

ROOFING REVIEW

An Overview of Current LIGHTGUARD Applications

New Roofing System Critical For Renovated R. J. Reynolds Plant.

In the mid to late 1980's, the R. J. Reynolds Tobacco Co., a subsidiary of RJR Nabisco Inc., initiated a major renovation of its Winston-Salem, N.C. manufacturing facility, built in 1960 and known as Whitaker Park. A pre-renovatin analysis of the facility's existing roof indicated that the roofing membranes were nearing the end of their service lives; therefore, R. J. Reynolds included roofing system replacement in the renovation.

The original roofing system consisted of a vinyl vapor retarder, asphaltic coated perlite insulation and a five-ply organic felt built-up asphalt roof with aggregate surfacing. After nearly 25 years of service, the system suffered moderate to severe degradation of its roofing felts due to ponded water and abuse from maintenance traffic and the natural elements.

Inside the plant other problems came into play. The plant operated 24 hours a day and represented a significant portion of R.J. Reynolds' production capabilities. Shutting down the plant or sections of the plant during roof replacement was not feasible.

As such, mechanical attachment of new roof insulation to the roof deck's 2-foot by 8-foot precast concrete panels was



A T. Clear Protected Membrane Roof System, using LIGHTGUARD Protected Membrane Roof Insulation, protects the membrane from damage by heavy construction traffic during plant renovations.

ruled out because it was the costliest alternative, and adhering new roof insulation with hot asphalt could result in hot asphalt entering the operating plant. A ballasted roofing system was therefore given high consideration. Another factor affecting the plant internally was humidity control. Originally, the plant was designed so that only certain areas were humidified. The renovated facility would be designed with more of the plant operation at 60 to 65 percent relative humidity, which would increase the potential for roof condensation throughout the plant. It would therefore become imperative that R.J. Reynolds maintain control of this potential condensation.

Experts Choose LIGHT-GUARD To Solve Roofing Problems

Experts involved in the project had several key issues to consider, points out Richard A. Nuhn, P.E., a roofing/structural engineering consultant based in Greensboro, N.C., who developed the design and job specifications for the

LIGHTGUARD[®]
Protected Membrane Roof Insulation



Once installed, a T. Clear Protected Membrane Roof System, using Lightguard PMRI, offers a lightweight, yet durable alternative to conventional ballasted systems.

roofing project as senior engineer for R. J. Reynolds. Plant renovations called for extensive reworking of rooftop equipment and supports on the existing building of 700,000 square feet and construction of an adjacent 220,000 square-foot tobacco processing facility. This meant the new roofing system would have to protect the membrane against maintenance traffic and a substantial amount of construction traffic.

The system also needed to reduce current roof dead load and be flexible enough to handle various roof penetrations and features, such as penthouses and heating, ventilation and air conditioning equipment. Since the renovated plant would be operating with high humidities, it was imperative that the roofing system be designed to control condensation. Lastly, but not of least importance, according to Project Manager David L. Payne of R. J. Reynolds, the system needed to be cost effective.

After exploring a variety of options, Nuhn and Payne selected a T. Clear Protected Membrane Roof System (PMR), using LIGHTGUARD® Protected Membrane Roof Insulation, because it met all design criteria. The final design included the use of loose-laid tapered extruded polystyrene insulation, a loose-laid single-ply membrane and LIGHTGUARD panels.

LIGHTGUARD Protects Membrane, Saves Energy

LIGHTGUARD Protected Membrane Roof Insulation is comprised of 2-foot by 4-foot panels of 2-inch or 3-inch high-compressive strength extruded polystyrene with a 3/8-inch latex-modified concrete facing. The tight, closed-cell structure of the foam insulation panels resists all forms of water penetration and protects the waterproof membranes from heat, ultra-violet rays, wind, temperature swings, and physical abuse. The LIGHTGUARD panels, tongue and grooved on the long edges and installed in a staggered arrangement, serve as both insulation and ballast. Once installed, LIGHTGUARD panels offer an attractive appearance and a smooth, walkable surface.

While stone-ballasted PMR systems weigh 11 pounds per square foot, LIGHTGUARD weighs 4.5 pounds per square foot and is ideal for installation of single-ply and built-up roofing requiring a lighter weight roofing system. Though lightweight, LIGHTGUARD panels are durable and will withstand winds of 70 miles per hour and above. Free of CFC, LIGHTGUARD is an environmentally responsible product.

System Goes On Easily

LIGHTGUARD is easy to apply. There is no need to adhere panels to the roof membrane or use fasteners that can puncture the membrane. There is also an opportunity to reuse the LIGHTGUARD panels in the event of membrane failure, renovation or vertical expansion. T. Clear Protected Membrane Roof Systems using LIGHTGUARD eliminate damage from windblown rocks from atop the roof because LIGHTGUARD acts as the ballast and does not require the use of crushed stone or gravel.

Major renovations have been completed at Whitaker Park, and to date, engineers at R. J. Reynolds are pleased with their choice of a T. Clear PMR, using LIGHTGUARD. It protects the roof membrane from harsh weather conditions and maintenance traffic and reduces the weight of the entire roofing system. LIGHTGUARD also helps control critical interior temperature and humidity.

LIGHTGUARD has been used by industry, government installations, schools and universities, medical facilities and textile mills in the United States since 1976, when FinPan Inc. began manufacturing the product. LIGHTGUARD is now manufactured, marketed and distributed by FinPan's subsidiary, the T. Clear Corporation.

For technical information or a list of nationwide manufacturer's agents, call T. Clear Corporation at 1-800-544-7398.



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