

EPDM Technology Evolution – Executive Summary

EPDM roofing membranes first came on the scene in 1962 and became increasingly popular in the 1970's as the oil embargo drove up the price of asphalt based roofs and lowered the quality of available asphalt. Over the course of the last 50 years numerous enhancements have been made to the system components making today's EPDM Roofing Systems far more robust and a greater value than they have ever been. EPDM membrane has always been known for its exceptional UV stability and weathering resistance due to the cross-linked nature of its chemistry and the UV absorbing power of the raw materials. Listed below are some of the major enhancements that have been made to the technology in the pursuit of continuous improvement and creating value for the building owner.

- Seam problems have become a thing of the past due to an evolution in products and procedures.
 - In the 1970's EPDM Seams were made using white gas and Neoprene based splicing adhesive. The main problem with this technology was that neoprene polymer could break down and lose strength in prolonged exposure to ponded water.
 - In 1985 CCM introduced specially designed Splice Wash in lieu of white gas and introduced Seam Adhesive, a butyl based adhesive. Butyl adhesive is very tolerant of ponded water however the seaming process was still prone to workmanship issues.
 - In 1998 to 2001 CCM introduced a specially designed splice primer and double-sided Seam Tape which simplified the seaming process and cut down on workmanship errors.
 - In 2004 to 2006 CCM took things to the next level with the introduction of factory-applied Quick Applied Tape that not only improved productivity by 65% it was also a dramatic improvement in quality as has been evidenced by an 80% drop in seam related warranty claims.
- Membrane Shrinkage issues with Ballasted roofing systems which showed up as bridging membrane at the angle change are also a thing of the past due to an evolution in angle change membrane securement methods.
 - In the early days wood nailing strips and then molded rubber nailing strips were used that didn't provide enough pull through resistance.
 - In 1989 CCM introduced the RTS detail which utilizes Reinforced EPDM membrane held in place by HPV Fasteners and 2" seam fastening plates. The EPDM membrane is then spliced onto the RTS with the same high shear resistant products used for making seams. Typical EPDM membranes have less than a half percent shrinkage and the RTS detail has been performing extraordinarily well over the past 24 years.

- More puncture resistant EPDM membranes have been developed over the years. In the early days 45-mil EPDM reigned supreme with dominant market share.
 - In 1985 CCM introduced internally reinforced EPDM that added toughness and durability to the EPDM membrane.
 - In 2003 CCM introduced 90-mil EPDM which has twice the puncture resistance of the original 45-mil rubber.

- Flashing details for EPDM roofing systems have seen a great deal of improvement over the past 50 years which have improved the quality and performance of EPDM roofing systems.
 - From 1962 to the 1980's, flashings were based on uncured neoprene that didn't weather as well as the EPDM membrane.
 - In the mid-80's, flashing was changed to uncured EPDM to improve weatherability.
 - In 1992 wall and curb flashing details were updated to require cured EPDM membrane for added toughness and durability in addition to weatherability.
 - In the late 80's CCM introduced Pressure-Sensitive Inside/Outside Corners, Pipe Boots, and Pourable Sealer Pockets that gained popularity by simplifying the application and improving the quality of the finished roofing system.