
**ENVIRONMENTAL STRESS PROGRAM
TABLE OF CONTENTS**

I. INTRODUCTION 1

II. SCOPE 1

III. RESPONSIBILITIES 2

IV. BODY REACTION TO HEAT 2

V. HEAT DISORDERS 3

 A. HEAT STROKE 3

 B. HEAT EXHAUSTION 4

 C. HEAT CRAMPS 5

 D. FAINTING OR HEAT SYNCOPE 5

 E. HEAT RASH 5

VI. PREVENTING HEAT STRESS 6

 A. ACCLIMATIZATION 6

 B. DEHYDRATION 6

 C. SALT REPLACEMENT 7

 D. SAFE WORK PRACTICES 7

 E. RECOMMENDED PROTECTIVE CLOTHING 7

 F. THINGS TO AVOID 7

VII. BODY REACTION TO COLD 7

 A. HYPOTHERMIA 7

 B. FROSTNIP 8

 C. FROSTBITE 9

 D. CHILLBLAINS 10

VIII. PREVENTING COLD STRESS 10

 A. ACCLIMATIZATION 10

 B. DEHYDRATION 10

 C. DIET 11

 D. SAFE WORK PRACTICES 11

 E. RECOMMENDED PROTECTIVE CLOTHING 12

APPENDIX A ACGIH HEAT STRESS CALCULATIONS AND TABLES

APPENDIX B ACGIH WIND CHILL AND COLD STRESS TABLES

HEAT/COLD STRESS PROGRAM

I. INTRODUCTION

Heat is internally generated by the body's own functioning and increases as workload increases. Environmental heat can add to the body's burden of heat removal and includes air temperature, air velocity, humidity, and radiant heat. Working in a hot environment can pose special hazards to the health and safety of employees, including heat-related illness and fatigue. Heat increases the potential for accidents due to fogged glasses, sweat in the eyes, slippery hands, physical discomfort, irritability, reduced judgement, or slower physical and mental reaction times.

Although cold stress is generally less of a hazard in Oklahoma than heat stress, it has the potential to cause serious injury or even death. Cold stress can result in frozen skin, a lowering of the normal body temperature, or both. Cold and icy weather also increases the frequency of injuries from slips and falls.

The Occupational Safety and Health Administration (OSHA) does not have a specific rule for general exposures to heat stress, but enforces control of exposure to heat through the General Duty Clause of the Occupational Safety and Health Act of 1970. The General Duty Clause states that:

Each employer shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees.

The *OSHA Technical Manual*, which serves as a guidance document for OSHA compliance officers, discusses evaluation and control of hot working environments through the Wet Bulb Globe Temperature (WBGT) Threshold Limit Value (TLV) as the primary index of heat stress and is the basis for heat stress controls. The WBGT is determined by a formula that integrates measurements of humidity, air movement, radiant temperature and air temperature. The recommended WBGT-TLV correlates work load and recommended work/rest schedules to control exposure to employees from the heat. OSHA recognizes that adjustments for specific individuals or situations may be necessary (Appendix A contains heat stress calculations and tables).

II. SCOPE

Both The University of Oklahoma Health Sciences Center (OUHSC) and the University of Oklahoma -Tulsa (OU-Tulsa) have several operations in which a significant hazard can result from heat. In addition to entry into confined spaces and HAZWOPER activities, OUHSC/OU-Tulsa employees may be exposed to significant sources of heat stress through landscaping activities, working in utility tunnels and near steam lines, performing various operations and maintenance in mechanical rooms, working in shops or other areas that lack air conditioning, working on roofs, and other outdoor activities.

Exposure to cold is a potential hazard for all OUHSC/OU-Tulsa employees who must work outdoors. Landscape, General Services, and Parking Office personnel in Oklahoma City and Landscape and

Operations personnel at OU-Tulsa maintain the safe condition of sidewalks and stairs during icy or snowy conditions. OUHSC Campus Police and Public Safety officers, Tulsa Security Officers, and other employees who may be required to perform work outdoors may benefit from this program.

III. **RESPONSIBILITIES**

- A. OUHSC Campus Police and Public Safety will provide training to its officers regarding heat/cold stress.
- B. The Environmental Health and Safety Office (EHSO) will:
 - 1. provide annual training to all employees (except OUHSC Campus Police and Public Safety) who are exposed to potentially harmful heat or cold stress,
 - 2. monitor heat and cold stress environments as needed,
 - 3. suggest engineering and administrative controls, and
 - 4. review this written program at least annually or as needed.
- C. Departmental supervisors are responsible for:
 - 1. identifying employees with potential exposure to heat or cold stress,
 - 2. ensuring that training is provided,
 - 3. ensuring that plenty of potable water is available to employees exposed to heat stress,
 - 4. allowing a period of acclimatization to heat or cold,
 - 5. assessing the day-to-day heat or cold stresses on employees,
 - 6. assessing work load and assigning work/rest schedules, if needed.
- D. Employees are responsible for:
 - 1. performing their work in a safe manner according to the training they receive, and
 - 2. reporting heat or cold related stress to their supervisor.

IV. **BODY REACTION TO HEAT**

- A. Four environmental factors affect the amount of stress a person faces in a hot environment -
-

temperature, humidity, radiant heat (such as from the sun or a furnace) and air velocity. The level of heat stress a person experiences is also related to personal characteristics such as age, weight, medical condition, and acclimatization to the heat.

B. Risk may increase if a person is:

1. chronically ill
2. over 40
3. returning to work from vacation
4. overweight or in poor physical condition
5. on a severely restricted diet
6. recovering from a recent illness, including a heat related illness
7. dehydrated
8. living in high temperatures at night (no recovery time), or
9. experiencing a fever.

C. Other personal factors that increase a persons' risk of heat stress include:

1. consumption of alcohol (within 24 hours)
2. consumption of caffeinated and sugary drinks
3. use of medications for:
 - a. high blood pressure,
 - b. diuretics,
 - c. antidepressants,
 - d. tranquilizers,
 - e. antihistamines (allergy and cold medications),
4. recent illnesses,
5. recent vaccinations, or
6. skin trauma, including sunburn.

D. In general, the body reacts to hot environments as follows. When the blood temperature rises above 98.6EF, blood flow to skin increases to transfer heat to outside air through convection, radiation, evaporation, and conduction; and sweating occurs so its evaporation will cool skin, but reaches maximum efficiency at 86EF. Sweating is effective only if the humidity level is low enough to permit evaporation and if the fluids lost are adequately replaced.

E. If the body cannot dispose of excess heat, it will store it. When this happens, the body's core temperature begins to rise and the heart rate increases. Because so much blood goes to the external skin surface, less blood is supplied to the active muscles. Strength declines and the onset of fatigue comes quicker and results in reduced accuracy, comprehension, and retention. As the body continues to store heat, the individual begins to lose concentration and has difficulty focusing on a task, may become irritable and loses the desire to drink. The next stage is most often fainting and then possibly death if the person is not removed from the heat.

V. **HEAT DISORDERS**

There are five major categories of heat related illness: heat stroke, heat exhaustion, heat cramps, heat syncope (fainting), and heat rash (prickly heat). After experiencing a heat-related illness, the victim

will be more susceptible to heat stress than before being affected. The symptoms and treatment of each is discussed below.

A. HEAT STROKE

Heat stroke is the most serious heat related illness. It is always life threatening because a person's temperature is so high it might cause brain damage or organ failure. It is caused by the failure of body's temperature regulating mechanisms and dehydration.

1. Symptoms

Symptoms may include:

- a. hot, dry skin (may be mottled, red or bluish),
- b. core temperature over 105EF,
- c. mental confusion, loss of consciousness, or
- d. convulsions or coma.

2. Treatment

- a. Call for help immediately. Prompt first aid can prevent permanent injury to the brain and other vital organs.
- b. Remove the victim from heat and/or sun.
- c. Immediately cool victim with ice packs, cool water, cool compresses, (but never put ice directly on the skin).
- d. Do not give the victim anything to drink, especially not tea, coffee, or alcoholic beverages. Never give anything by mouth to someone who is unconscious.

B. HEAT EXHAUSTION

Heat exhaustion is caused by the loss of body fluid and salt from sweating, decreased blood circulation to the brain and organs, or both. It is caused when a person does not take in enough water, salt, or both. It is less serious than heat stroke, but can become serious and lead to heat stroke if not treated.

1. Symptoms

Symptoms may include:

- a. clammy, pale or flushed moist skin,
- b. extreme fatigue, headache, nausea,
- c. rapid pulse and low blood pressure, or
- d. oral temperature that is normal or slightly elevated.

2. Treatment

- a. Remove the victim to a cooler area and give them water as they desire (but never any liquids with caffeine or alcohol). “Sports” drinks may be consumed if desired, or slightly salted water (only if not on a restricted diet). “Slightly salted” means 1/4 teaspoon of salt per gallon of water.
- b. Have the victim rest with their feet slightly elevated.
- c. Cool the body with ice packs or cool water if needed.
- d. Call the appropriate emergency response number (405/271-4300 in Oklahoma City; 918/660-3333 in Tulsa; 911 in other locations) if the victim becomes unconscious.
- e. Some cases of heat exhaustion may take several days or longer for full recovery and the person is at higher risk of heat stroke after experiencing heat exhaustion.

C. HEAT CRAMPS

Heat cramps are painful spasms of the working muscles of workers who are drinking large quantities of water, but have some salt depletion. The cramps may occur during or after working hours and are usually relieved by drinking lightly salted water.

1. Symptoms

Symptoms may include painful spasms of muscles used during work (usually arms, legs, or abdomen).

2. Treatment

- a. Drink lightly salted water or “sports” drinks (unless on medical restriction).
- b. Use adequate salt amount during meals.

D. FAINTING OR HEAT SYNCOPE

Syncope may occur in workers who are not acclimated and stand still in the heat. Blood normally circulated to the heart and brain is sent to the skin for cooling, and pools in the enlarged blood vessels in the skin and in the lower part of the body. It may be prevented by moving around, assuming no other complications occur.

1. Symptoms

Symptoms may include fainting or becoming dizzy while standing in the heat.

2. Treatment

- a. Remove the victim to a cooler area and let them drink water.
- b. Recovery should be prompt.
- c. Consult a physician if the condition persists.

E. HEAT RASH

Heat rash can be avoided by resting in a cool place and allowing the skin to dry. Also, wearing layers of thin cotton clothing that do not tightly bind the skin, especially near the waist or the arms, will allow sweat to evaporate.

1. Symptoms

"Prickly heat" or "miliaria" may occur in humid environments where sweat is not easily removed from the skin by evaporation. The sweat ducts become plugged, become inflamed, and a rash develops. Infection is a possibility. When extensive or complicated by infection, heat rash can be so uncomfortable that it impedes a person's performance or even results in a total temporary disability.

2. Treatment

Cool and dry the skin and avoid conditions that cause sweating. If infection develops, have it treated by a physician.

VI. PREVENTING HEAT STRESS

A. ACCLIMATIZATION

Acclimation is a process by which the physiological processes of a worker's body adjust to the environment over a period of time, usually 5 to 7 days according to OSHA. However, the process may take up to three weeks depending on the individual and his/her work environment. According to the American Industrial Hygiene Association, the process requires a consistent work level for at least two hours each day during the acclimation period in order for a worker to become acclimatized. Mere exposure to heat does not confer acclimatization, nor does acclimatization at one heat stress level confer resistance to heat stress at a higher temperature or more vigorous work load.

The allowable WBGT-TLV exposure for unacclimatized workers is several degrees lower than that of someone who is fully acclimatized. Because their exposure to heat and their work loads may be inconsistent, some personnel may not, by definition, be acclimated to the heat they encounter in their shops. People who are not sufficiently acclimatized to the heat may experience transient heat fatigue resulting in a decline in performance, coordination or alertness. They may also become irritable or depressed. This can be prevented through gradual adjustment to the hot environment. People in good physical condition tend to acclimatize better because their cardiovascular systems respond better.

Allow the body to adjust to the hot environment. Sweat will increase, but salt loss will decrease. On the first day in a hot environment, a person should perform about 50% of the normal workload. The workload in the hot environment should be increased by 10% each day on each succeeding day. Full acclimatization takes about two weeks. It is the supervisor's responsibility to extend rest periods according to individual requirements, and to allow a re-acclimatization period after an absence from work of a week or more or if the person is returning to work from an illness.

B. DEHYDRATION

Dehydration is a major factor in most heat disorders. The average body loses approximately 2½ quarts of sweat a day. When performing strenuous work, the body can lose up to 1½ quarts of sweat per hour. It is essential to drink more than is needed to satisfy thirst. It is necessary to drink 10-12 ounces of water every 20-30 minutes for heavy sweating.

C. SALT REPLACEMENT

Sweat not only contains water, but salt and other electrolytes. The body needs a certain amount of salt to function properly, but salt tablets are not recommended because of stomach irritation, nausea, and vomiting. Employees should drink normal water throughout day, but may drink an electrolyte solution such as Gatorade after working in a hot environment, if desired. Individuals on a salt restricted diet or those persons being treated for high blood pressure or heart problems must NOT try to replace salt without the advice of their physician.

D. SAFE WORK PRACTICES

Watch out for the safety of coworkers. Take scheduled breaks in cool areas. Take water breaks as needed. Drink plenty of cool water. Report trouble to a supervisor. Supervisors should consider scheduling the hottest work for the coolest part of day, assigning extra workers to high demand tasks, and using a wide variety of work-saving devices such as power tools, hoists, cranes, or other lifting aids to reduce the body's work load.

E. RECOMMENDED PROTECTIVE CLOTHING

Loose fitting clothes made of light cotton allow sweat to evaporate and transfer heat better than tight fitting synthetic fibers. Wear a hat to shade the head.

F. THINGS TO AVOID

The following should be avoided while working in hot environments:

1. all alcoholic beverages;
2. diuretics, or water pills;
3. hot, heavy meals;
4. sugary drinks, and

5. a severely restricted diet.

VII. BODY REACTION TO COLD

Cold injuries are classified as either localized (such as frostnip, frostbite), or generalized as in hypothermia (a lowering of the body's core temperature)

A. HYPOTHERMIA

Hypothermia occurs when the body cannot maintain a normal core temperature of 98.6EF to 99.6EF. Hypothermia can take a victim by surprise since it can occur above freezing. Wind, physical exhaustion, and wet clothing all make a person more prone to hypothermia. Air temperature alone is not enough to judge the cold hazard of an environments. Most cases of hypothermia develop in an air temperature of 36 to 50EF. However, wind chill is a significant factor: a 50EF day with a 20 mph wind feels like 0EF (see ACGIH Table 2 of Appendix B for wind chill factors).

1. Symptoms

- a. numbness, stiffness or pain (especially in the neck, arms, and legs);
- b. poor coordination, slurred speech and drowsiness;
- c. slow, irregular breathing and heart beat/pulse;
- d. puffiness in the face;
- e. low blood pressure;
- f. listlessness, confusion and disorientation, (it is not unusual to see someone who makes little or no effort to get out of the cold or to keep warm);
- g. collapse or exhaustion after rest;
- h. severe shivering; and
- i. death is a possibility.

NOTE: During exposure to cold, severe shivering develops when the body temperature has fallen to 95EF. This must be taken as sign of extreme danger to workers and exposure to cold should be immediately terminated for any workers when any severe shivering becomes evident. Useful physical or mental work is extremely limited when severe shivering occurs. The severe shaking of muscles is caused by bursts of energy from the body and changes in blood chemistry.

2. Treatment

Unconscious persons with severe hypothermia should be treated aggressively by experienced medical personnel and transported to a hospital. If no pulse is detected, CPR should be administered immediately until help arrives.

- a. Get the person out of frozen, wet or tight clothes.
- b. Mild hypothermia in young and otherwise healthy persons can be treated by rewarming the person in a warm bed or bath with warm packs, warm dry

clothes, or blankets.

- c. Elderly or debilitated victims may be treated by using an electric blanket.
- d. Have the victim drink something warm (if conscious), but do not give caffeine or alcohol. (NEVER give anything by mouth to someone who is unconscious.)

B. FROSTNIP

Frostnip occurs when the face or extremities are exposed to cold wind which caused the skin to turn white.

1. Symptoms

Symptom include:

- a. firm, cold, white areas on the face, ears, or extremities;
- b. peeling or blistering that may appear similar to sunburn; and
- c. a mild hypersensitivity to cold persists.

2. Treatment

The frost nipped area should be treated by rewarming the area with an unaffected hand or a warm object. Do not use hot water.

C. FROSTBITE

Frostbite occurs when there is freezing of the skin. It can occur without hypothermia when the extremities do not receive sufficient heat from central body stores because of inadequate clothing or circulation. The most vulnerable parts of the body are the nose, cheeks, ears, fingers, and toes. Damage from frostbite can be serious; scarring, tissue death, and amputation are all possible, as is permanent loss of movement in the affected parts.

Skin cannot freeze in an air temperature of 30°F or greater, but there is a danger of hypothermia. As wind velocity increases, heat loss is greater and frostbite will occur more rapidly. If skin should come in contact with objects colder than freezing, frostbite may develop at the point of contact, even in a warm environment.

1. Symptoms

- a. The area is cold, hard, white and anesthetic;
- b. On warming, it becomes blotchy red, swollen and painful.
- c. Depending on the extent of the injury, the area may recover normally, or deteriorate to gangrene.

2. Treatment

- a. **DO** remove restrictive clothing or jewelry near the affected area or body part.
- b. **DO** warm the frozen part and exercise it, but do not walk on frostbitten feet.
- c. **DO** warm the frozen part quickly with sheets and blankets and warm water.
- d. **DO** remove wet clothing from the affected area and gently dry the affected part.
- e. **DO** place the affected part next to a warm part of the body if warm water is not available.
- f. **DO** seek medical attention immediately.
- g. **Don't** rub the affected areas.
- h. **Don't** apply a heat lamp or very hot water bottle.
- i. **Don't** go near a hot stove.
- j. **Don't** break any blisters.
- k. **Don't** drink caffeine or alcohol to treat for hypothermia or frostbite.
- l. **Don't** rewarm the frozen tissue if tissue refreezing is a possibility.
- m. **Don't** use hot water (use warm water only).

D. CHILLBLAINS

Chillblains are caused by prolonged, continuous exposure to cold without freezing, combined with persistent dampness or actual immersion in water. When this affects the feet it is called "trenchfoot".

1. Symptoms

- a. swelling, tingling, itching and severe pains;
- b. Possibly blistering, tissue death and ulceration;
- c. pale, clammy cold skin that is swollen and numb
- d. infection is likely; or
- e. sensitivity to temperature may persist for years.

2. Treatment

Treatment for chillblains is the same as for frostbite.

VIII. PREVENTING COLD STRESS

A. ACCLIMATIZATION

Workers exposed to the cold should be physically fit, without any circulatory, metabolic, or neurologic diseases that may place them at increased risk for hypothermia. A new employee should not be required to work in the cold full time during the first days of employment until they become adjusted to the working conditions and required protective clothing. New workers should be introduced to the work schedule slowly and be trained accordingly.

B. DEHYDRATION

Working in the cold can cause a significant water loss through the skin and lungs as a result of the dryness of the air. Increased fluid intake is essential to prevent dehydration that can increase the risk of damage to the extremities since blood flow is decreased. Warm, sweet drinks (but not caffeinated) or soups should be consumed.

C. DIET

As with heat stress, consuming extra salt is not necessary. It is very important for persons who work in cold environments to eat a well balanced diet. Workers should avoid smoking or drug or alcohol use since these can restrict circulation or cause heat loss.

D. SAFE WORK PRACTICES

1. Walk carefully on snowy and icy sidewalks.
2. If you shovel snow, be very careful to avoid overexertion. Keep relatively active, but not so active that you become damp with sweat.
3. Change out of wet clothing or socks as soon as possible.
4. Don't use unprotected metal chair seats or touch any cold objects with bare hands.
5. People who are taking certain medications, older, overweight, have allergies, smoke, or have poor circulation (diabetics, for example) are more prone to cold injuries and should take extra precautions.
6. DO NOT drink alcohol.
7. Avoid soaking of clothing or gloves with any liquids (especially gasoline, alcohol, or cleaning fluids) due to the added danger of evaporative cooling.
8. For work below -15EF, follow a work-rest schedule established by the EHSO (see ACGIH Table 3 of Appendix B for work/rest schedule for cold stress). Work/rest schedules take into account the expected wind velocity and air temperatures.
9. Always work under the buddy system if you must travel or work outdoors in dangerous conditions.
10. As much as possible, avoid using vibrating tools in very cold temperatures.
11. Wear UV protective eyewear if you must work outdoors in snow or ice-covered terrain.

12. If you have a pre-existing injury or if you are injured on the job during cold stress periods, see your supervisor immediately. Injured tissues can be more susceptible to the cold.

E. RECOMMENDED PROTECTIVE CLOTHING

1. Below 40EF, wear adequate insulating, dry clothing to maintain body core temperatures above 98.6EF.
2. Clothing should resist rain and wind but also allow water vapor generated by perspiration to escape.
3. Do not wear constrictive garments. Instead, wear several layers of loose-fitting clothes that can be added or removed as needed to aid in evaporation of sweat. Suspenders may be used instead of belts which can constrict and reduce circulation.
4. Thin cotton fabric is very good since it helps evaporate sweat. Wear a cotton T-shirt and shorts under cotton or wool thermal underwear and wool or thermal trousers.
5. Wear socks with high wool content and insulated boots. When two pairs of socks are worn, the inside pair should be smaller and made of cotton.
6. Wear a hat. You lose up to 40 percent of your body heat through your head if it is not covered.
7. Gloves should be worn below 40EF. Mittens should be used when the air temperature is 0EF or less.
8. Wear a face mask and/or scarf if it is windy or extremely cold and cover your mouth to protect your lungs.

IX. ULTRAVIOLET LIGHT HAZARDS

- A. Sunlight, which contains ultraviolet radiation (UV), can be a hazard to eyes or skin. Unprotected employees working in sunlight risk exposure to UV radiation and skin cancer. The number of Melanoma skin cancer cases, the most serious type of skin cancer, are rapidly rising in the United States. Melanoma accounts for more than three-fourths of skin cancer-related deaths each year, though most skin cancers can be cured if detected early enough..
- B. Risk factors for skin cancer include:
1. work or spending extended time outdoors;
 2. fair skin;
 3. blonde, red, or light brown hair;
 4. freckles or burn before tanning;
 5. numerous, large, or irregular moles; and
 6. serious sunburns.
- C. In an effort to help the region's workers safeguard themselves against UV radiation, the U.S. Labor Department's Occupational Safety and Health Administration suggests that workers take the following precautions when working outdoors:
1. **Cover Up.** Wear protective clothing that does not transmit visible light to protect as much of your skin as possible. To determine if a certain piece of clothing will protect you, place your hand between the fabric and a light source. If you can see your hand through the fabric, it offers little protection against sun exposure.
 2. **Frequently apply sunscreen.**
 - a. Use a sunscreen with a Sun Protection Factor (SPF) of 15 or higher. An SPF of 15 blocks out 93% of the burning UV rays; an SPF of 30 blocks out 97%.
 - b. Products labeled “broad spectrum block both UVA and UVB radiation (both contribute to skin cancer risk).
 - c. Apply sunscreen liberally at least 15 minutes before going outside. Reapply every 2 hours or more frequently if you sweat a lot or are swimming.
 - d. Do not rely on sunscreen alone. Combine with other clothing and eye protection.
 3. **Wear a hat.**

- a. Broad-brimmed hat is ideal because it protects the neck, ears, eyes, forehead, nose and scalp.
- b. A baseball cap does not protect the ears or neck where skin cancers frequently develop.

4. Wear sunglasses that block UV rays.

- a. UV-reflective sunglasses can help protect your eyes from sun damage.
- b. Ideal sunglasses do not have to be expensive to block 99 to 100 % of UVA and UVB radiation. Check the label to be sure they do.
- c. Darker glasses are not necessarily the best. UV protection comes from an invisible chemical applied to the lenses, not from the darkness or color of the lenses.

5. Limit sun exposure.

- a. UV is most intense when the sun is highest in the sky between 10 AM and 4 PM. If you are unsure about the sun's intensity, take this test: If your shadow is shorter than you, the sun's rays are the strongest.
- b. Seek shade whenever possible.
- c. Check the UV index in your area. The UV index is usually broadcast on TV or radio stations. The UV index rates the amount of UV radiation reaching the surface on a scale of 1 to 10+ and is forecast daily for 58 cities. The higher the number the greater the exposure to UV radiation. The Index helps to determine when to avoid sun and when to take extra protective measures. (See <http://www.nws.noaa.gov/om/uvi.htm> or http://www.cpc.ncep.noaa.gov/products/stratosphere/uv_index/uv_current.html.)

6. Signs and Symptoms

- a. Know the signs and symptoms of skin cancers and see a health-care clinician if an unusual skin change occurs.
- b. The most important warning sign for skin cancer is a spot that is changing in size, shape, or color over a period of 1 month to 1-2 years.
 - (1) The most common skin cancers –basal cell and squamous cell– often take the form of a pale, wax-like pearly nodule; a red scaly, sharply outlined patch; or a sore that does not heal.

- (2) Melanoma often starts as a small mold-like growth.

APPENDIX A
ACGIH HEAT STRESS CALCULATIONS AND TABLES

APPENDIX B
ACGIH WIND CHILL AND COLD STRESS TABLES

