

## STEPHENSONS 1999 to ?

This complete catalog describes all available Stephenson's Warmlite equipment, materials, function, and some history of our business since 1956. It has enough info for you to make good decisions. To SEE our products better, & learn more about use, get our 2 hr video tape for \$6; with natural pictures from previous catalogs, and scenes of sailing and snorkeling naturally on our 39' boat in BVI: (cruises available at low cost to naturists). Or get our 1974 or 1980 48 pg. full color catalogs (collector's items), with extensive explanations, for \$12 each.

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We don't do regular mailings. Hang on to catalog(s) for reference, but don't order items not on current price list.

This business is mainly for the fun and satisfaction we and customers get. It'll continue as it has since 1956 as long as it is promoted by happy users, as usual. It is now owned by Jack's son William Warmlite Stephenson, with Jack advising (or in the way), and Jane Fortin managing the shop as she has done so well since '78.



Joan & Jack Stephenson  
Pioneers of the Business



William Stephenson - Owner



Jane Fortin - Manager



Jack & Joan 1974



## SWEAT CONTROL and V B

Ice, solid water, has very low energy. To melt ice to liquid water you must add 144 BTUs per lb. (BTU = British Thermal Units = heat energy needed to warm 1 lb. of water 1°F.) It takes 1080 BTUs to *evaporate* 1 lb. of water to water vapor. The amount of water vapor in the air is called humidity, expressed either as absolute lbs. of water per lb. of air, or as relative, % of the maximum that could be there at that temperature and pressure. It is common to refer to water vapor as humidity.

SWEAT is the liquid water your skin exudes from sweat glands in your skin to COOL you when you are overheated. Unfortunately, that sweat also contains oils and SALT! Salt and soluble oils are moisture absorbents: depending on concentration and type of salt and oil, it can take up to 3 times the heat energy to evaporate water from such absorbents, and all that excess energy goes into chemical change. You have noticed that initial sweat seems to cool you much better than later sweat: dried salt and oil resist evaporation, and release heat to your skin from contact with new sweat (see SUMMIT Oct.'59). A fresh water rinse cools you and restores the cooling of initial sweat. NOTE that the PURPOSE of sweat is ONLY to COOL you. Obviously then, at first sign of sweat wetness you MUST remove any excess insulation (or ventilate to carry off excess HEAT.) If conditions are cool enough that you need ANY clothing, then you want to immediately STOP any sweat loss and use convection, conduction, and radiation to get rid of excess heat. Any moisture lost thru sweat MUST be replaced soon (which may be difficult or impossible at the time, so it's best to STOP the loss when it starts!)

Humans have a problem which we are told other animals don't have: the moisture IN our skin evaporates in dry air, thus losing heat and water. That moisture loss is called "insensible sweat", which term, like "military intelligence" is an oxymoron (ie, self contradiction). That "insensible sweat" is NOT sweat, and IS sensible: you FEEL it cooling you (but don't feel it as wetness, thus the "insensible"). Water vapor from evaporation IN your skin, with it's high energy, diffuses rapidly thru to outer clothes where heat is lost. Usually in cold weather the outside relative humidity is near 100% so outside air can't accept more humidity, and thus most of that moisture condenses to cold water, soaks your clothes, disables your insulation, lowers humidity again, so more chilling evaporation occurs IN your skin, repeating the cycle of chilling and soaking your clothes. Even if outer fabric is completely porous the vapor WILL condense where temperature reaches dew point in the clothes. The outer layer ("breathable" or not) keeps water IN, out of sight, so you don't realize you're losing insulation until later, when miserably COLD. Evaporative cooling and water loss depends only on the relative humidity of the air next to your skin, so you have no control over it. Or do you? (think for a while).

Heat production and loss is not uniformly distributed over our bodies. We can sweat under our arms while being too cool elsewhere. We detect changes in temperature only on our skin,

but can't determine absolute temperature of our body by what we feel on skin: get cold enough to shiver, then get into a hot tub and you'll feel too hot while actually being too cold. As you warm, your skin gets accustomed to the warmth so you don't feel as hot! Get out of the hot tub when sweating from overheat and you immediately feel cold! Dry off and you feel warm. We rely ONLY on wetness of sweat to warn us of overheat.

If your heat loss equals production you're comfortable. If activity then increases, overheat causes sweat, for evaporative cooling. WHEN (or IF) you notice wetness from sweat, you'll vent or remove extra clothes, get cooling of evaporative or convective heat loss, stop sweating and you're soon dry. Wickable underwear moves sweat from overheat away from your skin so you won't notice it and it won't annoy you, (which is fine for comfort indoors or for short periods). That wicking prevents cooling when and where you need it, and wets outer clothes so they won't be warm LATER. Please note that it's wickable and moisture absorbing fabric that aids comfort then, not just porous or so called "breathable" junk. Non wicking polyester, acrylic, Goretex and similar won't provide any comfort, so YOU have to constantly adjust insulation or venting in response to wetness from overheat, (which can be an advantage IF you're observant and intelligent enough to do proper adjusting). Heat stroke or heat exhaustion is caused by not being aware of and correcting for overheat. Wicking clothing makes you unaware of sweating, so can be dangerous. Instead of sweat cooling you when needed, it soaks your clothes, reduces insulation and chills you later when you need the warmth! You won't notice overheat until soaked, so delay your normal reaction of venting or removing excess clothing, until too late. When you tire, slow down or stop, and *need your insulation*, you find it is wet and useless. Instead of the sweat which wicks out evaporating, humidity from within condenses, making outer clothes even wetter. That's controlled by the temperature in outer layer(s), not whether they are porous or sealed. Before you die of hypothermia from believing false ads claiming their insulation is warm when wet, I suggest you soak your jacket, shake it out and wear it. Experience just how cold, wet insulation really is! False advertizing won't keep you warm.

Part of the idea of using wickable underwear for warmth is the insane idea that your skin continuously LEAKS, so they want to move leaked moisture away from your skin before it evaporates and cools you. Any kid old enough to talk can tell you your skin stays dry UNTIL you sweat from OVERHEAT, and then you WANT evaporative cooling AT your skin. NOTE: Just to confuse you more, several companies say their materials "wick moisture vapor", but you know that wicking only applies to LIQUID, not vapor!

Most of this isn't a problem if you're going outside for short periods with steady activity and not overdressed. But for someone jogging, skiing, hiking, or mountaineering it can be a very serious matter.

Obviously wicking underwear can't stop chill of

moisture evaporating from within your skin (misnamed insensible "sweat"), since that moisture is not on the surface where it can be wicked away. The ONLY way to reduce that evaporative chilling is to raise humidity next to your skin by raising humidity in surrounding air (limited to dew point in that air), or by retaining humidity with vapor barrier (VB) next to the skin. A VB that blocks 95% of evaporative heat and water loss is excellent. (Goretex will block 97%. They call that 3% loss "breathable").

If humidity next to your skin reaches 100% (meaning it can't hold any more water vapor), evaporation stops, chilling stops, and "insensible sweat" stops. That's why a humid day feels warmer than a drying day. (Note that it's common to call low humidity dry when the correct term is drying, which low humidity causes.) A wet rainy day feels colder because the rain acts as a condenser, *removing humidity* from the air, leading to drying condition. Often a "dry" sunny day feels extra hot due to the high humidity the sun has caused by evaporating water that fell as rain before.

When skin moisturizing can't keep up with rapid drying, your skin gets dry, chapped, and is more likely to suffer frostbite. Evaporative chilling makes 32°F feel like 12°F.

It's reported that you lose up to four pounds of water each night thru evaporation of "insensible sweat", when sleeping in a porous "breathable" sleeping bag. Weighing of such bags in the morning shows 2 to 4 lbs. increase, confirming that statement, and also showing that sweat and vapor don't make it out of those bags: sweat wicks in, and vapor condenses in the insulation, leaving the bag wet. The 4320 BTU of heat stolen from you to evaporate 4 lbs. of sweat is lost at outer surface of your bag, as that sweat condensed to soak your insulation. It takes 144 BTU to melt one pound of ice. Thus the heat to evaporate four pounds of sweat is enough to melt 30 pounds of ice! ( $4 \times 1080/144 = 30$ ). Would you take 30 pounds of ICE to bed with you? That's the effect you get by not using vapor barrier interior in your sleeping bag.

If you lose 4 pounds of water during 8 hours of sleep you can expect to lose much more during 16 hours you're awake and active. That dehydration can lead to serious impairment of circulation due to thickened blood, increasing risk of frostbite (thus the good advice to drink LOTS of fluids in cold dry weather). You can create a warm humid condition around your body all day with VAPOR BARRIER (VB) clothing, and thus reduce dehydration.

During World War II US cold weather troops used Vapor Barrier (VB) socks to totally cure frostbite and trench foot. Those led to the vapor barrier "Korean Bunny Boots", still the standard for cold weather use. We started promoting use of VB socks (baggies, bread bags, etc) in 1957, then gloves, shirts, and in sleeping bags since 1967. Others have sold VB clothes and bag liners on and off, but the bad response to uncomfortable coated fabrics, poor education, and problems with tie in bag liners, led most to drop VB. Manufacturers and retailers want to sell what is EASY, and avoid

anything that requires educating customers. Heavy promotion of “breathable” materials makes some retailers unwilling to risk big markup sales by telling customers the whole truth. Often they won’t tell you anything about things they don’t sell. The most common excuse we hear from manufacturers and sales persons for not selling VB lined bags and VB clothing is they can’t take the time to explain it to their customers. Mighty inconsiderate! If you want an honest evaluation of VB, get it from someone who uses it. If you want to avoid it, ask someone who hasn’t used it, or sells only “breathable” gear, thus avoiding getting confused by the facts!

VB in a sleeping bag gives no added warmth when vented but *always protects* the insulation from condensation and sweat soaking, thus it’s advisable to have VB in your bag *for ALL seasons*. The surface wickability of Stephensons FUZZY STUFF makes it especially desirable for summer use when you’re sure to overheat, (even if nude.)

A common argument against VB is actually excess praise FOR VB: they say VB will ALWAYS overheat you! Wouldn’t it be nice if we could get ALL needed warmth simply by controlling humidity! Physics limits us to maximum of 20° added warmth from VB. It’s the overheat *DETECTION SERVICE* that VB provides (by making you immediately aware of sweat when it starts) which “they” think is overheat *caused* by VB; don’t blame the messenger for the message!

Will Steger used “breathable” Quallofil sleeping bags for his much advertized dog sled trip to the north pole: those 17 lb. bags (almost as thick as our 4 1/2 lb Goose Down bags) were carried loose on top of sleds “for best drying”, yet weighed over 52 lbs. in a few weeks from sweat condensing to ice. Luckily they were flown out from the pole. Meanwhile a Canadian - Soviet team cross country skied across the pole, using WARMLITE bags they had purchased, which stayed dry and warm for the whole trip. Will Steger bought FUZZY STUFF Vapor Barrier liners from us for his Quallofil (read, \$500,000 support from Dupont!) bags for the much longer south pole trip and thus kept the bags dry and warm the whole trip.

VB clothing that doesn’t wick sweat over its surface is likely to be uncomfortable and lead us to frequent insulation changes, or sadly mislead some into rejecting VB and the benefits it can give them. Proper comfortable use of VB requires more intelligence and awareness than some people have, but is made a lot easier with modern VB material having wicking inner surface, such as FUZZY STUFF.

With VB keeping water vapor and wet sweat out of your sleeping bag and clothes, you can use ANY fabric, ANY insulation without concern for wickability, and can use ANY exterior wind breaker without concern for “breathability”.

How do users of VB react? Generally with orders for more VB clothing and sleeping bags, and recommendations to their friends. From 1967 to 1998 we sold about 9500 VB lined sleeping bags, and only about 1/2% of customers objected to having to consciously adjust insulation. But even they agree that VB is good for extra warmth and insulation protection, and most of those

became best promoters of VB! We’ve found many of those people have low metabolism, need more insulation to stay warm, and thus NEED VB the most! No matter what one’s metabolism is, the extra heat produced from activity is the same, and thus the person who wears thicker clothes for warmth when inactive will sweat more when active due to those extra clothes. To stay dry they must adjust clothes more. VB underwear helps them notice the need to adjust, and keeps all outer clothes dry even if they fail to control sweating.

When you are awake and active it is easy to adjust insulation to avoid overheat without venting VB clothing. When asleep the normal reaction to overheat is to push covers away, reducing the extra warmth, while VB still protects the bag from condensation and sweat. Sleeping bags rarely get wet from outside. Bags without VB ALWAYS get wet from INSIDE condensation and sweat!

Most of you are aware that wind can chill you. If nude, wind reduces the insulating air boundary layer on your skin, increasing conductive heat loss thru that layer. Stop the wind, or block it with wind tight fabric, or get inside a structure, and that chilling stops. Then as you all know, adding ANY layer of even the most porous clothing makes you warmer. At some point any additional layer overheats you, which you notice only when you start to sweat and feel wet. Do a test: In a wind blocking shelter when it’s cool enough to need a warm jacket, replace the jacket with two thick bulky knit sweaters (as open a knit and thick as you can find). Soon you’ll start sweating from the overheat (note that it is only the sweat that tells you that you’re overheated!) Mere porosity or “breathability” clearly can’t keep you cool. Replace the thick sweaters with a light raincoat (after you cool down). Soon you will feel too cool, clearly proving that a simple waterproof coating is not enough to keep you warm or overheat you, but it can help. Assuming condition cold enough so you are wearing an undershirt, 1 or 2 insulating shirts, and the warm jacket: replace just the innermost shirt with a vapor barrier shirt (lacking a proper one, use a plastic bag with holes cut for head and arms). Soon you will notice sweat from overheat and will need to remove the jacket to stop overheat (if smart you’ll speed up the test by not putting the jacket back on after changing to VB shirt, and will then notice you are as warm as before and not sweating.) The VB shirt reduces loss of humidity and thus reduces evaporative cooling at your skin, much like a humid day in summer.

In each case if you carry test to point of overheat, notice that it is the wet feel of sweat that told you “you are overheated”. Our bodies are very poor at telling us how warm or cold we are, and skin senses changes more than absolutes.

VB clothing has many other benefits:

1. Elimination of condensation in your tent. People who regularly over dress and rely on wickable clothing to carry away sweat, add *much more humidity* to a tent.

If you must change your shirt in less than 3 days due to sweat odors you will also likely cause excessive condensation in any tent you use. Wearing VB helps you recognize and correct overheat and unnecessary sweating.

2. Elimination of sweat odors on clothing and yourself. It’s obvious how outer clothing is protected. Apparently quick sensing and thus avoidance of sweating, plus blocking of air circulation that causes sweat to turn rancid, reduces or eliminates sweat odors on you and the VB clothing as well.

(Polypropylene underwear is infamous for terrible sweat odors: apparently it passes sweat so well that people sweat excessively with it without realizing it. BUT it absorbs all the oils in the sweat, and those oils turn rancid, stink, and stick to the polypro.)

3. Reduces dehydration and amount of water you must obtain and drink. Dehydration is a major contributor to frostbite, hypothermia and altitude sickness. It thickens your blood, impairs circulation (thus decreases proper heat and oxygen distribution), and reduces oxygen intake. It’s especially difficult to drink enough fluids when not wearing VB clothes and ALL your water most come from melting snow! In several days the weight of fuel saved due to use of VB can greatly exceed the weight of the VB clothing.

4. With 1st layer VB you can then wear any kind of material for outer layers, no matter how uncomfortable or impractical that material might be otherwise, since you’ll have no concern with it getting wet. Your outer windbreak layer can be any coated or laminated fabric, preferably NOT “breathable” so you don’t have to be concerned with dirt causing it to leak. When weight is a consideration, chose your layers for the most thickness per pound. Use coated Nylon rain wear windbreaker.

5. Avoiding winter “colds”: most medical writers say a “cold” is only a “cold virus infection”, (typically with symptoms of irritated nose and throat and clear fluid from your nose), which your body self cures in 3 to 7 days. But, your nasal and throat passages usually have lots of all kinds of infectious bacteria in them, which are harmless to you as long as they can’t get past mucus surfaces. Virus infection, or bad allergy attack, or dry irritated nasal passages due to excessively dry air, can ALL let those bacteria attack, resulting in what we usually know as a “cold” with greenish yellow nasal discharge, sore throat, cough. Untreated that can last a whole winter, or be stopped in 3 days with antibiotic. Wearing VB clothes at home allows you to keep air temperature about 10° cooler resulting in less drying and irritation of throat and nasal passages.

6. For some of us with poor circulation to hands and feet, VB gloves and socks are essential to keep hands and feet warm enough to function (other common solution is to move to warm climate!)

*I purchase your Warmlite sleeping bag and 3R tent when you were in Calif. [73] I liked them so well I bought a spare set. - just returned from Nepal and am still using the original set. I go on a number of long trips every year so you can guess how many times they have been used. The sleeping bag is so warm and comfortable that I can count on one hand the number of times I've had to use both tops. I just want to compliment you on your excellent products which have lasted so long in a tough environment. JSH*

# STEPHENSON WARMLITE TENTS



5R

3R

2R

*I've had my 3R for about 8 years and am still crazy about it - when it ultimately gives up the ghost, it will be able to hold its head up proudly in "tent heaven". P.K.*



Tent Color Samples

THE standard of performance in severe weather use, WARMLITE tents are the most versatile, simplest, and lightest tents made. Exceptional dependability, ease of use, and light weight - along with options found in no other tents - has made them the first choice of experienced backpackers, expedition members and canoe, bicycle, or airplane campers since 1964.

WARMLITE tents have been proven in the most extreme conditions throughout the world. The shapes have been copied, but performance never equaled. We've made many important improvements since 1964, but even our early WARMLITE tents had many of the following unique advantages over others:

1. *Elliptical ARC Shape* for wind stability, strength, quietness, headroom and space: this shape gives stable air flow and lowest wind loads, no high stress, flapping, noise and failure so common in others. No need for many annoying staked out lines and their stress points. Conical ends form built-in "vestibules" for cooking and gear storage, and uniformly distribute loads from stakes, directed for best holding power. Well placed pockets aid gear storage and organization.

2. *Most ROOM*, for sitting and working with good headroom. 60" width (89" in Model 5). Two people can sit side by side in front half of Model 2 or anywhere in 3, or 4 across in Model 5. Floor shape gives best fit for sleeping bags and gear.

"Vestibules" for gear and cooking are standard, (not an expensive extra weight option), and are floored to keep gear clean and DRY, for a stable, easily cleaned cooking space. Model 2 tents have vestibule at front, others at each end.

3. *Fast, EASY Set Up*. Two permanently curved poles slip easily into full length sleeves. Setup is quick and simple *even during fierce winds when other tents can't be setup*. Only three stakes are needed to hold a Model 2, four for Model 3 or Model 5. (Those so called "free standing" domes need stakes at each pole end for any wind resistance. Imagine trying to get poles in, or Fly on to a partially erected dome in rain, with strong wind whipping it about!) When you are tired and short on air in a wild storm your IQ of 176 loses first digit, and you NEED the simplicity of a Warmlite tent!



4. *High Wind SECURITY*: Designed for smooth airflow in high wind, WARMLITE tents resist 95 mph winds or, with optional inside WIND STABILIZERS up to 160 mph, very important for safety in severe storms. (Most other tents fail in wind under 60 mph. Some deform or fail in wind under 40 mph.) WARMLITE tents can survive in winds to 160 mph. Extraordinary!

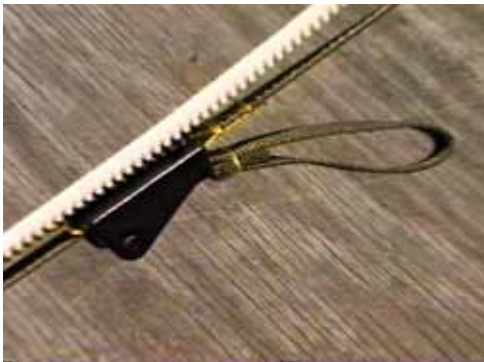
5. *EASY TENSION ADJUSTMENTS*, from INSIDE, for tight wind-stable tent without leaving your warm snug bed.

6. *STRONGEST POLES* -7178T6 is much stronger than those in any other tents - curved to shape and stiff to hold tent shape and stability in any wind. These resist 20 times more force than thin flexed-to-shape poles used on most other tents. Flexed poles use 80% of their strength just flexing to shape. Stephenson poles need no load sacrificing flexure, and are MUCH stronger and stiffer to begin with.

7. *ADJUSTABLE VENT SYSTEM* for full control of warmth & humidity. HIGH vents let out humid air while LOW vents let in heavier dry air. This "chimney effect", assures excellent venting even in still air, when other vent schemes fail. Upper vents have zippered inside covers for easy incremental control of venting. Lower vents can be closed against excessive wind or dust, but open when wind dies, always providing safe ventilation.

Optional windows on each side open from inside (once the outer cover is raised) for views and cooling. Open them any amount, in any location, or close as tight as if they weren't there. They have no effect on storm resistance when closed.

*I sincerely feel you are the most progressive outdoor equipment suppliers now existing. No one else has the balls to install practicality and make radical experiments in the face of losing the large market of gullible consumers. I hope you always remain a quality establishment. B.G.*



Tension Adjustment Buckle



Top Vent

Lower Vent



**8 DRY, WARM:** Double walls, silicone coated fabric and sealed seams provide full rain protection, best warmth, and least condensation. The inner wall is kept warmer by an insulating air gap between walls, aided by radiant heat blocking aluminized exterior. The tent stays dry inside; warmth of inner wall eliminates the miserable condensation so common in other tents, and aids differential height chimney venting. Warm humid lighter air rises up and out the top vents, while fresh, dry air is drawn in through the lower vents.

Sealed one piece construction. No loose "fly" to get heavy with condensation, soak the inner tent, or let the inner wall soak up rain during setup or take down, the worst problem of old style tents. Tradition isn't good when it leaves you wet.

**9 LIGHTEST Weight:** The lightest, yet strongest tents made. (Only 1 to 1 1/2 lb. per person.)

2X=2.33 lb	3X=3.25 lb	5X=4.7 lb
2R=2.75 lb	3R=3.75 lb	5R=5.6 lb

Weight may vary due to coating thickness (seldom over 2oz), or by seam sealing efficiency.

**10 Simple, Quick Entry** - Sloped door makes entry easy while keeping out bugs, rain and snow. The door is easily held to keep out rain or snow while opening the freeze proof zipper, then the door slope makes it easy to go thru. The door can be used even in highest winds without degrading strength or stability. There's an inner backup coil zip and a bottom zipper to seal against crawling bugs. On Model 3 and 5 a door on other end provides an alternate entry.

**Large Door:** The '95 door design allows optional extra zippers on left side to let whole door panel open for loading or stargazing: better than old drop front for large door, and good for stargazing. (*Ventilation is impaired if the door is left open.*)

**11 Wide Range of Options** for many different needs:



Large Door



**TENT OPTIONS**

**R Regular double wall version** with radiant heat blocking inner wall. The aluminized outer surface on inner wall reduces heat radiation for warm surface and least condensation (also blocks light). For more light in the tent, lighter colored fabric can be used for inner wall (call for details).

**X eXtra LIGHT** single wall version. Weighs less than typical 1 person "bivy sack", yet is full sized tent with all the space and storm protection of R tent. These are not as condensation resistant as R tents, so should only be used by the 1 out of 3 intelligent enough to avoid needless sweating, and use proper rain gear (see VB). If you usually can wear a shirt for more than 5 days without sweat odors, you can use the X tent.



George

**S large Side Windows** (on both sides) for cooling on warm nights, or views or stargazing. These have no effect on strength or wind stability. To open, the outer wall is zipped open and raised, or tied out like an awning. Inner covers open from inside any amount or location, with 2 sliders on zipper across top & sides. Adds 5 ounces.

**LD Large door** adds pair of door zips up left side so opening is twice as big. Use for loading gear and stargazing. Adds 2 ounces.

**W Wind stabilizers:** diagonal inside straps from each side of each pole down to far end of pole, greatly stiffening and supporting pole. For winds over 95mph. They get in the way a bit in use, especially on mid pole, and no one really needs them. +2.5 oz on 2R, 5 oz on 3R, 7 oz on 5R.



**Wind Stabilizer**

**E Endliners** - double end walls to prevent rare condensation on ends, ONLY for dumb ones who WON'T control needless excess sweating. Only if you usually must change shirt every day do you need E. Helps frost control at -40 deg., but not worth the bother.

**M Mid pole** to reduce side deflection in strong side winds, is not needed for strength. Sleeves for mid pole are in all 3R and 5R tents. For doubters of 40 years of experience, a multi-mid pole version of any size can be made, at high cost.

**COLORS** Light Yellow, Green, Lime Green, OD (olive drab), Medium Blue, Light Blue, Dark Blue, Purple (blackberry), ORange, Pink, Fushia, BLack, GREy, Tan, or mixed. Use light color for the ends to let in light. Dark colors on top between poles have little effect: alum. liner is already dark. For much more light inside get X tent, or use a light color on liner, with slight reduction in humidity control. In dim light Lime Green and Yellows are most visible while ORange & Blues are hard to see. Alum. and Blue blend into shadows on snow. Light green blends best in fields and forest. Aluminum is used for sun protection if you MUST often leave tent up in sun, but COSTS a lot more - better to lift the tent off stakes on one end, fold it end to end (with poles flat - sleeping bag and all) and AVOID a day of sun.



3RSG - LD

**Three Sizes 2, 3, or 5:** for wide variety of needs and uses. Size number *conservatively* indicates number of people who can *comfortably* sleep in it with **all** their gear. There is a WARMLITE tent for one person, or for two to six (5R will fit 6). Many of our customers have purchased 2 or 3 sizes to be ready for different needs. We recommend a Model 3R for most universal use, since it is the ideal size for winter camping for 2 or 3, gives capacity for up to 4 when needed, yet is still lighter than other **two-person** tents. We are often told that 3 people fit easily in a 2R, 4 in a 3R, and 7 in the 5R, with occasional stories of even more in emergencies.

Model 2 tents are roomy for 2 people and their gear, yet are also as small as a practical tent for one person can be: you need same length and height for one as for 2, so only width can be decreased without degrading use and venting. But less width hurts wind stability without saving much weight. A Warmlite 2X is lighter than any other 1 person tent or bivy, and is THE choice for lightest 1 person tent. (Light pole saves another 2.6oz., double wall 2R is only 6oz. more.)

Drawings show exterior sizes. Interior sizes are about the same for X tents. R tents seem smaller due to the liner, but sitting and moving space is the same (liner easily pushes up).

**Packed sizes:** Diameter X Length:

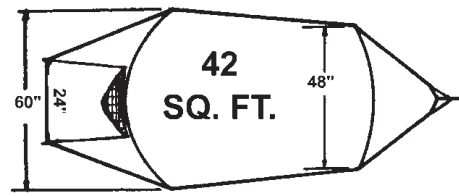
2X=4" X 17"	3X=5" X 17"	5X=6" X 21"
2R=5" X 17"	3R=6.5" X 17"	5R=7.5" X 21"

Poles determine length, are about 1/3 the volume.

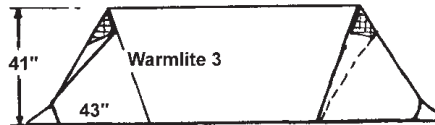
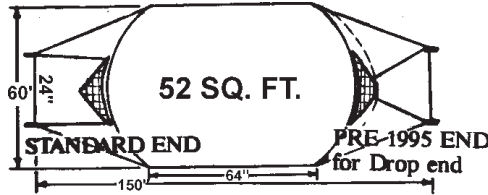
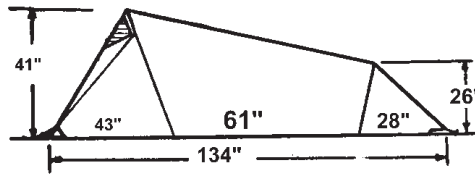
**MATERIALS:** Fabric is ultra high tenacity 30d. ripstop Nylon with a very durable silicone waterproof finish (made for parachutes and hot air balloons, thus the color choices!), is 3 times stronger than fabric usually used for fly on other tents, (and which we used till 1995). Seam sealing (which we let you do, or offer as a service) is done with silicone adhesive we supply, (use for repairs if ever needed). The finish is extremely slippery, thus stays clean and wears far better than urethane coatings usually used on tents, and doesn't turn sticky from damp storage as urethane coatings do. Parts are LASER or hot knife cut for accuracy and fused edge so they can't fray and pull apart. (Others hide fraying stack cut edges for a while with flat felled seams or seam tape.)

Nylon thread is used for maximum strength and wear resistance (proven since 1958 with no seam failures!)

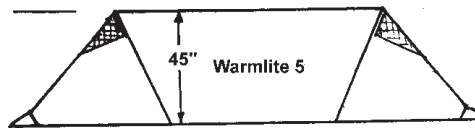
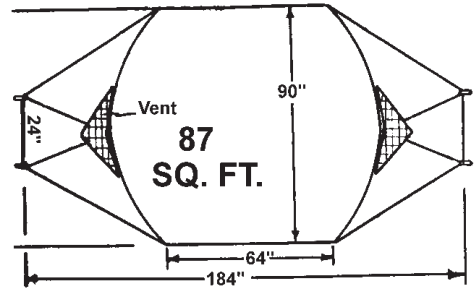
Poles are 7187-T6 aluminum, 5/8" diameter (3/8" on small end of Model 2, or for lightweight poles), formed to the curvature of the tent (hardly noticeable in the 15.5" folded length). Sections are held together with



Warmlite 2



THE OUTSTANDING MOUNTAINEERING TENTS



Tent Weights

2X=2.33 lb	3X=3.25 lb	5X=4.7 lb
2R=2.75 lb	3R=3.75 lb	5R=5.6 lb

Side windows on both sides		5 oz
Big Door extra zippers		2 oz
Mid Pole (Nice But) (Never needed)	3R - 3/8"	3.4 oz
	3R - 5/8"	6 oz
	5R - 3/8"	5 oz
	5R - 5/8"	9 oz
Wind Stabilizer (adds 3 oz more) (with end liner)	2R	2.5 oz
	3R	5 oz
	5R	7 oz
End-Liner (Rarely needed)	2R	7 oz
	3R	10 oz
	5R	15 oz

Nylon covered elastic, ends held with plastic pole end caps. Optional Mid poles are 5/8" or 3/8": 5/8" gives spare sections for end poles, is stronger and stiffer. 3/8" flexes enough to pass extreme loads to ends and not break, and saves 2.6oz on 3R, 4oz on 5R.

All vents and windows are covered with the finest "Noseum" netting available.

Zippers are the best from YKK, carefully selected for each function. Coil teeth have most strength, smoothest operation, are self repairing. Outer door zip has molded Delrin teeth for freeze resistance, inner backup is #3 coil.

The features of the old ERV -- *extra reinforcing, second door on 3 and 5, inside access to stake out tension adjusters, sleeve for mid pole, many net pockets, fused edge cutting of parts* -- are standard on ALL WARMLITE tents.

A Warmlite tent starts out lighter then stays lighter: You won't be carrying several extra pounds of condensation or rain soaked inner tent, like the typical antique porous tents with fly.

**SELECTING and ORDERING**

Designate tents with the highlighted codes for size **2, 3, 5**; type **R, X**; options **S, LD, W, E, M**; and **Color** using capitol 1st letter(s) of color(s). If multi-color spell out EXACTLY where you want each color. If you select dark or aluminum ends, give GOOD reasons for it, or we'll think you made a mistake and waste time questioning it. Examples: **3RSG 2RY-LD-W 5XSMP-LY** (purple top, light yellow ends), **3XSLB-LD 2RS-B-LY-LD** - note Blue can be Light Blue (LB), Medium Blue (MB) or Dark Blue (DB) and we may get confused. When in doubt, spell it out!


How do we manage to make tents with much better performance, more room yet least weight? From optimum aerodynamic shape for least loads and material use; from preformed poles to be much stiffer, stronger, yet lighter; from ultra-strong fabric and, like sailmakers, adding reinforcing as needed for high load points and abrasion; from learning that lighter floor fabric out lasts the rest of the tent: you can't walk on it, so heavy fabric isn't needed there. Simplicity of set up and tensioning assures proper use in ALL weather no matter how cold, tired, or short of oxygen one is. HAPPY proud owners take better care of STEPHENSON tents so they last much longer!


### Seam construction


There are many seam types used for strength, simplicity, looks or feel, or to solve fraying problems of cut fabrics. Almost anything works well on fabric edges that are woven, knit, fused by hot cutting, or bonded with durable coating. Nothing works durably on cut edges of uncoated woven filament nylon or polyester or even if coated with poor bonding coating (which is needed to keep high tear strength). Fabric edges which can fray from wear must be protected by folding under or covering with tape. That works well on fabrics with rough textured thread such as cotton, Cordura, Nomex, or acrylic awning fabric, but will eventually fail on slippery nylon or polyester filament woven taffeta or ripstop taffeta. The ONLY way to make durable seams in those is to bond the fabric edges with hot cut fusing (hot knife or laser) or bond edges with coating. The urethane coatings used on tent flies (and on our older tents) do a good job holding seams together until long after coating has worn to the point of not being waterproof. The more durable slippery silicone coatings don't lock threads near as well (thus the very high tear strength) so edges must be fused or well protected.


It's easy to design and make seams that will take any normal "in use" loads, but very difficult to predict gross over loads of mishandling. Thus if you want your gear to last, don't abuse it.


### TYPES OF SEAMS



**SIMPLE EDGE SEAM:**  ideal for lightly loaded exterior seams. Easiest to seam seal (single line on exterior only). Down proof, soft & flexible, about 70% of fabric strength. Double stitch may be used for security but does not increase strength.

**SIMPLE FLAT LAP:**  for flat construction requiring highest strength. Single stitch used where it will be seam sealed between the lap forming an adhesive bond as strong as the fabric. Double stitch achieves up to 95% of fabric strength. Difficult to seal due to thru stitches. Thread exposed to wear. Sails are often zigzag stitched both to hold edges flat and to make seams easy to rip out for shape adjustment, but zigzag will not wear near as long as straight stitch. If edges are tucked under to hide them, as is necessary on fabric that frays, it is called a flat felled seam. Automatic folders makes it one of the easiest to sew, and thus seen on almost all mass produced tents.

**INSERT SEAM:**  variation on simple flat lap used to attach an edge in middle of a panel, such as baffles in sleeping bags.

**TUCK STITCH:**  a variation on insert seam that hides the thread on outside, makes a stiff, lumpy seam and puts exterior fabric loads directly on thread.

**EXTERIOR EDGES:**  Folded in, makes a neat balanced seam with minimum bulk.

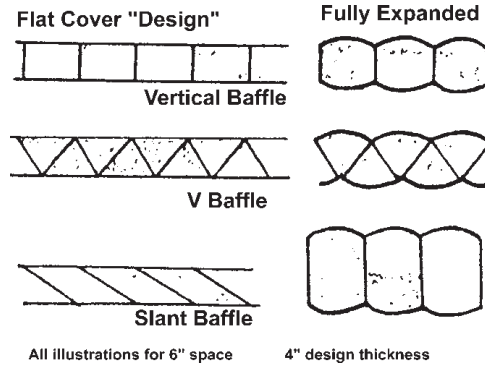
**ROLLED:**  for hiding edges that are likely to fray. Other methods: BOUND, and SERGED  (zigzag over edge) often used on knits and cheap clothing.

Sometimes you'll read that the mark of good

construction is use of flat felled seams. Then ask, how come you don't see flat felled seams in highly loaded items like sails or parachutes? How come you DO see flat felled seams on the cheapest imported and heavy roadside tents? The use of flat felled seams only proves edges are hidden, which isn't good, may be bad.

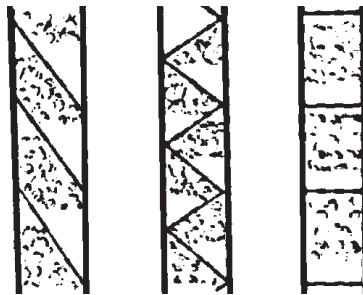
### Baffling for Down Control

Designing a Down filled sleeping bag from an engineering viewpoint, it's obvious you need to limit the spread from inner to outer covers to the thickness the Down can expand to, and need to prevent the Down from shifting when expanded in use. Vertical strips of fabric, called baffles, will accomplish both objectives. Free expansion of the Down could curve the fabric surfaces out between baffles by an amount determined by thickness and width between baffles, but in real life the weight of Down and fabric flattens the inside to conform with the occupant. Thus the thickness varies only about 1/2 as much as calculated for free expansion.



If the volume of Down equals the free expansion volume of the bag there is no space for the Down to shift to, so it stays in position. Any lengthwise shift between inner and outer cover will tilt the baffles and thus compress the Down slightly.

If the free volume in the bag is more than volume of fill, then the Down can easily shift off to lower side area leaving a thin cold top. That will happen if the baffles are too wide for the fill, or are spaced far apart.



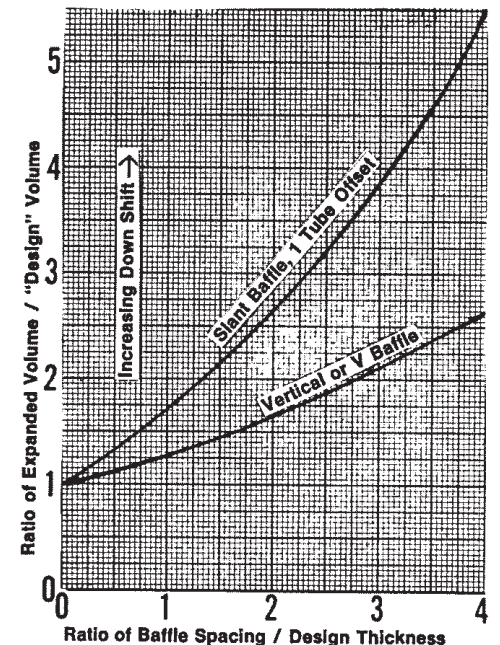
Unfortunately many bag designs evolved from sewn thru quilts: to eliminate cold seam lines someone put a quilt over a quilt with the seams offset. To eliminate the extra layer of fabric in the middle someone sewed a middle layer alternately from inside to outside: viewed from side the inner baffle layer formed a series of wide V shapes, so was called V baffles. That worked but still had weight of excess fabric. As with the vertical baffles, the outer surface will arch up between seams while the inner surface conforms

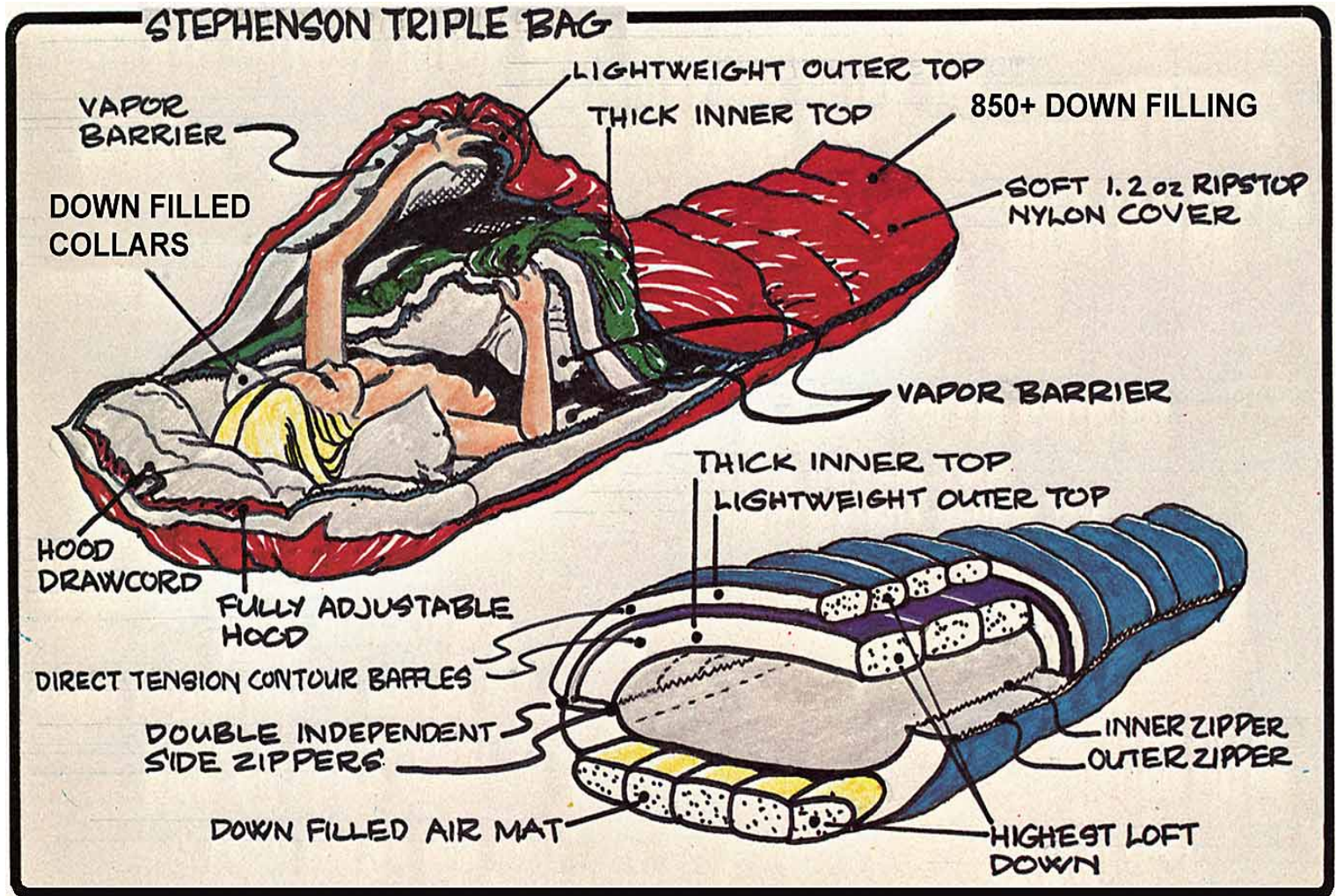
to the occupant. Any lengthwise shift between covers compresses the Down much more than for vertical baffles. In the '50's Roy Holubar was producing excellent V baffled bags, and did a lot of promotion on the idea that the thin edges of each "tube" was overlapped by the thick middle of adjacent tube (ignoring the obvious that the baffle was just angled thru a uniform thickness of Down). To make a lighter weight lower cost bag he went to baffle strips instead of full interior V'd layer, and to stick with his "overlapped tube" argument he put the baffles on a slant, like 1/2 of a V. That would have been fine if materials were rigid and as non moveable as drawings on a sheet of paper. As with the V baffle, shift of covers in ONE direction over compressed the Down. But when covers shifted the other way it became grossly over length vertical baffles, letting the Down easily fall off to one side. Disaster?? Only to the user, not salesmen. On display in stores bags are hung vertically, in a way that holds covers in alignment. With "slant baffles" even a 50% underfill looks good: the empty areas of one tube are covered by filled area of next.

One big advantage of Down over all other insulators is that insulation CAN be adjusted by shifting it. On warm nights, compress the Down into the ends of cross tubes with gentle directed pats, thinning the top (this is difficult in V baffled bags). If you feel cold later, simply pat the sides freeing the Down to expand into middle for more insulation

Conclusion: vertical "direct tension" baffles are best, providing the same uniformity of thickness as V baffles at same spacing, but with less weight, less sensitivity to motion, and easier thickness adjustment.

Most baffles go across the bag from side to side. At times someone makes bags with baffles going the length of bag. It's easier to make that way and easier to contour a bag around you. But packing tends to cause large shifts, so it takes lots of effort to get it uniform before use. If you shift Down for warmer conditions it's almost impossible to fluff it back from inside the bag.





**WARMLITE SLEEPING BAGS**

The WARMLITE TRIPLE bag is the only complete backpacking BED for ALL temperature ranges, providing comfort in all conditions anywhere, in THREE overlapping temperature ranges from +60° to -60°F (-75°F to -80°F reported by hardy Alaskans). An optional net top extends use to the tropics.

A WARMLITE bag gives best COMFORT, warmth, adjustability, and least weight, thru good design, superior fabrication, and efficient use of best materials. Multi tops for all conditions and a very comfortable insulating mat block ALL types of heat loss: convection, conduction, evaporation and radiation. We've long expected others to copy our features to make better bags, but most unique advantages of even our 1959 bags and many improvements since, are still only available on WARMLITE bags.

**INSULATION:** CONVECTION heat loss: blocked by windtight ripstop nylon, double zippers (since 1957), closely fitted collar and fully adjustable hood (since 1958). Air can't enter to carry away heat (unless you adjust it to).

CONDUCTION heat loss: blocked by highest loft 820-890 GOOSE Down available, held in a very uniform thickness not affected by your position in the bag. The bag is shaped for least surface area consistent with comfort. Follow our girth measuring instructions to select bag for best comfort. 3" to 4" less girth gives less weight but restricts motion, like a mummy bag, which few can tolerate: less girth isn't practical for anyone.

EVAPORATION heat loss is blocked by flannel like soft vapor barrier (VB) fabric on bottom and collars, and your choice of VB fabric on interior of the tops. With collars snugly closed you get up to 15° more warmth from the VB. Open the collars and humidity escapes, removing the extra warmth. VB aids temperature control by giving extra warmth only when needed. We've used VB since 1955, and all Stephenson bags have had VB since 1968, a major reason for enthusiasm of users. The VB is as "breathable" as Goretex (as defined by their level of humidity transfer), and thus an excellent vapor barrier for this use.

Other VB gains: 1. Insulation always STAYS DRY. Sweat & humidity from you can't wet it. (All bags without VB inside always get wet every night from INSIDE, due to user's sweat wicking, and condensation in the insulation. Weigh your bag night and morning to confirm this.)

2. VB helps you detect overheat quickly. You'll open the bag to cool you then, not after the bag is soaked with damaging sweat, oil, and salt. The bag dries even before you've cooled down, doesn't need hours of drying next day.

3. It's easy to clean with a wipe of a damp cloth. (soap or detergent OK if needed)

4. Much less dehydrating sweat is lost, thus you're less likely to get frost bite the next day.



27 Triples zipped Together



Bag and Tent rolled up



Floats Like a Duck - George - 30°F

Heat loss to ground: is blocked with a 3" to 4" thick, full size 1 1/2lb. Goose Down filled Air Mat (used since 1975), for the *soft comfort* & light weight of an airmat (which is usually cold), and WARMTH of Goose Down (in other bags Down is destroyed by lying ON it): no bulk and weight of covered foam pads (or those heavier "self inflating" foam cored airmats.) For less cost +1 lb. & much more bulk get the 2" thick foam pad option (used since 1966), still lighter and more compact than "self inflating" foam airmats. With pad locked to the bag you won't roll off, or turn your insulation into pieces of cold non-insulating string by lying on it. To use either DAM or Foam in the bottom, order DAM bottom bag plus Foam pad (the DAM of proper size won't fit a bag made for foam pad only.) The wider foam pad to fit in DAM space is 1/2 lb. heavier than normal foam pad, needs larger carry sack.

We made the first Down filled airmat in 1959, learned to produce them in 1975. Net baffles block Down shift. Fabric is very tough heat sealable coated nylon taffeta, the strongest used in any airmats. Performance exceeds all expectations, with life over 20 years. Color: yellow or orange for emergency use to attract attention. It can be used for a swim or fishing float or, will float the bag when the creek rises and floods your camp. It inflates fast with the carry sack used as a pump, (never by mouth or slow heavy pump.)

RADIANT heat can be reduced by aluminized upper surface facing the DOWN on inside top fabric. This was standard since 1968, will be optional soon. Radiation loss is greatly reduced when inside a tent or under heavy foliage, so you may not need aluminizing. The silicone coated nylon used on our tents is a better vapor barrier, more durable than the aluminized urethane coated nylon, so is offered as an option, and will be



Floating on salt water, 20'



Snuggle Up!

standard when urethane fabric is gone. Vap-R-Soft option is aluminized, but that will end when material is gone (cost too much, no longer made). The aluminized silicone nylon can be used, adds \$50.

**LOTS of FOOT SPACE**

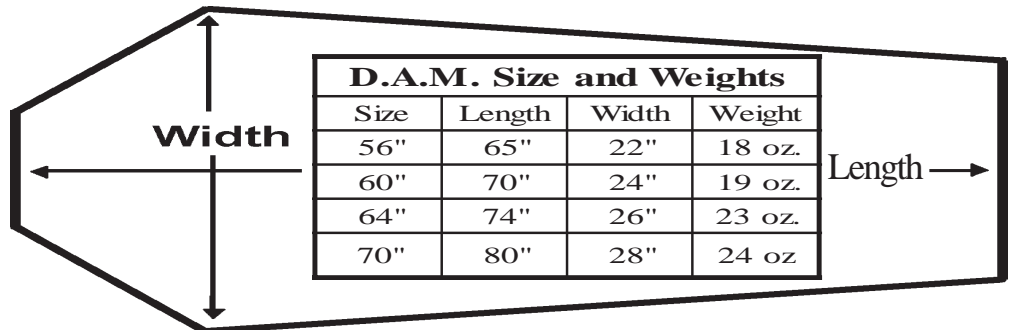
After trying about every possible foot end design we found that the simple extended foot space was best, allowing your feet to relax in normal position no matter how you sleep in the bag. Other "contoured" or fitted foot ends all restrict foot spread and are uncomfortable for sleeping on your side or stomach.

**ZIPPERS**

Even at the zippers there's no insulation loss:

Parallel zippers separately close inner and outer surfaces. Separating zips on each side, and across the foot give independent venting and let you zip bags together on EITHER side, or join the tops together for a very wide warmth adjusting top. Use tops zipped together for a quilt on your cabin bed. In very cold conditions, to dress INSIDE or for fine tuning from -50° to +10°, using both tops, unzip tops on opposite sides to let the bag expand as needed.

In 1987 we advanced to the excellent YKK #3 zippers for bags, for least weight, least snags. Experience with #3 on bags since 1987 has been as flawless as on tents since 1970. Heavy zips used by others snag fabric (which spreads the slider and makes zipper come apart).



## FULLY Adjustable HOOD

The unique Warmlite hood design evolved as a way to permit full head protection when sleeping in any position. Most hoods can only be closed if you lie on your back. Our hood zips up over the shoulders and snugs up over or around the head with the top drawstring, so can close snugly around your face or nose when you're on your back, or adjusts to cover your head and leave breathing space when lying on your side or stomach. It is not the easiest hood to close, but it IS the most adjustable.

For safety we use non lock zip sliders; if you wake with your head in the bag, a good push will open the hood. Velcro tabs across the zippers at two positions take more than usual force to pass, so they won't drift open. You can add tabs for more positions if desired.

## COMFORT RANGES

The standard Warmlite Triple includes both the THIN (1.8" thickness= 3.6" "loft") and THICK (3.8" thickness= 7.6" "loft") removable tops (equivalent to 11.2" loft combined), attached with parallel rows of separating zippers along each side and across the foot, so there can be no cold zipper line when THICK or BOTH tops are used. Usually the THIN top is used down to 25° (summer range), the THICK top down to -10°, and the combination for quick warmup, or winter use down to -60° F. (- 75 to -80 reported by hardy Alaskans!)

Comfort ranges are greater than for any other bag of similar thickness due to controllable warmth of vapor barrier. Uniform thickness and dual zips let you move as you wish and stay warm, so you won't get stiff and sore from staying in one position all night. (If you've experienced cold nights in bags with separate pads, you know how any attempt to roll over makes you COLD when crushed insulation below is exposed: you soon learn "don't move", then wake up stiff & sore.)

For tropics, use the optional NET top, a double layer of fine noseem net held 3/4" apart with many foam spacers. Bugs on outer layer can't reach thru to you, (but you will want repellent near your head: if you hear them close you can't tell if they're inside or out!) When it's cool enough to wear some clothing, just use repellent, as you do during the day.

For use outside a good shelter, spray on water repellent recently applied is best for dew or drip protection. *Bags without VB always get wet from the INSIDE humidity condensing in the insulation, even with no outer cover. ANY material ("breathable" or not) laid over ANY sleeping bag greatly increases condensation even with VB. Goretex (which is as good a vapor BARRIER as urethane coatings), was removed from use on bag exteriors because it CAUSED the bags to ALWAYS get WET. "Driloft" replacement is justified "because it only gets the bags half as wet". I prefer a DRY bag! Don't put any waterproof cover or bivy sack over any bag you want to keep dry!*

A 1 mil. plastic drop cloth works best for ground protection, plus gives an area for your pack, boots and other gear. (note that we sell WP covers and bivys because dumb people demand them, not because they make any sense!)

## INTERIOR FABRIC

Since 1968 we've used aluminized urethane coated nylon for radiant heat blocking and vapor barrier interior. That is standard on tops until supply is gone. Then the silicone coated nylon (now an option) will be standard for best VB, least weight, best durability, and many colors. For \$50 extra you can have aluminized silicone fabric on interior top.

The bottom interior is FUZZY STUFF, a very comfortable brushed knit Nylon plus tough stretchy urethane film. It wears much better than coated fabric, is best for comfortable long life sleeping bag inside bottom, VB sox, glove liners and clothes. The surface feels like soft flannel, but wicks sweat *across it's surface even faster* for rapid drying and comfort. It's worked great for our boat cushions in BVI since 1990: comfortable to sit on nude, quick to dry. FUZZY STUFF is so comfortable against your skin you won't want to wear anything under it.

FUZZY STUFF is used on bag bottom interior where comfort, extra wear resistance, wickability for fast drying, and easy cleaning is needed, but not on tops: it clings slightly to clothing, weighs more, and more toughness isn't needed on tops. Colors vary: we try to pick compatible interior colors. Send stamped addressed envelope for samples.

EXTERIOR fabric is the finest 30 denier Down proof ripstop nylon with soft, water repellent finish. Used since 1958 without failure, it's obviously TOO durable, but there's no lighter Down proof fabric! Every part is HOT CUT, the ONLY way to keep seams together. All others hide raw knife cut edges with binding tape or flat felled seams, but that won't keep them from soon pulling apart. Usual colors are red, blue, or green, some others for special orders.

Each bag is individually sewn by a highly skilled person working at home. The highest loft most mature Goose Down available is carefully HAND weighted into each pocket, in a sequence that assures designed uniform loft.

Contoured direct tension vertical baffles, closely spaced, maintain uniform loft no matter how you move in the bag, yet allow CONTROL of insulation: if too warm, pat and force the Down out to sides to thin the center. If cold, gently pat from inside, expanding Down to fill tubes for more warmth.

All sewing is with 100% Nylon thread to match fabric strength, stretch, softness and super wear resistance. (Cotton or polyester thread make stiff seams which don't wear well.)

*-- your product is really a beautiful bag. It is the most comfortable sleeping bag I've ever made the effort to climb into. Now I have to get one for my wife for Xmas or she's liable to appropriate mine! FT.*

The cost of a *WARMLITE TRIPLE* seems high because it includes so much. Compare it to other bag combinations needed to match it: winter bag + summer bag + overbag + VB liner +4 lbs. of 2 self inflating pads to match warmth and comfort of D.A.M. You'll find they add up to MUCH more cost, weight, and bulk. We give you more for your \$ by avoiding duplication of materials, low overhead, no sales markup, and sometimes no profit.

Many people don't need extreme low temperature capability of a full TRIPLE bag, but want something for 3 season use where it might range from 10° to 65° F. The *WARMLITE TRIPLE* is ideal for that use, while no other single bag can cover such a wide range. The thin top covers 25° to 65° range, the THICK top -10° to 45° range, and the combination gives quick warmups (and warmth enough for surprise emergencies down to -60° F. for average person.) Why buy 2 or 3 other bags to cover the range, not know which to take, or worse, find you've taken the wrong one, when one *WARMLITE* does it all?

When we made all tops removable on TRIPLE bags in 1970, purchases of our single top bags dwindled to nothing, so we stopped listing them (but every 2 or 3 years someone requests a special single top bag, which we make for him). In the past a couple of others copied our multi top bags (& humorously claimed to have invented the idea), but left out the VB and thus failed. All other bags sold are still only for single condition use and need another whole bag to extend range. People buy limited use single top bags to save money, but when another bag is needed for other conditions, the cost doubles. Weather is NOT predictable. A non adjustable bag can leave you dangerously cold or miserably sweaty. With a *WARMLITE TRIPLE* you get best materials and features, and the effect of 3 bags **and** pad with complete weight of only 1 1/4 bags. In any form it's lighter, more compact than any other equivalent single bag and pad. Leave thick top home, save 2+ lbs. Leave thin top, save 1+ lb.

We'll custom make thinner lighter Triples and special Single top bags if really needed, but expect alternate suggestions from us if our experience indicates your stated needs will be better met with something different. We rather have you happy for many YEARS from now, not just pleased with us before you get it!

*WARMLITE* bags are stocked (when we can) in 4 girths with "standard" heights, in red, blue or green. We will make them TO ORDER for ANY height, ANY girth, any colors we can get (or combinations). When ordering give us YOUR height and weight, girth measurement (see measuring sketch), desired bag girth (and WHY if different from measurement), whether you'll take standard height bags for that girth or want it custom made to your height (to save 1 oz./inch), type of bottom pad (D.A.M. or FOAM), and color choice(s). If rushed, call to check stock. Production may take 4 to 12 weeks.

## Additional Info and Most asked Questions:

Life of insulation. If you lie on the insulation in your sleeping bag or parka, and then move sideways to turn over, you put shearing force on the insulation. That tears synthetic insulations, and rolls Down into pieces of "string" from which it will never recover. Stuffing your bag or parka does the same thing, plus puts excessive loads on seams. Prior to 1966 we had people bring 2 to 3 year old bags in to restore loft, and we found the lost loft was entirely due to "strings" of Down caused by lying on it. Since 1966 our bags with pads IN them have never had that problem. If you are using a bag loose on a separate pad, put some straps on the bag bottom to hold it securely to the pad, and shift as much of the Down out to sides and top as you can so you won't lie on it. To pack a bag, always carefully fold and roll it. Uniform end compression of the roll to fit in a sack won't harm it. Don't stuff anything you don't want to rapidly destroy!

Washing and drying Down: A simple test will show that equal dry thickness of Down will dry much faster than synthetics. As Down dries from the surface, interior moisture wicks to the surface where it has access to dry air and heat for rapid evaporation. With synthetics the surface lofts and insulates the interior so it takes much longer to get the needed heat in and the water out. BUT, if you saturate a Down bag and let the Down all clump together, drying will take much longer: you have greatly reduced surface area and greatly increased thickness to be dried. Thus the stories of Down being slow to dry! Those stories are correct when you put them in context. Wool is similar to Down in wicking ability and moisture holding, but being available only in dense heavy woven form it doesn't compress as it gets wet (it's already compressed). Both Down and wool can absorb many times their weight, within the fibers, with no effect on insulating ability. Add more than about 5 times their dry weight and Down starts to collapse and lose insulating ability, while air spaces in wool fill up and you lose insulating ability. In each case people get misled, not realizing how close to total collapse their nice Down bag is after 5 or 6 nights without inside vapor barrier, or thinking their wool shirt can continue to keep them warm without rain gear.

A common misconception is that rainy weather means high humidity. Observe how all that dense summer haze disappears after a rain storm. Rain is COLD, formed at cold high altitude, and acts as a dehumidifier as it falls thru lower levels. Where there is regular rain and overcast (as in the NW) the humidity stays low most of the time, and that dry air flowing over the mountains causes desert conditions to the east. In the SE, quick storms soak everything and then intense sun evaporates that water, causing 100% humidity and continuous haze (thus the Smoky mountains).

We often hear of people using short or narrow pads to save weight. When sleeping you need MORE insulation at your feet since you are no

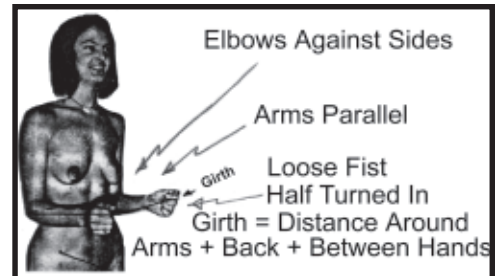
longer producing lots of excess heat in your legs and feet as you do when hiking. If your pad isn't wide enough to support your arms when on your back you won't be able to stay comfortable and won't sleep well. It's good to minimize weight, but you can carry much more IF you get a good comfortable night's sleep.

I often hear people saying they can be warm and comfortable with an ultralight thin bag and thin closed cell foam pad, when they are asking why we can't make our bags lighter. It should be obvious that the reason they are spending \$\$\$ to talk to me on the phone is that they have NOT been warm or comfortable with that inadequate gear! They want and need warmth and comfort, then expect that since we have already done so much better than anyone else, a simple request should make us do even better just for them. I wish it was so, and appreciate the compliment, but we don't do miracles, and when we find a better way it will be for everyone. BUT, there are practical modifications that can be made for special or limited uses, so don't be too bashful to ask for such. We can and do make single top bags, special contoured bags, lighter fill for warmer conditions. Just don't ask for a bag bigger, thicker, AND lighter, or for one without VB. Also all orders for delivery yesterday must be in before noon tomorrow (or, "you wanted it WHEN").

Polyester fiberfill is usually the lightest practical insulation per inch for clothing. Good Goose Down is much lighter, but weight of extra fabric used in construction usually offsets the reduced insulation weight. Only in the very thick insulation needed for sleeping bags is the great advantage of Goose Down really important. We are regularly told that such and such synthetic fiberfill is "as good as Down and much cheaper". But when you compare numbers, for same insulation they are ALL much heavier than good Down bags, yet cost as much. Are they lying? Not quite: Poor duck Down can have loft as low as 200 cu.in. per lb. while best fiberfills can have initial loft of 200 to 300. The rub though is that synthetics lose that initial loft rapidly from lying on it and packing it. Thus they can be as good as worst Down when new, never anywhere near as good as good Down.

*- Above and beyond all expectations. No condensation problems even on humid B.C. coast with temp. around freezing. C.E.*

I'm very pleased with the tent - used in travels in Newfoundland, Sweden, Switzerland, Norway, Italy and Crete - worst storm on Jotenheimer where pitons were needed to hold it down! It served as home for a hitch-hiking, back packing odyssey of 6000 mi from Rochester to the Cascades & back. D.T.



### Typical TRIPLE Bag Sizes and Weights relative to height and weight of users.

GIRTH	56"	60"	64"	70"
heights	5'-5'8"	5'4"-5'10"	5'8"-6'4"	5'10"-7'
weights	90-120	105-155	130-190	170-250

### Typical weights for each layer, ounces:

THIN Top	16	17	18	20
THICK	26	28	30	33
BOTTOM	29	30.5	32	34
TOTAL	71	75.5	80	87
D.A.M.	20	22	23	25
TOTAL w"	91	97.5	103	112
foam pad	28	30	32	36
TOTAL w"	99	105.5	112	123

Note: Layers are filled for given LOFT, not weight, thus when Down loft is better these weights will be less, and vice versa. Decrease in height reduces weight about 1 oz. per inch.

### BAG Packed Size:

WITH D.A.M. 10" x 27"  
WITH FOAM 11" x 27"

used your 3RS for # of years - we call it the "Palace" or "The House that Jack built". Used in E Alaska range, dog mushing trips in interior of AK, etc, never fails, always a pleasure, thanks! M.L.

I have nothing but praise for the Triple bags we used for the Canadian Trans Polar ski trip - G.M.

I remember reading your weird catalog wondering if I should buy this stuff. That was over 15 years ago and my 3RS and Triple bag have done exceptionally well. From winter camping to kayaking I have been very pleased. M.F.Kelly

A brief note of thanks for an outstanding tent - years of extensive use in White mtns, Adirondacks and Alaska (McKinley part for 2 months, 9 days of torrential rains) and NO problems! S.M.

*your tent is the easiest up & lightest available and your sleeping bag as comfortable as my bed back home. They're so great I almost feel guilty using them in the wilderness! RR*

# STEPHENSON VB CLOTHING



## NOTHING IS BETTER THAN A STEPHENSON VB SHIRT

The first popular use of VB protection was socks to keep feet warm and dry, and boots dry and unfrozen. Without VB socks, water evaporates from your feet, condenses in your boots and soaks your socks and feet. That distilled fresh water softens the skin and promotes fungus and bacterial infections.

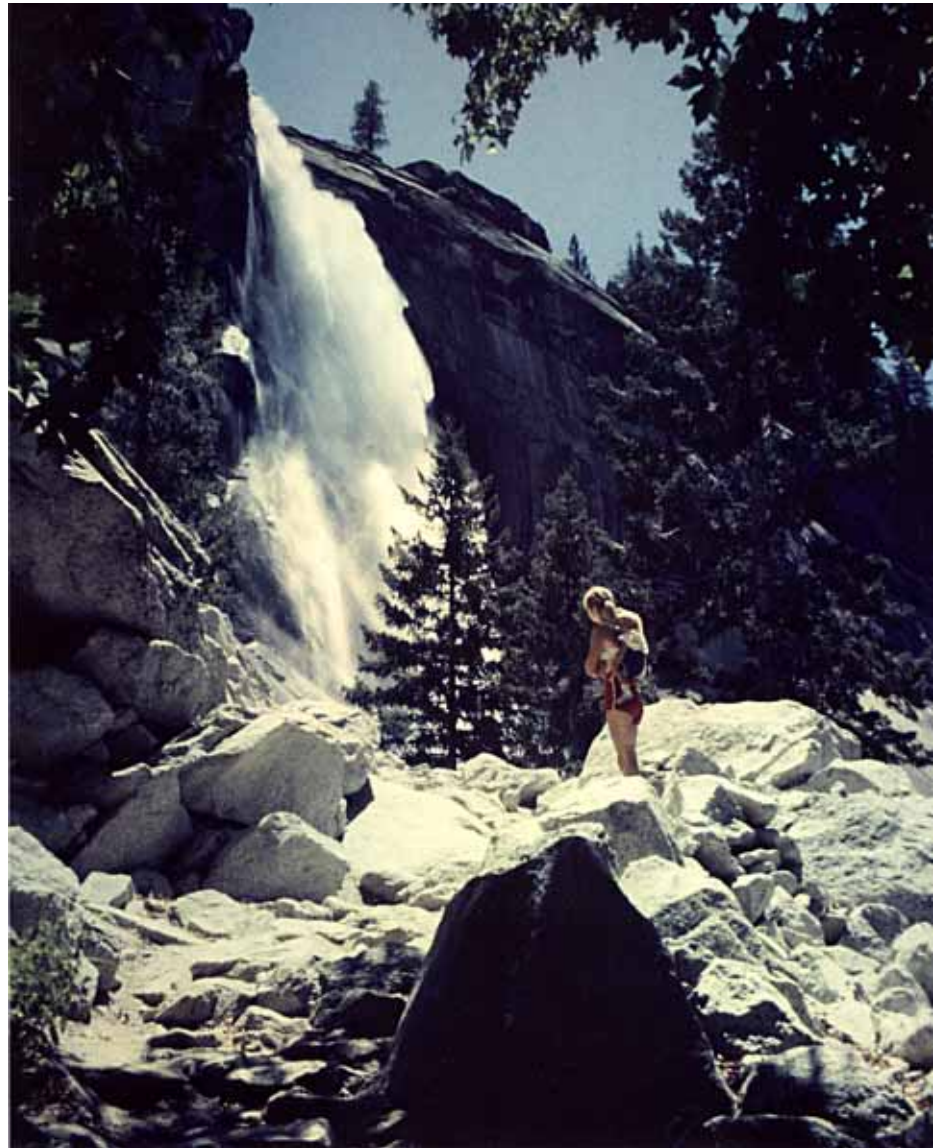
VB socks keep humidity high at your feet, stops evaporative cooling, keeps boots and socks DRY. If feet get hot and sweat, boots and socks still stay dry and still insulate. Sweat is salty so doesn't promote infection as bad as fresh water.

In 1955 we kept our feet warm and dry with plastic wrap over thin nylon socks. Later we used bread bags (cheap, last 2-3 days), even tried scuba wetsuit socks which worked but were uncomfortable. Over the years various coated and laminated fabrics were tried, but were not stretchy or durable enough. When tough stretchy FUZZY STUFF was developed in 1983, we tried it on socks, were amazed with durability and comfort!

Our VB socks are made from a double layer of FUZZY STUFF, so the tough urethane film is captive between soft nylon layers for comfort and durability. Sizing is based on your shoe size, so order by the largest shoe size you wear. If too big, pin off excess then sew along pin lines or send to us to sew. If too small exchange them. Put VB socks on first, then any kind of insulating socks you like over them. When you remove boots and socks, dry your feet to prevent chill.

### STEPHENSON NO SWEAT SHIRT

The Vapor Barrier "No Sweat" shirt is made like a sport shirt with zipper front. Arms are extra long to allow full arm motion even when the cuff is closed and held to your wrist with the velcro tabs. The collar can be turned up when desired for a better seal and neck protection. It also makes a good lightweight windbreaker (or rain jacket if you seal seams.) Release the velcro cuffs to let extra sleeve length cover your hands. A covered pocket gives inside security for small items.



NEVADA FALLS 1957 Joan with Laura

STEPHENSON VB shirts were originally made to give people a low cost useful way to learn the value of Vapor Barrier insulation. They soon became our most popular repeat and gift sale item. The original coated fabric shirts served the purpose well, but needed an undershirt under it for best comfort, and didn't last long enough to suit us. About 1983 we got the smooth version of FUZZY STUFF (which we still use in VB sox), and in '85 the FUZZY version with best comfort. Since then all Stephenson Vapor Barrier clothing and Warmlite sleeping bag interior bottoms have been made with FUZZY STUFF.

For shirt colors we'll send your choice of colors we have in stock.



We can't stock shirts in all colors and sizes, but can special make one from available color if you don't mind the 1 to 3 month delay. Undershirt color isn't critical. We'll make VB shirts in custom sizes, but need extra \$9 and a shirt that fits you for pattern, or very precise measurements. Sleeves will be made 4 to 5" longer so you can raise your arm with the wrist velcro closed. Or purchase enough FUZZY STUFF to make your own (we'll even chalk mark your selected size pattern on it so you can modify it as wanted).

**Vapor Barrier GLOVES**

We used plastic and rubber gloves for VB protection of hands for many years. They were effective but plastic is uncomfortable. Moisturizing hand lotions also help but don't give near the potential extra warmth, and don't keep gloves dry, a main objective of VB gloves. VB glove liners made from FUZZY STUFF solve those problems and provide all benefits of Vapor Barrier with the comfort of a soft knit glove and MUCH longer life than any other VB glove liners. Sizing is the only problem since hands vary so much, and there are no real standards. For glove sizing send your hand tracing and measurement around the widest part of palm. We'll send our guess for best fit, and will quickly exchange for another size if too small. If they are too big, pin out excess and then sew to pin lines and trim off excess, or send to us to sew.

Use VB gloves for your first layer, then knit gloves over the VB. Finish with thick mitts (or thick gloves if it isn't too cold). When you need finger dexterity you can remove mitts and still have some protection.

**Vapor Barrier UNDERPANTS**

Vapor barrier pants have not been used as much as other VB clothing. We generate more heat in legs, and don't seem to feel the cold as much there, & low sales requires high cost custom construction. FUZZY stuff solved the problems of comfort and durability, so we now make VB pants to order. We use simple construction to keep costs down. Send a sample pair of pants that fit comfortably, or FULL dimensions as for CONVERTA pants. If your dimensions result in wrong size, we or you can modify to fit (not exchange.) These have simple overlap fly (no zip, opening can extend thru crotch if desired), and velcro waist. They come with long legs so you can trim them off long enough to tuck into your socks so they stay there when you bend your legs. Knit fabric prevents fraying of cut edge, so uncomfortable hem is not needed or wanted. For more warmth wear loose fit insulating pants over the VB pants, thus allowing free leg motion.

As with all custom made and custom sized items, we can't take pants back for refund, but will correct any construction or size error WE make, and if needed will modify to correct any size error you make. If you like to sew you might consider making VB clothes for yourself with our FUZZY STUFF.



Stinson 108 - 3 - Mirage Dry Lake



Paradise Valley 1955

**CONVERTA PANTS**

To avoid carrying both long and short pants in 1961, I made pants with zip off legs (still done by some others and still very difficult to use!). In '69 I tried zippers in inseam of pants, so I could lift up legs and tuck into waistband, switching from longs to shorts with hardly a pause in hiking. Adding zips in outer seam let me vent pants without raising the legs, for leg cooling and sun and insect protection. With pant legs raised the outer zip gives access to pockets. In 1979 we started producing them for others, with another improvement: extended fly zipper all way through the crotch, allows full opening, front, back or middle. You can relieve yourself, and women can pee, mostly protected from insects and cold.

Fabric is Nomex, a modified Nylon made for aviators and firemen uniforms for fire resistance, durability, and comfort. It has the wear resistance and quick drying of Nylon, higher strength and flame resistance, in a texture like wool suit fabric, perfect for hiking pants (except for cost).

CONVERTA Pants are similar to other pants except for the following:

1. Zippers in leg inseams & outseams. Open them from the top down for cooling while retaining sun and bug protection. Open inseam from bottom up so pant leg can be lifted up & tucked into waist, converting to shorts. Odd looking, but very practical.
2. Waistband has belt loops and velcro closed half belt, so separate belt isn't needed.
3. Fly zipper goes all the way thru crotch, and has normal zipper slider plus a pair of sliders for selective crotch opening. (I notice this feature is



now in some Hunting suits for women.)

4. Velcro ankle closures block wind and dust.

Pockets are inset in side seam. We realize that some people want different kinds of pockets in various places so, rather than risk putting them in wrong place, at your request we'll include enough material to add what you want.

For best fit send us a comfortable pair of your pants with your order, indicating any dimension changes wanted, or a detailed drawing with full dimensions taken from such pants. Don't send stretchy or shrunk fit pants, or elastic or drawcord waist. Usual pants size don't give height of waist, crotch depth, thigh, knee, or hip circumference. Women normally want the crotch fairly close fitting to avoid leg chafe, while men need more room. Allow for bulky underwear. We can fix some size errors after construction but may result in some strange seams and additions if it was ordered too small!

Some people question the comfort of a crotch zipper, but users report it's unnoticed (and they prove it by buying additional pairs!).

Custom construction and Nomex makes these excellent pants too expensive for many people. If you have a fabric you prefer us to use, you can provide it and reduce price \$30 (but call and discuss it

first: we may not want to use something we know won't work well enough). Or if you can sew, buy the fabric you want and do it yourself. We'll even chalk a pattern on the Nomex if you wish.



Tent at Mt Ranier

## PONCHOS and Rain Jackets

When hiking in rain an umbrella or poncho is best to keep dry from rain and avoid sweating. I use a light folding umbrella whenever wind allows it, and other times a poncho. A rain jacket is useful if you must be out in high wind and have rain pants to go with it.

Our popular poncho was produced for about 23 years. When we could no longer get good urethane fabric coating we stopped making them. Now the silicon coated tent fabric and Fuzzy Stuff laminate are even better than the best old stuff. Tent fabric is lighter weight and stronger, so we now use that to make ponchos and rain jackets to order.

The ponchos retain our previous hood design with visor to keep rain off your face, cinch cord to hold the hood to your head so it won't drift around and cover your face, generous neck vent for cooling, and lots of length and width. Lightweight side zippers (instead of snaps or velcro) give better wind protection. An option is extra back length to go over your pack (which can be zipped up in a big tuck when not needed.) These are only made to order, so you can select your sizing and color (from tent colors).

For sizing, measure from top of your shoulder down your front and back, as far as you want it to drape.. Edges are unseamed, hot cut to prevent fraying. If you want the pack covering extension option you have to measure from top of shoulder up over the pack and back to the same height used for specifying back length without the pack. The difference will be the length of fabric tucked out, so side zips work correctly either way. Width is full 65" width of fabric. Weight is 8 to 10 ounces depending on size. Also give us hat size or head circumference for the hood.

The rain jacket is the same as our vapor barrier shirt, made from the same fabric as ponchos, with or without a hood like the poncho. Size is based on normal shirt size, but you specify length from top of shoulder to bottom edge of jacket AND location of bottom of zipper down from top of shoulder (which must not be lower than top of a leg raised up for a high step.) Weight typically about 6 ounces.

Ponchos and rainjackets can also be made from "Fuzzy Stuff" for softer drape and wicking inner surface, but weight is about doubled.

Slight changes in material use has left us with a few 56" girth Triple bags and a few single top bags with #5 zippers and earlier interior fabric, and some Mylar laminated 3X tents (green, white, aluminum) which we're selling with BIG discounts. Also, to avoid throwing away already cut tent parts, we sewed up some yellow tents from the previous urethane coated nylon (the material that earned the "indestructible" reputation for our tents, altho not near as strong or durable as current silicone coated nylon): 2RSY=3 1/2 lb. \$330, 2XSY=2 3/4lb. \$303., 3RSY or 3RSG 4 7/8 lb. \$404. Call for details.

## Related subject: Rain gear

When it rains dumb people add rain wear over clothes which are already warm enough or too warm. That EXTRA layer causes overheat and sweat soaked clothes, and they blame the rainwear instead of excess layers for overheat. That stupidity was THE reason for the development of Goretex and the millions of \$\$ spent promoting it for what it isn't. Smart ones avoid overheat by wearing less clothes under rainwear.

Most good rainwear is made of coated nonporous fabric. Since Gore defined "breathable" as passing water vapor about 1/20th as fast as uncoated fabric, (the same as most urethane coatings), and Goretex was promoted as preventing overheat solely due to it's "breathability", much of the rainwear made for big spenders is promoted as "breathable" (but note that Gore requires users of Goretex to put extra ventilation in their rain gear {such as "pit zips", which also can't work}, and also require a durable water repellent finish on exterior fabric so rain can never reach the Goretex film!). But most users praise Goretex only for WARMTH, not coolness, which any rain gear can provide if it is snugly closed at neck and wrists so air can't flow up thru it.

Most ski parkas and snowmobile suits are coated on the inner surface of outer fabric to block wind & water. Warmth is lost if they're open at the bottom and top so air can flow up thru, like a chimney. Lighter weight warm humid air rises out upper openings and is replaced with cold dry air from below. It's obvious that heat is lost warming that cold air. What isn't so obvious is that the relative humidity of that air when warmed is extremely low. It DRIES your skin, dehydrates you, and takes away heat by evaporation.

*My wife & I are very happy with our Warmlite Triple bags after using them from winter to hot summer. The built in pad is an excellent concept - it makes the bag like a bed back home on the 1st night out. I no longer toss the 1st night or two till I get my sleep habits straightened out. L.D.*

Repairs: request estimate, or simply say do it and send a bill, or send excess \$ with it; we refund any excess. We CAN repair most damage. Old Urethane coated tents can be recoated by YOU (Jack can't do it any more due to illness caused by breathing those fumes, and no one else will do it). All urethane eventually go sticky from damp humid storage. Sticky surface must be wiped down with MEK to remove most of surface coat, before recoating. The new silicon coating doesn't have that problem, will last MUCH longer. Urethanes coatings are still used by all other backpack tent makers, and you can use our Z004 recoater and mek wipe down on them. Poles last forever if not left wet to corrode, and will save you \$\$\$ if used in replacement tent.

**Alcohol:** We consume alcoholic drinks in summer to cool us. Even a very low barely noticeable blood alcohol level dilates blood vessels, thins the blood, and improves circulation to extremities, carrying excess core heat to hands, feet and face. Since you sense temperature (especially changes) mainly on skin surface, that improved circulation momentarily makes you feel warmer altho heat is being lost FASTER (thus the illusion that alcohol warms you.) If you are shivering and short of core heat, you *must avoid alcohol*, since *then* you can't spare core heat to warm your hands and feet.

The most common problem is sweating due to core overheat, while hands, feet and face are cold. Then a *small* bit of alcohol can solve BOTH problems, moving excess core heat to hands, feet and face to warm them, while cooling the core. Most writers tell you to always avoid alcohol in cold weather, then say you need wicking clothes to get rid of sweat from overheat. They think readers are dumb, and can't remember when to or not to use alcohol. I believe most readers are far more intelligent than the writers. If readers know how much they can safely drink, and know they shouldn't drive after drinking, certainly they can learn that they shouldn't drink when hypothermic, and can drink to warm their hands and cool overheated torso! A false rumor says alcohol is a diuretic: it is as much a diuretic as water. Drink excessive amounts of water, tea, coffee, beer, etc. and you'll have to pee more, but none of these will lead to an excess loss of body fluids. The dilation of blood vessels from alcohol result in reduced blood pressure. Prolonged heavy drinking allows lymph fluids to restore blood pressure, then when alcohol is gone and blood vessels retract to normal, blood pressure is raised abnormally, causing the hangover headache!

Various complicated methods have been tried to externally move excess core heat out to hands and feet, while ignoring & condemning the natural way to maintain good circulation to extremities. Avoid dehydration by avoiding sweat loss from overheat and by drinking enough liquids. Without vapor barrier to reduce evaporative losses it becomes very difficult to obtain and drink enough water in winter conditions. If you seldom urinate and urine gets dark, drink more water. When adequately warm and you need to warm hands and feet, then add 1/2 oz. of alcohol or less per hour to whatever you are drinking. Keep moving. Flex muscles in arms and legs to aid circulation and generate heat. Don't get chilled. Once cold it's hard to regain good circulation.

*I've used a warmlite bag and Warmlite tent since 1972 for camping in Europe, US, and Asia. I have been extremely pleased with the thoughtfulness that went into their design and with their performance...Recently a sporting goods store salesman told me "if you've been using Stephenson's stuff, we don't have anything better for you here!"*

# STEPHENSONS 1999 until ?

## WARMLITE TRIPLE BAGS

Three Temperature Range Sleeping bags with thick and thin tops and full size thick pad in bottom compartment.

### Sleeping bag Girth at shoulders

Bottom pad type:	52"	56"	60"	64"	70"	76"
2" Polyfoam	\$399	500	560	600	660	720
DOWN Air Mat	\$500	580	640	680	750	810

56, 60, 64, 70" girth bags stocked, mostly standard heights

Includes pad, carry (& pump) sack. Under 52" girth, -\$7.00 per inch of less girth. Over 76", + \$15 +\$11 per inch of extra girth. Between sizes use next higher price. ALWAYS state girth based on measurement, NOT from the standard height vs. girth chart. State your height, whether you want standard or special height. Include COLOR(s)! Bags with D.A.M bottom can also use special foam pad. Bags with Polyfoam pad can't use D.A.M.

### OPTIONS for WARMLITE BAGS

1. Net top for tropical uses \$55
2. Foam pad for D.A.M. bag or replacement. \$45 (Give sizing)
3. Replacement or Oversize carry or pump sack \$10
4. Down Air Mat (D.A.M.) with pump sack \$140
5. Air Mat without Down, with pump sack \$100
6. Waterproof cover, not recommended, top \$50  
bott. \$60
7. Waterproof Bivy \$100 (give zip side, not recommended)

## WARMLITE All Seasons TENTS

Double wall:	2R \$499	3R \$625	5R \$850
Single wall:	2X \$460	3X \$580	5X \$780

### TENT Options

- S = windows on both Sides, for cooling \$44
- Large Door opening extra zips, each door \$15
- Wind stab. 2R \$15, 3R \$30, 5R all 3 poles \$45
- E=End line, rare need 2R \$85, 3R \$99, 5R \$150
- Mixed colors no extra charge, get colorful!
- Aluminum top: 2R \$90 3R \$115 5R \$150
- Mid Pole (sleeve is in tents) 3R=\$65 5R=\$100
- 2R Mid Pole(s) (sleeves must be added) \$85 ea

### Parts and Service

- Complete 5/8" Front pole 2 & 3 size tent \$70
- Standard 5/8"x.014"wall 15" pole section \$8.20  
describe exact section needed!
- Complete 3/8" rear pole for model 2 tent \$45  
3/8" rear 15" section \$7.50
- Complete 5/8" 5R pole \$105 Section \$9
- Extra or replacement tent CARRY sack --- \$7
- Repairs/hr. \$49; you watch \$59; you help \$79
- Seam seal Tent \$50 (\$20 to Seal Plus Extra \$30 Punative Charge) - 2 Week Delay!
- Recoat CLEAN old Urethane coated tents (don't machine wash!) top & liner, 2R, \$450; 3R, \$600 5R, \$700. Floor: \$250; (ie, no one here will do it anymore!)
- Thinned Z004 for recoat, 2R \$35, 3R \$45, 5R \$60

Warrantee: You may return UNUSED and UNDAMAGED STANDARD items for exchange or refund within 30 days, but call about it first. We'll fix problems as best as we can at any time. "Cosmetic" flaws aren't considered defects after 30 days! No return of custom items, not normal stock, such as pants, or odd colors or options rarely sold such as bivy covers, tents with Endliners. If in doubt, ask first. Plan ahead and be sure you're ordering what you really want and need, and in time.

## Sun protection of Tent

No special sun protection needed if tent is setup in shade or taken down, or laid flat and folded in half end to end then covered during day. If you **ABSOLUTELY MUST** leave it in sun a LOT, then order aluminized top

### COLORS

Colors in catalog may not be good due to printing, and fabric changes. Colors on video tape depend on how your TV is adjusted. For exact colors send addressed & stamped envelope for samples. Color of tents, sacks, and pants may be significant; VB underwear and sleeping bags aren't.

### VAPOR BARRIER CLOTHES

VB SHIRTS	Sm & Med	\$25	Lg & Xlg	\$30
VB PANTS	Overlap fly	\$39	Zip fly	\$49
SOCKS	\$8	(give shoe size)		
Glove liners	\$15	(give hand tracing)		

### RAIN WEAR

PONCHO	with hood	\$54	with pack cover	\$63
RAIN JACKET	with hood	\$54	without hood	\$44

### CONVERTA PANTS

Nomex Aramid (modified Nylon), made to order, see text \$95

### Backpack sacks

GOLITE BACKPACK replacement sacks \$35. Include snap placement dimensions from frame, sack color(s) wanted, and type (mostly U zips).

### MATERIALS

Fabrics & film per yard, typical 44 to 65 in. width

1.4oz. silicone coated high tenacity ripstop Nylon	62 to 66"	\$10
1.4oz. silicone coated aluminized	" " " "	\$25
1.1oz. Downproof ripstop Nylon many colors	44" to 65"	\$9/yd.
2.2oz brushed laminate, Soft FUZZY Stuff, various color		\$8
Nomex, tan, blue, black, dull green, as available		\$28
Insect netting, polyester "noseeum" or standard mesh		\$4
10ft by 9ft Tarp		\$95

ZIPPERS, all YKK, the best, price = \$.10/inch.  
#5 or #3 coil separating, double or single pull tabs, 24" 39" 43" 46" 52" 76" 92". Size # is the millimeter width. #3 or #2.5 coil nonseparating, double or single pull, any length.  
Replacement zip slider, supply full description \$.75

Z004 urethane recoater, humidity cure, short shelf life, 8oz \$11  
ambers, sticks to anything but silicone, qt. \$35, gal. \$95  
Z004 thinned for recoating enough for 2R \$35, 3R \$45, 5R \$60  
Silicone adhesive sealer, get GE Silicone II from hardware store

CLEAR FILMS for window insulation, per yd., 10 yd. minimum.  
Super clear Mylar 1 mil. 60" wide \$3.00  
Cheaper, haze if over 3 layers 48" \$1.00 60" \$1.50  
polyethylene, .7 mil double 48" (tube) \$1 Aluminized 48" \$6

SHIPPING ESTIMATES: Post office \$2+\$1.40/lb.  
UPS Ground \$4+ \$.40/lb., 2nd day AIR \$7 +\$2/lb.:  
AK or HI \$10+ \$2/lb. Rural AK \$20+ \$2/lb.  
Insurance Post Ofc. \$.80 +\$1/\$100, max \$600 UPS \$.40/\$100  
With rate charts add \$1 for costs not shown in rates.  
Canada \$8+ \$1.50/lb or pick it up in US to avoid post office and customs delays and charges.  
Other foreign \$8+\$6/lb. or check post office.

*I'm the proud owner (since 1973) of one of your tents which has seen lots of use and provided wonderful shelter in the most extreme weather.  
Thanks! B.B. '89*

Allow me to congratulate you on such a natural & beautiful way of displaying camp equipment, after all isn't this the basic reason we love to camp - "to get away from it all" & enjoy the beauties of nature! G.G.

# WITH STEPHENSON EQUIPMENT WE CAN BEAR EVERYTHING NATURE GIVES US



3RS Windows Open



Stephenson Spinnaker