



# Sarnafil Roof Recycling Program

The technical and practical ability to recycle a material is an important factor in determining the sustainability of a building material. Recycling reduces the environmental impacts of producing new materials at the beginning of the lifecycle and the burden on landfills at the end.

The feasibility and technical capability of recycling vinyl is well established. More than 905 million pounds of post industrial vinyl and 18 million pounds of post consumer vinyl were recycled in 1997<sup>1</sup>.

In the commercial, low slope roofing market, vinyl is the only material with an established recycling system in place. European roofing manufacturers have been recycling PVC roof membranes at the end of their service life for well over a decade now. Roofcollect®, the European collecting and recycling system, collected more than 1.3 million pounds of post consumer vinyl in 2005. The collected material is processed and made available to manufacturers for incorporation into new vinyl roofing and waterproofing membranes.

In the United States, most manufacturers of vinyl roofing and waterproofing membranes conduct post industrial recycling. At Sarnafil, more than 98% of all vinyl raw materials are converted into roofing and waterproofing membranes. But what about the disposal of old vinyl roofs at the end of their life cycle?

Post consumer recycling, the recycling of roof membranes at the end of their useful life, is an opportunity to divert construction debris from the waste stream. The technology exists to recycle the material but historically the lack of

a need in the market has prevented the establishment of a viable infrastructure to allow recycling. The sustainability movement along with the advent of landfill restrictions on construction waste in cities such as Chicago and Boston and the increase in waste disposal fees has begun to create the conditions to make recycling old roofs a reality.

A viable post consumer recycling program requires raw materials (in this case roofs at the end of their service life), an infrastructure to deliver the roof to the recycling center, and the technology to process the recycled material into new roofing membranes.

The recycling of vinyl roofs starts with the removal of the old membrane from the facility. The membrane is then packaged and consolidated and shipped to a facility where it is processed into a form that can be reintroduced into the new product manufacturing stream. Vinyl is an excellent candidate for recycling because the



Workers remove the old membrane from the roof.

old roofing material is easily introduced into the raw material base for the manufacturing of new roofing membranes and accessories.

Sarnafil has invested in state-of-the-art processing equipment that enables large scale recycling of post consumer vinyl roofs back into roofing products. These products include walkway pads, protection membranes and roofing and waterproofing membranes. The viability of the technology has been demonstrated through pilot testing of several recycled roofs in 2005.



The Marriott Long Wharf in Boston, MA was one of the first in the country to have its old roof recycled into new Sarnafil material.

<sup>1</sup> *Post-Industrial and Post-Consumer Vinyl Reclaim*, Principia Partners, July 1999.

## Marriott Roof Gets Second Life

Situated on the site of 17th century built Long Wharf, the Marriott Long Wharf is a Boston city landmark. Its exceptional harbor front location and well appointed rooms and amenities have made it a favorite hotel among business and family travelers.

The hotel's terraced brick exterior is a unique architectural element that makes the hotel easily identifiable, but also led to numerous building leaks at the thru-wall flashings. Engineering firm, Noblin & Associates, diagnosed the problem and recommended a solution that included a new Sarnafil roof despite the fact that the existing 20 year old Sarnafil membrane on the building was still functioning problem free. With the amount of work being done on the walls at each roof level and the significant amount of flashing work required, it was decided that it would be prudent and very cost effective to replace the roof at the same time. "We wanted something that would look nice, since many of the roof areas are underneath the guest room windows and therefore are very visible", said Tim Little, senior project manager at Noblin & Associates. "Sarnafil roof membranes are available in a variety of colors, and the heat-welded seams are more attractive than some of the other roofing options. Plus, we've had good success with Sarnafil in the past." Rather than dispose of the existing roof in the landfill, it was recommended that the Marriott work with Sarnafil to recycle the material into new roofing products. Recycling old roofs requires careful coordination between the building

"We met with the Sarnafil folks from the 'get go' to determine the best way to handle the recycling component of the project," explained Mike Hillcoat, a principal at Commonwealth. "Sarnafil asked

that we cut the membrane into three-foot wide strips and roll it up, holding it closed with vinyl tape. Then, once a week we would off-load the material from the roof into the recycling container provided by Conigliaro Industries." Conigliaro is a recycling services firm that processed the roofing membrane in preparation for introduction into the Sarnafil production process. Hillcoat added, "this process was not only more environmentally friendly, it was more cost effective than paying for dumpsters and the associated tipping fees at the landfill."



The old membrane being processed at Conigliaro Industries.

The stone ballast on the roof was removed by an industrial vacuum company, RK Hydro-Vac, Inc. of Pennsylvania, which made arrangements for the stones to go to a local landscaping company. As the stones were being vacuumed off the roof, the insulation was removed, stacked and tied into bundles. About once a week the insulation was then live-loaded off the roof and into one of Conigliaro's trailers.

Ultimately, the old Marriott PVC roof was reprocessed into new Sarnafil roofing walkway material, demonstrating the feasibility of recycling old vinyl roofs and paving the way for Sarnafil to expand its roof recycling program.



The recycled material being reprocessed into new membrane.

For the building owner, recycling their old roof and replacing it with a new Sarnafil roof is a very sustainable construction practice. Not only does their new Sarnafil roof provide them with a high quality roof that will last them for many years to come, but their old roof is not sent away to place further burden on a landfill.

As Little stated, "Anything that can be done to minimize waste is not only good for the environment but is cost effective too. I'm pleased that Sarnafil is doing this. It's a definite plus when looking at different roofing systems and I would absolutely consider doing this again on future projects."

