



GUIDANCE ON MEMBRANE GUTTER THICKNESS

1.0 INTRODUCTION

Structural membrane lined gutters have been used in the roofing and cladding industry for over 30 years. However, it has only been in the last 10-15 years that the volume of such gutters has overtaken traditional bolted gutter systems. This is due to a number 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 at this point; the MGMA recommends that the minimum thickness criteria for pre-laminated membrane thickness should be 1.2mm. This specification thickness negates the risk associated with 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.



A 0.6mm thin membrane

The thickness of the steel substrate must be considered when specifying membrane lined gutters. Whether single skin or insulated, the gutters should be adequately supported structurally to allow for foot traffic, snow loads etc. 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.



Thin gauge steel and the deflections

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 TYPICAL APPLICATIONS

Uninsulated and insulated gutter systems in new construction and refurbishment.

2.1 Requirements for large gutters

Larger gutters will require additional structural support, in the form of continuous edge/side/base support, but will be required 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.

3 REQUIREMENTS

PRODUCT CHARACTERISTIC	TEST METHOD	MACHINE LAMINATED	MANUALLY LAMINATED
Class A membrane thickness (min)	ECCA-T1	1.2mm	1.2mm
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 ^o C	80 ^o C
Minimum forming temperature		16 ^o C	16 ^o C
Formation of joints		Hot air welded	Hot air welded
Guarantee		Min 10 years - Max 25 years*	Min 10 years - Max 25 years*

** 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.

4.0 REQUIREMENTS FOR ON SITE TESTING AND INSTALLATION

- Membrane joint thickness 1.2mm minimum
- Compatible internal and external corner units and rainwater outlets available
- Gutter and membrane manufacturer installation training required
- Installation and maintenance guide

5.0 DESIGN/ SYSTEM REQUIREMENTS

- Gutter capacity to be designed to BS EN 12056:3-2000, *Roof drainage layout and calculation*
- 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.

6.0 GUARANTEES

Generally, gutter guarantees vary from 10 years to 25 years, depending upon 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.

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 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)

MGMA DISCLAIMER

Whilst the information contained in this bulletin is believed to be correct at the time of publication, the Metal Gutter Manufacturers Association Limited and its member companies cannot be held responsible for any errors or inaccuracies and, in particular, the specification for any application must be checked with the individual manufacturer concerned for a given installation.

Information provided by the MGMA or contained within publications and articles which are made available in any form (mechanical, electronic, photocopying or otherwise) cannot be used or cited as a means of ensuring that a material, product, system or assembly is compliant with Building Regulations.