



MICHIGAN DEPARTMENT OF  
ENVIRONMENT, GREAT LAKES, AND ENERGY

# K-12 Public School HVAC Assistance Program

August 10, 2021

## K-12 Public School HVAC Assistance Program Survey Results

### K-12 PS HVAC Survey Results:

- 47% of school buildings have not updated their HVAC system in past 15 years
- 35% have not updated their system in past 20 years, and
- 21% have not updated their system in past 25 years.

Note: Environmental Justice schools is limited, responses received show 67% have not had HVAC system updated in 25 or more years.

## K-12 Public School HVAC Assistance Program Recommendations (Based on Onsite Surveys)

New equipment w Minimum Efficiency Reporting Value (MERV) -13 / dynamic air filters, humidification, and bi-polar ionization, upgrade BMS and sensors:

- Elementary School: \$200,000 - \$1,300,000 per building
- High School: \$1,100,000 - \$2,000,000 per building

Upgrade units for MERV-13 / dynamic air filters, bi-polar ionization, re-commissioning:

- Elementary School: \$110,000 - \$460,000 per building
- High School: \$210,000 - \$560,000 per building

## K-12 Public School HVAC Assistance Program Recommendations Trane Cost Estimates (Based on current MI K-12 projects)

Upgrade to Dynamic Air Filters (approx. \$2.00 sq. ft.)

- Elementary School: \$50,000 - \$110,000 per building
- Middle School: \$120,000 - \$355,000 per building
- High School: \$140,000 - \$580,000 per building

Controls Upgrade (approx. \$3 -\$4 sq. ft. or \$4 -\$10K per unit) – New/upgraded BMS and replace actuators, valves, sensors.

- Elementary School: \$75,000 - \$220,000 per building
- Middle School: \$270,000 - \$850,000 per building
- High School: \$453,000 - \$1,000,000 per building

Equipment and Controls Upgrade (\$25.00 sq. ft): Above plus replace all HVAC equipment.

- Elementary School: \$625,000 - \$1,375,000 per building
- Middle School: \$2,250,000 - \$3,000,000 per building
- High School: \$3,775,000 - \$6,250,000 per building

*Note: Nearly 10% of school buildings have only radiant or convection heat (i.e. no modern ventilation).*

# K-12 Public School HVAC Assistance Program Recommendations

## Performance Services Cost Estimates

(Based on current MI K-12 projects)

Classrooms with Standard Unit Ventilator:

- Low: New unit to MERV-13, BPI, digital controls
- High: Low + Add AC and re-duct for optimal air distribution

- Elementary School (21 classrooms): \$420,000 – \$935,000
- High School (35 classrooms): \$700,000 - \$1,560,000

Classrooms with Existing VAV System

- Low: Replace VAV, add digital controls
- High: Low + upgrade AHUs to MERV-13, BPI, digital controls

- Elementary School (21 classrooms): \$315,000 – \$630,000
- High School (35 classrooms): \$525,000 - \$1,050,000

# K-12 Public School HVAC Assistance Program Recommendations

## **Brewer-Garrett Company/FirstMetrix Corporation Cost Estimates (Based on current MI K-12 projects):**

- Traverse City Area Public Schools (13 school buildings)
- Note: extremely pro-active district, already upgraded facilities including MERV-13 filters
- Note: Only recommended upgrade was installation of bi-polar ionization to serve each classroom
- All-inclusive installation cost of \$476,100 or ~\$36,600 per building

## **Andy J. Egan Company (Based on current MI K-12 projects):**

- Benton Harbor Fair Plain Middle School, Kenowa Hills Middle and High School buildings
- Complete HVAC system redesign and changeout: \$1,425,000 - \$3,000,000 per building

## **Goyette Mechanical Company:**

- Eagle's Nest Academy (K-6)
- Rebuild/replace equipment and controls where needed: \$300,000.

## **Hawks & Associates:**

- APS Elementary: EOL RTU Replacements + Humidification: \$160,000
- DCS High School: EOL RTU Replacements + Humidification: \$870,000

# Creating Healthy Indoor Air Quality (IAQ) in Schools

[Creating Healthy Indoor Air Quality in Schools | US EPA](#)

- **Learn about IAQ in Schools**
- **IAQ Tools for Schools Resources**
- **On-Demand Training Webinars**
- **Understanding IAQ Benefits**
- **Healthy School Renovations**
- **Connecting and Networking**