



Proposal Specification

StressPly Flex Plus – Bituminous Waterproofing Warm Roof System

27th January 2023 Rev 11.5.23

High-Performance Waterproofing Systems

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CONTACT INFORMATION SHEET

Prepared for:	Avison Young
For the attention of:	Fergus Lowry
Site:	MRE Roof A
Project:	Strip asphalt – Three Layer BUR Small 10m2 area to be completed in Dura Coat please contact for details
System:	StressPly Flex Plus – Bituminous Waterproofing System
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Date:	27 th January 2023

PRELIMINARIES

INTRODUCTION

This document has been compiled for Avison Young by **The Garland Company (UK) Limited**. It provides specific bespoke details to the waterproofing solution specified for the roof surveyed.

Please see the full Garland RAMP® Report for further Information.

Size approximately – Flat Roof Sections - **250Sq. Metres**

Square metre areas given are approximate only and should only be used as a guide. For accurate tendering purposes the contractor should confirm exact areas.

When the project is underway your Garland Representative will be readily available for onsite consultations when required, whilst providing inspections as described below.

On satisfactory completion of the work and Garland invoices paid in full, all Garland (UK) guarantees and relative documentation will be sent directly to the supervising officer with the guarantees also being published as a PDF File to the clients RAMP database to act as a permanent future record.

We would respectfully request that all relevant parties be in attendance on the day of final inspection to ensure that the roofing works undertaken is to the complete satisfaction of the client.

All works are to be undertaken using The Garland Company (UK) Limited specification and approved contractors. All materials used in this specification/application must be supplied by The Garland Company (UK) Ltd unless otherwise agreed to.

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IMPORTANT: Copyright Notice

This Specification and all documents produced by Garland in connection with the project ("Documents") are subject to copyright laws. Garland retains the copyright in all Documents and will grant a license to the client and the roofing contractor to use the same solely for the purpose for which the Documents were prepared in connection with the project and subject expressly to Garland receiving payment in full for all its products mentioned in this Specification. For the avoidance of doubt, neither the client, its contractors nor representatives shall be entitled to copy or otherwise pass the Documents to any competitor of Garland or otherwise utilise the same to carry out the project using products which have not been supplied by Garland.

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Any questions regarding specification content or application should be directed to your Garland Regional Technical Manager.

CDM NOTIFICATION

CDM Regulations 2015 are applicable to any construction project regardless of size and duration.

Pursuant to the Construction Design and Management Regulations 2015, you may have a duty to appoint a Principal Designer and a Principal Contractor (in writing) in connection with this project. Garland does not undertake the duties of either a Principal Designer or a Principal Contractor. We do not have the necessary skills, training or experience to perform either of these roles. We are not undertaking any such duties on your behalf.

We can supply, on request, details of some consultants who act as Principal Designers but the onus remains upon you to satisfy yourself that anyone you appoint has the relevant capabilities, resources, skills and understanding in order to undertake this role.

Unless we hear from you confirming the appointment of a Principal Designer and a Principal Contractor, with contact details for these persons, we will assume that you have decided to take on this role and perform the relevant duties yourself.

ASBESTOS COMPONENTS

An Asbestos Survey, in particular the Refurbishment & Demolition Survey in line with HSG 264 must be carried out. If licenced Asbestos is found within the building then it must be removed by a suitable licenced contractor prior to start of the works.

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It shall be the responsibility of the Contractor to ensure that any work carried out on asbestos based or asbestos-cement components complies with the Asbestos (Licensing) Regulations, the Control of Asbestos at Work Regulations and all requirements of the Health and Safety Executive, including Codes of Practice and guidance A0, A9 and A12.

Detailed Health and Safety Procedures, together with method statements, must be submitted as part of the Health and Safety Plan with regard to any works to, clean, remove or dispose of Asbestos based products.

INSPECTIONS

On commencement of roofing works, regular site visits will be made throughout the duration of the contract. Photographs and an inspection report will be produced and uploaded to Garland's online RAMP database system ready to be viewed by the client. As well as the reports being published to the database, a PDF copy will be emailed to the client after each and every site visit.

On satisfactory completion of the work, all guarantees and relevant documentation will be sent directly to the client as well as a PDF document uploaded to the Garland RAMP database for future record.

For the avoidance of doubt, Garland's inspections will be in addition to any inspections carried out by the Contract Administrator and/or others on behalf of the Client and pursuant to the Client's contract with the roofing contractor. Garland has no responsibility for certification of payments, completion etc. pursuant to the contract with the roofing contractor.

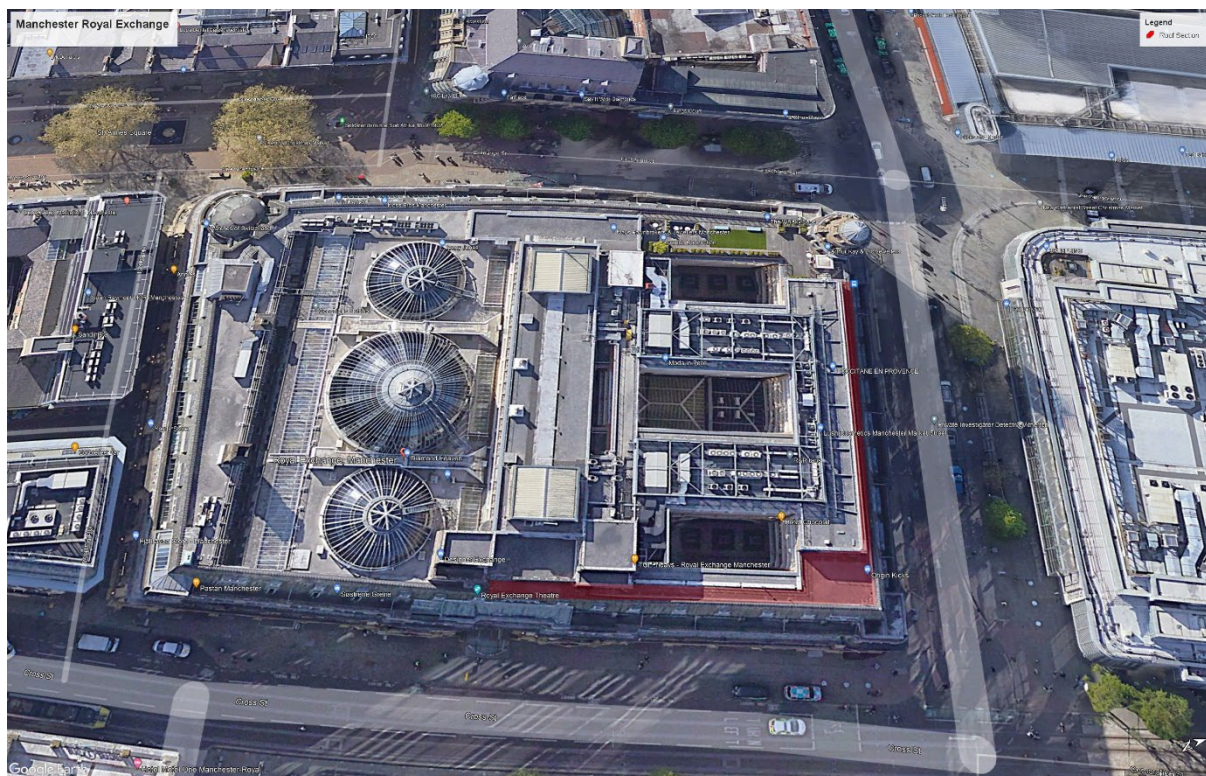
CONTRACTORS REQUIREMENTS

The tendering contractors must confirm the build-up of the roof during tendering.

If the decking is deemed by the HSE to be fragile the tendering contractor must raise this issue with the contract administrator prior to submitting the tender.

The tendering contractors must inspect all drainage and confirm drains are free flowing. If found blocked then a provisional sum must be included within the tender return and itemised clearly.

AERIAL VIEW



SAFE TO TORCH



GENERAL

An initial survey during the tender stage must be carried out by the roofing contractor to determine any areas of fire risk and to inspect any known areas noted within the designer's risk assessment and this specification.

Attention must be made to fire risk areas which can be but not limited to any combustible materials and substrates, void areas or areas where the substrate is unknown. Any additional risks recognised must be raised with the contract administrator immediately.

All areas of striped waterproofing exposing the deck or substrate must be treated as high risk.

As per the NFRC Responsible Specification Checklist high risk areas for direct torch on applications are:

DECKS AND INSULATION

- Timber / Other combustible materials
- Insulation (Unless designed for torch on membranes)

DETAILS

- Expansion joints with voids and/or combustible fillers
- Fibreboard, timber or cork fillets
- Detail under all abutments to roof tiles, slates and thatch
- Detail under cladding / rendering
- All abutments with open cavities (open perpend)
- All timber substrates
- Change in level details with fixed timber fascia and/or all soffits, gutters or restricted spaces
- Window sills and frames, door sills, louvered vents, air ducts, intakes and outtakes
- Junctions to existing waterproofing with flammable insulation / deck materials
- Vulnerable plastic curbs, domes, pipes and the like
- Working when in close proximity to potentially flammable coatings
- Existing weathering components with concealed flammable materials. These include:
 - Timber, DPC or sarking membranes beneath fixed metal capping systems
 - Existing kitchen extraction plant coated in oils or fats
 - Flammable wrapping to trunking/ducting
 - Timber cladding
 - Metal or plastic copings/cappings
- Metal deck (refurbishment) where old materials may accumulate in the troughs

DISCLAIMER

It is always the responsibility of the contractor to carry out a risk assessment on all aspects of the contract. The above list is solely to aid in the assessment of the risks where the use of a gas torch is being considered.

SPECIFICATION

GARLAND SPECIFIED SYSTEM

Garland StressPly Flex Plus

StressPly Flex Plus is an elastomeric modified bitumen waterproofing membrane system. The waterproofing compound made from special grade of modified bitumen with SBS elastomers and fillers. The SBS modifiers boost the thermal, mechanical and aging characteristics of the membrane compound; the non-woven spun-bond polyester carrier reinforcement provides the membrane with its excellent tensile strength, tear/puncture resistance and elongation properties. StressPly Flex Plus upper surface is finished with mineral slate.

IMPORTANT NOTES

Prior to any works commencing on site, Garland UK will undertake adhesion tests on the roof deck. We request that sufficient time is allowed for this operation with the client providing safe access to all roof sections as required.

If access to the roof is not possible prior to the commencement of roofing works with Garland materials on site, we reserve the right to carry out these tests then with consequent/ additional time to complete roofing works pending test results.

During adhesion testing Garland UK will not be liable for costs associated with the delay of the project, including but not limited to scaffolding, contractor downtime or any other client/contractor costs. If these adhesion tests are not successful roofing works with Garland materials must not commence.

Garland reserve the right to withdraw this specification and any guarantee of Garland products if we deem the adhesion testing unsuccessful and no acceptable alternative fixing method is available.

Please contact your local Garland representative for additional information on the above item.

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MATERIAL/SYSTEM SCHEDULE

DECK:	Existing deck
PRIMER MAIN ROOF:	Garland Quick-Prime
FIRE RISK AREAS:	Garland SA Contact Primer (5l)
VAPOUR CONTROL LAYER:	Garland Torch Flex Vapour Barrier (10m x 1m)
FIRE RISK AREAS:	Garland SA Flex Vapour Barrier (10m x 1m)
THERMAL INSULATION:	Bitumen faced PIR Insulation
FIRE RISK AREAS:	Foil faced PIR insulation or glass tissue faced

INSULATION ADHESIVE:	Garland Insul-Lock Adhesive (6kg)
OUTLETS:	Viking Products Group LTD stainless steel outlets
SOIL VENTS:	Viking Products Group LTD stainless steel SVP
EDGE TRIM:	Viking Products Group LTD Viking Trim Type 3,4 or 6
UNDERLAY:	Garland Torch Flex Ultra-Vent (8m x 1m)
FIRE RISK AREAS:	Garland SA Flex Base Sheet (10m x 1m)
UNDERLAY AT DETAILS:	Garland Torch Evolution Base Sheet (8m x 1m) (Fully Bonded)
FIRE RISK AREAS:	Garland SA Flex Base Sheet (10m x 1m)
CAP SHEET:	Garland StressPly Flex Plus (5m x 1m)
FIRE RISK AREAS:	Garland StressPly Flex SA (10m x 1m)
CAP SHEET AT DETAILS:	Garland StressPly Flex (7.5m x 1m)
FIRE RISK AREAS:	Garland StressPly Flex SA (10m x 1m)
SURFACE FINISH:	Mineral
BONDING METHOD:	Propane Gas Torch
FIRE RISK AREAS:	Self-Adhesive (hot air welding if necessary)

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INSTALLATION

PREPARATION:

Roof Area: Remove the existing asphalt and timber from the details to include up-stand, gutter, drip edge and kerb details and dispose. Carefully remove all existing waterproofing exposing the deck below.

Dispose of all waterproofing in to skips and remove from site. Remove all dust, debris and superfluous materials from the roof and leave in a dry and clean condition

Any waterproofing stripped down to a combustible substrate must be treated as a fire risk and the self-adhesive VCL used.

Fixed Items: Any fixed item which is not to be included in the waterproofing schedule, including wires, vents, cables, lightning conductors etc., must either be totally removed or in order to allow access, be suspended/temporarily loosened from the surfaces to be treated. Such items should not be removed without proper authority or deference to safety. The waterproofing should be allowed to sufficiently cool before replacement of these fixtures.

Conductors: Any lightning conductor cables present should not be overlaid. They must either be totally removed or in order to allow access, be suspended from the surfaces to be treated. The contractor should not remove such items without proper authority.

Drain Ware: Inspect all rainwater outlets and downpipes to ensure that they are free flowing. If any blockages or defects are discovered they should be brought to the client's attention as soon as possible to allow remedial action to be agreed and action to be taken as soon as practical so that the application may proceed. Leave drain covers in place until preparation of the area is complete but remove prior to felt installation. New outlets must be installed.

Previous Repairs: Inspect any previous repair materials, patches, etc.; any that are loose or suspected to be loose should be removed.

Surface Repairs: The existing surfaces are to be inspected and made good prior to application of the primer in order to receive the new felt system any gas blisters should be ironed flat, slump or sag reinstated. Large cracks should be filled using a compatible material or heated and re-sealed - do not overheat. If necessary, patch repairs should be carried out and allowed to cure prior to application. Note: Exercise all necessary care when heating. It is not usually necessary to remove the existing asphalt coverings once the surface is prepared and sound. Any existing degraded and perished felt, upstand or edge detail waterproofing is to be removed, deposited into skips and removed from site.

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Final Cleaning: Remove all dust, debris and superfluous materials from the roof and leave in a dry and clean condition. All vegetation and associated debris are to be removed prior to application of the primer.

Hard Edge: On section where the current roof meets the decked area a new independent hard edge needs to be installed to the deck and dressed in using fully bonded VCL

Parapet Wall: Contractor to explore behind the current slate to ensure water isn't tracking in from this section from the coping if this is the case repairs need to be made

Roof Structure: All softwood timbers used in the roof structure should be treated and a minimum of class 2 durability.

DECK:

When stripped, inspect the deck for any damage repairing all items as deemed necessary, the deck must be checked to ensure its integrity and any damaged areas must be replaced.

N.B The roof deck MUST be inspected by your Garland Regional Technical Manager prior to any waterproofing application.

Any peculiarities or details discovered, following the stripping of the existing waterproofing, which might affect the performance of the Garland system, should be reported immediately to your Garland Regional Technical Manager in order that we may assist in overcoming the problem.

Once the roof has been approved, the following waterproofing specification should be applied.

Any waterproofing stripped down to a combustible substrate must be treated as a fire risk and the self-adhesive VCL used.

MAIN ROOF PRIMER:

Prime directly onto the existing roof deck prior to the installation of the new waterproofing using Garland Garla-Prime primer at a rate of 0.1 – 0.3 litres per m² and allow to dry thoroughly.

FIRE RISK AREAS AND SELF-ADHESIVE PRIMERS:

Apply Garland SA Contact Primer to all details and upstands for additional adhesion.

After approx. 1 hour and while the primer is still a bit tacky but does not come away on your fingers, apply the self-adhesive membrane. DO NOT leave the primer overnight as it will become contaminated.

N.B. Garland SA Contact Primer must be used on all upstands and details.

VAPOUR CONTROL LAYER:

Garland Torch Flex VCL:

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Install a layer of Garland Torch Flex VCL membrane (10.0m x 1.0m roll) direct to the primed surface. The Torch Evolution membrane should only be torch applied to the surface. The plastic film on the underside must be completely melted as work proceeds; this is to ensure a full torch-bond is achieved.

A minimum 80mm side laps and 100mm end laps must be obtained in order to ensure a full watertight seal. To ensure total security, all laps must extrude a minimum 5mm of bitumen bleed which should be checked thoroughly as work proceeds.

FIRE RISK AREAS AND ALL STRIPPED WATERPROOFING

Garland SA Flex Vapour Barrier:

Any areas of stripped waterproofing back to a combustible substrate must be installed with self-adhesive vapour control layer.

Install a layer of Garland SA Flex Vapour Barrier (10.0 x 1.0m roll) in accordance with current instructions. The substrate should be clean, dry, and free of debris, dust and primed.

Starting at the low point of the roof, unroll the SA Flex Vapour Barrier in the desired position. Fold the membrane length- wise back onto itself, remove the split back release film from the exposed side and gradually push the membrane into place.

Apply even pressure along the entire length of the membrane from the centre to outer edges to avoid air pockets or wrinkles.

Repeat for the other side. Firmly apply pressure with a suitable weighted roller to ensure 100% adhesion.

Finally apply pressure with a suitable weighted roller over the entire area to ensure 100% positive adhesion.

End laps should be sealed using a hot-air gun with a flat nozzle and seam roller for 100% positive adhesion.

Heat weld the membrane laps ensuring a 50mm gap is maintained between the heat gun nozzle and seam roller for a consistent weld. Excess pressure should not be required to create a bleed. A minimum of 100mm end laps must be obtained to ensure a watertight seal has been achieved.

N.B. Apply when the ambient air temperature, roll temperature and substrate temperature are all 10°C or above. Application in cool temperatures will negatively affect adhesion.

N.B. The vapour control layer must be installed a minimum 100mm above the insulation height at all roof details (upstands, water check curbs, timber battens, rooflight curbs, vent curbs, parapet walls etc.), this ensures continuity in the VCL and that roof system is protected from damaging effects of condensation.

INSULATION:

Fully bond new PIR insulation boards with **Garland Insul-Lock LR Adhesive** all laid in accordance with the Manufacturers current instructions. Once the boards have been placed on the surface, apply firm and even downward pressure so as to achieve a full adhesion bond.

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Insulation boards must be laid break-bond pattern in accordance with the current instructions.

Treated timber battens must be installed at all non-supported edges i.e. internal and external gutter edges etc. The treated timber batten must be slightly thinner than the specified insulation in order to allow for the build-up of waterproofing membranes and rainwater runoff.

All timber battens must be mechanically fixed and primed prior to being encapsulated with Garland SA Flex Vapour Barrier or a mechanically fixed bitumen membrane layer prior to a torch application.

Fillets must be installed to all upstands, chase details etc. If using combustible timber fillets, these must be encapsulated with SA Flex Base Sheet or a mechanically fixed bitumen membrane layer prior to a torch application.

N.B Insulation should ideally be stored inside a building or within a site container, however If outside storage is unavoidable the insulation must be off ground level and covered with a waterproof sheet. The packaging of the insulation can by no means whatsoever be relied upon to provide protection from moisture and must be avoided at all times.

All exposed/open edges of insulation must be sealed with fully bonded night joints overnight to ensure no water ingress.

UNDERLAY:

Garland Torch Ultra-Vent:

Install a layer of Garland Torch Evolution Base (8.0m x 1.0m roll) to the insulation boards in accordance with the approved Garland technique.

All laps and seams must be fully bonded, minimum 80mm side laps and 100mm end laps must be obtained to ensure a watertight seal has been achieved. A minimum 5mm bead of bitumen must extrude at all laps.

UNDERLAY AT DETAILS:

Garland Torch Evolution Base:

Install a layer of Garland Torch Evolution Base Sheet (8.0m x 1.0m roll) **fully-bonded** to the insulation boards and details. Minimum 80mm side laps and 100mm end laps must be obtained to ensure a watertight seal has been achieved. A minimum 5mm bead of bitumen must extrude at all laps.

FIRE RISK AREAS - Garland SA Flex Base Sheet:

Install a layer of Garland SA Flex Base Sheet (10.0 x 1.0m roll) in accordance with current instructions. The substrate should be clean, dry, and free of debris and dust. Foil-faced insulation does not need to be primed prior to installation of the SA Flex Base Sheet. However, glass tissue faced insulation must be primed with Garland SA Contact Primer prior to installation of Garland SA Base Sheet.

Starting at the low point of the roof, unroll the SA Flex Base Sheet in the desired position. Fold the membrane length-wise back onto itself, remove the split back release film from the exposed side and gradually push the membrane into place.

Apply even pressure along the entire length of the membrane from the centre to outer edges to avoid air pockets or wrinkles.

Repeat for the other side. Firmly apply pressure with a suitable weighted roller to ensure 100% adhesion.

Finally apply pressure with a suitable weighted roller over the entire area to ensure 100% positive adhesion.

A minimum of 100mm end laps and 80mm side laps must be obtained to ensure a watertight seal has been achieved.

N.B. Apply when the ambient air temperature, roll temperature and substrate temperature are all 10°C or above. Application in cool temperatures will negatively affect adhesion.

UNDERLAYER INSPECTION:

The Approved Contractor must give reasonable notice to his Garland Regional Technical Manager of their intention to commence laying the cap sheet. This will allow a discretionary inspection of the

UNDERLAYER to take place, so that any remedial treatment necessary can be carried out prior to installing the cap sheet.

MINERALISED CAP SHEET:

Garland StressPly Flex Plus:

Install a layer of Garland StressPly Flex Plus Cap Sheet (5.0m x 1.0m roll) by torching in accordance with current instructions. Minimum 80mm side laps and 100mm head laps are required. A minimum 5mm bead of bitumen must extrude at all laps to ensure a watertight seal has been achieved.

N.B Your Garland representative will thoroughly check all laps to ensure total security, any laps not found to be beaded will be pointed out to the roofing contractor where he will be required to re-seal this area.

FIRE RISK AREAS - Garland StressPly Flex SA

Install a layer of Garland StressPly Flex SA (10.0 x 1.0m roll) in accordance with current instructions. The substrate should be clean, dry, and free of debris and dust. The Garland SA Flex Base layer does not need to be primed prior to installation of the StressPly Flex SA Cap Membrane. Starting at the low point of the roof, unroll the StressPly Flex SA membrane in the desired position. Fold the membrane length- wise back onto itself, remove the split back release film from the exposed side and gradually push the membrane into place.

Apply even pressure along the entire length of the membrane from the centre to outer edges to avoid air pockets or wrinkles.

Repeat for the other side. Firmly apply pressure with a suitable weighted roller to ensure 100% adhesion.

Finally apply pressure with a suitable weighted roller over the entire area to ensure 100% positive adhesion.

End laps and side laps **MUST** be sealed using a hot-air gun with a flat nozzle and seam roller for 100% positive adhesion.

Heat weld the membrane laps ensuring a 50mm gap is maintained between the heat gun nozzle and seam roller for a consistent weld. Excess pressure should not be required to create a bleed. A minimum of 100mm end laps and 80mm side laps must be obtained to ensure a watertight seal has been achieved.

N.B. Apply when the ambient air temperature, roll temperature and substrate temperature are all 10°C or above. Application in cool temperatures will negatively affect adhesion.

DETAILING:

All details should be waterproofed using the following membranes.

Vapour control layer:

Garland Torch Flex VCL must be installed 100mm above the insulation height at all roof details. All timber battens must be mechanically fixed at the roofs perimeter curbs and gutters before being encapsulated.

Fire risk areas must use Garland SA Flex Vapour Barrier in accordance with instructions above

Underlay at details:

Install a layer of Garland Torch Evolution Base Sheet **fully-bonded** to the insulation boards and details. Minimum 80mm side laps and 100mm end laps must be obtained to ensure a watertight seal has been achieved. A minimum 5mm bead of bitumen must extrude at all laps.

Fire risk areas must use Garland SA Flex Base Sheet in accordance with instructions above

Cap sheet at details:

Garland StressPly Flex in accordance with current instructions.

Fire risk areas must use Garland StressPly Flex SA Cap Sheet in accordance with instructions above

Upstand details:

All up stand kerb details should be raised to provide a minimum 150mm upstand height from the finished roof level, if this cannot be achieved and might affect the performance of the Garland waterproofing system, it should be reported immediately to your Garland Regional Technical Manager in order that we may assist in overcoming the problem.

Attention should be paid in particular to all details such as flashing details. These may need to be raised to comply with the minimum 150mm upstand. Provision should be made by the installer for mechanically fixing the top leading edge of all upstand details in excess of 250 mm in height using appropriate fasteners.

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Hot air welding equipment:

Hot air welding equipment must be manufactured by either **Leister** or **Sievert**.

Equipment details:

Side laps (one of the following)

- Leister Varimat or Bitumat automatic hot air welder 240V/4600W with an 80mm nozzle.
- Leister Electron hot air hand tool 240V/4500W with an 80mm nozzle.
- Sievert TW5000 automatic hot air welder 240V/5000W with an 80mm nozzle.
- Sievert TH1750 hot air hand tool 240V/2300W with an 80mm nozzle.

Head laps and all detailing (one of the following)

- Leister Electron hot air hand tool 240V/4500W with an 80mm nozzle.
- Sievert TH1750 hot air hand tool 240V/2300W with an 80mm nozzle.

INTERNAL GUTTERS:

Existing waterproofing and insulation must be stripped down to the deck. Dress the specified Garland Torch Flex VCL to the sides and sole of the internal gutter including hard edges.

Secure hard edges and fillets at the gutter edges. The hard edges should be slightly thinner (10mm) than the insulation to accommodate the detailing membranes and 100mm wide in order to accommodate the 100mm end laps. Hard edges must be encapsulated with Garland Torch Flex VCL prior to insulation being laid. Install specified insulation to the sole of the gutter.

Install the specified Garland Torch Evolution Base Sheet & StressPly Flex Cap Sheet to the internal gutter as described above.

The underlay membrane laps should be increased to 150mm in the gutter area to provide additional security to this area.

FLASHINGS:

Install new **Leadax** cover flashings dressed in the chases provided. These should be temporarily secured with wedges and then pointed using Garland TS-2136 Urethane Mastic.

Where applicable & if appropriate a new GRP Termination Bar to be installed. This to be pointed using Garland TS-2136 Urethane Mastic. All defective flashings are to be resealed with Garland TS-2136 Urethane Mastic.

PARAPET WALLS:

Install a 19mm exterior grade plywood support to the face the parapet, the plywood should be mechanically fixed to timber battens.

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Ensure that surfaces are free from visible dampness and that surface lying dust, dirt and other forms of contamination are removed immediately prior to priming.

Apply the Garland SA Contact Primer to all timber detail areas and allow to dry thoroughly prior to waterproofing application.

Install the Garland SA Flex Base Sheet (10.0m x 1.0m) up and under the current lead flashing in place

Install the Garland SA StressPly Flex Mineral Cap Sheet (7.5m x 1.0m), under the lead fully, ensuring a minimum 10mm of extruded bitumen is present at all side laps and end laps.

Install angle fillets to all upstand details where required.

PIPES, TUBES, VENTS & ANCHOR POINTS:

Viking Products Group LTD Cowled Telescopic Vent (where applicable) & Treatment of Existing Flues:

Install the Viking Products Group LTD Cowled Telescopic Vent where a pipe penetrates the waterproofing system. Place the upstand pipe over the soil vent pipe centrally. Ensure the High-Performance membrane flange on the upstand pipe is fully supported and bonded by hot-air welding.

The flange should be incorporated within the built up felt layers in accordance with the current instructions. The telescopic double pipe is then positioned to fit into the soil vent pipe and simultaneously over the upstand pipe. The height of the telescopic double pipe can be altered as required and then fixed with the self-tapping screw included. Compliance for the minimum height must be in accordance with the current Building Regulations. The Cowled Telescopic Vent can be extended 700mm from flange to cowl with a 35mm lap between the telescopic double pipe and the upstand pipe. Fixing the vented cowl finishes the Cowled Telescopic Vent. The vented cowl fits over the telescopic double pipe and is fixed with the self-tapping screw included.

N.B. Where Viking Products Group LTD telescopic vent are not usable, lead sleeves must be used, if necessary these must be made up for the individual vent or pipe.

Where vent pipes and tubes can be removed or redirected so that no penetration through the waterproofing is required, this should be done so at all times. The flue should be temporarily supported to allow removal of the attachment wires from the deck. Upon completion of the waterproofing system these wires/anchor points should be re-secured to 500 mm concrete pavers located in a position dictated by the wire length laid loose on a sacrificial layer of mineral felt.

INTERNAL RAINWATER OUTLETS:

Roof Outlets

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All existing rainwater outlets should be checked to ensure they are not blocked or leaking.

Install 100mm Garland Roof Outlets in accordance with the current instructions. The Roof Outlet has a sponge rubber 'O' ring fitted to its spigot. This 'O' ring provides a seal to the internal diameter of the down pipe. The outlet has a high-performance membrane flange that should be fully supported and bonded by hot-air welding. The flange should be incorporated within the existing perimeter.

After the waterproofing is complete install the stainless-steel outlet grate. The grate is fastened with an expanding clamp, which grips the outlet spigot internally.

On completion, all rain water outlets should be checked to ensure that they are free flowing.

ROOF PENETRATIONS:

All roof penetrations must be waterproofed with either a Viking Products Group LTD Cable Duct or for multiple cables a Viking Products Group LTD Roof Pro PP3 Unit.

PLANT, AIR CONDITIONING UNITS, ETC:

Where Plant, Air Conditioning Units or Ventilation Systems require positioning on top of the finished roof surface a loose laid section of Garland Waterproofing membrane should be positioned and on top of this a rubber tile or concrete paver of the correct size should be placed for the system to rest on.

ASBESTOS

It is the roofing contractor's responsibility to check the schools asbestos register.

If there is any risk of Asbestos which could affect the installation of the new waterproofing system this must be brought to the attention of the contract administrator on tendering for the project.

SOIL AND VENT PIPES/PENETRATIONS

All soil, vent pipes and penetrations must be sealed and made watertight using suitable Dektite flashing.

Please contact your Garland representative for more information.

ITEMS TO CONSIDER

STORAGE & HANDLING:

All materials, except bulk deliveries, shall be delivered in the manufacturer's original containers. The containers shall be sealed and display the manufacturer's original label(s).

All liquid materials shall be stored in a cool, dry, shaded area during hot weather or in a dry, heated area during cold weather. Roll goods and granules shall be stored in a clean, temperature controlled area. Any materials exposed to the elements shall be elevated above the ground and covered by a tarpaulin. Materials must not be exposed to excessive heat or direct flame.

Materials shall be handled so as to minimize damage or contamination with moisture or foreign matter. Solvent based materials are combustible. Keep containers closed when the materials are not in use.

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SAFETY:

Refer to all applicable data including, but not limited to, Material Safety Data Sheets, Technical Data Sheets, Product Labels and specific instructions for personal protection requirements.

Refer to the Hazard Elimination and Reduction Assessment for particular hazards associated with this design.

JOB CONDITIONS:

Roofing materials shall not be applied during inclement weather and the installation shall not proceed in the event that precipitation is probable during application.

NOTES

The contractor is to ensure water tightness of the roof at all times.

Workmanship that is incorrect and does not meet Codes of Practice will not be permitted, even if the system is watertight. The client will be told that all such faults must be remedied, before the Guarantee is issued.

Any building work which is the responsibility of the roofing contractor and has a bearing on the life of the Garland Waterproofing System must be carried out by properly trained tradesmen.

All reasonable undertakings and inclusions required to complete the works must be allowed for within the Tender price, whether or not specifically identified within the Tender Documentation or Specification. All work to conform to good practice and current British Standards and Regulations.

All the above work will be regularly monitored by your Garland Regional Technical Manager, with all progress reports to be emailed to the supervising officer the following day of the site visit.

For any further information regarding this specification please contact your Garland Regional Technical Manager.

N.B. Core samples are indicative of the roof construction only at the area where the sample was taken. The Roofing Contractor must satisfy himself as to the existing roof construction of all roof areas prior to forwarding his Tender documentation.

If any discrepancies regarding the core samples are noted by the Roofing Contractor, they should be brought to the attention of your Garland Regional Technical Manager prior to forwarding the Tender Documentation. This will allow time for any changes in the specification to be adjusted if required.

The Garland Company (UK) Ltd does not, either itself or through its representatives, provides architectural or engineering advice or designs save in relation to its products. Garland (UK) Ltd offers no opinion on and expressly disclaims any responsibility for the integrity or structural soundness of any roof deck or structure on which its products may be applied. The Owner is advised to seek independent advice from a structural engineer as to the structural soundness and integrity of the roof deck, and its ability to properly support the contemplated roof installation. Garland accepts no responsibility or liability in relation to such matters and no Garland representative is authorised to vary this disclaimer.

It should be noted that this Specification and all documents produced by Garland in connection with the project ("Documents") are subject to copyright laws. Garland retains the copyright in all Documents and will grant a license to the client and the roofing contractor to use the same solely for the purpose for which the Documents were prepared in connection with the project and subject to Garland receiving payment in full for all its products mentioned in this Specification. For the avoidance of doubt, neither the client nor its contractors or representatives shall be entitled to copy or otherwise pass the Documents to any competitor of Garland or otherwise utilise the same to carry out the project using products which have not been supplied by Garland.

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Photos

Section of asphalt at this balustrade to be coated using our Duracoat system as per the below specification coating to have charcoal mineral broadcast into the top coat



ENVIRONMENTAL CONDITIONS

- Do not apply roofing/waterproofing membrane during or with the threat of inclement weather.
- Application of cold fluid-applied reinforced methyl-methacrylate roofing and waterproofing membrane may proceed while air temperature is between 0°C and 35°C providing the substrate is a minimum of 5°C above the dew point.
- When ambient temperatures are at or expected to fall below 0°C or reach 30°C or higher, follow Garland recommendations for weather related application procedures.
- Ensure that substrate materials are dry and free of contaminants. Do not commence with the application unless substrate conditions are suitable. Contractor shall demonstrate that substrate conditions are suitable for the application of the materials.
- Where required by the Owner or his designated Representative, the contractor shall implement odour control and elimination measures prior to and during the application of the roofing/waterproofing materials.

MATERIAL/SYSTEM SCHEDULE

SUBSTRATE: Existing Mastic Asphalt

Dura-Coat Concrete Primer

WATERPROOFING
MEMBRANE:

Dura-Coat Membrane (25kg pail)
Dura-Coat Membrane Thix (25kg pail)

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REINFORCEMENT:

Grip Polyester Soft Fabric (0.3x50m)
Grip Polyester Soft Fabric (1.0 x 50m)

TOP COAT:

Dura-Coat Coloured Top Coat (20kg pail)

CATALYST:

Dura-Systems Catalyst (25kg)

CLEANER:

Dura-Coat Cleaner (10kg pail)

SYSTEM BUILD-UP

PRIMER

Primer:	Dura-Systems Concrete Primer	± 0.3 - 0.5 kg/m ²
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WATERPROOF COATING (layer thickness ± 3mm)

Waterproofing membrane 1:	Dura-Coat Membrane	± 1.2 kg/m ²
Reinforcement:	Grip Polyester Soft Reinforcement Fabric	-
Waterproofing membrane 2:	Dura-Coat Membrane	± 1.6 kg/m ²

TOPCOAT

Coloured top coat:	Dura-Coat Coloured Top Coat	± 0.5 kg/m ²
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NOTE: The required amounts of resin and aggregate are average values. The exact consumption depends on substrate conditions.

SUBSTRATES

Substrate Quality and Preparation

Prior to application of any Garland products or materials, the substrate shall be prepared as recommended by Garland and/or required for the intended application. All substrates must be clean, dry, and free of oil, grease, curing compounds, release agents, laitance, gross irregularities, loose, unsound or foreign material such as moss, algae growth, dirt, ice, snow, water or any other condition that would be detrimental to adhesion of the primer and/or resin to the substrate.

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General Points Regarding Old Substrates

- The substrates must be cleaned of any microorganisms using appropriate solutions and/or resources such as suitable fungicidal solutions.
- Existing coatings or paint must be eliminated by shot blasting or by grinding on vertical elements.
- Non-adherent or friable areas are removed.

Initial Power Wash

All surfaces should initially be power washed in order to reveal a clean surface suitable for inspection and where necessary, repair. A minimum 2000 psi is recommended for preparation. There is no specific maximum as this may vary according to the equipment used and the surfaces being cleaned. At no time should the pressure jet be so high as to cause damage to the substrate being cleaned. Adjust pressure to clean away contamination and friable material from the surface. Note: Exercise suitable precautions when using high pressure equipment.

Surface Water & Contamination

Any surface lying water, mould growths, moss or other vegetation, loose debris, etc., should be removed from areas to be coated.

Fixed Items

Any fixed item which is not to be included in the coating schedule, including wires, cables etc., must either be totally removed or in order to allow access, be suspended from the surfaces to be coated. Such items should not be removed without proper authority or deference to safety. The coating should be allowed to cure for a minimum period of two days before replacement of these fixtures. Handrail bases should be separated from the finished coating with a loose layer of mineral felt or neoprene pad.

Protrusions

Inspect any roof and/or upstands, i.e. vents, pipes, etc., to ensure water tightness. Repair or replace defective materials as necessary and prepare each protrusion and/or upstand as required in order to accept the coating.

Surface Repairs: The existing surfaces are to be inspected and made good prior to application of the coating system. Remove all blisters on the existing roof surface and make good ready to receive the coating system. Large cracks should be filled using TS-2136 or compatible material. If necessary, patch repairs should be carried out and allowed to cure prior to application.

Roof Structure

All softwood timbers used in the roof structure should be treated and a minimum of class 2 durability.

PRE-TREATMENTS:

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Known Growth - General Surfaces

Once areas of moss, mould, algae and other fungal growths or vegetation have been removed and surfaces have also been thoroughly cleaned, apply a biocidal wash at a maximum spread rate of **10** square metres per litre (equivalent to a minimum quantity of **0.1** litres per square metre), to guard against subsequent infection. Allow to dry onto absorbent surfaces before continuing with the application. On non-absorbent surfaces, allow to react before thoroughly rinsing to remove all traces of the solution. Note: See Health & Safety data before use.

Final Cleaning

All surfaces to be coated should be sound, clean and dry. Ensure that once preparation work is complete, surfaces are free from visible dampness and that surface lying dust, dirt and other forms of contamination are removed immediately prior to application.

N.B. The surface must be inspected by the local Garland Representative to sign off preparation works prior to continuation of works.

INSTALLATION

1. PRIMER (Dura-Systems Concrete Primer):

Prepare the substrate as required and ensure the surface is clean and dry.
Vacuum clean the surface to remove all dust and then prime with Dura-Coat Concrete Primer at a consumption rate of 0.3 – 0.5 kg per m².

Dura-Systems Catalyst must be added to the primer to initiate curing.

Mixing of Resin:

Mix **Dura-Systems Concrete Primer** resin with a spiral agitator for a minimum of 1 minute until the liquid has a uniform colour.

Add the correct amount (by weight) of Dura-Systems Catalyst depending on temperature to the resin and mix with the same agitator for 2 minutes or until the powder is completely mixed. The catalyst is completely dissolved when there are no white specs remaining.

Coverage Rates:

Smooth Substrates: 0.3 kg per m²

Catalyst Values:

At 30°C add 1% by weight of catalyst
At 20°C add 2% by weight of catalyst
At 10°C add 4% by weight of catalyst
≤ 0°C add 6% by weight of catalyst
Below 0°C add 6% by weight of catalyst and additionally add an accelerating agent.

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2. WATERPROOFING MEMBRANE (Dura-Coat Membrane):

Mix the Dura-Coat Membrane until uniform and then add the Dura-Systems Catalyst and apply onto the prepared surface with a notched squeegee or roller at a rate of 1.2 kg/m². In the wet coating, bed in Grip Polyester Reinforcing Fabric and apply a second layer of Dura-Coat Membrane wet in wet of 1.6 kg/m². Allow to cure (approx. ± 60 minutes at 20°C). Note. Wet-on-wet application is not necessary if impractical, allowing the material to cure between coats is acceptable.

All upstands etc. should be detailed first and run onto the main horizontal wearing surface by a minimum of 100mm. The system must be terminated into a chase within the concrete or brickwork wall prior to being sealed.

Coverage Rates:

Smooth Substrates: 2.8 kg per m²

Catalyst Values:

At 30°C add 1% by weight of catalyst
At 20°C add 2% by weight of catalyst
At 10°C add 4% by weight of catalyst

≤ 0°C add 6% by weight of catalyst
Below 0°C add 6% by weight of catalyst and additionally add an accelerating agent.

A combination of Dura-Coat Membrane and Dura-Coat Membrane Thix should be used on all vertical flashings and slopes to prevent slumping. This is usually mixed at a 30:70 ratio necessary to obtain a suitable viscosity. Other ratios are permitted depending upon the application requirements.

3. COLOURED TOP COAT (Dura-Coat Coloured Top Coat):

Apply the **Dura-Coat Coloured Topcoat** in the chosen RAL colour onto the Membrane layer at a consumption rate of 0.5kg per m².

Apply with a paint roller at the specified consumption rate and allow to cure.

Mixing of Resin:

Mix **Dura-Coat Coloured Top Coat** resin with a spiral agitator for a minimum of 1 minute until the liquid has a uniform colour.

Add the correct amount (by weight) of Dura-Systems Catalyst depending on temperature to the resin and mix with the same agitator for 2 minutes or until the powder is completely mixed. The catalyst is completely dissolved when there are no white specs remaining.

Coverage Rates:

Smooth Substrates: 0.5kg per m²

Catalyst Values:

At 30°C add 1% by weight of catalyst
At 20°C add 1.5% by weight of catalyst
At 10°C add 2% by weight of catalyst
At 0°C add 4% by weight of catalyst and additionally add an accelerating agent.

NOTE: These values are different from the waterproofing membrane coating.

Dura-Coat Coloured Top Coat must be applied the same day as the previous coat to achieve maximum bond strength.

Internal angles must be reinforced with Grip Polyester Soft reinforcement fabric embedded between two layers of resin at a rate of 1.4 kg/m² per coat. This should extend at least 50mm onto each surface plain of the angle.

Bridging Cracks

Cracks must be identified by the installing operatives and treated as per below.

Cracks of 0.3mm or less without projection

Cracks of 0.3mm or less will be bridged by the waterproofing system.

Cracks between 0.3mm and 0.8mm

These should be treated by cutting a V with a pneumatic drill. After crack has been suitably chased, fill with Dura-Coat Membrane or Membrane Thix.

Cracks between 0.8mm and 2mm

These should be considered active and should be bridged using a suitable cut piece of Grip Polyester Soft reinforcement embedded between two layers of Dura-Coat Membrane or Membrane Thix. NB. This type of detail treatment may mean the outline of the crack remains visible.

CONSUMPTION:

Note: Consumption rates of all products stated will increase if the substrate is uneven or has a rough surface finish.

Use volume to area calculations and/or wet film thickness readings where appropriate to ensure correct material coverage.

Note: Depending on slope, halving of the material coverage and doubling the number of coats may be necessary to prevent material slumping especially of vertical faces.

Dura-Coat Thix should be used on all vertical flashings and steep slopes to prevent slumping. This can be mixed with the regular resin if necessary to obtain a suitable viscosity.

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INSPECTION DURING APPLICATION:

Conditions for application:

The humidity and ambient temperature must be checked using appropriate equipment before each application (thermometer, moisture metre, contact thermometer, dew point meter or similar).

The dew point must be determined and the temperature of the substrate checked. The surface humidity of substrates must be verified using a TRAMEX CME4 type spot moisture meter.

Examination of the substrate:

The substrate finish need to be continually checked for smoothness and condition prior to coating works. Any irregularities must be corrected.

Inspection upon application of resin:

Ambient and weather conditions must be continually monitored and checked. If conditions fall outside of recommended tolerances application must be stopped.

Weight and coverage of resin applied must be monitored and maintained throughout the works.

COMPLETION:

Following completion of the installed, specified project works provision should be given to the protection of all finished surfaces from damage by subsequent building operations. Additional work will be required to return the membrane to a warrantable condition if the membrane is damaged due to inadequate protection.

Please see the attached detail drawings relevant for the proposed specification.

GARLAND UK GUARANTEE

A 20 Year Independent Single Point Garland (UK) Guarantee is available for the flat roof section for both material performance and labour on this contract subject to this specification being followed and applied by a Garland (UK) approved contractor.

GUARANTEE ISSUE PROCEDURE

On completion of the works, the Garland (UK) Ltd Regional Technical Manager will carry out a final inspection and agree any necessary remedial works prior to signing off the roofing works to ensure that the work has been completed in accordance with the specification.

It is advised this meeting should be attended by a representative of Garland (UK) Ltd, the approved contractor's site manager and a representative for the client. Within due course of this meeting, subject to all parties being satisfied with the work, a guarantee will be issued to the client.

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The guarantee will be issued to the client in hard copy and a digital copy will be attached electronically to the client's database.

ACCESS AND MAINTENANCE

Twice a year during your annual inspections, the following maintenance and housekeeping activities should be performed:

- Remove unnecessary debris (leaves, branches, paper, etc.) from roof surface, drains and gutters
- Trim any branches or trees that hang over the building and that can clog drains
- Reseal all areas surrounding venting, plumbing or roof top equipment
- Make all necessary repairs to roof membrane and flashings
- Loose or missing colour matched caps are to be replaced with new
- Scratches found are to be primed and painted with colour matched paint

Please note that if this roof is fragile, it is not to be walked upon without correct and safe access equipment.

Viking Step Tile Matting is to be installed to any high foot traffic areas at access points of the Guardrail System, adjacent to ladders, steps and from, to and around any major M&E plant on the roof space, to protect the Specified Garland Waterproofing System.

It is recommended that all elements within the installation are inspected periodically by a competent person. The frequency of these inspections will depend upon the environment, location, and utilization, but should be at least every twelve months. The Free Standing Viking Guard Rail system and affiliated products are fully compliant and adhere to the following certifications: BS EN 13374: 2013 – Class A, HSG INDG 284 – Working on Roofs, BS EN ISO 14122-3:2001, HSG33 – Safety in Roofwork & BS 6399 – Part 2: 1995 Wind Code. Viking Freestanding Guardrail has been tested to EN ISO 13374-2013 Class A by Satra Technology Ltd.

N.B. Please contact your Viking Technical Representative for specific guidance relating to the Roof Safety System of this project and to acquire budget costs for all affiliated equipment. Installation of the system can be arranged by Viking Products Group through its affiliated companies should this be required by the contractor.

CONTRACTORS

The workmanship of our authorised contractor network is approved and guaranteed against failure under the terms and conditions of the subsequent Garland warranty.

In the knowledge that the correct installation of systems is a critical step in ensuring long term performance, Garland will only recommend contracting companies whose attitudes towards site performance and customer care are in line with the same high principles as their own.

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Following the design work in partnership with your Garland Regional Technical Manager you will be ready to go out to tender or place an order with a contractor to carry out the required project. The quality of your planning and specification demands the services of a like-minded contracting organisation. You can rest assured that The Garland Company will provide you with a list of authorised partnered companies who have met the criteria set down in our stringent approval process.

We insist on, competent pricing, proficient site practice and effective contract management. We strive via a training programme to partner with company's who will purvey only the highest standards of workmanship at this critical stage of your project.

Your Garland Regional Technical Manager will monitor the performance of the contractor over the course of the project and ensure that all works are being carried out, in line with the specification, to codes of practise and that they also meet all aesthetic considerations.

On completion of the project your Garland Regional Technical Manager will thoroughly inspect the project and ensure that the contractor has met all the considerations laid down in the original specification and that all works are completed to the full satisfaction of The Garland Company and the specifying client.