

## PERSONAL PROTECTIVE EQUIPMENT & PERSONAL HYGIENE

The following personal protective equipment is recommended for all ski waxing technicians, and others remaining in the area while waxing is being completed, to reduce potential personal exposures via the absorption, ingestion or inhalation of chemical agents.



### Half-Mask Respirator

The primary method of exposure to chemical agents while ski waxing is through inhalation. Wearing appropriate respiratory protection will mitigate personal exposures to chemical agents.



### Eye Protection

Eye-protection should be worn for ski waxing activities to protect from harmful exposures to airborne chemical agents. Eye protection used must be appropriate for the types of chemical products in use. Contact lenses should not be worn when using chemical solvents as they could become trapped onto the eye.



### Gloves

When hazardous chemicals come into direct contact with the skin they can be absorbed into the body or may cause local effects on the area of contact. Gloves and longsleeves should always be worn while handling wax. Remove gloves after completing waxing and leave in the wax area. Wash your hands thoroughly with soap and water after handling wax and other chemical products.



### Apron or Bib

Particulate can also transfer onto clothing and personal items. Wear an apron or bib to protect and prevent particulate from transferring directly onto clothing. After use, remove garment carefully and leave it at the wax station.



## SKI WAXING: A RESPIRATORY HAZARD

## CENTRE FOR RESEARCH IN OCCUPATIONAL SAFETY & HEALTH

Based on the research study by Felton, M., Godwin, A., Goggins, K. (2021). Exposure assessment of aerosol concentrations for non-remunerated ski-wax technicians: a two-day assessment conducted partnership with Cross Country Ski Ontario. Knowledge transfer and exchange package by E. Tetzlaff.

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## RESPIRATORY HAZARDS

A recent study, conducted in partnership with *Cross Country Ski Ontario*, assessed ski wax rooms during competition preparation to determine if wax technicians, support staff, coaches and athletes were being exposed to unsafe aerosol concentrations (Felton et al., 2021). It was found that while preparing skis, particulate became suspended in the surrounding air. This airborne particulate can then be inhaled, and can have potential acute and chronic health consequences to those exposed. The following material aims to provide education that can help limit the risk, and control for unnecessary exposure.

## CONTROLLING RESPIRATORY HAZARDS

When controlling for health hazards, if the exposure cannot be eliminated, other protections must be selected. For example, when protecting against respiratory concerns, wearing a respirator is essential.

### Selecting a Respirator

Respirators are worn for protection from contaminants in the air, and must be selected based on the type of contaminant present. For ski waxing, a properly fitted half-mask respirator should be worn, and requires appropriate filter cartridges be used and maintained.

### Selecting a Filter

There are different classes of particulate filters, depending on the material of concern. These filters are classified based on levels of oil resistance and filter efficiency. The 3 categories are:

N series (Not resistant to oil)	R series (Resistant to oil)	P series (Oil-Proof)
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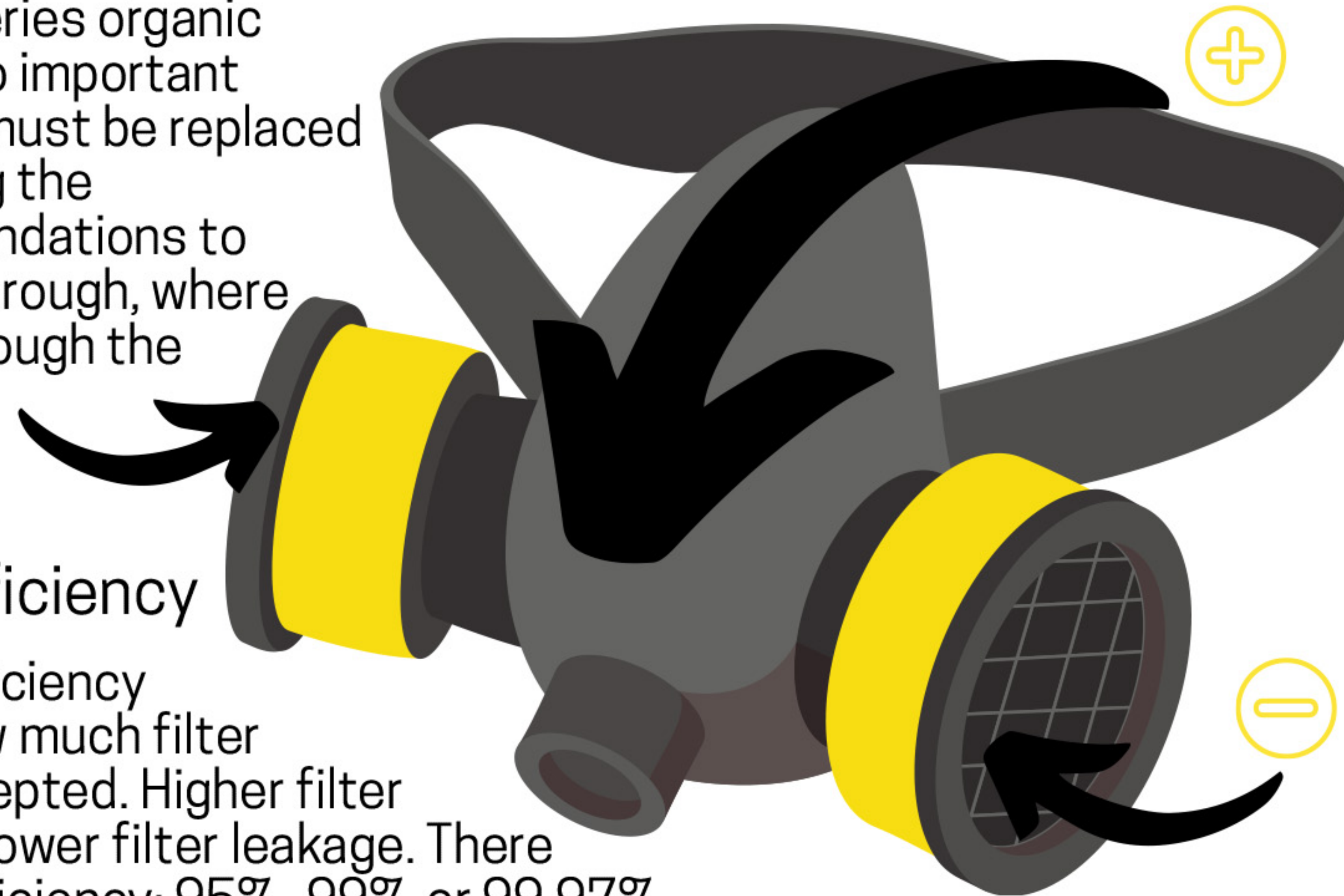
There are oil particles and organic vapour present as a result of ski waxing. Therefore you should select a combination P-series organic vapour cartridge. It is also important to remember that filters must be replaced on a regular basis by using the manufacturer's recommendations to avoid saturation or breakthrough, where gases or vapours leak through the cartridge.

### Selecting Filter Efficiency

Selection of filter efficiency also depends on how much filter leakage can be accepted. Higher filter efficiency means lower filter leakage. There are 3 levels of efficiency: 95%, 99% or 99.97%. Based on the exposure during ski waxing, 99% efficiency is recommended.

### Recommendation

Half-mask respirator with combination cartridge for particulate and organic vapour (i.e. 3M 6001 P100 or North 7581 P100).



### Proper Use of a Respirator

The correct use of a respirator is just as important as selecting the proper respirator. In order for a mask to protect the wearer it must form a tight seal around the face and neck, otherwise contaminated air can leak, and the wearer could breathe in hazardous substances.

### Fit Testing

To ensure leakage does not occur, a 'fit test' should be performed to check the seal between the respirator face-piece and the user. Respirators come in different sizes (i.e. small, medium, large) and should be sized to the individual. If weight loss/gain or facial injury occurs a new fit test should be conducted. Further, facial hair and glasses may break the seal between the skin and the respirator mask and may cause leaks. If available in your area, a quantitative fit test completed by a qualified individual is recommended.

### User Seal Check

Another key measure to enhance protection is to perform a seal check every time the respirator is put on. This can be done in two-ways:

A *positive-pressure check* is performed by blocking the exhalation valve with the users hands, and trying to breathe out. If slight pressure builds up, that means air isn't leaking around the edges of the respirator.

A *negative-pressure check* is performed by blocking the intake valves, typically using your hands and trying to breathe in. If no air enters, the seal is tight.

### Proper Storage of a Respirator

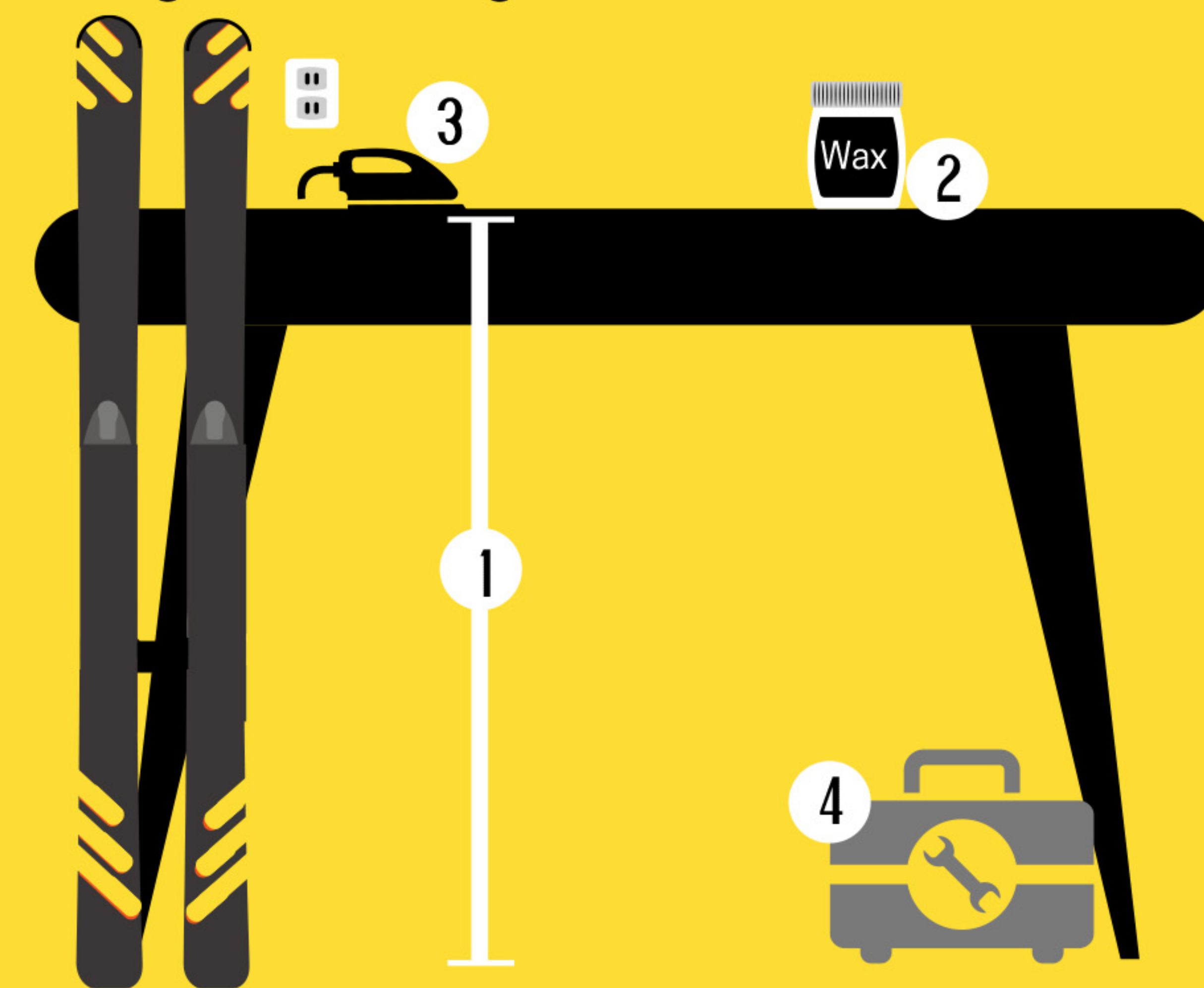
After use, proper cleaning and storage practices are important to ensure that respirator remains effective and uncontaminated. Follow manufacturer instructions for changing the cartridge and washing the respirator face piece. Respirators should be stored away from dust, temperature extremes, excessive moisture and chemicals and in a nonporous, airtight container (i.e. "Ziploc" plastic bag).

## OTHER CONSIDERATIONS

### No Food or Drink

Do not bring food or drinks into the waxing area. The ingestion of particulate from ski waxing can be toxic. Food and drink are most frequently contaminated by contact with unwashed hands, gloves or clothing, or by being left exposed in the waxing area.

### Design of Waxing Station



#### 1 Height of table

If adjustable, the table should be positioned to allow for the shoulders to remain relaxed, with arms close to the body and positioned at a 90-120 degree.

#### 2 Wax Handling & Storage

Always wear gloves while handling wax. Wax should always be stored in a sealed container unreachable by children.

#### 3 Iron Safety

Remain conscious of actions while operating irons and store appropriately while cooling. Ensure the iron is always plugged in to a GFCI outlet to reduce risk of electric shock. Do not use if wiring is damaged, broken, or modified.

#### 4 Tool Storage

Ensure workspace is clear of all tripping hazards by utilizing necessary storage solutions.