

Date of Hearing: June 28, 2023

ASSEMBLY COMMITTEE ON EDUCATION
Al Muratsuchi, Chair
SB 515 (Stern) – As Amended June 12, 2023

SENATE VOTE: 36-0

SUBJECT: School facilities: shade structures

SUMMARY: Exempts the installation of shade structures on the Division of the State Architect's (DSA's) approved pre-check design list from requiring school districts, county offices of education (COEs), charter schools, or community colleges to provide an accessible path of travel, as required by the California Building Standards Code (Building Code, or Title 24). Specifically, **this bill:**

- 1) Authorizes that projects solely for the installation of free-standing, open-sided shade structures included on the DSA approved pre-check design list, that do not exceed the valuation threshold for alterations, structural repairs, or additions to existing buildings, on a school district, COE, charter school, or community college campus are not required to comply with Section 202.4 of Chapter 11B of Part 2 of Title 24 of the California Code of Regulations (CCR).
- 2) Requires nothing in this section to supersede any provisions of federal law or any regulation adopted pursuant to federal law.

EXISTING LAW:

- 1) Defines "construction or alteration" for purposes of school facilities projects to include any construction, reconstruction, or alteration of, or addition to, any school building. (Education Code (EC) 17294 and 81130.5)
- 2) Requires the Department of General Services (DGS) to pass upon and approve or reject all plans for the construction or, if the estimated cost exceeds \$100,000, the alteration of any school building. (EC 17295 and 81133)
- 3) Generally requires the governing board of each school and community college district, before adopting construction or alteration plans, to submit the plans to DGS for approval and pay all associated fees. (EC 17295 and 81133)
- 4) Requires construction projects over \$195,358 (cost threshold) to provide "an accessible path of travel" from the building entrance to the project location. (24 CCR § 11B-202.4)
- 5) Requires that an alteration that affects or could affect the usability or access to an area of a facility that contains a primary function to be made so as to ensure that, to the maximum extent feasible, the path of travel to the altered area and the restrooms, telephones, and drinking fountains serving the altered area are readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs, unless the cost and scope of such alterations is disproportionate to the cost of the overall alteration. Requires that alterations made to provide an accessible path of travel to the altered area will be deemed

disproportionate to the overall alteration when the cost exceeds 20% of the cost of the alteration to the primary function area. (28 Code of Federal Regulations (CFR) § 35.151)

- 6) Requires, when the adjusted construction cost, as defined, is less than or equal to the current valuation threshold, as defined, the cost of compliance with Section 11B-202.4 of 24 CCR to be limited to 20% of the adjusted construction cost of alterations, structural repairs or additions. When the cost of full compliance with Section 11B-202.4 would exceed 20%, compliance shall be provided to the greatest extent possible without exceeding 20%. (24 CCR § 11B-202.4)
- 7) Prohibits the obligation to provide an accessible path of travel from being evaded by performing a series of small alterations to the area served by a single path of travel if those alterations could have been performed as a single undertaking. (28 CFR § 35.151)
- 8) Requires, if an area containing a primary function has been altered without providing an accessible path of travel to that area, and subsequent alterations of that area, or a different area on the same path of travel, are undertaken within three years of the original alteration, the total cost of alterations to the primary function areas on that path of travel during the preceding three year period shall be considered in determining whether the cost of making that path of travel accessible is disproportionate. (28 CFR § 35.151)
- 9) States that an area that has been altered without providing an accessible path of travel to that area, and subsequent alterations of that area or a different area on the same path of travel are undertaken within three years of the original alteration, the total cost of alterations for the preceding three-year period shall be considered in determining whether the cost threshold has been met. (24 CCR § 11B-202.4)
- 10) Establishes the School Facility Program (SFP) under which the state provides general obligation bond funding for various school construction projects, including new construction, modernization, joint-use facilities, and programs to specifically address the construction needs of charter schools, career technical education facilities, and seismic mitigation.
- 11) Requires the California Department of Education (CDE) to establish standards for use by school districts to ensure that the design and construction of school facilities is educationally appropriate, promotes school safety, and provides school districts with flexibility in designing instructional facilities. (EC 17251(c))
- 12) Requires, the DGS, under the police power of the state, to supervise the design and construction of any school building or the reconstruction or alteration of or addition to any school building to ensure that plans and specifications comply with the specified rules and regulations, and to ensure that the work of construction has been performed in accordance with the approved plans and specifications, for the protection of life and property. (EC 17280)

FISCAL EFFECT: According to the Senate Appropriations Committee, pursuant to Senate Rule 28.8, negligible state costs.

COMMENTS:

Need for the bill. According to the author, “Outdoor activity is one of the most important aspects of a child’s healthy development and educational success. Adequate time outdoors helps to mitigate stress and inattention, as well as improving cognitive development and mental health. Children who attend schools in urban areas built with heat-retaining materials are at a heightened risk of heat-related illnesses, poor health outcomes, and a reduction in their ability to learn. Climate change and global warming have made it more difficult to reap the benefits of schoolyard activities without adequate shading, which mitigates extreme heat and reduces ambient temperatures. These problems are most acutely felt in historically underserved communities, which already suffer from extreme heat and lack of greenery. We critically need to enable schools to quickly and cost-effectively build adequate schoolyard shading.”

Accessible path of travel required by the Building Code. The Building Code requires, when alterations or additions are made to existing buildings or facilities, an “accessible path of travel” to the specific area of alteration or addition to be provided. An accessible path of travel is required to include 1) a primary entrance to the building or facility, 2) toilet and bathing facilities serving the area, 3) drinking fountains serving the area, 4) public telephones serving the area, and 5) signs. If the project site already meets the accessible path of travel requirements, no improvements are required to be made. Similar federal requirements are in place to provide an accessible path of travel in order to meet the requirements of the Americans with Disabilities Act.

Federal regulation requires that there is deemed to be a disparity to the overall alteration when costs exceed 20% of the cost to the alteration to the primary function area. State Building Code requires that when construction projects costs are less than or equal to the “valuation threshold” (\$195,358 for the year 2023), the cost of the required improvements is limited to 20% of the construction cost; however, when construction costs are more than the valuation threshold, the cost of the required improvements may exceed 20%. The enforcing agency may determine that the cost of compliance with the accessible path of travel requirements is an unreasonable burden then full compliance is not required, but the cost of compliance must be at least 20%. Therefore, in specified projects over the valuation threshold, federal requirements establish a ceiling and state requirements establish a floor for costs related to meeting accessibility of path requirements.

Federal and state requirements further require that if an area has been altered without providing an accessible path of travel to that area, and subsequent alterations of that area of a different area on the same path of travel are undertaken within three years of the original alteration, the total cost of the alterations to the areas on that path of travel during the preceding three-year period shall be considered in determining whether the cost of making that plan of travel accessible is disproportionate. According to the author’s office, these retroactive alterations significantly increase the total cost of shade structure projects beyond what schools budget for. As a result, schools and community colleges are disincentivized from constructing them in the first place. This bill would exempt specified projects from meeting the state requirements, while still requiring adherence to federal requirements, thus authorizing these projects to utilize the federal ceiling for related path of travel improvement costs, rather than the state floor.

The Field Act. All school facilities must be built in compliance with specified earthquake safety standards, commonly known as the “Field Act.” The Field Act was enacted following a severe

earthquake in Long Beach in 1933. The Field Act requires a comprehensive design specification and construction inspection process for K-12 public school educational facilities. Community college facilities may be constructed in accordance with either the Field Act or the California Building Standards Code.

The Field Act requires the DSA (within DGS) to review the construction plans for school buildings and requires school districts to hire onsite construction inspectors to ensure compliance with the structural safety standards. School and community college construction contracts may only be awarded after DSA approval of the plans and specifications on which the contracts are based.

Plan review for construction projects. The DSA reviews plans for public school construction and certain other state-funded building projects to ensure that plans, specifications, and construction comply with the Building Code. The majority of DSA’s plan review and construction oversight focuses on new construction and alteration projects for California school and community college districts. DSA’s plan review ensures the project’s compliance with code requirements related to:

- Structural safety, ensuring that facilities meet the high standards set in the Field Act to withstand an earthquake;
- Fire and life safety, addressing the safety of occupants in buildings, as related to fire resistive building materials, fire alarms, fire suppression equipment, safe occupant egress, and firefighting equipment access;
- Access compliance, ensuring that public schools and state-funded construction projects meet accessibility requirements for people with disabilities; and
- Energy efficiency, including compliance with applicable California Green Building Standards Code requirements for sustainability.

State Architect’s Pre-Check Approval Process. The DSA maintains a pre-check design list that includes over 25 “off the shelf” shade structures that schools and community colleges can install according to an expedited review and approval process. The pre-check approval process is intended to streamline DSA plan review by providing a procedure for approving the design of commonly used structures prior to the submittal of plans to DSA for construction projects. The pre-check approval process allows designers to incorporate designs for structures that have already been “pre-checked” by DSA into their plans for actual site-specific construction projects. This bill would not exempt school district projects altogether from the DSA plan review process, but only from the review of the shade structure itself. Reviews would likely continue to include fire and life safety, and access compliance at a minimum. DSA notes in the document, *IR A-22 Construction Projects and Items Exempt from DSA Review*, “When authorizing construction of exempt projects, the school district assumes responsibility to assure compliance with all code provisions.”

Climate change impacts in California. California’s climate is generally expected to become hotter, drier, and more variable over the coming decades, increasing the risk of catastrophic wildfires, droughts, floods, extreme weather, biodiversity loss, and sea level rise. California’s Fourth Climate Assessment estimates the economic cost to California for these losses by 2050 will be over \$100 billion annually. Average global temperatures have increased since 1895, with

the fastest relative increase beginning in the 1980s. Nine of the ten hottest years recorded have occurred in the last decade. In California, the statewide average temperature is predicted to increase 1.9°F by 2025 and 4.6°F by 2050. Populations in cooler parts of the state, particularly along the coast, are generally at a greater risk for health-related illness because they are less acclimatized to heat, people may be less aware of behaviors to reduce exposure, and the built environment is not designed for warmer temperatures.

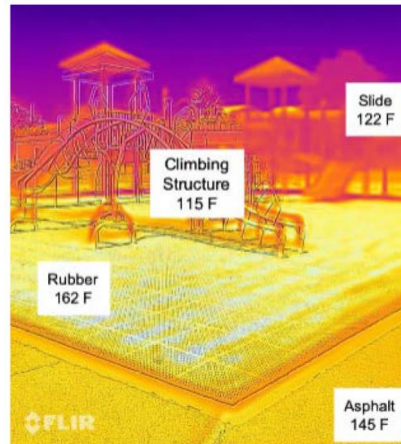
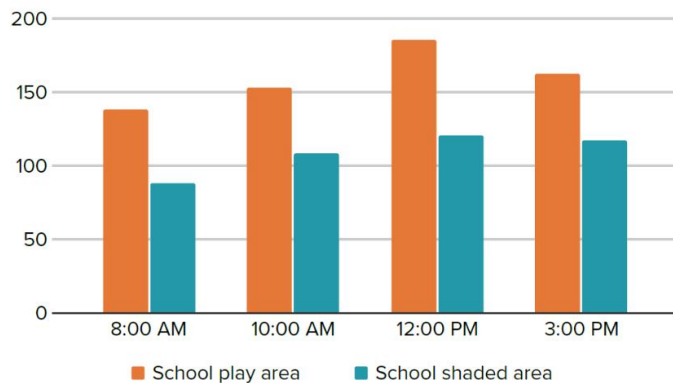
Urban areas have higher temperatures than in surrounding areas due to pavement and building materials that absorb sunlight and heat. This phenomenon is referred to as the urban heat island effect. Average daytime temperatures in urban areas are 1-6°F warmer than surrounding areas, but at night that increases to as much as 22°F as the heat is gradually released from buildings and paved surfaces. The urban heat island effect increases the health risks associated with extreme heat for populations living in those areas. A number of strategies can be used to mitigate the urban heat island effect, such as shading, green spaces, and the use of cool building and paving materials.

LEAs have diverse and unique energy and climate challenges. Public K-12 facilities in California include approximately 12,800 schools with more than 714 million square feet of space, making LEAs the largest category of building in the public building sector. Unlike other commercial end users, government buildings generally are not able to use energy savings to reinvest in more capital improvements, which leads public buildings to require regular cycles of investment to update facilities and replace less efficient appliances. While some school districts may seek local and state bond or tax funding to make these updates, other school districts may seek monies and tax incentives from the recently enacted Infrastructure Investment and Jobs Act (IIJA) and Inflation Reduction Act (IRA).

Shade in schoolyards. According to a 2023 University of California Los Angeles (UCLA) Luskin Center for Innovation policy brief, *Protecting California with Heat-Resilient Schools*, “despite some progress, the nexus of schools and extreme heat is an understudied and underfunded area deserving of more targeted attention. The amount of shade needed to provide a safe environment is not established, but research is underway to develop guidance for playground design and thermal comfort.” Figure 1 illustrates an example of the heat burden from high surface temperatures in schoolyards with and without shade.

Figure 1: Example of heat burden from high surface temperatures in school yards

Mean Radiant Temperature on a 90 F Day at an Elementary School in Watts (Degrees Fahrenheit)



Playgrounds and play equipment can reach dangerously high temperatures on hot days, but shade can help to reduce temperatures and mitigate risk. Source: V. Kelly Turner and Morgan Rogers, UCLA.

Source: *Protecting California with Heat-Resilient Schools*, UCLA Luskin Center for Innovation, 2023.

The impact of heat on student health and academic performance. As climate change intensifies, students are increasingly burdened by worsening heat waves, wildfires, drought, and other extreme weather-related events that hinder their well-being and academic development, according to a 2023 report from the Sean N. Parker Center for Allergy and Asthma Research at Stanford University and other partners, *Climate Resilient California Schools: Safeguarding Children’s Health and Opportunity to Learn in TK-12*. Children are particularly vulnerable to extreme weather conditions because their bodies are more sensitive and less capable of self-regulating temperature. According to a 2023 UCLA Luskin Center for Innovation policy brief, “Children also face a heightened risk of some health conditions, including asthma, when they experience extremely high temperatures. Overheating at schools can lead to hospital emergency department room visits and missed school days. Socially, children have less agency to take care of their needs by retreating to a cool area. And when considering the effects of hot protective sports equipment, heat-absorbing blacktops, and other intensifying factors, children often face particularly heightened heat exposures, and thus risk, at school.”

According to a 2022 Legislative Analyst’s Office report, *Climate Change Impacts Across California K-12 Education*, climate change has led to students experiencing greater learning loss, poorer academic outcomes, food insecurity, and traumatic mental health problems. Moreover, minority children who live in high-poverty neighborhoods are often exposed to more heat, which contributes to racial disparities in health outcomes. School facilities located in low-income neighborhoods have historically had fewer financial resources to invest in efficient HVAC systems, and may have play areas covered in asphalt without shade, thereby compounding student health risks from worsening climate change.

According to a 2020 Journal of Human Resources article, *Hot Temperature and High Stakes Performance*, hot temperature reduces performance by up to 13% of a standard deviation and leads to persistent impacts on high school graduation status, despite compensatory responses by teachers who selectively upward manipulate grades after hotter exams. According to a 2020 American Economic Journal: Economic Policy article, *Heat and Learning*, students of color and students in lower-income areas are the most affected by heat-driven learning losses, exacerbating

racial and income-based achievement gaps. It is estimated that 5% of the nationwide gap in academic achievement between white and Black students is due to heat and air conditioning disparities.

California's Extreme Heat Action Plan. Existing law requires the Natural Resources Agency to update the state's climate adaptation strategy every three years. In updating the strategy, the need for an interagency approach to extreme heat was identified, and therefore the state updated its extreme heat guidance and recommendations to create California's Extreme Heat Action Plan.

California's Extreme Heat Action Plan was released by the Natural Resources Agency (NRA) in April 2022. The plan provides a strategic and comprehensive set of state actions to adapt and build resilience to extreme heat, including exploring the implementation of indoor and outdoor heat exposure rules for schools, supporting climate-smart planning in heat-vulnerable schools, promoting climate-appropriate shade tree cover and schools, and promoting increased use of green barriers between agricultural fields and schools.

Recommended Committee Amendments. *Staff recommends that the bill be amended as follows:*

- Clarify that specified specific shade structure projects are exempted from the valuation threshold related to alterations to the areas on the path of travel during the three-year lookback period.

Arguments in support. The Los Angeles Unified School District writes, "Children, especially those that attend schools in urban areas built with heat-retaining materials that are ill-equipped to shelter students from extreme heat, are at heightened risk of suffering heat-related illnesses, poor health outcomes, and a detrimental impact to their ability to learn, as excessive heat interrupts outdoor activity and exercise. Schoolyard shading mitigates the urban heat island effect and reduces ambient temperatures by at least 15 degrees, safeguarding children's physical and mental health and promoting educational progress. As school districts invest in greening projects, particularly in areas where students have the least access to parks or green space, regulatory barriers have made the installation of shade structures cost prohibitive. SB 515 reduces costs and streamlines the process for approving and installing free standing, open-sided shade structures that have been pre-approved by the Division of the State Architect."

Related legislation. AB 247 (Muratsuchi) of the 2023-24 Session would place the Kindergarten-Community Colleges Public Education Facilities Bond Act of 2024 on the 2024 statewide ballot, to be operative only if approved by voters at that election.

AB 384 (Calderon) of the 2023-24 Session would require the CDE to conduct a research study on recommended indoor air temperature ranges and temperature control standards for public schools, to compile a statewide inventory of heating and cooling systems and interventions in all public schools, and to develop policy recommendations for safe indoor air temperature standards for public school facilities.

AB 527 (Calderon) of the 2023-24 Session would require the CAL FIRE to provide grants to qualified entities to support school greening.

AB 1642 (Gipson) of the 2023-24 Session would require the CDE and the NRA, in consultation with the DSA, the OPSC, and any other appropriate state entities to facilitate an interagency and stakeholder engagement process to develop, on or before December 1, 2024, recommendations for a master plan for green schoolyards. Requires a report of the recommendations for a master plan for green schoolyards to be sent to the appropriate policy and fiscal committees of the Legislature on or before December 1, 2024.

AB 1653 (Sanchez) of the 2023-24 Session would require, no later than July 1, 2024, the California Interscholastic Federation (CIF), in consultation with the CDE, to develop guidelines, procedures, and safety standards for the prevention and management of exertional heat illness; and requires CIF to develop guidelines to identify the environmental conditions at which a school must limit and prohibit practice and play.

SB 28 (Glazer) of the 2023-24 Session would place the Public Preschool, K-12, and College Health and Safety Bond Act on the ballot for the March 2024 statewide primary election.

SB 394 (Gonzalez) of the 2023-24 Session would require, upon an appropriation by the Legislature for this purpose, the California Energy Commission (CEC), in consultation with the CDE, DSA, OPSC, and NRA, to facilitate an interagency process and stakeholder engagement to develop a Master Plan for Healthy, Sustainable, and Climate-Resilient Schools.

SB 499 (Menjivar) of the 2023-24 Session would require, a) all schoolsites and child care facilities to develop and implement an extreme heat action plan to plant shade trees, install a school garden, and plant a coniferous tree barrier; b) the next time the outdoor surfaces of a schoolsite are resurfaced or replaced, the schoolsite to replace low specific heat surfaces; c) the California Department of Education (CDE), in consultation with the California Department of Social Services (CDSS), to develop a template for an extreme heat action plan, make available a model program guidebook; and, d) the CDSS to identify a liaison for child care facilities.

AB 544 (O'Donnell) of the 2021-22 Session would have required LEAs to provide the CDE information related to each school facility, schoolsite, or school property owned or leased by the LEA. This bill was held in the Senate Education Committee.

REGISTERED SUPPORT / OPPOSITION:

Support

Association of California Construction Managers
California School Boards Association
California Teachers Association
Los Angeles Area Chamber of Commerce
Los Angeles County Office of Education
Los Angeles Unified School District
Santa Clara County School Boards Association

Opposition

None on file

Analysis Prepared by: Marguerite Ries / ED. / (916) 319-2087