

Wet Bulb Globe Temperature (WBGT)

		Temperature in Degrees Fahrenheit															
		68	71.6	75.2	78.8	82.4	86	89.6	93.2	96.8	100	104	108	111	115	118	122
Relative Humidity (%)	0	58.6	60.9	64.3	65.5	67.7	69.9	72.1	74.3	76.4	78.5	80.6	82.6	84.7	86.6	88.6	90.5
	5	59.6	62.1	65.6	67	69.3	71.7	74	76.4	78.6	80.9	83.1	85.3	87.5	89.9	92.1	94.2
	10	60.7	63.3	66.9	68.4	70.8	73.3	75.8	78.2	80.7	83	85.5	88	90.3	92.8	95.1	97.6
	15	61.7	64.5	68.1	69.6	72.2	74.8	77.4	80	82.6	85.2	87.8	90.2	92.8	95.4	98	
	20	62.7	65.6	69.4	70.9	73.6	76.3	79.2	81.8	84.5	87.1	89.8	92.5	95.2	97.8		
	25	63.8	66.7	70.5	72.2	75.1	77.8	80.6	83.4	86.2	89	91.8	94.6	97.4			
	30	64.8	67.6	71.7	73.4	76.3	79.2	82.1	84.9	87.8	90.8	93.6	96.6	99.4			
	35	65.6	68.6	72.7	74.6	77.5	80.5	83.5	86.4	89.4	92.4	95.3	98.3				
	40	66.7	69.6	73.8	75.7	78.8	81.8	84.8	87.8	90.9	94	97					
	45	67.5	70.6	74.8	76.8	79.9	83	86.1	89.2	92.3	95.4	98.6					
	50	68.4	71.5	75.8	77.8	81.1	84.1	87.4	90.5	93.7	96.9						
	55	69.3	72.4	76.7	78.8	82.1	85.3	88.5	91.9	95.1	98.3						
	60	70.1	73.3	77.7	79.8	83.2	86.4	89.8	93.1	96.3	99.6						
	65	70.9	73.8	78.6	80.9	84.2	87.5	90.8	94.1	97.5							
	70	71.7	75	79.5	81.7	84.9	88.6	91.9	95.3	98.6							
	75	72.4	75.9	80.3	82.7	86.1	89.6	92.9	96.4								
80	73.2	76.7	81.2	83.6	87.1	90.4	93.9	97.4									
85	74	77.4	82	84.5	88	91.5	94.9	98.5									
90	74.7	78.2	82.9	85.3	88.9	92.3	95.9	99.4									
95	75.5	78.9	83.6	86.1	89.6	93.2	96.8										
100	76.1	79.7	84.4	86.9	90.5	94.1	97.7										

WBGT – Outdoor	$WBGT_{out} = 0.7T_{nwb} + 0.2T_g + 0.1T_{db}$
WBGT – Indoor	$WBGT_{in} = 0.7T_{nwb} + 0.3T_g$

T_{db} : Dry-bulb temperature

T_{nwb} : Natural wet-bulb temperature

T_g : Globe temperature

Work Category

Work Category	Metabolic Rate (Watts)	Examples
Light work	180	Sitting, Standing
Moderate work	300	Normal walking, Moderate lifting
Heavy work	415	Walking at a fast pace

Correction for Clothing

Clothing Worn	Adjustment
Work clothes (long sleeves and pants). Examples: Standard cotton shirt/pants.	0
Coveralls (w/only underwear underneath). Examples: Cotton or light polyester material.	0
SMS Polypropylene Coveralls	0.5
Polyolefin coveralls. Examples: Micro-porous fabric (e.g., Tyvek™).	1
Double-layer woven clothing.	3
Limited-use vapor-barrier coveralls. Examples: Encapsulating suits, whole-body chemical protective suits, firefighter turn-out gear.	11

Heat Risk	Category	Wet Bulb Globe Temp	Light Work		Moderate Work		Heavy Work	
			Work/Rest	Water Intake (quart/hr)	Work/Rest	Water Intake (quart/hr)	Work/Rest	Water Intake (quart/hr)
No Risk	Unacclimated	78-79.9	50/10 min	1/2	40/20 min	3/4	30/30 min	3/4
	Acclimated	78-79.9	continuous	1/2	continuous	3/4	50/10 min	3/4
Low	Unacclimated	80-84.9	40/20 min	1/2	30/30 min	3/4	20/40 min	1
	Acclimated	80-84.9	continuous	1/2	50/10 min	3/4	40/20 min	1
Moderate	Unacclimated	85-87.9	30/30 min	3/4	20/40 min	3/4	10/50 min	1
	Acclimated	85-87.5	continuous	3/4	40/20 min	3/4	30/30 min	1
High	Unacclimated	88-90	20/40 min	3/4	10/50 min	3/4	avoid	1
	Acclimated	88-90	continuous	3/4	30/30 min	3/4	20/40 min	1
Extreme	Unacclimated	>90	10/50 min	1	avoid	1	avoid	1
	Acclimated	>90	50/10 min	1	20/40 min	1	10/50 min	1

Adapted from OSHA

The training and educational materials were produced under grant SH-05048-SH8 from the Occupational Safety and Health Administration, U.S. Department of Labor. It does not necessarily reflect the views or policies of the U.S. Department of Labor, nor does mention of trade names, commercial products, or organizations imply endorsement by the U.S. Government.