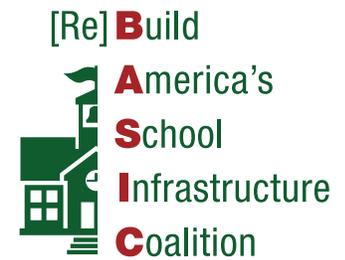


Education Equity Requires Modern School Facilities



The case for federal funding for school infrastructure

BuildUSschools.org

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Every day millions of elementary and secondary school children in the U.S. attend public school in deteriorated and obsolete facilities that harm their health and undermine achievement. Why? Because capital funding for public school facility infrastructure remains the most regressive element of public education finance.

Given strong interest in Washington on infrastructure investment, education advocates have a rare opportunity to remedy the deep and pervasive educational inequities in public school facilities. Getting public school facilities in a major federal infrastructure package will help close the education equity gap for disadvantaged students across America.

Our public school facility infrastructure needs upgrading:

- ❖ The National Center for Education Statistics reports that half of all public schools in the U.S. need at least one major facility repair.¹
- ❖ The American Society of Civil Engineers gives our public K-12 infrastructure a quality grade of “D+” in their 2017 Infrastructure Report Card.²
- ❖ The average public school building was built around 1968—nearly 50 years ago.³
- ❖ The *State of Our Schools* 2016 report documents a \$38 billion a year shortfall on public school infrastructure funding in the U.S.⁴

School facility inequity was a major complaint in the 1954 *Brown v Board of Education* case and remains a problem in communities across America today. Since 1973, equity advocates have gone to court in 45 states challenging the constitutionality of their education finance systems and

in many of these cases, funding for school facilities has been a major component of the challenge.⁵ Progress has been made due to court and legislative action in states like Arizona, Arkansas, California, Kentucky, Ohio, New Jersey, New Mexico, West Virginia, and Wyoming.

For the most part however, these remedies have fallen far too short. A harmful reality remains: poor and minority children are still much more likely to attend schools that have unhealthy, unsafe, and educationally inadequate facilities in desperate need of modernization.

- ❖ School districts with higher enrollments of students from low-income families are more likely to report their buildings in “fair” or “poor” condition.⁶
- ❖ School districts with higher enrollments of students from low-income and minority families invest thousands of dollars less per student in facilities capital improvements than districts in high-wealth communities.^{7,8}



School Facility Conditions Impact Education Equity

Decades of research confirm that the conditions and qualities of school facilities can positively or negatively impact students, teachers, and overall academic achievement.

“Structurally sound and well-maintained schools can help students feel supported and valued. Students are generally better able to learn and remain engaged in instruction, and teachers are better able to do their jobs, in well-maintained classrooms that are well-lit, clean, spacious, and heated and air-conditioned as needed. In contrast, when classrooms are too hot, too cold, overcrowded, dust-filled, or poorly ventilated, students and teachers suffer.”

- U.S. Department of Education, Office for Civil Rights⁹

In their review of the peer-reviewed literature, researchers at the Harvard School of Public Health conclude that the scientific case is clear that the school building is foundational to student success:

“The evidence is unambiguous - the school building impacts student health, thinking, and performance.”¹⁰

Student Achievement

A growing body of peer-reviewed research finds a relationship between school facility quality and student achievement. A 2002 review of the literature, compiled by Mark Schneider, the current director of the Institute of Education Sciences at the U.S. Department of Education, found that on average, researchers observed a difference in student achievement between above-standard buildings and sub-standard buildings to be 5-17 percentile points.¹¹ The studies cited in this review, and most studies done since this review, find significant correlations between poor structural, conditional, and aesthetic attributes of school

buildings and low student learning and achievement.¹² These attributes include lighting, temperature and thermal comfort, acoustics, indoor air quality, and other environmental factors.

A 2004 analysis of student achievement and indoor environmental compliance ratings in Los Angeles Unified School District (LAUSD), led by Jack Buckley, the current Vice President of Research and Evaluation for American Institutes for Research, found that fixing a school facility so it went from “worst” to “best” on the overall environmental compliance rating, correlated to a 36 point average increase in a school’s Academic Performance Index—a nearly 6% increase over the districtwide 2003 base.¹³

A 2004 study of 226 schools in Houston found that poor facility quality significantly reduced daily attendance and increased drop-out rates.¹⁴

A 2014 study by economists at the University of Chicago and Princeton University looked at the effect of school construction in New Haven, Connecticut on test scores, school enrollment, and home prices. They found that students moving into a rebuilt or renovated school saw strong gains (0.15 standard deviations) in reading scores.¹⁵

A 2017 study of LAUSD by UC Berkeley economists found similar results: moving students out of overcrowded and degraded school facilities and into new facilities realized gains in both standardized test scores and non-cognitive measures of educational quality. The researchers found that moving to a new school increases test scores by 10% of a standard deviation in math and 5% in English-language arts.¹⁶

Teacher Performance and Satisfaction

Researchers also find that school facility quality has a variety of effects on teachers.

A 2002 survey of Chicago Public Schools and the District of Columbia teachers (led by Buckley and Schneider, noted above) found that when teachers consider their school to be in poor physical condition, they are far more likely to report that they plan to leave their school or to leave teaching altogether compared to teachers working in facilities that they consider to be in good or excellent condition.¹⁷

A 2017 study led by a University of Michigan environmental health researcher found that improved ventilation and indoor air quality at schools improved teachers’ self-reported job satisfaction.¹⁸





Plastic over windows to insulate from cold.



Thus, good facility conditions can help improve the teaching experience and reduce the harmful effects of high teacher turnover. Poor school facility conditions can also be a barrier to teachers' basic delivery of education and to the implementation of any school reform or specialized curriculum.¹⁹ Teachers delivering 21st century education and preparing students for 21st century jobs need the physical instructional elements essential to modern curriculum, such as science labs, technology, and special education spaces. Aging school buildings that have not been modernized often lack these important modern educational features and spaces.

Educating the Whole Child: Health and School Climate

Poor or substandard school buildings and grounds negatively affect the health of children and adults in schools, which in turn negatively affects their academic performance.²⁰

Exposures to mold, poor ventilation, uncomfortable temperatures, inadequate lighting, overcrowding, and excessive noise have all been found by researchers to harm student and teacher health, contribute to absenteeism and affect cognitive abilities – all of which affect academic achievement.²¹ Dampness and mold in school buildings exacerbate children's' and teachers' asthma symptoms and contributes to absenteeism.²² Both children and teachers perform better with increased fresh air ventilation.²³

Researchers and education practitioners now see school climate and positive social relations as necessary ingredients for academic achievement.²⁴ Researchers find that facility quality plays a strong role in shaping a schools' social climate. Properly planned, designed, and maintained school facilities promote the health, well-being, and performance of children and adults in schools and even encourage children to want to come to school.²⁵

In a 2016 study of 236 New York City middle schools, Cornell University environmental psychologist Lorraine Maxwell found that school building condition is linked to school climate and attendance. Higher ratings of school social climate—which were correlated to better building

conditions, as assessed by building professionals—predicted lower student absenteeism, which in turn predicted higher standardized test scores.²⁶

State Courts Agree: School Facilities Impact Education Quality and Equity

Of the 45 states that have had school finance cases, 17 state courts have heard school facility inequity complaints and have recognized the detrimental effect of poor quality school facilities, citing disparities in school facilities as a violation of student rights and as evidence of the need for change in the state's school facility funding formula.

State courts have determined that school facility quality is so integral to the basic educational experience that mechanisms that perpetuate facility inequities must be struck down.

In New Jersey's *Abbott v. Burke* (1985), the court articulated how the quality of facilities—the “need for maintenance, treatment of asbestos services, and heating of older, less energy efficient school facilities”—should be equally considered with other aspects long-recognized as critical to the schooling environment: qualified teachers, achievement levels on standardized tests, and dropout rates.

In New York's *Campaign for Fiscal Equity, Inc. v. State* (1995), the court wrote that, “Children are entitled to minimally adequate physical facilities and classrooms which provide enough light, space, heat, and air to permit children to learn. Children should have access to minimally adequate instrumentalities of learning such as desks, chairs, pencils, and reasonably current textbooks.”

In Wyoming's *Campbell County School District v. State* (1995), the court held that “deficient physical facilities deprived students of equal education opportunity, and any financing system that allowed such deficient facilities to exist was unconstitutional.”

In Ohio's *DeRolph v. State* (1997), the court wrote, “A thorough and efficient system of common schools includes facilities in good repair and the supplies, materials, and funds necessary to maintain these facilities in a safe manner.”

School Facilities are Vital Community Assets

Not only are school facilities important to student and teacher health and performance, they are vital community assets. Public school facilities, often as the centers of their communities, act as “equity hubs” for numerous social service programs. The federally funded Free and Reduced Price Lunch Program, the \$18 billion (2017) program that serves meals to children from families with incomes at or below 130% of the poverty is delivered in public schools.²⁷

These programs have an established record of preventing obesity and of helping improve academic achievement and overall child health across the country. School Based Health Clinics help overcome health inequities in communities with high poverty levels; and after school care keeps children safe and allows parents to keep working. Safe, modern, and healthy school facilities are vital to the success of these and other social service programs.

Designing the Next Generation of Schools as Centers of Community

The process of planning, advocating for, and designing school facilities can build social capital and foster the rebuilding of trust in communities undermined by racism, discrimination, and neglect. Better school facilities can encourage community pride and help economically distressed communities restore property values. With new federal funding a new generation of school buildings can be designed and built, that are safer, healthier, greener and more resilient in the face of natural disasters.

These buildings can be designed for use by the entire community and for people of all ages from toddlers in day care to senior citizens in support programs for the elderly. Smart communities can save money and leverage other sources of funding by building joint-use facilities that link public schools to public libraries, health clinics, and YMCA's.

School Facilities Support Education Equity in their Communities

- ❖ 14.6 million school breakfasts and 30.4 million lunches are served daily from public school kitchens and cafeterias. 7.3 billion meals are served annually.²⁸
- ❖ More than 2 million children receive health care at 2,134 School Based Health Clinics in 49 states.²⁹
- ❖ 7.4 million school children attend after-school programs.³⁰
- ❖ Over 3 million Americans take adult literacy and ESOL classes at public schools.³¹
- ❖ Thousands of schools throughout the country are designated and serve as emergency evacuation centers in case of natural disasters.
- ❖ School teachers, staff, and nurses are often on the front lines when it comes to addressing a community in crisis such as the current national opioid epidemic.³²
- ❖ AmeriCorps volunteers, including 220,000 Senior Corps Volunteers, serve in 12,000 schools including one out of every four low-performing schools.³³
- ❖ Hundreds of schools are designed as joint use facilities linked to public libraries, YMCA's, and police sub-stations.³⁴
- ❖ On Election Day, millions of Americans cast their ballots at their local public school.



Facility Inequity Is Built into the Public Education System

Across the country, local school districts and their communities work hard to invest in their school facilities so that they accommodate enrollment growth and appropriately support their students and communities. However, the poorest school districts with the most acute facility needs have struggled to keep pace, resulting in outdated and unhealthy school buildings that drain district budgets and undermine school climate and student achievement.

Capital funding for public school facilities remains the most regressive element of public education finance.

While education advocates have made major progress to get state and federal education program funding more equitable, this has yet to be applied to public school facilities, as the table below reveals.

On average, States pay for 45% of local education program costs but only pay for 18% of public school facility capital costs on average. Twelve states provide zero funding to schools for capital costs. The Federal government contributes 10% on average for local education program costs (mainly under Title I), yet only provides less than 1% of total capital expenditures by U.S. public school districts each year (mainly through FEMA for disaster recovery). Thus, on average, local school districts in the U.S. are responsible for about 45% of their annual operating budget (which pay for teachers, staff, administration, materials, and facility maintenance and operations), but are responsible for 82% of their capital budget on average, which covers building new schools and renovating existing facilities.^{35,36}

Under this system, local school districts shoulder the vast majority of their capital facilities costs. As a result, poor and low-wealth school districts are too-often unable to maintain their buildings and grounds in good repair or to modernize their schools for 21st century education programs. The inequity of the system is rooted in the dependency on taxing local property value, which is much lower in low-wealth school districts.

Contrasts in Pennsylvania Can Be Found Across the Nation

Overbrook High School in Philadelphia was built in 1926 and called the “Castle on the Hill” with such notable alumni as Wilt Chamberlin and Will Smith. At this high school, students must manage with outdated and obsolete science labs and a school needing \$26 million to address building deficiencies just to be considered in good repair.

But just a few miles away in suburban Montgomery County, students at Lower Merion High School attend a state-of-the-art facility built in 2010. Lower Merion “includes state-of-the-art classrooms and science labs, lecture hall with tiered seating, an 850-seat auditorium/theater, a greenhouse for environmental and horticultural studies, a swimming pool, television studio, multi-media production facilities, a musical instrument digital interface (MIDI) lab, an open-air courtyard and a two story library.”

Poor communities whose school facilities need the most attention, receive the least school facility funding. A national study of more than 146,000 school facility improvement projects from 1995 to 2004 found that the projects in schools located in high-wealth zip codes had more than three times the capital investment than the schools in the lowest-wealth zip codes. The researchers concluded that whereas many students from affluent districts attend school in bright, comfortable, and healthy facilities, students in lower wealth districts are likely to attend school in dilapidated, obsolete, and unhealthy facilities that pose substantial obstacles to learning and overall student well-being.³⁷

Local Communities Shoulder 82% of School Capital Facilities Outlay

Average Annual Share of Education Program & Capital Facilities Outlay

	EDUCATION PROGRAM FUNDING	CAPITAL FACILITIES OUTLAY
Local	45%	82%
State	45%	18%
Federal	10%	<1%
Total	100%	100%

Source: NCES and State of Our Schools 2016

Inequities Increase When Disaster Strikes

The Federal Emergency Management Agency (FEMA) has been spending billions of dollars since Hurricane Katrina to rebuild school buildings destroyed by hurricanes, floods, fires, and other natural disasters across the country. According to a 2017 FEMA School Natural Hazard Safety report, “older school facilities are particularly vulnerable to natural disasters and in most cases school administrators do not have the financial resources to address these vulnerabilities” even though they have “a moral, and in many cases, legal responsibility to make these schools more resilient to disaster.”⁴⁰

The average American school in 2012 was 44 years old and most were designed to meet outdated building codes and standards. These older schools are more vulnerable to natural disasters, and their students are more likely to experience adverse effects, such as dislocation and prolonged school closures. In 2005 a total of 372,000 students were dislocated in Louisiana as a result of



Hurricane Katrina and an estimated 160,000 were dislocated for months and years afterwards adversely impacting their academic careers for years to come. However, with new federal funding we can invest more dollars in mitigation projects that make these buildings more resilient.

Low-income School Districts Cannot Do It Alone

Given their fiscal constraints, low-property-wealth districts find it difficult to borrow the capital funds needed to invest in the long-term stability and enhancement of their school facilities. As a direct result, their facilities deteriorate rapidly. Because they lack access to capital dollars, these districts end up making expensive emergency and short-term repairs out of their operating budgets — thus using the money that otherwise goes to pay teachers, purchase

instructional equipment, and other day-to-day educational necessities.

A 2015 study by UC Berkeley researchers found that this is a pervasive problem across California — districts serving low-income families spend a higher proportion of their total education budget per student on the daily upkeep, operation, and repair of their facilities than do high-wealth districts.³⁸ As a result, low-wealth school districts often get



trapped in a vicious cycle, spending more from their general operating budget for facility upkeep and emergency repair because they have limited access to capital funds.

In total, our nation is underspending on school facilities each year by \$46 billion – a 32% annual shortfall that compounds over time leaving our school facilities increasingly run-down.

The 2016 *State of Our Schools* report found alarming school facility funding gaps across the country. Comparing historic spending on public school facilities against building industry and best-practice standards for responsible facilities stewardship, the authors estimate that nationally spending falls drastically short each year: \$8 billion short for M&O and \$38 billion short for capital construction. **In total, our nation is underspending on school facilities each year by \$46 billion – a 32% annual shortfall that compounds over time leaving our school facilities increasingly run-down.**

It appears that this spending gap has worsened in recent years. States and localities cut capital spending for elementary and secondary schools nationally by nearly \$21 billion, or 26 percent, between fiscal years 2008 and 2016, after adjusting for inflation.³⁹

Without reform to the structure of capital financing for school districts, students, teachers, and communities served by lower wealth districts will continue to be disproportionately and adversely affected by these deep, structural inequities. This is particularly true for low-wealth rural districts, which are among the smallest districts in

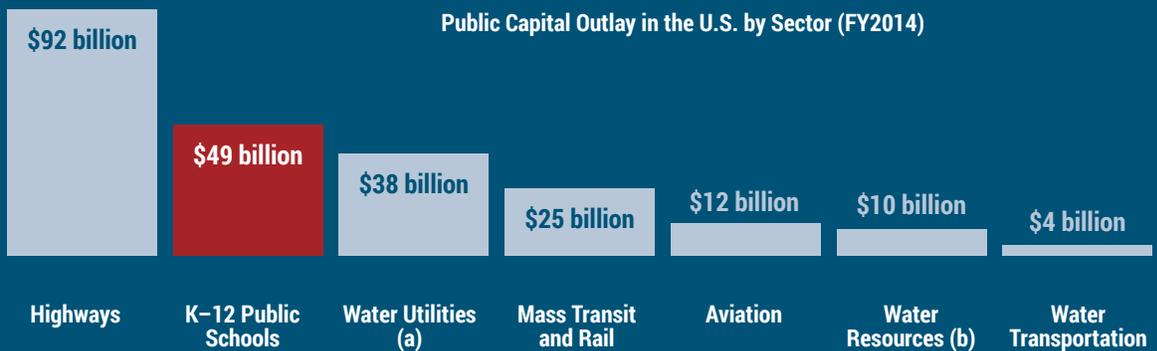
terms of enrollment size, even though they may serve children over a large geographic area. Not only are public school facilities important because of their impact on educational opportunities and community vitality, they are important because of their scale in our nation.

During the school year, one-sixth of the entire U.S. population spends their day in a public school, including 50.7 million children and 3.2 million teachers.⁴¹ Each year, school districts in the U.S. spend a total of about \$100 billion to operate, maintain, and expand their school facility infrastructure.⁴² America’s public schools represent the 2nd largest public infrastructure sector in the nation after highways.



Federal funding for public education infrastructure is essential. Deteriorated conditions have adverse impacts on children, education and communities. The scale of our public school infrastructure is massive, even as it is dispersed throughout our states. The inequitable system for modernizing our nation’s public school buildings and grounds requires shared local, state and federal funding responsibilities to address these challenges.

Schools are the 2nd Largest Public Infrastructure Sector



Water Resources (b) includes water containment systems (dams, levees, reservoirs, and watersheds) and sources of freshwater (lakes and rivers). Water Utilities (a) includes water supply and wastewater treatment facilities. Based on data from the Office of Management and Budget and the Census Bureau, CBO Public Spending on Transportation and Water Infrastructure, 1956-2014, March 2015 report. PK12 Public Schools data is 20 year average annual capital outlay for school construction. From Filardo, M. 2016. *State of Our Schools: America's K-12 Facilities 2016*. Washington, D.C.: 21st Century School Fund and Center for Green Schools.



Fair Funding for School Facilities

In the 1960s, Title I changed the education landscape for children from low-income families; in the 1970s, the Individuals with Disabilities Education Act (IDEA) changed the opportunities for children with disabilities. In the 1990s, Title IX changed the playing field for girls in athletics. The inclusion of funding for public school facilities targeted to the nation's lowest-wealth school districts in national infrastructure policy can have similarly dramatic effects on America's children and on distressed communities in the near term and for generations to come.

Federal funding for public school facilities in high-need, low-wealth school districts will help reduce structural inequities in the system. Targeted federal funds will ensure that states and districts are able to provide poor and minority students in urban and rural America safe, healthy, and modern facilities that will lay down the foundation for academic success. These investments will also strengthen the economy of the communities they are in. With a new infusion of federal dollars, high-need and low-wealth communities can also update and modernize their schools.



Publics' Views About Priorities

Observing first-hand the long-standing and persistent structural inequities in U.S. public school facility infrastructure, the authors, in cooperation with others, have launched the **[Re]Build America's School Infrastructure Coalition (BASIC)**. BASIC is a non-partisan coalition of civic, government, and industry organizations who support federal funding to help underserved public school districts modernize and construct public school facilities. We believe that ALL children should attend healthy, safe, and educationally appropriate school facilities. It's BASIC.



BASIC is working to amplify public voices on the need for federal investment in our nation's public school facilities

7 in 10 Americans Support Increased School Infrastructure Spending

<i>By Party Identification % saying extremely or very important priority</i>	TOTAL	REPUBLICAN	DEMOCRAT	INDEPENDENT
Improving bridges	72%	73%	75%	69%
Improving school buildings	72%	68%	76%	75%
Improving roads	71%	77%	70%	70%
Improving the power grid	58%	61%	59%	55%
Improving airports	44%	41%	46%	44%
Deepening and clearing harbors and rebuilding ports	37%	42%	33%	38%
Improving and expanding access to high-speed broadband internet	32%	21%	39%	36%

POLITICO/Harvard T.H. Chan School of Public Health, Americans' Views of President Trump's Agenda on Health Care, Immigration, and Infrastructure, February 21 – 25, 2018. Base: U.S. adults.

and build support for federal policies that prioritize public school infrastructure in our country's broader infrastructure agenda. We seek \$100 billion over 10 years to modernize our public school facilities — creating an estimated 1.8 million American jobs.

The American public agrees with BASIC and our growing membership that we need federal investment to ensure that every student and teacher attending public school be in a healthy, modern facility. Americans strongly support more federal infrastructure spending; a recent Politico/Harvard poll found that 72% of all Americans, including 68% of all Republicans, support spending infrastructure dollars on public school facilities.

Traction on Capitol Hill

[Re]Build America's School Infrastructure Coalition (BASIC) members see traction on Capitol Hill for public school facility funding to be included in a federal infrastructure package. Since late 2017, we have met with over 120 congressional offices. Here is what we have learned:

- ❖ There is a growing awareness among Members of Congress and their staff of the deep inequities structured into how public school facilities are funded, but many Members of Congress are unaware that public school facilities are the nation's second largest public capital infrastructure investment sector after highways.

- ❖ Already, 116 House Members and 15 Senators are co-sponsoring legislation in the 115th Congress to dedicate \$100 billion over the next 10 years for public school facilities construction and modernization.⁴³

- ❖ In May 2018, Senate and House Democratic leaders put forward the Democratic infrastructure pledge. This pledge included \$50 billion for education facilities, including \$40 billion for public school facilities and \$10 billion for community colleges.⁴⁴

- ❖ There is growing Republican support for schools in an Infrastructure package. Senator Murkowski (R-AK) signed onto a 2018 letter organized by Senator Reed (D-RI) asking that schools be included in any infrastructure package.⁴⁵ Representative David Joyce (R-OH) secured signatures from 14 Republican colleagues in a 2018 letter to President Trump, also making the case for public schools in any Administration infrastructure proposal.⁴⁶

Public education will not get federal infrastructure funds unless a solid case is made for national needs. Educators, students, public officials, communities, and building professionals must articulate the important role federal funding can — and should — play to remedy entrenched inequities in our public school facilities across America.

A Call to Action

- ➔ **Encourage other organizations and your school districts to join BASIC:** BuildUSschools.org
- ➔ **Teachers and Students: Share stories and photos of conditions in your schools on Twitter and on Facebook.** @BuildUSschools, #FixOurSchools.
- ➔ **Educators and Parents: Contact elected representatives in Washington, D.C. and ask that they support federal funds for public school facilities.**
- ➔ **Help Fund BASIC: Contributions support advocacy, constituency building, and communications.**

Authors

Mary Filardo, Founder and Executive Director, 21st Century School Fund

Mary Filardo founded the 21st Century School Fund (21CSF) in 1994 as the parent and community voice for improving the policy and practice of planning, design, construction, management and financing for public school facilities in low wealth communities. 21CSF has engaged in research, policy development, technical assistance, innovation, and constituency building over nearly 25 years to these ends. Mary is the 1979 Truman Scholar from the District of Columbia and holds a BA in philosophy and mathematics from St. John's College and an MPP from the University of Maryland, College Park.

Jeffrey M. Vincent, Director of Public Infrastructure Initiatives, Center for Cities + Schools, University of California, Berkeley

Jeffrey M. Vincent co-founded UC Berkeley's Center for Cities + Schools in 2004, a policy research and technical assistance center promoting high quality education as an essential component of urban and metropolitan vitality to create equitable, healthy, and sustainable cities and schools for all. Vincent has studied public school facilities planning and finance for fifteen years and holds a PhD in City and Regional Planning from Berkeley.

Kevin Sullivan, Senior Advisor, 21st Century School Fund

Kevin Sullivan has over two decades of experience working in Congress and the Executive Branch. He began his career working at ACTION, the national volunteer service agency, before moving to Capitol Hill where he spent fourteen years finally ending his career working for the Senate Majority Leader and Senate Democratic Policy Committee. He would serve eight years as a Senior Advisor and Speechwriter to the U.S. Secretary of Education Richard Riley in the Clinton Administration working on school modernization, the creation of the E-Rate and religion in public schools. Kevin continued his work on school modernization helping to organize three National Summits on School Design for the American Architectural Foundation.

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The [Re]Build America's School Infrastructure Coalition (BASIC) is a non-partisan coalition of civic, government, and industry organizations who support federal funding to help underserved public school districts

modernize their facilities. We believe that ALL children should attend healthy, safe, and educationally appropriate school facilities. B.A.S.I.C. is fighting to secure significant Congressional support to prioritize public school infrastructure into the nation's larger infrastructure agenda and **invest \$100 billion to modernize our public school facilities over 10 years** – creating an estimated 1.8 million American jobs.

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