

1.5.C.1 Weather Index Alert

I Policy Index:



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Office of Primary Responsibility: DOC Administration

II Policy:

Department of Corrections (DOC) staff will monitor and limit outside activities by inmates during a heat index or wind chill alert.

III Definition(s):

Heat Index:

A measure of the discomfort and heat stress caused by the combination of temperature and relative humidity. Heat index is also referred to as "apparent temperature" and is an accurate measure of how hot it feels to the human body when the current level of relative humidity is added to the actual air temperature. The heat index is usually given in degrees and may be higher or lower than the actual temperature.

Relative Humidity:

A ratio, expressed in percent, of the amount of atmospheric moisture present relative to the amount that would be present if the air were saturated. Relative humidity is a function of both moisture content and temperature. Relative humidity is derived from the associated temperature and dew point for the indicated hour.

Shift Commander:

The senior ranking uniformed line officer at a DOC facility housing inmates, most commonly a Sergeant, Lieutenant or Captain.

Wind Chill Index:

The calculation of temperature that takes into consideration the effects of wind and temperature on the human body. This is not the actual air temperature, but what it feels like to the average person. Increased wind speeds accelerate heat loss from exposed skin. Wind chill is a measure of this effect. According to the National Weather Service, the threshold for potentially dangerous wind chill conditions is about -20 F.

IV Procedure(s):

1. Tracking Heat Index:

- A. The shift commander will ensure the heat index is monitored for potential impact on outside inmate activities, whenever such weather conditions exist.

- B. The preferred method for determining heat index is to obtain the current relative humidity and temperature reading from the National Weather Service. Staff will obtain the current relative humidity and temperature reading for the approximate area where outside inmate activity is planned and calculate the heat index by using the Heat Index Chart (See [Attachment 1](#)).
1. In the Sioux Falls area, the relative humidity and temperature reading may be obtained by calling the National Weather Service at (605) 330-4444 and noting the information from the recording, which is updated hourly.
 2. In the Rapid City area, the relative humidity and temperature reading may be obtained by calling the National Weather Service at (605) 341-7531 and noting the information from the recording, which is updated hourly.
 3. If the current relative humidity and temperature for the area where outside inmate activity is planned cannot be obtained from the National Weather Service, the heat index will be obtained through the Internet or local media forecast reports.
- C. Other methods for tracking the heat index may include:
1. Current weather reports available on the internet at <http://www.weather.gov/forecastmaps> or through applications on a mobile phone (visit <http://mobile.weather.gov>).
 - a. If staff have limited or no access to the Internet, they may tune into the National Weather Service station serving the local area or listen for local radio reports on the temperature and relative humidity.
 - 1) Sioux Falls WXM28 162.400
 - 2) Rapid City WXM63 162.550
 - 3) Pierre WXM26 162.400
 - b. Once the local temperature and relative humidity is determined, staff will refer to the Heat Index Chart to determine the current heat index (See [Attachment 1](#)).
 2. Internet: The following are a list of some of the various internet sites that will provide local weather information, including heat index.
 - a. <http://www.intellicast.com/>
 - b. <http://www.nws.noaa.gov/>
 - c. <http://weather.com/>
 - d. <http://weather.gov>

Note: Anyone viewing these pages electronically can click on the webpage address.
 3. Staff who utilizes <http://www.intellicast.com/> should follow the instructions below to obtain heat index:
 - a. On the home page of intellicast.com, top right-hand side of the screen is a box called **Forecast**.
 - b. Type in the local **Zip Code** or your city and **SD** in the applicable spaces.
 - c. Scroll down to find the **Heat Index**.

4. If a different website is accessed, staff should follow the instructions provided by that website to obtain heat index information.

2. Monitoring Heat Index and Declaring an Alert:

- A. Any time the temperature is forecasted to be **ninety degrees Fahrenheit (90° F) to nintynine degrees Fahrenheit (99° F)**, the shift commander or designee will periodically check the heat index, particularly from the hours of 12 p.m. to 5 p.m.
 1. Any time the heat index is between **one hundred degrees Fahrenheit (100° F) to one hundred four (104° F)**, the shift commander or designee will check the heat index at least hourly.
 2. [Attachment 2](#) describes in general terms the medical problems that can occur from expose to high heat index levels.
- B. If the heat index **reaches or exceeds one-hundred five degrees (105° F)**, the shift commander or designee will announce a heat index alert over the radio and staff will inform inmates and immediate community service work supervisors of the alert. Staff will begin implementing the procedures described below in **Heat Index Limitation of Activities**.
- C. When declaring a heat index alert, the shift commander or designee will direct staff to carefully observe inmates for signs or symptoms of common heat related health problems (See [Attachment 3](#)).
- D. If an inmate shows signs of heat related distress, first aid will be administered immediately and contact Health Services and/or emergency responders (911) if Health Services is unavailable.

3. Heat Index - Limitation of Activities:

- A. Any time a heat index alert is announced, outside inmate activity will be monitored by staff. Limits may be initiated on inmate work or recreation activities occurring on DOC grounds.
- B. Exceptions in the type of outside work activity performed by inmates may be granted by the Secretary of Corrections or Director of Prison Operations during an Emergency Response Operation, Deployment to a Natural Disaster, or by the Warden for institutional work deemed essential, provided proper safety precautions are planned and exercised. Care will be taken by those supervising inmate activities to reduce excessive risk of serious harm to inmates' health or safety. Staff will not knowingly compel an inmate to perform physical outside work activity that is beyond the inmate's strength or ability or endanger the inmate's health by requiring work be performed.
- C. The Warden shift commander or designee and work supervisors may determine work or recreational activity that may be limited in addition to those activities listed in D. below. During a heat index alert, inmates may be sent back to their housing unit from work or recreation or allowed to perform limited recreational activity and/or essential outside strenuous work activity, as approved.
- D. Outside strenuous recreation activity includes, but is not limited to weightlifting, jogging/running, playing basketball, baseball and any other recreation type activity the shift commander or designee deems strenuous.
- E. Inmates assigned to essential outside work activity will be permitted time to acclimate to the heat and advised not to overexert themselves.

- F. Inmates performing essential outside work activity or attending outside recreation when a heat index alert has been announced, must have access to chilled water. Inmates will be encouraged to drink water frequently and be provided the opportunity to drink water by the staff supervisor. The average recommended amount of water to consume when exposed to high heat index is a minimum of one cup every 15-20 minutes, or about 1 quart an hour.
- G. Inmates performing essential outside work activity when a heat index alert has been announced will be offered frequent breaks in a cool and/or shaded area (when possible). Proper clothing will be lightweight, light-colored and loose-fitting. Sunscreen will be made available.

4. Tracking the Wind Chill:

- A. The shift commander or designee will ensure the wind chill is monitored whenever weather conditions warrant.
- B. The preferred method for monitoring wind chill is to obtain the current temperature and wind speed for the area where inmate activity is planned from the National Weather Service and calculate the wind chill index by using the Wind Chill Index (See [Attachment 4](#)).
 - 1. In the Sioux Falls area, the current temperature and wind speed can be obtained by calling the National Weather Service at (605) 330-4444 and noting the information from the recording, which is updated hourly.
 - 2. In the Rapid City area, the current temperature and wind speed can be obtained by calling the National Weather Service at (605) 341-7531 and noting the information from the recording, which is updated hourly.
 - 3. If the current temperature and wind speed for the area where inmate activity is planned cannot be obtained from the National Weather Service, the wind chill index will be obtained through the Internet, mobile phone applications or local radio reports.
- C. The wind chill index may be obtained from:
 - 1. Current weather reports from the radio.
 - 2. Current weather reports available on the internet at <http://www.weather.gov/forecastmaps> or through applications on a mobile phone (visit <http://mobile.weather.gov>).
 - a. If staff have limited or no access to the Internet, they may tune into the National Weather Service station serving the local area or listen for local radio reports.
 - 1) Sioux Falls WXM28 162.400
 - 2) Rapid City WXM63 162.550
 - 3) Pierre WXM26 162.400
 - b. Once DOC staff obtains the local wind speed and temperature, they can refer to the chart (See [Attachment 4](#)) and determine the wind chill index.
 - 2. Internet: The following are a list of some of the various internet sites that will provide local weather information.
 - a. <http://www.intellicast.com/>
 - b. <http://www.nws.noaa.gov/>

c <http://weather.com/>

Note: Anyone viewing these pages electronically can click on the webpage address and the state computers should recognize the address and connect automatically.

3. Staff who use <http://www.intellicast.com/> can follow the instructions below to obtain wind chill index information:
 - a. On the home page of intellicast.com, on the top of the screen is a box called **Forecast**.
 - b. Type in the local **Zip Code** or your city and **SD** in the applicable spaces.
4. Scroll down to find the **Wind Chill**.
5. Staff who use a different website can follow the instructions provided by the website to obtain wind chill index information.

5. Monitoring Wind Chill and Declaring an Alert:

- A. Any time the temperature is forecasted to be below fifteen degrees Fahrenheit (-15° F), the shift commander or designee will periodically check the wind chill index, particularly during the early morning and late afternoon hours.
 1. Any time the wind chill index reaches minus ten degrees Fahrenheit (-10° F) to minus seventeen degrees Fahrenheit (-17° F), the shift commander or designee will check the wind chill index at least hourly.
 2. The [Attachment 5](#) describes in general terms some medical problems that can occur with cold weather.
- B. If the wind chill index reaches minus 18 degrees Fahrenheit (-18° F) or less, the shift commander or designee will announce a wind chill index alert and staff will inform affected inmates and community service work supervisors of the alert. Staff will begin implementing the procedures described below in **Wind Chill Limitation of Activities**.
- C. When a wind chill index alert has been declared, staff will observe inmates for signs or symptoms of cold weather-related health problems (See [Attachment 5](#)).
- D. If an inmate shows signs of cold weather-related distress, treatment will be administered immediately (See [Attachment 5](#)). Health Service staff will be contacted. Responding staff will contact the shift commander as soon as practical.

6. Wind Chill - Limitation of Activities:

- A. Any time a wind chill index alert is announced, all outside activity will be evaluated by the shift commander or designee and/or the work supervisor(s).
- B. During a wind chill index alert, all nonessential outside activities shall cease.
- C. Exceptions may be granted by the Secretary of Corrections or Director of Prison Operations during an Emergency Response Operation or Deployment to a Natural Disaster provided proper safety precautions are planned and exercised.

1. Essential outside activities involving inmate workers are subject to approval by the Warden or his/her designee.
 - a. Essential outside activities may include, but are not limited to, clearing sidewalks, parking lots or emergency entrances/exits of snow and ice or essential maintenance functions.
 - b. When essential outside activities are performed, the duration of time inmate workers are exposed to outside conditions will be limited in accordance with the NWS Wind Chill Chart (See [Attachment 4](#)) to minimize the possibility of frostbite.
 - c. The shift commander and or work supervisor(s) will ensure inmate workers take frequent breaks and limit the time they are exposed to wind chill, as recommended by the NWS Wind Chill Chart.
 - d. Inmate workers will have access to warm, dry shelter.
- D. All inmates performing essential outside activities during a declared wind chill index alert must be outfitted with proper cold weather clothing and footwear, which shall include at a minimum, a jacket, coveralls, hat, gloves and insulated boots. Exposure of bare skin and the duration of exposure of skin to wind chill should be minimized, to the extent possible.

V Related Directives:

Intellicast – <http://www.intellicast.com/>

National Weather Service – <http://www.nws.noaa.gov/>

The Weather Channel – <http://weather.com/>

VI Revision Log:

August 2004: New policy, combining adult facility OMs.

Removed revisions from April 2005 thru March 2009

March 2010: Revised formatting of Section 1. **Revised** minor formatting and referencing of attachments.

March 2011: Deleted “dewpoint” and **Replaced** with “relative humidity” in Definitions and **Replaced** the term throughout the policy. **Added** Relative Humidity section to Definitions. **Deleted** “if available locally” and **Replaced** with “for the local area” in Section 1 B. **Added** “and recreational” and **Deleted** “workers”, **Added** “allowed to perform limited work/recreational activity, as approved by the shift commander and/or work supervisor in Section 3 B. Created new C. in Section 3. **Added** D. E. F. to Section 3. **Added** “involving inmate workers” to Section 6. 1. **Added** “the time inmate workers are exposed to outside conditions, **Deleted** “outside activity” and **Added** “according to the NWS Wind Chill Chart” to Section 6 1. b. **Added** c. **Added** d. to Section 6 1. **Deleted** “At all times inmates need to be” and **Replaced** with “all inmates performing essential work functions during a declared weather index alert shall be” to Section 6 C. Replaced Dewpoint chart on Attachment 1 with Relative Humidity chart.

May 2012: Reviewed with no changes.

March 2013: Deleted “local area” and **Replaced** with “area where inmate activity is planned” throughout the policy. **Added** “Responding staff will contact the shift commander as soon as practical” in Section 2 D. and Section 5 D. **Added** “non-essential” to Section 3 A. **Added** “non-essential and “or essential strenuous work activity” to Section 3 B. **Deleted** “limited” and **Replaced** with “essential outside strenuous” in Section 3 D. and E. **Added** “essential outside strenuous” to Section 3 F. **Added** “non-essential” and **Deleted** “functions” and **Replaced** with “offender activities” in Section 6 B. **Added** “or other activities deemed essential by the shift commander” in Section 6 B. **Deleted** “work functions” and **Replaced** with “outside activities” and **Deleted** “attire based on the weather conditions” and **Replaced** with “cold weather clothing and footwear, which shall include at a minimum a jacket, coveralls, hat and gloves. Exposure of bare skin and the duration of the exposure of skin should be minimized to the extent possible” in Section 6 D.

March 2014: Deleted “day” and Replaced with “time” and Deleted “near or exceed” and Added “or greater” and Deleted “during the afternoon” and Replaced with “from the hours of 12pm to 5pm” in Section 2 A. Deleted “exceeds” and Replaced with “is between” and Added “104” to Section 2 A. 1. Added “inmates will be restricted from performing” in Section 3 A. Added B. to Section 3 and Renumbered items that follow. Deleted “they will not be allowed to engage in any strenuous activity” and Replaced with “activities will be restricted” in Section 3 D. Deleted “to help reduce heat strain” in Section 3 G. Added “ten degrees Fahrenheit to minus” in Section 5 A. 1. Deleted “on the grounds of the DOC shall be approved” and Replaced with “are subject to approval” Deleted “to the amount of time it takes for frostbite to occur, according to the” and Added “to minimize the possibility of frostbite” in Section 6 C. 1. b. Deleted “outside” and Replaced with “exposed to wind chill” in Section 6 A. 1.c.

March 2015: Added National Weather Service information to Section 1 C. and Section 4 C.

March 2016: Updates to Attachment 2 and Attachment 3 and Attachment 5.

March 2017: Reviewed with no changes.

March 2018: Added “Care will be taken by those supervising inmate activities to reduce excessive risk of serious harm to inmates’ health or safety” and Added “Staff will not knowingly compel an inmate to perform physical outside work activity that is beyond the inmate’s strength or ability or endanger the inmate’s health by requiring work be performed” in Section 3 B. Added “average” and Added “exposed to high heat index” and Added “minimum” in Section 3 F.

February 2019: Reviewed with no changes.

April 2020: Reviewed with no changes.

Mike Leidholt (original signature on file)

Mike Leidholt, Secretary of Corrections

04/08/2020

Date

**Attachment 1: Heat Index Chart (Temperature & Relative Humidity)
 National Oceanic Atmospheric Administration (NOAA)**

NOAA's National Weather Service

**Heat Index
 Temperature (°F)**

	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110
40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	
50	81	83	85	88	91	95	99	103	108	113	118	124	131	137		
55	81	84	86	89	93	97	101	106	112	117	124	130	137			
60	82	84	88	91	95	100	105	110	116	123	129	137				
65	82	85	89	93	98	103	108	114	121	126	130					
70	83	86	90	95	100	105	112	119	126	134						
75	84	88	92	97	103	109	116	124	132							
80	84	89	94	100	106	113	121	129								
85	85	90	96	102	110	117	126	135								
90	86	91	98	105	113	122	131									
95	86	93	100	108	117	127										
100	87	95	103	112	121	132										

Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity

- Caution
- Extreme Caution
- Danger
- Extreme Danger

National Weather Service: How to calculate heat index and relative humidity
<http://www.srh.noaa.gov/sju/?n=heatindex>

Attachment 2: Medical Problems Associated with a High Heat Index

Heat Index / Heat Disorders	
Heat Index	Possible heat disorders
130°F or higher	Heatstroke/sunstroke highly likely with continued exposure.
105° - 130°F	Sunstroke, heat cramps or heat exhaustion likely, and heatstroke possible with prolonged exposure and/or physical activity.
90° - 105°F	Sunstroke, heat cramps and heat exhaustion possible with prolonged exposure and/or physical activity.
80° - 90°F	Fatigue possible with prolonged exposure and/or physical activity.

Factors Contributing to Heat Disorders:

- High temperature
- High humidity
- Lack of air movement
- Strenuous physical activity
- Inappropriate clothing
- Excessive body weight
- Poor physical fitness
- Use of certain medications may increase sensitivity to heat

Attachment 3: Common Heat Related Medical Problems/Heat Disorders

Sunburn:

Symptoms:

Skin redness and pain, possible swelling, blisters, fever and headaches.

First Aid:

Take a shower, using soap to remove oils that may block pores preventing the body from cooling naturally. If blisters occur, apply dry, sterile dressings and get medical attention.

Heat Cramps:

Symptoms:

Painful spasms most commonly in the leg and abdominal muscles and heavy sweating, usually from a lack of salt in the body.

First Aid:

Firm pressure on cramping muscles or gently massage to relieve spasm. Give sips of water or sport drinks with electrolytes. If nausea occurs, discontinue.

Heat Exhaustion:

Symptoms:

Heavy sweating, intense thirst, weakness, pale or flushed complexion. Moist, cool, clammy skin. Fatigue, headaches, dizziness, weakness, fainting, vomiting. Rapid and/or weak pulse. Normal body temperature is possible.

First Aid:

Get victim to lie down in a cool, shaded place, legs elevated. Loosen clothing and apply cool, wet cloths. Fan or move victim to air-conditioned place to increase air movement. Give sips of water to replenish fluids. If nausea occurs, discontinue. If vomiting occurs, seek immediate medical attention.

Heat Stroke (Sun Stroke):

Symptoms:

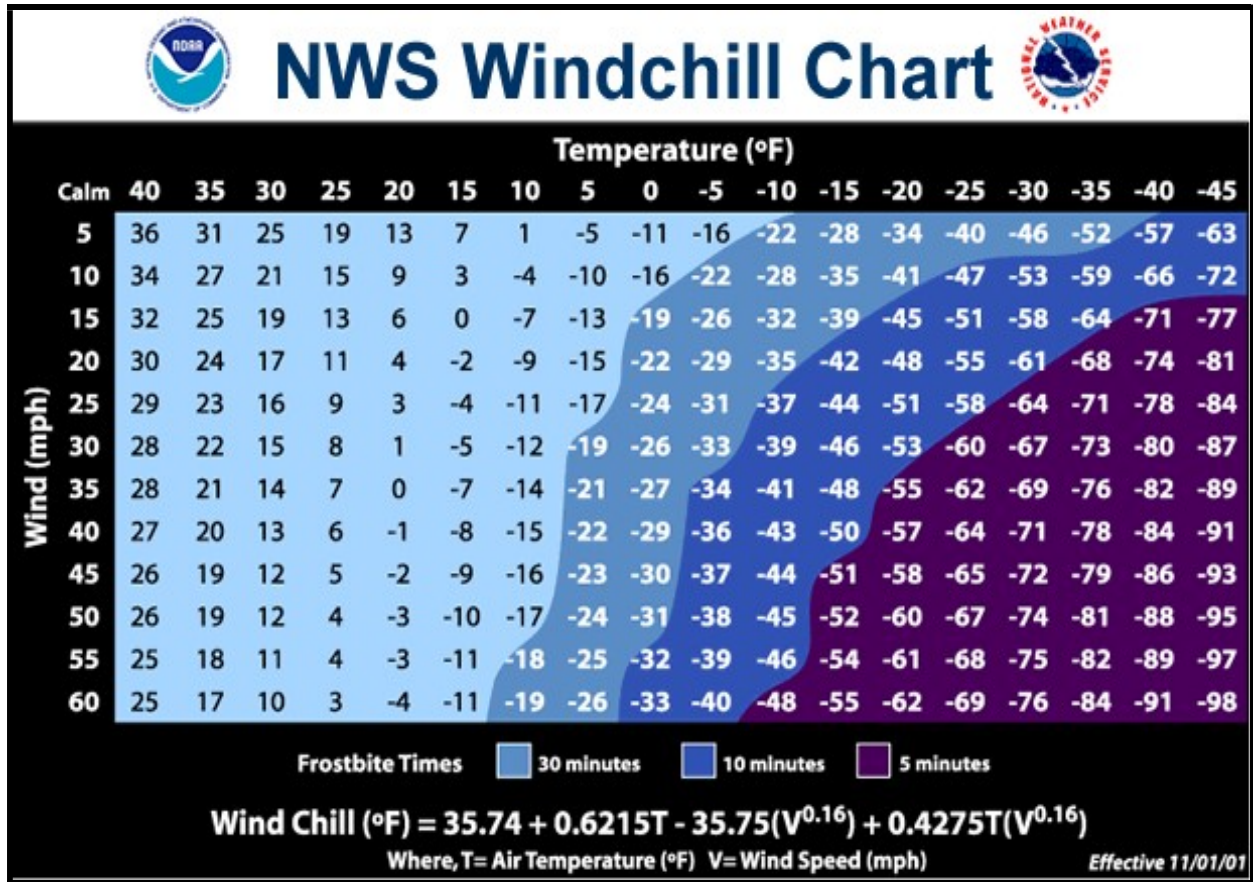
High body temperature (106+). Lack of sweating. Hot, dry, red colored skin. Rapid, strong pulse. Chills. Difficulty breathing. Disoriented, confusion, irrational behavior, headache, nausea, weakness, possible unconsciousness, high body temperature, lack of sweating/dry skin.

First Aid:

Heat stroke is a severe MEDICAL EMERGENCY. Call 9-1-1 or emergency medical services or get the victim to a hospital immediately. Delay can be fatal. If waiting for emergency responders, move victim to a cooler environment, such as a shady area or area with increased air movement. Remove outer clothing. Do not leave the person unattended. Massage body with ice or cool water or apply cool water to the person's skin to reduce body temperature. Have victim lie on their back, elevate their legs. Use fans and/or air conditioners. DO NOT GIVE FLUIDS.

SOURCE: http://www.fema.gov/hazard/heat/heat_aid.shtm and Risk Management Bulletin Issue 28

Attachment 4: Wind Chill Index



Attachment 5: Cold Weather Symptoms and Treatment

Mild Cold Injury:

Symptoms:

- Shivering or numbness in face, hands, feet or ears

Treatment:

- Move the person out of cold as soon as possible, then:
- Remove wet clothing
- Warm the affected area slowly.
- Use warm – not hot water.
- Use warm hands/body heat (do not rub)
- Give warm drinks

Frostnip:

Symptoms:

- a mild form of frostbite, where only the skin freezes
- skin appears yellowish or white, but feels soft to the touch
- painful tingling or burning sensation

Treatment:

- Get out of the cold.
- Do not rub or massage the area.
- Warm the affected area slowly with body heat.
- Try blowing warm breath onto the affected area or tucking your hands into your armpits.
- Once the affected area is warm, do not re-expose it to the cold.

Frostbite:

Symptoms:

- A more severe condition, where both the skin and the underlying tissue (fat, muscle, bone) are frozen.
- Swelling and redness of the skin in the early stages.
- Tingling and burning sensation in the extremities and numbness.
- As frostbite progresses, skin becomes white and waxy/grayish yellow, and is hard to the touch.

Treatment:

- **Get medical help.** Frostbite can be serious and can result in amputation.
- If possible, move the victim to a warm area.
- Gently loosen or remove tight clothing or jewelry that may restrict circulation.
- Warm the affected area slowly using body heat.
- Blow warm breath onto the affected area or tuck your hands into your armpits.
- **CAUTION: If the affected area might be refrozen before medical help arrives, do not warm, this greatly increases the risk of tissue damage.**
- DO NOT rub area or apply dry heat.
- DO NOT allow the victim to drink alcohol or smoke.

Hypothermia:

Symptoms:

- The most severe type of cold injury.
- Feeling cold over a prolonged period of time can cause a drop-in body temperature (below the normal 37° degrees Celsius/ 90° Fahrenheit).
- Symptoms include drowsiness, shivering, irritability, confusion, stiff muscles, overall numbness, slurred speech, impaired coordination, dexterity and general muscle weakness, fatigue, discoloration of lips, cold skin and apathy.
- Can progress to a life-threatening condition where shivering stops, the person loses consciousness and cardiac arrest may occur.

Treatment:

- **This is an emergency. Get medical help immediately.**
- Move the person indoors and remove wet clothing.
- Place the victim between blankets or warming packs so the body temperature can rise gradually.
- Body-to-body contact can help warm the person's temperature slowly.
- DO NOT use hot water bottles or electric blankets.
- DO NOT rub area or apply dry heat.
- DO NOT allow the victim to drink alcohol or smoke.
- **If the person appears unconscious, call 911 and start CPR if necessary.**

Contributing Factors:

- Temperature
- Wind speed
- Presence of moisture (sweating or working near water)
- Exposure duration
- Type of clothing
- Work/rest schedule
- Type of work being performed
- Use of certain medications
- Degree of acclimatization (previous exposure to cold)
- Age and physical state of person