



## **Cold Awareness Layering System**

While working outdoors, winter clothing is your single most important resource to keep warm. It's essential to dress in loose-fitting layers, which trap heat easily and allow you to adjust clothing as your activities change throughout the day. If overdressed, you'll work up a sweat as the day progresses.

When you're less active, sweat starts to cool your body down, so it's important to wear enough layers to keep warm, but not so hot as to sweat excessively. If you are sweating profusely, you may be overexerting yourself; work activities and hydration should be adjusted accordingly. Be sure to add layers of clothing as your activity level decreases. Layers should be made of fabrics that retain warmth when wet such as wool, polyester fleece, and polypropylene (often found in synthetic long-johns).

Cotton is quite possibly the worst fabric to wear for warmth in winter. Once it gets wet from rain, snow or sweat, the cotton will start to extract heat out of the body. The effects are especially noticeable in cotton socks, underwear, or if a cotton T-shirt is the first layer next to skin. Goose down is an excellent insulator when dry, but because it loses almost all its insulating power when wet, it is best to avoid during winter months.

To work comfortably outside, a layering system should be applied to pants, socks, jackets, gloves, and hats. It starts with a wicking layer to remove moisture from skin. From there it builds into heavier and more durable fabric to keep you warm.

**Wicking Layer:** This is the layer next to your skin. To avoid your body cooling down due to sweat, this layer should remove moisture from the skin and transfer it to the next layer. Recommended layers are synthetic or polypropylene long johns, tops and socks – no cotton!

**Light Insulating Layer:** This goes on after the wicking layer. A light fleece or thin wool sweater is an excellent light insulating layer.

**Heavy Insulating Layer:** A heavier fleece or wool sweater begins to trap heat in the body.

**Windproof-Waterproof Layer:** This protects your body from a variety of weather conditions, from wind to rain or wet snow.

**Winter Beanie:** 30-50% of body heat is lost through the head. A winter hat adds as much warmth as all your layers. In winter conditions, everyone should be wearing a



beanie. Balaclavas can be worn under beanies and are excellent for protecting facial tissue from frostbite, particularly if hard hats are mandatory in extreme cold conditions and you're working outdoors in the open.

**Gloves and Mitts:** Mitts are warmer than gloves but not always practical for work that requires detail. To help with this problem, a thin glove can be worn inside a mitt. This will allow you to remove your mitts for more technical work while not exposing bare skin to the cold. Once work is completed, return your gloved hands promptly to your mitts. Also, mitts with separate index finger are very useful for certain applications.

**Socks and Gaiters:** A two-layer sock system is most recommended for winter travel. A thin polypropylene sock with a wool sock over top allows moisture to be wicked from the feet and wool will stay warm even when wet. Boot size is also important – your toes need wiggle room – avoid a tight fit that restricts circulation. Some workers prefer a single pair of loose-fitting wool and/or synthetic material socks in an insulated boot. Bring a spare pair just in case.

If wearing hiking boots in the bush, gaiters are highly recommended. They prevent snow sliding down into the boots and add warmth by trapping air. Gaiters go on outside of the boot and pant leg and are great for keeping snow from entering boots.

### **SAFETY REMINDER**

Not only do you need to stay warm and dry to prevent hypothermia during outdoor work, it's also important to eat properly, stay active, and keep an eye on each other.