



## Outdoor Heat Stress Warning

General warnings will be posted on the OHS Website <http://www.smu.ca/administration/ohs/>  
(Outside workers will be advised where the Humidex is greater than 40)

Saint Mary's University recognizes the potential problems caused by high temperatures in the work environment or associated with sports activities. Heat Stress Guidelines, based on a Humidex value and modified to consider activity level and clothing, have been established to prevent the occurrence of heat related illness.

The Humidex-is determined by measurement of indoor air (dry bulb) temperature and relative humidity at waist height at the location where the activity is being done. The Humidex is then read from the chart on page two of this document.

The Heat Response Guidelines for Outdoor Work or Sports Activity are listed for each Humidex range on page 3 of this document. Please note that a Humidex adjustment might be required, depending on the clothing being worn and exposure to direct sunlight.

A significant contributor to heat stress is the amount of heat generated by the metabolic activity of the individual, which is why the Heat Stress Guidelines are linked to the activity level or work load:

- **Rest:** sitting quietly or with moderate arm movements (e.g.: reading, working at a computer, or attending a lecture)
- **Light Work or Activity:** sitting or standing to control equipment, performing light hand or arm work with occasional walking (e.g.: laboratory analyses, giving a lecture, driving a car, making field observations, piloting a power boat, using a table saw, or operating a floor polisher)
- **Moderate Work or Activity:** Walking with moderate pushing or pulling, walking at a moderate pace (e.g.: stocking shelves with moderately heavy items, scrubbing in a standing position, sweeping floors or sidewalks, operating a walk-behind lawn mower, or field work requiring the carrying of equipment,)
- **Heavy Work or Activity:** pick and shovel work, carrying, pushing or pulling heavy loads, walking at a fast pace (e.g.: a carpenter sawing by hand, rowing a boat, field work requiring hiking with a backpack, or playing tennis or soccer)
- **Very Heavy Work or Activity :** very intense activity at fast to maximum pace (e.g.: shovelling wet sand, maximum sports exertion such as running a 400 metre race)

Employees or sports persons should govern their activities by the Heat Response Guidelines on page 3 of this document. If any time, you believe your physical health and safety is being

affected by the workplace environment or task you are performing, contact your direct report immediately.

Further information on heat stress topics is available on the Saint Mary's University OHS Site: <http://www.smu.ca/administration/ohs/>

- Saint Mary's Heat Stress Guidelines Policy
- Occupational Health and Safety: Thermal Comfort and Heat Stress
- Occupational Health and Safety: Heat Stress Alert Notice
- Occupational Health and Safety: Indoor Heat Stress Warning Notice
- Occupational Health and Safety: Health Effects of Heat Stress
- Occupational Health and Safety: First Aid Treatment of Heat Stress

### Humidex

Read the Humidex from the following chart by finding the number where the dry bulb temperature (°C) intersects with the relative humidity (%).

		RELATIVE HUMIDITY (%)																												
		100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%										
TEMPERATURE (°C)	49																			50	49									
	48																			49	48									
	47																		50	47	47									
	46																		49	46	46									
	45																	50	47	45	45									
	44																	49	46	44	44									
	43																49	47	45	42	43									
	42															50	48	46	43	41	42									
	41															48	46	44	42	40	41									
	40															49	47	45	43	41	39	40								
	39														49	47	45	43	41	39	37	39								
	38														49	47	45	44	42	40	38	36	38							
	37														49	47	45	44	42	40	38	37	35	37						
	36														50	49	47	45	44	42	40	39	37	35	34	36				
	35														50	48	47	45	44	42	40	39	37	36	34	33	35			
	34														49	48	46	45	43	42	40	39	37	36	34	33	31	34		
	33														50	48	47	46	44	43	41	40	39	37	36	34	33	30	33	
	32														50	49	48	46	45	44	42	41	40	38	37	36	34	33	32	29
31	50	49	48	47	45	44	43	42	40	39	38	37	35	34	33	32	30	29	28	27	28	27	26	25	24	23	22	21	31	
30	48	47	46	44	43	42	41	40	39	37	36	35	34	33	32	30	29	28	27	26	27	26	25	24	23	22	21	30		
29	46	45	43	42	41	40	39	38	37	36	35	33	32	31	30	29	28	27	26	25	26	25	24	23	22	21	29			
28	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	28
27	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	27
26	39	38	37	36	35	34	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	26
25	37	36	35	34	34	33	32	31	30	29	28	27	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	25
24	35	34	33	33	32	31	30	29	28	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	10	24
23	33	32	32	31	30	29	28	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	9	9	23
22	31	30	30	29	28	27	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	8	8	8	22
21	29	29	28	27	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	7	7	7	7	21
		100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%										

Acknowledgement: This chart is copied, with permission, from the Heat Stress Awareness Guide published by the Occupational Health and Safety Council of Ontario, 2007.

**Humidex-Based Heat Response Guidelines**  
**for Outdoor Work or Sports Activities**

(for un-acclimatized employees doing light outdoor physical work, such as operating motorized equipment or undertaking scientific field activities, for acclimatized employees doing moderate outdoor physical work such as landscaping or construction, and for outdoor sports activities)

**Notes:** Take the Humidex value from the Chart on page 2 and modify it for a clothing adjustment, if required. The guidelines assume regular summer clothes, including light shirt and pants, underwear and shoes. For an employee who must wear full cotton overalls over their clothes, 5° should be added to the Humidex value. Other clothing configurations should be prorated accordingly. For example, gloves, apron and protective sleeves and hard hat would add 2° to the Humidex value. For a sports person, the effect of the sports uniform and any protective equipment must be taken into account. For example, tennis garb would not add to the Humidex value, but full football gear would add 5° to the Humidex value. For outdoor work or sports activity in direct sunlight between the hours of 10 am and 5 pm, 2 or 3° should be added to the Humidex value, depending on the amount of cloud cover.

<b>Humidex*</b>	<b>Heat Response Guidelines (Outdoor)</b>
<b>36-39 Low</b>	Post Heat Stress Alert Notice Encourage employees/sportspersons in the area to drink extra water Start recording dry bulb air temperature and relative humidity
<b>40-42 Low</b>	Post Heat Stress Warning Notice Notify employees/sportspersons in the area that they need to drink extra water Ensure employees/sportspersons are trained to recognize symptoms of heat stress
<b>43-44 Medium</b>	Provide employees/sportspersons with 15 minutes relief/rest break per hour, preferably in an air conditioned or cool location Provide adequate cool (10-15°C) water Encourage employees/sportspersons to drink at least 1 cup (240 ml) of water every 20-30 minutes Ensure that persons with symptoms of heat stress get medical attention
<b>45-46 Moderate</b>	Provide employees/sportspersons with 30 minutes relief/rest break per hour, preferably in an air conditioned or cool location Provide adequate cool (10-15°C) water Encourage employees/sportspersons to drink at least 1 cup (240 ml) of water every 15-20 minutes Ensure that persons with symptoms of heat stress get medical attention
<b>47-49 High</b>	<b>Only acclimatized persons should be allowed to work or participate in the sports activity.</b> If feasible to continue work or sports activity, provide employees/sportspersons with 45 minutes relief/rest break per hour, preferably in an air conditioned or cool location Provide adequate cool (10-15°C) water Encourage employees/sportspersons to drink at least 1 cup (240 ml) of water every 10-15 minutes Ensure that persons with symptoms of heat stress get medical attention
<b>50 or over Extreme</b>	Hazardous to continue physical activity Stop the work or sports activity until Humidex is 49 or less Only medically supervised work can continue

\* Use clothing-adjusted and sunlight-adjusted Humidex as described in Notes above.