

A photograph of the Banner Health Center Maricopa building. The building is a modern, multi-story structure with a mix of light-colored stone or brick and dark glass windows. The "Banner Health Center" logo is prominently displayed on the upper left side of the building. The entrance is covered by a large, dark overhang supported by several columns. The foreground shows a paved area with some landscaping, including small trees and bushes. The sky is blue with scattered white clouds.

Banner Health Center

# Banner Health Center Maricopa

Displacement ventilation brings thermal comfort and premium air quality to new healthcare facility

Banner Health is one of the largest non-profit health care systems across the US. In addition to providing premium patient care, Banner Health continues to demonstrate their long-term community commitment through relentless research at the Banner Sun Health Research Institute and Banner Alzheimer's Institute. Banner Health has also been nationally recognized for work in improving facility operations and staff training.

This demonstrated investment in patient service through innovation has inspired a long-term partnership between Banner Health, SmithGroupJJR, and Price in past years, and this partnership was the

foundation for the Banner Health Center Maricopa project.

The Maricopa facility makes use of Displacement Ventilation (DV) technology due to its benefits in thermal comfort, indoor air quality and energy efficiency. Found in Maricopa's patient care areas and public spaces, this versatile air distribution method assists in setting a high environmental standard for all future Banner Health facilities.

## Project Summary

### PRICE PRODUCTS

Critical Environments/Displacement Ventilation

### PROJECT HIGHLIGHTS

Location: Maricopa, AZ

Project Type: New Construction

Project Cost: Estimated \$15.3 Million

Year Completed: 2012

Square Footage: 40,000 ft<sup>2</sup>

### DESIGN TEAM

Engineer/Architect: SmithGroupJJR

Price Representative: Air Specialty Products

## The Challenge:

### A prototype facility to serve communities across the country

In 2009, Banner approached the engineers at SmithGroupJJR to develop a template for prototypical primary care outpatient clinics. The goal of producing this mechanical template was to optimize future facility planning and operations.

Banner Health inquired about Displacement Ventilation (DV) in particular, and SmithGroupJJR supported DV as an excellent fit for Banner Health, given the organization's operational values of ensuring maximum comfort and healthy environments for both patients and staff. DV requires less energy and provides higher ventilation effectiveness than standard mixing ventilation, thereby improving indoor air quality by allowing the natural convective process to isolate contaminated air in the high level unoccupied space near the ceiling.

Due to consistent and industry-leading product support, Price had long ago been identified by SmithGroupJJR as a solid partner for complex projects such as Maricopa, involving relatively new technologies like DV. SmithGroupJJR involved Price in the design process, where Price assisted in substantiating DV as a viable option for Banner Health projects in several ways:

- Price hosted an operations team from Banner Health at Price Technical Center West, demonstrating mockup capabilities and how DV would function in spaces such as the Maricopa facility.
- Price supplied DV diffusers and heated mannequins, and Banner Health designed and provided instrumentation to enable independent on-site testing alongside SmithGroupJJR in a model of a sample room. Temperature probes monitored the space from 6" off the floor, with a sensor every 12", up to 6" below the ceiling.



*DF1L in a Shared Physician Office*

- Banner Health commissioned Price to conduct Computational Fluid Dynamic (CFD) analyses showing precisely how DV would function in the template Maricopa space. Banner's goal was to make the most efficient use of space, and thus wanted to use ceiling level displacement supply air diffusers as opposed to traditional low wall outlets. The CFD analyses substantiated that this would not compromise the effectiveness and benefits of the DV system.



*Displacement ventilation (seen here above the Check-In desk) is found throughout the Banner Health Center Maricopa facility - public concourses, examination rooms, gen-rad space, nurse's stations and more*

Potential payback schedules based on energy savings were calculated, and this efficiency, along with DV's significant health and environmental benefits, made DV the perfect choice for this project.

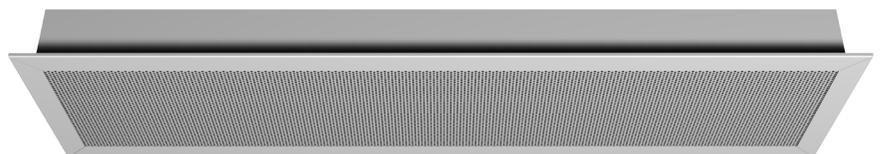
## The Solution:

### Displacement ventilation for energy efficient patient care

After two years of research and testing, DV was approved by Banner Health for

use throughout the Maricopa facility's public concourses, patient care spaces and staff areas (such as nurse's stations and conference rooms).

Banner Health, SmithGroupJJR and Price have committed to future testing of the facility to monitor the performance of DV within the Maricopa facility.



*Price DF1L displacement ventilation diffuser*

Join the conversation at [blog.price-hvac.com](http://blog.price-hvac.com)



*Displacement ventilation mockup testing at Price Technical Center in Suwanee, GA*

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“Price Industries’ commitment to product testing, technical support, and research and development have made them a key partner to SmithGroupJJR in introducing new, innovative solutions to our clients.”

*- Eric Kirkland PE, LEED Director of Engineering, SmithGroupJJR*

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## Design Team Profile

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### SmithGroupJJR

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SmithGroupJJR ([www.smithgroupjjr.com](http://www.smithgroupjjr.com)) is one of the largest architecture, engineering and planning firms in the U.S., ranked #1 for design quality based on design awards won in Architect magazine’s 2011 annual best firms ranking.

The firm is also the recipient of the 2011 Landscape Architecture Firm Award from the American Society of Landscape Architects. A national leader in sustainable design, SmithGroupJJR has 354 LEED professionals and 72 LEED certified projects.