



**Preventative
Maintenance**



since 1895



The Garland Company is a business steeped in the history and traditions of a worldwide waterproofing industry. Customer care is a phrase used repeatedly throughout this profile. This is no coincidence as it continually defines the philosophy and strategy of the Garland Company in the UK and internationally.

Preventative Maintenance with Garland



Founded by J.B. Wise in 1895, as a supplier of refining products, The Garland Company has developed from a local manufacturer and distributor of oils, greases and paints into one of the industry's worldwide leaders of high performance roofing and building maintenance systems, specialising in the architectural, local authority, commercial and industrial markets.

By listening and remaining dedicated to its customers needs, The Garland Company has succeeded by providing innovative solutions in a demanding and ever changing market. Its range of membranes, standing seam systems, liquid coatings, and flooring solutions have gained worldwide recognition for their quality and longevity.

The Garland Company has completed many projects throughout the UK, from industrial complexes through local authority, educational and social housing contracts and commercial buildings.

Like all assets, you cannot afford to have an out-of-sight, out-of-mind mentality with your building envelope, especially the roof. Roofing is one of the most expensive investments that a building owner can make, so it pays to keep track of its performance.

Every roof begins a natural process of deterioration from the moment it is installed. Technologically advanced polymers and time-proven materials such as metal or modified bitumen increase the safety factor for roofing performance. But over time, exposure to heat, water, ultraviolet radiation (UV), weather and chemical effluents will degrade even the best roofs. That's why preventative maintenance is essential to protecting your roofing investment and extending its life.



The Garland Company offers a truly nationwide service. To talk to your nearest Regional Technical Manager or to find out more information please contact us on

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Protecting Your Assets

Preventative maintenance starts with a sound knowledge of the condition of the roof in question. Only once you have this information can you formulate a plan to extend the life of your roof.

The first step is to initiate roof inspections by one of Garland's experienced technical professionals who will visit the site in order to make a thorough assessment of all areas under consideration.



Based all around the UK, the Garland Team are, without exception, renowned for their technical knowledge gained from many years of experience in the UK roofing industry.



As well as a visual inspection, tests will be carried out and photographs taken to illustrate any problems found.



RAMP® - Roof Asset Management Program



The Garland Roof Asset Management Program is a database driven tool, available on the internet 24 hours a day, allowing you to view details, recommendations and budgets for any suggested action as a result of our inspections.

If applicable, a separate area can be allocated for different properties, with the option to create independent passwords for each job.

inspection will be scheduled for a later date to reassess the situation.

Progress for all maintenance work will be included, and reports on future considerations logged, to ensure that you are aware of what the next stage will be.

Only by carrying out regular inspections can the cost of preventative maintenance be kept to a minimum.



After all the information concerning the property has been entered on the RAMP system, the client will be allocated their own user name and password. Information can only be accessed following the input of these details.

On occasions our recommendations will be to do nothing as the roof is in sound condition. In these circumstances a further

The screenshots show the RAMP software interface. The top screen is titled 'RAMP Facility Photo Confirmation' and includes fields for Client Name (Johnson and Jones), Roof Section (Recreation block), and Facility Name (Hammond Community Centre). The bottom screen is titled 'RAMP Construction Details' and displays a table of roof specifications.

Roof Info	System Type	Details	Notes
System Information			
Date Installed:	No records to indicate when roof was installed	Warranty:	No
No. of Roofs:	One	Roof Deck:	Pre-Screeded Woodwool Slabs
Slope Dimension:	40 degrees	Vapour Control Layer:	Glass based membrane
System Type:	Traditional Built up Roofing	Total System Layers:	Three
Felt:	Polyester	Membrane Attachment:	Fully adhered in hot bitumen
Surfacing:	Green Mineral Surface		
Insulation - Layer 1			
Type:	Fibreboard	U-Value:	Minimal
Attachment:	Fully adhered in hot bitumen	Thickness:	12mm
Insulation - Layer 2			
Type:	No Second Layer of insulation detected	U-Value:	N/A
Attachment:	N/A	Thickness:	N/A

The photo confirmation screen shows two images of a roof. The top image has a caption: '...ve been coated and some blistering and slumping is occurring'. The bottom image has a caption: '...ood condition but slumping at the upstand in this corner is'.

Identifying the Problem



Splits in up stands

80% of all roof leaks originate from the perimeter of the roof - this area of high movement, caused by the wall roof deck junction, is the weakest on the roof and splits are a regular occurrence.

Cost of Neglect

Moisture will find its way through these holes and leak into the building, water will saturate the insulation causing premature failure of the roof system.

Suggested Maintenance Products

Flashing Bond®, Garmesh®, StressPly Flex Plus®.

Rusty Metal Units

Untreated metal duct - work or air handling units are not only unsightly, but if not maintained will cause roof leaks.

The Cost of Neglect

The metal will rust and allow water to enter the building, the unit may need to be replaced which will be very costly.



Suggested Maintenance Products

Rust go primer®, Rust go Aluminium®, Grey, White or Yellow.



Loss of Solar Reflective Coating

Over time, any Solar Reflective coating will weather away exposing the underlying surface. As a result the exposed roof surface will attract damaging UV, absorb water and degrade through freeze thaw cycles

The Cost of Neglect

The exposed roof surface will age prematurely; the felt will lose its oils due to heat and UV, causing premature aging and failure of the roof system.

Suggested Maintenance Products: Garla Brite®, Silver Shield®, White Knight®

Failed Coping Joints

Natural ageing of cementation material will cause the grout in between the coping stones to weather away allowing water ingress between the coping stones.

The Cost of Neglect

Water will enter the wall and enter the brickwork, a freeze / thaw process will cause the brickwork to spall and deteriorate, If left untreated the brickwork will need to be re pointed, water may also migrate to the roof system.



Suggested Maintenance Products: TS 2136 Sealant™



Blisters

Caused by trapped moisture or air between the roof felts, the trapped vapour expands as the temperature of the roof increases thus causing the membrane to form a bubble or blister.

The Cost of Neglect

The Blister will continue to expand and grow, weakening the membrane until such time that it will split, usually at a seam, thus allowing water to enter the system

Suggested Maintenance Products

StressPly Flex®, Flashing Bond®, Garmesh®

Shown below are the most common types of problems to be found on roofs. All these issues can be easily resolved but if left, will almost certainly result in the more costly requirement of a new roof system.



Single Ply Defects

Open laps occur in areas where two pieces of single ply membrane are bonded together. This condition is generally caused by seam tape/adhesive failure or improper application. Splits or tears are frequent problems due to specifications requiring one thin (40 to 60 mils) easily punctured layer of material. Exposure to UV and the elements can also cause shrinkage and premature failure due to the amount of heat absorbed by single ply roof systems.

The Cost of Neglect

Since there is only one layer of waterproofing, any puncture, tear, or open lap will allow water to enter the building. UV exposure can cause the membrane to shrink, damaging the up stand details and creating numerous leaks.

Suggested Maintenance Products

Single Ply Repair Kit, White Knight®

Cracks in Mastic Asphalt

Made from a mixture of Asphalt and limestone, the material dries out over time and shrinks, thus creating cracks predominantly found at the perimeter, though this photo shows cracking on the field of the roof.

Suggested Maintenance Products

Flashing Bond®, Garmesh®, Energizer K plus FR®, Grip Polyester®, Garla Brite®

The Cost of Neglect

Water will enter the system through the cracks and into the building,



Porous Walls

Untreated mortar joints or concrete blocks will begin to absorb moisture over time. Once water enters, freeze / thaw cycles cause general deterioration. Staining, prolonged wet surfaces and spalling may all be signs of trouble.

The cost of neglect

If corrective action is not taken, water entering the wall system will freeze, causing the block work to spall and ultimately cause complete failure of the structure.

Suggested Maintenance Products: Concretite®, Seal a pore®

Loss of Mineral Surfacing

Over time and due to natural ageing characteristics mineral surfaced cap sheets lose their mineral surfacing, once this protective layer has disappeared the bitumen is exposed to UV, which speeds up the decomposition of the membrane.

Suggested Maintenance Products

Energizer K Plus FR®, Grip Polyester®, White Knight®, Gar Mat™.

The Cost of Neglect

If left unattended the cap sheet will lose its water-proofing layer and become brittle, resulting in splits which will of course allow water to enter the system and contaminate the insulation.





The goal of a proactive preventative maintenance program is to extend the life of your roof, thereby reducing the total cost over the life cycle of your building. In addition to routine maintenance, annual visual inspections by your Regional Technical Manager will examine the critical areas of your roof that are most vulnerable to water penetration.

Cost of Roof Ownership

When maintenance is neglected, the financial consequences can be significant. Many building owners and managers focus only on the expense of maintenance, but when a roof leaks, the costs multiply quickly.

For example, in a manufacturing plant, a leak can damage machinery and force a production line to shut down. In an office environment, computers can be damaged and work interrupted. In a school or hospital situation, classes and critical work could be affected by roof leaks.

Most significant of all, the costs of inspection and minor repair are inexpensive compared to the consequences of roof replacement.

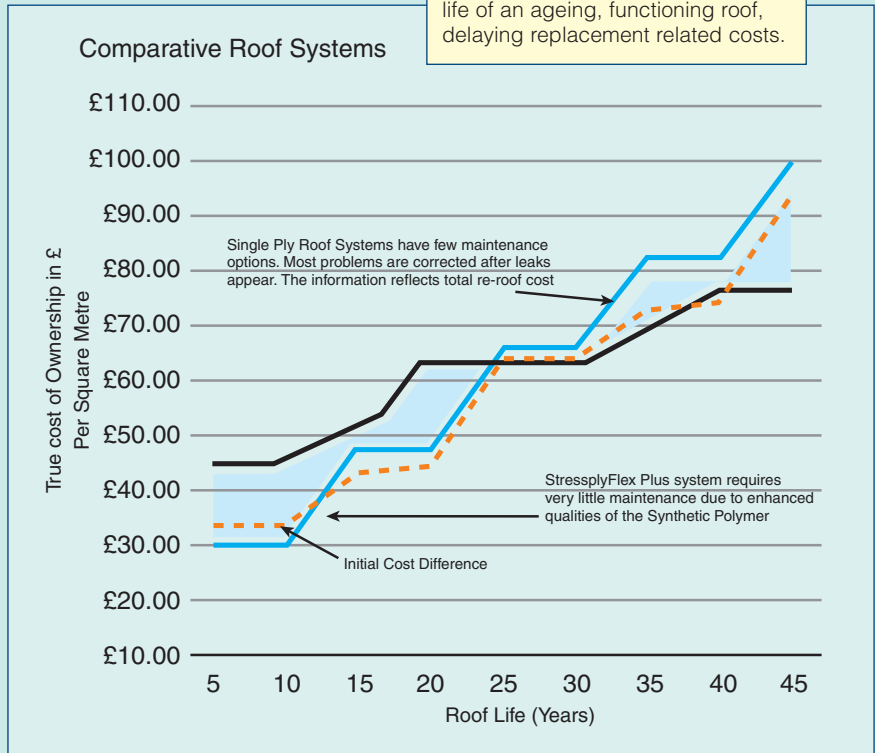
In general, if you are consistent with a proactive preventative maintenance program, you will spend less on repairs, energy loss, insurance premiums, etc. Your current roof system should also last longer, thus maximising investment and protecting your assets.

Preventative maintenance translates directly into pounds - pounds that don't have to be spent on major repairs or a new roof. Fewer problems. Longer life. Reduced costs.

Periodic restorations improve the return on roofing investment by significantly extending the interval between replacements. Proactive maintenance and periodic restoration can prolong the working life of an ageing, functioning roof, delaying replacement related costs.

Legend
 Standard high performance felt to BS747
 StressPly Flex Plus®
 Single-Ply / EPDM

Assumptions
 1) Cost based on 400m². Re-Roof Project.
 2) Costs include labour and materials.
 3) Maintenance costs include flashing repair and resaturating entire Roof System.
 4) Extended costs are based on 0% inflation.



Savings through Restoration

Restoration is a proactive process that extends the service life of an existing roof by renewing the waterproofing integrity of its membrane and reconditioning its details. Restoration is a cost-effective process that keeps facilities dry longer, reduces roof maintenance costs and delays replacement.



A top coat, such as a reflective finish or surfacing, will be installed to protect your roof from UV and the environment.

For older roofs, periodic restorations offer significant savings, costing anywhere from ten to sixty percent less than total tear-off and replacement, depending on the type, and condition, of the underlaying deck.



When it is determined that a complete restoration of your roof is required, your Regional Technical Manager will work with you to develop an appropriate solution. Typically, restorations are recommended within the second decade of a roof's life cycle.

The entire roof or wall surface will be thoroughly cleaned, and all minor repairs corrected to prepare the surface for restoration. The flashings (at all perimeters, projections, expansion joints and roof top equipment) all gravel stops and penetrations, will be repaired or reconstructed, replacing any defective roof components.

A restorative coating will be applied to recondition your roof, and to correct any surface imperfections. Polyester or glass reinforcements may be added to all systems to improve membrane strength.





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Materials you can Trust

The success of any maintenance project relies on the quality of the products used as well as their application. Garland have developed a range of products that can be trusted to stand up to variations in climate temperatures and other potentially harmful sources.

Our continual investment in research and development ensures that all our products are tested in realistic application conditions.



WeatherScreen™

WeatherScreen is a heavy-bodied, rubberized, fibre reinforced, fire-rated restoration treatment, designed to restore gravel surfaced modified bitumen membranes and asphalt based BUR systems. WeatherScreen restores and upgrades the weathering surface of the existing roof system with a superior protective surface.

Garla-Flex™

Garla-Flex is an elastomeric, asphaltic mastic formulated from a special weather and ozone resistant thermoplastic rubber, selected plasticizing oils, bitumen, and recycled crumb rubber from used tires. It is designed to seal roof joints and other construction details subject to considerable movement. It contains Styrene-Ethylene-Butylene-Styrene (SEBS) rubber which insures superior fatigue resistance.

White Knight®

White Knight® is a multi-purpose, single-component urethane, liquid waterproofing membrane designed to maintain, restore and upgrade the performance of existing, aged, roof systems. It is uniquely formulated to provide additional waterproofing protection to various roof systems while providing a white ENERGYSTAR® rated reflective surface.

This versatile product can be used as a coating or it can be used in conjunction with heavy-duty fibreglass mat to provide additional reinforcement. White Knight® can be used to coat the entire roof or repair material for maintenance applications, or in conjunction with reinforcing a full new roofing system.

Garla-Brite™

Garla-Brite is a non-fibred, asphalt based aluminum roof paint. It provides an exceptionally bright finish with excellent hiding and covering power. Garla-Brite preserves, beautifies and provides a reflective shield over old and new roofing - including metal roofs - and it can be used over a wide variety of other surfaces which require protection from heat, solar radiation, rust and corrosion. Garla-Brite meets and exceeds ASTM D2824 Type I.

Silver-Shield™

Silver-Shield is a premium quality, high solids content, fibrated aluminum roof coating formulated from specially selected asphalts, oils and resins. It combines waterproofing capabilities of an asphalt roof coating with the reflectivity of aluminum paint. Silver-Shield meets and exceeds ASTM D-2824, Type III.

Emergency Mastic™

Emergency Mastic is a multi-purpose, all temperature roof cement designed for trowel application on any clean built-up roofing surface. Emergency Mastic is plasticized to remain pliable yet durable longer than conventional roofing cement. It contains glass fibre reinforcement which eliminates the need for membrane support in normal temporary repair situations. It is suitable for cold-weather application, and it adheres to both damp and dry surfaces.

Black Knight™ Cold

Black Knight Cold is a specially formulated polymer modified, cold-process roofing bitumen. It is a unique blend of refined tars, solvents, rubberized polymers, fibres and fillers which offer improved performance and superior sag resistance. Black Knight Cold is modified with advanced polymers, enabling improved flexibility and impact resistance over conventional coal tar. Black Knight Cold is designed to be used as a premium flood coat over hot asphalt or coal tar roofing systems or as a restoration material for gravel surfaced roofs. As a cold applied product, it can be applied by brush, spray, or squeegee as any other conventional, high performance roof coating.

Flashing Bond®

Flashing Bond® is a cold-applied, trowel-grade mastic designed for use as a patching and leak repair material on asphalt roofing systems. It contains high-solids content asphalt, additional fibre reinforcement and plasticizing oils which improve low temperature performance.

TS 2136™

TS 2136 is a moisture-curing, single-component nonsag polyurethane sealant that when cured offers the performance of a two-part sealant with the ease of installation of a one-part. It is designed to maintain an effective bond and seal between materials of similar and dissimilar surfaces, porosities and coefficients of expansion. TS 2136 is intended for use in expansion and control joints, reglets, precast panels, tilt-up walls, metal curtain walls, copings, window and door perimeters, panel bedding and glazing details.

Concretite Textured®

Concretite Textured® is a 100% acrylic, elastomeric coating used as a protective, decorative coating for exterior above-grade applications. This high performance material will not peel, chip, blister or crack, and it is non-fading and washable. Exterior surface absorption of water by masonry causes deterioration and frequent interior damage. Concretite Textured® forms a water repellent surface, while still allowing the masonry to breathe.

Rust-Go™

Rust-Go is an oil modified alkyd paint which may be spray or brush applied directly over lightly rusted metal without the need for special surface preparation such as scraping or sand blasting. Rust-Go is also applicable for usage over sound and/or lightly rusted metal roofs with minimal surface preparation. In addition to extending the service life of the roof, white Rust-Go will reduce under roof temperatures a minimum of 20°F (11°C).

Gar-Rock™

Gar-Rock is an all-weather, fast setting, chemical action concrete patching material designed to patch concrete surfaces where quick, permanent repairs are desired. Gar-Rock can be used at below freezing temperatures. It exhibits high compressive and flexural strength, and it forms a permanent bond to ordinary concrete. Gar-Rock is mixed with water only. It can be used in damp areas, and the material does not emit any toxic fumes.

For more information on the Garland range of products, please contact your Regional Technical Manager or the Garland Company using the details below.



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