NOTICE OF PROPOSED RULEMAKING – January 2022
OREGON OSHA

FILING ATTACHMENT

Rules to Address Employee and Labor Housing Occupant Exposure to High Ambient Temperatures

ADOPT: OAR 437-002-0156, 437-004-1131
AMEND: OAR 437-004-1120

Fiscal and Economic Impact: Statement of Cost of Compliance.

1. Impact on state agencies, units of local government and the public (ORS 183.335(2)(b)(E)):

In regards to the adoption of OAR 437-002-0156 and 437-004-1131:
All state agencies and local government units are affected by the rules in the sense that they are employers under the Oregon Safe Employment Act (OSEAct). The public as a whole will be affected only to the degree that members of the public are employers and employees subject to Oregon OSHA jurisdiction.

In regards to the amendment of OAR 437-004-1120 to include provisions on heat illness prevention:
This rule affects the agricultural community, as well all other labor housing operators that are not related to agriculture based on OAR 437-002-0142 Temporary Labor Camps. OAR 437-002-0142 out of Division 2 applies to General Industry, Construction, and Forest Activities and it requires employers to follow the Division 4 requirements (with a few specific exceptions) of OAR 437-004-1120 as they relate to labor camps.

2. Cost of compliance effect on small business (ORS 183.336):
a. Estimate the number of small businesses and types of business and industries with small businesses subject to the rule:

As of March 2021, there were approximately 106,810 firms in the State of Oregon with less than 50 employees, which accounted for 96.0% of all firms statewide. All employers operating in Oregon, regardless of size or industry, whose employees will be exposed to excessive heat, will be subject to the proposed rules OAR 437-002-0156 and 437-004-1131. Types of businesses and industries include any associated with work activities that can potentially expose employees to excessive heat, including but not limited to, workers in Agriculture and Forestry (NAICS Code 11), Construction (NAICS Code 23), and Landscaping Services (NAICS Code 561730).

All agricultural employers operating in the Oregon who offer housing to workers will be subject to the amendments to OAR 437-004-1120. Types of businesses and industries include any agricultural employer offering housing. Work is agriculture focused (NAICS Code 111). For the year 2021 there were 371 registered agricultural labor sites in Oregon.

b. Projected reporting, recordkeeping and other administrative activities required for compliance, including costs of professional services:

In regards to the proposed adoption of OAR 437-002-0156 and 437-004-1131, the projected reporting, recordkeeping and other administrative activities for the cost of compliance are identified for each section of the rule using wage information from Table 1 near the end of the document.

In regards to the amendments to OAR 437-004-1120, the projected reporting, recordkeeping and other administrative activities for the cost of compliance are identified for each section of the rule below.

c. Equipment, supplies, labor and increased administration required for compliance:

In regards to the proposed adoption of OAR 437-002-0156 and 437-004-1131, the projected equipment, supplies, labor and increased administration for the cost of compliance are identified under each section of the rule below using wage information from Table 1 and 2 near the end of the document and were determined by considering survey responses from stakeholders representing small and large businesses, example equipment costs, and administrative and labor wage information.

In regards to the amendments to OAR 437-004-1120, estimated costs related to equipment, supplies, labor and increased administration for implementation are identified under specific sections of the rule requirements listed below and were determined by considering survey responses from stakeholders representing agricultural labor-housing providers, example equipment costs, and administrative and labor wage information.

Estimate of the Cost of Compliance for OAR 437-002-0156 and 437-004-1131

Section (1) Scope and Application estimated costs. The proposed rules would apply whenever an employee performs work activities, whether in indoor or outdoor environments, where the heat index (apparent temperature) equals or exceeds 80 degrees Fahrenheit.

The estimated cost for employers to determine workplace applicability, and to complete a comprehensive review of the proposed standard to determine administrative and operational needs for compliance, uses stakeholder provided survey data that indicates a majority of employers estimated between 2-80 hours to complete such a review.

Using 2- 80 hours for administrative time to complete a comprehensive review of the standard, the median (50th percentile) wage data from selected occupational profiles from Table 1 (near the end of the document), and an additional 35% for soft costs, the estimated costs are:

General and Operations Managers (111021):
$48.87/hr x 2-80hrs x 1.35 (soft cost estimate) = $131.95 - $5,277.96
Human Resource Managers (113121):
$52.33/hr x 2-80hrs x 1.35 (soft cost estimate) = $141.29 - $5,651.64
Farmers, Ranchers, and other Ag Managers (119013):
$38.29/hr x 2-80hrs x 1.35 (soft cost estimate) = $103.38 - $4,135.32
Construction Managers (119021):
$48.47/hr x 2-80hrs x 1.35 (soft cost estimate) = $103.87 - $5,234.76

Occupational Health and Safety Specialists (299011):
$38.84/hr x 2-80hrs x 1.35 (soft cost estimate) = $104.87 - $4,194.72

When surveyed, most employers reported that it would take an average of 40 hours to review the proposed heat standard.

Section (3) Access to shade estimated costs. The proposed rules would require employers to establish and maintain one or more shade areas for employees performing outdoors work activities when the heat index in the work area equals or exceeds 80 degrees Fahrenheit, and when adequate shade is not otherwise readily available. The shade area must either be open to the outside air (at least three open sides) or provide mechanical ventilation for cooling, and be large enough to accommodate the number of employees on rest and meal periods, so that they can sit in a normal posture fully in the shade.

Shade:
Canopies - 10' x 10' canopies may be obtained from a variety of sources including, Amazon, Lowe's, and Target, from $149.00 to $279.00. The cost varies based upon the number of sidewalls purchased. Larger canopies such as 12' x 12' and 12' x 20', depending upon the employer's needs.

Shade sails
Amazon sells shade sails, in both triangle and rectangle shaped, in various sizes, that cost from $24.00 to $120.00

Umbrellas
1. Amazon sells golf umbrellas, from 62"-72", that sell from $21.99 - $29.99
2. Amazon sells an industrial umbrella that provides enough shade for 1-2 workers for $92.00. Others sell for up to $200.00

Alternative cooling methods
Cooling vests
1. Uline has evaporative cooling vests for $46/ea or when buying 3 or more, for $44
2. Amazon has evaporative cooling vests (water only) from $9.99. Amazon also has cooling vests (with ice packs) from $28.99 to $236.00 (with extra ice packs)
3. Amazon has cooling vests with fans that cost from $19.00 to $65.99

Cooling towels
1. Artic Cool "Instant Cooling Towel" cost $9.99
2. "Frogg Toggs Chilly Pad Cooling Towel" cost $10.99, available from Northern Tool + Equipment
3. Amazon has a ten-piece set of cooling towels for $75.00

Note: the temperatures below do not account for relative humidity.

Table 3.1: Number of days equal to or greater than 80°F but less than 90°F, by select Oregon cities (station ID)

	2021	2020	2019	2018	2017

Bend (USC00350694)	41	54	56	47	46
Medford (USW00024225)	55	52	57	65	40
Salem (USW00024232)	57	45	52	44	53
Portland (USC00356750)	66	51	49	39	52

Table 3.2: Number of days equal to or greater than 90ºF but less than 100ºF

	2021	**2020**	**2019**	**2018**	**2017**
Bend (USC00350694)	35	23	6	26	26
Medford (USW00024225)	51	54	54	52	62
Salem (USW00024232)	35	15	9	31	29
Portland (USC00356750)	17	14	9	32	24

Table 3.3:Number of days equal to or greater than 100ºF

	2021	2020	2019	2018	2017
Bend (USC00350694)	3	2	0	1	0
Medford (USW00024225)	23	18	2	11	15
Salem (USW00024232)	6	2	1	0	4
Portland (USC00356750)	5	0	0	0	3

Data downloaded from https://www.ncdc.noaa.gov/cdo-web/search

Due to climate change, Oregon is projected to have more extreme temperatures in the future. Oregon OSHA recognizes that the retrospective data above represents only certain Oregon cities, and is not intended to be used as a forecast for future temperature trends.

Section (4) Drinking water estimated costs. The proposed rules would require employers to ensure that an adequate supply of drinking water is provided to enable each employee to consume up to 32 ounces per hour at their discretion when the heat index in the work area equals or exceeds 80 degrees Fahrenheit.

Water – If employees do not have access to plumbed potable water, employers are required to supply 32 ounces of water per employee per hour, totaling 256 ounces per day, when the heat index equals or exceeds 80 degrees Fahrenheit. Bottled water may be obtained from a variety of sources such as Amazon, Costco, and Office Supply for an average of $0.24 per ounce, costing employers an estimated $61.44 per employee per day, when the heat index equals or exceeds 80 degrees Fahrenheit.

Note: Employers have always had to provide water; there are no rules prior that required a certain quantity.

According to Table 3.1, Table 3.2, and Table 3.3 in section (3) above, an employer in Portland, Oregon would have needed to supply water for a total of 88 days in 2021, costing an estimated $5,406.72 per employee if plumbed water was unavailable, while an employer in Medford, Oregon would have needed to supply water for a total of 129 days, costing $7,925.76 per employee.

Water coolers

1. An Igloo water cooler from Ace Hardware cost $55.00
2. A Rubbermaid Commercial 5-Gallon Water Cooler cost $52.35 from Amazon
3. Amazon also has Igloo water coolers from $40.000 (5-gal) to $80.00 (10-gal)

Section (5) High heat practices estimated costs. When engineering controls (such as fans, or air conditioning) or administrative controls (such as scheduling work during the cooler part of the day or limiting an employee's exposure) or engineering controls (i.e. fans, provide air conditioning) do not reduce an employee's exposure to an ambient heat index of less than 90 degrees Fahrenheit, the proposed rules would require employers to implement and maintain high heat practices which include effective communication, access to emergency medical services, a heat illness prevention work/rest schedule, and monitoring heat and humidity in indoor work environment where there is no mechanical ventilation cooling system.

(A) Implement a written, employer-specific heat illness prevention work/rest schedule using the minimum work/rest durations in Table 5.1 and the information in subparagraph (e)(A)(i) through (e)(A)(iv) below.

Table 5.1: Minimum employer-specific work/rest durations:

Heat index temperature (ºF)	Rest break duration
90 or greater	10 minutes every two hours
100 or greater	20 minutes every hour

(B) Implement an effective heat illness prevention work/rest schedule using the applicable recommendations under DHHS (NIOSH) CDC/NIOSH Publication No. 20167-106, "Criteria for a Recommended Standard: Occupational Exposure to Heat and Hot Environments," or equivalent, provided that their decision to do so is documented in writing; or

(C) Implement a written simplified heat illness prevention work/rest work rest schedule using Table 5.2.

Table 5.2: Simplified heat illness prevention work/rest work rest schedule

Heat index temperature (°F)	Rest break duration
90 or greater	10 minutes every two hours
95 or greater	20 minutes every hour
100 or greater	30 minutes every hour
105 or greater	40 minutes every hour

Using the data in Table 3.1, Table 3.2, and Table 3.3, an employer in Portland, Oregon would have fallen under the requirements of section (5) High heat practices for 22 days, while an employer in Medford, Oregon would have fallen under the requirements of section (5) High heat practices for 74 days.

Communication
When surveyed, most employers reported that they already have communication systems in place.

Direct measurement of heat index
Thermometers – Thermometers that also measure relative humidity (required in structures that are affected by outdoor humidity such as greenhouses and hoop houses) may be purchased from a variety of vendors/manufacturers such as Amazon and Target for between $9.00 and $32.00.

National Institute for Occupational Safety and Health's (NIOSH) Heat Safety Tool app
The National Institute for Occupational Safety and Health's (NIOSH) Heat Safety Tool app is free.

Work/rest schedules estimates of costs
The Oregon Bureau of Labor & Industries (BOLI) requires that employees be provided two 10-minute paid breaks and one 30-minute unpaid meal break for each eight-hour work shift. These rules provide for three options for compliance, cost of each option is described below. Only one option should be included in the total cost to an employer.

(A) Minimum employer-specific work/rest durations:

a. When the heat index is greater than 90 degrees Fahrenheit but less than 100 degrees Fahrenheit, the rule requires rest breaks of 10 minutes every two hours, totaling four 10-minute rest breaks in an 8-hour work day. Two of these rest breaks are already required by BOLI to be paid. Using the mean hourly wage across all occupations ($27.34) plus cost ($9.57) equals $36.91. The two additional 10-minute rest breaks will cost $12.30 per employee per day.

b. When the heat index is greater than 100 degrees Fahrenheit, the rule requires a 20-minute rest breaks every hour, totaling 160 mins of rest breaks in an 8-hour work day. BOLI requires two 10-minute rest breaks in an 8-hour shift, equaling 140 mins of rest breaks to account for; this equals $86.14 per employee per day when using the mean hourly wage across all occupations ($27.34) plus cost ($9.57) equaling $36.91. Using the data in Table 5.1 in section (3) above, this would have cost an employer in Portland, Oregon $430.70 in additional paid rest breaks per employee, while it could have cost an employer in Medford, Oregon $1,981.22 in additional paid rest breaks per employee.

(B) See Table 5.3 (below) for the National Institute for Occupational Safety and Health's work/rest schedule recommendations. The table shows the cost per employee per hour the rest breaks will cost. Cost vary based upon the ambient temperature and by work loads (light, moderate, and heavy). The length of the rest breaks (in minutes per hour) are provided based upon the work load. Cost were generated using the mean hourly wage across all occupations ($27.34) plus cost ($9.57) equals $36.91. As an example, when the ambient air temperature is 100 degrees Fahrenheit and heavy work is being performed, the rest break length is 30 minutes per hours, totaling a cost to the employer of $18.48 per employee per hour when the ambient air temperature is 100 degrees Fahrenheit (unadjusted for humidity).

Table 5.3: NIOSH's Work/Rest Schedule Recommendations

Degrees Fahrenheit	**Light work** Work/Rest	Number of 5 min increments	In dollars per employee per hour	**Moderate work** Work/Rest	Number of 5 min increments	In dollars per employee per hour	**Heavy work** Work/Rest	Number of 5 min increments	In dollars per employee per hour
90									
91									
92									
93									
94									
95							15	3	9.24
96							15	3	9.24
97							20	4	12.32
98							25	5	15.4
99							25	5	15.4
100				15	3	9.24	30	6	18.48
101				20	4	12.32	30	6	18.48
102				25	5	15.40	35	7	21.56
103				30	6	18.48	40	8	24.64
104				30	6	18.48	40	8	24.64
105				35	7	21.56	45	9	27.72
106	15	3	9.24	40	8	54.64			
107	20	4	12.32	45	9	27.72			
108	25	5	15.40						
109	30	6	18.48						
110	45	9	27.72						
111	Caution								
112									

An employer estimated that using NIOSH's work/rest schedule, employees would be impacted between 120-160 hours per employee. Using the average wage rate of $36.91, this would equal an annual cost of $4,429.20 - $5,906.60 per employee for implementation.

(C) Following the simplified work/rest schedule in Table 5.2 above, the following Table 5.4 provides estimated costs based on the mean hourly wage*:

Table 5.4: Work/rest schedule costs using mean hourly wage

Heat index temperature (ºF)	Rest break durations	Cost
90 or greater	15 minutes every two hours	$9.24
95 or greater	20 minutes every hour	$12.32
100 or greater	30 minutes every hour	$18.48
105 or greater	40 minutes every hour	$24.64

*Costs in Table 5.4 were generated using the mean hourly wage across all occupations ($27.34) plus cost ($9.57) equaling $36.91.

Administrative cost to develop work/rest schedule in writing

The estimated total cost to develop work/rest schedules in writing uses an estimated development time of between 2-40 hours, the lowest and highest median (50th percentile) wage data from selected examples of occupational profiles from Table 1 near the end of the document, and an additional 35% for soft costs;

First-line Supervisors of Farming, Fishing, and Forestry Workers (451011)
$26.26/hr x 2-40hrs x 1.35 (soft cost estimate) = $70.90 - $1,418.04/yr
Human Resource Managers (113121):
$52.33/hr x 2-40hrs x 1.35 (soft cost estimate) = $141.29 - $2,825.82/yr

Section (6) Emergency Medical Plan and Emergency Action Plan estimated costs.

(a) Employers covered by OAR 437, Division 2, must ensure their Emergency Medical Plan addresses employee exposure to excessive heat, in accordance with OAR 437-002-0042.
(b) Agricultural employers covered by OAR 437, Division 4, must ensure their Emergency Action Plan to addresses employee exposure to excessive heat, in accordance with OAR 437-004-0450.

The estimated total cost to either develop or update Emergency Medical Plans or Emergency Action plans uses an estimated total estimated development time of between 2 – 40 hours, the lowest and highest median (50th percentile) wage data from selected examples of occupational profiles from Table 1 near the end of the document, and an additional 35% for soft costs;

First-line Supervisors of Farming, Fishing, and Forestry Workers (451011)
$26.26/hr x 2-40hrs x 1.35 (soft cost estimate) = $70.90 - $1,418.04/yr
Human Resource Managers (113121):
$52.33/hr x 2-40hrs x 1.35 (soft cost estimate) = $141.29 - $2,825.82/yr

Section (7) Acclimatization Plan estimated costs.
The proposed rules would require employers to develop and implement effective acclimatization procedures and plans in writing to effectively prevent heat-related illnesses. The proposed rules allows employers to either develop their own acclimatization plan taking specific elements in consideration, follow the acclimatization plan developed by the Centers for Disease Control and Prevention and NIOSH.

Acclimatization schedules
NIOSH has two different acclimatization schedules; one is for new workers and the other is for workers who have had previous experience on the job. For new workers, the schedule should be no more than a 20% exposure on day 1 and an increase of no more than 20% on each additional day. For workers who have had previous experience with the job, the acclimatization regimen should be no more than a 50% exposure on day 1, 60% on day 2, 80% on day 3, and 100% on day 4. Acclimatization schedules are likely to impact employers that have workers that perform work outdoors.

Oregon OSHA does not expect that acclimatization will result in any negative cost to employers, provided employers are able to have employees start work earlier in the day to avoid high heat or relocate workers to an area with lower ambient temperatures.

These rules provide for two options for compliance, cost of each option is described below. Only one option should be included in the total cost to an employer.

Cost to develop an acclimatization plan

Option (a)
The estimated total cost to develop an acclimatization plan uses an estimated time of between 2 – 40 hours, the lowest and highest median (50th percentile) wage data from selected examples of occupational profiles from Table 1 near the end of the document, and an additional 35% for soft costs;

First-line Supervisors of Farming, Fishing, and Forestry Workers (451011)
$26.26/hr x 2-40hrs x 1.35 (soft cost estimate) = $70.90 - $1,418.04/yr
Human Resource Managers (113121):
$52.33/hr x 2-40hrs x 1.35 (soft cost estimate) = $141.29 - $2,825.82/yr

Option (b)
There is no cost associated with developing an acclimatization plan when employers chose to follow NIOSH's acclimatization schedule.

Section (8) Heat Illness Prevention Plan estimated costs. The proposed rules would require employers to develop, implement, and maintain, an effective heat illness prevention plan, in writing.

Estimated cost to develop, implement and maintain Heat Illness Prevention Plan

The estimated total cost to develop, implement and maintain a Heat Illness Prevention plan uses an estimated time of between 2-40 hours, the lowest and highest median (50th percentile) wage data from selected examples of occupational profiles from Table 1 near the end of the document, and an additional 35% for soft costs;

First-line Supervisors of Farming, Fishing, and Forestry Workers (451011)

$26.26/hr x 2-40hrs x 1.35 (soft cost estimate) = $70.90 - $1,418.04/yr

Human Resource Managers (113121):

$52.33/hr x 2-40hrs x 1.35 (soft cost estimate) = $141.29 - $2,825.82/yr

Section (9) Supervisor and employee training estimated costs. The proposed rules would require employers to provide annual training to all employees, including new employees, supervisory and non-supervisory employees in a language and vocabulary readily understood before employees begin work that should reasonably be anticipated to expose employees to the risk of heat illness.

Estimated cost

Estimate 4 hours of administrative time to develop the required training materials that includes the applicable training elements listed in the rule. Estimate one hour of employee time to complete the training. Estimate two hours of trainer time to prepare for and conduct each employee training session (assume 3 training sessions). Estimate a workforce of 9 employees.

Using 50th percentile complete wage of occupational health and safety specialist: $51.61/hr

$51.61/hr x 4hrs = $206.44/initial training material development (one-time cost)

$51.61/hr x 2hrs x 3 training sessions = $309.66/trainer costs to provide three training sessions

Using 50th percentile complete wage of human resource specialist: $39.08/hr

$39.08/hr x 4hrs = $156.32/initial training material development (one-time cost)

$39.08/hr x 2hrs x 3 training sessions = $234.48/trainer costs to provide three training sessions

Using 50th percentile of 2020 General Oregon Wage Data: $20.34/hr x 135% (soft cost estimate) = $27.46 (complete wage estimate at 50th percentile)

Estimate a workforce of 9 employees that must complete the one-hour training

$27.46/hr x 1hr x 9 employees = $247.14/workforce of 9 employees to complete training (one-time cost)

Section (11) Training documentation estimated costs. The proposed rules would require employers document annual employee training in writing or electronically, and maintain the most recent training record for each affected employee.

The estimated total cost to document annual supervisor and employee heat training in writing or electronically each year uses an estimated total estimated documentation time between 2-40 hours, the lowest and highest median (50th percentile) wage data from selected examples of occupational profiles from Table 1 below, and an additional 35% for soft costs;

First-line Supervisors of Farming, Fishing, and Forestry Workers (451011)

$26.26/hr x 2-40hrs x 1.35 (soft cost estimate) = $70.90 - $1,418.04/yr

Human Resource Managers (113121):

$52.33/hr x 2-40hrs x 1.35 (soft cost estimate) = $141.29 - $2,825.82/yr

Wage Reference Information: Data in Tables 1 and 2 below is from the Oregon Employment Department (OED) occupational profile reports for Occupational wage data in QualityInfo representing first quarter 2021 wages. Per OED (Data Sources and Limitations for Occupational Wages), *"The data used to create these estimates came from the Occupational Employment and Wage Survey. This survey samples more than 6,000 business establishments per year, taking three years to fully collect the sample of more than 18,000 establishments. The data used for the current wage estimates came from surveys that were conducted in 2017, 2018, 2019, and 2020. The wage data were then adjusted to 2021 using the Employment Cost Index. It is important to note that these wage rates may vary between industries, as well as by firm size within an industry. Also, when determining wage rates for individual occupations, it is important to assess current labor market conditions which may also affect wages."*

Table 1: 2021 Oregon Occupational Wage Data for Administrative Costs

North American Industrial Code System (NAICS)	Occupation Profile Description	Statewide average hourly wage in dollars ($)		
		10th Percentile	50th Percentile (Median)	90th Percentile
111021	General and Operations Managers	20.33	48.87	78.24
113121	Human Resource Managers	30.70	52.33	84.19
119013	Farmers, Ranchers, and other Ag Managers	17.06	38.29	54.61
119021	Construction Managers	29.43	48.87	78.24
299011	Occupational Health and Safety Specialists	24.07	38.84	54.75
371012	First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	16.56	26.52	41.03
451011	First-line Supervisors of Farming, Fishing, and Forestry Workers	16.23	26.26	38.95
471011	First-Line Supervisors of Construction Trades	23.32	36.58	55.46
511011	First-Line Supervisors of Production and Operating Workers	18.67	29.25	44.91

Source: Oregon Employment Department – Economic Data, Employment and Wages by Industry (All Counties), available at: Employment and Wages by Industry (QCEW) - QualityInfo

Table 2: 2021 Oregon Occupational Wage Data for Labor Costs				
North American Industrial Code System (NAICS)	Occupation profile description	Statewide average hourly wage in dollars ($)		
		10th Percentile	50th Percentile (Median)	90th Percentile
194093	Forest and Conservation Technician	13.64	18.27	30.27
292041	Emergency Medical Technicians and Paramedics	13.42	20.23	31.45
332011	Firefighters	15.14	32.01	50.22
333051	Police and Sheriff's Patrol Officers	26.83	38.24	49.08
373011	Landscaping and Groundskeeping Workers	12.93	17.50	25.43
373013	Tree Trimmers and Pruners	17.02	26.72	39.22
435041	Meter Readers, Utilities	18.38	26.28	34.94
435052	Postal Service Mail Carriers	18.73	24.07	32.59
452092	Farmworkers and Laborers, Crop, Nursery, and Greenhouses	12.40	14.01	18.33
452099	Agricultural Workers, All Other	12.41	18.94	32.03
454011	Forest and Conservation Workers	12.49	17.84	24.75
454021	Fallers (Logging)	22.54	32.78	40.60
454023	Log Graders and Scalers	14.22	22.97	29.52
454029	Logging Workers, All Other	17.15	21.76	26.52
472031	Carpenters	16.79	26.12	40.89
472061	Construction Laborers	13.97	20.46	31.79
472181	Roofers	14.95	24.13	38.66
472231	Solar Photovoltaic Installers	19.45	28.75	36.79
474051	Highway Maintenance Workers	20.26	26.65	31.86
499021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	15.69	25.79	39.61
499051	Electrical Power-Line Installers and Repairers	37.92	49.74	61.88
499052	Telecommunications Line Installers and Repairers	17.55	24.80	36.05
499071	Maintenance and Repair Worker wages	13.52	20.09	31.67
533021	Bus Drivers, Transit and Intercity	16.38	24.64	32.43
533022	Bus Drivers, School or Special Client	12.80	18.17	24.57
533033	Light Truck or Delivery Services Drivers	13.20	18.83	31.69
519198	Helpers – Production Workers	12.77	16.58	23.47
537063	Machine Feeders and Offbearers	13.61	18.28	24.66
Source: Oregon Employment Department – Economic Data, Employment and Wages by Industry (All Counties), available at: Employment and Wages by Industry (QCEW) - QualityInfo				

Estimate of the Cost of Compliance for amending OAR 437-004-1120 to include the Heat Illness Prevention section.

The estimated cost for employers to determine workplace applicability, and to complete a comprehensive review of the proposed standard to determine administrative and operational needs for compliance, uses stakeholder provided survey data that indicates a majority of employers estimated between 2 – 16 hours to complete such a review.

Using 2 – 16 hours for administrative time to complete a comprehensive review of the standard, the median (50th percentile) wage data from selected occupational profiles from Table 1 (see above, and an additional 35% for soft costs, the estimated costs are:

Farmers, Ranchers, and other Ag Managers (119013): $38.29/hr x 1.35 (soft cost estimate) x 2-16 hours = $103.38 - $827.04

Subsection (25)(a) Cooling Areas

Indoor cooling units (window or in-wall AC units, and portable evaporative coolers) can be obtained through a variety of sources including Amazon, Lowes, Home Depot, Grainger, and Sylvane. The cost varies based on style (window, portable, through the wall), capacity, and features (for example, WIFI capability).

Residential Grade window indoor AC units capable of cooling between 300 and 700 sq. ft (8,000 – 14,000 BtuH) sold at Grainger cost between $400 and $1,200 per unit. Units capable of cooling 1,500 sq. ft cost approximately $1400.00 per unit.

Residential Grade through the wall AC units capable of cooling between 300 and 700 sq. ft sold at Grainger cost between $600 - $1,100 per unit.

Portable evaporative coolers sold at Grainger capable of cooling between 350 and 3,000 sq. cost between $400 and $1,600 per unit.

Shade:
Canopies - 10’ x 10’ canopies may be obtained from a variety of sources including, Amazon, Lowe’s, and Target, from $149.00 to $279.00. The cost varies based upon the number of sidewalls purchased. Larger canopies such as 12’ x 12’ and 12’ x 20’, depending upon the employer’s needs.

Shade sails - Amazon sells shade sails, in both triangle and rectangle shaped, in various sizes, that cost from $24.00 to $120.00

Cooling vests

1. Uline has evaporative cooling vests for $46/ea or when buying 3 or more, for $44
2. Amazon has evaporative cooling vests (water only) from $9.99. Amazon also has cooling vests (with ice packs) from $28.99 to $236.00 (with extra ice packs)
3. Amazon has cooling vests with fans that cost from $19.00 to $65.99

Cooling towels

1. Artic Cool Instant Cooling Towel: $9.99
2. "Frogg Toggs Chilly Pad Cooling Towel": $10.99
3. Amazon has a ten-piece set of cooling towels for $75.00

Misting fans

1. Kobalt indoor/outdoor misting fan stand: $122.55
2. XPOWER heavy duty misting fan: $180.00

Subsection (25)(b) – Minimize Heat in Housing Units

Window awnings

1. Awnings in a Box, 96" wide: $333.39
2. Mcombo Aluminum retractable awning: $249.99

Indoor window coverings

1. Brookstone blackout window curtain, 84", $31.99 per panel
2. Eclipse Ambiance blackout curtain panel, 50", $80.00 per panel
3. Exclusive Fabrics & Furnishing blackout curtain, 100", $134.93 per panel

Fans

1. Lasko high velocity fan: $78.49
2. Floor fan (24"): $215

Subsection (25)(c) – Temperature Awareness

Thermometers – Thermometers that also measure relative humidity may be purchased from a variety of vendors/manufacturers such as Amazon and Target for between $9.00 and $32.00.

Subsection (25)(d) – Employee and Occupant Information. Heat Risks in Housing poster is available free of charge from Oregon OSHA.

Subsection (25)(e) – Access to Emergency Services
No substantive cost is expected, as a phone is already required by BOLI OAR 839-014-0610(1)