Hugh LS McConnells Ltd

Dancers End WTW

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1 Project Contacts

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2 Introduction

For this application, we have specified the **Centech PU 20 Roof** system incorporating the use of **Centech PU** moisture triggered polyurethane technology. **Centech PU** is a single pack, high performance membrane designed to provide enhanced long term waterproofing protection for your roof. The product is supplied in two colours; mid grey and light grey. Both products can be used as either a first coat or a top coat. We always recommend the use of two different colours for two coat systems, as this enables the applicator to distinguish easily between areas that have had a top coat and others that still require a top coat. The system is reinforced with the **Centech GFM** a specially designed 225 gram glass fibre mat, which adds extra dimensional stability to the completed membrane.

The performance of this system is guaranteed (provided it is installed correctly and in accordance with good roofing practice) for a total of twenty years when applied to roof areas. After the guarantee period and provided that the roof is in a satisfactory condition, a further top coat of **Centech PU** can be applied to generate a further ten year guarantee. Whenever this occurs and following reactivation primer, the application of the additional material will reinstate the waterproofing quality of the system, the cost of which will be considerably less than the original application. All guarantees only apply to the extent of the **Centech PU** waterproofing, any water penetration through adjacent construction details or where improper terminations have been installed will not be covered. Any form of termination that relies exclusively on sealants as a means of water-tightness must be included in a regular yearly maintenance schedule.

Through our single point guarantee, the Centech PU system, and components supplied by Centaur Technologies in accordance with this specification, will be fully warranted against water penetration only when applied by a **Centaur Quality Partnership (CQP) Contractor** in accordance with this project specification. It is also necessary to maintain the roof in accordance with Annex B of BS 6229:2003 *Flat Roofs with Continuously Supported Coverings - Code of Practice* to comply with the terms of the guarantee. Our guarantee covers both materials and labour giving the client the reassurance of dealing with one single organisation.

This specification is to be read in conjunction with all the relevant Technical Data Sheets and the listed appendices and is valid for a period of 12 months from the above date. After this period, a further site survey should be carried out to reassess the roof to ensure that the proposed system still provides a suitable solution to the problems found on the roof. Centaur Technologies operates a continuous product development process and retains the right to alter our product specifications in accordance with relevant national standards without notice. Variations to this specification must be confirmed in writing by Centaur Technologies to make sure that the proposed changes and any impact they may have on any guarantee offered or implied have been considered.

2.1 Preliminaries

1. This specification is based on the information available at the time of writing. It covers the installation of Centaur Technologies' materials and the minimum work required to suitably prepare the substrate. The performance of materials other than those supplied by Centaur Technologies is beyond our control.
2. Single Point guarantees are only offered for projects completed in accordance with a Centaur Technologies project specification by a Centaur Quality Partnership Contractor.
3. Centaur Technologies cannot be held responsible for unidentified site conditions below the substrate surveyed. The suitability of the structure should be confirmed by a competent person.
4. Before the commencement of work, the client should agree a detailed method of work statement and a suitable programme of works with the Centaur Technologies CQP Contractor.
5. It is the contractor's responsibility before tendering to examine this specification, any drawings and all current relevant data sheets and subsequently consider the site requirements relevant to the application of the system. It is recommended that contractors visit the site to determine any site conditions or restrictions, safe access to the roof, the full extent and nature of the work, the supply and conditions affecting labour and the execution of the contract generally. Contractors should satisfy themselves that the suggested coverage rates for primers, adhesives and coatings are practicable to be applied as stated for the actual site conditions. The contractor should provide the client with a full description of the work to be carried out, including all aspects of the contract and any items not contained within this specification. Any items or conditions identified, but not covered in this specification, that are required for the successful installation of the system specified must be brought to the attention of Centaur Technologies and the client in writing. Amendments to the specification may then be required. Any claims arising from failure to carry out any of the above will not be the responsibility of Centaur Technologies.
6. To ensure that waterproofing enabling works do not contaminate or are not otherwise detrimental to the overall waterproofing system, the sequencing of the work detailed in the specification needs to be considered prior to the installation of the new waterproofing system. Waterproofing enabling works include, but are not limited to; repairs to masonry, cutting chases, work to cavity trays, removal or diverting cables, lightning conductors, service pipes, removal of plant, machinery, rooflights, other general building work.
7. During progress of the work, any substrate defects or faults discovered that could reasonably be expected to affect the successful installation of the roof system, must be brought to the attention of the proper authorities, including Centaur Technologies, in writing before continuing with the installation of the specified materials. Amendment of the specification may be required.
8. The works are to be carried out in accordance with relevant standards, codes of practice, health and safety requirements and current Centaur Technologies guidelines.
9. Under CDM regulations, risks from hot works will be eliminated by using cold applied Centaur systems. Other risks such as working at height, working near to roof openings, roof edges or fragile roof constructions must be considered in the construction phase plan by the client, principle designer and/or contractor. Safe access to work areas must be provided.
10. Centaur Technologies' systems and products are cold applied. We do not suggest nor condone the use of naked flame torches to dry substrates or details. Contractors must allow for suitable methods of drying substrates and details and the time involved in doing so. Suitable methods include squeegees, blanket/towel drying, leaf blowers and hot air guns / dryers. (Such as www.gacoflatroofingsolutions.com/products/roofdryer/)
11. All Centaur Technologies' materials must be suitably stored on site in accordance with their current technical and material safety data sheets.
12. Centaur Technologies has carried out fire tests for the most commonly specified Centaur Technologies roof system, however, it is not possible to test every possible permutation. Specifiers should satisfy themselves that the roof construction complies with relevant building regulations and any insurance requirements.
13. BS 6229:2003 *Flat Roofs with Continuously Supported Coverings – Code of Practice* recommends that flat roofs have a minimum finished fall of 1:80. For existing roof constructions, this may not be achieved and there may be ponding on the roof. For new roof constructions or where tapered insulation is used a design fall of 1:60 or 1:40 should be used to allow for site conditions. Even so, and for tapered systems over existing substrates, complete removal of ponding water may not be achieved. Centaur Technologies' liquid applied membranes, however, are not affected by slight ponding water and this will have no detrimental effect on their waterproofing integrity, durability or guarantee.

14. Waterproofing to upstands should extend to a minimum height of 150mm above the finished level of the roof as stated in BS 6229:2003: *Flat Roofs with Continuously Supported Coverings – Code of Practice:* Section 7.1. Water ingress via any upstand detail less than 150mm above the finished roof level will not be covered by the Centaur Technologies guarantee.
15. Some products within this specification, for example, but not limited to, adhesives, primers etc. may be limited to application temperatures of +5°C or above. Installation, therefore, may be affected during colder months. Consult the current Centaur Technologies technical data sheets as required for information on suitable application conditions.
16. Part of the specification may include detail drawings. Any such drawings will be prepared or approved by Centaur Technologies during design or pre-tender stage. The preparation of post-tender "as built" drawings is beyond Centaur Technologies remit.
17. Should a specified product or item in this specification document become unavailable, then Centaur reserves the right to substitute said product with an equal and Centaur approved alternative. The replacement product/item, will be covered by the guarantee details outlined in this specification.

2.2 CDM and Safety

Construction (Design and Management) (CDM) Regulations 2015

The CDM Regulations place a duty on designers and specifiers when preparing or modifying designs, to eliminate, reduce or control foreseeable risks that may arise during construction and the maintenance and use of a building once it is built.

Risks from hot works will be eliminated by using cold applied Centaur systems. Other risks such as working at height, working near to roof openings, roof edges or fragile roof constructions must be considered in the construction phase plan by the client, principle designer and/or contractor. Safe access to work areas and subsequent maintenance must be provided.

This specification assumes that the client has fulfilled their legal duties as required under these regulations. CDM applies to all construction and demolition work irrespective of the number of operatives involved or the length of time. Further guidance should be sought from the HSE website:

http://www.hse.gov.uk/construction/cdm/2015

Health & Safety Guidance

It is assumed that the Contractors will work to current guidelines and practices and relevant British Standard Codes of Practice (in particular BS 8000 and parts thereof) and that relevant health and safety information will be obtained from manufacturers of any roof components that are not supplied by Centaur. CQP Contractors are approved to install Centaur products and systems. They will be in possession of the Safety Data Sheets relating to products supplied by Centaur relevant to this specification.

Risk Assessments - General

All works must comply with the requirements of the Health and Safety at Work Act and any additional requirements of the Client. The Contractor must ensure that the works are carried out in accordance with their written method statement for the project, which should be based on their project specific risk assessment. Before work commences, the contractor must liaise with the client and/or building occupier to establish the nature of any hazards that exist and agree a safe system of work in accordance with health and safety requirements.

In addition to the normal hazards associated with roofing work, such as working at height, particular attention should be paid to the following aspects:

- **Exposure to Building Dusts:** Prevent dust by using wet cutting and vacuum extraction on tools when cutting chases for example;
- **Exposure to Asbestos:** Do not start work if it is suspected that asbestos may be present until a survey has been carried out;
- **Gas flues:** Determine whether flues are live. If so, establish safe working methods to ensure that flues are not covered or obstructed in any way and that operatives are not affected by flue gasses.
- **Microwave transmitters:** Safe working methods must be determined to prevent personnel from being exposed to microwave radiation;
- **Air-intakes:** Precautions should be taken to prevent the ingress of any fumes from the roofing works entering the building;
- **Protection of Members of the Public:** Secure the site, net scaffolds and use rubbish chutes.

The above is not an exhaustive list; contractors and clients must assure themselves that all potential risks have been taken into account.

Rooflights

Existing rooflights (which may be constructed from glass, GRP, PVC, acrylic or polycarbonate) should be assumed to be fragile. Appropriate measures must therefore be taken to prevent people from falling through them when they are working on the roof. The contractor is required to provide a risk assessment and a method statement for the safe working of personnel around existing rooflights or openings where they are to be replaced.

HSG 33 *Health and safety in roof work* draws attention to the responsibilities of those specifying rooflights and states that where rooflights are required designers should consider:

- specifying non-fragile rooflights;
- fitting rooflights designed to project above the plane of the roof and that cannot be walked on (these reduce the risk but they should still be capable of withstanding a person falling onto them);
- protecting rooflights, eg by means of mesh or grids fitted below the rooflight or between the layers of a built-up rooflight; or
- specifying rooflights with a design life that matches that of the roof, taking account of the likely deterioration due to ultraviolet exposure, environmental pollution and internal and external building environments.

We would recommend that all fragile rooflights are replaced with new Centech Rooflights, a range of high quality UV stable, triple skin polycarbonate domes with PVCu kerbs. Centech Rooflights conform to Class B Non Fragile to ACR2011 - *Test for Non Fragility of Profiled Sheeted and Large Element Roofing Assemblies.* Centech Rooflights are fully compliant with Part L of the Building Regulations and achieve a whole unit Ud value of 1.8W/m²K or better. The fire performance of Centech Rooflights is Class 1 to BS476-7.

Edge Protection

The durability of Centech PU roof systems will be in excess of any guarantee provided and they are easy to maintain. For maintenance of the roof, safe access will be required. This can be provided by Centaur Edge Protection Systems or other suitable fall arrest systems. Where required, designated walkways should be provided to protect the waterproofing where regular maintenance traffic is to be expected, such as routes to air conditioning plant. These can be provided by introducing a skid inhibiting finish to the Centech PU system.

3 Flat Roof Areas

3.1 System Programme

Flat Roof Areas	
Project Type	Refurbishment
System Type	Waterproofing
Substrate	Reinforced Bitumen Membrane
Centech Coating	Centech PU 20 System
Substrate Condition	Level
Substrate Surface	Rough
Application Method	Roller
Guarantee	20 Year Single Point

3.2 Site Inspection Report

Overview
The building is a Grade II listed building, and as such no alterations can be made to the appearance of the building without consent.

There are four flat roof areas over split levels all of the same build up. The roof has had a single ply overlay to the previous bituminous and asphalt coverings. The single ply has reached the end of its life, water has penetrated beneath the membrane and the roof is in need of refurbishment.

It is proposed to strip the single ply membrane from the roof, going back to the bituminous system beneath which is then to receive a new Centech PU system to restore the waterproofing properties of the roof.

Core Samples
Core samples were taken to assess the build-up and condition of the roof.

The buildup was found to be as follows: Single-ply fleeceback membrane; on 3-layer bituminous system; on mastic asphalt; on concrete deck.

The fleeceback membrane was found to be saturated. The concrete deck was found to be dry

Core samples are only an indication of the roof build up in the area inspected. Centaur Technologies take no responsibility for changes in the roof build up outside the immediate area of inspection. It is the responsibility of the roofing contractor to satisfy themselves of the existing roof buildup before tendering.

Organic Growth
There is extensive detritus and organic growth on the roof surface as the building is surrounded with trees. Lack of regular annual maintenance has lead to blocking outlets and drainage paths.

Sagging of Existing Membrane Upstands
The single ply membrane at the upstands is loose and sagging in areas, increasing the risk of failure creating a potential for water ingress.

Coping Stones in Poor State of Repair
The copings are old and in a poor state of repair with mortar in the joints being loose or missing and in need of attention.

End of Life - Poor Condition with Water Penetration
It is apparent that the present waterproofing is in a poor condition and is now generally deteriorating to the extent that water penetration is occurring.

Scope of Works
It is proposed to remove the existing single ply membrane from the roof, stripping back to the bituminous covering beneath. The bituminous system is to be cleaned, repaired and primed before application of the new Centech PU system.

Acceptable Surfaces
The roofing contractor shall ensure the surfaces to receive the specified works are acceptable to the application of the roofing system.

Preparation
Remove all detritus and debris from the roof, ensuring the detritus does not enter the drainage system.
Remove the existing single ply waterproofing from the roof, stripping back to the bituminous system.

Remove the existing waterproofing coverings, including any termination bars, from all details. Inspect all substrates and repair as necessary to ensure a firm and stable substrate.

The remaining existing bituminous system to the field area should be inspected to ensure it is secure and well attached.

Any other organic growth on the roof surface will need to be removed and treated with a biocidal wash prior to the application of the Centech PU system.

Cut, release and re-seal all blisters. Make good any other defects in the roof covering to ensure a firm surface for the application of the new Centech PU waterproof coating.

Substrate defects may be hidden by existing surface coatings and patch repairs. All areas are to be inspected carefully; incompatible past remedial treatments should be removed as far as possible from the roof surfaces. Areas which cannot be removed should be returned to a firm, feathered edge, with adhesion tests carried out to determine the priming requirements. Membrane patch repairs should be checked for security, and any loose or debonded areas removed.

Remove all superfluous materials, dust and debris from the roof and leave in a clean and dry condition.

Priming of Substrate
Adhesion tests should be carried out to ensure the substrate is suitable and determine the required priming requirements, however it is anticipated that prepared bituminous substrates should be primed with **Centaur Epoxy Damp Tolerant Concrete Primer**, but this should be determined by the adhesion test.

Substrate Details

Upstands

All upstands should be checked and adapted where appropriate to ensure that heights are sufficient so that the waterproofing system can be installed so that continuity is maintained for a vertical height of not less than 150 mm above finished roof level, in accordance with BS 6229.

New Waterproofing Upstands and Terminations
New waterproofing upstands should terminate to a neat edge and be protected with suitable cover flashings securely wedged and pointed and providing min 75 mm cover, or dressed directly into a cut chase and pointed with Centech PU Sealant or lime mortar. Alternatively, secure with a termination bar mechanically fixed to the wall and pointed with Centech PU Sealant.

Low Door Threshold
Remove existing waterproofing from the detail. Where possible dress the new Centech PU system under the threshold and protect with new termination bar and point with Centech PU Sealant.

Parapets
We are informed the coping stones cannot be removed due to the listed status of the building. Copings should be checked for stability and that they are firmly bedded. Rake clear all mortar joints and repoint with new lime mortar to weatherproof, and repair any defective areas of coping.

Ensure wall is smooth and flat. Brickwork should be rendered or flush pointed to provide a level substrate.

Areas of upstand previously affixed with plywood should be inspected to ensure they are free of rot or decay, and replaced as necessary. Prime with Centech SA Membrane Primer and dress the Centech SA Carrier Membrane to the details.

Dress the Centech PU system up the parapet and terminate into a chase beneath the dpc level. Finish the detail by pointing with lime mortar. Ensure the dpc projects clearly through the mortar joint, in accordance with BS 8215.

Penetrations
Soil vent pipes and other services which penetrate the roof should be detailed to allow the waterproofing to be dressed around and up a minimum 150 mm from finished roof level. Remove the existing waterproofing from the detail. Clean and repair as necessary. Dress the new Centech PU system around the penetration. Waterproofing should be protected at the termination with a weathering clip and sealant or beneath a weathering cravat.

Penetrations through the upstand detail should be encapsulated and the termination protected with a weathering clip and sealant.

Roof Lantern
There are several rooflight lanterns on the roof. Remove the existing waterproofing from the upstand kerb. Repair and make good to ensure a smooth and stable substrate. At the base, the waterproofing should be dressed up the kerb as high as possible and to a vertical height not less than 150 mm. Terminate to a protected edge beneath the glazing trim or drip flashing, securing with a termination bar.

Another lantern is brick built. Inspect the brickwork and ensure a smooth level substrate

Outlets
The roof drains to internal outlets which are blocked with debris.

Outlets should be inspected and ensure downpipes are free from blockages. Ensure outlets sit at the low point of the roof, otherwise they should be reset. Following cleaning and priming, dress the full reinforced Centech PU system down the throat of the outlet as far as possible but only so far as will not hinder free flow of water. Leaf grates should be reinstated once the coating has fully cured.

3.3 Specification

For this application, we have specified the **Centech PU 20 Roof** system incorporating the use of **Centech PU** moisture triggered Polyurethane technology. **Centech PU** is a single pack, high performance membrane designed to provide enhanced long term waterproofing protection for your roof. The product is supplied in two colours; Mid Grey and Light Grey. Both products can be used as either a first coat or a top coat, although we always recommend the use of Light Grey as the first embedment coat. The two different colours should be used for two coat systems, as this enables the applicator to distinguish easily between areas that have had a top coat and others that still require a top coat. The system is reinforced with the **Centech GFM** a specially designed 225 gram glass fibre mat, which adds extra dimensional stability to the completed membrane.

This specification is to be read in conjunction with the preceding Flat Roof Areas Site Inspection Report and all points noted are to be considered part of the scope of works.

3.4 Preparation & Pre-treatments

Note: We believe the roof construction to be as described. If this is found not to be the case, alterations to the specification may be required.

General Cleaning
All freestanding, loose debris is to be removed from the roof in a suitable manner before the initial power washing of the roof. Ensure that debris does not enter the drainage system.

Removal of Existing Single Ply Membrane
The existing single ply membrane is to be stripped down to the bituminous covering level. Dispose of all waste in accordance with all relevant regulations. The removal of the existing system may leave the roof vulnerable to water ingress and measures should be taken to ensure the watertightness of the roof during this phase of the works.

Initial Power Wash
All surfaces are to be initially power washed in order to reveal a clean surface suitable for repair, and the application of the new waterproofing system. After cleaning, ensure that the surfaces are free from visible moisture, surface lying dust, dirt and all other forms of contamination. See item 10 of the Preliminaries concerning drying substrates and details. A minimum pressure of 13MPa (130 bar) is recommended for the process of power washing. There is no maximum setting as this will vary according to the equipment being used and the substrate surface being cleaned. The pressure jet should never be set so high as to cause damage to the substrate being cleaned, but should be set to allow contamination and friable material to be cleaned away from the surface.

Important Notice: *Before using pressure jet equipment, ensure that all individuals are adequately trained and that the roof drainage has the required flow rate to remove the excess water from the roof. Also, ensure that roof areas, gutters, outlets and details are sufficiently watertight to resist the ingress of the excess power jet water. Always exercise suitable precautions when using high pressure equipment*.

Organic Growth Contamination
To areas where organic growth is apparent or suspected, a diluted chlorine bleach solution can be used (approximately 50ml bleach to 5 litres of water) to remove the contaminant. Allow to act and then thoroughly rinse from the surface before continuing with the application. Stubborn growth may require more than one application.

Important Notice: *Check Health & Safety and environmental data before using a bleach solution and follow the manufacturer's instructions.*

Previous Repairs
Inspect previous repair materials, patches, etc., any that are loose or suspected of not being properly bonded are to be removed. Defects may be hidden by previous repairs and the reasons for the repairs should be investigated.

Reinforced Bitumen Membrane
Ensure that the reinforced bitumen membrane (RBM) system is correctly laid and/or suitably adhered to provide a smooth and level surface for treatment. Brush away excess grit from mineral surfaces with a stiff brush. Treat blisters by star cutting and removing any underlying water. Allow to dry and re-adhere. If necessary areas should be cut out and replaced with Centech SA Carrier/VCL or with compatible materials as required. Note: Exercise all necessary care when cutting. Once cleaned and prepared, the surface of the RBM must be assessed by the contractor for absorbency, roughness and surface profile to confirm coverage rates before the coating works commence.

Existing Timber
Inspect any timber to be included in the system build-up and ensure it is free from water damage, rot, etc. Replace all damaged timber as required before priming.

New Timber
New treated timber that is to be included in the coating schedule shall be of approved quality and standard. 'Knot and stop' where necessary before priming.

Fixings
Replace damaged, badly corroded or missing fixings. Tighten loose fixings. Return to clean, bright metal.

Masonry
Bricks, blocks and mortar joints must be sound and preferably flush pointed, hollows and voids behind the coating are to be avoided. Thoroughly clean by power washing and allow to dry. To areas where mould or algal growth is apparent, treat the surface with a diluted chlorine bleach solution (approximately 50ml bleach to 5 litres of water) to remove the contaminant. Allow to dry and then thoroughly rinse from the surface before continuing with the application. Repair any spalling, flaking or other damage and replace any missing jointing.

Mortar Joints
Inspect the mortar joints; all hollow or defective areas must be raked out and made good. Flush point the mortar joints using an appropriate proprietary polymer modified mortar prior to further treatment. Leave for a minimum period of 72 hours before covering over.

Coping Stones
Carry out all necessary maintenance work to the coping stones, ensure that they are properly bedded and that all mortar joints are repointed to prevent water ingress.

Plywood Surfaces Prior to Carrier Membrane
Apply **Centech SA Membrane Primer (Black)** to the prepared, sound plywood surfaces and all details as required, by brush or roller and leave to dry for approximately 30 minutes or until slightly tacky. Only prime areas that will be covered by the Centech SA Carrier/VCL membrane. **Note:** Consumption depends on the roughness and absorbency of the substrate and ranges from **0.15** litre/m² (approximately 6.67 m²/litre) to **0.25** litre/m² (approximately 4 m²/litre). Omit the primer for 50mm either side of joints between plywood sheets.

Carrier Membrane
Before installing the carrier membrane, check the substrate to ensure it is clean and dry without any surface contamination, foreign objects and or surface toppings, oil or grease. Install **Centech SA Carrier/VCL** membrane (40m long x 1.08m wide), onto the primed substrate. All side laps and end laps are to be a minimum of 75mm and 150mm respectively and should be fully supported and continuously sealed. All laps must be sealed by rolling down firmly with a silicone roller or by otherwise applying pressure. Seal the carrier membrane to all details, such as abutments, upstands and penetrations. The carrier membrane must be suitably mechanically restrained where taken up upstands or sloping areas greater than 200mm high. Vent pipes or difficult details can be sealed with the reinforced liquid applied waterproofing membrane. The surface of the details must be smooth enough to ensure an adequate seal of the carrier membrane. The **Centech SA Carrier/VCL** must be pressed into place over its whole area immediately after adhering by

applying pressure by hand, clean roller, heavy soft broom, a water filled roller or similar. Ensure that air pockets are not trapped under the membrane.

Exposed Metal Surfaces
All exposed metal surfaces that are to be included in the coating schedule must be wire brushed or mechanically abraded (abrasive paper) to remove rust/scale or oxidation. Wherever possible, metal should be returned to a bright finish before priming.

Metallic & Non Metallic Surfaces
Degrease metallic and non-metallic surfaces that have been initially cleaned and prepared with a proprietary solvent based degreasant. Apply in accordance with the manufacturer's instructions before thoroughly rinsing with fresh water. Allow surfaces to dry before continuing.

Final Cleaning
Prior to the system application, ensure that all surfaces are free from dirt; surface lying dust, visible dampness and that any other form of visible contamination is removed.

3.5 Coating Primers

Priming Generally
All relevant surfaces are to be primed with the appropriate Centaur primer in accordance with Technical Data Sheets. Data sheets can be downloaded from our website www.centaurroofing.co.uk

Adhesion Tests
Carry out adhesion/compatibility tests before the commencement of works on any exposed areas of the substrate to determine priming requirements and suitability of the proposed system.

Existing Bituminous Surfaces
Unless disproved by the above adhesion test, apply a full coat of **Centaur Epoxy Damp Tolerant Concrete Primer** to all prepared, bituminous surfaces at a minimum quantity of 0.2 litre/m² (equivalent to a maximum spread rate of 5 m²/litre). Allow to dry for a minimum period of 4 hours before overcoating. Apply by brush for smaller areas or where roller application is impractical. Do not apply too thickly as this will affect the drying times.

Masonry Surfaces
Apply a coat of **Centaur Masonry Bonding Primer** to all prepared, masonry surfaces by brush, roller or airless spray and allow to dry/cure fully for 4 to 8 hours before overcoating. Drying times will be affected by moisture content of the substrate and weather conditions. Consumption depends on the roughness and absorbency of the substrate and should range between a maximum spread rate of **5** m²/litre (equivalent to a minimum quantity of **0.2** litre/m²) for absorbent surfaces and a maximum spread rate of **10** m²/litre (equivalent to a minimum quantity of **0.1** litre/m²) for non-absorbent surfaces. Ideally overcoat within 24 hours.

Exposed Metallic Surfaces
Subject to the preparation and pre-treatments stated previously, apply a coat of **Centaur Epoxy Metal Primer** to exposed metallic surfaces, at a minimum quantity of **0.15** litre/m² (equivalent to a maximum spread rate of **6.5** m²/litre) and allow to dry for a minimum of period of 4 hours before overcoating. Apply by brush for smaller areas or where roller application is impractical. Do not apply too thickly as this will affect the drying times.

Carrier Membrane Surfaces
Primers are not required directly onto the new **Centech SA Carrier/VCL** surfaces prior to the application of **Centech PU**.

3.6 Localised Reinforcements

Dynamic Joints and Cracks

Note: This treatment should ideally be carried out whilst the joint is in contraction.
Apply primers to the substrate as required.
Introduce a 'bond break' across the dynamic joint by applying 50mm (minimum width) low tack debonding tape centred on the joint. Follow by applying a ‘stripe’ coat (200mm wide) of Centech PU centred on the joint at a minimum wet film thickness of 1000 microns. Whilst wet, insert **Centech Flexible Tape 15cm** using a loaded brush to totally encapsulate the tape.
Embed the Centech Flexible Tape without tension or stretching of the tape. Lay the tape as naturally as possible, direct from the roll, inner face upwards to avoid edge curl.
Allow to dry before applying the fully reinforced Centech PU system. The Centech GFM as part of the ‘embedment coat’ application should not be applied across the ‘bond-break’ area, it should overlap the Centech Flexible Tape by 25mm only to each edge to leave a 100mm central movement joint.

Static Joint and Crack Bridging
Apply primers to the substrate as required.
If required, fill the joint with **Centech PU Sealant** and allow to cure. Use a backing rod as necessary.
Apply a ‘stripe’ coat of Centech PU centred on the joint at a minimum wet film thickness of 1000 microns and 50mm wider than the tape. Whilst wet, insert **Centech Flexible Tape** using a loaded brush to totally encapsulate the tape.
Embed the Centech Flexible Tape without tension or stretching of the tape. Lay the tape as naturally as possible, direct from the roll, inner face upwards to avoid edge curl.
Allow to dry before continuing with the Centech PU system.

Small Gap Filling
Prepare and prime the materials either side of the gap as required.
Apply **Centech Butyl Tape** cut into strips as required or apply **Centech PU Sealant** in accordance with the instructions.
Allow sealant to cure.
Reinforce the gap using patches of Centech Glass Fibre Mat, cut to requirements and bedded in Centech PU, applied at a minimum wet film thickness of 1000 microns. Allow to dry before continuing with the overall waterproofing.

3.7 Upstands

Brickwork Upstand
Inspect and carry out all necessary maintenance work to the upstand details.
Check that the existing chase is at least 150mm above the finished waterproofing level, rake out and re-cut if necessary to ensure that it is 25mm deep. If the existing chase is less than 150mm above the finished roof level, cut a new 25mm deep chase in all upstands as required.
Ensure that all chases are clean and dust free before coating.
Apply primers to the upstands and into the chase as required.
Dress the Centech PU system as specified to the upstand and into the chase.
Once the Centech PU system has fully cured, seal the chase using Centech PU Sealant.
Ensure that any cavity trays discharge above the finished level of the waterproofing.

Upstand
Inspect and carry out all necessary maintenance work to the upstand details.
Apply primers to the upstands, where required.
Dress the Centech PU system as specified up the upstand to finish a minimum of 150mm above the finished waterproofing level.
Once the waterproofing system has fully cured, install a new **Centech GRP Termination Bar** fixed at maximum 300mm centres and finally sealed using a bead of **Centech PU Sealant**.
Ensure that cavity trays discharge above the level of the termination bar.

3.8 Parapets

Parapet Details

Consideration must be given to the position of any cavity trays or DPCs present.
Ensure that the finished height of the detail will be at least 150mm above the finished level of the new waterproofing.
Inspect the coping stones, any damaged stones should be repaired using compatible materials or replaced as necessary. Loose or dislodged stones should be re-bedded. Ensure all joints are properly sealed. Note: Any water ingress via the coping stones is beyond the liability of Centaur Technologies.
Cut new 25mm deep chases in the mortar joint between the coping and the wall, ensuring a minimum 150mm upstand above the new finished level of the new waterproofing.
Ensure that all chases are clean and dust free before coating.
Apply primers as specified.
Dress the Centech PU system as specified to the upstand and into the chase.
Seal the chase using lime mortar once the Centech PU system has fully cured.

3.9 Penetrations

Existing Penetrations
Inspect any roof protrusions, i.e., vents, pipes, etc., to ensure watertightness. Repair or replace defective materials as necessary and prepare each protrusion as required in order to accept the Centech PU system.
Apply the primer as specified to the penetrations prior to coating.
Dress the Centech PU system up and onto the penetrations to finish a minimum 150mm above the finished roof level.
Ideally protect the exposed Centech PU system edge with a collar or skirt. Alternatively, terminate the Centech PU system under a cable clamp/tie.

3.10 Rooflights

Existing Rooflights
Ensure that the existing rooflight kerbs are at least 150mm above the finished level of the waterproofing.
Apply the primer as specified.
Dress the Centech PU system up and onto the existing rooflight kerb to finish at a protected edge.

3.11 Drainage

Internal Outlets
Ensure that the finished level of the outlets will be lower than the existing waterproofing level. Reset if required.
Rainwater outlets (and down pipes) should be free from blockages or defects at the point of treatment. Trim the existing waterproofing as required to create a suitable detail to be coated. Drain covers should be in place until the preparation of surrounding areas is complete but removed prior to application to allow for coating access.
Only remove the grates immediately before application.
Prime into the throat of the outlet as required.
Once all preparation is complete, apply the Centech PU at a minimum wet film thickness of 1000 microns into and around the drain outlet, this should be applied as far as is practical into the outlet pipe, thus sealing the deck/outlet junction interface and a minimum 150mm onto the surrounding area. Into the wet Centech PU apply measured, cut pieces of Centech GFM. This should be worked into the details using a suitable roller and brush to fully embed the mat.
Dress the Centech PU system as far as possible into the drain throats.
Allow the Centech PU system to cure before re-installing/installing new grates.

3.12 Miscellaneous

Detailing - Miscellaneous not scheduled
Any fixed item not to be included in the liquid membrane coating schedule (for whatever reason), should be discussed separately with the contractor and the building owner and excluded from the ongoing work programme and subsequently the guarantee.

Existing Fixed Items
Fixed items which are 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 consideration of safety. The waterproofing coating should be allowed to cure for a minimum period of seven days before replacement of these fixtures. Do not fix such items through the new waterproofing.

3.13 Waterproofing Membrane

Centech PU 20 System

First Coat (embedment) - Main Areas
Once all the preparation and the detailing first coat embedment is complete, commence work on the main surface. Apply a first embedment coat of **Centech PU** to the roof surface, using a minimum quantity of **1.5** litre/m² (equivalent to a maximum spread rate of **0.67** m²/litre). More material may be required depending on the substrate condition. Whilst wet, reinforce by inserting the **Centech Glass Fibre Mat**. Roller the surface until the mat is completely embedded, ensuring that all overlaps in the mat are a minimum of 50mm. The mat must be completely saturated with no pinholes or tented mat. If pinholes are detected, apply additional material as required to rectify. Following the embedment of the Centech Glass Fibre Mat, flatten any 'wicks' or proud (protruding) fibres by rollering back into place with a loaded short pile roller. It is important to ensure that 'tenting' (raised creased mat) is avoided at all times, especially at changes of angle sections. This can be achieved by the sufficient application of the embedment coating at these points.

Important Notice: *When embedding the Centech Glass Fibre Mat onto a rough or uneven surface or an internal angle, etc., tamp the mat as required to work the mat into the uneven surface. Use a soft nylon/bristle brush or small specialised roller, work the matting as required to give all round contact with the substrate.*

Second Coat (top coat) - All Areas
Allow the first coat to dry (drying times will vary depending on the ambient temperature and humidity), before applying the second coat. Apply a different coloured top coat of **Centech PU** to all the embedded areas by roller (brushes may be used for detail work) using a minimum application rate of **1** litre/m² (equivalent to a maximum spread rate of **1** m²/litre).

Note: Where Centech PU is applied as a top coat to vertical surfaces, it may be necessary to apply more than one coat to achieve the required finished dry film thickness.

Note: When applying Centech PU, always use a liquid volume (Litres) to area calculation, gridding out where appropriate to ensure correct material coverage. Coverage rates may vary depending on substrate condition. The Contractor should satisfy themselves that the above coverage rates are achievable.

Important Notice: *On completion of the application of the roofing works, check the finish for pinholes, voids, or any damage. Mark these areas and treat to rectify. The site should always be left clean, tidy and free from spillage and in a manner acceptable to the client or their representative.*

4 Appendices

4.1 MSDS

Centech PU
Centech GFM
Centaur Epoxy Metal Primer Part A
Centaur Epoxy Metal Primer Part B
Centaur Masonry Bonding Primer
Centaur Epoxy Damp Tolerant Concrete Primer Part A
Centaur Epoxy Damp Tolerant Concrete Primer Part B
Centech SA Membrane Primer Black
Centech SA Carrier/VCL
Centech PU Sealant
Centech Butyl Tape

4.2 TDS

Centech PU
Centech GFM
Centaur Epoxy Metal Primer
Centaur Epoxy Damp Tolerant Concrete Primer
Centech SA Membrane Primer
Centech SA Carrier/VCL
Centech PU Sealant
Centech GRP Trims
Centech Flexible Tape
Centech Butyl Tape
Maintenance of Centech PU Systems

For the most up to date datasheets, please visit our website: www.centaurroofing.co.uk