

# Energy Costs, Codes, and the Fine Lines in Between

*Energy codes can influence the health and welfare of students, faculty, and staff.*

By Dan Walker, P.E.



PHOTO COURTESY OF MBMA.

Classical Academy in Colorado Springs, Colorado, utilizes a variety of energy-saving strategies.

**E**nergy is invisible. When you walk onto a school campus, you don't see energy being consumed. When you walk inside a school building, you don't see the low-emissivity film that has transformed the thermal efficiency of the windows. You don't see the layers of insulation inside the building's roof and walls.

But what you don't see matters. In addition to saving your school district money, energy efficiency is a commitment to reducing energy consumption, ensuring that the limited resources we have will be available for generations to come.

Energy codes can ensure that those things happen. Energy codes are like speed limits: they set boundaries

and they help us set expectations and understand the rules for living in an environmentally conscious society. They also set minimum standards of performance for the various parts of a building, including the insulation, roofing, heating and air-conditioning equipment, lighting, building airtightness, and so on. Investing in energy efficiency on the front end of a project will pay dividends as time goes on.

Although local jurisdictions require that projects meet the energy code, the code itself should be considered the minimum necessary for compliance. There is no penalty for exceeding energy code requirements, and in some cases, doing so can save even more over the long haul.



Lake Hamilton Intermediate School in Hot Springs, Arkansas, takes advantage of the benefits of metal roofing.

## Energy Codes and Facilities

Let's look at how energy codes apply to school buildings. Energy codes can influence the health and welfare of students, faculty, and staff. By requiring certain types of energy-compliant systems and products, the codes help us create interiors where the air is fresh, the environment is comfortable, and daylighting improves student performance.

Codes give school boards the green light to do what's right and invest in systems, services, and processes that most benefit the building users. Another value is the influence that codes play on life-cycle costs. Schools require large amounts of heating, cooling, and lighting. In addition, technology-based learning keeps electricity costs soaring. Minimizing energy use can sometimes have a higher up-front cost, but it can pay for itself over and over again.

For example, consider the cost of a roof. A typical black asphalt roof may be the cheapest at first glance, but the maintenance costs throughout its life might add up. Typical asphalt roofs last about 10 or 15 years, after which they require replacement. The dark-colored surface has low solar reflectance, which absorbs heat in the summer. Excess heat in the summer can result in higher air-conditioning costs.

An alternative to the typical asphalt roof is a metal roof with a reflective coating. This option may cost more up front, but it will have up to a 60-year life, and its surface will stay clean and reflective for decades.

With regard to thermal performance, a metal roof is an excellent option because of the amount of insulation that can be added inexpensively. Filling a roof purlin

cavity with insulation can significantly reduce energy costs that translate into decades of savings.

**Maximizing the comfort, health, and safety for those people, while being stewards of limited budgets, often requires tough decisions.**

## Long-Term Value

Energy codes for school facilities are basically the same as for other types of low-rise buildings, such as offices, churches, shopping centers, and medical clinics. The main difference is that schools are accountable to different authorities than a real estate developer, landowner, or real estate investment trust. Schools don't make money; they are community investments in people. Maximizing the comfort, health, and safety for those people, while being stewards of limited budgets, often requires tough decisions.

Operating costs are a serious concern for school boards. Careful first-cost decisions can lead to long-term value or long-term problems. Be sure to seek advice from a qualified design team before venturing into building improvements or new construction. And investigate your options carefully; ensure that you will get the best possible school for your money.

---

**Dan Walker, P.E.**, is a professional engineer and serves as the associate general manager of the Metal Building Manufacturers Association, headquartered in Cleveland, Ohio. Email: [dwalker@thomasamc.com](mailto:dwalker@thomasamc.com)