

CPD Seminar Handout:

Liquid Waterproofing: Choosing the best roofing solution



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Liquid waterproofing: choosing the best solution

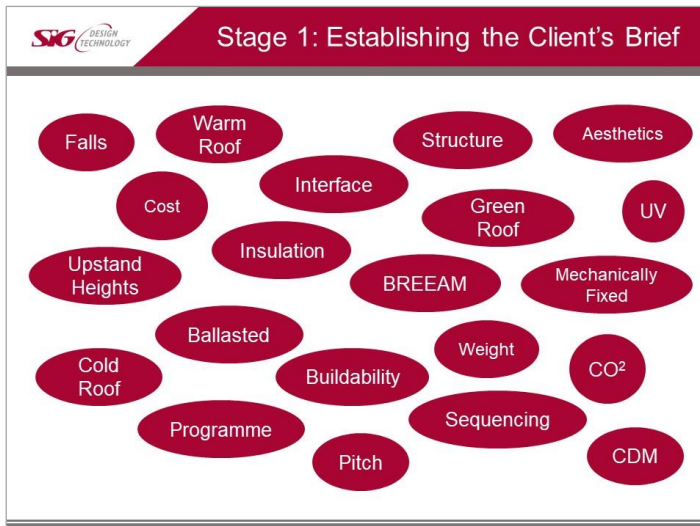
CPD handout: September 2018

This document contains the key resources from SIG Design & Technology's RIBA Certified CPD Seminar, Liquid waterproofing: choosing the best solution, in an easy to use format.

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CPD Slides



Design considerations

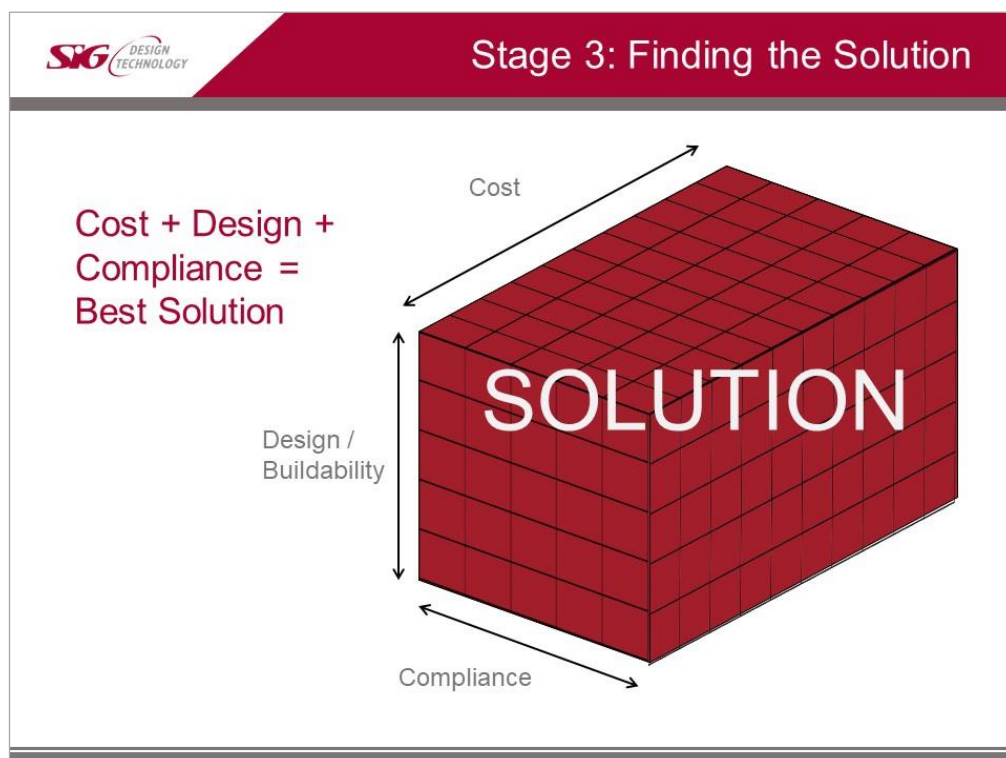
Stage 1: Establishing the client's brief

So first of all – what does the client need this specific roof to do? Its design and construction must meet a matrix of complex and strategic variables, as seen on the slide.



Stage 2: Ensuring Compliance

We're all familiar with these types of documents, they are vital to correct design and due diligence, but how do we ensure compliance when there are so many different standards for any one building element?



Stage 4: Roofing options

SIG DESIGN TECHNOLOGY		Roofing Options	
			
Liquid coatings	Hot melt	Bitumen	
			
Hard metals	Single ply membranes	Slate	

SIG DESIGN TECHNOLOGY		Why Specify Liquid Coating?	
<ul style="list-style-type: none"> ▪ Cold applied (no hot works) ▪ Quick cure ▪ Seamless waterproofing system ▪ Ideal for complex detailing ▪ Refurbishment or new build projects <p>Things to be aware of:</p> <ul style="list-style-type: none"> ▪ Weather dependant ▪ 3rd party accreditation 			

Compare Popular Liquid Roofing Products

	Polyurethanes	PMMAs	GRPs	Hot Melt	Alpha Hybrid Technology
Early rain resistance	Yes	Yes	No	Yes	Yes
Apply in a single pass	No	No	No	No	Yes
Re-use opened container	No	Yes	Yes	Yes	Yes
Cold weather application	Yes	Yes	No	Yes	Yes
Low odour	No	No	No	No	Yes
Non flammable	No	No	No	No	Yes
Negligible VOCs	No	No	No	Yes	Yes
Solvent and oil resistant	Yes	Yes	No	No	Yes
Resistant to ponding	Yes	Yes	No	Yes	Yes
No Isocyanates	No	No	No	Yes	Yes
Cold applied	Yes	Yes	Yes	No	Yes
Single component	Yes/No	No	No	Yes	Yes
Multiple substrate type application	Yes	Yes	No	No	Yes

Case Study: Riverwalk, The Thames

- New development of 116 high specification apartments
- 170 crescent-shaped balconies each a different crescent shape with tight tapered edges
- Alpha Hybrid cold applied liquid chosen due to contractors working in confined space which is unsuitable for hot works.
- Sheet membrane too complicated to install due to cleats and bolts on balconies whereas the liquid waterproofing become homogenous.
- Unable to revisit waterproofing after installation due to cladding



Case Study: Our Lady Help of Christians Catholic Church

- Distinctive obelisk roof with existing copper membrane finish designed by renowned architect the late Richard Gilbert Scott
- New covering requires longer design life
- New roofing to match colour and texture of original copper
- Stripping roof not an option
- Unique PMMA technology liquid product chosen which would show pattern and texture of the original finish
- Precise pigment ratio achieved and top coat supplied pre-mixed



Case Study: Vue Cinema, Doncaster

- Vue Cinema needed a section of its asphalt flat roof refurbished and extended
- Building to stay open to the public throughout works programme – Alpha Hybrid liquid waterproofing chosen which is virtually odourless, no solvents & very low VOC content
- Liquid waterproofing totally impervious to standing water
- Product can be applied directly to the face of an insulation board



Case Study: Blue Light Gatwick

- Liquid waterproofing chosen over BUR to £19m new build, brownfield site for SE Coast Ambulance Service
- SIG's DATAC Southern Industrial Roofing completed 1800m² liquid roofing project
- System applied over concrete substrate, a bituminous VCL, liquid roofing board and CTF insulation.



Case Study: Sacred Heart Primary School, Glasgow

- 1950s school with distinctively pyramidal roof feature
- Water ingress to 450m² roof had caused major damage
- Alpha Hybrid Technology liquid waterproofing system chosen with no solvents or isocyanates & very low VOC content, the school was able to remain in session
- Product goes down wet on wet in a single pass and re-roofing took place in only two weeks
- Product training arranged for both contractor and subcontractor on the chosen product



Green roofing solutions

Benefits of a green roof

- It makes good use of space, optimising the structural footprint of a building.
- A green roof substantially increases the life expectancy of the roof's waterproofing membrane as it protects from UV degradation and extremes of climatic condition.
- It provides thermal and acoustic insulation.
- It provides an additional green space for wildlife.
- And of course, a green roof is aesthetically pleasing.
- A green roof captures carbon. It improves air quality by absorbing airborne pollutants through plants removing them from the environment.

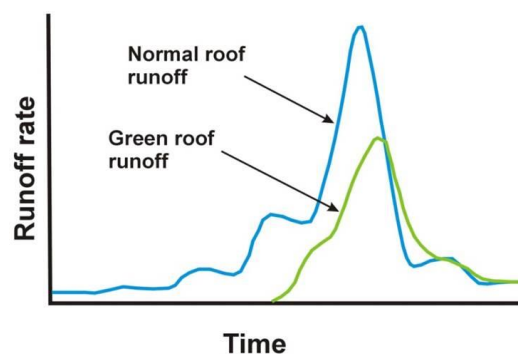
Green roofs and urban drainage

Green roofs are an important component of SUDS – sustainable urban drainage systems.

There is often a requirement to attenuate water that has been shed from roofs into the drainage system.

It's a fact that a typical green roof absorbs and evaporates 50% of the rainfall that falls on the roof.

This rate of absorption reduces the pressure on drains and reduces the likelihood of localised downstream flooding.



Why Specify a Built-up Green Roof / Blue Roof

- Substantially increases life expectancy of the roof's waterproofing membrane
- Improves energy efficiency in a warm roof construction
- Improves sound insulation
- Reduces rainwater runoff
- Reduces heat build-up in urban areas
- Provides an additional green space for wildlife
- Improves air quality by absorbing airborne pollutants
- Makes good use of space – optimising the 'structural footprint'
- Aesthetically pleasing



What to expect from suppliers

Technical support:

You should receive comprehensive technical support from a manufacturer or supplier and this should comply to all relevant standards. Early involvement in a project by a supplier will make the membrane system choice and technical support process simpler in the long run. Suppliers can offer advice, not just on which products to use but more importantly when those products are not suitable, and an alternative should be sought.

On-site support:

A manufacturer or supplier should offer on-site support to protect the long term integrity of the chosen waterproofing system. This is not just important to ensure the long term performance of the waterproofing system chosen, it's also a requirement of British Standards (BS6229:2003) to maintain a roof and guidance on how this should be done can be demonstrated during a site support visit.

Guarantees

Guarantees should offer a peace of mind. If something goes wrong with a roof you designed, the last thing you want is to find that different manufacturers are disputing with each other about who should look into the matter and who is responsible.

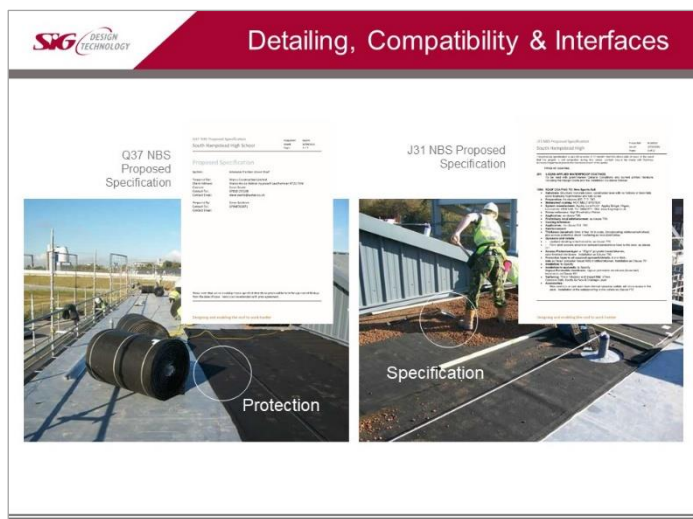
Here's a checklist covering the essential manufacturer support you should receive:

- ✓ Project specific technical support
- ✓ Bespoke design
- ✓ Wind up-lift calculations
- ✓ Cut-To-Falls design
- ✓ Drainage calculation support
- ✓ National Building Specification: J31 liquid waterproofing, J42 waterproofing, Q37 green roofs, H71/92 zinc
- ✓ Registered installer network
- ✓ On-site support & assessment
- ✓ Guarantees/warranties

Detailing, compatibilities & interfaces:

A modern roofing system is more than just a waterproofing system and incorporates a number of key system accessories. The key ancillaries that should be considered by the specifier to ensure the integrity of the membrane is not compromised are:

- Vapour control layers
- Geotextile separating fleece
- Adhesives and sealants
- Thixotropic additives
- Surface specific primers
- Liquid detailing
- Standing seam profile
- Trafficable coatings
- Thermally efficient insulation
- Big Foot systems
- Roof-pro



These two images show where the integrity of the membrane can compromise the NBS specification by puncturing the membrane, ultimately leading to water ingress



However, by using the correct materials and standard detailing these roof waterproofing systems do not risk water ingress.

What Not to Do!

- Preventable failure: EU €2bn
- Typical failures:
 - Water ingress
 - Wind damage
 - Workmanship
 - Condensation
- Typical reasons:
 - Poor preparation
 - Poor design
 - Poor detailing

Incorrectly
Installed

Correctly
Installed

Summary

So hopefully you will go away equipped with three sets of knowledge:

Knowledge

- Defining your client's brief
- Ensuring compliance with UK British Standards and Code of Practice
- Choosing the best roofing system for the job
- When to specify liquid waterproofing
- Liquid waterproofing case studies
- Green roofing options
- Further sources of information / contacts

Modern roof performance

- Waterproofing
- Insulation
- Sustainability
- Energy capture

Manufacturers' responsibilities

- Design bespoke roofing solutions to meet a client's specific brief
 - Ensure compliance with UK British Standards and Code of Practice
 - Supply, install and guarantee complete roofing solutions
 - Ensure performance through effective detailing, compatibility and interfaces
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About SIG

SIG Design & Technology is part of SIG Roofing, a leading division of SIG plc, a FTSE 250 listed company and the UK's market leading specialist supplier to professionals in the building and construction industry.

We design and supply flat roofing solutions including green roofing, zinc, copper and stainless steel roofing and cladding and pitched roof coverings including natural slate and clay tiles.

We have put together an 8-step guide to identify the challenges and ensure that a roof's design meets a building's requirements. Called #PerfectRoof, the eight steps follow the process from product selection and design expertise through to full guarantees and planned maintenance. Our know-how is just part of the service that is provided absolutely free to customers.

More information

Website: www.singleply.co.uk

SIG Zinc & Copper website: www.sigzincandcopper.co.uk

Technical blog: www.singleply.co.uk/blog

Technical product downloads: www.singleply.co.uk/resources/downloads/

Find your local advisor: www.singleply.co.uk/about-us/meet-team/



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