



PERMASTEELISA GROUP

D³ Façade (Dual, Dynamic and Durable Façade):

Novel Façade Type for Sustainable Buildings

Three-Layer Façade with Two Closed Cavities

Maximum Energy Efficiency, More Daylight and

A Broader Scope for Architectural Designs



PERMASTEELISA



IIIII GARTNER



SCHELDEBOUW

22 OCTOBER 2014. During the Glass Technology Live in Düsseldorf **the worldwide leading façade manufacturer Permasteelisa Group**, which has within its portfolio the three brands Permasteelisa, Gartner and Scheldebouw, presented the latest innovative façade for sustainable buildings. The D³ façade is the evolution of the MFreeS façade, the Closed Cavity made in Permasteelisa; constituted by three layers of single coated glass that create two completely closed cavities where a very efficient shading system with aluminium and wooden louvres is placed.

A special feature of this new technology is the two motor-operated blinds and the possibility of using a variety of materials offering dynamically changing visual appearances. This offers a broader scope for the architectural façade design and will open up entirely new creative possibilities for architects. As the closed façade cavities are protected against weathering and do not soil, highly efficient systems for solar and glare shading and daylight control can be utilised.

The two closed cavities are continuously supplied with purified and dried air to avoid condensation at changing temperatures. The dried air is generated by one or more central dry air stations. The external climate is continuously checked by an electronic control unit and the quantity of dried air is adjusted accordingly. Therefore the energy consumption can be reduced to a minimum.

D3 stands for Dual, Dynamic and Durable

Dual: provides a double advantage in terms of Performance and Aesthetics. The two independent closed cavities allow a more efficient management of the façade: during summer months, by using the blinds placed into the outer cavity, there is a reduction of the solar gain; on the contrary, during the colder months, the use of the inner blind allows to bring heat toward the inside of the building,

thus contributing to the efficiency of the heating system. Aesthetic-wise, the possibility to install two different blinds, of different materials and colors, allows a dynamic aspect of the building in the different seasons.

Dynamic: adapts itself to the different external climatic conditions, thanks to a specific control-setting algorithm, as well as occupants' comfort and energy needs through users-over-ride possibility.

Durable: increases the life expectancy of the façade thanks to the elimination of insulating glazing units and the use of a robust, integrated blind system in protected, clean cavities.

The prototype of the sustainable façade shown at the Glass Technology Live yields the following performances:

- Solar heat gain coefficient SHGC of 0.08 during summer and of 0.57 during winter
- U-value of 0.62 W/m²K during night and of 0.83 W/m²K during day time,
- sound reduction of 55 dB
- light transmittance of 65 % under diffuse light conditions.

More detailed information:

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The Permasteelisa Group is the world's leading operator in the design, manufacture and installation of architectural envelopes and offers solutions with a high technological content, working closely with contemporary architecture key figures. Today, Permasteelisa is a global integrated Group present in four continents with a network of over 50 companies in more than 30 countries. The Group employs over 6,000 people worldwide in its Engineering & Design centres and in the 11 manufacturing plants equipped with the most modern and advanced technologies. Moreover, through four research centers and the collaboration with prestigious international universities, Permasteelisa fosters the development and implementation of

innovative environmentally-friendly technologies, which ensure significant energy saving levels and improve the quality of internal environments.

Among Permasteelisa Group's projects are some world-renowned contemporary architectural works, such as the Sydney Opera House (the first building to make extensive use of the curtain walls), the revolutionary Guggenheim Museum in Bilbao, the extraordinary Walt Disney Concert Hall in Los Angeles and the Museum of Modern Art in New York.

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