

Garland ■ Preventive Maintenance Solutions



Extending Life. Improving Performance.



# OPTIMIZING THE FUNCTIONALITY OF YOUR ROOFS



## CHOOSE YOUR SOLUTIONS

Garland Product Family	Compatible Substrates					Garland Greenhouse <sup>1</sup>
	Single-Ply	BUR	Modified Bitumen	Metal	Masonry	
All-Sil				■	■	
Black-Knight®/Black-Stallion® LV <sup>2</sup>		■	■			
Black-Knight®/Black-Stallion® Mastic		■	■			
Energizer® K Plus FR		■	■			
Flashing Bond®		■	■			
Garla-Brite®		■	■	■		■ E, C
Garla-Flex®		■	■	■		
Garla-Shield®		■	■			
Garlastic® KM Plus		■	■			
Green-Lock®		■	■			■
Green-Lock® Sealant XL			■	■	■	■
Green-Lock® Structural Adhesive			■	■	■	■
Pyramic <sup>3</sup>		■	■			■ L, C
Quick-Slope			■			
Rust-Go®				■		■
Seal-A-Pore®					■	
Seal-Tite™	■	■	■	■		
Silver-Flash®		■	■			
Silver-Shield®		■	■			■
Solex®		■	■	■		■ L, C
Tuff-Coat™					■	
Tuff-Stuff™				■	■	
WeatherScreen™		■	■			
Wet-Cote™		■	■			
White-Knight®/White-Stallion®	■	■	■	■		■ E, L, C
White-Knight®/White-Stallion® Plus	■	■	■	■		■ L, C
White-Star		■	■			■ L, C

<sup>1</sup>All Garland Greenhouse materials incorporate environmentally responsible features as indicated in this key: ■ = Low VOC, incorporation of recycled materials, recyclability, or other eco-friendly attributes. E = ENERGY STAR® qualified, L = LEED® point contributor, C = Title 24 compliant  
<sup>2</sup>May be top coated with a reflective coating. The Black-Knight product is protected by U.S. Patent #6,300,394 and U.S. Patent #5,854,322; the Black-Stallion product is protected by Canada Patent #2,234,329

Extending the life of your roof is the easiest and most effective way to sustain the productive life of your facility. It's also one of the least expensive. Implementing proactive preventive maintenance from the day your new roof is installed virtually guarantees that its actual life will exceed its warranted life. Conversely, failure to properly maintain your roof will almost certainly result in significantly higher costs over the life of your building, and may well lead to premature failure.

As a single-source manufacturer of high-performance solutions for the total building envelope, The Garland Company, Inc. integrates a comprehensive selection of products, services, and technologies to maximize the working life of your facilities. Whether you are managing a single building or thousands of facilities across the United States, Canada, and the United Kingdom, we can help.

## GARLAND PREVENTIVE MAINTENANCE SERVICES

**Inspection Report**

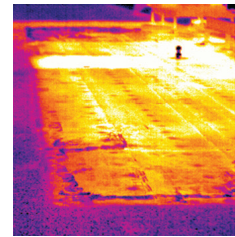
Client: County Intermediate Unit  
 Facility: Technical School  
 Roof Section: Building A

Report Date:

<b>Inspector Information</b>	
Inspection Date:	Cure Date: Yes
Inspection Type: Core Analysis	Leakage: No
Deck Condition: Fair	
<b>Flashing Conditions</b>	
Penetration: Fair	
Walls: NA	
Projections: Poor	
Coverflashing: NA	
<b>Main Structure Details</b>	
Reglets: NA	Debris: No
Control/Expansion Joints: Fair	Ponding Water: Substantial
Parapet Wall: NA	Drainage Issues: Poor
<b>Penetration</b>	
Rating: Fair	
Condition:	The perimeter is a combination of a low parapet wall and raised metal edge. The parapets have been completely covered with the monolithic acrylic coating and scrim which has tightened up any problems that may have existed at the flashings on the coping. There are some seam issues along the metal edge which also appear to have been helped by the addition of the coating. The coating extends from the field of roof to the outside edge of all perimeter conditions essentially around the perimeter.
<b>Pool</b>	
Rating: Poor	
Condition:	There is a lot of standing water throughout the roof area. The core cuts very dry, however, the pattern of the ponding indicates that the insulation had been taken or reduced previously. Repair membranes are usually composed of 3 layers, an anchoring base, a scrim, and a waterproof top coat. These are sandwiched together and fastened up and inches or so into the roof. This has been a necessary step in the repair to make the membrane fully waterproof. As the material ages, it gradually loses thickness as the concrete sets their life. Chipping and cracking in the top layer are concentrated over the 100 square feet of high heat member of the metal plates. In general, the flashings membrane is not directly on the concrete deck, leaving only the 20 mil metal coat to protect the building. This section eventually became gel holes in the membrane. That condition and the presence of standing water due to the very long time it takes for typical concrete to drain through the membrane. The worst floor probably got wet and settled or decomposed which left a depression in the roof membrane. The presence of hundreds of smaller voids indicate the presence of seal intrusion prior to the coating application. Eventually, the owner decided on an acrylic membrane coating which effectively replaced that top layer and made the system watertight once again. This appears to have solved the problem and we have no signs of current leaks in the building. The coating is in fair condition and will, however, in an unperfected and they can be susceptible to damage from ponding water. There is already some indication that the coating is ponding areas.

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RAMP



Infrared scan of roof



Core analysis

In addition to an extensive product line of repair, restoration, and maintenance solutions, Garland offers a complete spectrum of support services including:

- Thermographic testing and core analysis
- A Roof Asset Management Program (RAMP®) to help you plan and document roofing projects, from evaluating alternative solutions to tracking warranties and on-going maintenance
- Energy-cost analysis software to help you quantify and compare the potential energy-cost reductions among alternative rooftop solutions
- Turnkey preventive maintenance, including 24/7 emergency support, customized to your specific requirements

# INTEGRATING PEOPLE, TECHNOLOGIES, AND SERVICES

□ Pyramic over StressPly® Plus, R-Mer® Span metal



□ Garland representative roof inspection

To be consistently effective, a preventive maintenance partner needs to bring three things to the table:

- Knowledgeable, experienced people to properly assess, evaluate, and resolve rooftop problems
- A comprehensive selection of technologies to meet a full range of maintenance, repair, restoration, and replacement scenarios
- A flexible approach to roof asset management services, with tools that that can be customized to meet specific documentation and reporting requirements



□ Gravel being applied over WeatherScreen

At Garland, service is at the heart of everything we do. We have over 200 highly trained representatives in the field, and over a century of waterproofing experience. Garland is an employee-owned company dedicated to helping our customers succeed. Our single-source approach to managing and protecting roofing assets:

- Extends the working life of your roofs
- Minimizes workplace disruptions related to rooftop maintenance and repair
- Supports your in-house facility maintenance teams by providing the precise combination of inspections, testing, documentation, materials, and services you need — when and where you need them



□ Before - EPDM roof



□ After - StressPly SA coated with White-Knight/White-Stallion Plus

## THE SINGLE-SOURCE APPROACH TO LONG-TERM ROOFTOP SUCCESS

1. Visual inspection and survey
2. Subsequent analytical testing, such as infrared moisture scan, core analysis, or laboratory evaluation, as indicated
3. Detailed electronic documentation to help you track and manage building envelope assets
4. Comprehensive written assessments comparing solutions and offering recommendations
5. Assistance preparing construction documents, including comprehensive engineering services, custom details, and specifications
6. Recommendation of pre-approved Garland authorized contractors
7. Project management services to facilitate project scheduling, budgeting, and logistics
8. Installation monitoring to ensure that Garland materials are installed as specified
9. Long-term single-source guarantee of leak-free performance
10. Preventive maintenance programs to keep your building envelope in top condition



## ACCEPTING ACCOUNTABILITY



□ *Garland manufactured StressPly E*

No one is in a better position to understand the precise requirements for rooftop longevity than a 100 plus year old company that manufactures and distributes a full range of roofing solutions for replacement and maintenance. When you partner with Garland to proactively maintain your facilities, you have a single point of liability, with a financially stable, full-service organization standing behind the performance outcomes you've defined.

As employee-owners, everyone in the Garland organization understands that their long-term personal success is directly dependent upon the long-term performance outcomes of the projects we specify and support.

No two roofs are exactly alike. Each individual facility presents unique conditions, from geography and building orientation, to the type of deck and building function. Similarly, every rooftop solution comes with a unique set of features and benefits, whether its purpose is to restore, enhance, or replace an existing roof.

The Garland organization provides its technical representatives extensive classroom and field training. This includes Web-based continuing education and video training on new products, plus skill enhancement seminars throughout their careers. In addition, our team of experienced product managers and professional engineers provide comprehensive technical and engineering support.

## EARLY INTERVENTION SAVES TIME AND MONEY

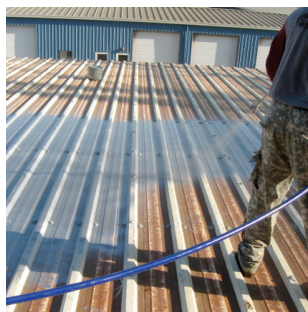
Although built-up roofing (BUR) is typically far less vulnerable to surface damage than single-ply roofing, all roofs need UV protection. In addition, flashings require special attention and on-going maintenance to keep small problems from becoming big ones.

Single-ply roofing is more susceptible to surface problems such as shrinkage, punctures, tears, swelling, and separation along the seams. A small investment in routine maintenance, combined with interim roof restoration, can postpone a more costly rooftop replacement.

Metal roofing requires on-going preventive maintenance, particularly at fasteners and other penetration points. Periodic resurfacing with a protective coating will help a metal roof realize its designed service life of 30 years or more.



*Single-Ply with White-Knight/  
White-Stallion reinforcing  
the seams*



*Protecting your metal roof with  
White-Knight/White-Stallion  
Metal Primer and White-Knight/  
White-Stallion spray application*



*Energizer K Plus FR  
spray application*

# SWEATING THE DETAILS

Your local Garland representative can design and manage the precise package of preventive maintenance services you need. Whether you need assistance maintaining a large number of diverse roof systems, or want on-going support for a Garland-manufactured solution, we offer the maintenance and repair solutions you need.



❑ *Failed single-ply flashing*



❑ *Clogged drain*



❑ *Metal edge needing repair*

## PROACTIVE MAINTENANCE PROLONGS LIFE

- ❑ **Biannual Inspections**  
Rooftops should be inspected, debris removed, and drains cleaned in the spring and fall of every year.
  
- ❑ **Inspecting and Repairing Perimeter Details**  
Your roof's perimeter takes much of the stress related to repetitive expansion and contraction cycles. As metal components such as edge details shift, the surrounding roof area can crack or split. Discovered early, such problems can be repaired before water penetration damages insulation and your building's interior.
  
- ❑ **Replacing Flashings**  
According to the National Roofing Contractors Association (NRCA), flashings account for most roof leaks, and approximately 80 percent of such leaks could be prevented by appropriate, timely repairs. Regular inspections, with interim replacements or repairs as indicated, will ensure that areas where dissimilar materials adjoin, will remain intact and impervious to water penetration.
  
- ❑ **Examining and Repairing Seams**  
Single-ply roofs are particularly vulnerable at their seams and patches, due to the stress of repeated expansion and contraction cycles. Early detection of problems such as open laps and seams can prevent costly replacement of damaged insulation.





□ *Black-Knight/Black-Stallion LV flood and gravel*



□ *Rusted metal roof with fastener deterioration*



□ *Cracked coating*

□ **Repairing the Roof Surface**

Your roof's surface takes a direct hit from UV and weather, as well as the stress of occasional foot traffic. Promptly and diligently fixing problems such as splits and blisters will protect the energy-saving value of your insulation and keep your buildings dry.

□ **Regularly Inspecting Rooftop Equipment and Other Penetrations**

Areas where vents, plumbing, or other utilities penetrate the roof or exterior wall, directly into your building, are prone to leakage. HVAC and other rooftop units are frequently the site of water penetration through improper installation or careless maintenance, as units are damaged by worker traffic and mishandled tools. Cleaning pitch pockets and all penetrations regularly, and resealing them as necessary, can keep your buildings leak free.

□ **Replacing and Resealing Fasteners**

For metal roofs, fasteners that penetrate the system can invite water penetration if improperly sealed. Since even the most rugged sealing composites deteriorate from UV and weather exposure over time, regular inspections and repairs are critical to the longevity of metal roof systems.

□ **Ensuring Energy Savings**

Whether coatings, minerals, or gravel, the surfacing of your roof takes tremendous abuse from the sun, weather, and air pollutants, as well as from chemicals or other discharge escaping onto the roof from your building's interior. Discovering and restoring compromised areas early can preserve the integrity of your roof system by restoring the reflectivity of the surfacing.

□ **Maintaining R-Value**

Keeping insulation dry is critical to your roof's ability to resist heat transfer, from the outside in, on summer days, and from the inside out, in winter. Verifying that your insulation has remained dry is essential to optimizing your roof's thermal transfer performance.

# SUSTAINING PERFORMANCE

No contractor, manufacturer, or independent consultant can provide a more complete range of responsible solutions, than Garland. Our comprehensive selection of roofing technologies and services allows your Garland representative to offer you the right solution for any rooftop challenge — first time, every time.



□ Roof coated with Garla-Brite



□ Flashing Bond and GarMesh



□ Coping Stone sealed with Tuff-Stuff

Our repair, maintenance, enhancement, restoration, and replacement solutions meet a full range of industry approvals, requirements, and certifications, including ASTM, BBA (UK), CGSB, (Canada), Cool Roof Rating Council®, ENERGY STAR®<sup>4</sup>, FM®, ISO 9001:2008, LEED®<sup>5</sup>, Miami Dade, FBC, Title 24, UL®, and Warnock Hersey<sup>CM</sup>.

We were among the first in our industry to embrace environmentally responsible technologies, and continue to raise the bar on rooftop performance with significant ongoing investments in technology research and development; vertical integrations of materials and components; and innovative supplier partnerships.

<sup>4</sup>The ENERGY STAR Program represents a voluntary partnership between businesses and organizations and the federal government to promote energy efficiency and environmental activities.

<sup>5</sup>The Leadership in Energy and Environmental Design (LEED) Green Building Rating System is a voluntary, consensus-building national standard that was initiated by the U.S. Green Building Council (USGBC) for developing high-performance sustainable buildings.



□ *Silver-Shield with coping*

## INNOVATION BREEDS SUCCESS



□ *White-Knight/White-Stallion*

Our White-Knight/White-Stallion urethane coating extends the working life of single-ply roofs for 10 years or more, eliminating the need for premature landfill disposal of the roof and insulation. The urethane cures chemically to provide exceptional adhesion to a properly prepared substrate. The seams are thoroughly covered with a seamless liquid system for watertight protection. The white UV-resistant surface helps reduce energy consumption.



□ *Black-Knight/  
Black-Stallion Cold*

Black-Knight/Black-Stallion Cold polymer-modified cold-process coal tar topcoat offers the self-healing characteristics of coal tar while reducing fume concerns related to hot-applied systems. It is compatible with both conventional asphalt-based modified systems and Garland's unique Millennium® multi-ply polymer-modified coal tar system. This topcoat offers exceptional waterproofing capabilities and can be topped with white aggregate, which maintains its reflectivity longer than many alternative surfacing options.



□ *MetalWhite2*

MetalWhite2™ white metal roof coating can be applied by trowel, brush, roller, or spray, so you can tailor its use to specific facility requirements. Its unique chemistry seals the metal while allowing for thermal expansion. This elasticity enables long-lasting rooftop performance, preventing leaks and protecting against rust, while providing the added benefits of a highly reflective white or tinted surface. The MetalWhite2 system is particularly useful for through-fastened systems where inevitable elongation at the screw points might otherwise open surrounding areas to penetration under thermal stress.

For a free, no obligation assessment of your roof and to discuss preventive maintenance needs, contact your local Garland representative, or call toll-free: 800.321.9336.

## Over 100 Years of The Garland Company, Inc.

Founded by J.B. Wise in 1895, as a supplier of refining products, The Garland Company, Inc. has evolved from a local manufacturer and distributor of oils, greases, and paints to a worldwide leader in manufacturing high-performance roofing and building maintenance systems for the commercial and institutional markets. We've prevailed by remaining dedicated to our customers, continually developing innovative solutions to meet the ever-changing needs of a demanding market.

Today, the Garland network of employee-owner representatives is servicing customers around the world with the same vision, enterprise, and integrity demonstrated by J.B. Wise back in 1895. Dedicated sales representatives remain the driving force of our success by serving the customer with an unwavering commitment to quality and a single-minded responsiveness to individual requirements. Strategically located throughout the United States, Canada, and the United Kingdom, Garland representatives are ideally positioned to provide responsible, integrated facility management for single or multiple properties.

For more information, visit us at: [www.garlandco.com](http://www.garlandco.com)

**The Garland Company, Inc.**  
3800 East 91st Street  
Cleveland, OH 44105  
FAX: 216-641-0633  
Phone: 216-641-7500  
Toll Free: 1-800-321-9336

**Garland Canada Inc.**  
209 Carrier Drive  
Toronto, Ontario  
Canada, M9W 5Y8  
FAX: 416-747-1980  
Phone: 416-747-7995  
Toll Free: 1-800-387-5991  
(Only in Canada)

- High-performance modified roofing and built-up systems
- Architectural and structural standing seam metal roof systems
- Sustainable roofing solutions
- Metal wall panels
- **Fluid-applied systems**
- **Rooftop maintenance and restoration products**
- **Computerized roof-asset management services**
- Flooring repair and restoration solutions
- **Engineering services, including shop drawings**
- **Design-build construction management**
- Financing options
- **Preventive maintenance programs**

**The Garland Company UK, LTD**  
Unit 5, Glevum Works, Upton Street  
Gloucester, UK GL1 4LA  
FAX: 01452 330 657  
011 44 1452 330 657 (Outside UK)  
Phone: 01452 330 646  
011 44 1452 330 646 (Outside UK)  
Toll Free: 0800 328 5560 (Only in UK)



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