

**OCCUPATIONAL SAFETY
AND HEALTH STANDARDS BOARD**

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**TITLE 8. CALIFORNIA CODE OF REGULATIONS****General Industry Safety Orders
New Section 3396**

(Published on March 31, 2023)

[Heat Illness Prevention in Indoor Places of Employment](#)

NOTICE IS HEREBY GIVEN that the Occupational Safety and Health Standards Board (Board) proposes to adopt the foregoing provisions of title 8 of the California Code of Regulations in the manner described in the Informative Digest, below.

PUBLIC HEARING

The Board will hold a public hearing starting at 10:00 a.m. on **May 18, 2023** in **Room 310** of the **County Administration Center, 1600 Pacific Highway, San Diego, California 92101**, as well as via the following:

- Video-conference at www.webex.com (meeting ID 268 984 996)
- Teleconference at (844) 992-4726 (Access code 268 984 996)
- Live video stream and audio stream (English and Spanish) at <https://videobookcase.com/california/oshsb/>

At this public hearing, any person may present statements or arguments orally or in writing relevant to the proposed action described in the Informative Digest.

WRITTEN COMMENT PERIOD

In addition to written or oral comments submitted at the public hearing, written comments may also be submitted to the Board's office. The written comment period commences on **March 31, 2023** and closes at 5:00 p.m. on **May 18, 2023**. Comments received after that deadline will not be considered by the Board unless the Board announces an extension of time in which to submit written comments. Written comments are to be submitted as follows:

By mail to Sarah Money, Occupational Safety and Health Standards Board, 2520 Venture Oaks Way, Suite 350, Sacramento, CA 95833; or

By e-mail sent to oshsb@dir.ca.gov.

AUTHORITY AND REFERENCE

Labor Code (LC) section 142.3 establishes the Board as the only agency in the State authorized to adopt occupational safety and health standards. In addition, LC section 142.3 requires the adoption of occupational safety and health standards that are at least as effective as federal occupational safety and health standards and permits the Board to prescribe, where appropriate, suitable protective equipment and control or technological procedures to be used in connection with occupational hazards and provide for monitoring or measuring employee exposure for their protection.

LC section 144.6 requires the Board to adopt standards regarding harmful physical agents (e.g. heat) that most adequately assure, to the extent feasible, that no employee will suffer material impairment of health or functional capacity even if such employee has regular exposure to the harmful physical agent for the period of the employee's working life.

This rulemaking was undertaken in response to Senate Bill (SB) 1167 (2016), which added section 6720 to the LC in which the Legislature specifically directs the Board to create and implement these standards for indoor heat illness prevention.

INFORMATIVE DIGEST OF PROPOSED ACTION/ POLICY STATEMENT OVERVIEW

On September 29, 2016, the Governor approved SB 1167 Employment safety: indoor workers: heat regulations. From February 2017 through February 2018, the Division of Occupational Safety and Health (the Division or Cal/OSHA) held three advisory meetings to develop a proposed regulation for minimizing heat-related illness and injury among workers in indoor places of employment. In addition, Cal/OSHA presented multiple discussion drafts, provided numerous opportunities for stakeholder comments and for solicitation of alternatives to the proposed regulation.

Currently, a number of existing title 8 standards address related requirements with respect to key factors in control of heat-related illness, including the development of an Injury and Illness Prevention Program (IIPP), provision of drinking water, and emergency first aid and medical response preparedness. These standards, which apply to various industry sectors, include sections 1512, 1524, 3203, 3363, 3395, 3400, 3439, 3457, 6251, 6512, 6969, 6975, 8420 and 8602(e). However, none of these standards specifically identify indoor heat as a hazard. The proposed standard includes a reference to the existing requirements of these standards along with specific control and training measures to reduce the risk of heat-related illness in indoor places of employment.

The proposal will ensure that employers with indoor places of employment will take preventive steps to require that workers have access to drinking water and cool-down areas, are closely observed during acclimatization, are trained, receive timely emergency aid, and in situations of significantly higher heat exposure are protected through mandatory assessment and control measures.

The specific changes are as follows:

New Section 3396. Heat Illness Prevention in Indoor Places of Employment.

The proposal creates a new section to improve employee safety and health related to heat illness in indoor places of employment. This regulation would also provide for access to drinking water and cool-down areas, require assessment and control measures, emergency response procedures, close observation during acclimatization, effective training, and a Heat Illness Prevention Plan (HIPP). The proposal includes the following specific requirements:

New Subsection 3396(a) Scope and Application.

Proposed subsection (a)(1) establishes the application of the proposed subsection to all indoor places of employment where the temperature equals or exceeds 82 degrees Fahrenheit when employees are present. The intended effect is to identify affected employers and the conditions in which employers will be required to take action to protect employees from heat-related injuries and illnesses in indoor places of employment.

The proposed language includes exceptions clarifying that: (A) indoor work areas not listed in subsection (a)(2) do not have to comply with subsection (e) Assessment and Control Measures; and (B) this section does not apply to places of employment where employees are teleworking from a location of the employee's choice, that are not under the control of the employer. This proposed subsection will ensure that employers that have indoor environments with a significant exposure to heat and a higher risk of heat illness will implement additional protective measures to reduce heat-related deaths, illnesses and injuries while excluding employees who telework.

Proposed subsection (a)(2) identifies the conditions under which employees working in indoor places of employment face a higher risk of heat illness and as such, requires that affected employers take additional assessment and control measures specified in subsection (e) to protect employees from heat-related deaths, illnesses, and injuries. The effect of these clarifications is to ensure that employers respond to conditions with increased risk of heat-related deaths, illnesses, and injuries, and clearly identify the conditions in which they have to implement further protective measures to keep employees safe.

Proposed subsection (a)(3) establishes that in situations where Cal/OSHA has identified in writing through the issuance of an Order to Take Special Action (authorized by title 8 section 332.3) that an unsafe workplace condition exists, such as employees working in indoor environments with significant exposure to heat and at risk of heat illness, affected employers will be required to comply with this specific standard. The effect of this proposed subsection is to ensure that workplace conditions Cal/OSHA has identified in writing as unsafe are made safe by mandating that the employer comply with this section.

Proposed subsection (a)(4) provides a list of other sections of title 8, some of which are industry specific, and all of which have application to the prevention of heat illness under certain circumstances. The intended effect is to make it clear to the regulated public that employers must continue to comply with these standards to the extent they apply after this proposed standard takes effect.

Proposed subsection (a) also includes clarifying notes that are without direct regulatory effect and do not add any additional regulatory requirements. The first note states that employers may integrate the requirements of the proposed standard into their IIPP required by section 3203, HIPP required by section 3395, or maintained in a separate document. The intended effect of this note is to provide employers with information to help facilitate compliance. A second clarifying note reiterates Cal/OSHA's authority to enforce the proposed standard and references sections of the LC that prohibit discriminating against employees for exercising their rights provided by this and other occupational safety and health standards. The intended effect of this note is to make employers aware that their responsibilities are not limited to compliance with proposed section 3396, and that employee retaliation is against the law.

New Subsection 3396(b) Definitions.

The proposed subsection (b) provides definitions for the terms used in new section 3396. The effect of these definitions is to establish the exact meanings for the terms as used within the context of the requirements of this section. They are necessary to clarify that the terms, as used, may have more specific meaning for indoor heat illness prevention than they would in the more general usage.

New Subsection 3396(c) Provision of Water.

Proposed subsection (c) details requirements for the provision of drinking water, which are identical to those in section 3395 with the exception of a new requirement to provide water in indoor cool-down areas. The effect of this proposed subsection is to harmonize with existing drinking water requirements for outdoor heat illness prevention and ensure quick access to drinking water as a means of controlling heat illness. This subsection will also ensure that employees are provided with water quantities sufficient to maximize the effectiveness of drinking water as a measure to prevent heat-related illness.

New Subsection 3396(d) Access to Cool-Down Areas.

Proposed subsection (d) details requirements for access to cool-down areas which are similar to those in section 3395 with the exception of two clarifications that address the nature of indoor environments. The term cool-down area is used in lieu of the term shade to clarify that a cool-down area can be indoors or outdoors.

Proposed subsection (d)(1) requires the employer to have and maintain cool-down areas at all times while employees are present. It further details requirements such as size, location and

temperature for a cool-down area. The proposed temperature at which indoor cool-down areas shall be maintained is less than 82 degrees Fahrenheit, which is the trigger temperature for the proposed standard, unless the employer demonstrates that it is infeasible. The effect of this subsection is to ensure that employees in need of a preventative recovery period have a suitable place to cool down and successfully reduce the risk of heat-related illnesses.

Proposed subsection (d)(2) requires employers to allow and encourage employees to take preventative cool-down rests in a cool-down area when they feel the need to do so to protect themselves from overheating. It further instructs employers to take specific steps to attend to employees that take preventative cool-down rests. This will ensure that employees take preventative cool-down rests and are monitored for symptoms to reduce the risk of heat-related illnesses.

Proposed subsection (d)(3) requires the employer to provide first aid or emergency response to employees who exhibit signs or report symptoms of heat illness while taking a preventative cool-down rest or during a preventative cool-down rest period. This will ensure that employees receive prompt medical attention to reduce the severity of heat-related illnesses.

New Subsection 3396(e) Assessment and Control Measures.

Proposed subsection (e) details requirements for identifying and controlling environmental factors present at the workplace which increase the occurrence of heat-related deaths, illnesses and injuries. The effect of this subsection is to ensure that workplaces with conditions listed in subsection (a)(2) take additional steps to reduce the increased risk of heat-related deaths, illnesses and injuries.

Proposed subsections (e)(1)(A) through (e)(1)(D) specify how and when the employer must measure the temperature and heat index, record whichever is greater, and identify and evaluate all other environmental risk factors for heat illness. An exception is provided that allows the employer to assume a work area is subject to one or more of the conditions listed in subsection (a)(2) and therefore comply with subsection (e)(2) in lieu of complying with subsections (e)(1)(A) through (e)(1)(D). This will give the employer the option to forego measuring and recording temperature and/or heat index. The effect of these subsections is to provide clarity and specificity essential to obtaining accurate temperature or heat index measurements, adequately evaluate environmental risk factors, correctly use measuring equipment, establish and maintain accurate records, and actively seek employee engagement to successfully identify the operations or work areas with a higher risk of heat illness.

Proposed subsections (e)(2)(A) through (e)(2)(C) outline control measures to minimize the risk of heat illness. These detailed requirements are necessary to ensure that employers address the environmental risk factors for heat illness present in the work area. The effect of these control measures will be to provide greater protection from indoor heat and thereby prevent and reduce the severity of heat illnesses for employees working indoors under high heat conditions.

New Subsection 3396(f) Emergency Response Procedures.

Proposed subsection (f) details requirements for implementing effective emergency response procedures which are identical to those in section 3395. Emergency response procedures must include maintaining effective communication; responding to signs and symptoms of possible heat illness; contacting emergency medical services; and ensuring that clear and precise directions to the work site are provided to emergency responders. This will ensure that there are no delays in providing emergency medical services, thereby minimizing the severity of heat-related illnesses.

New Subsection 3396(g) Close Observation During Acclimatization.

Proposed subsection (g) details specific requirements for when close observation by a supervisor or designee is required, which are similar to those in section 3395. Subsection (g)(1) requires close observation of all employees where no effective engineering controls are in use to control the effect of outdoor heat on indoor temperature during a heat wave. Subsection (g)(2) lists the trigger temperature or heat index that requires close observation of an employee who has been newly assigned to a work area, or work involving the use of clothing that restricts heat removal, or a high radiant heat area. This will ensure that employers increase their vigilance during high risk conditions to recognize the early symptoms of heat illness and take immediate steps to interrupt the heat illness cycle, preventing a fatality or reducing the severity of the illness.

New Subsection 3396(h) Training.

Proposed subsection 3396(h) details the specific topics that employee and supervisory training shall include, and are identical to those in section 3395.

Subsection (h)(1) clearly states the information required to be provided to supervisory and non-supervisory employees, which include: the role environmental and personal risk factors play in exacerbating the risk of heat illness; a description of the employer's procedures and employees' rights; an explanation of the importance of drinking small quantities of water frequently; the importance of acclimatization and close observation; the signs and symptoms of heat illness along with the appropriate first aid; the importance of employees immediately reporting their signs and symptoms to their employer; the employer's procedures for responding to possible heat illness and for contacting emergency services; and lastly, the employer's procedures for ensuring that clear and precise directions are provided to emergency responders. This will ensure that supervisory and non-supervisory employees acquire the necessary knowledge to understand the roles that environmental and personal risk factors, dehydration, overheating and lack of acclimatization, etc., play in exacerbating the risk of heat illness; and follow the employer's instructions and procedures to keep safe.

Subsection 3396(h)(2) includes additional training that must be provided to supervisors so that they know: the procedures to follow to implement the applicable provisions in this section; the

procedures to follow when an employee exhibits signs or reports symptoms consistent with possible heat illness, including emergency response procedures; and how to monitor weather reports and respond to hot weather advisories. This will ensure that supervisors acquire the necessary knowledge of the employer's procedures and implement them when necessary to provide timely emergency aid.

New Subsection 3396(i) Heat Illness Prevention Plan.

The proposed subsection 3396(i) requires employers to establish, implement, and maintain an effective HIPP, which is very similar to the HIPP required by subsection 3395. The written plan must be in both English and the language understood by the majority of the employees and be available at the worksite to employees and to representatives of Cal/OSHA upon request. The HIPP may be included as part of the employer's Illness and Injury Prevention Program required by section 3203 or HIPP required by section 3395. At a minimum, the plan shall cover: procedures for the provision of water and access to cool-down areas; the assessment and control measures of work areas as required by subsection (e); emergency response procedures; and close observation during acclimatization. This subsection will ensure that the procedures are comprehended by most of the employees, put into effect, documented in writing and available for future reference.

New Appendix A to New Section 3396: National Weather Service Heat Index Chart (2019).

The proposed Appendix A is a chart listing National Weather Service (NWS) heat index values (2019). The color coding and associated risk categories from the NWS Heat Index Chart were not included in proposed Appendix A. This will provide employers a means of determining the heat index from the dry bulb temperature and the relative humidity for employers that elect not to purchase heat index meters.

Evaluation of Inconsistency/Incompatibility with Existing State Regulation

The Board evaluated the proposed regulations pursuant to Government Code section 11346.5(a)(3)(D) and has determined that the regulations are not inconsistent or incompatible with existing state regulations. This proposal is part of a system of occupational safety and health regulations, and was specifically constructed to mirror or, where appropriate, harmonize with existing requirements for outdoor heat illness prevention in section 3395 of Title 8 of the California Code of Regulations. The consistency and compatibility of that system's component regulations is provided by such things as: (1) the requirement of the federal government and the LC to the effect that the State regulations be at least as effective as their federal counterparts, and (2) the requirement that all state occupational safety and health rulemaking be channeled through a single entity (the Board).

Anticipated Benefits

The proposed regulation will reduce the incidence of heat-related illness, injury, and death among workers working in indoor places of employment. It will enhance worker safety and health by clarifying and making more specific requirements for providing potable drinking water and cool-down areas to workers, minimizing disincentives for drinking water and taking rest periods, requiring assessment and control measures, emergency response procedures, close observation during acclimatization, effective training, and a HIPP. These requirements will ensure that workers working in indoor places of employment are afforded protection and preventive measures equivalent to workers working in outdoor places of employment.

These proposals would generate health benefits in the form of avoided costs associated with morbidity (induced illness) and mortality (shortened life expectancy) caused by occupational exposure to extreme heat in indoor places of employment. *The Standardized Regulatory Impact Assessment (SRIA) of the Proposed California Regulation for Heat Illness Prevention in Indoor Places of Employment* developed by the RAND Corporation estimates that over the first ten years the proposed regulation would result in approximately 2,029 fewer non-fatal injuries and 10 fewer fatalities. Additionally, there is evidence that worker productivity declines in hot environments. This proposal may increase worker productivity by limiting occupational exposure to extreme heat in indoor places of employment (RAND, 2021).

The SRIA estimates the monetary benefit associated with the proposed regulation, due to avoided cases of heat-related illness and fatalities as well as increases in productivity that arise from reducing employee exposure to extreme heat, would be \$362.2 million in the first year of the proposed regulation. This value would increase each year, with annual benefits reaching \$447.7 million in year 10 of the proposed regulation.

In addition, the proposed regulation may help in addressing longstanding issues of occupational safety and health vulnerability and social and economic inequality by ensuring that employers provide physical relief to employees from excessive heat stress (RAND, 2021).

Federal Regulations and Statutes

There is no existing federal OSHA standard that specifically and comprehensively addresses prevention of heat illness. However, federal OSHA does have requirements similar to those in the title 8 standards such as those for drinking water, first aid, and other workplace factors that have applicability to prevention of heat illness. In October 2021, federal OSHA issued an Advance Notice of Proposed Rulemaking to begin work on establishing a regulation on heat injury and illness prevention in outdoor and indoor work settings.¹

¹ U.S. Department of Labor. Advance notice of proposed rulemaking (ANPRM), Heat Injury and Illness Prevention in Outdoor and Indoor Work Settings, Docket No. OSHA-2021-0009. <https://www.federalregister.gov/d/2021-23250>

DISCLOSURES REGARDING THE PROPOSED ACTION**Mandate on Local Agencies or School Districts:**

The Board has determined that proposed section 3396 does not impose a mandate on local agencies or school districts requiring reimbursement by the State pursuant to Part 7 of Division 4 of the Government Code (commencing with section 17500).

Cost or Savings to any State Agency:

The proposed regulation will result in new compliance actions imposed on state government entities, specifically correctional institutions (North American Industry Classification System (NAICS) 922140). Based on information from the Quarterly Census of Employment and Wages (QCEW) published by the California Employment Development Department (EDD), there are approximately 1,500 state-run correctional institutions subject to the proposed regulation. Of these, approximately half are not likely to be subject to the indoor heat requirements due to locational factors or because the workplace is already climate controlled. The remaining establishments are estimated to incur costs totaling approximately \$0.9 million in 2023 and \$0.4 million in each subsequent year on an undiscounted annualized basis.

Cal/OSHA will incur new enforcement costs to conduct additional workplace inspections to enforce the proposed regulation and conduct outreach activities to promote the proposed regulation. The Board estimates that Cal/OSHA may need to conduct 15 to 25 additional inspections per year. The Board estimates that overall enforcement efforts, including additional inspections and outreach activities, will require up to one additional safety engineer at a cost of approximately \$0.2 million per year on an ongoing basis.

The proposed regulation reduces occupational exposure to extreme heat conditions in indoor work environments. Based on information from EDD's QCEW, there are approximately 10,300 state government employees working in correctional institutions. Of these, many work in climate controlled indoor work environments; those that do not (e.g., those working in older state prisons that are not climate controlled) would benefit from compliance actions that limit their occupational exposure to extreme heat conditions. To the extent that the proposed regulation improves the safety and health of state employees – resulting in fewer heat-related illnesses – the proposed regulation would result in a cost savings for state government entities. However, there is insufficient information to estimate the number of state employees treated each year for heat-related illnesses in the baseline and the number that would benefit from the proposed regulation.

Similarly, productivity benefits that accrue to state employees may result in cost savings to public entities. However, this analysis estimates relatively few state employees will benefit from the added use of engineering controls as a result of the proposed regulation because many state government establishments already have climate controlled indoor work environments.

Cost to any Local Agency or School District which must be Reimbursed in Accordance with Government Code Sections 17500 through 17630: None.

Other Nondiscretionary Cost or Savings Imposed on Local Agencies:

The proposed regulation will result in new compliance actions imposed on local government establishments. Based on information from EDD's QCEW, there are approximately 1,000 local government establishments in industries subject to the proposed regulation. Of these, approximately 614 establishments are in industries that are likely to be subject to the indoor heat requirements. These industries include utilities; transportation and warehousing; administrative and support and waste management and remediation services; and accommodation and food services. These establishments are estimated to incur total costs of approximately \$1.3 million in the first year and \$0.6 million in each subsequent year.

There are approximately 14,600 local government employees in affected industries, which represents about one percent of all affected workers. The proposed regulation would result in a cost savings for local government entities by reducing heat-related injuries and illnesses. However, there is insufficient information to estimate the number of local government employees treated each year for heat-related illnesses in the baseline and the number that would benefit from the proposed regulation.

Similarly, productivity benefits that accrue to local government employees may result in cost savings to public entities. However, it is estimated that very few local government employees will benefit from the added use of engineering controls as a result of the proposed regulation because many local government employers already use control measures to reduce occupational exposure to extreme heat conditions.

Cost or Savings in Federal Funding to the State:

Cal/OSHA will enforce the proposed regulation and estimates that the proposed regulation may result in 15 to 25 additional inspections per year. The Board estimates that overall enforcement efforts, including additional inspections, will require up to one additional full-time equivalent safety engineer. The total salary of an experienced safety engineer plus fringe benefits, equipment, materials, and transportation is estimated to cost approximately \$0.2 million per year.

Cost Impacts on a Representative Private Person or Business:

The Board does not anticipate any cost impacts that a representative private person would necessarily incur as a result of the proposed requirements for indoor places of employment. The Board is aware that there are cost impacts that a representative business may incur in reasonable compliance with the proposed regulation. The total direct compliance costs of the proposed indoor heat illness prevention requirements are

estimated to be approximately \$213 million in the first year and \$87 million in each subsequent year on an (undiscounted) annualized basis. The direct compliance costs include investments in mitigation efforts, including engineering and administrative controls, workforce training, development of a written HIPP and other compliance activities by businesses operating in California.

Statewide Adverse Economic Impact Directly Affecting Businesses and Individuals: Including the Ability of California Businesses to Compete:

The Board has made an initial determination that this proposal will not result in a significant, statewide adverse economic impact directly affecting businesses and individuals, including the ability of California businesses to compete with businesses in other states.

The Board expects that the proposed regulation will reduce heat-related injuries, illnesses, and deaths by reducing occupational exposure to extreme heat in indoor workplaces. The anticipated monetized benefits of the proposed regulation are expected to exceed the anticipated costs of compliance with the proposed regulation (RAND, 2021). There is no requirement that economic benefits are greater than economic costs. The “benefit” of worker health is required to prevail over all other considerations except where attainment of worker health is unachievable.

The Board does not anticipate that California businesses will be at a competitive disadvantage due to the new regulations, based on the SRIA.

Significant Effect on Housing Costs: None.

SMALL BUSINESS DETERMINATION

The Board has determined that the proposed amendments may affect small businesses.

California Government Code section 11346.3 defines small businesses as businesses that are independently owned and operated, not dominant in their field of operation, and have fewer than 100 employees.

Using data from the U.S. Census Bureau’s County Business Patterns and the U.S. Department of Agriculture’s Census of Agriculture, the Board estimates that approximately 97.5 percent of establishments in affected industries have less than 100 employees or are considered small family farms. The total direct compliance costs to small businesses are estimated to be approximately \$208 million in the first year and \$85 million in each subsequent year (RAND, 2021).

RESULTS OF THE STANDARDIZED REGULATORY IMPACT ANALYSIS***The creation or elimination of jobs in the state.***

The statewide employment impacts of the proposed regulation are estimated to be small, but positive due to new expenditures on heating, ventilation and air-conditioning (HVAC) equipment and services and other changes in the value of purchases made by final users of these products and services. It is estimated that there will be a temporary increase of approximately 142 jobs in the first year of the proposed regulation and an average of approximately 50 additional jobs supported in subsequent years relative to the *no regulatory action* baseline. These changes represent less than a 0.01 percent increase in employment in California. There are no direct, indirect, or induced job losses as a result of the labor impacts of the proposed regulation because the labor costs to individual businesses are relatively small and more than offset by productivity gains associated with businesses implementing engineering controls to reduce occupational exposure to extreme heat.

The creation of new businesses or the elimination of existing businesses in the state.

There is no anticipated elimination of any existing businesses in California as a result of the proposed regulation. The increase in final demand for engineering controls may lead to increases in the number of businesses manufacturing these products and companies specializing in installation of HVAC systems. Furthermore, increases in productivity across several sectors may result in a small increase in the number of businesses that supply products and services to these industries. However, the overall macroeconomic impacts of the proposed regulation are very small relative to the overall California economy (less than a 0.01 percent change); therefore, it is not anticipated there will be substantial impacts to the creation of new businesses.

The competitive advantages or disadvantages for businesses currently doing business in the state.

The proposed regulation is unlikely to have significant competitive advantages or disadvantages for businesses operating in California. The estimated costs of the proposed regulation are relatively small on a per establishment basis; however, the additional requirements add to the costs of doing business in California. It is assumed that other reasons for doing business in California likely outweigh the costs associated with the proposed regulation. Furthermore, the proposed regulation will not significantly impact the ability of California businesses to compete with businesses in other states with similar climate and geographic conditions (and comparable industrial processes that generate heat) that pose a similar risk of heat-related illness to workers.

The increase or decrease of investment in the state.

The implementation of the proposed regulation is likely to increase investments in systems and processes to reduce temperatures in indoor workspaces when employees are present, which may provide an opportunity for existing facilities to evaluate other investments in automation and technology. However, for many industries, the investment in HVAC systems is likely to be very small on a per establishment basis. The majority of employers in California have already made investments in such HVAC systems or rely on natural ventilation or other control measures and will incur few additional compliance costs associated with engineering controls. In the long run it is anticipated that the proposed regulation may slightly increase average annual investment in the repair, replacement, and operation and maintenance of HVAC systems.

The incentives for innovation in products, materials, or processes.

The indoor heat illness prevention regulation provides an incentive for employers with hot indoor environments to reduce the temperature or heat index below the regulatory thresholds because those workplaces would no longer be subject to the more stringent (and costly) requirements of the proposed rule. This incentive to avoid more costly regulatory requirements is in addition to pre-existing incentives to mitigate indoor heat to avoid worker injuries and increase worker productivity. Although many companies already have temperature control systems in place due to these pre-existing incentives, the proposed regulation will likely increase the demand for HVAC systems. There is likely to be a particular need to reduce temperatures in large warehouses, manufacturing and production facilities, greenhouses, and wholesale and retail distribution centers—as well as improve airflow and exhaust systems in smaller hot indoor environments, such as restaurant kitchens and dry cleaners. As a result, there may be an increase in demand for innovative products, materials, or processes to cool these types of work environments and an increase in demand for new processes that are more energy efficient, less costly, and generate less heat.

In addition to mechanical adaptations, affected employers may also innovate through changes in processes and procedures. For example, employers may incentivize supervisors to provide additional cool-down rest breaks in the summer months and during heat waves. Certain industries already move work shifts to cooler times of the day or schedule additional breaks to reduce exposure to heat; the prevalence of these adaptations may increase to avoid working during periods of time when the more stringent (and costly) requirements of the proposed rule would apply.

The benefits of the regulations, including, but not limited to, benefits to the health, safety, and welfare of California residents, worker safety, environment and quality of life, and any other benefits identified by the agency.

The proposed regulation will reduce the incidence of heat-related illnesses and injuries among workers working in indoor places of employment. It will enhance worker safety and health and improve their quality of life by clarifying and making more specific requirements for providing potable drinking water and cool-down areas to workers, minimizing disincentives for drinking water and taking rest periods, requiring assessment and control measures, emergency response procedures, close observation during acclimatization, effective training, and a HIPP. These requirements will ensure that workers working in indoor places of employment are afforded protection and preventive measures equivalent to workers working at outdoor places of employment.

Incentives to innovate new processes that are more energy efficient, produce less heat, and are less costly will benefit the environment and the welfare of California residents. New more energy-efficient cooling technologies and processes that produce less heat developed in response to this proposal can be used by households and entities outside of employers covered by the regulation to save money and reduce energy consumption. Saving money will benefit California residents. Using less energy will benefit the environment.

These proposals would generate health benefits in the form of avoided costs associated with morbidity (induced illness) and mortality (shortened life expectancy) caused by occupational exposure to extreme heat in indoor places of employment. It is estimated that over the first ten years the proposed regulation would result in approximately 2,029 fewer non-fatal injuries and 10 fewer fatalities. Additionally, there is evidence that worker productivity declines in hot environments and the worker productivity may increase by limiting occupational exposure to extreme heat in indoor places of employment (RAND, 2021).

The estimated monetary benefit associated with the proposed regulation, due to avoided cases of heat-related illness and fatalities as well as increases in productivity that arise from reducing employee exposure to extreme heat, is \$362.2 million in the first year of the proposed regulation. This value would increase each year, with annual benefits reaching \$447.7 million in year 10 of the proposed regulation.

Department of Finance (DOF) Comments on SRIA and Department of Industrial Relations (DIR) Responses.

There were two concerns raised in DOF's comments on the SRIA.

- DOF Comment 1: First, the SRIA estimates exclude from the cost, benefit, and fiscal impact estimates industries and occupations where workers are exposed to high heat fewer than once per week on average, whereas the protections are triggered as long as**

the temperature threshold is met on even one day out of the year. This results in underestimates of costs and benefits, including fiscal costs, as occupations utilized by state and local governments such as correctional officers, who report exposure more than once a year. The SRIA estimates must be revised to incorporate all affected entities as is consistent with the regulations.

DIR Response to Comment 1: The SRIA recognizes the number of establishments in California that will be subject to the proposed regulation is uncertain and may change over time – due to outdoor temperature variation, changes in work processes, and business openings and closures, for example. The SRIA characterizes the affected industries as follows:

- Type 1: Industries that generally have an indoor heat source or greenhouse.
- Type 2: Industries in which there is a mix of establishments, some of which may expose workers to hot indoor work environments depending on the establishment's location, whether or not the work takes place indoors, and whether or not the workplace is climate controlled.
- Type 3: Industries in which most employees work outdoors or in climate controlled indoor work environments.

While there is limited available data, the SRIA does not exclude industries and occupations where workers are exposed to high heat less than once per week, on average, or even just one day per year. Establishments that meet or exceed the temperature threshold(s) on just one day per year are included as Type 2 industries. Based on temperature and heat index projections from the Centers for Disease Control and Prevention, the SRIA estimates costs, benefits, and fiscal impacts for about 4,000 Type 2 establishments where workers are likely to be exposed to high indoor heat conditions just one day a year, on average, and about 14,000 Type 2 establishments where workers are likely to be exposed to high indoor heat conditions less than once a week, on average, during the summer months. Many of these establishments are located in northern or coastal counties in California.

Based on DOF's recommendation, DIR reviewed several news articles documenting indoor heat risk in prisons and jails. Since correctional officers may be exposed to high indoor heat conditions in some facilities, DIR has reclassified Correctional Institutions (NAICS 922140) as a Type 2 industry. DIR will revise the Form 399 to include estimates of economic impacts for these establishments. While this change will increase the number of affected businesses and individuals by less than one percent, it would approximately double the estimated compliance costs to the state.

The SRIA estimates that the incremental costs, benefits, and fiscal impacts for Type 3 industries are zero because any compliance actions they will undertake are the same as under the *no regulatory action* baseline. Industries with outdoor employees exposed to high temperatures are already subject to section 3395 and are required to undertake similar compliance actions to protect those employees. Industries with climate controlled indoor work environments are able

to maintain the indoor temperature below the regulatory temperature threshold(s); and thus, will not incur additional compliance costs.

- 2. DOF Comment 2: Second, the SRIA must adequately justify the assumptions underlying the analysis. For example, the SRIA states that the cost to businesses of providing an indoor cool down area is a de minimis cost but it does not justify why it is appropriate to assume negligible opportunity costs of repurposing or adding indoor space. Another example is the assumption that 20 percent of enterprises in affected industries and 80 percent of manufacturing and restaurants will not need additional action to comply. Finance appreciates the sensitivity analysis around different compliance assumptions provided in the SRIA, however, the SRIA must disclose why the point estimate used in the baseline is adequate as costs and benefits are highly sensitive to those key assumptions.**

DIR Response to DOF Comment 2: DIR concurs with DOF about the importance of justifying underlying assumptions and has sought to provide such information throughout the SRIA. To inform the estimates in the SRIA, the authors interviewed industry groups, trade associations, and labor organizations on the potential impacts of the proposed regulation. These groups spanned a wide range of industries, collectively accounting for between 60 and 70 percent of the regulated entities. Additional organizations that were contacted declined or were unable to participate.

Industry representatives were asked to estimate what percentage of establishments in their industry were likely already “partially or mostly” in compliance with components of the proposed regulation. While the interviewees were not able to provide exact data, they were able to provide estimates of the percentage of establishments that already used engineering controls, provided cool-down areas, or used other heat illness prevention measures. DIR aggregated these responses to yield the estimates described in Chapter 2 (and footnote 20) of the SRIA, which addresses the basis for assumptions regarding the number of businesses that would likely need to undertake additional actions to comply with the proposed regulation. The midpoint estimates in the SRIA reflect the average of the responses, while the sensitivity analysis around the point estimates reflects the range of responses given by the majority of the respondents in their estimates.

The specific assumption regarding indoor cool down areas was based on industry interviews, in which employers gave examples of providing access to indoor cool down areas in existing climate-controlled break rooms, customer areas, or lunchrooms (e.g., in large warehouses). Therefore, the SRIA assumed employers would incur few (if any) opportunity costs of repurposing or adding indoor space.

DIR appreciates the opportunity to further elaborate on the assumptions and methods used in the SRIA.

CONSIDERATION OF ALTERNATIVES

Alternative 1: Less stringent regulatory alternative.

One alternative considered was less stringent than the proposal. This alternative would eliminate from the proposed regulation subsection (e), which mandates additional compliance actions related to assessment and control measures when the temperature or heat index equals or exceeds the specified regulatory threshold listed in subsection (a)(2). Removal of these requirements would make the indoor heat illness prevention requirements generally more consistent with the requirements in section 3395 (the outdoor heat standard). Specifically, it would remove the requirement to adopt engineering controls or other control measures, where feasible, in indoor workplaces with higher risk of heat illnesses.

While this would eliminate some of the relatively more costly impacts associated with subsection (e), it is uncertain whether it would result in an overall lower cost for employers because subsection (d) mandates employees be allowed to take preventative cool-down rest breaks to protect themselves from overheating. Without subsection (e), employees would take extra cool-down rest breaks when the temperature or heat index equals or exceeds the specified regulatory threshold and during heat waves. This would result in increased costs of administrative control measures associated with the requirement for cool-down areas compared to the proposed regulation. Therefore, while the upfront costs of the less stringent alternative are significantly lower than the proposed regulation, some costs in subsequent years may exceed costs under the proposed regulation because employers will likely need to implement additional administrative control measures in place of using engineering controls on hot days.

This alternative would likely result in a higher incidence of heat exposures among employees who work in indoor workplaces with higher risk of heat illnesses. As such, it is less likely to effectively prevent or reduce heat-related illness compared to the proposed regulatory action. In addition, it may not yield the level of productivity benefits estimated under the proposed regulation, while it would still require potentially costly administrative actions to comply with the other requirements.

The less stringent alternative would be less cost-effective than the proposed regulation, the number of cases of heat-related illness would remain higher, and the overall benefits would be significantly lower. For these reasons, adopting this less stringent alternative is not considered a reasonable alternative to the proposal.

Alternative 2: More stringent regulatory alternative.

A second alternative considered was more stringent than the proposal. This alternative would require employers under subsection (e)(1) to use a wet bulb globe temperature (WBGT) device to measure the temperature, relative humidity, air velocity, and radiant heat and record these measurements when the temperature is expected to be 10 degrees or more above previous

measurements. This change would increase the compliance costs for regulated entities, but the benefits of the more stringent alternative are not likely to significantly differ from the proposed regulation.

The compliance cost of the more stringent alternative for most small businesses would increase by about 10 to 30 percent relative to the proposed regulation. This is driven by the higher costs of measuring and recording heat stress levels. The WBGT device is more costly than a digital thermometer and relative humidity gauge and using the WBGT would require more time to take a reading as well as training in how to properly use the device. In addition, more establishments would need to purchase a device relative to the proposed regulation since WBGT devices are used less frequently by industry.

The potential benefits of using a WBGT device include more accurate measurement and improved ability to adopt specific recommendations based on the WBGT by government agencies or the American Conference of Governmental Industrial Hygienists' threshold limit value (TLV[®]) guidelines. While environmental conditions contributing to heat stress could be more accurately measured by employers, the additional compliance actions employers would have to undertake would be identical to those required under the proposed regulation. Therefore, the benefits of the more stringent alternative are not likely to significantly differ from the proposed regulation. For this reason, requiring the use of a WBGT device is not considered a reasonable alternative to the proposal.

In accordance with Government Code section 11346.5(a)(13), the Board must determine that no reasonable alternative it considered to the regulation or that has otherwise been identified and brought to its attention would either be more effective in carrying out the purpose for which the action is proposed, or would be as effective and less burdensome to affected private persons than the proposed action, or would be more cost-effective to affected private persons and equally effective in implementing the statutory policy or other provision of law than the proposal described in this Notice.

The Board invites interested persons to present statements or arguments with respect to alternatives to the proposed regulation at the scheduled public hearing or during the written comment period.

CONTACT PERSONS

Inquiries regarding this proposed regulatory action may be directed to Christina Shupe (Executive Officer) or the back-up contact person, Amalia Neidhardt (Principal Safety Engineer) at the Occupational Safety and Health Standards Board, 2520 Venture Oaks Way, Suite 350, Sacramento, CA 95833; (916) 274-5721.

**AVAILABILITY OF STATEMENT OF REASONS, TEXT OF THE
PROPOSED REGULATIONS AND RULEMAKING FILE**

The Board will have the entire rulemaking file available for inspection and copying throughout the rulemaking process BY APPOINTMENT Monday through Friday, from 8:00 a.m. to 4:30 p.m., at the Standards Board's office at 2520 Venture Oaks Way, Suite 350, Sacramento, California 95833. Appointments can be scheduled via email at oshsb@dir.ca.gov or by calling (916) 274-5721. As of the date this Notice of Proposed Action is published in the Notice Register, the rulemaking file consists of this Notice, the proposed text of the regulation, the Initial Statement of Reasons and supporting documents. Copies may be obtained by contacting Ms. Shupe or Ms. Neidhardt at the address or telephone number listed above.

AVAILABILITY OF CHANGED OR MODIFIED TEXT

After holding the hearing and considering all timely and relevant comments received, the Board may adopt the proposed regulations substantially as described in this Notice. If the Board makes modifications which are sufficiently related to the originally proposed text, it will make the modified text (with the changes clearly indicated) available to the public at least 15 days before the Board adopts the regulations as revised. Please request copies of any modified regulations by contacting Ms. Shupe or Ms. Neidhardt at the address or telephone number listed above. The Board will accept written comments on the modified regulations for at least 15 days after the date on which they are made available.

AVAILABILITY OF THE FINAL STATEMENT OF REASONS

Upon its completion, copies of the Final Statement of Reasons may be obtained by contacting Ms. Shupe or Ms. Neidhardt at the address or telephone number listed above or via the internet.

AVAILABILITY OF DOCUMENTS ON THE INTERNET

The Board will have rulemaking documents available for inspection throughout the rulemaking process on its web site. Copies of the text of the regulations in an underline/strikeout format, the Notice of Proposed Action and the Initial Statement of Reasons can be accessed through the Standards Board's website at <https://www.dir.ca.gov/oshsb/proposedregulations.html>.

TITLE 8

GENERAL INDUSTRY SAFETY ORDERS

NEW SECTION 3396

**HEAT ILLNESS PREVENTION IN INDOOR PLACES OF
EMPLOYMENT**