Rubber Roof Replacement

BACKGROUND

All roof covering materials wear out over time. They wear by shedding material slowly. The rubber roofing material is used on RVs and commercial buildings. Buildings can use white or black rubber sheeting and it can be 0.040” or 0.060” thick. The average life is 10-20 years. The material is EPDM, a rubber that weathers slowly and resists damage from the sun’s UV rays. It is supplied in rolls cut to suit the specific application. Most RVs use the white 0040” thick version. The white color helps shed the sun’s heat. The rubber is held in place by using a rubber cement. All edges are trimmed and sealed under a variety of metal strips. DICOR is the most common supplier. They offer a complete reroofing system. Their kit includes all materials, cement, sealer tapes, etc. This entire project looks very intimidating, but taken in small steps, it is fairly straight forward.

SIGNS OF AGE

The rubber wears thin as it ages. This shows that at 0.015” thick (1/64”) a flashlight can easily shine through. This sample is 20 years old. Also internal leaks start to show up, the rubber releases from the roof due to water leaks or failure of the glue itself. When the rubber is this thin, it is also prone to easy tearing and spontaneous ruptures.
Other signs of water damage include sagging roofs (shown below), soft spots, or a wavy appearance.
REMOVING THE OLD RUBBER AND DAMAGED WOOD

To remove the rubber, everything that is on the roof is removed. This is a slow process. All roof vents, A/C units, luggage racks, antennas, and skylights are removed. The old chalking is removed to gain access to the attachment screws.

Any damaged wood is removed. These pictures show that a lot of the 1/8” luan was damaged and rotten. It was easily removed. Removing the luan greatly weakened the ability of the roof to support our weight while working on it. Many 2x4 posts were used to provide support the ceiling from the inside.

The pink is Styrofoam board insulation that was part of the original roof construction. Its condition was good, so it remained.
MAKING THE REPAIRS

Here the really rotten wood around a skylight opening is chipped away and replaced. Repair methods vary and will depend on the conditions of the problem area. Liquid Nails was used as the primary adhesive.
Age had allowed some wooden beams to sag. Metal stiffeners were added as needed.

Here a metal beam was never attached to the wall at the factory. An improvement was adding an extension hanger over onto the wall.

After all of the repairs are complete a luan is glued on. The luan was precut to size. Liquid Nails Panel adhesive was applied with a trowel and the luan placed on top, then stapled down to the beams. Basically each luan sheet is fitted to its location. 3/16” thick luan was used. Your specific application may require thicker or thinner luan. The luan is an external grade.

The glued composite becomes quite strong. The edges are covered to protect the rubber.
APPLYING THE RUBBER

A test piece was made to understand how the glue and rubber interact before doing the real thing.

The rubber alone weighed about 125 lbs. Getting it up on the roof took 3 men due to the weight & roll size.

The rubber was rerolled onto a long PVC pipe to aid in even application and keeping air bubbles out. The rubber & glue is applied in small 2 foot sections, a squeegee was used to smooth and get the few air bubbles out, and then the process repeats. The application step took about 1 hour.

Excess rubber along the edges, before trimming and edge sealing. The old metal trim and putty tape is applied to all edges, per instructions.

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INSTALL & SEAL THOSE ROOF THINGS

Using the putty tape included in the kit, install the roof vents, skylights, luggage racks.

Applying DICOR’s equivalent of Eternabond is an extra step and extra barrier to keep water out. Chalking the edges finishes the task.
FINISH THE PROJECT

A view of the finished roof with everything reinstalled, sealed, taped, & chalked. Everything was replaced with new parts, except the A/C units, the luggage rack, and the antennas. All plastic related parts were 20 years old and very brittle, thus needing replacement.
**SOME DETAILS**

Total material cost: $2300 (in 2008 dollars)
Approx 120 man hours, 1-2 persons for most phases
Complexity: average to above average
Duration: Long
Location: This project was done outside. Finding a place under a roof would have reduced rain delays.
Tools needed: Standard carpentry tools

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Our rubber roof replacement

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