Pall公司总部，米兰，意大利

Pall Italia Headquarters, Milan, Italy

建筑设计 Progetto CMR
建筑完成时间 2009年
建筑面积 8 000m^2
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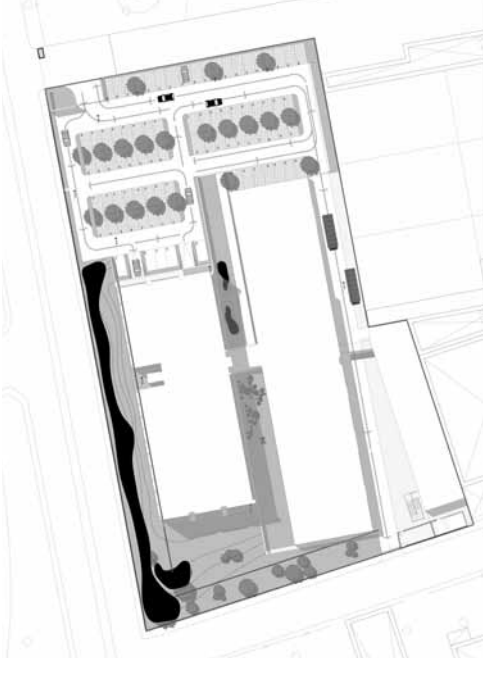
原有建筑往往因其过时与不足以满足现代的要求而需要更新改造，同时需要从过去以及现在的发展中理解建筑模式与特定的建筑类型，此外也必须考虑建筑的环境可持续性与技术革新。Progetto CMR设计师面对Pall Corporation这个在郊区的新总部项目时，首先将人作为整个设计的中心参考点，同时考虑密集城镇格局中的环境保护。

建筑首先需要选择建造地点，经过对客户需求和建筑尺度、功能的研究，将基地定在米兰郊区一片约8 000m^{2}的区域，这里之前是储存产品区。老的建筑已经非常衰败，建筑师决定保留其原有的结构，在此基础上进行改造，最终将其作为Pall总部的产业部门C楼，另新建办公A楼与用于实验、储藏的B楼。建筑之间设有钢与玻璃的连廊，达到空间的连续性与可达性，同时通过更高1层的连廊联系起不同功能的3个单元。

A楼主要用于办公、会议和业务参观，设计为东、西与屋顶三面实墙面，南北侧为玻璃幕墙的立方体，外立面还设有钢架、遮阳板和光电板，夜晚灯光下建筑就变得如城市的灯塔一般明亮。在南立面，设计师利用了具有遮阳与折射阳光双重作用的轻型钢架幕墙



体系，为办公空间提供适宜的光线。B楼的主要功能为实验室和生命科学部，其特点在于使用透明的聚碳酸酯做建筑表皮，同时其色彩和透明度可根据外部气候环境的变化而不同。当然阳光也可透过聚碳酸酯表皮照亮室内，解决室内光照要求和整体热工性能。C楼主要用于产业部应用研究，其功能的优化要归功于平板的加固、屋顶的修复与外部隔绝幕墙的运用。

整个设计最重要的创新之处在于建筑对周围环境的尊重，不仅非常精确地测定出没有价值的和不需更新的自然资源，也通过场地中已有的环境元素提升整体品质。整个建筑只消耗电能，尽量减少对环境的影响，只在加热与制冷中产生冷热水。

The process of renovation of existing buildings that are often obsolete and inadequate to modern demands requires an historical understanding of a development model and specific architectural typology developed in the past and now fashionable again. The growing emphasis on the environmental sustainability of buildings and technological innovation must be taken into consideration in order to initiate processes of building and urban redevelopment that respond to present market needs. Progetto CMR's design of Pall Corporation's new Italian headquarters, in the Milan suburbs, is the logical consequence of an approach that holds human beings as the central reference point of architectural design and considers the environment an element to be preserved and maintained even within a densely populated urban fabric.

The first step in the creation of a green building is the choice of the location, as it involves crucial aspects such as building positioning and orientation. For this activity, Progetto CMR carried out a feasibility study based of the concept of inside–out, that is, through an in–depth two analysis of the customer requirements leading to the identification of the dimensional and functional needs of the entire structure. The result of this technical evaluation was a site located in the Milan suburbs with a total land area of approximately 8,000 square meters, which previously housed a production area. The allotment was in a situation of severe decay and therefore required appropriate restoration and redevelopment work. Progetto CMR decided to preserve and renovate part of the existing structure; this became building C, Pall's industrial division, while two new buildings were constructed for offices (building A) and laboratories, test and maintenance, and warehouses (building B) respectively. Spatial continuity among the buildings, viability and accessibility are ensured by a steel–and–glass suspended passageway. Functional continuity is ensured by an overhead glass walkway, which links the first floors of the three units. In the section connecting buildings A and B, the walkway is paved in Santafiora stone, thus sharing visual and material consistency with the common and reception areas of building A, where the warm and homogenous tonality of the Tuscan stone communicate a feeling of prestigious and welcoming essentiality.

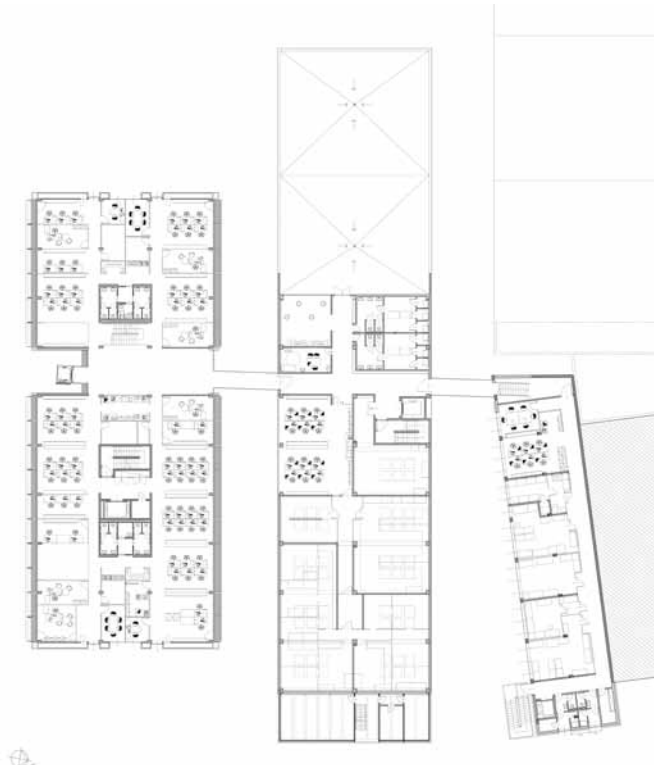
Building A, intended for offices and business visits, was the one which offered Progetto CMR the greatest opportunities for experimentation. Designed like a box with three solid sides (east, west and ceiling) and two sides made of glass (north and south), at night it turns into a sort of "urban lantern" refined by the presence, on the ceiling, of a narrow metal frame, prearranged for the support of brise–soleil and photovoltaic panels. On the southern side, Progetto CMR has used a light shelves screening system, with the double function of sun screen and daylight refractor, with a view to preventing the bothersome dazzling effects caused by the direct irradiation on the workstations.

The Building A is built on three floors. The ground floor, besides housing specific areas for the reception of visitors, dedicates the entire western wing to meeting and conference rooms. From an aesthetic and formal point of view, the area of greatest prestige and importance is represented by the triple–height access area floored in Santafiora, which contains the panoramic elevator as well as an elegant staircase in reinforced concrete, steel and glass.

Building B, which houses the laboratories and the Life Sciences department, is strongly characterized by an architectural skin made up of transparent polycarbonate. This choice arises from a functional motivation, as well as from a desire to confer a greater visual dynamism to the building; in fact, this material can assume different colors and degrees of transparency depending on the external weather conditions. Moreover, apart from its extraordinary qualities of lightness and insulation, polycarbonate allows the sun to illuminate and irradiate the interiors, thus becoming an essential aid to daily lighting and the overall thermal performance of the building.

Building C houses laboratories for the study of applications by Pall's industrial division, as well as smaller warehouses. The formal and functional performance of the preexisting plant was optimized thanks to the consolidation of the slabs, the restoration of the ceilings and the use of an external insulating coating for the exterior walls.

One of the most important and innovative aspects in the design of Pall's new headquarters by Progetto CMR was respect for the surrounding environment. This was achieved not only by means of the accurate exclusion of any improper use of valuable and non–renewable natural resources, but also through the improvement of the environmental elements already present



in the area. The building complex was provided with a plant which does not emit carbon dioxide, using electricity as the only energy source. Moreover, in the future, the total annual consumption of the refrigeration group could be covered through the use of photovoltaic panels, for which the ceiling of building A has already been fully prepared. This translates into a building with no carbon dioxide or particulates emissions. The electricity–powered plant is a polyvalent group, that is to say, a special refrigeration group the only one currently in existence capable of producing both hot and cold water, therefore covering the heating and conditioning needs of the entire complex. This is a crucial characteristic in buildings with a north–south orientation such as the ones in this project, especially in spring and autumn; in fact, a polyvalent group allows independent regulation to ensure heating on the northern side and cooling on the southern one. AT