



Project Profile

Denver Botanic Gardens Science Pyramid

Creative building design requires high performance membrane solution



→ General Information

Building Name	Science Pyramid, Denver Botanic Gardens
Building Location	Denver, Colorado
Country	USA
Project Size	5,258 ft ²
Building Type	Science Exhibition Space
Project Type	New Construction/Addition
Type of Cladding	Swisspearl® composite panels
Total Building Costs	\$6 million (USD)
Owner	City of Denver
Architect	BURKETTDESIGN, Inc.
Consultant	Studio NYL, Skins Group
General Contractor	GH Phipps
Sub-Contractor for DELTA® Products	United Materials
Year	2014

→ Project Description

The Science Pyramid at Denver Botanic Gardens invites visitors to explore the relationship between people and plants, and to examine the role of biomimicry in our lives – the way the features of nature inspire ideas and actions in people. It's not surprising then that the building has a great relationship with its surroundings. Rising to a comfortable height among the area's ground-level structures, the angles and scale

of the 34-foot-high pyramid are almost a mirror image of the Garden's amphitheater to which it sits next.

From the outside, a pyramid appears smaller than it actually is on the inside. Fittingly, the Science Pyramid presents a bigger view of the world of horticulture, using interactive technology to engage visitors with Botanic Garden's environmental research into the semi-arid, cold winter steppe regions of the world, which includes Colorado, and showing them

how their own backyard is connected to the larger natural world.

The 5,258-square-foot structure has 16 sides consisting of hexagonal panels in a honeycomb design, with painted steel and angular windows. The exterior is covered in a dark gray cement composite panel material by Swisspearl®, often used as siding but here used as a roof material for the first time. Below the rainscreen, the roof features five inches of insulation, taking its cue from cold roofing projects seen in the mountains.



Visitors experience interactive displays



Unique approach to main entrance

→ Challenges

Pyramid shapes present a challenge because the enclosures are both roof and wall. The shape, usage, cladding and climate multiply the complex dimensions of maintaining a watertight exterior while managing the moisture generated within. Additionally, the open joints expose the membrane behind the cladding. For this project the water-resistive barrier (WRB) has to provide all the performance criteria of a regular WRB along with long-term resistance to UV light and the impact



of wind, rain and snow. The extremes of Denver's winter and summer climate as well as the high UV index made the performance requirements even more stringent.

DELTA®-VENT SA provides the air and water barrier at the plywood substrate. Because of its high vapor permeability, DELTA®-VENT SA prevents significant interior moisture build-up while remaining watertight. Because DELTA®-VENT SA is fully adhered, the enclosure will be more airtight than with a mechanically attached air barrier. DELTA®-FASSADE S provided the final weather-proofing step. It has extremely high UV resistance so the light coming through the open joints will

not degrade its weatherproofing qualities. Like DELTA®-VENT SA, DELTA®-FASSADE S is watertight yet highly vapor permeable. The insulation that lies underneath will stay reliably dry and functioning at maximum R-value.

Working together, DELTA®-FASSADE S and DELTA®-VENT SA ensure a watertight enclosure that also manages moisture in a complex climate. The flat black of the DELTA®-FASSADE S also enhances the beauty of the Science Pyramid, adding depth and dimensionality that heightens the striking appearance of this landmark building.

→ Other DELTA®-FASSADE S Projects

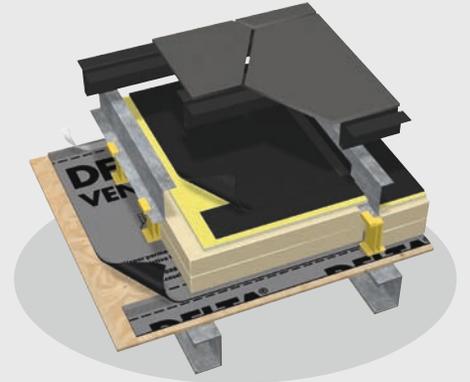
- 2013 – Spa Balnea, Bromont-sur-le-lac, Quebec, Canada
- 2013 – University of Oregon, Collaborative Life Science Building in Portland, Oregon, USA

→ Other DELTA®-VENT SA Projects

- 2015 – Audain Art Museum, Whistler, British Columbia, Canada
- 2015 – Institutional Advancement Building, Kent State University, Kent, OH, USA



Installation of girts for open joint cladding over DELTA®-FASSADE S



DELTA®-VENT SA adhered to plywood