



# MEP Engineering Design for K-12 Schools

**Your Partner in  
Engineering the Right  
Building Environment**



Peter Basso Associates (PBA) is the leading mechanical and electrical consulting engineering firm in the state of Michigan for educational facilities. Our dedicated group of engineers and designers possesses a deep understanding of the specific needs and operational requirements of these facilities—and applies best practices from all our markets to every design.



*Our portfolio features hundreds of K-12 school projects and includes more than 10 new high schools with construction costs ranging from \$23.5 million to \$84 million:*

Portage Central High School (\$48 million)

Skyline High School (\$34 million)

Howell Parker High School (\$23.5 million)

Marysville High School (\$40.8 million)

Plymouth-Canton High School (\$35 million)

Rochester Stoney Creek High School (\$38 million)

Saline High School (\$62.2 million)

Walled Lake High School (\$69.2 million)

Westerville High School (\$39 million)

Whitmore Lake High School (\$30.5 million)

## **BOND PROJECTS**

*Most of the K-12 schools projects we complete come in the form of multi-year, multi-building bond projects. Some of the larger bond projects we have worked on are:*

Rochester Community Schools in 1997 (\$140 mil), 2000 (\$120 mil), and 2015 (\$140 mil)

L'Anse Creuse Public Schools (\$210 mil)

Birmingham Public Schools (\$135 mil)

Ann Arbor Public Schools (\$205 mil)



**Collaboration:** Being an MEP engineering only firm means working with different architectural firms on various projects. Sometimes the sheer size of a project or the district's preference to divide the work requires that we collaborate with another engineering firm, an architectural/engineering firm, or even multiple architectural firms. Examples of projects where we have successfully teamed in this manner include:

- Portage Central High School—sub-consultant to another engineering firm
- Bloomfield Hills Schools— sub-consultant to two architectural firms; provided engineering to both
- Anchor Bay Schools—provided electrical engineering; another firm provided mechanical
- L'Anse Creuse Public Schools—sub-consultant to two architectural firms

### Approach to Engineering MEP Systems for K-12 Facilities

#### *Improving the Building Environment While Reducing Total Utility Costs*

The K-12 school project teams at PBA have extensive experience in school building renovation. The major energy issues in renovation are the addition of air conditioning and increased ventilation air to meet current code requirements. The increase in energy consumption resulting from these requirements is minimized—and in some cases fully offset—through:

- Developing a clear understanding of the Owner's requirements and how much space will be used
- Effective use of modern direct digital controls
- Cost effective energy recovery for areas with high ventilation requirements
- CO<sub>2</sub> control of outside air quantities in large spaces with highly variable occupancies, such as cafeterias, gymnasiums, and auditoriums
- Attention to detail in all aspects of the design to minimize first cost and operational cost

The basic goal is to minimize operational costs while conforming to code requirements. Doing so within current operational costs is dependent on the types and efficiency of the existing systems and the way in which they have been operated.

#### *Preserving Operations During Construction*

It is critically important to maintain technology, as well as the other systems required for the proper functioning of areas, during the process of renovating and adding to existing buildings. We have developed processes and standards for identifying construction phasing requirements so that systems are not interrupted and downtime is scheduled at the convenience of the owner. Construction contract documents are coordinated with the district's facilities staff, technology coordinator, and consultants prior to releasing for bids.



### Sustainable Schools

We have completed MEP design for the first two comprehensive LEED® Silver certified high schools in the state of Michigan—Whitmore Lake and Ann Arbor Skyline.

#### *Designing Energy-Efficient Buildings*

We have designed virtually every type of energy savings system suitable for today's demanding requirements for school buildings. This includes geothermal heat pump systems, energy recovery systems, specialized natatorium units for effective control of temperature and humidity, CO2 control of outdoor air, direct digital controls, energy efficient pumping arrangements and numerous other energy efficient systems and components.

PBA has completed the design and implementation of 3.58 million square feet of water-source heat pump systems serving educational facilities. Of the total square footage designed, 1.75 million are geothermal application designs, using both central and unitary heat pumps.

*Implementation of our unique strategies  
has resulted in annual energy consumption  
savings of over 30% . . .*

In addition, we are committed to designing lighting systems that provide good quality illumination of the proper level while minimizing glare, in order to meet the demands of modern school buildings. We do this in an energy efficient manner as well. In some instances, we have been able to decrease wattage by 50 percent while still maintaining the same footcandle level.



### Additional Expertise

K-12 school building owners increasingly ask for building commissioning and retro-commissioning, as well as architectural lighting design—two services we provide in-house. More information about these two services is included with this package.





## REPRESENTATIVE K-12 SCHOOL CLIENTS



- Ann Arbor Public Schools
- Archdiocese of Detroit
- Birmingham Public Schools
- Bloomfield Hills Public Schools
- Brandon Schools
- Chippewa Valley Schools
- Clarkston Community Schools
- Cranbrook Educational Community
- Crosswell-Lexington Community Schools
- Detroit Country Day School
- Detroit Public Schools
- East China School District
- Farmington Public Schools
- Grosse Pointe Public Schools
- Haslett Public Schools
- Holt Public Schools
- Howell Public Schools
- Huron Valley Lutheran High School
- L'Anse Creuse Public Schools
- Lake Orion Community Schools
- Lapeer Community Schools
- Lansing Catholic Central
- Livonia Public Schools
- Mayville Community Schools
- Meridian Schools
- Mount Clemens Community School District
- Niles Community Schools
- Notre Dame Prep School
- Northville Public Schools
- Novi Community Schools
- Oakland Intermediate Schools
- Oxford Area Community Schools
- Plymouth-Canton Community Schools
- Port Huron School District
- Portage Public Schools
- Rochester Community Schools
- Spring Lake Public Schools
- Troy School District
- West Bloomfield School District
- Whitmore Lake Public Schools



# Contact Peter Basso Associates for insight into your commissioning needs

Peter Basso Associates, Inc. is Michigan's largest MEP Engineering Firm and we have been hard at work achieving our national recognition as an industry leader and client collaborator for nearly three decades.

## Your Engineering Partner Since 1990

When we started in 1990, providing engineering services, never could we have imagined today's ever-expanding suite of services – from mechanical, electrical and plumbing engineering, to Illuminant architectural lighting design, commissioning and retro-commissioning and so much more.

## 100% Employee Owned

Everyone you work with at Peter Basso Associates (PBA) has a vested interest in your project's positive outcome and a personal stake in the success of our firm. That's because our company has been employee-owned through an Employee Stock Ownership Plan since 2002.

## Turning Projects Into Partnerships

At PBA, we value relationships – not just projects. We want to create environments that serve you by designing systems that allow people to heal, live, learn, work and play.

## Nationally Recognized Experts

We excel at highly technical, challenging projects, and our in-depth knowledge of best practices extends across multiple markets. Recognized as a leader in MEP engineering, Peter Basso Associates is at the forefront of the application of new technology, balancing performance with cost. A 'PBA System' is one that focuses on cost-effective solutions that pay returns over the life of the facility.



**PARTNER WITH US**

Email: [MEPEngineer@pbanet.com](mailto:MEPEngineer@pbanet.com)  
[www.peterbassoassociates.com](http://www.peterbassoassociates.com)

5145 Livernois, Suite 100  
Troy, MI 48098  
T | 248.879.5666  
F | 248.879.0007



2001 Commonwealth Blvd.,  
Suite 203  
Ann Arbor, MI 48105  
T | 734.913.4749  
F | 734.913.4957

