

# American Alpine Institute<sup>Ltd.</sup>

## WATERFALL ICE CLIMBING EQUIPMENT LIST

©Copyright 2004 American Alpine Institute

It is essential that you do a careful job in selecting and preparing your equipment for this course. The weather in the mountains is a major objective hazard, even in the summer, and in the winter it can present extreme challenges to survival. Temperatures are typically in the teens but can easily drop to -10F to -20F and be accompanied by high winds and blowing snow. These conditions, in combination with the long periods of inactivity required to belay a climber on a difficult pitch, can easily lead to problems of hypothermia or frostbite. For your own safety and that of the group, please take this list seriously and come in good condition. If you have any questions about choosing your gear, feel free to call and ask for advice.

### CLOTHING

**Boots** - Plastic climbing boots are highly recommended. Leather boots\*\* can be used as well if they are designed for water ice climbing and are warm enough. Models such as the Koflach Degre, Lowa Civetta, and Scarpa Inverno perform well for plastic boots and La Sportiva's Nepal Extreme and Trango Extreme, Scarpa's Freney XT, and Kayland's Super Ice are good examples leather and synthetic ice climbing boots.

**Gaiters** - Knee high.

**Socks** - Wool or synthetic, (no cotton). Bring two complete changes. It is recommended one wear a thin liner sock, and one or two pair of thick socks depending on boot fit.

**Long Underwear Bottoms and Tops** - This will be your base layer and should be lightweight polyester, polypropylene or similar synthetic.

**2nd Layer (Top)** - Expedition weight long underwear top, 100 weight powerstretch, very light weight fleece, Schoeller, or a lightweight windshirt (i.e. Marmot DriClima) are good examples of this multi-use layer.

**2nd Layer (Bottom):** Schoeller or nylon fabrics preferred. This will be your action layer for your legs and the layer that you will spend the most time in. This layer should be light, comfortable, durable, quick drying, and provide some protection from wind and water. Black Diamond Alpine Pants, Arcteryx Gamma pants, and Mammut Champ pants are good examples of this layer.

**3rd Layer (Top):** This will be your action layer and the layer that you spend the most time in. Schoeller or nylon fabrics preferred. Seek out soft jackets that are light, comfortable, durable, quick drying, and provide some protection from wind and water. Lightly insulated is ok but not required. Arcteryx, Moonstone, Marmot, Mammut, and many other companies make soft shell jackets that work well for this layer.

**Insulated Jacket** - Lightweight down or synthetic in addition to the fleece jacket. Some good examples are an insulated ski parka, a down sweater, any insulated jacket. This is different than your outer most waterproof shell jacket. Nice for Belays or while standing around during instruction.

**Shell Layer (Upper):** This will be your outermost layer and it needs to be waterproof, breathable, and durable. Two or three-ply Gore-tex or other waterproof breathable materials are required. Your parka needs to have a hood and should be sized to fit over your clothes. Lightweight and compressible layers are ideal but don't sacrifice too much weight for durability. Models like the Arcteryx Beta and Gamma jackets, Marmot Alpinist and Precip, and Patagonia Stretch Armstrong are top of the line.

**Shell Layer (Lower):** Full side zips recommended for easy on and off over boots and crampons, Make sure they fit over all of your layers when fully dressed. Pants or bibs are acceptable and each have their advantages and disadvantages. Materials should be Gore-tex or other similar water-proof and breathable fabrics. Examples include Marmot Cirrus and Minima pants, Arcteryx Alpha SV bibs and Beta AR Pants, Patagonia Stretch Element and Microburst pants work well.

**Liner Gloves** - Polypropylene / polyester.

**Gloves:** Gloves for ice climbing should be waterproof, dexterous, durable, and appropriately insulated for the temperatures expected while in the mountains. Leather palms are preferred and increase the durability of the glove. There are many modular systems for gloves out there that allows liners to be inter-changed. Models like the Black Diamond Ice and Verglas glove, Patagonia Stretch-Element and Work gloves, and models by Outdoor Research are recommended.

Climbers will often have two complete changes of gloves for ice climbing. It is only a matter of time before your gloves will become wet and cold. If temperatures are below freezing, which they often are when ice climbing, this can mean frozen gloves. Another strategy is to have one light pair of gloves for climbing in and a warmer pair for belaying and for when you are not climbing. Either system can work well.

**Warm Hat** - Synthetic is less itchy than wool and dries faster.

## CLIMBING GEAR

**Technical Ice Tools** - 45 - 50 cm hammer and axe. Models such as the Black Diamond Black Cobra, Rage or Viper, Charlet Moser Quark, Aztar, Pulsar, or Axar, Grivel Rambo and Machine light and Alpwing, work well. Straight or curved shafts can be used, and they must have a pre-sewn or tied leash.

**Crampons** - Rigid crampons work best for strictly water ice climbing. However, get good advice before purchasing rigid crampons. They have limited application to the mountains so if you want a crampon that will work in both mediums choose carefully. Be sure they fit your boots. Crampons with step-in bindings should be used only with plastic boots or leather boots with soles designed specifically to accept heel and toe bails.

**Climbing Harness** - Should fit over bulky clothing. Adjustable leg loops help in this regard.

**Carabiners** - Bring four, two of which should be large, locking, pear shaped (or MÜNTER) biners.

**Climbing Helmet** - Kayak, bicycle or construction helmets are not acceptable.

**Belay Device** - Bring one if you have one, but you don't have to buy one for the course. If you want to get one, be sure to get advice on choices from the Equipment Department. (ATC's and like devices are recommended over Figure 8's.) Devices like the ATC XP, Trango Jaws, and Petzyl Reversino work well with the smaller diameter and often icy ropes that go with ice climbing.

**Ski Poles** - this is an optional they can be helpful on approaches. This is more applicable to courses in the Sierra.

**Pack** - For approaches to climbs a pack with 3000 cubic inch capacity is necessary. For longer routes you may want a light weight day pack or a large fanny pack to carry those few extra items.

**Sun Glasses** - High quality UV protection.

**Ski Goggles** - (Optional). Useful when conditions are very windy.

**Headlamp** - With extra batteries and bulb.

**Water Bottle** - Two 1-quart bottles with wide mouths. Some people like to use OR Water Bottle Parkas to keep liquids warm in water bottles. It can be difficult to stay hydrated when you have to drink extremely cold water. Dehydration can increase your risk of hypothermia.

**Thermos** - A cup of hot cocoa or soup on a blustery day can change one's entire outlook on life.

**Multitool or Pocket Knife** - Leatherman Tool or Swiss army style is good.

**Sunscreen** - With a protection factor of at least 16.

**Lip Protection** - With a protection factor of at least 16.

**Personal Medical Kit** - For minor cuts, blisters, scrapes, etc.

## **Toiletries**

**Hand/Foot Warmers:** Recommended for cold weather courses and for people that are susceptible to cold hands and toes. These should be small, disposable type products like the ones made by Grabber Mycoal.

**Food** - Bring plenty of quick, high energy lunch food. It helps to keep you warm.

## **Camera**

**Repair Kit** - crampon adjustment tools if your crampons need them and tools for adjustment on technical axes.

We normally stay at Bed & Breakfasts, hotels, or bunkhouses while climbing in Ouray and the Sierras, rather than camping out. The morning and evening comforts of housing for cooking, discussions, and sleeping allow more time and energy to be dedicated to the technical challenges of the waterfall climbing we do in cold conditions. Expenses are moderate and are paid by the client(s) in the program.