



GUIDANCE ON MEMBRANE GUTTER THICKNESS

1.0 INTRODUCTION

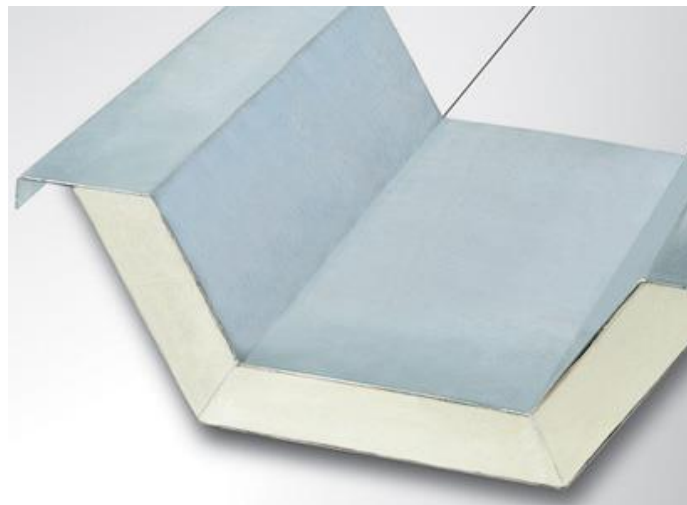
Membrane lined gutters have been used in the roofing and cladding industry for over 30 years for single skin, insulated and composite gutter systems. Within the last 10-15 years the popularity of membrane lined gutters has overtaken that of traditional bolted gutter systems. This is due to a variety of reasons but primarily it is the reduction in risk relating to water ingress at or about the gutter position.

When membrane lined gutters were first introduced, they were originally manually bonded; a method which could prove difficult in establishing leak points should a pin hole occur. Today, most if not all, membrane lined gutters are pre-laminated eliminating issues with small scrapes, scuffs etc.

The thickness of the membrane is critical and can influence in-service performance, longevity and guarantee periods (see section 2.2, performance standards). The MGMA recommends that the minimum thickness criteria for pre-laminated membrane thickness should be 1.2mm. This specification thickness reduces the risk associated with foot traffic where the gutter system has been specified as suitable for foot traffic and the resulting abrasion to the membrane.

A 0.6mm thick membrane thickness is more prone to damage during the on-site welding process and the surface can be more susceptible to on-site damage from foot traffic during both the construction and operational phases.

The thickness of the steel substrate must be considered when specifying single skin or insulated membrane lined gutters and the gutters should be adequately supported structurally to allow for foot traffic, snow loads etc. during both pre and post construction. MGMA therefore recommends that a 1.2mm galvanised steel substrate should be specified as a minimum for walkability, safety and serviceability for non-composite gutter systems.



A non-composite insulated gutter

Gutter systems manufactured by MGMA members to the above recommended specification are generically formed from a galvanised steel substrate with an adhered polymeric membrane.

2.0 APPLICATIONS AND PERFORMANCE

Uninsulated single skin and insulated non-composite gutter systems in both new and refurbishment applications should comply with the following performance criteria and standards.

2.1 Requirements for large gutters

Larger gutters will require additional structural support, in the form of continuous edge/side/base support, but will need to be considered during design for anything over 400mm sole/1000mm girth, based on the aforementioned 1.2mm substrate/1.2mm membrane, or 500mm/1250mm girth for 1.5mm thick substrate.

2.2 Performance standards

PRODUCT CHARACTERISTIC	TEST METHOD	MACHINE LAMINATED	MANUALLY LAMINATED
Class A membrane thickness (min)	ECCA-T1	1.2mm	1.2mm
Class B membrane thickness (min)		0.6mm	Not recommended
Membrane adhesion	BS 3900/E2	100% adhesion flat cross hatch + Erickson	100% adhesion flat cross hatch + Erickson
Corrosion resistance – salt spray	ECCA-T8	1000 hours	1000 hours
Corrosion resistance – humidity	BS 3900/F2	1000 hours	1000 hours
Scratch resistance	EN 13523-12	Products must comply with the performance criteria detailed within the Standard	Products must comply with the performance criteria detailed within the Standard
Resistance to salt spray	EN 13523-8	Products must comply with the performance criteria detailed within the Standard	Products must comply with the performance criteria detailed within the Standard
Maximum continuous operating temperature		80°C	80°C
Minimum forming temperature		16°C	16°C
Formation of joints		Hot air welded	Hot air welded
Guarantee Class A membrane		Min 10 years - max 25 years*	Min 10 years - max 25 years*
Guarantee Class B membrane		Min 10 years - max 15 years*	Not applicable*

** In accordance with manufacturer's terms and conditions*

Note: The performance criteria listed in the table above are applicable to both the machine and manual lamination processes.

3.0 REQUIREMENTS FOR ON SITE TESTING AND INSTALLATION

- Membrane joint thickness 1.2mm minimum
- Specification and installation of compatible internal and external corner units and rainwater outlets available
- Installation and welding by gutter or membrane manufacturer installation trained installers
- Compliance with manufacturer's published installation guidance and in-service maintenance guide

4.0 DESIGN/ SYSTEM REQUIREMENTS

- Gutter capacity to be designed to BS EN 12056:3-2000, *Roof drainage layout and calculation*
- Single skin and non-composite insulated gutters must comply with BS 9101, *Steel and aluminium rainwater system specification*
(**Note:** This is a draft standard currently out for consultation and publication is scheduled for autumn 2016)
- Gutter to be designed to withstand all anticipated loads in accordance with appropriate standards in regard to structural loading, wind loading and non-fragility
- Manufacturer factory production control: ISO 9001 accredited
- Manufacturer environmental management: ISO 14001 accredited (or working towards)
- Membrane to be supplied by a member of a recognised trade body.

5.0 GUARANTEES

Generally, guarantees from individual manufacturers of gutter systems vary from 10 years to 25 years, depending upon the class of membrane specified, the manufacturing process and materials selected. It is important to note that these guarantees will be affected by the maintenance and inspection regime in place.

Gutters that are not cleaned regularly will degrade quickly due to a build-up of debris such as grit, bird carcasses, plastic bags and a myriad of varying plants and trees etc.

Further advice and guidance is available from any MGMA member company whose details can be found on the MGMA website at www.mgma.co.uk.

NOTE:

THIS GUIDANCE DOCUMENT DOES NOT ADDRESS THE SPECIFICATION FOR COMPOSITE GUTTER SYSTEMS, THAT IS SYSTEMS THAT USE BONDED INSULATION WHICH CONTRIBUTE TO THE STRENGTH OF THE SYSTEM

REFERENCES

BS 3900-E2:1992 (replaced by BS EN ISO 1518-1:2011) *Paints and varnishes. Determination of scratch resistance. Constant-loading method*

BS 3900-F2:1973 *Methods of test for paint. Durability tests on paint films. Determination of resistance to humidity (cyclic condensation)*

BS 9101, *Steel and aluminium rainwater system specification* (This is a draft standard currently out for consultation and publication is scheduled for autumn 2016)

BS EN 12056:3-2000, *Roof drainage layout and calculation*

BS EN 13523-8:2010 *Coil coated metals. Test methods. Resistance to salt spray (fog)*

BS EN 13523-12:2004 *Coil coated metals. Test methods. Resistance to scratching*

ECCA-T1 (1995) *Coating thickness*

ECCA-T8 (1997) *Resistance to salt spray fog*

Note:

The content of this document supersedes the information given in MGMA Information Sheet No 7 (November 2011) and Guidance Document GD17 (April 2016).

MGMA DISCLAIMER

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