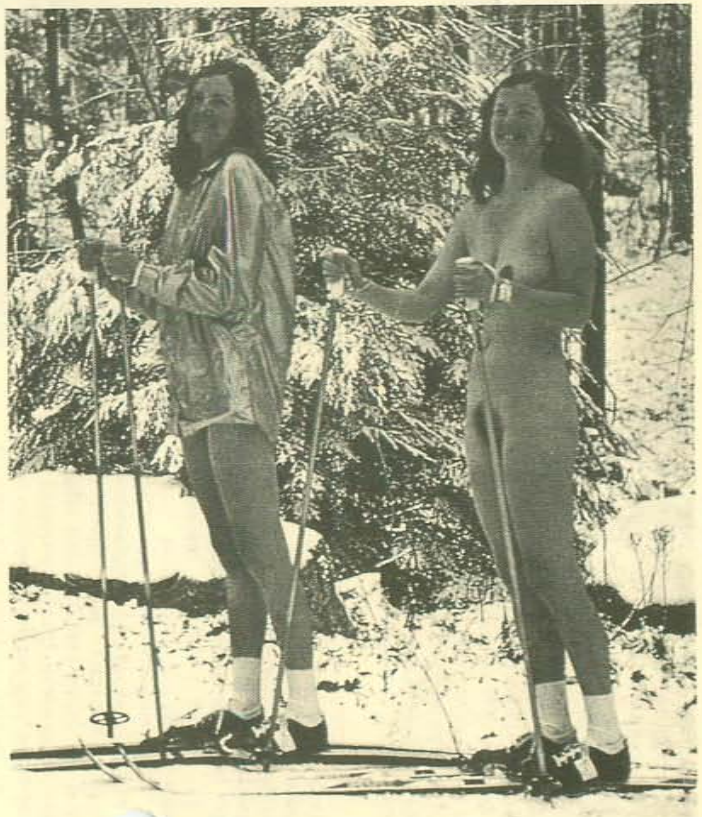
Stephenson Warmlite

2 Triples in 2R Tent

5R 3R 2R



NOTHING is better than a Stephenson VB Shirt

D.A.M. bottom Triple floats with wp covers

STEPHENSONS July 1994

From 1971 to 1991 we sold a 48 pg catalog full of information and color pictures (and got fame for nude pictures promoting our way of natural living and camping), but the cost got too high. Rather than charge more we reduced cost by simplification, compressed print, B&W pictures and removal of some extraneous material. There's enough info here for you to make good decisions. To SEE our products better, & how to use them, order our 2 hour VHS video tape (cost $10, $7 refundable on return.) It shows all our products and how to use them. At end of tape are the natural pictures in previous catalogs, then scenes with nudes at our Island camp (available for rent) and sailing naturally on our 39' boat in British Virgin Islands (cruises available).

The 1974 and 1980 catalogs with better color pictures and extensive explanations can be purchased for $12 each while they last. These are collector's items, won't be printed again.

Write (or phone 603-293-8526 9am to 3:30pm Eastern time) for information not covered in catalog, or to check on stock. All questions will be answered as quickly *and* best we can, but may not be entirely correct or complete if you call during off hours and get someone not familiar with products. Prices quoted on phone may not be complete or correct, may neglect shipping, so always check catalog prices as well.

ORDERING: Please order by MAIL, WITH payment (no credit cards). We take phone orders only for in stock items to be sent COD adding $9 to shipping cost, only money order or CASH accepted On Delivery. For quick shipping of items in stock include FULL payment, with shipping cost, by MONEY ORDER or CERTIFIED CHECK. Other checks require 3 weeks to clear the bank. From outside the USA, checks or money orders MUST be payable thru a USA bank in US dollars. Wire transfers cost $30, and may take a day or two! Better to plan ahead!

DON'T send ANYTHING by ANY express or "Next Day" service. Those DELAY our receipt by 3 to 7 days! In a hurry? Use STANDARD MAIL or UPS. Phone for stock status. You may find we have something suitable but not what you would have ordered, thus save time and $. We'll hold items up to a week for mailed order so you don't have to use COD to hold a stock item. No COD except phone order.

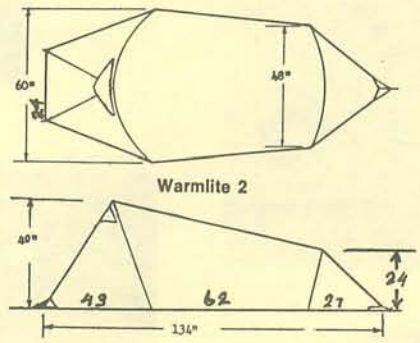
Repairs: request estimate, or simply say do it and send a bill, or send excess $ with it. We refund any excess (quickest). We CAN repair almost any damage, can even reinforce some sun weakened old tents. Tents can be recoated tent is beyond repair.

High cost of mail prevents regular mailings, so hang on to the basic catalog. Keep older catalogs for reference, don't order options or items not in current price list. We will stop making pack frames when out of critical parts.

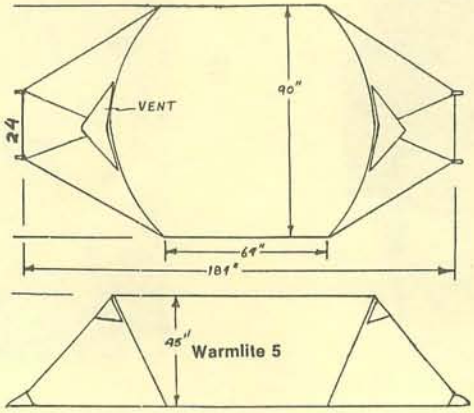
This business is mainly for the fun and satisfaction we get. It'll continue as it has since 1956 as long as it is still promoted by happy users, as it always has been.

"I LOVE MY NEW TENT! The first week or so I'd wake up just to exclaim to my friend how nice it is! It is everything I could want- light, warm, roomy, breezy (with drop front down) easy to put up & take down, really stable in a storm....you know all that, why should I say more? My sleeping bag too, is just perfect - the double layer idea is great and SO COMFORTABLE."

Warmlite 2 RS Billee



THE OUTSTANDING MOUNTAINEERING TENTS



WARMLITE TENT ADDITIONS

Our new siliconized coated tent fabric (based on sport parachute fabric) wears better and is lighter weight than previous fabric, but is more difficult to handle, sew, and seam seal (only special silicone rubber sticks to it, so WE have to seal them here. We now have lime yellow, green, white, black and light blue & hope to have the normal leaf green soon. All our standard yellow and green tent fabric has excess coating, so tents come out a bit overweight, while those from new fabric are matching listed weights. Since WE have to do the seamsealing the price of tents with new siliconized fabric is increased $35 for 2R or 2X, $40 for 3R or 3X, $55 for 5R or 5X.

The inside diagonal stabilizers for support in wind over 90 mph, which were previously only on ERV tents, then made standard on all, then made an option to eliminate to save weight (which most people took), are now an extra option for $8 and 2 1/2 oz. on 2R, $16 and 5oz. on 3R and 5R.

Lightweight poles: Mid poles for 3R & 5R used to be same 5/8" diameter as end poles, are now changed to 3/8" diameter. Analysis & test show the more flexible pole is better at shifting load to end poles under extreme loads, and weigh less: 3.7 oz. vs. 6.3 oz for 3R, 5.6 oz vs. 9.6 oz. for 5R. The heavier 5/8" diameter can be ordered, at same price as end pole, have never been known to break, but should break under extreme loads before the end poles. Also for low wind use light 3/8" end poles can be ordered for 2R or 3R, at same price and weight as mid poles for 3R. The tent is ALWAYS supplied WITH heavy duty standard 5/8" poles. Lighter ones are only offered as EXTRAS, not instead of standard poles. We also have MUCH heavier 5/8" poles available (I have no idea why you'd want them) which have .025" walls vs. standard .014"

INSECT NETTING: all vents and side windows are covered with fine "noseeum" insect netting . Heavier standard mesh mosquito netting can be used on request.

WARMLITE All Seasons Tents

Double wall:	2R $415	3R $520	5R $690
Single wall:	2X $395	3X $500	5X $650

Tent Options

S = windows each side for view, cooling $40
D = Drop end, 2R, X, 3R, X, $35 5R, X, $45
E = End liners 2R $45, 3R $55, 5R $80
D plus E: 2R $95 3R $105 5R $150
Aluminum top and or mixed colors $20
Mid Pole (sleeve is in tent) 3R=$55 5R=$75
Stakes, reinforced plastic, 9" or 12" $1

Parts and Service

Complete 5/8" Front pole 2 & 3 size tent $65
Standard 5/8x.014 15" pole section $7.50
Complete 3/8" rear pole for 2 size tents $40
3/8" rear or front 15" section $7 joint $1
Complete 5/8" 5R pole $105 Section $8
Extra or replacement tent carry sack --- $7
Repair labor, minimum 1/4 hr., per hour $36
Seam seal NEW WARMLITE tent $35
Wash dirty tent before repair or recoat $48
Recoat top, 2R, X $40, 3R, X $45, 5R, X $66
Recoat floor $35. Recoat inner wall $46

Warrantee: You may return UNUSED STANDARD items for exchange or refund within 30 days, but call about it first. We'll fix any defects in construction as best we can at any time, but "cosmetic" flaws aren't defects after 30 days! We can't accept return of anything custom made for you that isn't like normal stock, such as pants, special colors or option mixes. If in doubt, ask first.

Sun protection of Tent

No special sun protection needed if tent is setup in shade or taken down or covered during day. If you'll leave it in sun a LOT, then get it with aluminized top.

"I don't pretend to understand physics or your write up on the No Sweat Shirt, but I used it for 3 years & liked it, so now want another --"

STEPHENSON TENTS

The standard of performance in severe weather use, *WARMLITE* tents are also the lightest, simplest, and most versatile tents made anywhere in the world. Their exceptional light weight, dependability, and ease of use—along with options found on no other tents—make them the first choice of many experienced backpackers. Expedition members, canoe campers, bicyclists, cross-country skiers, and airplane campers are among the others who value the designs and features.

WARMLITE tents have proven themselves in the most extreme conditions throughout the world since 1964. Our tent shapes have been copied, but performance has never been equaled. We have made many important improvements since 1964, but even the early *WARMLITE* tents had the following advantages over all others:

1 ELLIPTICAL ARC SHAPE for optimal quietness, strength, wind stability, sitting headroom, and equipment space. This shape has the most stable airflow and thus the lowest wind loads* It eliminates the stress, rippling, flapping, noise, distortion and failure so common in other tents. There is no need for bothersome staked-out guylines and their failure-prone stress points. Conical end sections distribute wind loads most uniformly, and provide built-in "vestibules" for cooking and gear storage (no heavy, expensive add-on vestibules). Well-distributed pockets inside the tents aid gear storage and organization.

2 LIGHTEST WEIGHT: ***The*** lightest tents made. (Only 1-1½ lb per person.)

2X** = 2 lb 9oz	3X = 3 lb 5oz	5X = 4 lb 12oz
2R = 2 lb 15oz	3R = 3 lb 15oz	5R = 5 lb 12oz

Weights for optional features

Side windows—5oz
End-liners—5oz on 2R, 7.5oz on 3R, 12oz on 5R
Drop front—4oz (7oz on End-lined tents)

(Tent weights may vary slightly due to coating thicknesses. Variations are seldom more than 2oz down or 5oz up.)

3 MORE ROOM, for uncramped sitting, moving, and working, with adequate headroom. The full 60" width is usable (90" in model 5). Two people can sit or work side by side in the front half of model 2, and anywhere in model 3. The 5 is wide enough to sit four-across, anywhere in the main chamber. Floor shape matches sleeping bag shapes—and people and their gear—much better than round or oval domes.

4 FAST, EASY SETUP. Two permanently curved poles slip *easily* into full length sleeves. Setup is quick and simple even during fierce winds when other tents are impossible. Only three stakes are used for the *WARMLITE* 2, four stakes for the 3 and 5. (Eight to ten stakes are required for so-called "freestanding" dome tents: they must be staked at *each* pole end for any wind security. [Imagine trying to thread those last couple of poles into a partially erected dome while a strong wind whips the partly assembled tent about!])

5 STRONGER POLES —much stronger than those in other tents—preformed and highly flex resistant, to maintain tent shape and stability even in highest winds. These poles resist about twenty times more force, in use, than flexed-to-shape poles typically seen in domes (and in shape-copies of our tents). Flexed poles use up most of their strength—about 80% of it—just being bent into shape. Stephenson poles need no strength-sacrificing flexure, and are also much stronger to begin with. They resist about forty times more force, in use, than typical fiberglass poles, and are half the weight.

6 SIMPLE, QUICK ENTRY —keeps out bugs, rain, and snow. Door and zipper designs make entering and exiting much easier. When using the single freezeproof zipper, the sloping door is easily held closed, to keep out falling rain and snow. The slope of the door makes stepping in and out quick and easy. The door zipper can be operated even in highest winds, without wind loads on the zipper, and without degrading tent strength or stability. A bottom zipper seals against crawling bugs, and an emergency backup vertical zipper is provided. A second door, on the other end of the tent, provides you with an alternate downwind door during adverse weather (in **3R** and **5R** models). It also lets you go in and out—or reach your gear—without disturbing other occupants. (The 2 is single-door-only, because of its shape.)

* "Wind loads" are caused by the forces and pressures exerted by winds. They result in stresses to the tent poles and materials, and can lead to shape deformation, pole failure, and other problems. Certain shapes are aerodynamically stable, resulting in low force and smooth steady airflow, allowing them to withstand much higher winds.

** See below for details of tent sizes and types.

7 MOST ADJUSTABLE VENT SYSTEM gives full control of warmth and humidity. *High* vents let lighter humid air out, while *low* vents let heavier dry air in. This "chimney effect" assures excellent venting even in still air, when other vent schemes fail. Upper vents have zippered covers that allow easy and incremental control of venting from inside. The optional side windows are also controllable from inside (when the outer window covers are raised). You can open them wherever you want, and however much—and you can close them as tight as if they weren't there. Lower vents can be closed against excessive wind, yet automatically open when wind dies, always providing safe ventilation.

8 DRIER, WARMER: Double walls, fully coated fabric, and sealed seams provide complete rain protection, greatest warmth, and least condensation inside tent. The interior is kept warmer by (1) an insulating air gap between the two walls and (2) a radiant heat blocking, aluminized coating on the inner walls. The tent is drier inside; the warmth of the inner walls helps eliminate the miserable condensation problems common to other tents. The warmth also aids the chimney effect (or differential height venting): Warmer, lighter, more humid air rises up and out—through the top vents—while fresh, drier air is drawn in through the lower vents.

Double walls also mean freedom from the troublesome separate "fly"*** (which is hard to set up, and often gets heavy with condensation, soaks a porous inner tent, and requires difficult drying, or adds to pack weight).

9 EASY TENSION ADJUSTMENTS, from inside, assuring you a tight wind-stable tent at all times, without having to leave your warm snug bed.

10 HIGH WIND SECURITY: Designed for smooth airflow even in extreme winds, *WARMLITE* tents also have ***inside stabilizer straps*** for winds exceeding 90mph, and up to 150mph. Wind stability can be important to safety if you are caught in severe storms or high winds. (Most tents will fail at well under 60mph. During wind speed tests, many deform seriously—sometimes bending or breaking poles—in winds under 40mph. ***WARMLITE*** tents can survive in winds to 150mph.)

11 WIDE RANGE OF OPTIONS for many different conditions and needs:

TENT OPTIONS

S *large* **SIDE WINDOWS** for hot weather cooling, nature watching, stargazing. To open the windows, just unzip and raise the outer walls of the tent. The walls can also be tied out to form awnings. You can fully control the window opening from inside the tent, where window covers can be opened or closed. This can be done wholly or partly, anywhere along the two-slider zipper—which runs across the top and sides of the window. (**S** option does not affect strength or wind stability of tents.)

D DROP-AWAY FRONT for stargazing on cold nights without any netting between you and the night sky. You can open and close it while lying in your sleeping bag. You can also use it as an ***extra-large*** door, when the wind is low or the air calm. (**D** isn't useful for hot weather ventilation, though.)

E ENDLINERS —double end-walls to eliminate frosting for people who won't control overheating and sweating (details under "vapor barriers"). Can be added on later, if in doubt about need.

Y,G,A: COLOR can be **Y**ELLOW, **G**REEN, or **A**LUMINUM (aluminum-coated nylon), *or* aluminum top with colored ends, or other mixed colors. (Combinations take longer to make, and cost extra.) Yellow is the most visible in dim light; green blends in with forest and field; aluminum reflects sun and heat.

M MIDPOLE (for sizes 3 and 5) to reduce side deflection of tent walls in *strong side winds.* Not necessary for strength, and not recommended for use in very heavy snow or in winds over 80mph. (Sleeves for **M** are in all 3R and 5R tents.)

R REGULAR double wall version with **R**adiant heat blocking inner wall. The light weight aluminized inner wall blocks radiant heat loss and helps eliminate condensation.

X EXTRA-LIGHT single wall version. Weighs less than typical bivy sacks, but is a full-sized tent. Has the full space and storm protection of the **R** tents. Single walls are not as resistant to condensation as double walls (in **R** tents). Care must be used to avoid overheating and sweating (see "vapor barriers" section for details). Second wall can be added later but may not fit as well. If in doubt about condensation, choose **R** tent.

*** Also called a "flysheet" or a "rainfly," this separate second layer is tied on top of most tents in order to keep out rain. It makes for many unnecessary difficulties (setup, weight, wind, condensation, stress points, and others).

2, 3, or 5: THREE SIZES to cover a wide variety of needs and uses. Size number is conservative in suggesting the number of people who can *very comfortably* sleep in tents, with all their gear inside. There is a *WARMLITE* tent for one-person use, and for two, three, four, five, or more. No need to buy an inferior tent just for size. Many of our customers have purchased two or three sizes to be ready for different needs. We recommend model **3R** for covering a wide range of different uses, since it is the ideal size for two or three, gives capacity for four when needed, yet is still lighter than other *two-person* tents. We often hear back from people who sleep three in the *WARMLITE* 2, four in the 3, and seven in the 5, with occasional stories of even more in emergencies.

Model 2 tents are roomy for two people and their gear, yet are also excellent for one person. Smaller one-person tents are cramping and unnecessary. If we were to make the 2 smaller, we would have to sacrifice much-needed sitting headroom, or make it narrower (length can't be reduced—one person is as long as two). But a narrower width means lower wind stability. So we recommend the *WARMLITE* 2 if you need a light tent for one-person use: it is lighter than other one-person tents and has much more adequate room inside.

Exterior tent dimensions are shown in the drawings. Interior sizes are about the same for **X** tents, but **R** tents *appear* smaller due to drape (2" to 3") of the liner. Actual sitting and moving space is the same, since the liner is too light to restrict motion.

Packed sizes:

2X: 4" x 16"	3X: 5" x 16"	5X: 6" x 20"
2R: 5" x 16"	3R: 6.5" x 16"	5R: 7.5" x 20"

(Poles are about half the volume and determine the length.)

- **ERV** (**E**xtra **R**ugged **V**ersion) is no longer needed as an *option* since all of its special features—***extra reinforcing, inside stabilizers for extreme winds, second door on 3R and 5R, inside access to tension adjusters, sleeve for midpole, multiple net pockets on each side of each door***—are now standard on all *WARMLITE* tents, and midpole and endliners are available as options. George still somehow manages to make them better than believed possible ***when*** we can get him to do one. If you're willing to wait, and entice George with a $40.00 bribe, you can get an 'ERV' made by him.
- "**Vestibule(s)**" for gear storage and cooking are integral with each tent, not an extra-cost, extra-weight option.

(**2R** and **2X** tents have single vestibule; other models have a vestibule at each end.)

SELECTING AND ORDERING

Tents are selected by size, wall type, options, and color. The size can be **2, 3,** or **5**. The wall type can be either **X** or **R**. From the options **S, D, E,** and **M,** you can choose any number (0-4). The color can be **Y, G, A,** or any combination. The codes are easy once you start selecting possibilities. After choosing a size, just write down a letter for each of your other choices.

(Examples: A **3RG** tent is a size 3 tent with double walls **[R]**, in green. A **3RSG** is the same tent with the side windows **[S]** added in. A **3RSY** is a yellow version. Other typical designations: **3RSDY, 2RSDG, 2XG, 3XSY, 3RSEYA, 5RSDGAM.**)

—More details under "ordering," on page one.

How do we manage to make tents that have *less* weight, *more* room, *and* higher performance? Part of it comes from years of perfecting certain optimum shapes and designs—minimizing loads and stresses, using stronger and lighter materials, matching fabric strengths to loads, and—like sailmakers—adding reinforcing exactly where needed. We discovered that light weight floor fabric is best, and that it lasts even longer than the rest of the tent. We use unusually strong, preformed poles to maintain the tent shapes, which are designed by an aerodynamicist. Simplicity of use assures proper setup and tensioning, even in adverse conditions—or when one is cold, tired, or short of O_2. We do not rely on advertising and loose claims, but on actual performance and perfection of our equipment.

With a *WARMLITE* tent you can start out lighter and then stay lighter: Unlike the typical porous tent with fly, you won't be carrying around several extra pounds of condensation.

STEPHENSONS WARMLITE 1994

WARMLITE TRIPLE Bags

("TRIPLE" = WINTER, FALL, SUMMER use)

56 to 70" girth bags in stock are standard heights

AIR = has D.A.M bottom (can use special foam)

FOAM = has FOAM bottom pad (can't use D.A.M.)

Inside of tops: VS = VAP-R-SOFT (+6 to 8 oz.)

ALU = Standard aluminum coated, lightest.

Bag Girth	52"	56"	60"	64"	70"	76
FOAM, ALU	$399	470	520	560	620	680
FOAM, VS	$457	508	558	598	660	720
AIR, ALU	$500	550	600	640	710	770
AIR, VS	$537	588	638	678	750	810

OPTIONS for WARMLITE bags

1. Net top for tropical uses $45
2. Zip on waterproof covers, bottom $32, top $28
3. Waterproof Bivy (state side for 1/2 zip) $50
4. Replacement foam pad, or for D.A.M. bag $40
5. SSSS X Thick top = 1/2 of foam bottom bag price.
6. Replacement or Oversize carry sack $8
7. Down Air Mat (D.A.M.) with pump sack - - - $105

For under 52" girth subtract $7.00 per inch. For over 76" add $10 per inch of girth +$15. For sizes between stds use next higher price. ALWAYS state girth based on measurement, NOT from the standard height vs. girth chart. State your height, and whether you want bag standard height or made special to fit you.

WARMLITE All Seasons Tents

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D plus E: 2R $95 3R $105 5R $150
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Recoat top, 2R, X $40, 3R, X $45, 5R, X $66
Recoat floor $35. Recoat inner wall $46

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Sun protection of Tent

No special sun protection needed if tent is setup in shade or taken down or covered during day. If you'll leave it in sun a LOT, then get it with aluminized top.

"My wife and I are both very happy with our Warmlite triple bags, after using them from late winter to hottest summer. The built-in pad is an excellent concept — it makes the bag sleep like the bed back home on the first night out. I no longer toss the first night or two till I get my sleeping habits straightened out." L.D.

Sleeping Bag COLOR Options

Most standard bags in stock are made red, green, or blue. Other colors we have are: Bright pink, yellow, orange, olive drab, purple, light purple, raspberry. Also, in slightly heavier fabric we have green, light green, and tan taffeta (plain weave). Any of these colors, or mixtures of them can be used on any bag made just for you.

GOLITE BACKPACKS

While parts supply last, $235. Include ALL SIZING DATA, sack color and type. Replacement sacks $45

VAPOR BARRIER CLOTHES

SHIRTS Sm & Med $34 Lg & Xlg $37
PANTS Overlap fly $39 Zip fly $49
SOCKS $8 (give shoe size) Glove liners $15 (give hand tracing)

CONVERTA PANTS

Nomex Aramid (modified Nylon), made to order $105

SLING-LIGHT chairs

Head rest $25 Chair $75. These have remained popular despite high cost. Color choices are red, blue, or green. We seldom have all colors in stock.

MATERIALS

Fabrics & film per yard, typical 44 to 60 in. wide

1.1oz. porus ripstop Nylon red, blue, green, berry $8.50
1.6oz. coated ripstop Nylon, green, yellow, brown, various $9
1.6oz. aluminized coated ripstop Nylon $9.50
2.2oz brushed laminate, Soft FUZZY Stuff, various color $8.50
Nomex, tan, blue, black, dull green, as available $26
Insect netting, polyester "noseeum" or standard mesh $3
ZIPPERS, all YKK, the best, cost $.08/inch, #5 or #3 coil separating, double or single pull tabs, 24" 39" 43" 46" 52" 76" 92" size # = millimeter width.
#3 coil nonseparating, double or single pull, any length
Replacement zip slider, supply full description $1
Urethane adhesive sealer, recoaters, Standard 416 cured solution for new or clean fabric. 2004 for recoat, sticks to most things, yellows in sun $8/8oz. $24/qt. $87/gal.
CLEAR FILMS for window insulation, per yd., 20 yd. minimum.
Super clear Mylar 1 mil. 60" wide $2
Cheaper, haze if over 3 layers 48" $1.00 60" $1.20
Polyimide, slight haze (shrink film) 1 mil 48" $1
polyethylene, .7 mil double 48" (tube) $1 Aluminized 48" $6

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!"

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

SHIPPING COSTS;
Estimates: by United Parcel Service:
Ground $3.20 plus $.40/lb. plus $.30 per $100 insurance over $100
Air $6 plus $.75/lb. plus above insurance
Alaska $10 plus $1.25/lb, rural $19 plus $2.75/lb. plus above insurance
Post office $2.90 up to 2 lbs plus $1/lb. over plus insurance of $.80 plus $1 per $100 o value.
or, if you have rate charts figure exactly and add $1 for the extra service charges. If you send excess or are short we'll refund or bill for excess over $1. To foreign countries, use local cost to mail to here for estimate. Canada, if at all possible have it sent to a US borde location and pick it up to avoid terrible delays and losses in Customs.

I remember reading your weird catalog wondering if I should but 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 12-'89

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

I'd like to rant on about how much I love my tent (and Triple Bag), but you've heard it before, and I should be packing them, not talking about them.
Thanks for making the wilderness softer for us humans, and for making mail-order a rewarding experience.

CONVERTA PANTS

To avoid carrying both long and short pants in 1961, I made long pants with zip off legs (VERY difficult to use!). In 1969 I tried zippers in inseam of pants, so legs could fold up & tuck into waistband. It worked better than expected: I ·ld switch from longs to shorts with hardly a ·se in hiking, didn't lose leg extensions. Adding zips in outer seam let me vent my legs without raising pant legs, and thus get sun shielding, cooling, and insect protection. With pant legs raised the outer seam zip gave access to pockets. In 1979, 10 years after the first practical CONVERTA pants were put to use, we started producing them from Nomex for others.

CONVERTA pants solve other hiking problems: relieving yourself with some protection from insects or cold, and for women to pee without completely lowering their pants. They do this by extending the fly zipper all way through the crotch, for full opening front, back or middle.

Fabric is Nomex, a modified Nylon made for aviators, firemen, and police uniforms for fire resistance, durability, and comfort. It has the wear resistance and quick drying of Nylon, but higher strength and flame resistance, in a texture like cotton or wool suit fabric. We found it perfect for hiking pants (except for outrageous cost). We're still looking for a lower cost fabric, but can't find anything near as durable or comfortable.

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

1. Two way zippers in inseam & outseam. Both open from top to vent. Inseam also opens from bottom so pant leg can be lifted up & tucked into waist, converting to shorts. NOT stylish, maybe even odd, but very practical.
2. Waistband has velcro closed half belt, so separate belt isn't needed. Belt loops included.
3. Fly zipper goes all the way thru crotch, and normal zipper slider plus a pair of sliders for selective crotch opening. (Conventional front fly is optional.)
4. Velcro ankle closures keep wind and dust off legs.

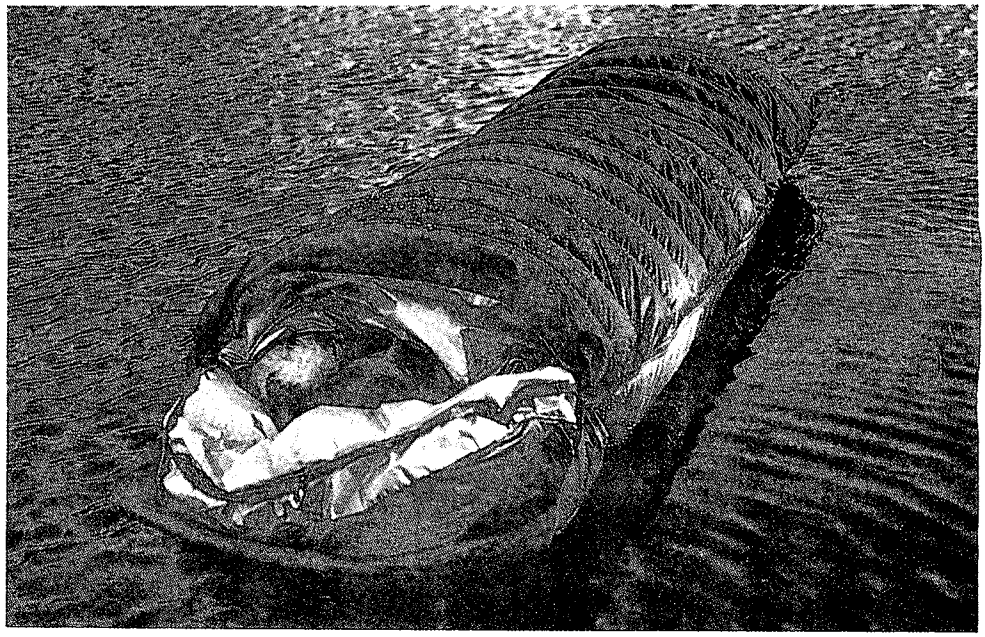
Pockets are normal, inset in side seam. I don't like bouncing pockets. We realize that some people want different kinds of pockets in various places so, rather than risk putting them in wrong place, at your request we'll include enough material so YOU can put on what you want.

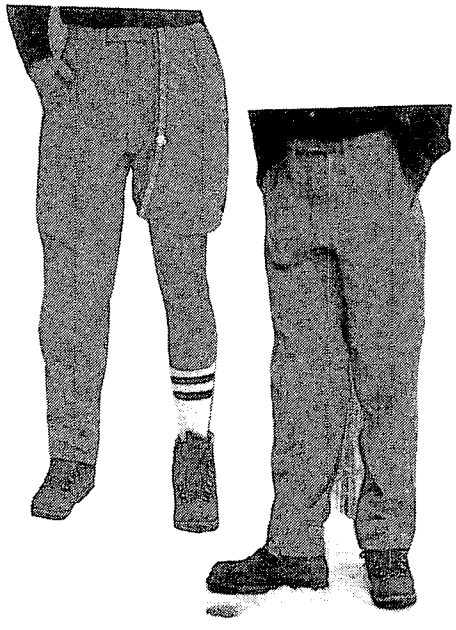
The best way to get good fit is to send a comfortable pair of pants with your order, indicating any dimension changes wanted. Don't send stretchy or shrunk fit pants. If you only give us usual pants size we won't know height of waist, crotch depth, thigh, knee, or hip circumference. Women normally want the crotch fairly close fitting to avoid leg chafe, while men need more crotch room. If you intend to wear bulky underwear be sure to allow room for it. We can reduce girths and leg length after construction but increases will result in some strange extra seams!

Some questioned the comfort of a crotch zipper, but users report it's unnoticed (and they prove it by buying additional pairs!). The crotch zip can be used with Vapor Barrier or thermal underwear if underwear has stretchy waist and can be pulled down out of the way. On request we'll make CONVERTA Pants with standard fly zipper instead of crotch zip.

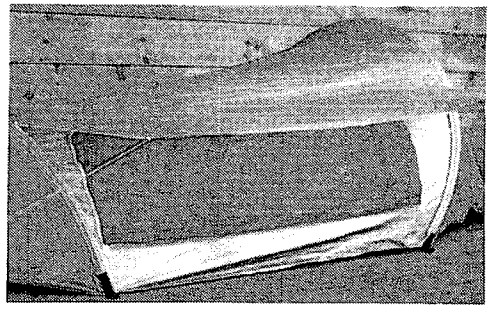
' eg venting also works with porous and VB ·rwear. We suggest you buy our VB underpants when you get CONVERTA Pants and we have the dimensions.

"I didn't really understand, or believe, your reasons for waterproof interior on the bag when I ordered it, but now, after a season's use in all temperatures I'm really sold! I've never been so warm and DRY in a sleeping bag, and I don't wake up thirsty in the morn or the night!" S.W.



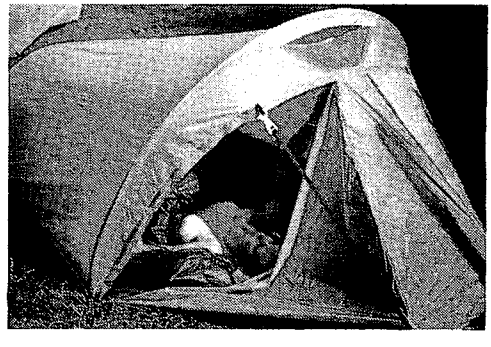


Converta pants



Side Window on 2R

3R above 2R with Drop Front below



Both my wife & I (& everyone else who has seen them) think your Triple sleeping bag is just fantastic! We have never been more comfortable in so many different temp. ranges. Thank you! JSL

- to me the #1 advantage of the no-sweat shirt has been it keeps my clothes DRY: #2, that it vastly delays the chill upon stopping, particularly in a cool & brezzy spot, and last, it adds a LOT of warmth - now I can add a 4th, it adds much to comfort and SURVIVAL when one goes thru the ice! DA '82

I'm the proud owner of a Warmlite 'No-Sweat' & am very happy with it. In fact it has made me a strong proponent of the vapor barrier system. AB. '82

- the sleeping bags and tent are truly beautiful and everything your catalog says is true. And I do not hesitate to say that you have given better service than any other camping supply we have done business with. FAR OUT M & M

your sleeping bag is without a doubt one of the most workable products of the engineering mind. I've never seen such attention to quality construction. JDR

I bought my Warmlite tent in 1979 or '80 and spend at least 150 days a year in the mountains of Idaho, Oregon and Wash. It's always stayed up in winds, heavy rain, huge hail storms, and even a 2 ft. snow storm at 9000 ft. It's the best piece of quality equipment I've owned. If it ever wears out I'll buy another! B.M.'92

WARMLITE BAGS

Stephenson's WARMLITE TRIPLE sleeping bag is the only complete backpacking bed, with three temperature ranges. The basic bag gives comfort and protection in all conditions you may find anywhere, from +60° to -70° F. Optional extra tops extend use up to tropical conditions, or a special single top for coldest range.

A WARMLITE bag achieves best COMFORT, warmth, and adjustability, with less weight than any other by careful design and construction to get most efficient use of the best materials. It insulates against ALL heat losses (convective, conductive, radiation, and evaporative), with multi tops for all temperatures and includes a comfortable insulating mattress. Since 1959 when we sold the first versions of it we've expected others to copy our features to make their bags better, but most of the unique advantages of even our 1969 TRIPLE bags, and many improvements since, are available only on WARMLITE bags.

INSULATION: CONVECTIVE heat loss is blocked with tight 1.1 oz. nylon fabric & double zippers (since 1957), closely fitted collar and fully adjustable hood (since 1958). Air can't blow thru and carry away heat (unless you want it to).

CONDUCTIVE heat loss is blocked with the highest loft GOOSE Down available, held in a very uniform thickness not affected by your position in the bag, shaped for least surface area consistent with comfort. Tighter "mummy" bags can be used, but few will tolerate being so uncomfortable. Follow girth instructions for best comfort. You can select 4" to 6" less girth for less weight, with restriction of motion & position: less than that isn't practical for anyone.

RADIANT heat is blocked with reflective upper surface on inner top fabrics (used since 1968, it is aluminum powder in a coating, or vapor deposited on film, facing up against the Down, so it can't touch you.)

EVAPORATIVE heat loss is blocked by soft flannel like vapor barrier (VB) fabric on bottom and collars, and your choice of two VB fabrics on interior of the tops: with collars snugly closed you get about 21° more warmth from the VB. (We've used VB since 1955. ALL Stephenson bags have had VB since 1966, a major reason for enthusiastic recommendation by users.) Open the collars and humidity escapes, removing the extra warmth. VB aids temperature control by giving extra warmth only when needed.

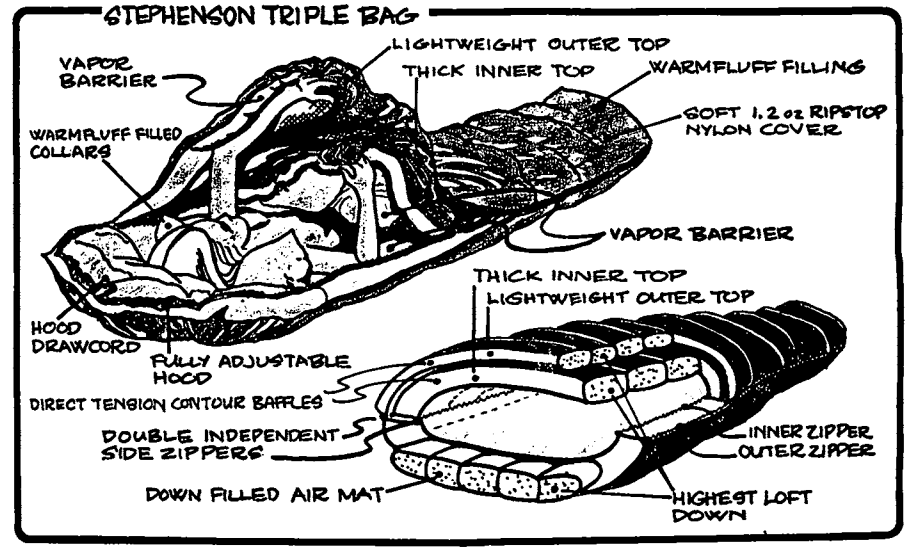
Advantages of VB: 1. Your Down stays DRY. Sweat & humidity from you can't wet it. All other bags get wet or ice filled from INSIDE, (a Polar Expedition's Quallofil bags filled with 35 lbs. of ICE in a few weeks without VB). VB stops sweat from damaging your Down.

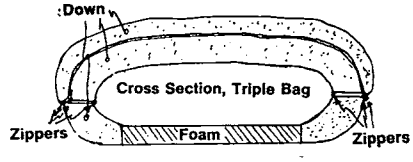
2. VB lets you detect overheat quickly. You'll open the bag to cool then, not after bag is soaked. The bag dries even before you're comfortably cooled down. With your bag always dry you won't spend hours drying it every day.

3. The bag is easy to clean. Just a wipe with a damp soaped cloth is all the cleaning it needs.

4. You get less dehydrated from sweat loss, are less likely to get frost bitten the next day.

Heat loss to the ground is blocked with a Goose Down filled Air Mat (used since 1974). This gives the soft comfort & lightness of airmats (which are usually cold), with the warmth of Goose Down, eliminating extra bulk and weight of covered foam pads (or those much heavier inflated foam pads.) For lower cost but more weight and bulk you have the option of a 2" foam pad in bottom (used since 1966), still lighter and more compact than other separate pads. No extra cover or bottom fill is needed. With pad locked to the bag you don't roll off it and won't damage the valuable Goose Down by lying on it. (Down becomes little pieces of string when you lie on it and move.)





We made the first Down filled airmat in 1959, got to producing them in 1974. (The only problem with early ones was some Down shifting around baffle ends. That was cured with net baffles). Performance exceeds all expectations. We still have no idea what the life limit might be. Color yellow or fluorescent orange, so in an emergency pull it out of the pad space and use to attract attention. It can be used for a swim or fishing float or, as shown in our 1980 catalog, will float the bag (nice when the creek rises and floods your camp during the night.) The D.A.M. is quickly inflated with a pump sack so Down stays dry and you don't hyperventilate.

If you want to use either D.A.M. or foam in the bottom, order a D.A.M. bottom bag and add cost of foam pad. A D.A.M. of proper size won't fit a bag made for foam pad only. Or you can buy it without the D.A.M., use Foam bottom bag price, and later order the D.A.M., for it's separate price at that time. The 4" wider foam pad to fit in D.A.M space is heavier & bulkier than normal foam pad.

The standard Warmlite Triple includes both 1.8" THIN (3.6" loft) and 3.8" THICK (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. Typically the THIN top is used down to 25 ° ("summer" bag range), the THICK top from 0 to 40°, and the combination for a quick warmup or for winter use down to -70° F. (-80° reported by some hardy Alaskans!)

An EXTRA THICK 5.6" top (like 11.2" loft) is available for extreme cold use instead of the standard thick & thin tops combined. This saves about seven ounces, but at a cost of 1/2 the basic bag cost! This was part of the SSSS joke in 1980 catalog. It's much too warm above zero F.

The comfort ranges for our tops are greater than for any other bag of similar thickness due to radiant heat barrier and the controllable warmth of vapor barrier. Uniform thickness and double zips let you move as you wish without decreasing warmth. (Some bags with poor Down control and single zips can be warm IF you lie still once the bag is well lofted & don't push near zipper).

For tropical use get the optional NET top: This is a double layer of fine noseeum net held 3/4" apart with many foam spacers, so bugs on outer layer can't reach thru to where it touches you. You can sleep nude and fully protected, but will want repellent near your head: if bugs get too close you can't tell if they're in or out! When it's cool enough to wear some clothing, just use repellent, as you must do during the day.

Use the optional waterproof top alone for hot weather windbreak, or to protect the bag from drips in a leaky tent or snow cave. Spray on water repellent, recently applied, works very well for drip protection and is lighter weight.

The waterproof bottom cover option gives ground protection when camping without floored tent. It can zip to the bag, be left loose or zip to waterproof top as a bivy sack. But, for ground protection a cheap plastic drop cloth works, & gives an area for pack, boots, etc.

WARMLITE bags are stocked 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 below), 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), standard or VAP-R-Soft interior, and color choice(s). If in a rush, call first to check stock. Production may take 4 to 12 weeks.

The cost of a WARMLITE TRIPLE seems high because it includes so much. Compare sections of a 60" girth bag to other winter bag + summer bag + overbag + VB liner + 2 Thermarest or similar pads: basic cold weather bag= bottom + thick top, $340. Pad $35 or D.A.M $100. (it takes TWO of those inflated foam mats to match D.A.M warmth.) Thin top to extend range down to -70 and up to +60, $145. We manage to give you more for your $ by eliminating overhead and sales markup (and sometimes all profit.)

" our 1000 mi PCT hike was completed in 50 days. Everywhere we went people were impressed by your tent & bag".

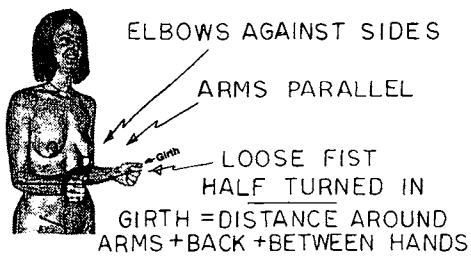
"I'm very pleased with the Triple bag I had from you 2 years ago. The pack & No Swe shirt are excellent. It's great to have LUXURY in camping."

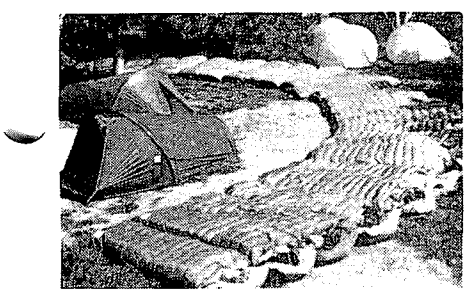
Some say they won't need the extreme low temperature capability of the full TRIPLE bag, just want something for 3 season use where it might range from 10° to 65° F. The WARMLITE TRIPLE is ideal for that use, while no other single bag can cover such a wide range. The thin top covers 25° range, the THICK top -10° to 45° range, and the combination gives quick warmups (& warmth enough for surprise emergencies down to -70° F.) Why buy two other bags to cover the range, not know which to take, or worse, find you've taken the wrong one, when one WARMLITE can give you comfort in ALL conditions?

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). Altho in the past a couple of others copied our multi top bags (& humorously claimed to have invented the idea), 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 they need another bag for different conditions, the "saving" is a doubling of costs. Weather's 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 effectively 3 bags and pad with weight of 1 1/4 bags. In any configuration it's lighter and more compact than any other equivalent single bag and pad.

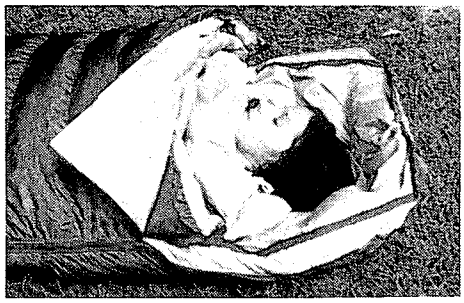
Most people who bought a partial WARMLITE TRIPLE bag in the past came back and bought the other top within a few months, and most who bought a special single top bag were soon back wanting it converted to the TRIPLE (which is impractical), so bought a WARMLITE TRIPLE. Their short term saving became a cost increase. If spending that much all at once is a major problem, you can buy the bottom with top you need first (just as you would buy one other bag), and later buy the additional top (instead of another full bag). But you'll find it's cheaper to borrow the $$ and get it ALL at once.

We'll custom make thinner lighter Triples and special single 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'd rather you be happy with what you got YEARS from now, not just pleased with us before you get it!





27 Warmlite Triple bags zipped together



ZIPPERS: In 1987 we finally got separating #3 YKK zippers for bags (after 17 years of flawless use on tents which didn't need separating ends). Now you'll enjoy the lighter weight and snag resistance of these excellent #3 zippers. Our experience with #3 on bags since 1987 has been excellent, as good as on tents since 1970.

INTERIOR FABRIC

Since 1967 we've used aluminized coated nylon for radiant heat and vapor barrier interiors on WARMLITE bags, and it's still the lightest weight for that use and is used on all standard tops.

A few people objected to feel of coated fabric, so we worked for years to get better material, leading to FUZZY STUFF and VAP-R-SOFT.

VAP-R-SOFT, an option on interior of tops, is soft porous Nylon over 2 layers of aluminized film, quilted between 3 layers of fine netting. It is soft, quiet, feels like silk sheets, but adds about 6 to 8 oz. and costs more. Our use of it since 1981 has well proven it, with about 1/3 the WARMLITE bags sold since 1990 using it with no problems. (Similarly, no problems with the standard interior on our other bags.)

FUZZY STUFF, a brushed knit Nylon glued to tough stretchy urethane film, has been extremely durable. The film lasts over 25 times as long as a coating, thus is practical for making comfortable long lasting Vapor Barrier sox, glove liners, and clothes. The brushed surface feels like soft flannel but wicks water much faster across it's surface, thus spreading sweat for rapid drying and comfort. It works great for our boat cushions in BVI, comfortable to sit on nude, quick to dry, still good after 4 years so far. FUZZY STUFF is so comfortable against your skin that you won't want to wear anything under it.

FUZZY STUFF is used on interior of bag bottom where it's comfort, wear resistance and wickability is needed, but not on tops because it clings slightly to clothing (like flannel), weighs more, and extra durability isn't needed on top.

But FUZZY STUFF is the best material for vapor barrier lining for other make bags which <u>don't</u> have built in pads, since you CAN lie on the bag top so need extra wear resistance <u>everywhere.</u>

FUZZY STUFF wicks sweat from under you faster than any other material we know of, is easy to clean so you don't need another liner, thus saves you weight, cost, and liner hassle.

All exterior fabric is the finest 1.1 oz. ripstop nylon with soft, Downproof waterrepellent finish. Used since 1958 without failure or wear thru, it is obviously more durable than needed but no one has found a way to make anything lighter weight Downproof! Each piece is individually <u>HOT CUT</u> (the ONLY way to keep uncoated nylon seams from eventually coming apart). Each bag is individually sewn by a highly skilled person working at home. Then the highest loft most mature Goose Down available is carefully HAND weighted into each pocket, in a sequence that assures no accumulation of errors, giving uniform loft as designed.

Contoured direct tension baffles, closely spaced, maintain that uniform loft no matter how you move in the bag.

Even at the zippers there is no loss of insulation: DOUBLE zippers independently close interior and exterior surfaces. There are two separating zips on each side, and two across the foot which let you independently vent the foot. The side zips let you zip bags together on EITHER side, or join the tops together into one very wide top which you can move over you to adjust warmth. (Or use zipped together tops for a quilt on your cabin bed). In very cold conditions when both tops are used, to dress INSIDE it unzip each top on opposite sides and let the bag expand as needed. Use that feature for fine temperature control from -50 to +32.

All seams are sewn with 100% Nylon thread to match fabric stretch, softness, and super wear resistance. Commonly used cheap polyester thread makes stiff seams which don't wear well.

LOTS of FOOT SPACE

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

FULLY Adjustable HOOD

The unique 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 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. Chuck Kennedy of DOWN HOME sleeping bags makes the only other all position hood we know of. His hood is separate, fastens to your head and turns *with you!* You can adapt that idea, using any separate parka hood you like.

On older bags when shoulder zips were partly closed, any pressure on the hood slowly opened them (we only use non locking zip sliders, so that if you bury your face in the hood and wake up gasping for air ANY motion can open the hood). We now provide velcro stop tabs across the zippers at two positions, so it takes more than usual motions for the slider to open past a closed tab. You can add tabs for more positions if desired.

TRIPLE Bag Sizes and Weights

GIRTH	56"	60"	64"	70"
Typical User heights	5' 5'8"	5'4" 5'11"	5'8" 6'8"	5'10" 7'
wts	90-120	105-150	130-190	170-250

Weight for each layer, ounces:

THIN top	16	17	18	21
THICK top	26	28	30	34
BOTTOM	29	30.5	32	35
TOTAL	71	75.5	80	90
D.A.M.	20	22	23	25
TOTAL	91	97.5	103	115
Alt foam pad	28	30	32	34
Total w.foam	99	105.5	112	124

Bags can be made to any height, changing about 1 oz./". Weight varies by fill loft and VB coating variations. Vap-R-Soft adds 6 to 8 oz.

my triple sleeping bag is just fantastic!! I was warm all the time even at -40°F with only a tent between me and the out-of-doors. The warmth and and the light weight were beyond all expectations!! T.T.

BAFFLE DESIGN

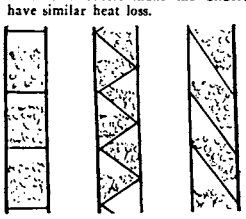
There has been a baffling amount of misinformation spread around concerning baffle design in down sleeping bags. Most of theirs appear to be based on rigid construction, using a heat conductive material (such as sheet aluminum), which repells down, for the baffles. But, in actual practice, all down baffles are constructed with soft, non-conductive fabric which the down clings to. The two functions of a baffle are to constrain the inner and outer covers from moving apart more than the down can expand, and to prevent lateral shift of the down. If the baffles allow more volume between the covers than the volume of down fill, then the down can easily fall off to the lower areas (along sides), leaving a thin, cold top.

Goose down is an expandable insulator, but, like a spring, it will only expand to a certain volume. If the covers of a sleeping bag were perfectly rigid, and thus could not spread apart more than the down could expand, then the down could not shift in any direction. But, sleeping bags are made of soft fabric, which can easily spread apart. With no baffles (or with oversize baffles which do not limit fabric spread), the down will simply fall to the lowest areas, spreading fabric apart to make room, leaving the top thin and cold. If baffles are sewn in such a way that the fabric can't spread more than the fill thickness, then there will be no room for the down to fall into, so it must stay in place. Presently, there are three baffle systems which meet this requirement: quilt (sewn thru), v baffles, and vertical baffles. Quilt construction leaves lines of no insulation, and thus is only used on very crude, cheap bags, or with two quilt layers with sewn thru lines offset. The double quilt requires 2 extra fabric layers, and thus is excessively heavy. A simplification of the double quilt is the V baffle system This is often refered to as overlap tube construction. Each section or "tube" of down formed by baffles, has a thick center and thin edges. The thin edges would be cold (like quilt construction), but it overlaps the thick section of adjacent tube, thus curing the *mythical* problem. Actually, the down is just a unformly thick layer, and putting a baffle thru it on an angle does not change the thickness. It is possible that the small angle a v baffle makes with the cover could keep down out of the corner, thus leaving a void. It is more likely that down will be pushed into the corner, will stick there, then be overcompressed when bag is stretched out, thus decreasing loft. The main disadvantage of v baffle is excessive fabric weight. A vertical baffle does the required job most directly, with minimum fabric weight, and avoids the acute angles between baffle and cover, thus avoiding weight, and avoids the acute angles between baffle and cover, thus avoiding over compressing down caught in the corner, or voids caused by down kept out of the corner.

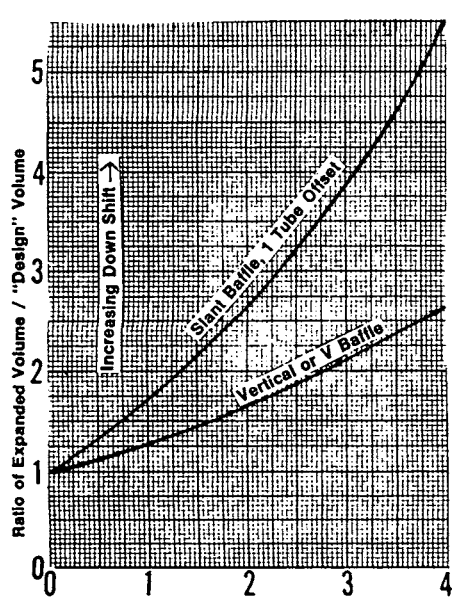
Obviously the space between baffles can expand. Thus, the maximum space will be greater than the rectangular space indicated by flat surfaces. The ratio of fully expanded volume to flat surface volume depends on the ratio of designed baffle depth to baffle spacing. A plot of this ratio is shown below. To achieve a given average thickness, with no down shift, the baffles must hold covers slightly closer together where sewn, and down fill must be adequate to expand covers to the fully expanded condition. — The sketches show how covers will appear when flat, in "design" position, and when fully expanded, for a typical 4" design thickness and 6" baffle space. — You can see why slant baffle bags are notorious for large down shifts, due to expansion ratio of 2.15 for the typical 6" spacing and 4" thickness. A vertical box baffle could be spaced 12.8" apart with down shift no worse than the slant baffle with 6" spacing!

You must wonder then, why so many others use slant baffles. The reasons are varied, but, the most common is simply "so and so does it, and has so much advertizing for it, that we simply must do the same". It appears that the real reason it got started was overselling of the "overlapping tube" idea of v baffles, by Holubar. When they wanted to make a cheaper, lighter bag, they simply eliminated ¼ of the v, so they could still show "overlapping tubes", totally ignoring the fact that they lost the required cover restraint when they removed half the baffling.

A major reason for continuing with slant baffles, despite all the complaints about down shift, is ease of selling underfilled bags in the typical hanging rack. When hung from the foot, vertically, the underfill is not so obvious with slant baffles as with vertical baffles. As the sketch below shows, you can easily see light thru the unfilled areas of the underfilled vertical baffle bag, while the overlapping sections of slant or v baffle make the underfill less obvious, altho all would have similar heat loss.



If you plan to sleep standing up, possibly the slant, or v baffle would be a good idea, but not many people sleep standing up.

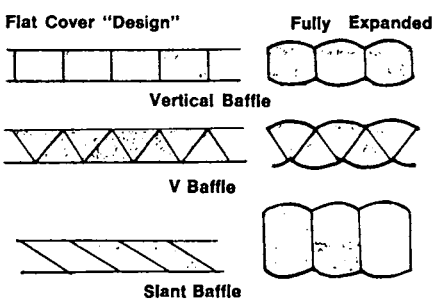


To detect such under filled bags, hold the bag horizontally, by one side, and *gently* shake it, then lay flat on floor and observe down shift by loft difference between sides. (Violent shaking can pack the down, compressing it, and thus mislead you. In use you will not shake the bag violently, but you will gently shake it.) Slant baffles being grossly under filled by design have very large down shift, and thus should always be highly undesireable. Even considerably underfilled vertical or v baffle bags will have less shift than slant baffled bags, and probably will be quite useful as long as you carefully distribute the down evenly before each use, and avoid active tossing and turning.

There is one exception I know of, regarding slant baffle bags. North Face (in Berkeley, Calif.) calls their bags slant baffle, when in fact, they approximate vertical baffles, since they use undersize baffles, only slightly offset, than fill to almost full expansion, resulting in vertical baffles with twisted ends. Their construction and materials are otherwise as good, or better, than most others, and thus their advertizing of slant baffles should not be taken as a disqualifying defect.

Various materials are used for baffles, for various reasons. Porus, non down proof fabrics are generally preferred, since some of the down can stick to the baffle, thus holding down in place. This is especially important in underfilled bags, and you'll notice an emphasis on net, or loose knit baffling in bags which have had problems with down shift. We have heard of net baffles tearing loose, but that was generally due to mistreatment. We simply use the same basic fabric for baffles as for covers, only in the as woven condition (not heat shrunk or pressed, and thus not down proof). It is softer and slightly stronger in that condition.

It is possible to have down restricted too much. When you pack a bag you must compress the down, and in so doing you are likely to shift the down. When the bag is unrolled, light shaking and patting will normally distribute the down properly *if* the tubes are not too small, or restricted by down stuck to baffles (as often is the case with close v baffles). This was apparently enough of a problem with Holubar bags to influence them to build lengthwise baffles into their "Ultimate", thus making each tube ⅓ as long as normal. Unfortunately,



All illustrations for 6" space, 4" design thickness.

that "cure" eliminates the capability of intentionally pushing the down out to the sides to make a thinner top for warm weather use.

By now you may be wondering why everyone uses cross baffles, instead of lengthwise baffles, since there would be less tendency for shift during use with lengthwise baffles. The problems with lengthwise tubes are the much greater tendency to shift while packing; the difficulty in redistributing over a longer tube; difficulty in thinning uniformly in warm weather; and problems with layout and marking on tapered bags. With properly baffled and filled bags there is no problem with down shift with cross tubes, and the makers of improperly baffled and filled bag obviously don't know enough, or care enough, to make lengthwise baffled bags. There is also the bad image problem: Some very poor down bags were made in the past with lengthwise baffles, so considerable advertizing effort was put into convincing people to identify quality with cross tubes, junk with lengthwise tubes, (similar to recent efforts to identify center top zippers with junk simply because some very poor quality bags have center top zippers.

SEAM CONSTRUCTION

Many ways of seaming fabric have been developed to achieve strength, durability, appearance & to correct fabric problems, such as raveling. Unfortunately the seams that were developed to work best on cotton are far from the best for nylon, yet continue to be CLAIMED as the best by many un- or mis-educated writers of books, magazine articles, and catalogs. If the fabric edge can be pulled apart (frayed) AND the threads are sticky enough to resist pulling more than a few threads at a time, then a necessary and sufficient way to seam it is to fold back the raw edge into the seam (such as flat felled seams) or to cover the edge with a piece of binding tape (very popular due to simplicity with automatic binders). These methods work well on tightly woven cotton, acrylics, and knits. The typical Nylons used in most light backpacking gear has very slippery thread. If cut like cotton normally is, a seam can easily pull out despite using the best seam.

The only way seams in woven Nylon (such as ripstop, taffetas, twills) can be made absolutely secure is to hot cut (fuse) the edges, or glue edges with coating and seam sealant. If either of these methods is used the edge can be treated like a woven edge and seams designed for maximum strength, smoothness, ease of seam sealing, or appearance, as needed in the product. Good design will avoid putting seams at points of maximum loads, so that seams are seldom loaded to the strength of the fabric. But beware: HANDLING can often put far higher loads on seams than any other use. Hang on to a tent next to a top middle seam that never gets any load when set up, while it flaps wildly in a wind, and you can easily overload it or the fabric. Baffle seams on bags get almost no load in use, but coul grossly overloaded in a washing machine.

Only a couple of manufacturers bother to hot cut Nylon parts. If you buy it in a store you can be sure all edges are knife cut: a sure way to check is to look for edges folded under, or binding tape hiding the cut edge. If the item is otherwise acceptable to you, and you buy it, first thing to do is coat all seams with seam sealant that will glue edges firmly together. Adhesive-sealant that we sell, and sealants that work on Goretex will generally work well. But, if it has a water repellant finish, or you are in doubt, then ask for our prepolymer adhesive sealant, which sticks to almost anything, but must be used soon since it is likely to cure in the can in a month or two.

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: used for smooth 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, altho 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 fe seam. Automatic folders are used for t making 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. This is widely used on sleeping bag baffles when coarse, easily abraded thread is used (such as cotton or polyester), but it makes a stiffer, lumpy seam and puts exterior fabric loads directly on the thread.

EXTERIOR EDGES: Folded in , makes a neat balanced seam with minimum bulk. ROLLED for hiding edges that are likely to fray. Other methods are BOUND , and SERGED (zigzag stitch around edge) often used on knits and cheap clothing.

Often you will read in books & magazines that the mark of good construction is use of flat felled seams. You should 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!

"We found a spot & set up my tent with wind blowing across it. We left our 50# outside. The wind reached such amazing sp it blew our packs 5' into some boulders, but your tent endured!"

"We went to Pt. Reyes & it was extremely windy. Tents were blowing down all over. We noticed ONE that did not, & when we inquired about it found it was a WARMLITE tent. The people were very satisfied with it!"

STEPHENSON GOLITE PACK

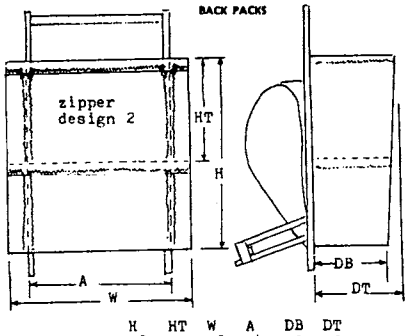
The GOLITE pack is the LIGHTEST weight yet STRONGEST pack available today. It also has the most comfortable carry system, which is suitable only for people who are not a lot overweight and who have some hip showing. Fat people, and guys with long straight narrow hips will not find any advantage in a hip carry!

The high strength frame is almost completely shielded by the sack (see pictures) so it is much like internal frame packs, providing a close stable carry and resistance to snagging on bushes. But, unlike internal frames which are heavy yet can't support heavy loads, the GOLITE frame is STRONGER and LIGHTER than any other frame AND is the quickest and easiest to remove

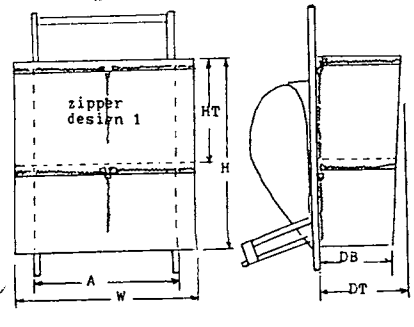
The frame is made from 5/8" dia X .025" wall, 7001T6 tubing, which has a yield strength of 101,000 psi. Joints are made of .79" dia X .065" wall 6061T6 tubing parts machined, dip brazed, and heat treated to 43,000 psi. Frame tubes are permanently bonded into the joints with epoxy, injected into the joints under pressure. Compare this to the typical 7/8" X .035" wall 6061T6 tubing used in other pack frames, with welded joints that reduce strength at the joint to about 20,000 psi (or worst, with simple screwed on mechanical joints that slip and fail). Thus you can see the GOLITE pack frame is much STRONGER, LIGHTER weight, and more FLEXIBLE, so it can take even higher shock loading.

The top frame extension gives stabilizing support to a sleeping bag strapped on top (straps provided), even when sack is not full (unlike internal frame, or rucksacks which rely on a full, tightly packed sack to get any stiffness & load control). But, if for some reason you don't want the extension, it can be left off, or made removable (altho it won't be quite as strong).

The bottom extensions allow the pack to stand by itself, and also support a tent strapped on the bottom (straps also provided). These can also be left off if you really don't want any extensions, and will have no effect on strength. Note tho that the lower extensions are totally shielded by your hips (and by the tent if one is carried), so are never a bother in brush or climbing.



	H	HT	W	A	DB	DT
Small	18	10	18	14	9	7
Medium	20	11	19	15	9	7
Large	22	12	20	16	9	7



" and your Golite pack was GREAT (first time I've EVER been comfortable with a pack). My Kelty used to eat holes in my hips & numb my legs".

Features: 1. True hip carry systems (3 point suspension, no front belt or pressure on backbone), rapidly adjustable to any position. This hip carry is far more comfortable, and gives far better pack control, than any other type of carry. The 3 point suspension system used allows flexibility over the hip, so the normal alternate rise and fall of each hip is easily accommodated (unlike the rigid hip suspension of several other hip-waist band carry packs which were improperly copied from the original Jack Pack).

2. Full coverage nylon net shoulder unit, uniformly distributes forward balancing load across shoulders and upper chest. Vertical loads may be carried on shoulders without being pinched by the pack. The shoulder system is similar to a cut away vest, made of heavy nylon net. It wraps completely over the shoulder and back down to the base of the pack frame, with independent buckles for each strap on each side. The forward balancing load is taken by continuous lacing from tape loops along shoulder center-line back to the pack. This makes the load self equalizing across the whole shoulder. To prevent the wide net front from pulling under your arms, a single center strap is provided, with a quick release buckle, to pull both sides to the center just below your collar bone.

3. Ultra lightweight high strength frame, using same alloy tubing so successfully used on our tent poles, With epoxy bonded aluminum fittings having joint strength greater than the basic tubing.

4. Pack design having maximum usable volume within width, depth and height limit similar to other packs. Six compartments with zipper access from back and sides allows you to carry sleeping bag on top and still have complete access to pack. This avoids the awkward bottom bulge of bottom carried sleeping bags, and protects your bag from dirt, water, and wear. Despite the silly inaccurate arguments on balance put forward by many others to justify carrying sleeping bag on the bottom, the only true reason was to allow access to top opening pack. Our pack, has no such restriction.

Golite pack sacks are available in two zipper arrangements. The 1st design, shown in pictures and drawing, has center compartment zippers in a T shape. Vertical zips on side pockets are on front which gives access to lower pockets while pack is worn. A holdout bar at top keeps it expanded. The 2nd design is exactly same size but has inverted U access to center compartment which gives full opening. Vertical zips on side pockets are also on back side for easier access to all compartments when pack is laid flat. Bottoms of the 3 upper sections zip open to form compartments the full height of pack. Stiff but flexible closed cell foam sheets between middle and side pockets serve as holdouts, and bar is eliminated. (These foam sheets can be easily pulled out to use as sitting pads on rock or snow). The extra zippers and fabric for foam compartments make the 2nd design a bit heavier than 1st design. COLORS: Aluminum and a few red and blue available in 1st design, and alum, red, blue, white, black, brown and a few green available in 2nd design. The 1.9 oz. aluminized fabric has held up very well, convincing us there is no need for heavy 7 oz. sacks. We will continue the 3.5 to 5 oz. fabrics to give a variety of colors.

Pack sack volume: Small = 3200, medium = 3700, large = 4200 cu.in. Remember, when comparing to internal frame packs which have to carry everything inside the sack, that the typical sleeping bag and pad takes up 2500 cu.in, and tent 600 cu.in., all of which is carried outside the sack on a GOLITE, thus the effective space is 6300 cu.in. on small, 6800 cu.in. medium, and 7300 cu.in. or more on large. Comparing those numbers with the size of frameless and internal frame packs clearly explains why people can't get the warm gear they need for cold weather camping in those packs.

Weight varies with sack style, size & color. The T zip is available in aluminum color, wt. Small= 2 lb.15 oz, Medium= 3 b.3 oz, and Large= 3 lb. 7 oz. A few red ones left weigh 5 oz. more. The 2nd style, with U zip, typically weighs 8 oz. more than T zip, but is available in many colors, with weigght varying + 3oz. to - 2oz. From lightest to heaviest: Dull green, brown, red, black, olive, aluminum, navy, gray, dull blue, tan, royal blue, white, light green, purple, maroon, dak green. Some colors only in 1 or 2 sizes, and few left, so always give 2nd choice.

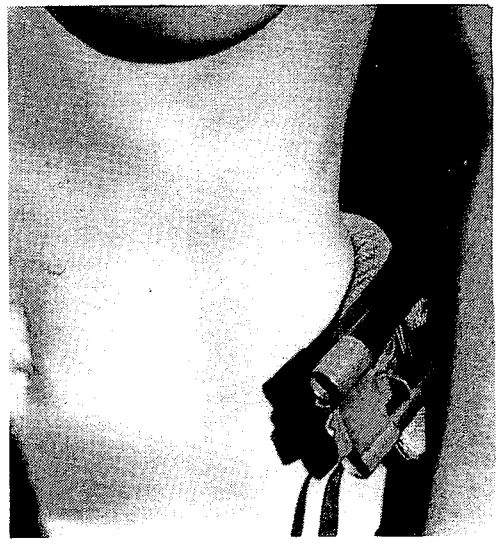
PACK SIZING

We need information to select proper width frame, proper length hipband, and proper size vest unit. Locate top front outside corners of your hips: at this point a finger held perpendicular to the hip bone will angle out 45 deg. from straight ahead, and 45 deg. from vertical. These are reference points "P". Width of frame is based on your width from "P" to "P", "FRONT HIP": 8" to 10" = Small; 11" to 12" = Medium; 12" to 14" = Large; Over 14" & under 8" probably need special size. In between sizes can use either adjacent size frame, depending on hip shape. Well defined, protruding hips can use smaller size, while straight, barely showing hips will need the larger size. Pack Sacks are sized for the frame. For slightly more capacity we can put next larger size sack on Small or Medium frames. Note, when comparing capacity of sacks with other make frameless or internal frame packs you must ADD the volume of sleeping bag, pad(s), & tent carried on outside of the GOLITE (or, subtract that from the other pack sack stated size).

For the hip band we need the length from "P" to "P" around the back, at the top of your hips, "BACK HIP". Hip band will be about 2" longer than that, giving you lots of adjustment for heavier clothes, without excess extension of side frames.

If you have any doubts on measurments or "P" locations, also supply full circumference at waist, top of hip bone, maximum hip width, and chest. Also give height, weight, type of build. A big belly, (such as near term pregnacy) will not affect pack sizing or how well it will carry, BUT, total lack of side hip projection will require lots of hip band tension, like other packs, thus negating the benifits of the GOLITE design.

VEST width is the width of shoulders on which you can carry a load: you don't want it over the neck muscle, or beyond the arm pivot (or it will restrict arm raising). Females should supply the length from top of shoulder to nipple on breast to aid our selection of front length of vest. If you have very large or very firm, upright "young" breast also give us length from top of shoulder to top of breast/chest junction. If in doubt, photos or sketches marked with measurments may help. Altho there is lots of adjustment available, we still like to get as close to ideal as practical for comfort & minimum loads on the breast muscles.



WHY VAPOR BARRIER?

During the 50's many more people started mountaineering & backpacking. When it rained they wore rain wear which had worked well when inactive, but that extra layer of clothing caused them to overheat and get wet with sweat. Most stopped the overheat by wearing less clothes under their rainwear. A few thoughtless ones blamed the rainwear for their overheat. Since they were cooler with their porus clothes before they added that extra layer, they sought porus so called "breathable" rainwear in a vain hope it would be cooler.

Most rainwear and sailing foul weather gear is made of coated nonporous fabric. (Even Goretex is only about 1/10 as porous as uncoated fabric and most people use Goretex for it's warmth not to be cool). We know that rain gear can provide warmth only if it is kept tightly closed at neck and wrists so air can't flow up thru it, and adding ANY layer of even the most porus clothing can make us MUCH warmer IF wind doesn't blow thru it. Most ski parkas and snowmobile suits are coated on the inner surface of outer fabric to block wind penetration. But warmth is lost if it's open at the bottom and neck so cold 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 causes over drying of your skin, dehydrates you, and takes away heat by evaporation. Wickable underwear may move wet sweat caused by overheat away from your skin, decreasing desired evaporative cooling THEN, and wetting outer clothes so they won't be warm LATER. But, wickable underwear can't stop evaporative cooling when you are cool and moisture evaporates from within your skin (insensible "sweat"), since that moisture is never on the surface where it can be removed by wicking. Water vapor has very high energy (the heat it required to evaporate), and diffuses rapidly thru porus clothes to cold outer areas. There the heat is removed and it condenses back to cold water and decreases insulation. That lowers humidity again, so more chilling evaporation occurs in your skin. Even if outer fabric is completely porus the vapor will condense when cold enough. A waterproof outer layer ("breathable" or coated) keeps that water in, out of sight, so you don't realize you're losing insulation until later.

When skin moisturizing (insensible sweat) can't keep up with the rapid evaporation, your skin gets dry, chapped, and may get frostbite. With 32 deg.F outside, evaporative chilling will make it feel like 12 deg.

Your body constantly produces heat. If heat loss equals production you stay comfortable. If you activity produces more heat you overheat and sweat (sensible) to increase evaporative cooling. WHEN you notice wetness from sweat you'll vent or remove excess clothing to allow cooling evaporation and increased conductive and convective heat loss. You soon cool, sensible sweating stops, and your skin is soon dry. But even then, if relative humidity of the air next to your skin is less than 100%, moisture in your skin will continue to evaporate, cooling and drying your skin excessively. If humidity next to your skin reaches 100% (meaning it can't hold any more water vapor), evaporation stops, chilling stops, and insensible sweating 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 causes low humidity: 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.

Usually in cold weather the outside relative humidity is near 100% so outside air can't accept more humidity, and thus most of the moisture evaporated from your skin condenses in the outer layers of your clothes. If you wear wickable clothes sweat from overheat wicks off your skin so it can't cool you, and you don't notice the overheat. The sweat soaks your clothing, 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 finally tire and slow down or stop, and need your insulation, you find it is wet and useless. 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! Ads won't keep you warm.

Wickable clothing worn indoors can let you ignore short periods of overheat, so you feel comfortable. Please note that it's wickable and moisture absorbing fabric that aids comfort then, not just porus or so called "breathable" stuff. 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.

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.

Vapor barrier insulation has been used in homes for over 80 years, and in clothing since 1944. It took about 45 years for ignorance and stupidity to be overcome in the building industry and get vapor barrier recognized as essential. The argument was that porosity was needed to dry out water found in walls, ignoring the fact that it was the porosity that let water vapor in to condense to water. It's not surprising to hear almost the same argument today against vapor barrier in clothing! The other argument is actually optimistic: they expect vapor barrier to always overheat you because high humidity contributes to summer overheat! Wouldn't it be nice if we could get all needed warmth simply by controlling humidity! Unfortunately we can only get up to 22° added warmth from humidity retention with VB.

It's reported that you lose up to four pounds of water each night thru evaporation of insensible "sweat", when sleeping in a porus "breathable" bag in cold weather. Weighing of porous sleeping bags in the morning usually shows two to four pounds weight increase, confirming that statement, and also showing that the sweat vapor doesn't make it out of those bags: it just condenses in the insulation leaving the bag wet. It takes 1080 BTU of heat from you to evaporate one pound of sweat. It takes 140 BTU to melt one pound of ice. Thus the heat to evaporate four pounds of sweat is enough to melt 31 pounds of ice! (4 x 1080/140 = 31). Would you take 31 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 and heat loss can lead to serious impairment of circulation due to thickened blood, increasing risk of frostbite. You know that high humidity decreases evaporation and you can create that warm humid condition around your body all day with VAPOR BARRIER (VB) clothing.

VB is waterproof so eliminates the problem of sweat wetting clothes, and allows you to detect and correct for overheat immediately. With VB keeping water vapor and wet sweat out of your sleeping bag and clothes, you can use ANY fibers, ANY insulation without concern for wickability, and can use ANY exterior wind breaker without concern for "breathability".
VB preserves insulation AND keeps us up to 21 degrees warmer (IF kept snugly closed!)

Heat production and loss is not uniformly distributed over our bodies. Thus we can sweat under our arms while being too cool elsewhere. We detect changes in temperature 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 hottub and y immediately feel hot while actually too cold you warm your skin gets accustomed to the warmth so you don't feel as hot! Get out when sweating from overheat and you immediately feel cold! Dry off and you feel warm. We must rely on sweating to warn us of overheat, but shouldn't be misled by local sweating only. VB clothing that doesn't wick sweat across it's surface is likely to be uncomfortable and mislead us into too frequent insulation adjustments, 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 Stephensons FUZZY STUFF.

Heat stroke or heat exhaustion is caused by not being aware of overheat and thus not taking measures to cure it. Clothing that makes you unaware of sweating can be especially dangerous.

How do users of VB react? Generally with orders for more VB clothing and sleeping bags, and recommendations to their friends. Since 1967 we've sold about 8200 VB lined sleeping bags, and only about 1 out of 500 customers object to having to consciously adjust insulation. But even they agree that VB is good for extra warmth and insulation protection when it's below freezing. 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 d those extra clothes. To stay dry they must a clothes more. VB underwear helps them notice 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. Sleeping bags rarely get wet from outside. Bags without VB ALWAYS get wet from INSIDE condensation and sweat!

VB in a sleeping bag causes no added warmth when vented, and 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 when nude. 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, I think!

VB clothing has other unexpected 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 change your regular shirts due to sweat odors in less than 3 days 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 yourself. It's obvious how outer clothing 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.

Polypropolene 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 tenaciously 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 light coated Nylon rain wear or ski parka and ski overpants with coated outer layer for windbreaker.

Polyester fiberfill is usually the lightest practical insulation per inch for clothing. Good Goose Down is much lighter, but weight of extra fabric used normally more than offsets the reduced insulation weight. Only in the very thick insulation needed for sleeping bags is the great advantage of Goose Down really important.

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) weighed over 52 lbs. by trip end due to vapor condensation to ice. Fortunately they were flown out from the pole. Meanwhile a Canadian - Soviet team cross country skied across the pole, using WARMLITE they had purchased, which stayed dry and for the whole trip. Will Steger bought FUZZY STUFF Vapor Barrier liners from us for his Quallofil bags for the much longer south pole trip and thus kept the bags dry.

During World War II US cold weather troops used VB socks to totally cure frostbite and trench foot. Those led to the vapor barrier "Korean Bunny Boots", still the standard for military cold weather use. We started promoting use of VB socks (baggies, bread bags, etc) in 1957, then gloves, shirts, and sleeping bag interiors since 1967. Others have sold VB clothes and bag liners on and off, but the response to coated fabrics, with insufficient education, and problems with tie in bag liners led most to drop VB. Most 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. If you want an honest evaluation of VB, get it from someone who uses it. If you don't want to try it, ask someone who hasn't used it & sells "breathable" gear, thus avoiding getting confused by the facts!

STEPHENSON VB CLOTHING

The first popular use of VB protection was socks to keep feet warm & dry, and boots dry and unfrozen. Without VB socks moisture evaporates from your foot, condenses on your boot, soaks socks and wets your feet with distilled fresh water, softening skin and promoting infection.

VB socks keep humidity high by your foot, stops evaporative cooling, keeps boots and socks . If feet get hot and sweat, boots and sock dry and still insulate. Sweat is salty so doesn't promote infections common with fresh water wetness.

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). When I read about WWII military use of rubber socks I 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 normally made from the smooth surface version of FUZZY STUFF. They are double layer, so the tough urethane film is captive between smooth nylon layers for comfort and durability. (Even if it eventually delaminates they go on working well.) Sizing is based on your shoe size, so order by the largest shoe size you wear. If too big you can pin off excess then sew along pin lines or send to us to sew. If too small, return for exchange. Put VB socks on first, then any kind of insulating socks you like over them. Adjust sock position so no seams are under your foot or where they might rub at a tight spot in your boot. When you remove boots and socks dry your feet to prevent chill and decay of sweat which causes foot odor.

STEPHENSON NO SWEAT SHIRT

The Vapor Barrier "No Sweat" shirt is made like a sport shirt. 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 vapor seal and for neck protection. A pocket gives inside security for small items. This shirt also makes a good lightweight windbreaker or rain jacket. Release the velcro cuffs for those uses and let extra sleeve length cover your hands. (Seal the seams for rain use.)

STEPHENSON VB shirts were originally made to give people a low cost useful way to learn the value of Vapor Barrier insulation. It rapidly 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). After 2 years of great performance we got the FUZZY version with benefits of comfort and durability far offsetting being much more difficult to sew, more expensive, and slightly heavier. Since 1985 all Stephenson Vapor Barrier clothing and most sleeping bag interior bottoms have been made with FUZZY STUFF.

Current shirt colors may be brown, cordovan, dark green, dark blue, tan or dull red, or can be made white (smooth). We can't stock shirts in all colors and sizes all the time, and at times some colors aren't available. We'll make VB shirts in custom sizes, but need $12 extra and a shirt that fits you for pattern, (which we return with VB shirt).

Vapor Barrier GLOVES

We used plastic and rubber gloves for VB protection of hands for many years, but they were uncomfortable. Moisturizing hand lotions also help but don't give near the potential extra warmth, and don't keep gloves as dry, a main objective of VB gloves. VB glove liners made from FUZZY STUFF solved 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 remaining problem since hands vary so much, and there are no real standards for glove sizes. Send a hand tracing for glove sizing. We'll send our guess for best fit, and will quickly exchange for another size if necessary.

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 the protection of gloves. If you still have a problem with cold hands, read the section on alcohol.

Vapor Barrier UNDERPANTS

Vapor barrier pants have not been used as much as other VB clothing for several reasons: you generate more heat in legs, and thus need less insulation there; previous VB fabrics weren't comfortable or durable; the limited market requires higher cost custom construction. FUZZY stuff has solved the problem of comfort and durability, so we now make VB pants to order only. We use simple construction to keep costs down, using soft FUZZY STUFF. Send a sample pair of pants that fit comfortably, or FULL dimensions as for CONVERTA pants. If 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'll 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. For more warmth wear loose fit insulating pants over the VB pants, thus allowing free leg motion.

PONCHOS and Rain Jackets

When hiking in rain an umbrella or poncho is best for keeping dry from both the rain and your sweat. I use a lightweight 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, produced for about 23 years, was discontinued when we couldn't get fabric coating good enough for it. Now the new siliconized coating on tent fabric seems even better than the old good stuff, and on lighter weight fabric, so we'll make ponchos and rain jackets again.

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. An improvement is lightweight 36" side zippers (instead of snaps or velcro) for better, easier wind protection, and an option for extra back length to go over your pack (which can be zipped up in a big tuck when not needed.) For now these will only be made to order, so you can select your color and sizing.

For sizing, measure from top of shoulder down front and back as far as you want it to drape (better too long than too short: you can always trim off excess. Edges are unseamed, coated and hot cut to prevent fraying, can be trimmed with scissors and sealed with solder iron.) Also tell us the width of shoulders, so we can trim ends in an arc so corners won't drape lower than intended. 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 will be full width of the fabric, about 65". Weight typically 8 to 10 ounces.

The rain jacket is same as our vapor barrier shirt, but made from the same fabric as ponchos, and seam sealed, with or without a hood like the poncho. Size will be 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 should not be lower than top of a leg raised up for a high step.) Weight typically about 6 ounces.

Colors same as available for tent, at this writing white, black, light blue, lime yellow, lime green, purple. Ponchos and rainjackets can also be make from "Fuzzy Stuff" for softer drape, different colors, higher strength and probably longer coating life, but weight is about doubled.

Poncho price $49 or $56 with pack extension.
Rainjacket $44 or $54 with hood.

STEPHENSONS
22 Hook Rd.
Gilford, NH 03246

DATED MATERIAL
REQUESTED CATALOG

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. '89

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

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! BB '89

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. DT

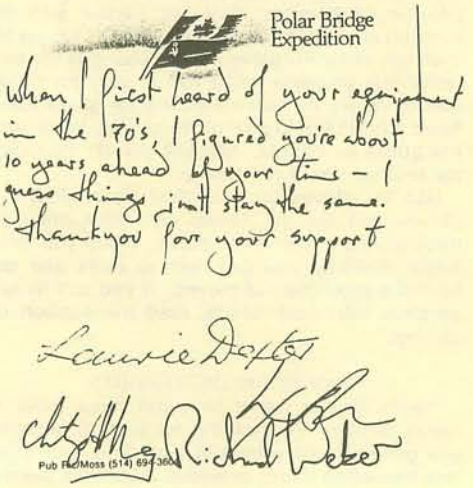
I purchased your Warmlite sleeping bag and 3R tent when you were in Calif. ('73) I liked them so well I bought a spare set. - just returned from Nepal and am still using the original set. I go on a number of long trips every year so you can guess how many times they have been used. The sleeping bag is 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 '87

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.

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 the 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. LD.

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. BG.

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



-- 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.

I want to thank you again for your hospitality and for the stimulating conversation. It was a special treat to meet the man that "Traveler" speaks so highly of. SG.

- our Warmlite sleeping bags work well keeping us warm well below -10°. The most useful feature however is the vapor barrier which I can highly recommend. I no longer wake up at 3 am thirsty - and can dry out a great deal of wet clothing while the bag stays completely dry! BD '81

It has been my recent pleasure to be introduced to one of your well designed, cozy, embracing, sheltering, loving sleeping bags thru a similarly fond friend of quality. CH. '82

Have recently tested your tent (3RY), I must say I'll be damned if I've ever seen a better one! With three people and tubs of junk there was still more room than you could shake a stick at

The excerpts from letters (and more inside), show that our customers are having as much fun as we are, and also explains our very small advertizing budget. We have a file drawer full of letters like these, most too long to print, many with wonderful stories of great times and amazing survivals, and good pictures. We love to hear about all the places our equipment goes to, even if we can only dream of such adventure while we cruise naturally in the Caribbean, hike, ski or sail in NH. Join us sometime. Jack Stephenson

STEPHENSONS 1997 to ?

From 1971 to 1991 we sold 48 pg catalogs full of information and color pictures (and got fame for nude pictures showing natural living and camping). Cost got too high so we simplified it, compressed print with B&W pictures, removed most extra material, leaving a full catalog with enough info for you to make good decisions. To SEE products better, & learn to use them, get our 2 hr VHS video tape for $8 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 .

'74 and '80 catalogs (collector's items), with better color pictures and extensive explanations cost $12 each while they last.

Order *ONLY* by MAIL. Print order *completely* on any sheet of paper with FULL descriptions, SIZES, color choices, *complete shipping address*, and WITH full payment including shipping cost (no credit cards). For quick shipping include payment by MONEY ORDER. Other checks need 2 weeks to clear the bank (which is fine for items we have to make to your order). From outside the USA, checks or money orders MUST be payable thru a USA bank in US dollars. Wire transfers are expensive, may take a day! No C.O.D.

DON'T send anything to us by any express or "Next Day" service. Those DELAY our receipt by 3 to 7 days! In a hurry? Use STANDARD MAIL or UPS 2nd day. Altho this is a MAIL ORDER business, you may phone for stock status to find if we have something suitable but not what you would have ordered, thus save time and $. We'll hold items up to a week, for your mailed order.

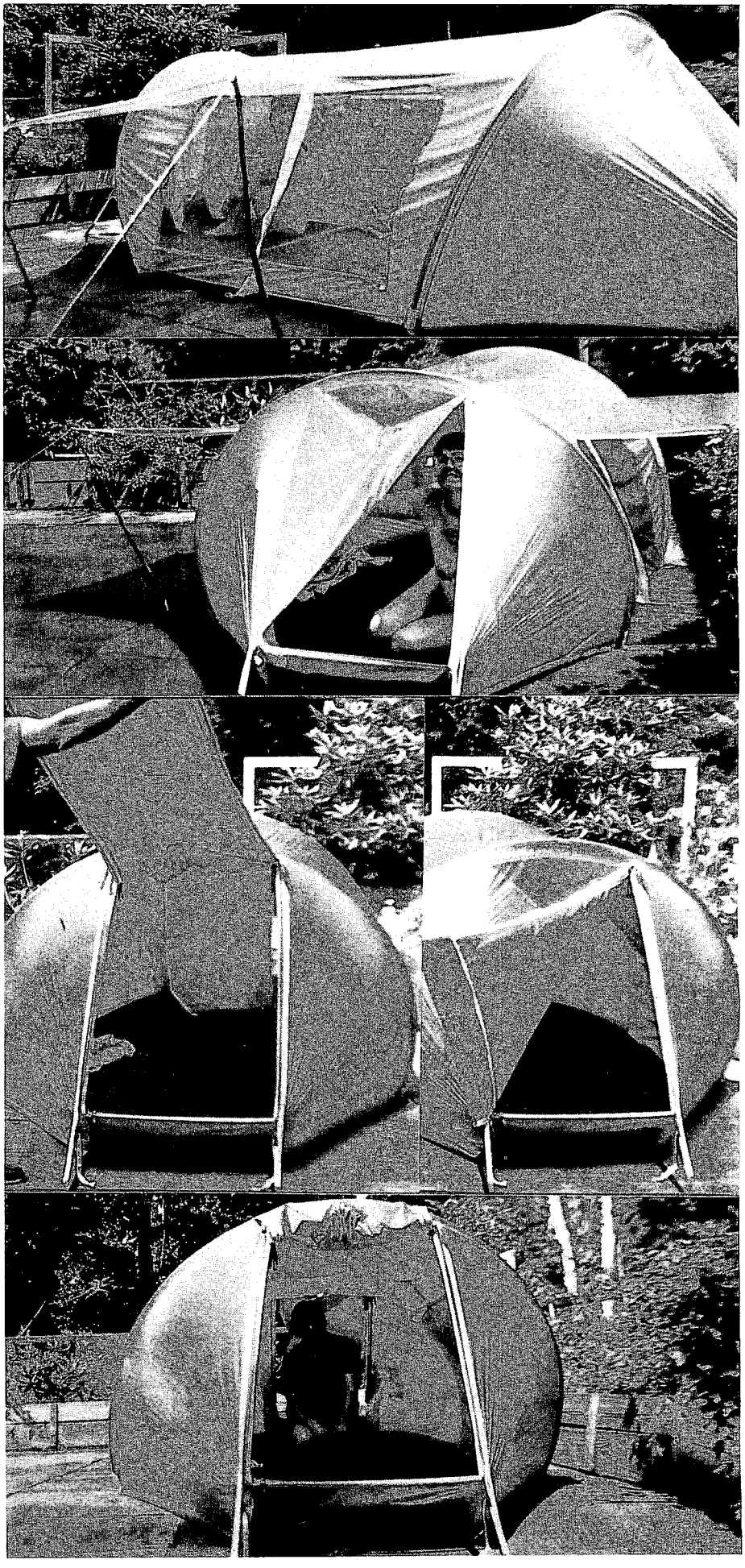
Write (phone or Fax 603-293-7016 9am to 3:30pm Eastern time) to check on stock, or for explanations or information you can't find in the catalog. All questions will be answered as quickly and best we can, but may not be entirely correct or complete if you call during off hours and get someone not familiar with products. Prices quoted on phone may not be complete or correct, often neglect shipping costs, so always check catalog prices, and add shipping cost.

Slight change in material & zips left us with a few 56" girth Triple bags with #5 zippers, and some Mylar laminated 3X tents (green, white, aluminum). BIG discounts.

Repairs: request estimate, or simply say do it and send a bill, or send excess $ with it; we refund any excess. We can fix most damage. Old Urethane coated tents can be recoated IF not sticky from damp storage (fabric never shows any wear). Sticky urethanes require special treatment. The new silicon coating will last much longer than previous urethane. Poles, if not corroded, can be used in new tent saving $50 to $80.

We don't do regular mailings. Keep old catalogs for reference, but don't order items not in 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.



STEPHENSON TENTS

THE standard of performance in severe weather use, WARMLITE tents are the lightest, simplest, most versatile tents made. Exceptional dependability, ease of use, light weight, and options found in no other tents, made them the 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 all others:

1 Elliptical ARC Shape for wind stability, strength, quietness, headroom and space: this shape has the most stable air flow and lowest wind loads, eliminating the stress, flapping, noise and failure so common in other tents. There's no need for many annoying staked out lines and their rip causing 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 organization.

2 Most ROOM, for sitting, moving and working with good headroom. A FULL 5 ft width is useable (7.5 ft in Model 5). Two people can sit or work 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.

"Vestibule(s)" 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 have vestibules 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. So called "free standing" domes need stakes at each pole end [8 to 10] for any wind resistance. Imagine trying to get poles in, or Fly on a partly erected dome in wild wind! When tired, short on air in a wild storm, your IQ of 176 has lost first digit, you NEED the simplicity and comfort of a Warmlite tent!

4 High Wind SECURITY: Designed for smooth airflow in high wind, *WARMLITE* tents resist 95 mph winds: 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. Many deform or fail in wind under 40 mph. *Warmlite tents survive 160mph wind!*

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

6 STRONGEST POLES - much stronger than in any other tents, preformed and stiff to hold tent shape and stability in fierce winds, they resist 20 times more load than thin flexed-to-shape poles used on domes and shape copies of our tents. Flexed poles use 80% of their strength just flexing to shape! Stephenson poles need no weakening flexure, and are MUCH stronger and stiffer to begin with.

7 ADJUSTABLE VENT SYSTEM for full control of warmth & humidity. HIGH vents remove humid air, LOW vents let in heavier dry air. This chimney effect gives 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 automatically open when wind dies, always providing safe ventilation.

Optional side windows open from inside any amount or location (once the outer cover is raised) for views and cooling. Closed it's as tight as if they weren't there.

8 Dries Warmer; DOUBLE walls, fully coated fabric and sealed seams provide complete rain protection, most warmth, and least condensation. The interior is kept warmer by an insulating air gap between walls and radiant heat blocking aluminized exterior on inner wall. The tent stays dry inside; warmth of inner wall eliminates the miserable condensation so common in other tents, and aids the chimney effect venting. Lighter warm humid air rises up and out the top vents, while heavier fresh dry air is drawn in through the lower vents.

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

9 LIGHTEST Weight: The lightest, yet strongest tents made. (Only .93 to 1.37 lb. per person.)

2X = 2.33 lb.	3X = 3.25 lb.	5X = 4.69 lb.
2R = 2.75 lb.	3R = 3.75 lb.	5R = 5.63 lb.

(2 wall 2Z weighed 1.75lb. but we can't get the fabric now)

Weights for optional features:
Side windows on both sides, total = 5 oz.
Big door extra zippers = 2 ounces each door.
Mid-pole, 3R = 3.4oz 3/8", 6oz. 5/8": 5R = 9oz. 5/8"
Wind stabilizers inside Model 2 + 2.5oz; Model 3 = 5oz (or 7.5oz with endliner); Model 5 = 7oz (or 10oz with E)
Drop end = + 6 oz. (12 oz. with End liners)
End-liners = 7oz. on 2R, 10oz. on 3R, 15oz. on 5R

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

10 Simple, Quick Entry - keeps out bugs, rain and snow. Door design makes entry and exit easy: it's easily held to keep out rain or snow while opening the freeze proof zipper, then the slope makes it easy to go thru. It 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 doors on each end let you go in - or reach your gear - without disturbing other occupants, and gives alternate downwind entry. (Low foot end on 2R prevents 2nd door.)

In 1995 the door zipper top was moved over and up to the right edge of top vent, and vent was improved for better drainage, thus the door is taller and wider with no change in storm resistance.

Big Door: The '95 door design allows optional extra zippers on left side so the whole door panel opens to load or stargaze. It's MUCH better than old D for big door, almost as good for stargazing. *(Ventilation is impaired when either the door or Drop front is left open.)*

11 Wide Range of Options; for many different needs:

TENT OPTIONS

R Regular double wall version with Radiant heat blocking inner wall. The aluminized outer surface on inner wall reduces heat radiation, providing warmer surface and condensation prevention (also blocks light). For more light in the tent, lighter colored fabric can be used for inner wall, with some reduction in warmth and humidity control.
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 those few who intelligent enough to avoid useless sweating, and who take care to use proper rain gear (about 1 of 3 people: see "vapor barriers")
S large Side Windows (on both sides) for hot weather cooling, 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. The inner cover opens from inside, any amount or location, with 2 sliders on zipper across top & sides.
B Big door adds pair of door zips up left side so opening is twice as big. Use for loading gear and stargazing.
W Wind stabilizers: diagonal inside straps from each side of each pole down to far end of pole, greatly stiffening and strengthening pole. Use in winds over 95mph. They get in the way a bit in use, especially one on mid pole.
E Endliners - double end walls, prevent rare condensation on ends, ONLY for careless ones who WON'T control useless excess sweating, but vital for them.
M Mid pole to reduce side deflection in *strong side winds*, not needed for strength. Sleeves for mid pole are in all 3R and 5R tents. For doubters of 40 years of experience, a "bomb" shelter multi-mid pole version of any size can be made (at high cost, I hope.)
D DROP-AWAY FRONT for cold night stargazing with no netting to block the view. It can be opened or closed from your sleeping bag. D is NOT a vent and can't be opened in wind, rain, or buggy conditions, requires 1994 end, door and vent design and is not recommended.
COLORS Yellow, Light Yellow, Green, Lime Green, OD (olive drab), Medium Blue, Light Blue, Dark Blue, Purple (blackberry), ORange, PInk, Fushia, GREY, BLack 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 or grey 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.

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 use, or for two to six (5R will fit 6). No need to buy a poor tent just for size. 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 seriously degrading use and venting. But less width takes away wind stability without saving much weight. A Warmlite 2X is lighter than other inadequate sized 1 person tents or "bivys", and thus is the choice for lightest 1 person tent. (Light pole saves another 2.6oz., double wall 2R is only 6oz. more.)

The drawings show exterior sizes. Interior sizes are about the same for X tents, R tents APPEAR smaller due to the liner. Actual sitting and moving space is the same (the light weight liner easily pushes aside).

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 the length and are about 1/3 the volume.

MATERIALS: Fabric is ultra high tenacity 30d. ripstop Nylon with a very durable silicone waterproof finish (originally developed for parachutes, thus the color choices!) This is about 3 times stronger than the fabric usually used for fly on other tents, (and we also used up to 1995). Seam sealing (which we let you do, or offer as a service) is done with silicone adhesive, (also used 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 hydrolyze (turn sticky from damp storage as urethanes do). Most parts are individually LASER or hot knife cut for accuracy and fused edge so they can't ravel, (impossible with the stack cut porus fabric on other tents. Others hide the raveling edges for a while with flat felled seams or seam binding).

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

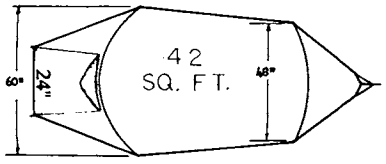
Poles are 7187-T6 aluminum, 5/8" diameter (3/8" on small end of Model 2, or for lightweight poles), formed to the curvature of the tent (hardly noticeable in the 15.5" folded length). Sections are held together with Nylon covered elastic, ends held with plastic pole end caps. Mid poles are 5/8" or 3/8": 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 "Noseeum" netting available.

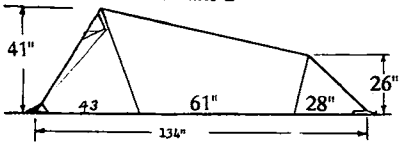
Zippers are the best from YKK, carefully selected for each function. Coil teeth have most strength, smoothest operation, are self repairing. Outer door zip has molded Delrin teeth for freeze resistance, inner backup is #3 coil.

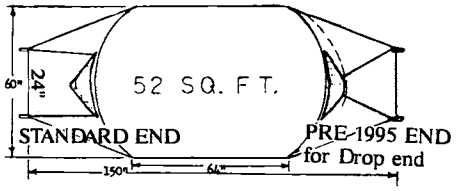
The special features of the previous ERV option -- *extra reinforcing, second door on 3 and 5, inside access to stake out tension adjusters, sleeve for mid pole, net pockets on each side of each door, fused edge cutting of parts* -- are now standard on ALL WARMLITE tents, and the mid pole, end liners, and **INSIDE STABILIZERS** for wind resistance above 90 mph are available as options.

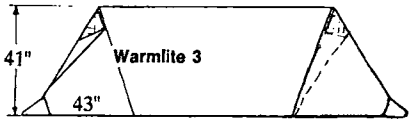
A Warmlite tent starts out lighter then stays lighter: You won't be carrying several extra pounds of condensation or rain soaked inner tent, like the typical porus tent with fly.



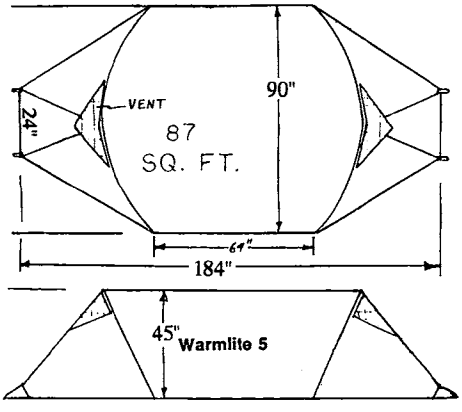
Warmlite 2







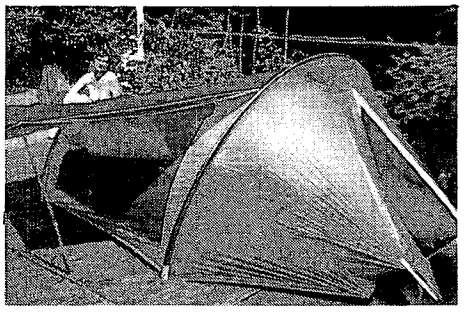
THE OUTSTANDING MOUNTAINEERING TENTS

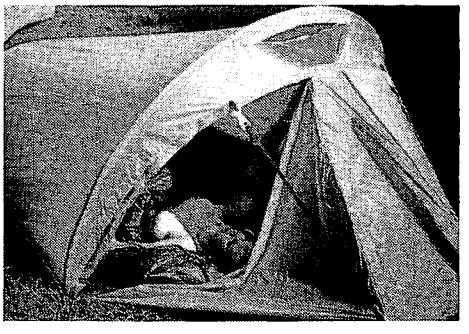


5RY 3RSG 2RDB

WARMLITE 2RSB Billee

3RG above 2RDY below Ericka





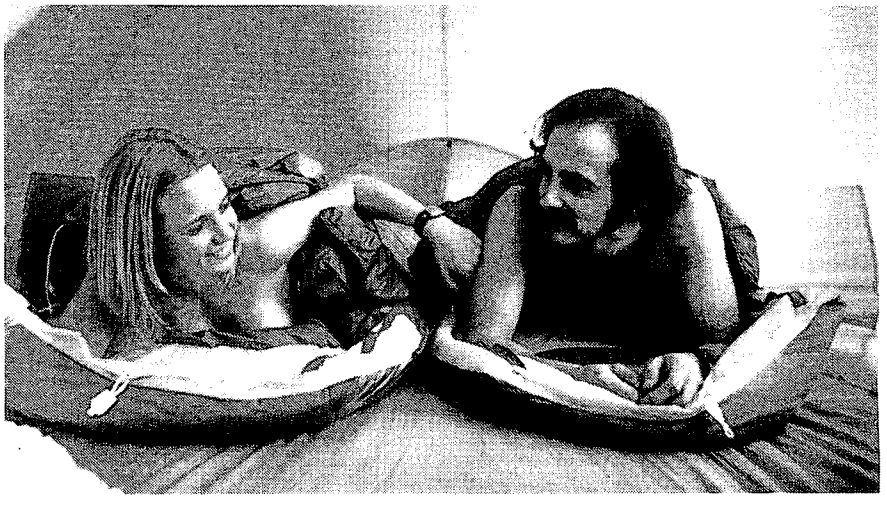
2RSB one window open

SELECTING and ORDERING

Designate tents with the highlighted codes for size 2, 3, 5; type R, X; options S, Big, Wind, E, D, Mid; 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, 2RBig-Wind-Y, 2RY, 5XSMidP-LY 3XSB-LB 2RSBig-B-LY. Blue may be Light (LB), Medium (MB) or Dark Blue (DB) and if not spelled out D and M will be confused. If 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 which minimizes loads and material use; from preforming the poles so they can be much stiffer, stronger, yet lighter; from using ultra-high strength 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.

Maybe HAPPY proud owners just take better care of STEPHENSON tents so they last much longer!



2 WARMLITE TRIPLE bags in 2RSY tent

WARMLITE BAGS

Stephenson's WARMLITE TRIPLE sleeping bag, the only *complete* backpacking BED, plus *three temperature ranges*. The basic bag provides *comfort* in all conditions anywhere, from +60° to -50°F (down to -75°F often reported by hardy Alaskans). Optional net top for tropics.

A *WARMLITE* bag gives best *COMFORT*, warmth, *adjustability*, and less weight, by good design, construction and most efficient use of the best materials. Multi tops for all temperatures and *a very comfortable insulating mattress blocks ALL heat losses convective, conductive, evaporative and radiation*. We expected others to copy our features to make better bags, but most unique advantages of even our 1959 bags and many improvements since, are only available on WARMLITE bags.

INSULATION: *CONVECTIVE* heat loss is blocked with tight ripstop nylon and *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).

CONDUCTIVE heat loss is blocked with the ***highest loft 800-850 GOOSE Down*** available, held in a very uniform thickness, not affected by your position in the bag, shaped for least surface area consistent with comfort. Follow our girth measuring instructions to select bag with best comfort. 3" to 4" less girth gives less weight but restricts motion, like a mummy, but few can tolerate it: less isn't practical.

RADIANT heat is blocked by aluminized *upper* surface on inside top fabric (used since 1968), it faces up against the Down, so can't touch you. It's NOT electrically conductive.

EVAPORATIVE 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 1966, a major reason for enthusiasm of users.

Other VB gains: 1. Down ALWAYS stays DRY. Sweat & humidity from you can't wet it. (*All other bags get wet from INSIDE, due to user's sweat or humidity condensed in the insulation.)*

2. VB lets you detect overheat quickly. You open the bag to cool then, not *after* the bag is soaked with damaging sweat oil and salt, so bag dries even before you've cooled down. You won't need hours of drying it.

3. The bag is easy to clean. Just a wipe with a damp soaped cloth does it.

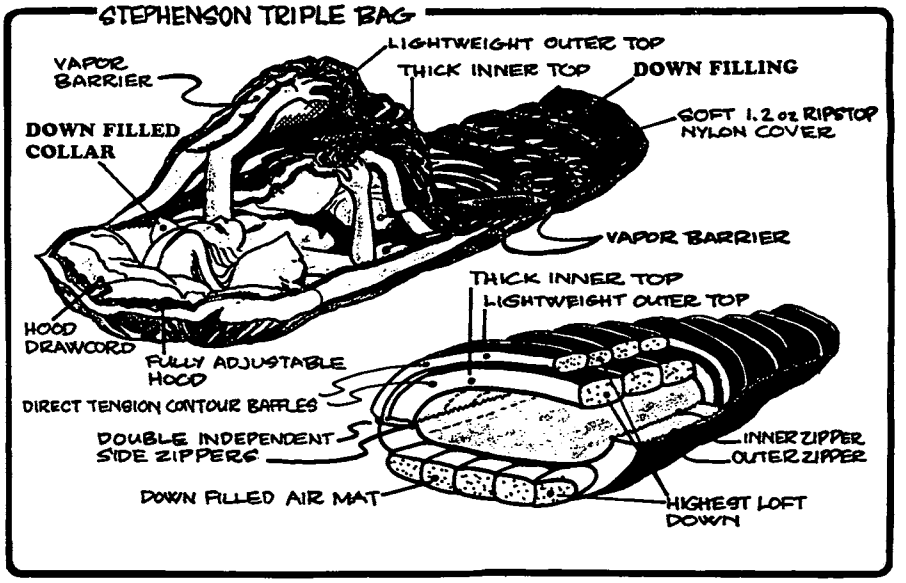
4. You're less dehydrated from sweat loss, are less likely to get frost bite the next day.

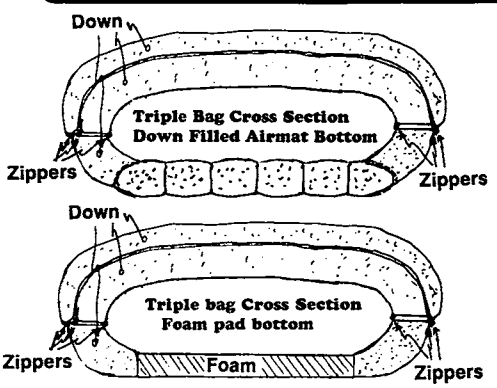
Heat loss to the ground is blocked with a *Goose Down filled Air Mat* (used since 1974). This gives the *soft comfort* & lightness of airmats (which are usually cold), with the WARMTH of Goose Down, eliminating bulk and weight of covered foam pads (or those heavier "self inflating" pads.) For less cost at more weight and bulk you have option of a 2" foam pad (used since 1966), still lighter and more compact than "self inflating" separate pads. No extra cover or bottom fill is needed. With pad locked to the bag you don't roll off it or damage the Goose Down by lying on it (which turns it to pieces of string when you move.)

We made the first Down filled airmat in 1959, got to producing them in 1975. Net baffles prevent Down shift. Performance exceeds all expectations. Life limit is 20 years or more. Color is yellow or bright orange for emergency use to attract attention. It can be used for a swim or fishing float or, as shown on cover, will float the bag when the creek rises and floods your camp. Inflate it fast with the carry sack used as a pump, never by mouth or slow heavy pump.

"the triple bag is in my estimation the finest piece of equipment anyone has ever turned out. I used the NET top under 'buggy' conditions with very satisfactory results".

"Linda has used your bag down to -70 and says it is the warmest bag there is".





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: *DOUBLE zippers* independently close interior and exterior surfaces. Two separating zips on each side plus two 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 when both tops are used, unzip each top on opposite sides to let the bag expand as needed to dress INSIDE it. Or use that feature for fine temperature control from -50 to +32.

In 1987 we finally got the excellent YKK #3 zippers with separating ends for bags, giving less weight and best snag resistance. Our experience with #3 on bags since 1987 has been excellent, as flawless as on tents since 1970.

FULLY Adjustable HOOD

The unique 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. Chuck Kennedy of DOWN HOME sleeping bags makes the only other all position hood we know of. His hood is separate, fastens to your head and turns with you! You can adapt that idea, using any separate parka hood you like.

"Jack, your mosquito net bag top is super. In Africa it's perfect (always LOTS of mosquitos)"

Any pressure on the hood can slowly open the the hood zips (we use ONLY non lock sliders; if you wake up gasping for air ANY motion can open the hood). We provide velcro stop tabs across the zippers at two positions, so it takes more than usual motions for the slider to open past a closed tab. 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. Typically the THIN top is used down to 25° (summer range), the THICK top down to -10°, and the combination used for a quick warmup or for winter use down to -50° F. (-80 reported by some Alaskans!)

Comfort ranges for the tops are greater than for any other bag of similar thickness due to addition of radiant heat barrier and controlled 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.

For tropics, use the optional NET top, a double layer of fine noseeum 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.

To use either DAM or Foam in the bottom, order DAM bottom bag plus Foam pad (DAM of proper size won't fit a bag made for foam pad only.) You can buy DAM bag with just Foam pad at Foam bag price, and later order a DAM, for it's separate price at that time. The wider foam pad to fit in DAM space is 1/2 lb. more than normal foam pad, needs larger sack.

" have used your bag with great success from 100"+ rainfall in coastal Alaska, Hawaii, and -35 deg ski touring in Brooks Range"

"I didn't really understand, or believe, your reasons for waterproof interior on the bag when I ordered it, but now, after a season's use in all temperatures I'm really sold! I've never been so warm and dry in a sleeping bag, and I don't wake up thirsty in the middle of the night!

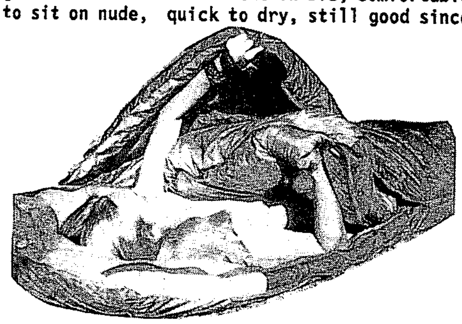
Use the optional waterproof top alone for warm weather, or to protect the bag from drips in a leaky tent or snow cave. Spray on water repellent recently applied is lighter weight and better for drip protection: ANY material ("breathable" or not) laid over ANY sleeping bag greatly increases condensation in the bag. *(All other bags get wet from INSIDE, due to user's humidity condensing in the insulation. Goretex 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 bag that is always DRY! Goretex is as good a VB as many urethane coated fabrics.)*

Use waterproof bottom cover option for camping without a floored tent: zip it to the bag, leave loose, or zip to waterproof top as a bivy. A plastic drop cloth works better for protection, plus gives an area for pack, boots, etc.

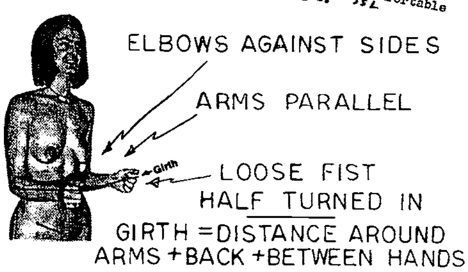
INTERIOR FABRIC

Since 1967 we've used aluminized coated nylon for radiant heat blocking and vapor barrier interior. That is still standard on tops for least weight and easiest cleaning. A few people assumed they won't like the feel of coated fabric, so for them we developed the better feeling VAP-R-SOFT for inside of tops. That option is soft porous Nylon over 2 layers of aluminized film, quilted between 3 layers of fine netting. It's soft, quiet, feels like silk, adds 6 to 8 oz., costs more, and like ALL other make bags, picks up dirt and is harder to clean. It's been used since 1981 on about 1/4 of our bags, with no complaints about it, or about the standard interior!

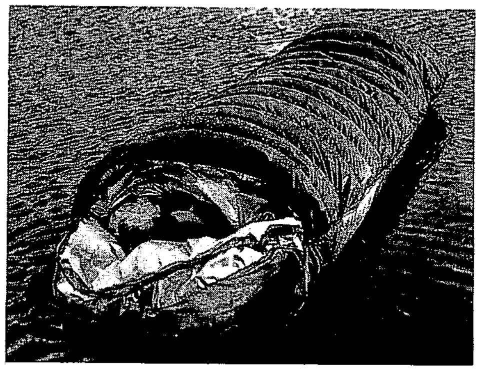
FUZZY STUFF, brushed knit Nylon plus tough stretchy urethane film, is very comfortable. It wears 25 times better than coated fabric, so is best for comfortable long life VB sox, glove liners, clothes and inside bottom of sleeping bags. The surface feels like soft flannel but wicks sweat *across it's surface faster* for rapid drying and comfort. It works **great for our boat cushions in BVI, comfortable** to sit on nude, quick to dry, still good since



Let me say here that Both my wife and I (and everyone who has seen them) think that Your triple sleeping bag is Just Fantastic! We have never been more comfortable in so many different temperature ranges. JSL



27 Warmlite Triple bags zipped together



TRIPLE Floats with D.A.M. and Waterproof bottom

1990. FUZZY STUFF is very comfortable against your skin, thus 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. With the VB built in you avoid weight, cost, and hassle of getting twisted up in a separate tie in liner.

FUZZY STUFF is the best material for VB lining for other make bags without built in pads, since you WILL lie on the top of those bags, so *need* good wear resistance everywhere.

All exterior fabric is the finest 30 denier Downproof ripstop nylon with soft, water repellent finish. Used since 1958 without failure, it's obviously TOO durable but no one has found a way to Downproof anything that's lighter! Every part is individually HOT CUT, the ONLY way to keep uncoated nylon seams from eventually coming apart. Flat felled or binding covered seams on other bags hide the raw cut edges which *WILL* soon pull apart. 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 no errors, giving the designed uniform loft.

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

All seams are sewn with 100% Nylon thread to match fabric stretch, softness, and super wear resistance. Commonly used cheap polyester thread makes stiff seams which don't wear well.

I want to thank you for an excellent product. I purchased a Warmlite triple bag this past summer, for use above timberline in the Sierras, and its performance far surpassed that of any other bag I've ever seen. While my friends spent uncomfortable nights, fully clothed in their traditional down bags, I passed the sub-freezing nights comfortably undressed in my unzipped triple. I was even able to lend one layer of my bag to my friends. The trip was terrific — discomfort is clearly not a prerequisite to enjoying the wilderness. Sincerely,

John Friedlander.

Bags of any height or girth. Weight varies with coating. Vap-R-Soft adds 6 to 8 oz.

Typical TRIPLE Bag Sizes and Weights

GIRTH	56"	60"	64"	70"
Range of usual user's heights	5' 5'8"	5'4" 5'10"	5'8" 6'4"	5'10" 7'
and weights	90-120	105-155	130-190	170-250
Typical weight for each layer, ounces:				
THIN top	16	17	18	21
THICK top	26	28	30	34
BOTTOM	29	30.5	32	35
TOTAL for bag	71	75.5	80	90
D.A.M.	20	22	23	25
TOTAL with DAM	91	97.5	103	115
or foam pad	28	30	32	34
Total with foam	99	105.5	112	124

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.

Many people don't need the extreme low temperature capability of the full TRIPLE bag, but do 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 -50° F. for average person.) Why buy two other bags to cover the range, not know which to take, or worse, find you've taken the wrong one, when one WARMLITE gives comfort in ALL conditions?

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). Altho in the past a couple of others copied our multi top bags (& humorously claimed to have invented the idea), 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 they need another bag for different conditions, the "saving" is a doubling of costs. 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.

Most people who bought a partial WARMLITE TRIPLE bag in the past, bought the other top within a few months, and most who bought a special single top bag soon wanted it converted to the TRIPLE (which is impractical), so bought a WARMLITE TRIPLE. Their short term saving became a cost increase. Since it's cheaper to borrow the $$ and get it ALL at once, we stopped selling partial bags.

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!

The cost of a *WARMLITE TRIPLE* seems high because it includes so much. Compare the WARMLITE bag to other bag combinations needed to match it: winter bag + summer bag + overbag + VB liner + TWO Thermarest or similar pads to match warmth and comfort of D.A.M. You'll find they add up to MUCH more cost and weight.

We manage to give you more for your $ by avoiding duplication of materials and function, eliminating overhead and sales markup (and not intentionally, sometimes all profit.)

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), standard ALUM or VAP-R-Soft interior, and color choice(s). If rushed, call to check stock. Production may take 4 to 12 weeks.

CONVERTA PANTS

To avoid carrying both long and short pants in 1961, I made long pants with zip off legs (VERY difficult to use!). In 1969 I tried zippers in inseam of pants, so legs could fold up & tuck into waistband. It worked better than expected: I could switch from longs to shorts with hardly a pause in hiking, didn't lose leg extensions. Adding zips in outer seam let me vent my legs without raising pant legs, and thus get sun shielding, cooling, and insect protection. With pant legs raised the outer seam zip gave access to pockets. In 1979, 10 years after the first practical CONVERTA pants were put to use, we started producing them for others.

CONVERTA pants solve other hiking problems: by extending the fly zipper all way through the crotch, for full opening front, back or middle, you can relieving yourself with some protection from insects or cold, and women can pee without completely lowering their pants.

Fabric is Nomex, a modified Nylon made for aviators, firemen, and police 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 cotton or wool suit fabric. We found it perfect for hiking pants (except for outrageous cost). We're still looking for a lower cost fabric, but can't find anything near as durable or comfortable.

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

1. Zippers in inseam & outseam. Open them from the top to vent. Inseam also opens from bottom so pant leg can be lifted up & tucked into waist, converting to shorts. NOT stylish, maybe even odd, 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. (Conventional front fly is optional.)
4. Velcro ankle closures keep wind and dust off legs.

Pockets are normal, inset in side seam. I don't like bouncing pockets. 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.

The best way to get good fit is to send a comfortable pair of pants with your order, indicating any dimension changes wanted. Don't send stretchy or shrunk fit pants. If you only give us usual pants size we won't know 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 crotch room. If you intend to wear bulky underwear be sure to allow room for it. We can reduce girths and leg length after construction but increases will result in some strange extra seams!

Some people question the comfort of a crotch zipper, but users report it's unnoticed (and they prove it by buying additional pairs!). The crotch zip can be used with Vapor Barrier or thermal underwear if underwear has stretchy waist and can be pulled down out of the way. On request we'll make CONVERTA Pants with standard fly zipper instead of crotch zip. We note that others have recognized the advantage and are finally making clothing for women and men with full crotch zips.

Leg venting also works with porous and VB underwear. We suggest you buy our VB underpants when you get CONVERTA Pants and we have the dimensions.

"Love the shirt - X countried 7 mi. Sun. in the no-sweat: wine froze, we didn't. How about a Stephenson NS wine boata next"

My triple sleeping bag is just fantastic!! I was warm all the time even at -40°F with only a tent between me and the out-of-doors. The warmth and the light weight were beyond all expectations!! T.T.

CONVERTA Pants
NO SWEAT VB Shirt

I'VE FOUND THE NO SWEAT SHIRT TO BE TERRIFIC. I'M NORMALLY ONE OF THE COLD BODY TYPES. BUT THIS YEAR ON MY ADIRONDACK TRIP I WAS WEARING ONLY THE NSWEAT & A LIGHT WOOL SHIRT... AND MY CLOTHES NEVER GOT WET

Received the converta pants last monday and love em. They immediately fall into the same class of equipment as the 2R tent and my navy watch cap. When I go, they go. Fabric seems comfortable enough to me, even in hot weather without underwear. ROGER EDWARDS

STEPHENSON VB CLOTHING

The first popular use of VB protection was socks to keep feet warm and dry, and boots dry and unfrozen. Without VB socks, moisture evaporates from your foot, condenses on your boot, soaks socks and wets your feet with distilled fresh water, softening skin and promoting fungus and bacterial infection.

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 infections common with fresh water wetness.

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). When I read about WWII military use of rubber socks I 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 normally made from the smooth surface version of FUZZY STUFF. They are double layer, so the tough urethane film is captive between smooth nylon layers for comfort and durability. (Even if eventually delaminated they go on working well.) Sizing is based on your shoe size, so order by the largest shoe size you wear. If too big you can pin off excess then sew along pin lines or send to us to sew. If too small, exchange it. Put VB socks on first, then any kind of insulating socks you like over them. Adjust sock position so seams are not under your foot or where they might rub at a tight spot in your boot. When you remove boots and socks dry your feet to prevent chill and foot odor.

STEPHENSON NO SWEAT SHIRT

The Vapor Barrier "No Sweat" shirt is made like a sport shirt. 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 vapor seal and for neck protection. A pocket gives inside security for small items. This shirt 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.

STEPHENSON VB shirts were originally made to give people a low cost useful way to learn the value of Vapor Barrier insulation. It rapidly 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 and durability. Since then all Stephenson Vapor Barrier clothing and Warmlite sleeping bag interior bottoms have been made with FUZZY STUFF.

For shirt colors we'll try to send your highest color choice, but it will be limited to whatever we have at *that time*. We can't stock shirts in all colors and sizes, often some colors aren't available, and undershirt color isn't critical. We'll make VB shirts in custom sizes, but need extra $$ and a shirt that fits you for pattern, (which we return with VB shirt).

Vapor Barrier GLOVES

We used plastic and rubber gloves for VB protection of hands for many years, but they were 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 remaining problem since hands vary so much, and there are no real standards for glove sizes. 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 necessary.

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 the protection. Hands still cold? Read the section on alcohol.

By the way, I wore the No Sweat shirt I bought last October every day on a week long downhill skiing trip at Tahoe last week. It worked great! Usually, after a hard day of skiing, the inside of my parka is wet with sweat and my sweater and undershirt are damp and cold. But wearing the No Sweat shirt next to my skin kept everything dry and toasty warm. If fact, the first day of skiing I was too warm with my usual ski sweater so I wore a much lighter sweater the rest of the week. I'm passing the word on to all my skiing friends.

Vapor Barrier UNDERPANTS

Vapor barrier pants have not been used as much as other VB clothing for several reasons: you generate more heat in legs, and thus need less insulation there; previous VB fabrics weren't comfortable or durable; the limited market requires higher cost custom construction. FUZZY stuff has solved the problem of comfort and durability, so we now make VB pants to order only. We use simple construction to keep costs down, using soft FUZZY STUFF. 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'll 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. 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.

PONCHOS and Rain Jackets

When hiking in rain an umbrella or poncho is best for keeping dry from both the rain and your sweat. 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, produced for about 23 years, was discontinued when we couldn't get fabric coating good enough for it. Now the new siliconized coating on tent fabric and Fuzzy Stuff laminate are even better than the old good stuff, and tent fabric is lighter weight, so we'll custom 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 36" 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.) For now these will only be made to order, so you can select your color (from tent colors) and sizing.

For sizing, measure from top of your shoulder down front and back as far as you want it to drape (better too long than too short: you can always trim off excess. Edges are unseamed, hot cut to prevent fraying, can be trimmed with scissors and sealed with solder iron.) 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 will be full width of the fabric, about 65". Weight typically 8 to 10 ounces.

The rain jacket is same as our vapor barrier shirt, but made from the same fabric as ponchos, with or without a hood like the poncho, and you are provided with seam sealer (if you plan to use it mostly for wind and light rain you may prefer to NOT seam seal it). Size will be 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 should not be lower than top of a leg raised up for a high step.) Weight typically about 6 ounces.

Colors same as available for tent. Ponchos and rainjackets can also be made from "Fuzzy Stuff" for softer drape, wicking inner surface, higher strength and maybe longer coating life, but weight is about doubled.

Joan and Jack Stephenson, naturally

To me, the number one advantage of the no-sweat shirt has been that it keeps my clothes dry; number two, that it vastly delays the chill upon stopping temporarily, particularly in a breezy spot; and last, that it adds a lot of warmth (... but this last because that benefit is available without a no-sweat shirt by adding insulation--but the others aren't). Now I can add a fourth, that it contributes materially to comfort and survival when one goes through the ice. While I don't plan to do it again, that advantage will move to top place if and when I do. D.A.

Jack Stephenson —

I have never written a product testimonial before, but your wonderful products leave me no choice... they're wonderful!

I was first introduced to your products when I purchased a Vapor Barrier "No-Sweat" shirt in the Summer of 1973.

That October I was caught in a surprise bivouac on the summit of New Hampshire's Mt. Adams.

Although I had no sleeping bag and no tent, I was able to survive 15° temps and 40 mph winds throughout the long night.

I credit your VB shirt as the primary contribution to my survival that night.

Thank you for building products with imagination and integrity.

John P. Miller

6 July 87

P.S. Your 2R tent is the best I have ever owned! I will soon be ordering a 3R for extended winter treks. Thanks again!

I went thru the most ferocious rainstorm I've ever seen in your tent. Watched lightning crackle across the sky thru the translucent nylon! L.K.

- just returned from another 6 week canoe trip in Northwest Territories and again my Warmlite tent performed admirably under the wind and weather extremes which are expected there. JS

I wish to take this opportunity to comment on both your bag and tent for which I am very grateful to be an owner. Superbly done in both cases. Your "system" has been the envy of many and the pride and comfort of yours truly. Thank you. MW

Your tent has been my pride and joy - think I'd even fight off a mama bear with cub to keep it from being damaged -

Having sold bags for R.E.I. I could have bought anything they have for less than cost, but I consider your bag with its double tops, Integral pad and all around zippers to be the best available. Concerning goose down, I've never had a customer who bought a down bag and knew how to care for it complain about his purchase, but synthetics - whew! People expect them to last forever, be impervious to water and dirt etc. etc. etc. If they knew how many more stuffing sessions they'd get out of a down bag (total usage life) they'd have bought down and been happier.

Nothing is better than Stephenson's No Sweat shirt

Dear Friends,

It's been 2½ years now since I bought my Warmlite Sleeping Triple bag from you for my summer on Mt Logan (19,850') in the Yukon of Canada. We had terrible weather that summer where it often averaged -20°F and where -40°F was a common experience and 0°F was really warm. In that land of endless cold, a good sleeping bag was really a life-saver and I used to be kidded a lot because I often would say in my sleep, "my bag is really warm!" - I guess the contrast between cold and warm was one of the sharpest distinctions I had ever known. After Logan I didn't have to retire my bag like the others up there because it works well in warm weather too - and those heavy expedition bags are only good if its really cold. In the years since, my bag's been everywhere in all kinds of weather and I have become slowly very sold on your unique design - its nice to see someone's thinking these days.

-expedition successful. I reached the magnetic North Pole alone. on skis! I lived thru 3 storms. -48°F. rough ice. 7 bears..I was on the edge of survival. Your sleeping bag was just amazing. very warm all the time. The VB interior was really cozy. The VB shirt and sox were also great - I skied with only your Vb sox and thin liner sox. didn't need thick sox with your VB sox. The 2R tent was great in storms. but it got away from me in the last storm so all I had for survival during the last 7 days was your clothing and sleeping bag. There is no doubt you make amazing gear. You will never know how much I appreciated that sleeping bag. It was bone chilling day after day but I always had my warm sleeping bag to look forward to. Helen Thayer

(I believe Helen was 1st woman to ski to the north pole. Jack)

WHY VAPOR BARRIER?

During the 50's many more people started mountaineering & backpacking. When it rained they wore rain wear which had worked well when inactive, but that EXTRA layer of clothing caused overheat, sweat and wet clothes. Smart ones avoided overheat by wearing less clothes under their rainwear. Thoughtless ones blamed the rainwear for their overheat. Since they were cooler with their porus clothes before they added that EXTRA layer, they sought porus so called "breathable" rainwear in a vain hope it would be cooler.

Most rainwear and sailing foul weather gear is made of coated nonporous fabric. Even Goretex is only about 1/20 as porous as uncoated fabric and works better as a vapor BARRIER. Most people use Goretex for WARMTH, not coolness. We know that rain gear can provide warmth ONLY if it is kept tightly closed at neck and wrists so air can't flow up thru it. Adding ANY layer of even the most porus clothing can make us MUCH warmer IF wind doesn't blow thru it. Most ski parkas and snowmobile suits are coated on the inner surface of outer fabric to block wind penetration. But warmth is lost if it's open at the bottom and neck so cold 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. Wickable underwear may move wet sweat caused by overheat away from your skin, decreasing evaporative cooling when it is desired THEN, and wetting outer clothes so they won't be warm LATER. But, wickable underwear can't stop evaporative cooling when you are cool and moisture evaporates from within your skin (insensible "sweat"), since that moisture is never on the surface where it can be removed by wicking. Water vapor has very high energy (the heat used to *evaporate* 1 lb. of water will warm 1080 lbs. 1 deg!), and diffuses rapidly thru porus clothes to cold outer areas where the heat is lost, condensing it back to cold water (which destroys insulation.) The condensation lowers humidity again, so more chilling evaporation occurs in your skin. Even if outer fabric is completely porus the vapor will condense where temperature reaches dew point in the clothes. A waterproof outer layer ("breathable" or not) keeps the water IN, out of sight, so you don't realize you're losing insulation until later, when miserably COLD.

When moisturizing insensible sweat can't keep up with rapid evaporation, your skin gets dry, chapped, and is more likely to suffer frostbite. When 32°F outside, evaporative chilling makes it feel like 12°

If your heat loss equals production you stay comfortable. If your activity then produces more heat you overheat and sweat to increase evaporative cooling. WHEN you notice wetness from sweat you'll vent or remove excess clothing to allow cooling evaporation and increased convective heat loss, cooling you so sensible sweating stops and your skin is soon dry. But even then, if relative humidity of the air next to your skin is less than 100%, moisture in your skin will continue to evaporate, cooling and drying your skin excessively. If humidity next to your skin reaches 100% (meaning it can't hold any more water vapor), evaporation stops, chilling stops, and insensible sweating 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.

Usually in cold weather the outside relative humidity is near 100% so outside air can't accept more humidity, and thus most of the moisture evaporated from your skin condenses in the outer layers of your clothes. If you wear wickable clothes, sweat from overheat wicks off your skin so it can't cool you, and you don't notice the overheat. The sweat soaks your clothing, 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 finally tire and slow down or stop, and *need your insulation*, you find it is wet and useless. 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.

Wickable clothing worn indoors can let you ignore short periods of overheat, so you feel comfortable. Please note that it's wickable and moisture absorbing fabric that aids comfort then, not just porus or so called "breathable" stuff. 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.

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.

Vapor barrier insulation has been used in homes for over 80 years, and in clothing since 1944. It took about 45 years for ignorance and stupidity to be overcome in the building industry and get vapor barrier recognized as essential. The argument was that porosity was needed to dry out water found in walls, ignoring the fact that it was the porosity that let water vapor in to condense to water. It's not surprising to hear almost the same argument today against vapor barrier in clothing!

The main 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 18° added warmth from humidity retention of VB. It is 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!

It's reported that you lose up to four pounds of water each night thru evaporation of insensible "sweat", when sleeping in a porus "breathable" bag in cold weather. Weighing of porous sleeping bags in the morning usually shows two to four pounds weight 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. It takes 1080 BTU of heat from you to evaporate one pound of sweat. It takes 140 BTU to melt one pound of ice. Thus the heat to evaporate four pounds of sweat is enough to melt 31 pounds of ice! (4 x 1080/140 = 31). Would you take 31 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 and heat loss 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 reduce dehydration.

VB is waterproof, so blocks the problem of wetting clothes from sweat, and allows you to detect overheat and correct for it immediately. 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". VB preserves insulation AND keeps us up to 18° warmer (IF kept snugly closed! If vented all the heat saving is lost, but sweat detection and protection of clothes remains.)

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 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 hottub and you'll immediately feel hot while actually being cold. As you warm, your skin gets accustomed to the warmth so you don't feel as hot! Get out when sweating from overheat and you immediately feel cold! Dry off and you feel warm. We rely on sweating to warn us of overheat, but shouldn't be misled by local sweating only. VB clothing that doesn't wick sweat across it's surface is likely to be uncomfortable and mislead us into too frequent insulation adjustments, 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. Heat stroke or heat exhaustion is caused by not being aware of and correcting for overheat it. Wicking clothing makes you unaware of sweating, so can be dangerous.

How do users of VB react? Generally with orders for more VB clothing and sleeping bags, and recommendations to their friends. Since 1967 we've sold about 9500 VB lined sleeping bags, and only about 1 out of 900 customers object to having to consciously adjust insulation. But even they agree that VB is good for extra warmth and insulation protection when it's below freezing. 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!

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 bags for the much longer south pole trip and thus kept the bags dry and warm the whole trip.

VB in a sleeping bag causes 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.) 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!

VB clothing has other benefits:

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

If you must change your shirt due to sweat odors in less than 3 days 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.

(Polypropolene 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.

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*.

During World War II US cold weather troops used 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 response to coated fabrics, insufficient education, and problems with tie in bag liners, led most to drop VB. Most 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. 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!

Alcohol: We consume alcoholic drinks in summer to cool us. Alcohol 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 (even with a blood alcohol level that is barely noticeable: more *doesn't* work better). That's the reason for the bad idea 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 when torso is too warm!

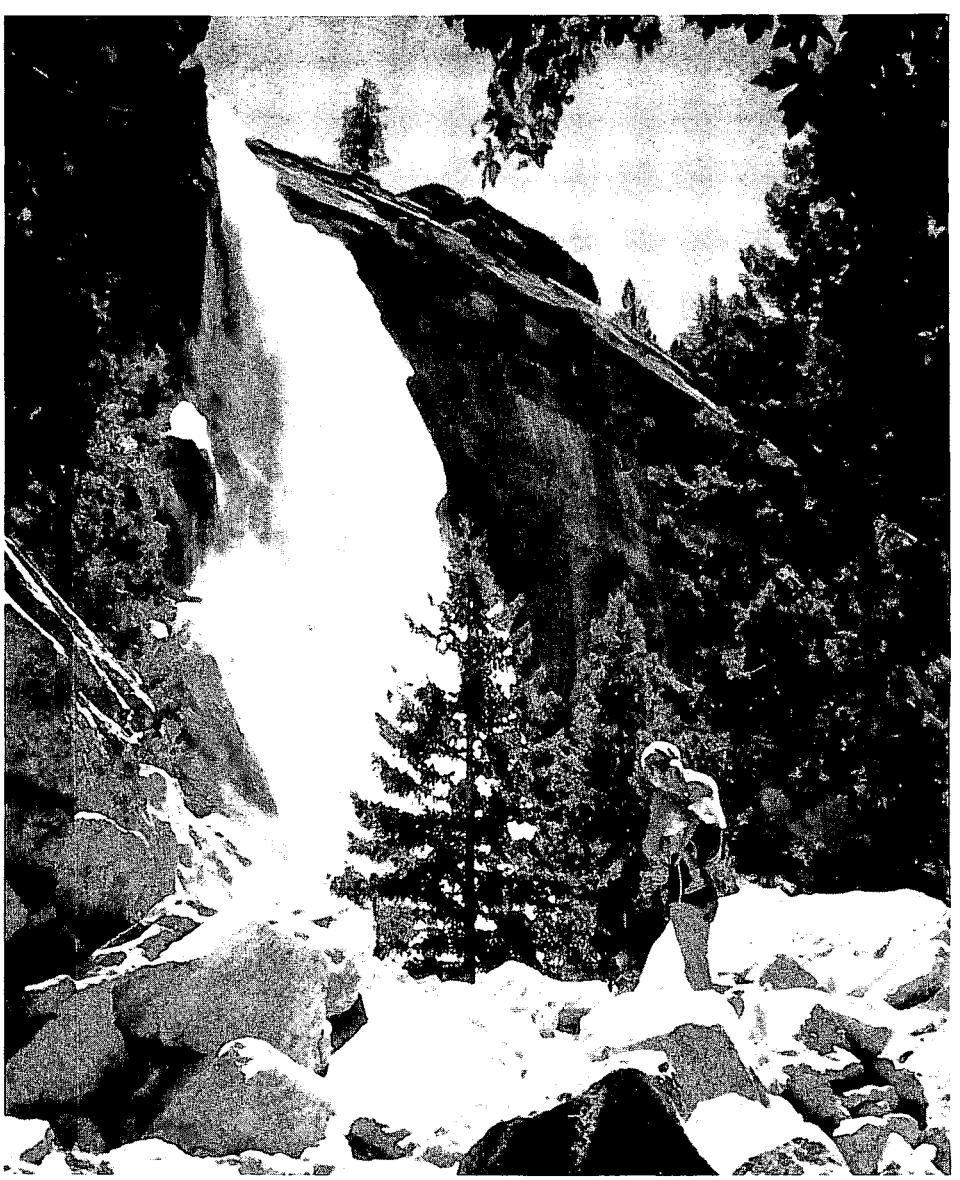
Various complicated methods have been tried to externally move excess core heat out to hands and feet, while ignoring & condemning the known method to use natural internal heat distribution. To maintain good circulation to extremities, avoid dehydration by avoiding sweat loss from overheat and by drinking 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 drink an ounce of alcohol or less per hour. 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.

An interesting question was recently asked about causes of heat stroke or heat exhaustion. Those are caused by gross overheating of the body. We generally sense how warm or cold we are by RATE of CHANGE in skin temperature, or by wetness due to sweating from overheat. Since Vapor Barrier clothing is waterproof, you will notice the first sign of overheat by the wetness you feel, and will THEN correct your insulating layers as needed, thus avoiding heat stroke.

If you have "breathable" absorptive and wicking underwear and outer layers, you can get grossly overheated and suffer heat stroke without ever being aware of any wetness from the heavy sweat your body produces in it's futile effort for cooling.

"How come my polypro underwear gets terribly stinky, but when I use the Vapor Barrier shirt I get no odors on the shirt?" Polypropolene underwear wicks away the WATER in your sweat, but clings to the oils. Since you are not aware of the overheat, due to wicking away of sweat (and thus prevent the evaporative cooling the body expected), you can sweat much more than normal, leaving the polypro underwear saturated with body oils. Air turns the oil rancid, producing the bad odors. Most soaps and detergents can't remove those rancid oils from polypro, so the odor remains.

With Vapor Barrier underwear you detect, and stop, the first sign of sweat from overheat, and thus very little sweat or oils get on the shirt (and NONE gets on your outer layers). The VB also blocks air contact with the sweat oils while your are wearing it and it is warm, so the oils don't turn rancid then. When you remove the shirt it rapidly cools, so oil reaction with the air is slowed. Body oils don't stick well to the VB film, so wash off easily with gentle hand washing in almost any mild soap or detergent.



Joan and Laura Jean below Nevada Falls Yosemite Park

BAFFLE DESIGN

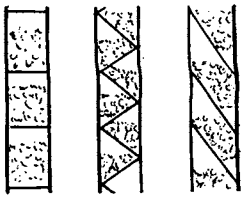
There has been a baffling amount of misinformation spread around concerning baffle design in down sleeping bags. Most of theirs appear to be based on rigid construction, using a heat conductive material (such as sheet aluminum), which repells down, for the baffles. But, in actual practice, all down baffles are constructed with soft, non-conductive fabric which the down clings to. The two functions of a baffle are to constrain the inner and outer covers from moving apart more than the down can expand, and to prevent lateral shift of the down. If the baffles allow more volume between the covers than the volume of down fill, then the down can easily fall off to the lower areas (along sides), leaving a thin, cold top.

Goose down is an expandable insulator, but, like a spring, it will only expand to a certain volume. If the covers of a sleeping bag were perfectly rigid, and thus could not spread apart more than the down could expand, then the down could not shift in any direction. But, sleeping bags are made of soft fabric, which can easily spread apart. With no baffles (or with oversize baffles which do not limit fabric spread), the down will simply fall to the lowest areas, spreading fabric apart to make room, leaving the top thin and cold. If baffles are sewn in such a way that the fabric can't spread more than the fill thickness, then there will be no room for the down to fall into, so it must stay in place. Presently, there are three baffle systems which meet this requirement: quilt (sewn thru), v baffles, and vertical baffles. Quilt construction leaves lines of no insulation, and thus is only used on very crude, cheap bags, or with two quilt layers with sewn thru lines offset. The double quilt requires 2 extra fabric layers, and thus is excessively heavy. A simplification of the double quilt is the V baffle system This is often refered to as overlap tube construction. Each section or "tube" of down formed by baffles, has a thick center and thin edges. The thin edges would be cold (like quilt construction), but it overlaps the thick section of adjacent tube, thus curing the *mythical* problem. Actually, the down is just a unformly thick layer, and putting a baffle thru it on an angle does not change the thickness. It is possible that the small angle a v baffle makes with the cover could keep down out of the corner, thus leaving a void. It is more likely that down will be pushed into the corner, will stick there, then be overcompressed when bag is stretched out, thus decreasing loft. The main disadvantage of v baffle is excessive fabric weight. A vertical baffle does the required job most directly, with minimum fabric weight, and avoids the acute angles between baffle and cover, thus avoiding weight, and avoids the acute angles between baffle and cover, thus avoiding over compressing down caught in the corner, or voids caused by down kept out of the corner.

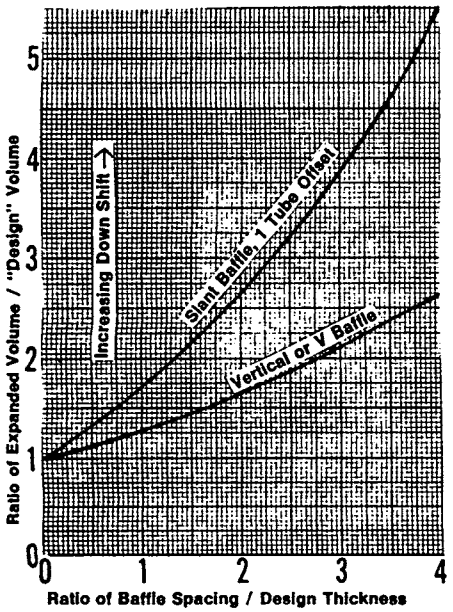
Obviously the space between baffles can expand. Thus, the maximum space will be greater than the rectangular space indicated by flat surfaces. The ratio of fully expanded volume to flat surface volume depends on the ratio of designed *baffle* depth to baffle spacing. A plot of this ratio is shown below. To achieve a given average thickness, with no down shift, the baffles must hold covers slightly closer together where sewn, and down fill must be adequate to expand covers to the fully expanded condition. — The sketches show how covers will appear when flat, in "design" position, and when fully expanded, for a typical 4" design thickness and 6" baffle space. — You can see why slant baffle bags are notorious for large down shifts, due to expansion ratio of 2.15 for the typical 6" spacing and 4" thickness. A vertical box baffle could be spaced 12.8" apart with down shift no worse than the slant baffle with 6" spacing!

You must wonder then, why so many others use slant baffles. The reasons are varied, but, the most common is simply "so and so does it, and has so much advertizing for it, that we simply must do the same". It appears that the real reason it got started was overselling of the "overlapping tube" idea of v baffles, by Holubar. When they wanted to make a cheaper, lighter bag, they simply eliminated ½ of the v, so they could still show "overlapping tubes", totally ignoring the fact that they lost the required cover restraint when they removed half the baffling.

A major reason for continuing with slant baffles, despite all the complaints about down shift, is ease of selling underfilled bags in the typical hanging rack. When hung from the foot, vertically, the underfill is not so obvious with slant baffles as with vertical baffles. As the sketch below shows, you can easily see light thru the unfilled areas of the underfilled vertical baffle bag, while the overlapping sections of slant or v baffle make the underfill less obvious, altho all would have similar heat loss.



If you plan to sleep standing up, possibly the slant, or v baffle would be a good idea, but not many people sleep standing up.

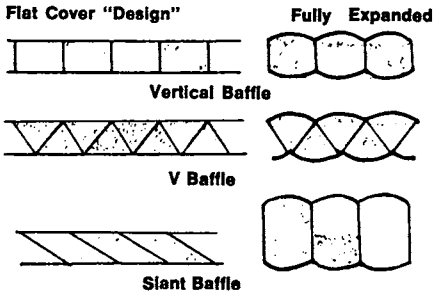


To detect such under filled bags, hold the bag horizontally, by one side, and *gently* shake it, then lay flat on floor and observe down shift by loft difference between sides. (Violent shaking can pack the down, compressing it, and thus mislead you. In use you will not shake the bag violently, but you will gently shake it.) Slant baffles being grossly under filled by design have very large down shift, and thus should always be highly undesireable. Even considerably underfilled vertical or v baffle bags will have less shift than slant baffled bags, and probably will be quite useful as long as you carefully distribute the down evenly before each use, and avoid active tossing and turning.

There is one exception I know of, regarding slant baffle bags. North Face (in Berkeley, Calif.) calls their bags slant baffle, when in fact, they approximate vertical baffles, since they use undersize baffles, only slightly offset, than fill to almost full expansion, resulting in vertical baffles with twisted ends. Their construction and materials are otherwise as good, or better, than most others, and thus their advertizing of slant baffles should not be taken as a disqualifying defect.

Various materials are used for baffles, for various reasons. Porus, non down proof fabrics are generally preferred, since some of the down can stick to the baffle, thus holding down in place. This is especially important in underfilled bags, and you'll notice an emphasis on net, or loose knit baffling in bags which have had problems with down shift. We have heard of net baffles tearing loose, but that was generally due to mistreatment. We simply use the same basic fabric for baffles as for covers, only in the as woven condition (not heat shrunk or pressed, and thus not down proof). It is softer and slightly stronger in that condition.

It is possible to have down restricted too much. When you pack a bag you must compress the down, and in so doing you are likely to shift the down. When the bag is unrolled, light shaking and patting will normally distribute the down properly *if* the tubes are not too small, or restricted by down stuck to baffles (as often is the case with close v baffles). This was apparently enough of a problem with Holubar bags to influence them to build lengthwise baffles into their "Ultimate", thus making each tube ⅓ as long as normal. Unfortunately,



All illustrations for 6" space, 4" design thickness.

that "cure" eliminates the capability of intentionally pushing the down out to the sides to make a thinner top for warm weather use.

By now you may be wondering why everyone uses cross baffles, instead of lengthwise baffles, since there would be less tendency for shift during use with lengthwise baffles. The problems with lengthwise tubes are the much greater tendency to shift while packing; the difficulty in redistributing over a longer tube; difficulty in thinning uniformly in warm weather; and problems with layout and marking on tapered bags. With properly baffled and filled bags there is no problem with down shift with cross tubes, and the makers of improperly baffled and filled bag obviously don't know enough, or care enough, to make lengthwise baffled bags. There is also the bad image problem: Some very poor down bags were made in the past with lengthwise baffles, so considerable advertizing effort was put into convincing people to identify quality with cross tubes, junk with lengthwise tubes, (similar to recent efforts to identify center top zippers with junk simply because some very poor quality bags have center top zippers.

SEAM CONSTRUCTION

Many ways of seaming fabric have been developed to achieve strength, durability, appearance & to correct fabric problems, such as raveling. Unfortunately the seams that were developed to work best on cotton are far from the best for nylon, yet continue to be CLAIMED as the best by many un- or mis-educated writers of books, magazine articles, and catalogs. If the fabric edge can be pulled apart (frayed) AND the threads are sticky enough to resist pulling more than a few threads at a time, then a necessary and sufficient way to seam it is to fold back the raw edge into the seam (such as flat felled seams) or to cover the edge with a piece of binding tape (very popular due to simplicity with automatic binders). These methods work well on tightly woven cotton, acrylics, and knits. The typical Nylons used in most light backpacking gear has very slippery thread. If cut like cotton normally is, a seam can easily pull out despite using the best seam.

The only way seams in woven Nylon (such as ripstop, taffetas, twills) can be made absolutely secure is to hot cut (fuse) the edges, or glue edges with coating and seam sealant. If either of these methods is used the edge can be treated like a woven edge and seams designed for maximum strength, smoothness, ease of seam sealing, or appearance, as needed in the product. Good design will avoid putting seams at points of maximum loads, so that seams are seldom loaded to the strength of the fabric. But beware: HANDLING can often put far higher loads on seams than any other use. Hang on to a tent next to a top middle seam that never gets any load when set up, while it flaps wildly in a wind, and you can easily overload it or the fabric. Baffle seams on bags get almost no load in use, but could be grossly overloaded in a washing machine.

Only a couple of manufacturers bother to hot cut Nylon parts. If you buy it in a store you can be sure all edges are knife cut: a sure way to check is to look for edges folded under, or binding tape hiding the cut edge. If the item is otherwise acceptable to you, and you buy it, first thing to do is coat all seams with seam sealant that will glue edges firmly together. Adhesive-sealant that we sell, and sealants that work on Goretex will generally work well. But, if it has a water repellant finish, or you are in doubt, then ask for our prepolymer adhesive sealant, which sticks to almost anything, but must be used soon since it is likely to cure in the can in a month or two.

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: used for smooth 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, altho 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 are used for that, making 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. This is widely used on sleeping bag baffles when coarse, easily abraded thread is used (such as cotton or polyester), but it makes a stiffer, lumpy seam and puts exterior fabric loads directly on the thread.

EXTERIOR EDGES: Folded in , makes a neat balanced seam with minimum bulk. ROLLED for hiding edges that are likely to fray. Other methods are BOUND , and SERGED (zigzag stitch around edge) often used on knits and cheap clothing.

Often you will read in books & magazines that the mark of good construction is use of flat felled seams. You should 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!

" our 1000 mi PCT hike was completed in 50 days. Everywhere we went people were impressed by your tent & bag".

"We found a spot & set up my tent with wind blowing across it. We left our 50# packs outside. The wind reached such amazing speeds it blew our packs 5' into some boulders, but your tent endured!"

"We went to Pt. Reyes & it was extremely windy. Tents were blowing down all over. We noticed ONE that did not, & when we inquired about it found it was a WARMLITE tent. The people were very satisfied with it!"

STEPHENSONS 1997-98 to?
WARMLITE TRIPLE BAGS

AIR means with D.A.M bottom (can use special foam)
FOAM means with FOAM bottom pad (can't use D.A.M.)
ALU means Standard aluminized coated inside of tops
VS means VAP-R-SOFT on inside of tops (+6 to 8 oz.)
56 to 70" girth bags stocked, mostly standard heights

Bag Girth	52"	56"	60"	64"	70"	76
FOAM, ALU	$399	500	560	600	660	720
FOAM, VS	$457	538	598	638	700	760
AIR, ALU	$500	580	640	680	750	810
AIR, VS	$537	618	678	718	790	850

Includes pad, carry (& pump) sack. Under 52" girth less $7.00/inch of less girth. Over 76" add $15 + $11/inch of extra girth. Between standard sizes use next higher price. ALWAYS state girth based on measurement, NOT from the standard height vs. girth chart. State your height, and whether you want it with standard or special height. Include COLOR!

OPTIONS for WARMLITE BAGS

1. Net top for tropical uses	$55
2. Waterproof covers, not recommended, bottom $55, top	$48
3. Waterproof Bivy (state side for 1/2 zip) (NR)	$90
4. Replacement foam pad, give dimensions	$45
5. Replacement or Oversize carry or pump sack	$10
6. Down Air Mat (D.A.M.) with pump sack - - -	$140

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
Big door opening extra zips, each door $15
Wind stab. 2R $12, 3R $24, 5R all poles $45
E = End liners 2R $75, 3R $95, 5R $120
D = Drop end, Model 2 or 3 $65, Model 5 $80
D plus E: 2R $160 3R $175 5R $240
Mixed colors no extra charge, get colorful!
Aluminum top: 2R $80 3R $95 5R $130
Mid Pole (sleeve is in tents) 3R=$55 5R=$75
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 $7.50
describe exact section needed!
Complete 3/8" rear pole for model 2 tent $45
3/8" rear or front 15" section $7
Complete 5/8" 5R pole $125 Section $9
Stakes, reinforced plastic, 12" $1
Extra or replacement tent CARRY sack --- $7
Repair labor, per hour $47
Seam seal 2R, X $40; 3R, X $45; 5R, X $65
Recoat pre-95 Urethane coated tents, tent MUST be clean: top or liner, 2R, X $40; 3R, X $50 5R, X $76. Floor 2 or 3, $45; 5R, X $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 any defects in construction as best we can at any time, but "cosmetic" flaws aren't considered defects after 30 days! We can't accept return of anything custom made that's not like normal stock, such as pants, or odd colors or options rarely sold such as waterproof bag covers, tents with Endliners or Dropfront. If in doubt, ask first.

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 old catalogs aren't correct 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 $30 Lg & Xlg $35
VB PANTS Overlap fly $39 Zip fly $49
SOCKS $8 (give shoe size) Glove liners $15 (give hand tracing)

RAIN WEAR

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

CONVERTA PANTS

Nomex Aramid (modified Nylon), made to order, see text $105

SLING-LIGHT chairs, Backpack sacks

Chair $75. Head rest $25 These remain popular due to 1lb. weight and comfort, despite cost. Color as available, sometimes red, blue, or green.

GOLITE BACKPACK replacement sacks $45. Include snap placement dimensions from frame, sack color(s) wanted, and type (mostly U zips). A few frames remain, only for small well formed women who NEED the light weight and comfort. Call or write for details.

MATERIALS

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

1.6oz. urethane coated Nylon, green, yellow, brown 56" $3
1.6oz. Daran coated polyester, 44" yellow, lt blue, green $3
1.6oz. aluminized urethane coated ripstop Nylon 61" $10
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/sq.yd.
2.2oz brushed laminate, Soft FUZZY Stuff, various color $9
Nomex, tan, blue, black, dull green, as available $24
Insect netting, polyester "noseeum" or standard mesh $4
ZIPPERS, all YKK, the best, price = $.08/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
Silicone adhesive sealer 2.8 or 3 oz $5
CLEAR FILMS for window insulation, per yd., 20 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 COST ESTIMATES: UPS Ground $3.40+ $.40/lb., 2nd day AIR, 48 states $7 +$1/lb. AK or HI $11+ $1.25/lb. Rural AK $21+ $1.50/lb. Insurance, UPS $.40/$100 value. Post Ofc. $.80 + $1/$100, limit $600
With rate charts add $1 for charges not shown in rates. Canada $6+ $1.50/lb or pick it up in US to avoid post office and customs delays and charges. Other foreign $6+$6/lb. or check post office.

Customer comments:

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!"

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

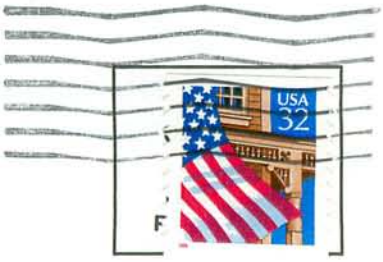
A brief note of thanks for an outstanding tent - years of extensive use in White mtns, Adirondacks and Alaska (McKinley park for 2 months, 9 days of torrential rains) and NO problems! S.M.

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

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? GG

STEPHENSONS
22 Hook Rd.
Gilford, NH 03246

MANCHESTER, NH 03
PM
1 DEC
1997



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FIRST CLASS

DATED MATERIAL
REQUESTED CATALOG

Casey Gardner
551 Wisconsin St.
San Fran CA 94107

94107/2731 31

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. '89

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

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! BB '89

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. DT

I purchased 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 '87

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.

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 the 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. LD.

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. BG.

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

Polar Bridge Expedition

When I first heard of your equipment in the 70's, I figured you're about 10 years ahead of your time - I guess things won't stay the same. Thankyou for your support

Laurie Dexter

Pub Rec Moss (514) 694-360[illegible] Richard Weber

-- 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.

I want to thank you again for your hospitality and for the stimulating conversation. It was a special treat to meet the man that "Traveler" speaks so highly of. SG.

- our Warmlite sleeping bags work well keeping us warm well below -10°. The most useful feature however is the vapor barrier which I can highly recommend. I no longer wake up at 3 am thirsty - and can dry out a great deal of wet clothing while the bag stays completely dry! BD '81

It has been my recent pleasure to be introduced to one of your well designed, cozy, embracing, sheltering, loving sleeping bags thru a similarly fond friend of quality. CH. '82

Have recently tested your tent (3RY), I must say I'll be damned if I've ever seen a better one! With three people and tubs of junk there was still more room than you could shake a stick at

The excerpts from letters (and more inside), show that our customers are having as much fun as we are, and also explains our very small advertizing budget. We have a file drawer full of letters like these, most too long to print, many with wonderful stories of great times and amazing survivals, and good pictures. We love to hear about all the places our equipment goes to, even if we can only dream of such adventure while we cruise naturally in the Caribbean, hike, ski or sail in NH. Join us sometime. Jack Stephenson