

PARASOLEIL CASE STUDY

Durham Parking Garage

Durham, North Carolina

Completed October 2023



PRODUCT DETAILS

APPLICATION

Ventilated Cladding

SYSTEM

ParaClad 200

MATERIAL

Panel: 5000 series aluminum

Structure: 6000 series aluminum

PATTERN

Dawn Grille® Mesh with custom artwork

FINISH

Panel: Native Turquoise™ patina

Structure: Clear anodized

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PROJECT DETAILS

SITUATION

This public art project was required to promote the new parking deck as a vibrant, modern environment for the downtown culture and surrounding neighborhood. The design asked for a permanent, low-maintenance art screen to meet local vehicle screening code while allowing enough airflow to ventilate the space from carbon monoxide fumes. The flexing movement of the parking deck and seismic requirements added yet another element to the metal wall-mounted sculpture.

SOLUTION

To satisfy the mission of Durham County's public art program and building code requirements, the artists designed the 7,500 SF elevation parking garage façade with ventilated cladding that articulated three-dimensionally across the vertical surface of the building. It has two intentional sightlines where the planes of the panels align to create images of three summer trees from one end of the installation and three different winter trees from the other end of the structure, all six trees being native to the Durham geography.

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From the Client

OWNER

Durham County Arts Commission

This sculptural mural met the need as a functional screen while being sensitive to the wide cultural and political differences that exist today. The community engagement stage of the project was highly successful and helped to inform and give credibility to an outside artist. The green patina finish and nature scene from the narrow viewing angles seem to be appropriate for the area. Plaques at opposite ends of the building recognize the artists and explain the meaning in the piece.

CONTRACTOR

W.S. Nielsen

The installation process of the 240 panels went more smoothly than expected. The ParaClad-200 structural system was designed to install like a kit for ease of install, with no field cutting, welding, or drilling required.

The entire project was delivered in one shipment to assist the installation crew in identifying and staging the components on site, all panels and tubes were labeled and organized by pallet and documented in the project shipping manifest. The high number of unique panel types required a relatively complex labeling system.

PANEL SYSTEM DESIGN

The dynamic 3D screening approach was used that intentionally angled the screen elements outward, effectively creating a metal “canvas” for the perforated artwork that more directly faced key street level sightlines. This offered more complete visual screening of the parking garage openings and also increased natural ventilation of the structure, and therefore satisfying all code requirements including natural ventilation levels.

PANEL

- 1/8" 5000 series aluminum
- 240 unique panels to create depiction

To keep the panel attachment simple, the panels were designed as enantiomers (mirrors of each other but with the same attachment points)—biomimicry at its finest.

PARACLAD STRUCTURE

- 6000 Series extruded aluminum tube purlin system with 5000 series aluminum connection bracket weldments

ENGINEERING

The system was designed for 30 psf (ASD) loading and includes vertical purlin spacing of ~42" on center, and a built-in slip condition feature to allow floor-to-floor deflection and respond to seismic code requirements. Close coordination of engineering and architectural teams was required to align pre-installed embed plates with ParaClad brackets. Parasoleil provided opening percentage calculations for the mechanical code max. ventilation conditions for naturally ventilated parking garages and met minimum visual screening needs for the City of Durham UDO requirements for parking garages.



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