Ark Profiles Ltd: Technical Data Sheet

Materials

The range of materials available for Arkzip, Arkroof and Arkclad profiles is shown in the individual profile data sheets. The choice between steel or aluminium, stucco or pre painted depends upon budget, aesthetics, durability, material guarantees and structural performance needed.

With Arkzip, once the decision is made between steel and aluminium, the choice is probably more one of budget since the relative performances of paint finishes on aluminium have become closer in recent years.

Arkroof and Arkclad are only available in steel with the choice of materials being between HPS200 Ultra® and a leather grain plastisol finish.

This data sheet describes the basic features and attributes of materials and uses data from typical material producers such as those noted below:

- Euramax Coated Products BV, http://www.euramax.eu/euramax_coated_products
- Alcoa Architectural Products, https://www.alcoa.com/aap/europe/en/home.asp
- Tata Steel UK Ltd, http://www.colorcoat-online.com/en/

The available materials are:-

Aluminium- plain stucco:

The most economical and durable material option available for Arkzip with a life expectancy of 40+ years in normal environments.

Stucco aluminium is 3105 grade 0.9mm aluminium embossed to give the diffused stucco texture and to stiffen the material and increase effective thickness.

The aluminium is a natural aluminium colour and will weather as the surface oxidises resulting in a light grey/ mushroom colour.

Aluminium as a material is lightweight and very durable. The oxidized surface layer protects the aluminium and is tolerant of scratches or immersion. The colour formed during the oxidation process will be affected by the environment and by other trades working on a roof. Strong alkalis such as cement powder or lime, mud or materials lying on the roof in the damp, will make the oxidation process darken. Once formed the oxidized surface cannot be washed off or changed.

Where a regular colour is important, pre-painted aluminium or steel should be chosen.

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Stucco aluminium coil contains a minimum of 90% recycled content during production. At the end of use aluminium material retains a good value and is fully re-cycleable

Aluminium- pre painted:

This material consists of 0.9mm flat aluminium with coil applied paint finishes consisting of high build polyester PE, ARS or PVdF (sometimes referred to as PVF2). These materials are available in any RAL colour and can have textured or zinc rich content, all subject to enquiry and availability. The materials are supplied with a protective film to protect the paint finishes during production and installation, and to ensure the best colour and durability from the onset. The film should be removed within 3 months of installation.

Compared with stucco aluminium, pre painted aluminium gives a regular colour and a big choice of features to suit the aesthetics sought for a building's roof. For a roof that will be a feature of the building and visible to building users, pre painted aluminium makes sense. If a roof is low pitched or a more industrial appearance intended, plain stucco makes sense.

Pre painted aluminium also lets designers use their imagination with a vast range of colours and textures available. The finishes can be two or three coat depending on exposure, solid or metallic, they can be zinc-rich to weather like natural zinc, they can be designed to stay cool by being solar reflective, or they can be pre-lacquered to reduce reflections.

More information on pre painted aluminium materials can be found at the links below. Note that not all materials produced by these companies are suitable for Arkzip, please discuss your selection with Ark before specifying.

- Euramax Coated Products BV, http://www.euramax.eu/euramax_coated_products
- Alcoa Architectural Products, https://www.alcoa.com/aap/europe/en/home.asp

Steel- pre painted:

The steel used for metal roofing and walling has a galvanised or Galvalloy metallic coated substrate which then has a corrosion resistant primer and a 200 micron top coat. The reverse side has the same build up with a high performance polyester backing coat.

Steel is a robust substrate and when matched with a 200 micron paint barrier coating, is a tough performer in metal roofing. Steel profiles tend to be more tolerant of foot traffic and the construction work, but need to be treated correctly to avoid damage that could lead to rusting.

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The choice of finish again depends upon budget, aesthetics, durability and material guarantees:-

Colorcoat HPS200 Ultra® is the market leader and has a scintilla emboss, Confidex guarantee and a life expectancy for the paint finish up to 40 years with a good resistance to delamination or edge peel. The Confidex guarantee has to be registered with Tata and gives the building owner and occupier good assurances about the continuing performance of the coating.

Leather grain 200 micron plastisol coated steel is the budget finish and in comparison with HPS200 Ultra®, is available in similar colours and has similar attributes concerning robustness. The life expectancy and material guarantees extend up to 25 years

Colorcoat Prisma® is a 50 micron primer/polyurethane based abrasion resistant finish containing polyamide on a Galvalloy substrate. It has an RC5 corrosion resistance and a life expectancy/ Confidex guarantee of up to 30 years. Prisma® is fully recycleable at the end of life.

Prisma® colours include some metallic and matt finishes and is available single sided or double sided.

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Life expectancy:

The life expectancies of materials available for Arkzip, Arkroof and Arkclad are shown in the table below.
For painted materials it is the durability of the paint finish, generally measured as the time until flaking might occur.
Life expectancies are obviously indicative and dependent on the environment where the building is, as well as on the care taken during construction. Effects due to usage, wear and tear, contact with dissimilar materials etc can have an impact on durability.
The period of guarantee is generally less than the life expectancy and materials can be re-painted to extend the working life of a roof or wall. Pre painted aluminium for example has the long life of the substrate material behind the paint finish. If the paint finish was to be left to totally deteriorate, the aluminium substrate would still have a very long life. The lift expectancy does not mean that the roof is in holes and going to leak immediately.
The values shown in the table are largely sourced from material Agrement Certificates.

Material	Paint finish	Roof/wall	Life expectancy		Agrement references
			inland	coastal	
Aluminium	Plain stucco	Roof	40	40	
Aluminium	High build PE	Roof/wall	40	40	1964ps4, 2922ps1&4
Aluminium	ARS	Roof/wall	40	40	1964ps3, 2922ps3
Aluminium	PVdF	Roof/wall	40	40	1964ps2, 2922ps2
Steel	HPS200 Ultra	Roof	40	30	2717ps8
Steel	HPS200 Ultra	Wall	40	30	2717ps8
Steel	Prisma	Roof	30	25	2717ps2
Steel	Prisma	Wall	30	25	2717ps2
Steel	Leathergrain	Roof	25	20	2717ps3
Steel	Leathergrain	Wall	25	20	2717ps3

A paint finish may retain a good appearance for a shorter period in severe or coastal locations than those indicated in the table.

Check with the painted coil supplier concerning coastal location sizes and for advice concerning guarantees and special precautions. Some manufacturers state 1km, some 2km, some 5km.

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