DIY Armor

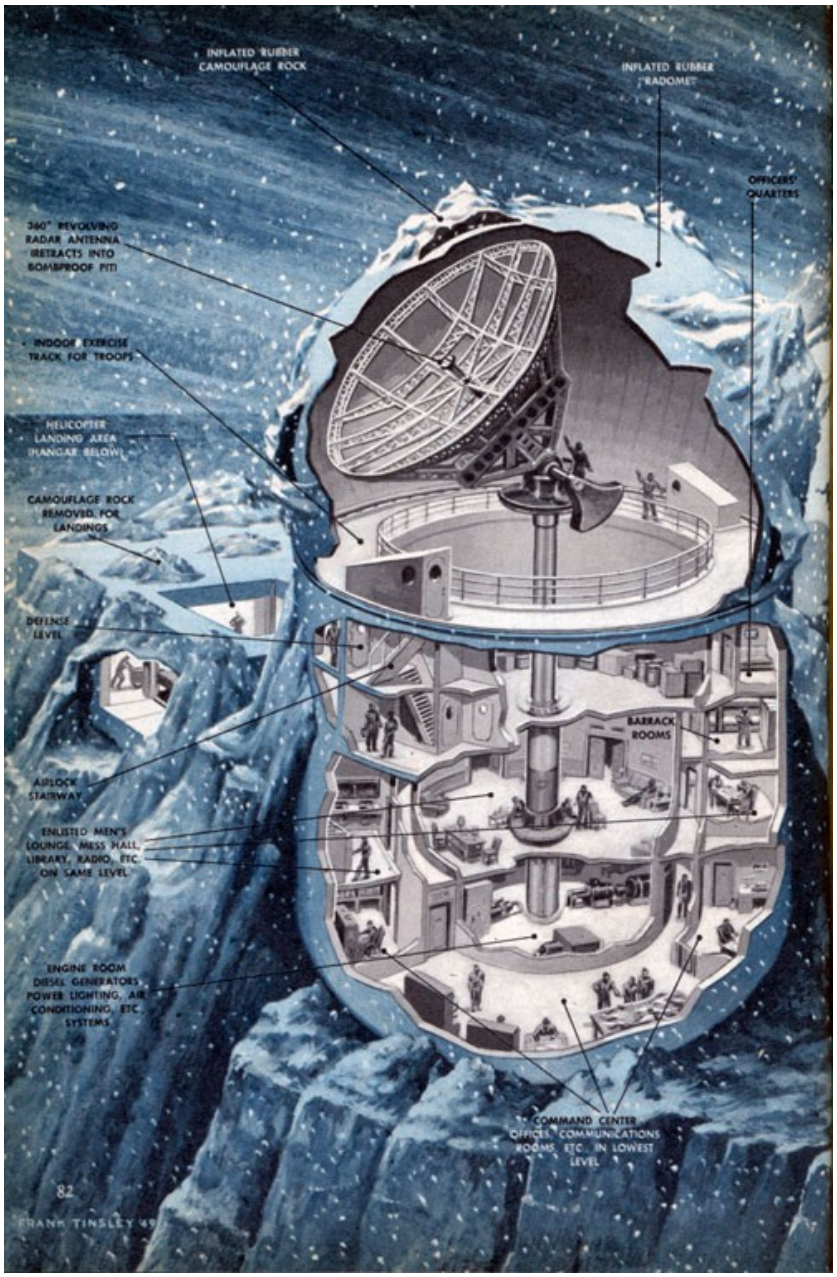
How to make impact-resistant basic body armor from commonly found waste materials

Summer 2008

Documents, like the one called either “Shieldbook” or “Bodyhammer”, have been making the rounds for a few years now. Drawing inspiration from such attempts at increasing the capabilities of the average street protester, we have invested time, energy, and very little money in developing a set of armor that is easily reproducible while partially effective at protecting the peaceful protester from the violence of the police. By following the method described below, even one person with minimal access to tools and workspace can complete a usable set of armor or three in an afternoon's work.

Much of the original inspiration for this project came from pages 16 & 17 of “Shieldbook,” as noted above. The current design is the result of more than a year of experimental prototypes, with testing in both the laboratory and the field. We are confident that the wearer will be

From the Bunker



protected from blunt-force attacks against several vulnerable parts of the body, while retaining almost full mobility and agility. Additionally, the armor can be worn rather well under a long-sleeved, hooded sweatshirt. Testing has NOT been conducted determining resistance to higher-velocity, piercing-type weapons, such as the barbs of a Taser, but we're sure you're better off with the armor than without it.

Our design covers the chest, upper to mid abdomen, much of the collarbone region, the shoulders, and the spine down to the lumbar region. It is roughly the equivalent of a combination of a cuirass (chest/torso) and pair of spaulders (shoulder pads) from medieval European plate armor. Anyone employing our armor is strongly advised to use it in conjunction with an athletic cup (“jock strap”), a suitable helmet (discussed at length in “Shieldbook”), and gloves. Leg and arm protection, for

which we as of yet have no designs, will also prove useful.

_____RESOURCES__

The key component in our system is the common five- or six- gallon plastic bucket. These can commonly be found stacked neatly behind restaurants or in a dumpster as garbage. They are often used to ship soy sauce, pickles and sauerkraut among other things – target your supply missions according to local availability. Try to avoid using buckets with residues of toxic chemicals. These buckets are also useful as garden planters, components of a greywater system, or 1001 other handy-dandy around-the-house-uses, so you should stock up whenever possible. You want #2 plastic, also called High-Density Polyethylene or HDPE. HDPE is a highly durable, chemical resistant plastic often used to make containers, with a melting point of 230° Fahrenheit.

Interesting further reading:

www.alchemyarmory.com
www.darkvictory.com
www.arador.com
en.wikipedia.org/wiki/Hdpe
“Shieldbook” can be found with a google (or scroogle.org) search.

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user reviews. We are distributing this information not only to show people how to copy our work, but hopefully to encourage others to do their own tinkering and improve on our designs. We particularly need help in solving the 'Boob Problem,' as it's much more difficult to built armor for people whose chests are not flat.

We feel this work is important... if every peaceful protester who found themselves in potentially dangerous situations was equipped with this simple-to-build armor, not only would they be able to stay in the field longer, but they would have a psychological advantage over an unarmored protester due to increased confidence of avoiding injury. Remember – the cops are only as effective as their training and equipment. The same goes for us. We need every force multiplier we can get.

To bind our bucket bits together, some kind of cordage is necessary. We like bike tube cut into strips roughly 1” X 10”, because of its elasticity, hardiness and dumpsterability, but parachute cord, webbing, or sturdy thin rope will probably work also. Make sure you test in your lab before you try it in the streets!

Some sort of undo-able and adjustable strap will make it much easier to take on or off the armor, as well as adjust it to your particular body shape. This could be webbing with either plastic buckles or adjustment rings, like the sort on an old backpack or bike helmet, or some sort of laces that can be tied either in front or on the side. Be inventive and use whatever you have laying around, or whatever you like best.

Finally, you may want extra padding to the inside surfaces or the armor, such as foam, corrugated cardboard, or fabric, to increase comfort, add

more protection, or as insulation in cold weather. Spray adhesive and closed-cell sleeping pads have been recommended.

As far as tools go, the absolute bare minimum you need is a hacksaw blade (metal cutting, $1-3 most places) and a decent knife to cut your cordage and drill holes with. If you can get a hacksaw frame, it'll come in handy. Better yet, get a power drill, a reciprocating saw/sawzall, and some sort of bench vise or sawhorse with clamps to hold things steady for you. If you have access to a nicer workshop, dust off that drill press and band saw or scroll saw. Optimally, you'll have a fully equipped HDPE molding and casting facility, in which case, hook us up already, OK? We're not kidding – some SCA reenactors make really nice full-body stuff based on actual period designs – check out the websites at the end of this zine.

_____PRODUCTION__

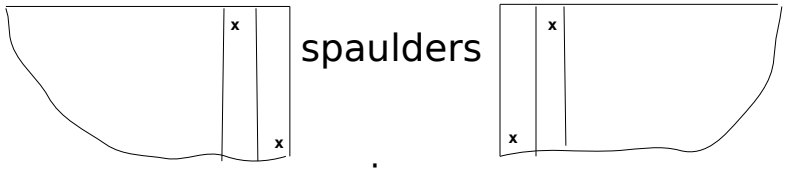
STEP 10:
Take your cordage and string it all together. Working from the bottom of the front up to the shoulders and down the back, tie the molded semicircle to the bottom of the cuirass, then secure the reinforcing strip to the front of the plate. Tie the spaulders to the top of the cuirass, rounded edges facing forwards, pointy ends out, then tie the other end to the back plate (make sure you leave a few inches of slack in the spaulder ties). Finally, secure the flat semicircle to the bottom of the back plate.

Drill a few more holes in the sides where the front and back plates are near each other, string through your straps, and you're done!

_____FINAL THOUGHTS__

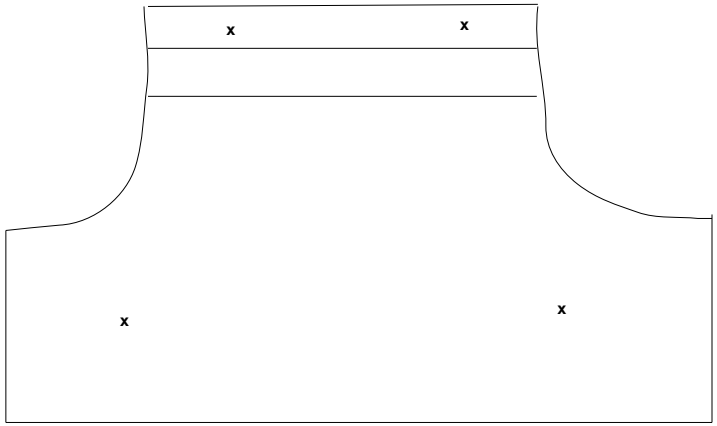
This project is a work in progress. Our prototypes are certain to evolve as we receive more field testing data and

STEP 9:
Drill holes in the following locations:



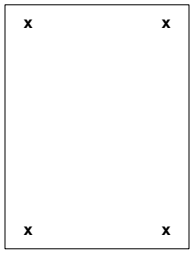
spaulders

cuirass

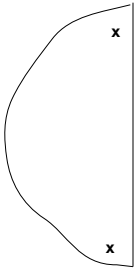


reinforcing strip

back plate



semicircles



While one person can do this all by themselves, having two or four people working at once will make it go a lot faster. There's 10 steps in these directions, so it's possible to set up an assembly line in your garage and get a whole bunch of these built in only a couple of days.

STEP 1:
Begin by removing the metal handle from the bucket. Save the plastic handle part for making shields.

STEP 2:
Saw off the bottom 'floor' of the bucket. Take care not to remove any more material than you need to, as that will mean less surface area protected later.

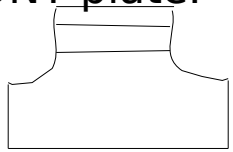
STEP 3:
Saw off the 'lip' on both sides of the disc-shaped bucket bottom. The lip will make it harder to bend and shape the plastic later, and if you get hit there, it will gouge you extra hard.

STEP 4:
Cut the bottom in half, so that you have two semi-circular shapes. Set these aside.

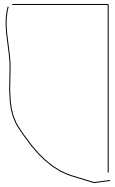
STEP 5:
Make one straight cut from the top of the bucket cylinder to the bottom. Make another vertical cut most of the way around on the other side (make the cuts roughly 3/8 and 5/8 apart from each other). You don't need to be too exact here, but keep in mind that the more exactly in half you cut the bucket the SMALLER the chest plate will be. Which ever piece is bigger, set it aside. This will be the FRONT. (HINT: To cut a bunch of buckets at once try stacking them and running a sawzall from top to bottom.)

STEP 6:
See those raised ridges that ringed the top of the bucket? Cut those off of the BACK plate. Set it aside, we'll use it to reinforce the front later.

STEP 7:
Trace and cut the 'arm holes' out of the FRONT plate.



cuirass



spaulder

Save the parts you cut out, they're going to be your spaulders, covering your shoulders.

STEP 8:
Preheat an oven to 300 degrees Fahrenheit. Heat the front, back, and one of the semicircles until they are soft and bendable. Using oven mitts, try to flatten the curve of the back plate so it fits your back, change the curve of the front plate so it fits your torso, and the semicircle so it matches the curve of the front plate. Be careful and don't let things melt. You might need to heat and shape the reinforcing strip (the ridges) too