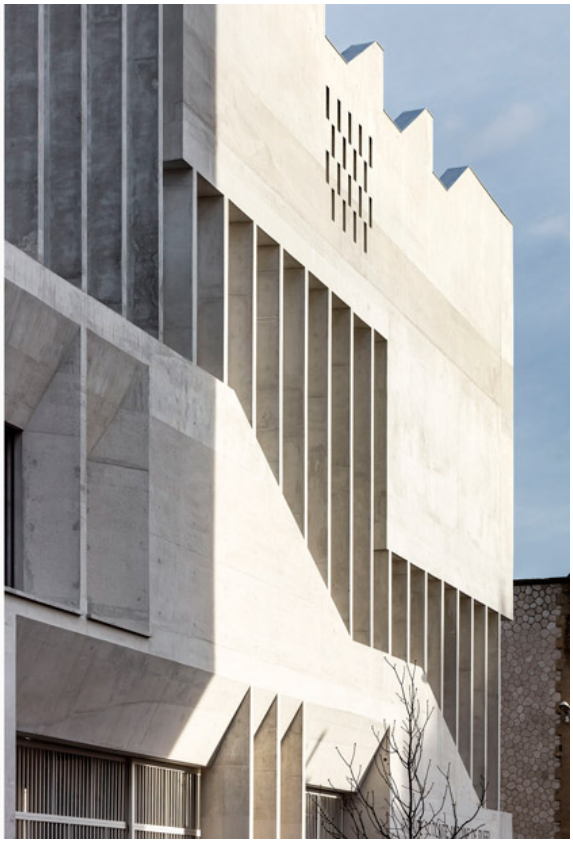
Built on a structural grid of 120 cm, the colonnade is comprised of hexagonal columns, also poured in place. It lifts the building and provides high-performance sun protection for the east and west exposures. The play of shadows it creates evolves with the passage of the day and the seasons, thus enlivening and creating a graphic quality for the play areas. Both porous and protective, it frames the views of the port, the Arenc viaduct and the landscape of the Côte Bleue. In the Antoine de Ruffi school group, each façade is specific and adapted to its exposure.

ISSN : 2575-5374

ISSN : 2575-5374

ISSN : 2575-5374

ISSN : 2575-5374



The Protective Façades

On the Avenue Salengro and the Rue Urbain V side, the façades play a protective role. With a thickness of 100 cm, they are part of a “double wall”. The process for this involves simultaneously pouring two concrete walls, between which rigid insulation is slipped (GBE® system). These walls combine the thermal performance and massiveness of two mineral faces. The deep embrasures are inserted into this 1-meter thickness; on the inside they offer useful voids for storage systems, work surfaces, and the vertical circulation of fluids.

ISSN : 2575-5374

ISSN : 2575-5374

ISSN : 2575-5374

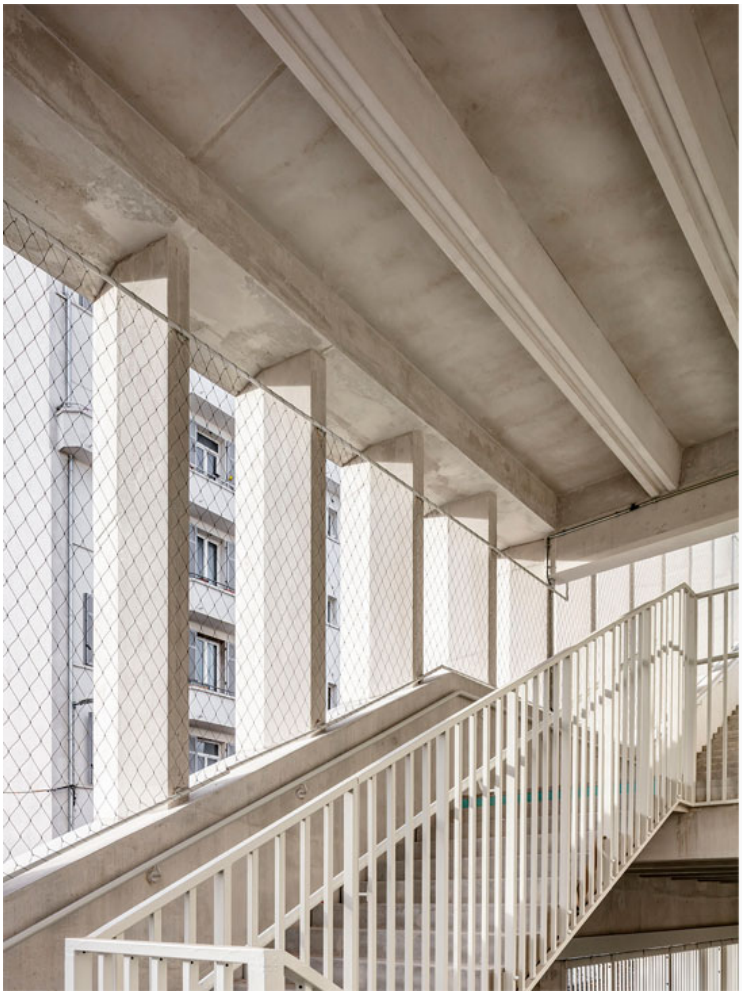
Filtering Façades

On the side facing the heart of the city block, the filtering façades bring the entire premises into communication on the same footing with the courtyard or the balconies, by means of large sliding metal frames; this is the case for the elementary school wing and the restaurants on the courtyard level. This fluidity extends to the classrooms on the upper floors, which open onto deep, 2-meter balconies where teaching can continue out of doors.

ISSN : 2575-5374

ISSN : 2575-5374

ISSN : 2575-5374



An Engaged Environmental Approach

The Antoine de Ruffi school group is the first school in Marseille to receive the Bâtiments Durables Méditerranéens label (Sustainable Mediterranean buildings, silver level), in both its design and construction phases. This recognition was mainly obtained because the building fulfils the objectives of the label thanks to its bio-climatic design and its virtuous systems.

Optimal thermal comfort
The massive size, thickness of the walls, and high ceilings enhance the building's inertia and provide comfort in both summer and winter. The classrooms all enjoy cross ventilation from double

ISSN : 2575-5374

exposure. The heating and cooling floor is connected to the “Thassalia” marine geothermal plant. During the hottest periods of the year, heat is released overnight night by a system of automatic openings.

ISSN : 2575-5374

Natural light
Our environmental approach led to a specific design for each of the façades, thereby making it possible to control natural light and offer optimal comfort of use. Thus, the generous glazed sections of the façades facing the courtyard are protected by the overhanging floors forming a cascading covered play area.

ISSN : 2575-5374

Bio-sourced materials
Aware of the constraints of the Mediterranean climate, we used wood in areas that are sheltered from the weather with the aim of extending its lifespan. We seized upon every occasion to employ biosourced materials, whether for interior designs or the for the flooring, both inside and outside

ISSN : 2575-5374

ISSN : 2575-5374

ISSN : 2575-5374

Low-carbon Concrete

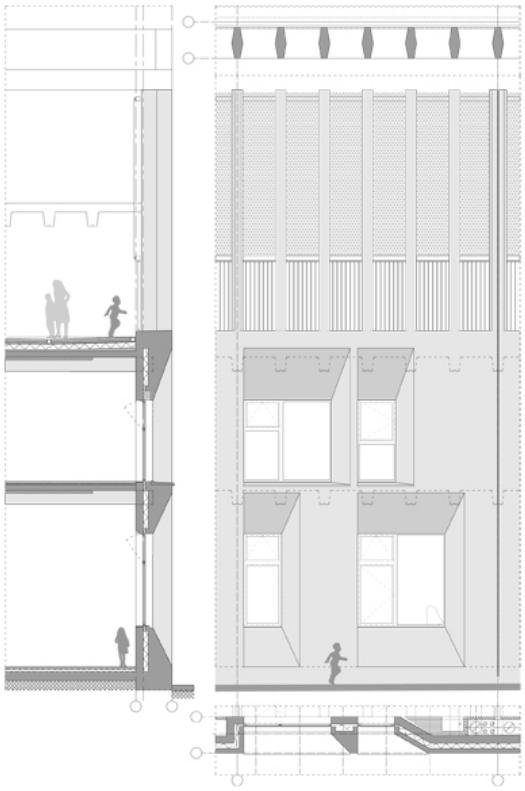
The concrete for the façades, pillars, floors and all the interior walls was produced in an onsite facility set up in the middle of the courtyard playground and operated by the Travaux du Midi Company. This concrete is considered “low-carbon” because it meets several objectives in terms of reduced environmental impact. First of all, the granulates serving as the base component come from quarries north of Marseille. Furthermore, the cement was mostly made with slag from the blast furnaces in Fos-sur-Mer. Slag is a metal residue usually considered a waste product and thrown onto slag heaps. Slag also plays an aesthetic role in the fabrication of this concrete because it makes

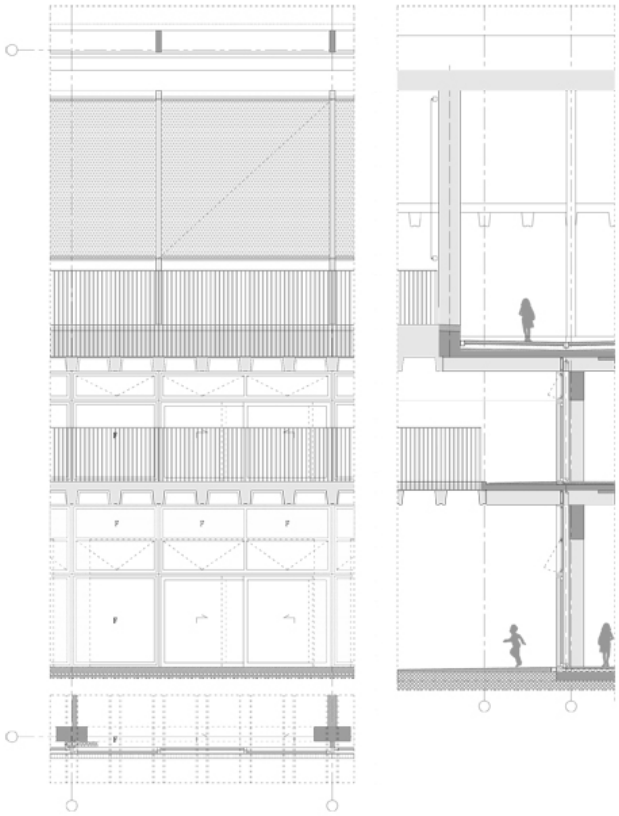
ISSN : 2575-5374

it possible to lighten the color of the cement (initially dark gray) without additives. To develop the best formula and meet the expectations of the client to obtain the lightest possible shade of concrete, the structural works contractor also installed a laboratory onsite. The result is stone-colored concrete that is perfectly integrated with the dominant mineral character of the site.

This process also made it possible to limit the nuisances generated by the construction site during the phase of structural works by avoiding the incessant comings and goings of concrete mixer trucks.

ISSN : 2575-5374





ISSN : 2575-5374

ISSN : 2575-5374