



## eSafetyLine

### **Factors of Cold**

Cold Weather Month

How cold an environment feels is influenced by three things; air temperature, wind speed and humidity or wetness in the environment. In order for workers to be safe in the cold all three factors must be considered. Cold environments force the body to work harder to keep itself at a safe temperature. Cold conditions draw heat away from the body making it more difficult to keep warm. If the body temperature drops even just a few degrees, blood vessels get smaller and limit the amount of blood reaching fingers, toes and skin. This is to decrease the amount of heat lost through these body parts.

Air temperature is the most straightforward to understand. It is simply the reading on the thermometer in degrees Fahrenheit. But this is only one piece of the cold puzzle. Humidity in the air causes a worker to feel the cold faster than dry air. Damp air moves heat away from the body 25 times faster than dry air at the same temperature.

At any temperature the body will feel colder as the wind speed increases. Wind speed is used to determine a very important aspect of cold environments, wind chill. Wind chill is a combination of air temperature and wind speed. In real terms to the worker, it is the air temperature that would feel the same on exposed human flesh as the given combination of air temperature and wind speed. For example, when the actual air temperature is 40°F and the wind speed is 35 mph, any exposed skin will feel like it is experiencing a still air temperature of 11°F.

Most jobsites may have a thermometer but probably don't have the ability to accurately determine wind speed. A suggested rule of thumb to estimate wind speed is:

- 5 mph- causes a light flag to move
- 10 mph- causes a light flag to be fully extended
- 15 mph- will raise a sheet of newspaper
- 20 mph- causes blowing and drifting snow

In order for workers to be safe in the cold, the cold needs to be balanced by measures to keep warm. The worker being aware of three factors can meet this balance. The more the worker moves and works at a site the more heat the body produces. This heat is made by the muscles working and help to reverse the cold environment. Supervisors working in the cold should use a work-warm up schedule to help keep their crew warm. This allows the workers a break to warm up, similar to the cool down breaks used in hot weather. There are also many new breakthroughs in clothing that both keep the body warm as well as wick away any sweat that forms. These things will help keep the jobsite safe in the cold months ahead.

### **Discussion Questions**

What is used to determine wind chill?

Why do blood vessels in the finger, toes and skin get smaller in cold temperatures?

# MEETING / TRAINING ATTENDANCE ROSTER

COMPANY: \_\_\_\_\_

\_\_\_\_\_ SAFETY MEETING

JOB/DEPT: \_\_\_\_\_

\_\_\_\_\_ SAFETY TRAINING

DATE: \_\_\_/\_\_\_/\_\_\_

TIME: \_\_\_\_\_

TOPICS ADDRESSED: \_\_\_\_\_

\_\_\_\_\_

## EMPLOYEE'S SIGNATURES

|       |       |       |
|-------|-------|-------|
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |

EMPLOYEE SUGGESTIONS AND RECOMMENDATIONS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

ACTION TAKEN: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_  
Supervisor's Signature

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_  
Date

\_\_\_\_\_  
Safety Coordinator's Signature

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_  
Date