



# Legacy Junior High School

Layton, UT

## Project Summary

**Project Type:** Existing Facility

**Year Completed:** 2009

**Building Square Footage:** 163,000

**Price Products Used:** Custom Displacement Diffusers

**Price Representative:** Midgley Huber

The Davis School District in Utah has long established themselves as being dedicated to sustainability with a goal of creating learning environments that maximize student learning potential.

The school district has designed several schools utilizing displacement ventilation, including the Legacy Junior High School. Displacement diffusers were integrated into all areas of the facility, including classrooms and common areas.

Improved indoor air quality and comfort were the primary drivers for using this ventilation strategy – the significant energy savings that resulted are an additional benefit, as Legacy Junior High School has received an Energy Star label.

## The Challenge: Sustainable Design and Architectural Integration

Design requirements for the Legacy project required that a central heating system be used. The school district and architect saw this as an opportunity to utilize displacement ventilation, a strategy that would keep them in line with their energy efficiency goals.

Ensuring that the integration of the displacement diffusers into the space was aesthetically pleasing was a key design challenge also.

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## Engineer / Architect Profile:

### Van Boerum & Frank Associates & VCBO Architecture

**Van Boerum & Frank Associates, Inc. (VBFA)** was founded in 1972 and has grown to be a respected mechanical, plumbing, electrical, and civil engineering firm. With 91 employees spread between three Utah offices and one Arizona office, VBFA has set itself apart with innovative, award-winning designs.

**VCBO Architecture** has over 35 years of experience in architecture and planning. Legacy Junior High School is just one of the many projects that have earned them

distinction on a regional and national level. VCBO Architecture has received the following recognition for this project:

- 2010 William W. Caudill Citation, Top Pre K-12 Project
- AS&U Architectural Portfolio 2010 Grand Prize Winner
- NSBA Exhibition of School Architecture
- 2010 Citation of Excellence
- NSBA Learning by Design
- 2010 Project of Distinction
- CEFPI Exhibition of School Planning and Architecture
- 2010 Architectural Merit Award
- Utah Designers League Association



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## Layton, UT

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### Price Solution

Displacement diffusers from Price were incorporated throughout the entire school, including classrooms and common rooms.

Improved ventilation effectiveness was a key driver for the selection of displacement, which can significantly improve the indoor air quality in a space. Improved indoor air quality can lead to increased student concentration and performance, as well as a reduction in airborne illnesses.

Comfort was also a key motivator behind the selection of displacement ventilation. Displacement utilizes slightly warmer, lower velocity air than traditional mixing systems, which minimizes cool drafts in the space. Displacement systems are also extremely quiet, a critical design criteria in any school.

The architect, engineer and Price worked closely to ensure that the integration of the diffusers would be aesthetically pleasing. In the classrooms, diffusers were placed in opposing corners of the rooms to the architects design specifications. Price also modified the diffusers at the owners' request, so that they could withstand active classroom environments.

Price mocked up the classroom environment at their laboratory facility during the design process.

The school has been running successfully for over a year, and all parties are highly satisfied with the system. The school district is currently designing another school that will utilize this technology. Although the initial investment required for a displacement ventilation system versus a traditional mixing system is higher, the school district felt that the expenditure was easily justified.



Significant energy savings were achieved on the project. Through the use of displacement ventilation, the school was able to achieve more economizer hours and maintain the chiller at warmer chilled water temperatures. This is made possible by the fact that displacement utilizes warmer supply air temperatures than mixing ventilation. Legacy Junior High School received an Energy Star rating for its employment of energy saving technologies like displacement.

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