

**Testimony Provided to  
The Committee on Education and Labor  
U.S. House of Representatives  
“Modern Public School Facilities: Investing in the Future”**

**Testimony Provided by  
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# **Modern Public School Facilities: Investing in the Future**

## **A View from a Rural Iowa School District**

Honorable Chairman Miller and Committee Representatives, I am Paula Vincent, Superintendent of the Clear Creek Amana Community School District. Thank you for the opportunity to comment on the experience our school district has had as a result of receiving federal funds to support school infrastructure improvements. We are a small, mostly rural, school district of about 1450 students, located in east central Iowa. Federal supports for school infrastructure projects have impacted our communities in several noteworthy ways. Three areas have had a significant effect and are the subject of my remarks today: 1) public support for education, 2) student achievement, and 3) energy conservation.

### **Public Support**

I will begin my comments with the impact federal support for school facilities has had on public support for education in our district. Clear Creek Amana was fortunate to receive one of The Iowa Demonstration Construction Grants for \$500,000 in 2006. This grant program was proposed by Senator Tom Harkin of Iowa in 1998.

Subsequently, the grant became known as the Harkin Grants with Congress authorizing annual allocations of \$10,000,000, \$9,249,813, \$9,000,000, \$50,000,000, \$6,954,499, \$6,958,699, and \$14,880,000, with grant periods running through September 30, 2008. The purpose of this grant program was to help school districts correct fire safety problems and to help school districts leverage local resources to construct new schools or modernize existing buildings. The Iowa Department of Education administered this

competitive grant process, requiring a seventy-five percent local match for any dollars awarded.

We believe the receipt of the half million dollar Harkin grant was helpful to our district in successfully passing a twenty-five and a half million dollar general obligation bond referendum to build two new schools. In Iowa, school districts must receive a super majority (sixty percent approval) to pass any bond issues. Our community did not have a history of passing bond referendums for school improvement prior to this latest attempt and had never passed a bond referendum on the first vote. Not only did the community approve the bond referendum on the first vote, but also broke previous voter turnout records. The federal support was one of the factors members of our community listed as a reason they voted in favor of the proposed bond referendum.

The positive success of the bond referendum led to additional community support from cities within the school district boundaries. For example, the City of North Liberty provided land for the new elementary school, street and utility access to the construction site and an additional half million dollars toward the construction of the new elementary school. Likewise, the City of Tiffin and the Iowa Department of Transportation are partnering with the district to widen the highway leading to the new high school. Using conservative estimates, the half million dollars of federal support leveraged an additional twenty-eight million dollars to improve the school facilities within the Clear Creek Amana District.

## **Student Achievement**

While it is exciting to have new schools under construction in our district, we all know that what really matters is the effect on student achievement. A growing body of research

has linked student learning and behavior, as well as staff morale, to physical building conditions. In fact, several studies have attributed as much as a 5 to 14 percentage point difference in achievement on standardized tests between students in facilities with poor conditions and students in facilities with excellent conditions.

### ***What the Research Says about School Facilities***

The Iowa Association of School Boards (IASB) compiled a summary of research addressing the impact of school facilities on student learning and concluded that good facilities appear to be important to student learning. A summary of this research is provided below.

### **Impact on Student Learning**

- ◆ A study of the District of Columbia school system found, after controlling for other variables such as a student's socioeconomic status, that students' standardized achievement scores were lower in schools with poor building conditions. Students in school buildings in poor condition had achievement that was 6 percent below schools in fair condition and 11 percent below schools in excellent condition. (*Building Conditions, Parental Involvement and Student Achievement in the D.C. Public School System*, Maureen M. Edwards, Georgetown University, 1992)
- ◆ Another study examined the relationship between building condition and student achievement in small, rural Virginia high schools. Student scores on achievement tests, adjusted for socioeconomic status, were found to be as much as 5 percentile points lower in buildings with lower quality ratings. Achievement also appeared to be more directly related to cosmetic factors than to structural ones. Poorer achievement was associated with specific building condition factors such as substandard science facilities, air conditioning, locker conditions, classroom furniture, more graffiti, and noisy external environments. (*A Study of the Relationship Between School Building Condition and Student Achievement and Behavior*, Carol Cash, Virginia Polytechnic Institute and State University, 1993)
- ◆ Similarly, a study of large, urban high schools in Virginia also found a relationship between building condition and student achievement. Indeed, the researcher found that student achievement was as much as 11 percentile points lower in substandard buildings as compared to above-standard buildings. (*Building Condition and Student Achievement and Behavior*, Eric Hines, Virginia Polytechnic Institute and State University, 1996)
- ◆ A study of North Dakota high schools, a state selected in part because of its relatively homogeneous, rural population, also found a positive relationship between school condition (as measured by principals' survey responses) and both student achievement and student behavior. (*Review of Research on the Relationship Between*

*School Buildings, Student Achievement and Student Behavior*, Glen Earthman, Council of Educational Facility Planners, International, 1995)

- ◆ A recent study of 24 elementary schools in Georgia attributed quality of school design to a 14.2 percent difference in third grade achievement scores and a 9.7 percent difference in fifth grade achievement scores on the Iowa Test of Basic Skills. (*Relationship of School Design to Academic Achievement of Elementary School Children*, University of Georgia, 2000)
- ◆ Heating and air conditioning systems appeared to be very important, along with special instructional facilities (such as science laboratories or equipment) and color and interior painting, in contributing to student achievement. Proper building maintenance was also found to be related to better attitudes and fewer disciplinary problems in one cited study. (“Facilities,” by Carroll McGuffey, in *Improving Educational Standards and Productivity*, edited by Herbert Walberg, 1982)
- ◆ Research indicates that the quality of air inside public school facilities may significantly affect students’ ability to concentrate. The evidence suggests that youth, especially those under age 10, are more vulnerable than adults to the types of contaminants (asbestos, radon, and formaldehyde) found in some school facilities (*Environmentally Related Health Hazards in the Schools*, James Andrews and Richard Neuroth, paper presented to Association of School Business Officials International, 1988).
- ◆ A research summary prepared by the University of Georgia in 1999 indicates several studies that show that adequate lighting and appropriate color choices play a significant role in the achievement of students, affecting their ability to interpret the written word and their attention span. (Summary by Elizabeth Jago and Ken Tanner, University of Georgia, April 1999, [www.coe.uga.edu/sdpl/sdpl.html](http://www.coe.uga.edu/sdpl/sdpl.html))

## Impact on Teaching

- ◆ Researcher Jerry Lowe interviewed state teachers of the year to determine which aspects of the physical environment affected their teaching the most. These teachers pointed to the availability and quality of classroom equipment and furnishings, as well as ambient features such as climate control and acoustics as the most important environmental factors. In particular, the teachers emphasized that the ability to control classroom temperature is crucial to the effective performance of both students and teachers. (*The Interface between Educational Facilities and Learning Climate*, Jerry M. Lowe, Texas A&M University, 1990)
- ◆ A study of working conditions in urban schools concluded that “physical conditions have direct positive and negative effects on teacher morale, sense of personal safety, feelings of effectiveness in the classroom, and on the general learning environment.” Building renovations in one district led teachers to feel “a renewed sense of hope, of commitment, a belief that the district cared about what went on that building.” In dilapidated buildings in another district, the atmosphere was punctuated more by

despair and frustration, with teachers reporting that leaking roofs, burned out lights, and broken toilets were the typical backdrop for teaching and learning.

- ◆ The study also found that “where the problems with working conditions are serious enough to impinge on the work of teachers, they result in higher absenteeism, reduced levels of effort, lower effectiveness in the classroom, low morale, and reduced job satisfaction. Where working conditions are good, they result in enthusiasm, high morale, cooperation, and acceptance of responsibility.” (*Working in Urban Schools*, Thomas Corcoran et al., Institute of Educational Leadership, 1988)

**Note:** Adapted from Impact of Inadequate School Facilities on Student Learning, U.S. Department of Education, 1999. Originally published in the *IASB Compass*, Volume VII, No. 1, Winter/Spring 2002

## **New Facility Impact at Clear Creek Amana**

Having resources to build new buildings allowed us to take advantage of the latest information regarding excellent school design. With the assistance of our architects and engineers and the cooperation of students, staff and community members we are confident that our new schools will provide improved learning environments for CCA students and staff. A few of our design features include:

- ◆ increased student and staff access to technology;
- ◆ updated science labs and equipment;
- ◆ flexible teaching and learning spaces with planned areas for small and large group instruction;
- ◆ common areas for teacher teams to plan, and study together;
- ◆ shared school and community spaces such as preschool, library/media center, physical fitness areas, before and after school space and shared gym space;
- ◆ and added safety features such as controlled building access with limited exterior door entry points, electronic door controls and sprinkler systems.

Again, federal support through the school construction grants played a key role in making these improvements to the overall safety and quality of the learning environment in our schools possible.

## **Energy Conservation**

Finally, I will provide information regarding the positive results our new school construction projects will have on environmental concerns. We were able to incorporate multiple energy saving features into the design of the new buildings by participating in the Commercial New Construction Program provided by the Weidt Group (Minnetonka, Minnesota) and funded by the local utility companies. As a part of this program, the district was able to consider various energy design strategies while the buildings were being planned. The different energy strategies were bundled together to create virtual buildings. Each virtual building model was run through a computer simulation that estimated the energy use of the building as a whole during a weather-normalized year and the results were compared to the same building as if it were building under the basic code standards. The data provided illustrated which strategies could offer the most savings in dollars, KWh and therms and the payback associated with each strategy.

Using this information, we were able to select energy strategies that balanced energy efficiency with short term and long term costs. Some of the strategies we selected include natural lighting in all classrooms, geo-thermal heating and cooling, motion sensors for room lights, and highly rated insulation materials for the roofs, walls and windows. The selected energy strategies in our new buildings resulted in building

performance models with a predicted 65% energy improvement compared with basic code standards

The benefits of building an energy efficient building include a cash rebate from the utility companies of about \$250,000 as well as lower operational costs for the lifetime of the new buildings. Many of the selected energy strategies also contribute to the quality of the learning environment (natural lighting, temperature controls in each classroom). We believe these energy-efficient strategies add significant investment value to the buildings and minimize many negative environmental impacts typically caused by new construction.

In summary, we have experienced a significant benefit from a modest federal investment in school infrastructure. We have every reason to believe our students will benefit from the improved learning environment in our new schools and we expect we will see some of this benefit in higher student achievement. Higher achievement by our nation's children ultimately translates to a brighter future for all of us when these children take their place as contributing members of the workforce and of the educated citizenry essential for a democratic society.