

AIU Uses De-Coupled System to Reduce Energy & Increase Comfort

PROJECT:
Allegheny
Intermediate Unit

ENGINEER:
Pascoe Engineering
Consultants

**HVAC
CONTRACTOR:**
Limbach Company

**PRODUCT
SELECTIONS:**

Acutherm:
Model VA-HC
Thermally Powered
VAV Diffuser with
Ventilation Air
Connection

DuctSox:
Fabric Air
Distribution
System

Project Description:

This building was design with a state-of-the-art heating, ventilating and air conditioning (HVAC) system. Pascoe Engineers utilized a de-coupled design concept to separate the heating/cooling and outdoor air ventilation requirements.

Consequently the building provides the occupants excellent thermal comfort and the proper amount of fresh outdoor air.

THE DE-COUPLED DESIGN:

In the de-coupled design, two air handling systems are used - one to provide the heating and cooling, and one to provide fresh air. The heating and cooling system responds only to the thermal loads of the building, utilizing 100% return air. The ventilation system introduces fresh air at space neutral conditions to give

the occupants the required outdoor air. By decoupling these systems, energy usage is reduced to only what is needed to satisfy space conditions.



Allegheny Intermediate Unit – Exterior

THE VENTILATION AIR THERMA-FUSER:

One of the components of the system is the Acutherm model VA-HC variable air volume (VAV) diffuser. This unit is connected to both the heating/cooling unit and the ventilation supply. The VA-HC modulated the heating/cooling supply to provide thermal comfort and maintains a constant ventilation supply to satisfy the fresh air needs of the room occupants. The net result is the proper amount of fresh air to the breathing zone and individual room control for thermal comfort.

DUCTSOX FABRIC AIR DISTRIBUTION:

In the open office spaces of the facility, DuctSox fabric duct was used to distribute the tempered ventilation air. The DuctSox concept was used because of its superior air distribution properties, lightweight, ease of installation and architectural appearance.



DuctSox® Fabric Air Distribution System