



The first multi-story industrial site in Italy to be certified in Class A from the environmental point of view has the brand Lamborghini.

The new building, dedicated to the development of prototypes and pre-series cars, is an excellent example of functional architecture in which the technical aspects contribute to energy saving.

The unique and highly distinctive look is represented by the large transparent facades of the "Protoshop," as the building is called.

Unlike classic glass walls, these are able to guarantee an adequate natural lighting, the confidentiality of a typical prototype department and a high solar control.

In addition, a fundamental aspect from an energy point of view, they are able to ensure a thermal efficiency that no common type of fixture is able to reach.

Location: Sant'Agata Bolognese - BO - Italia

Customer: Automobili Lamborghini Spa

Project: Prospazio Scarl (Ing. Luca Bernardoni)

Buyer: Automobili Lamborghini Spa

Area: 5.000 sqm total area

Product used: modular polycarbonate system with IR treatment
arcoPlus® Double Connector

The realization of the facades was performed by the following companies:

Dott. Gallina Srl - supply of polycarbonate sheets

Prospazio Scarl - architectural design

Mario Neri Spa - building works

Lazzaro Srl - facade construction and finishes

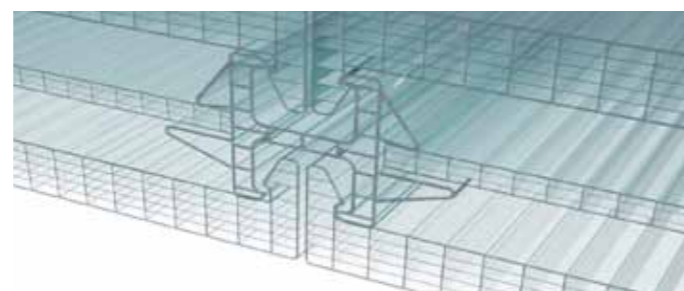
THE PROJECT

The building made for Lamborghini, in which prototypes and pre-series cars are designed, had to be able to represent the company as such, and the goal that the automaker of Sant'Agata Bolognese had set: Style and Protection of environment and territory.

To do this Prospazio created a Class A building with straight lines, highlighted by the use of corporate colours in opposition to one another, "absolute white and black", and reiterated on several innovative buffering materials.

Coatings and claddings have played a vital role in achieving the maximum energy class.

The use of the system **arcoPlus® Double Connector** has made it possible to considerably decrease the heat loss of the transparent facades. Consider that, while a strong high-performance infix is able to reach a thermal transmittance equal to 1.2 W/m²K, the polycarbonate double-room used in there reaches a value equivalent to 0.62 W/m²K.



ENERGY CONTAINMENT

In the conversation with the engineer Luca Bernardoni of Prospazio, it emerges how Lazzaro Srl has been able to offer the innovative solution of Dott.Gallina for the realization of large transparent facades of the building, to ensure adequate natural lighting, the confidentiality typical of a prototype department and a high solar control.

How important was the facade of the building in the complex energy calculation and what were the values of thermal resistance required?

For a building so large the facade plays an important role. The more a building is small and compact, the less heat loss and the easier it is to achieve the maximum energy class.

The PSC-Protoshop presents itself as a simple volume, regular and compact, the shape of which seeks to limit energy losses, but being constituted by wide transparent facades, for the fixtures it required a rather low thermal transmittance value: $\leq 0.83 \text{ W/m}^2\text{K}$.

This has been made possible thanks to the use of the product **arcoPlus® Double Connector** in triple-layer polycarbonate assembled with a unique connector. On the sides most exposed to sunlight the product **arcoPlus® Double Connector** was manufactured with a unique IR filter which can restrict the passage of infrared radiation that causes internal heating of the workplace.

This system has allowed us to ensure a high energy performance and reduce the thermal conduction between the outside and the inside of the building eliminating thermal bridges.

What has determined the choice of the product arcoPlus® Double Connector from the different materials evaluated?

The choice of arcoPlus® Double Connector is definitely due to the excellent energy performance unmatched by any other arrangement of the curtain wall. In addition to this, making polycarbonate the winning material, was the need for good lighting of the interior and at the same time maintenance of the confidentiality needed for a prototype department as that housed in the building.

The aesthetic and chromatic solution underlines the elegance and simplicity of forms at the same time: Lamborghini refuses any colour accepting only white, black and grey scale.

The temperature inside is extremely over... and the panel with IR filter allows you to watch the light source... as looking at the light with sunglasses...

Have you had problems finding materials that fulfil these chromatic requirements?

arcoPlus® 626, with its neutral or white opal colour, was in accordance with company's policies and therefore perfect for the building in question.

Most important was the advice of Dott.Gallina by proposing for the most sun-exposed façades (east and south) a special product with filter capable of controlling solar radiation and preventing a greenhouse effect inside the premises.





The function of the IR treatment is to absorb the infrared component of solar radiation (780 to 1400nm), blocking solar radiation responsible for the greenhouse effect, while permitting the passage of the visible component.

Now that the PSC-Protoshop is completed what are your sensations perceived inside the building?

The temperature inside is extremely lower than the outside temperature, and it is easily perceptible, by anyone, through the simple touch of the sheet.

Another important demonstration of the performance of arcoPlus® Double Connector I could find by looking at the sun through the two different sheets: while the transparent one produces glare, the one with the filter allows you to watch the light source for a long time without any kind of discomfort, a little like watching light first without sunglasses, and then with.



arcoPlus® IR
Double Connector

FOR ECO SUSTAINABLE BUILDINGS


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CASE HISTORY: **PROTOSHOP LAMBORGHINI**

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