Building Climate Resilience

Strategies for Workplace Adaptation

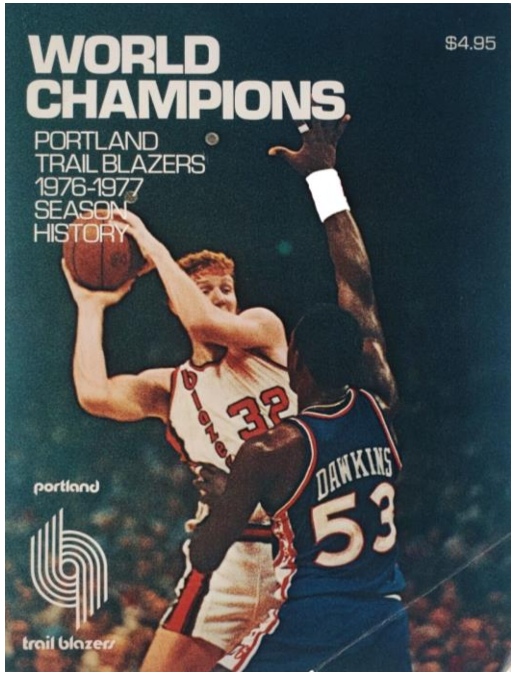
ASSP Columbia-Willamette Chapter

Scott Gunderson, CSP, ARM

December 11, 2025

OSHA | Oregon OSHA

Department of Consumer and Business Services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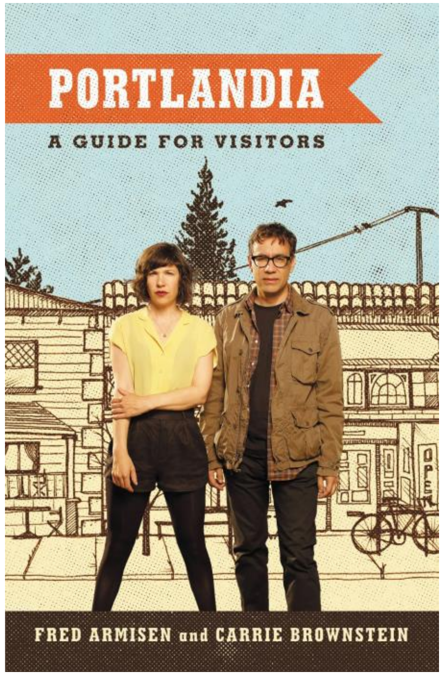
PORTLANDIA
A GUIDE FOR VISITORS
FRED ARMISEN and CARRIE BROWNSTEIN


people in oregon don't tan in the summertime...
NAVAL JELLY
......they rust!
an Original by Cloutier ©1977


OREGON RAIN FESTIVAL
January 1st - December 31st

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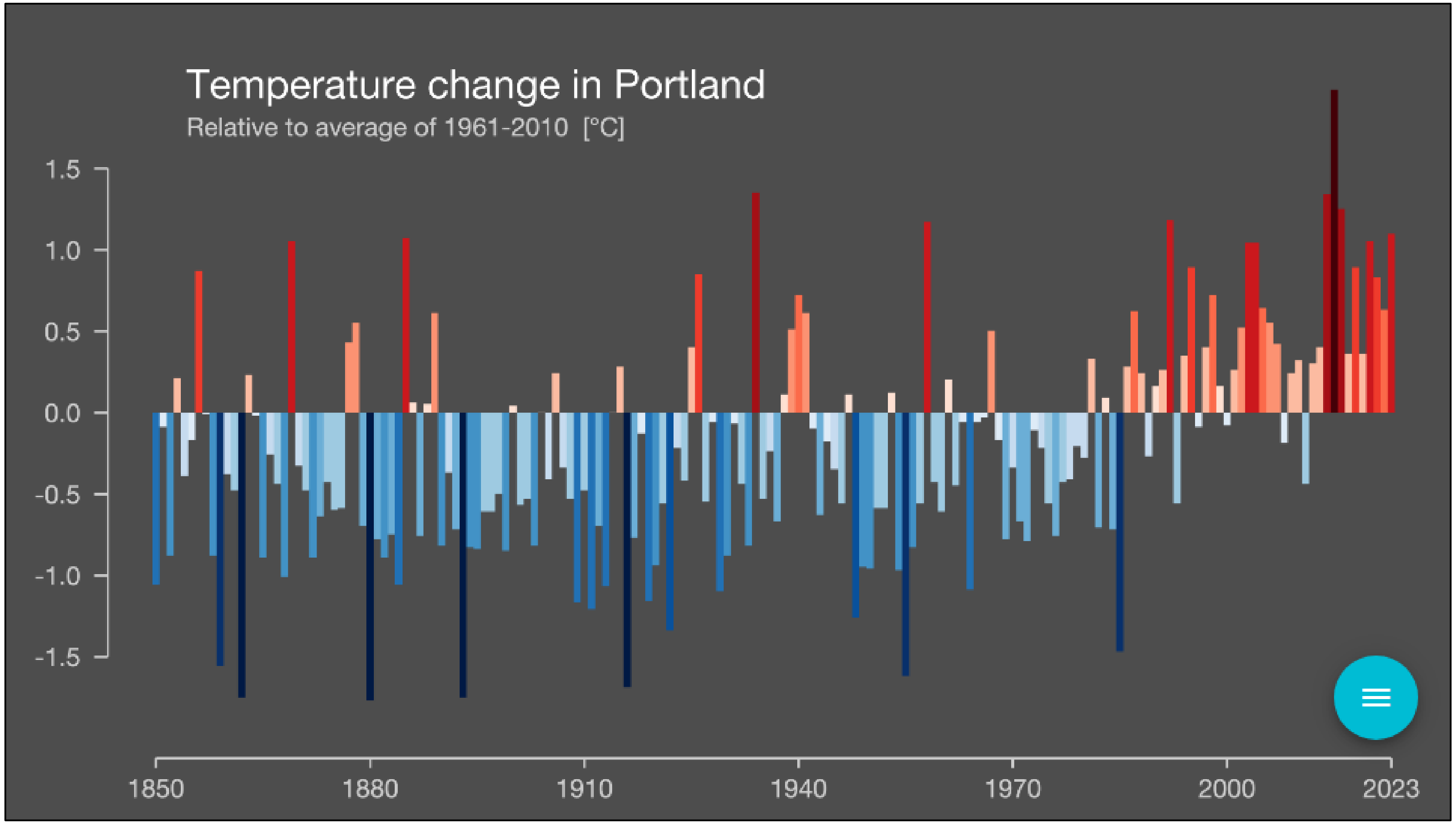

University of Reading https://www.reading.ac.uk/planet/

"Earth's average surface temperature in 2024 was the warmest on record."

"The new record comes after 15 consecutive months (June 2023 through August 2024) of monthly temperature records — an unprecedented heat streak."

"Not every year is going to break records, but the long-term trend is clear . . . we're already seeing the impact in extreme rainfall, heat waves, and increased flood risk, which are going to keep getting worse."

NASA, January 10, 2025

"2024 was the planet's warmest year on record."

"The planet's 10 warmest years since 1850 have all occurred in the past decade."

"Since records began in 1980, the U.S. has sustained 403 separate weather and climate disasters where overall damages/costs reached or exceeded $1 billion per event. In 2024, the U.S. saw 27 of these events . . . [the] second highest for number of billion-dollar disasters in a calendar year, behind 2023's 28 events."

NOAA, January 10, 2025

2020

Labor Day Fires; unprecedented poor air quality in Portland

2021

June 28 record high 116 F in Portland

Oregon OSHA issues emergency temporary rules for heat and wildfire smoke

2022

Oregon OSHA issues permanent rules for heat and wildfire smoke

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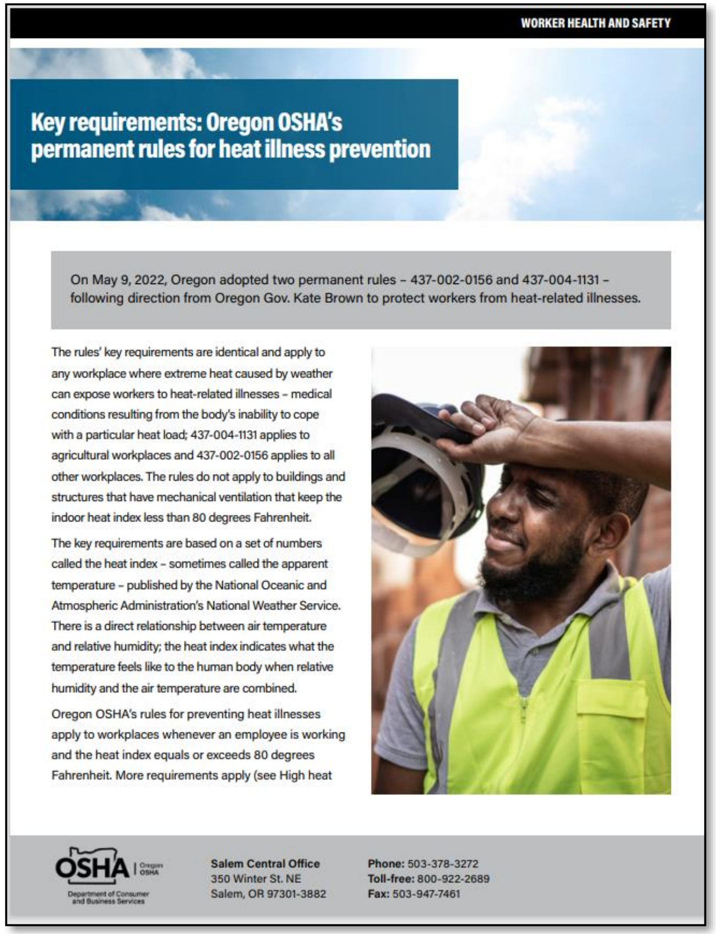
OAR 437-002-0156(8)
Minimum elements of a written heat illness prevention plan

- Employee training
- Recognition and response to heat-related illness
- Availability of water
- Employee access to water
- Shaded or climate-controlled break areas for employees
- Heat illness prevention rest break schedules
- Heat acclimatization procedures



WORKER HEALTH AND SAFETY

Key requirements: Oregon OSHA's permanent rules for heat illness prevention

On May 9, 2022, Oregon adopted two permanent rules – 437-002-0156 and 437-004-1131 – following direction from Oregon Gov. Kate Brown to protect workers from heat-related illnesses.

The rules' key requirements are identical and apply to any workplace where extreme heat caused by weather can expose workers to heat-related illnesses – medical conditions resulting from the body's inability to cope with a particular heat load; 437-004-1131 applies to agricultural workplaces and 437-002-0156 applies to all other workplaces. The rules do not apply to buildings and structures that have mechanical ventilation that keep the indoor heat index less than 80 degrees Fahrenheit.

The key requirements are based on a set of numbers called the heat index – sometimes called the apparent temperature – published by the National Oceanic and Atmospheric Administration's National Weather Service. There is a direct relationship between air temperature and relative humidity; the heat index indicates what the temperature feels like to the human body when relative humidity and the air temperature are combined.

Oregon OSHA's rules for preventing heat illnesses apply to workplaces whenever an employee is working and the heat index equals or exceeds 80 degrees Fahrenheit. More requirements apply (see High heat

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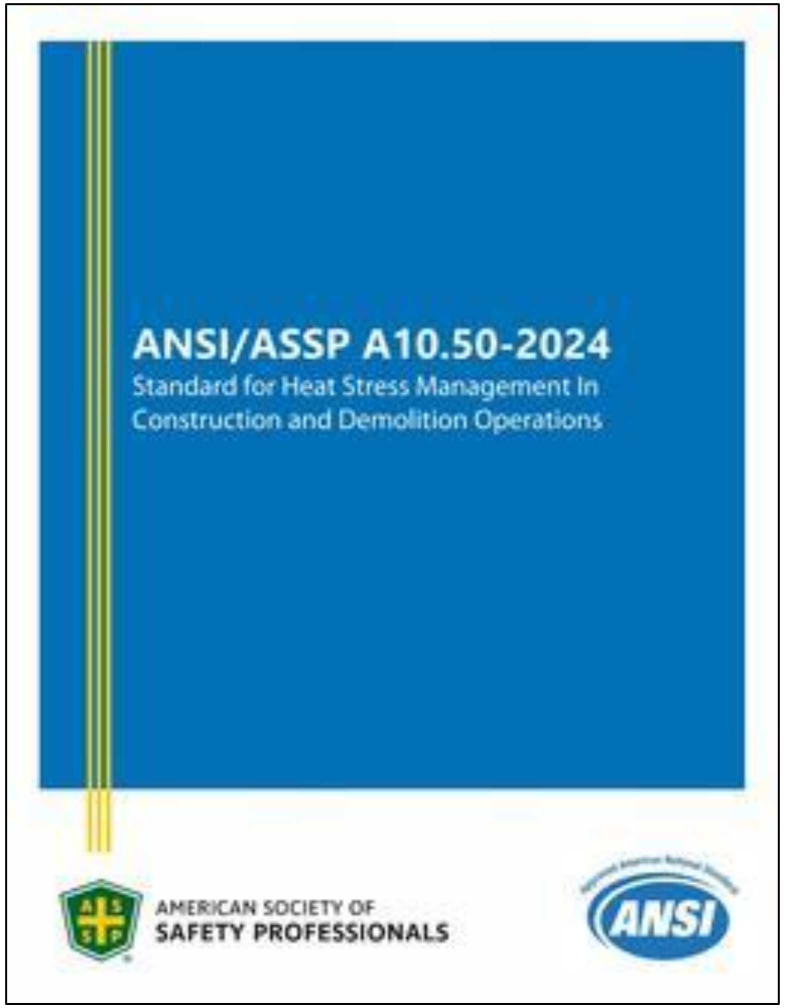
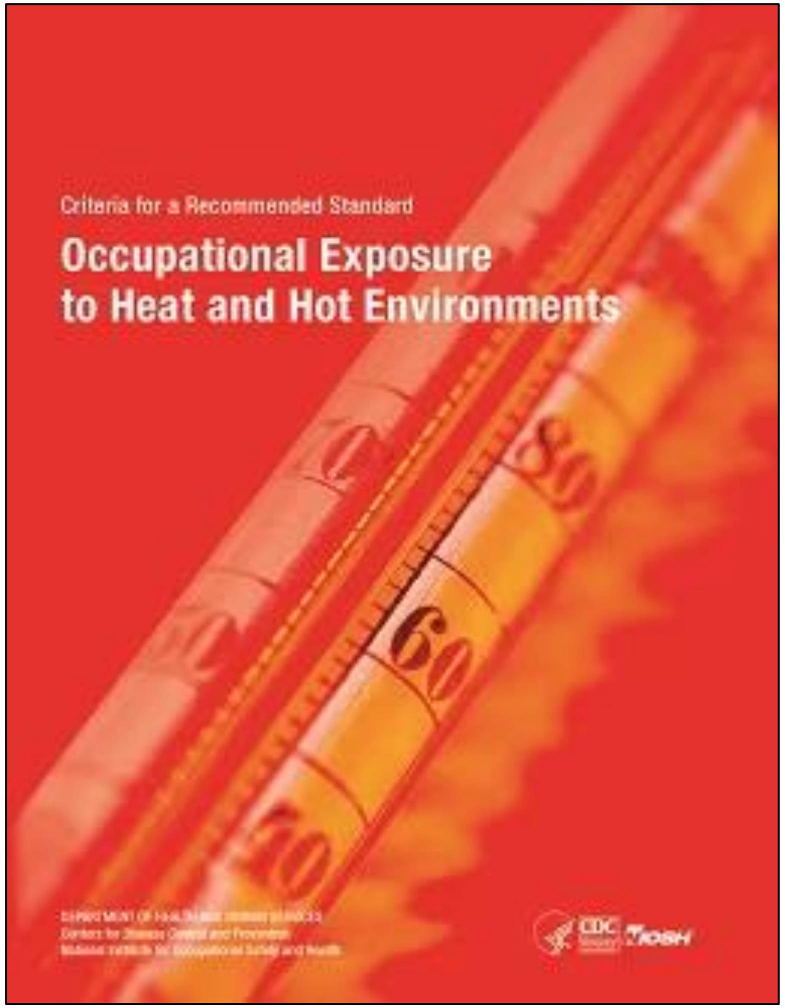
“OSH professionals must stop relying on compliance with regulations to ground our recommendations.”

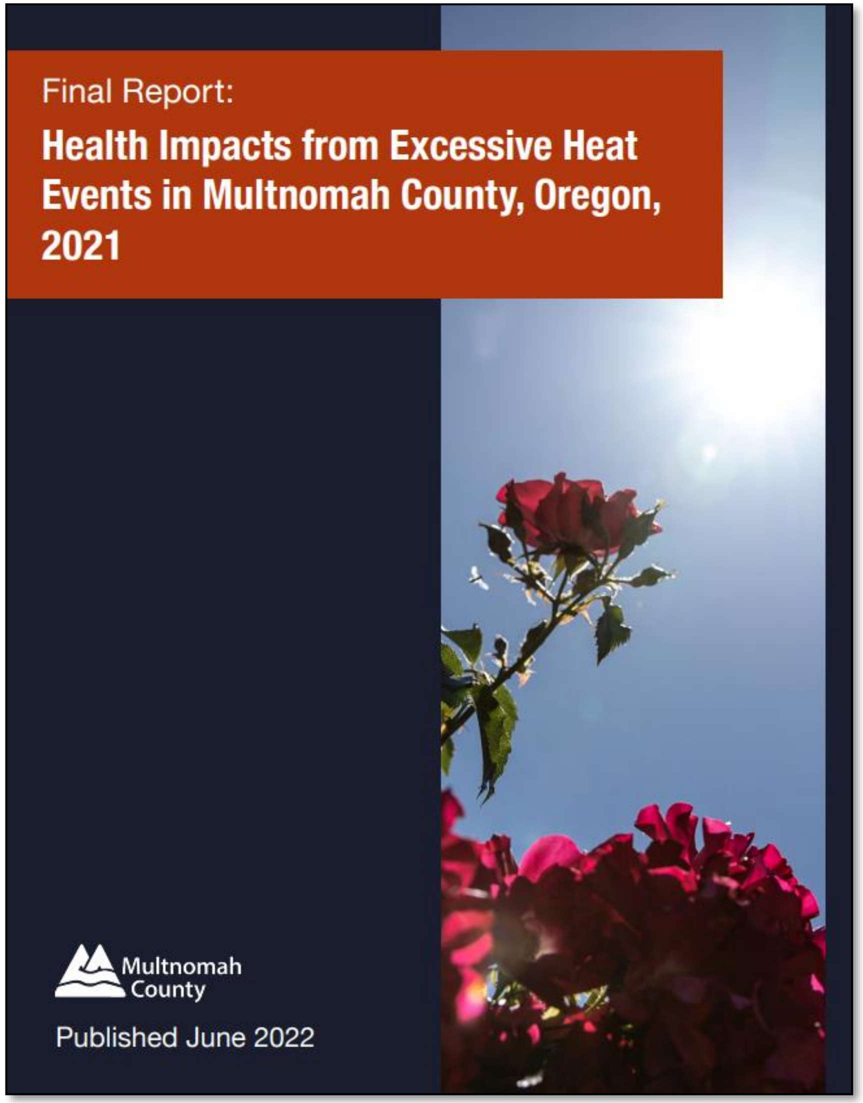
-- Pam Walaski, 2024 – 2025 President, American Society of Safety Professionals



ANSI/ASSP A10.50-2024 Heat Stress Management Program	Oregon OSHA
Acclimatize workers	X
Assess workers' exposure to heat stress	X
Provide potable water	X
Emergency action plan for heat-related medical emergencies	X
Rest break schedules	X
Provide shaded break areas	X
Identify engineering and administrative controls	
Provide personal protective equipment	
Monitor workers for signs of heat stress	X
Employee involvement	
Employee and supervisor training	X
Competent person training	
Annual program review	

NIOSH Recommended Standard	Oregon OSHA
Recommended heat exposure limits	
Medical monitoring: preplacement and periodic	
Medical monitoring: emergency	X
Engineering controls: shade	X
Engineering controls: cooling air and reducing humidity	
Administrative controls: acclimatization, break schedules	X
Administrative controls: availability of water	X
Administrative controls: timing work around high heat	
Administrative controls: reducing metabolic workloads	
Administrative controls: observing workers for heat stress	X
PPE: accounting for increased heat burden	X
PPE: cooling clothing	
Training: workers and supervisors	X

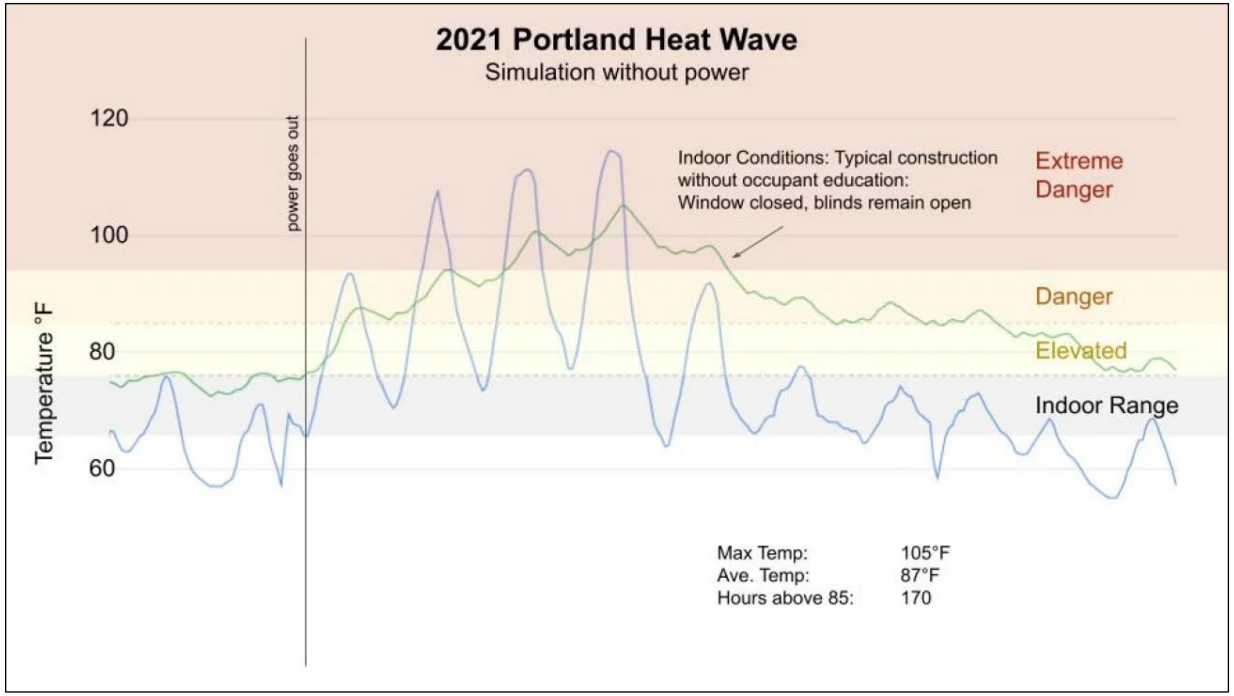


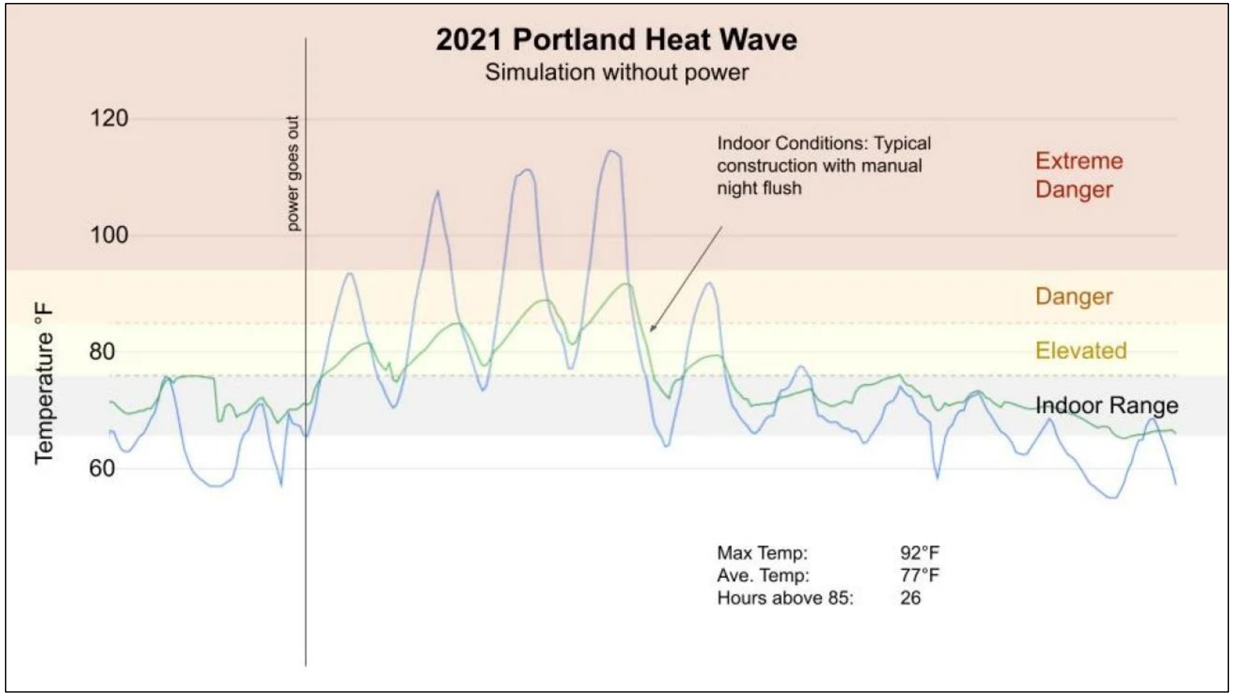


“The June 2021 heat dome event made the summer of 2021 especially hazardous for health, with record-setting maximum temperatures of 116 degrees.”

“There were 72 heat deaths in Multnomah County in 2021— with 69 of those deaths resulting from deadly heat in the last week of June. In a typical year there are zero.”

“Lack of air conditioning (AC) was a key driver in mortality . . . half of those who died had only a fan . . . at temperatures in the upper 90s, fans simply move hot air around. The breeze they produce must be cooler than body temperature to cool the body down.”





"The baseline scenario pushes into the 'extreme danger' range and temperatures remain dangerously high over the following week as accumulated heat has no way to escape."

"The same building, this time with an educated and engaged occupant, has remarkable capacity for well-controlled shading and natural ventilation to eliminate 'extreme danger' temperature hours altogether."

Squire & Le, 2024 https://www.aia.org/aia-architect/article/home-where-resiliency

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DOGS ARE PROHIBITED ON CAMPUS MONDAY THRU FRIDAY

Manufacturing facility with approximately 600 employees.

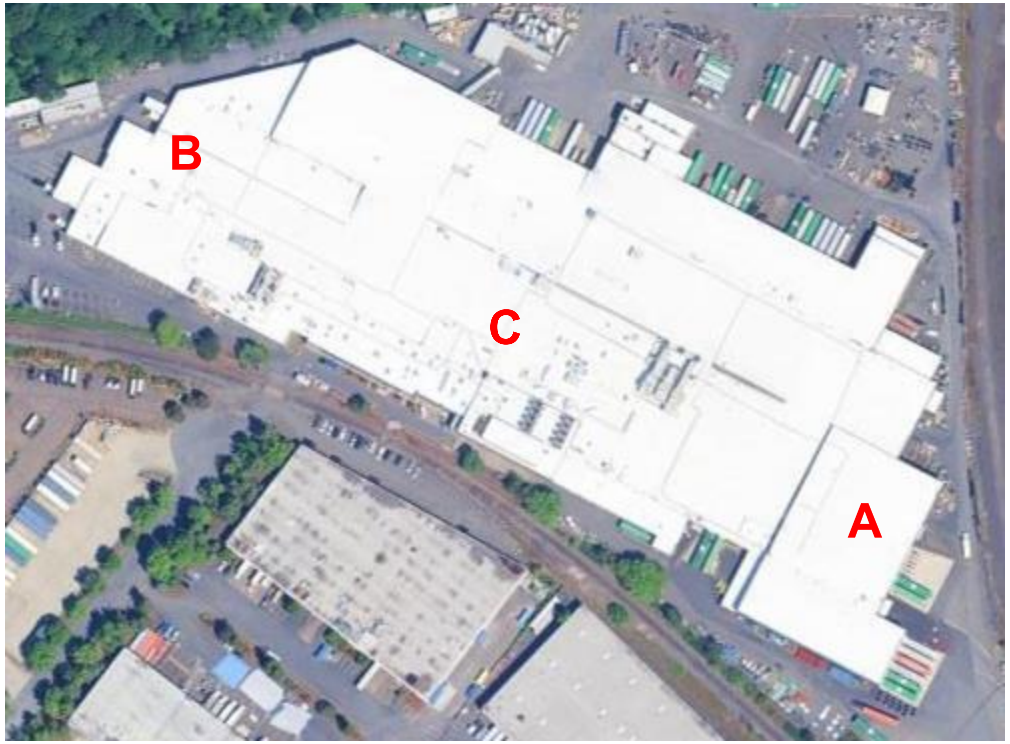
Original construction 1967.

Porous facility – continuously open doors for material handling.

Air conditioning in office and lunch areas.

No air conditioning in production areas.

Estimated cost to install air conditioning in production areas approximately $11 million.



Highest temperature variability near south-facing overhead doors at A; open doors allowed entry of warm daytime air and sunlight on interior surfaces, but they also allowed overnight ventilation.

North-facing overhead doors at B allowed entry of warm daytime air, but large overhead covers extending from the exterior walls provided continuous shade.

Lowest temperature variability in central interior areas at C far from overhead doors; with exception of elevated work areas at mezzanines. These areas at floor level were the relatively coolest in the afternoon, but also the relatively warmest in the morning with no overnight ventilation.

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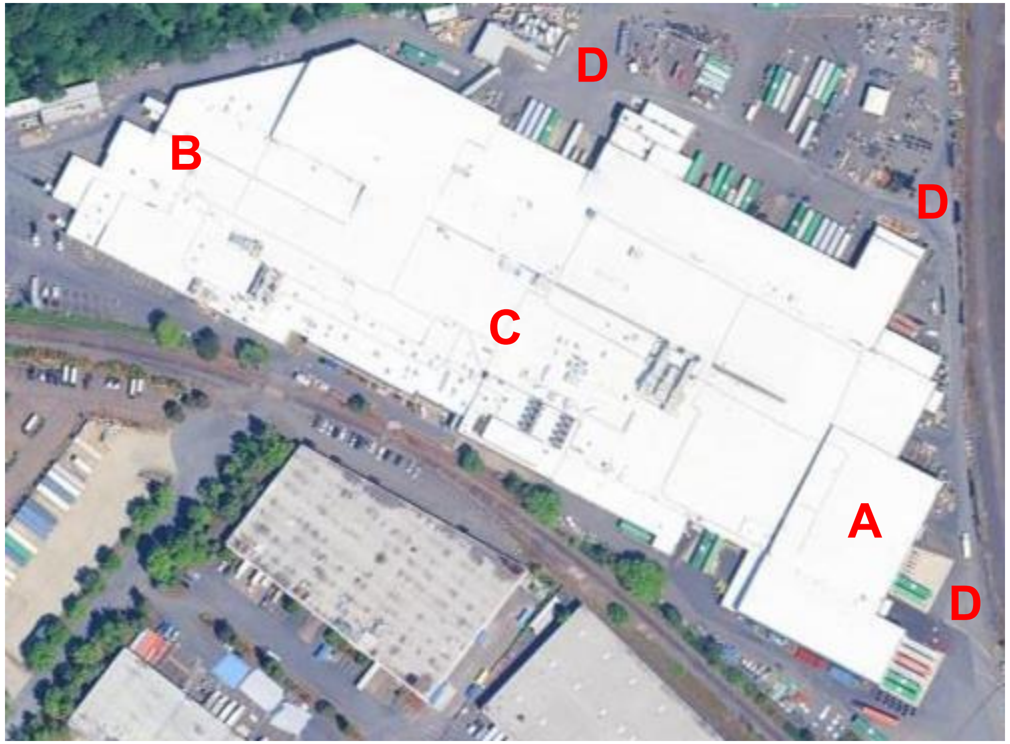

Opportunities for improvement:

Limit passive solar at A and other areas where sunlight heats interior spaces e.g., close doors, close shades, and install awnings.

Limit entry of warm daytime air at B and other locations with open doors; also a strategy for limiting indoor wildfire smoke exposure.

Install roof vents at C and other locations that accumulate warm daytime air.

Evaluate opportunities to remove pavement or shade pavement at D to reduce heat island effect.

Compliance with regulatory standards is a baseline expectation. Identify rules applicable to the location and follow them.

In the absence of applicable rules, or in addition to them, identify best practices for heat illness prevention.

Do not assume uniform levels of heat in the indoor workplace. Assess heat levels in multiple areas seasonally and at different times of day.

Where air conditioning is not feasible, work with qualified professionals such as architects and facilities engineers to evaluate other opportunities for indoor workplace cooling e.g., limiting passive solar heating, limiting entry of warm daytime air, increasing overnight ventilation, etc.

Review proposed changes for other hazards e.g., are you containing forklift exhaust inside after closing doors to keep warm air outside?

Regularly look ahead for changes in environmental conditions requiring additional controls. Temperatures are expected to continue increasing.

Thank you!

Oregon OSHA

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