Complete Outdoor Genie

Living Space Design

BIOCLIMATIC STRUCTURES

General information
How they work
Advantages and disadvantages

Everything you need to know

BIOCLIMATIC STRUCTURES

BIOCLIMATIC STRUCTURES

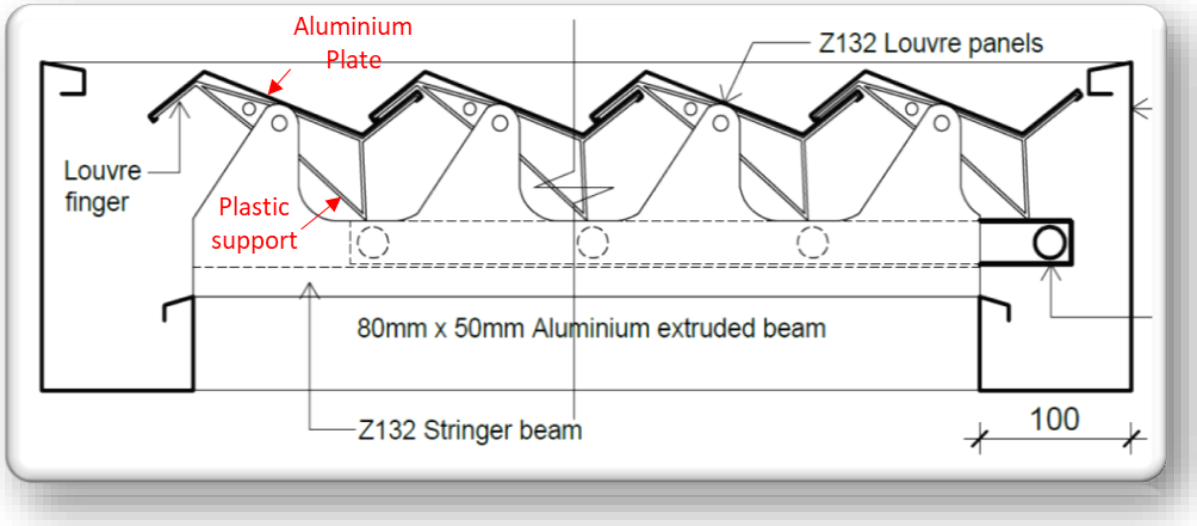
WHY IS IT A BIOCLIMATIC PERGOLA?

The first louver awning was actually developed in South Africa in 1989, and was immediately very popular locally. It was really only a matter of time before similar structures started appearing in Europe. The difference was that, whereas the further development of the concept remained fairly static locally, the Europeans really developed and refined the concept to where it is today, starting with motorization and automation, to improving water resistance capabilities, as well as structural integrity (mainly to withstand heavy snow conditions). Today's European structures are a far cry from the original design, having not only become very sophisticated, functional structures, but bioclimatics now also make a very clear architectural statement.

Functionality and aesthetic improvements now see bioclimatic structures with integrated side-closure systems such as sliding doors, shutters and drops-screens, and even LED lights in the blades, and interior perimeter. Waterproofing and water-management systems have been developed which sees these structures for all intent and purposes being waterproof. Effective, integrated water-management systems include an inner surround gutter, with down pipes hidden inside the pillars, effectively dispense with rainwater.

We still have the local models available, which enjoy tremendous popularity despite the fact that they cannot really compare with the sophisticated European top-end models, but each has it's unique niche in the current market, meaning that there is a place for both in the sun (so to speak).

The differences immediately become clear when one looks at a basic diagram of a local model compared to that of it's foreign cousin. The first major difference is in the design of the louver blades. Local models have blades that consist of a single profile made from aluminium sheeting, bent to shape, and supported with a series of plastic supports at intervals.



WHY IS IT A BIOCLIMATIC PERGOLA?

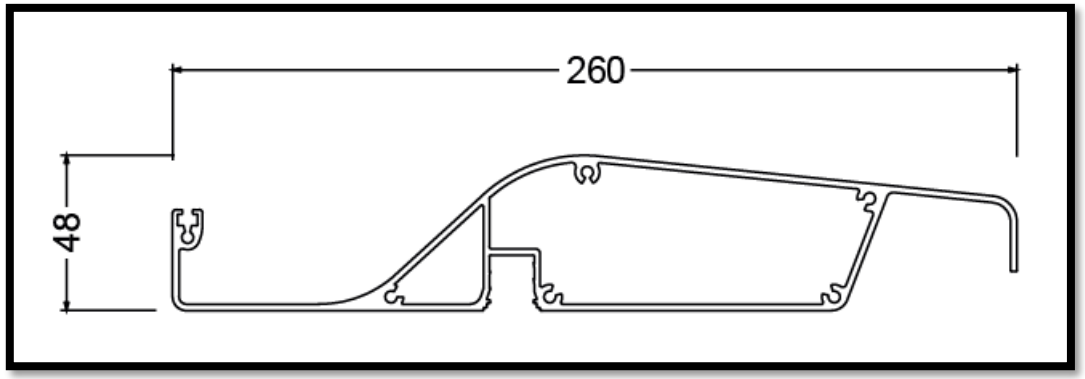
The blades of high-end European models on the other hand, have blades manufactured from extruded aluminium profiles, and are for the most part double-walled with reinforced corners. One can therefore understand that they are much stronger, and therefore better able to cope with more extreme weather conditions such as high winds and heavy snowfall.

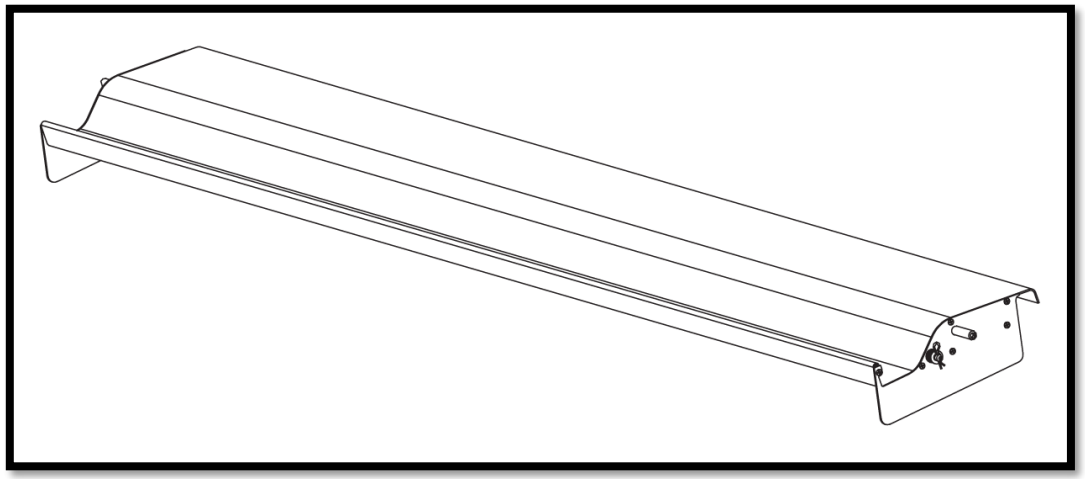
Also consider the fact that, as a result of the sheer size and scope of the European market, it became necessary to regulate the market. There are certain minimum standards that have to be adhered to, and every sun-control system has to be tested and rated, to ensure consumer protection.

So for instance, EU standards UNE EN 13561 will provide a wind-resistance rating from Class 1 through to Class 6, with Class 6 being the most resistant. In addition, there are ratings for powder coating standards through affiliation to Qualicoat, ensuring that the coating adheres to the set standards And specified processes and standards.

Finally, there is the EU mark which approves certain products for export to other countries, ensuring that certain minimum standards and export procedures are followed and adhered to.

All these aspects are important, as they provide assurance and peace of mind to the purchaser, ensuring that minimum standards are maintained and adhered to under threat of sanction if found otherwise. European companies have strongly regulated Warranties in place on their products, which again, provides an additional sense of security.



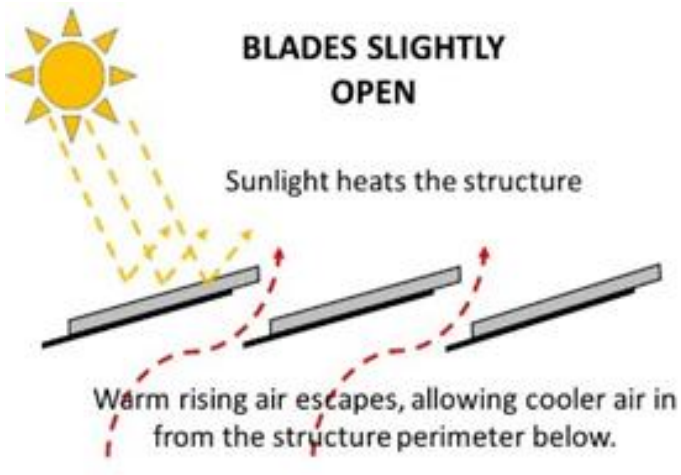


IASO

PERGOLAM

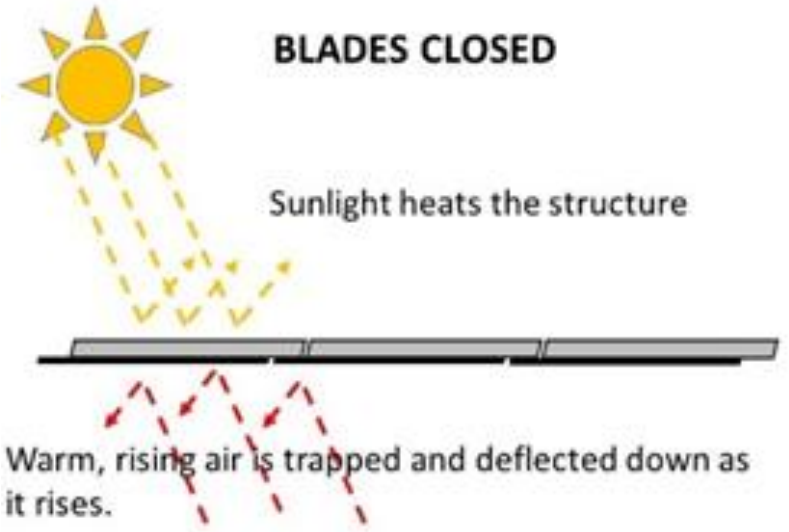
HOW BIOCLIMATIC STRUCTURES WORK?

Bioclimatics are so-named because they employ natural principles of bioclimatic architecture, which aims to use natural physics to improve environmental conditions in buildings and living spaces. In the case of bioclimatic pergolas, these same principles are used to allow the user to influence the micro-climate underneath the structure.



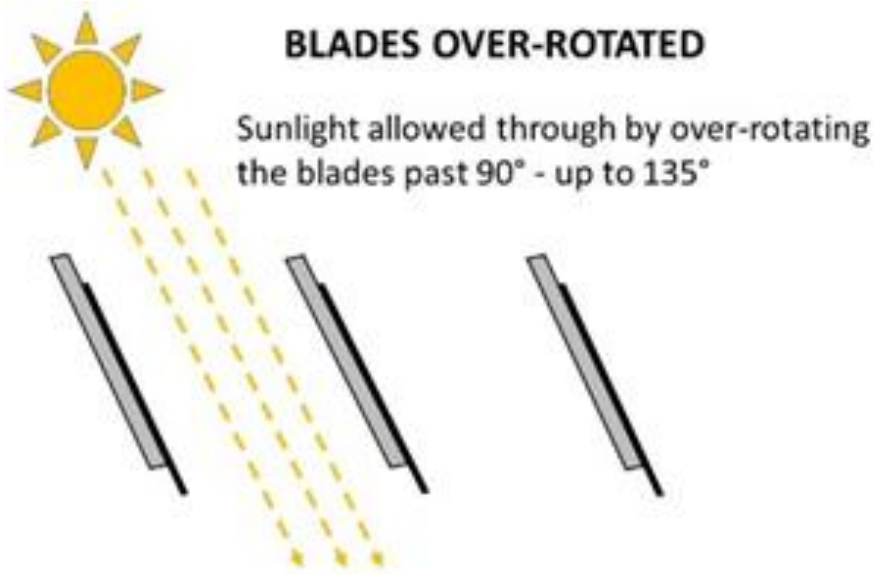
With the blades only slightly open, hot, rising air is allowed to escape, while still providing shade, and protection from the harmful rays of the sun. The result is that hot air continually rises and escapes, causing an inflow of cooler air underneath the structure in hot weather. A lot of development has also ensured the water resistance of these structures., with specially developed gasket systems inserted where the blades meet when closed, and even the shape of the blade designed to facilitate the accelerated flow of water to the interior surround gutter, whilst the sturdiness of the profile resists any buckling or bending under the weight of the water, or even snow for that matter. When the blades are fully closed, the are below remains dry.

It is however necessary to mention that, just as is the case with most flat roofs (even solid fixed ones), there is always the possibility that the system becomes unable to cope with the sheer volume of water during a particularly heavy rain storm. The problem lies not with the structural integrity of the structure (as decent bioclimatic structures are usually exceptionally resilient), but that the flow-rate in dispersing the water into the integrated downpipes becomes insufficient, causing the gutter to overflow, which then deposits water along the perimeter. This is however rather uncommon, and it should be considered a rare occurrence.



HOW BIOCLIMATIC STRUCTURES WORK.

In winter, the blades offer two options. The first being that if the blades are closed, the micro-Environment will be more insulated, and the use of climate control systems such as outdoor heaters will be more effective, especially if the sides of the structure is enclosed with glass and aluminium. The second option is for the user to open the blades to an angle that actually allows sunlight in, improving lighting conditions, but also allowing the sun to warm the area below. Unlike local models where the blades can usually only rotate 90°, bioclimatic pergolas have blades that can 'over-rotate' by an additional 45° to 135°, which allows much more flexibility to find the ideal position to allow the sun in. Another benefit of this feature is that it makes it a lot easier to clean the blades on top.



Most of these structures out of Europe are fully motorized and can be controlled with a remote, to set the blades at just the right angle as required. In addition, features such as the integrated, dimmable LED – light systems are also controlled via the same multi-channel remote, which allows you to set just the right atmosphere and ambiance at night. The remote systems can even be adjusted and adapted to allow you to control all these features from your existing Home Automation System, tablet, or smart phone.

Some models are even available in a number of different configurations. The freestanding and wall-mounted versions are probably the most common, but there are also cantilever models without pillars or wall-to-wall versions. (Please see the next page for diagrams of the different versions.)

The latter can usually also be fitted to existing structures (on top, or below), provided the existing structure has the necessary structural integrity to bear the weight of the bioclimatic addition. These structures therefore lend themselves to many different applications to create exceptional Outdoor Living Spaces for both the private homeowner or commercial developer such as for restaurants, pubs and hotels.

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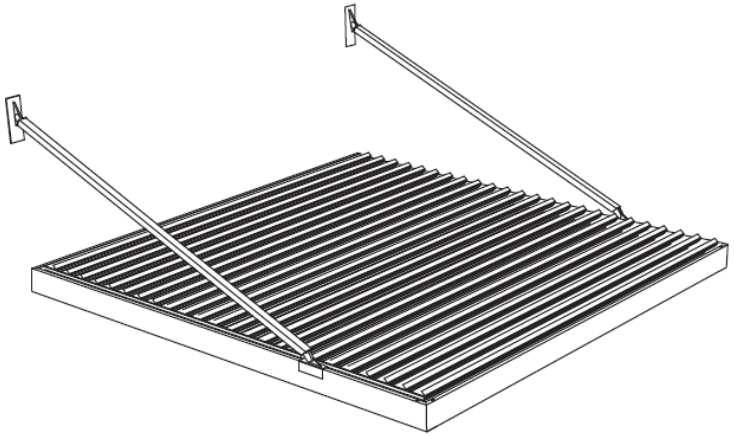
VIRTUOSO GRANDE

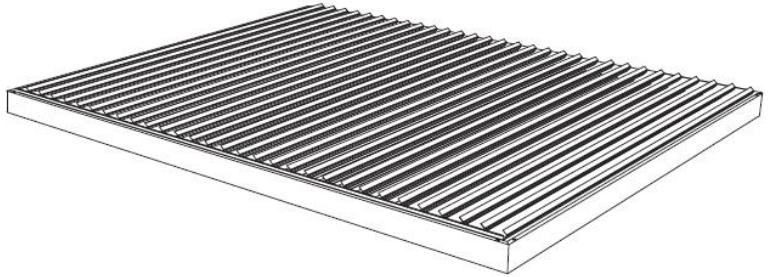
BIOCLIMATIC STRUCTURE VERSIONS

FREESTANDING

WALL MOUNTED



CANTILEVER



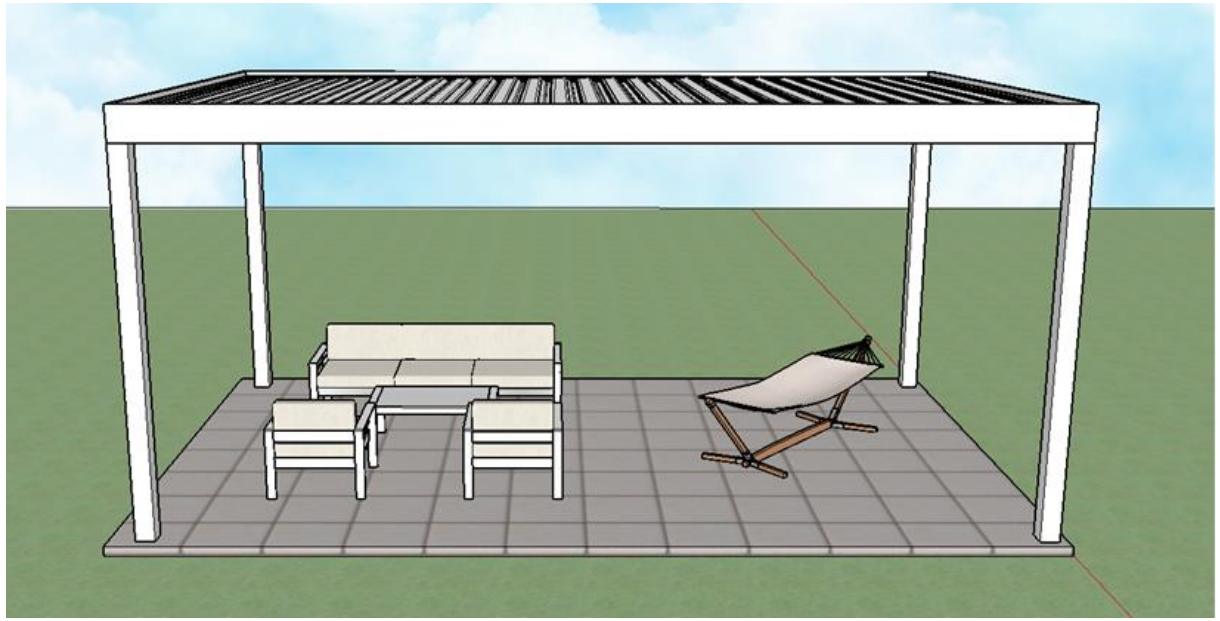
WALL-TO-WALL

HOW BIOCLIMATIC STRUCTURES WORK.

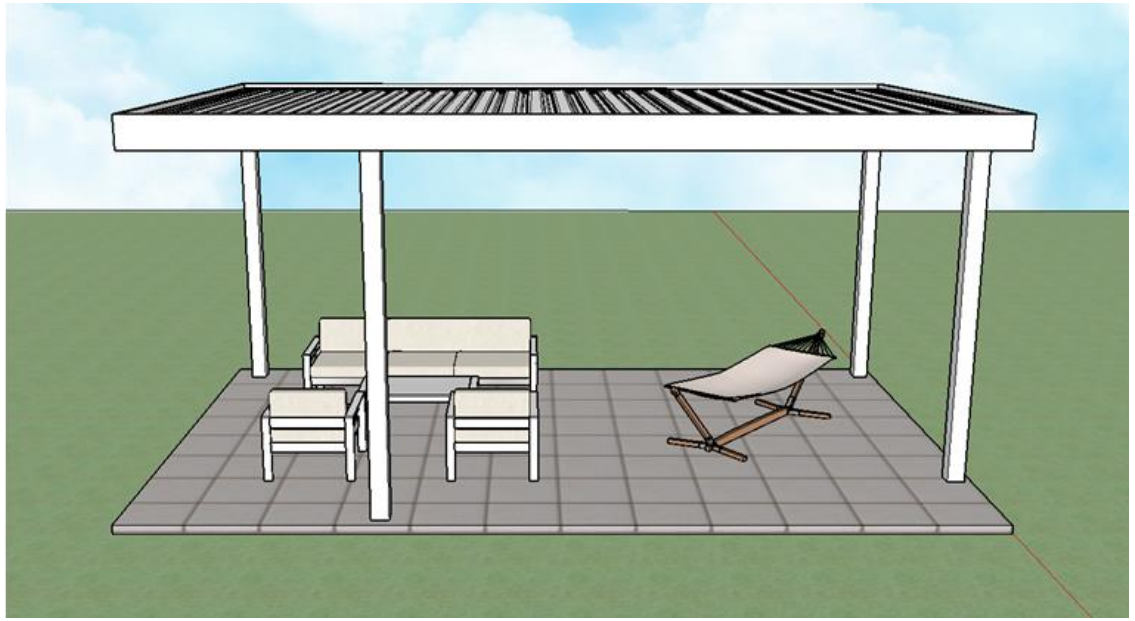
A very handy feature on a number of Bioclimatic models available on the European market today is the fact that it is possible to move the pillars into positions other than bean placed on the corners of the structure. This is mainly a result of the larger main frame profile these structures usually require.

The distance to which the pillars can be off-set varies from model to model. The diagrams below illustrate this feature clearly.

Standard pillars



Off-sett pillar



On the following page we look at advantages/disadvantages of Bioclimatic pergolas when compared to either fixed pergolas or pergolas with retractable canvass roofs.

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ADVANTAGES/DISADVANTAGES OF BIOCLIMATIC PERGOLAS

When compared to fixed pergolas, or pergolas with a retractable canvass roofs, bioclimatic pergolas would generally be considered a superior option, simply because the actual roof adjustable (fixed roof pergolas aren't) and better than canvass roofs, because they are structurally more sound and therefore resistant. This does not however mean that they are necessarily the best choice.

Advantages.

1. Structurally more sound. It will resist the wind and heavy rains better, reducing the possibility of damage to the structure in extreme conditions.
2. There is no 'flapping' noises in heavy winds as would be the case with a canvass roof.
3. It is a much more desirable flat-roofed option than flat retractable pergolas (as opposed to having a tilted or pitched retractable pergola). Pergolas with a flat roof is generally prone to problems with wind and rain. More information on this subject is available in our brochure "Pergolas with Retractable Roofs"
4. Allows the user to either block the sun, (but still allow decent air circulation) or to set the blades to allow sunlight into the area.

Disadvantages

These are probably not so much disadvantages, but relates more to the personal preferences of the client.

1. The blades are not retractable. In other words, one cannot retract the roof to see an open sky. There are Bioclimatic structures available that do not just rotate the blades, but that can also fully retract. They have however by 'n large proven to be extremely sensitive to the presence of any dust and debris. This causes the blades to get stuck in a compromising position, requiring additional maintenance and repair.
2. Bioclimatic pergolas are usually considerable more expensive than fixed or retractable versions. Cost can be a negative for someone with budget restrictions.
3. Some clients have complained that bioclimatic structures get very hot, mainly due to the fact that they are made from aluminium, which is an accepted conductor of heat. It is however worth mentioning that this is probably as a result of incorrect use. On hot sunny days, there is no point in keeping the louvers closed. It defeats the object of the bioclimatic structure. By opening the blades slightly, the hot air is allowed to escape, whilst still shielding the area from the sun. If one keeps the blades completely closed for the sake of having the shade, hot air remains trapped under the structure, leading to uncomfortably hot conditions.

BIOCLIMATIC STRUCTURES AVAILABLE FROM OUTDOOR GENIE SUPPLY PARTNERS

miba
EXTERIOR SHADING SOLUTION

VIRTUOSO GRANDE

There are three basic models in the Miba range –
Athena
Virtuoso
Virtuoso Grande

The **Grande** is the flagship model in the Miba range, and can really be considered as the 'cream of the crop' of Bioclimatic structures anywhere, comparing really well with the very best in the world. MIBA has been around since 1979, and has an excellent reputation for providing really good quality products at competitive costing.

They are not as big as, for instance, as company like IASO or NEVALUZ, but are as it were, a highly specialised 'boutique manufacturer'. They specialise in creating bespoke , high quality, upmarket structures for discerning clients, whilst offering really good value at the same time.

The Grande offers exceptionally large dimension possibilities and is able to cover areas of up to 4.5 m x 7.2 m in the single version and up to 8.8 m x 7.2 m in the coupled version with a central pillar. In addition the Grande is also available in the MAX-version, which allows for even larger dimensions on a single structure.

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VIRTUOSO GRANDE

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EXTERIOR SHADING SOLUTION

VIRTUOSO GRANDE

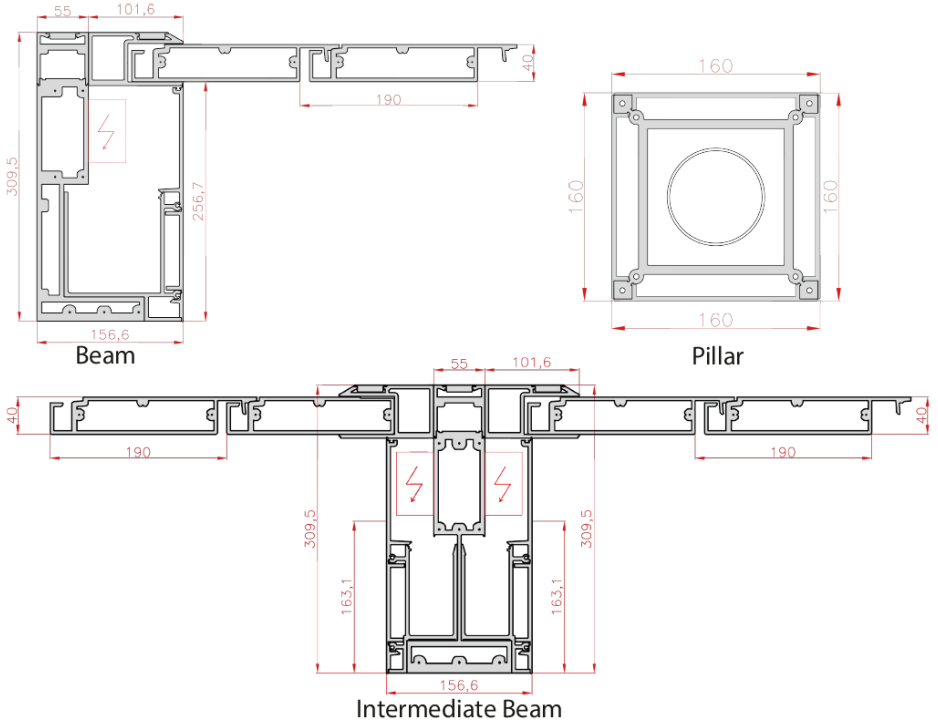
The **Grande** is obviously more expensive than, for instance the IASO offering, but is certainly substantially better priced than anything similar on the market. In fact, it is up to 15% to 30% cheaper than structures of a similar level in Europe. This is probably the best value for money available on the market, when considering any high-end equivalent.

For a start, the Virtuoso has a double-walled profile on the pillars and main frame, as opposed to the standard single walled profile of most other options. This provides exceptional structural integrity, as confirmed by the certified rating of the Grande to withstand winds of up to 183 km/ph. (according to EU Standards **UNE EN 13561**.)

The specially designed drive system of the Grande ensures a great reduction in noise when the blades are operated via remote control. Further innovative technology, such as the 'no screw technology' and special design elements on the structure to hide moving parts and joints, ensures improved aesthetics, and a superior finish.

The manufacturer will, at your request, even inject an insulation foam into the blade profiles, which will improve insulation, and will also reduce and dampen the noise of heavy rains or hail striking the roof.

We have already discussed a number of possible bespoke adjustments with Miba, and they have assured us that they will do as much as they can to tweak their standard design to fit in with whatever requirement our client's may have, as long as it does not negatively affect the operation and integrity of the structure as a result.



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VIRTUOSO GRANDE

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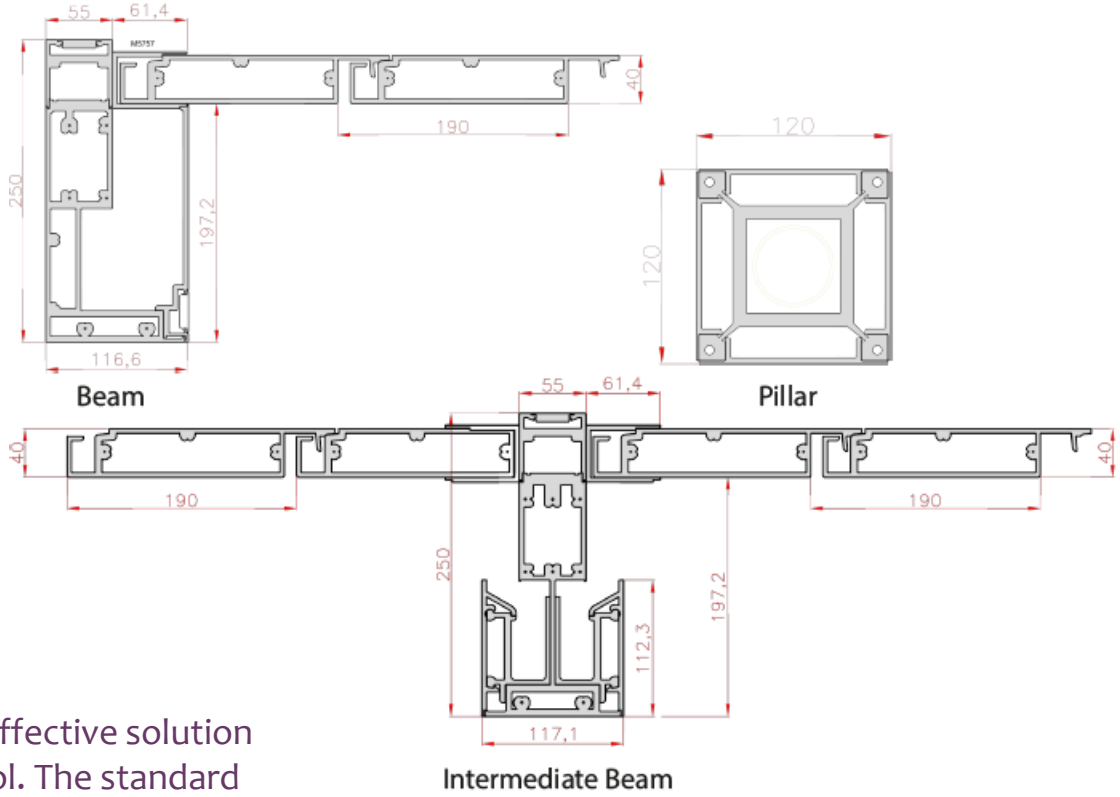
EXTERIOR SHADING SOLUTION

VIRTUOSO

The Virtuoso is the second tier model in the Miba range, and their best seller. This model is the ideal compromise for the discerning client who prefers to maintain a similar high standard to that offered by the Grande, but who wishes to spend a little less. It employ much of the same technology that distinguishes the Grande and is excellent value.

The main difference is in the smaller profiles of the Virtuoso as can be seen by the adjacent diagram. The maximum dimensions of the Virtuoso is 6.5 x 4.5 m in the single version, and can reach dimensions of up to 6.5 x 8.4 m in the coupled version with central pillar.



ATHENA

The Athena is specifically designed for smaller spaces, providing an ideal, cost effective solution which is ideal for small balconies or that special pavilion near the swimming pool. The standard single module can reach dimensions of 4.0 x 3.5 m.

Although the aluminium profiles are smaller than the first two models, the finishing remains the same, providing for an aesthetically pleasing unit which is clearly a cut above the average. The good news is that the Athena is exceptionally well priced, especially considering the superior technology and finishing that is characteristic of all Miba products.

miba
EXTERIOR SHADING SOLUTION

VIRTUOSO

SAHARA

SIWAH

Yet another technologically advanced structure from Spain, the Siwah is a true representation of some of the progress that has been made in the development of Outdoor Structure Technology.

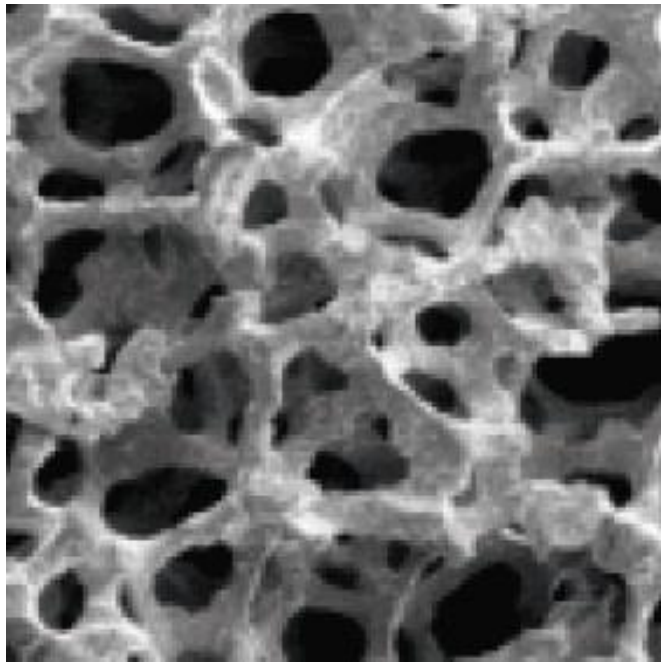
Nevaluz SAHARA uses cutting-edge CNC technology, derived directly form aeronautical technology, to produce a number of critical components in their products, which ensures an admirable level of structural integrity and wind resistance. The CNC Technology is used as an alternative to the standard injection moulding which is the norm. The injection process causes gasses to be retained in the metal, making it less dense, and therefore less resilient. With the CNC process, the pure aluminium retains it's original density, and is therefore a lot stronger.

The CNC technology is further advantageous in that it facilitates absolute precision down to the micron-level in the sizing of components. This ensure an precise fit, which in turn, reduces wear, and assist alleviating installation difficulties.

The CNC process is however only really viable if the manufacturer has its own aluminium foundry, as the wastage from the CNC process is really excessive and costly.

SAHARA recycles 97% of its aluminium wastage through its own foundry. This of course, results in substantial savings, which can be transferred to the customer.

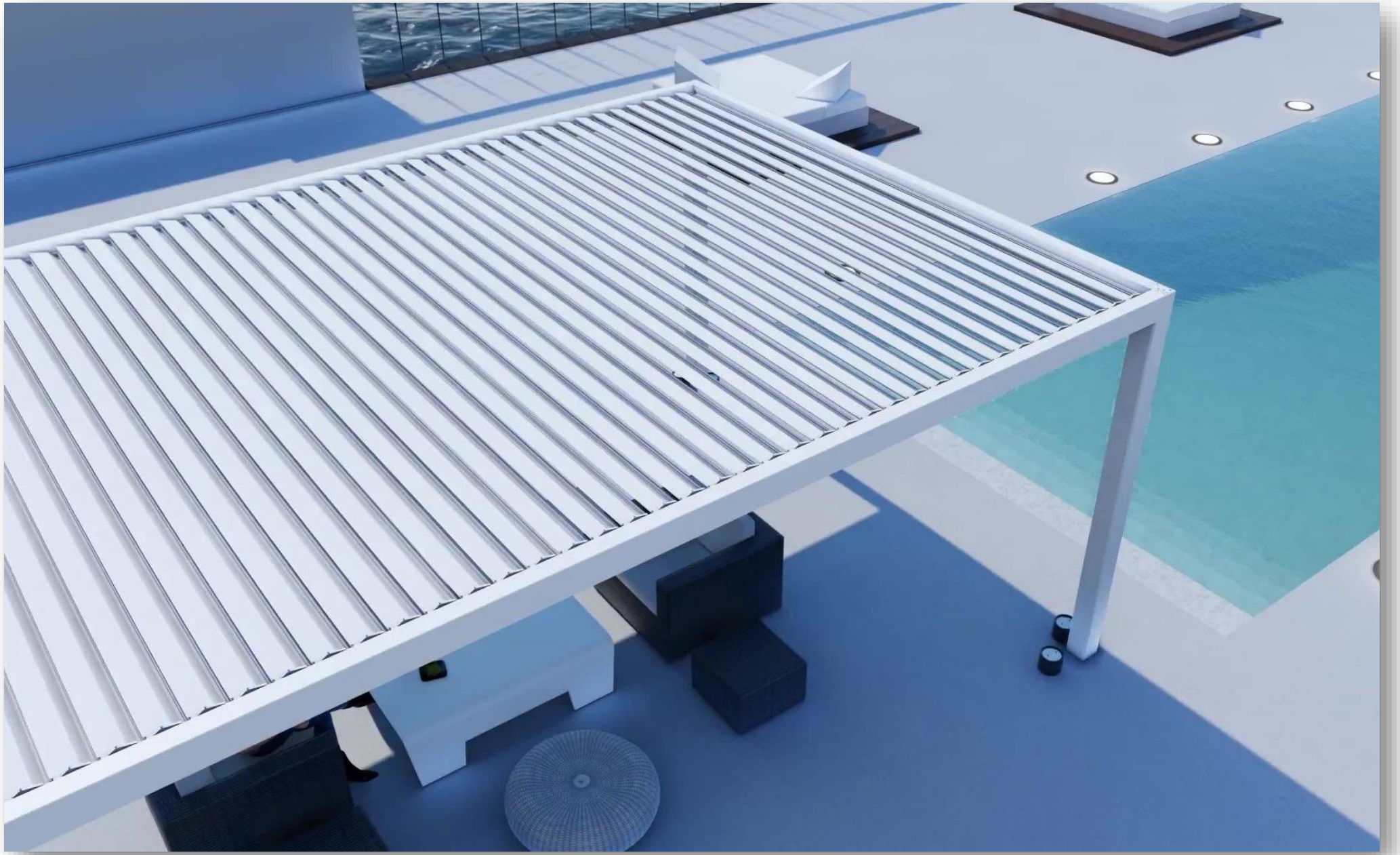
INJECTION MOULDING



CNC MACHINING

SAHARA

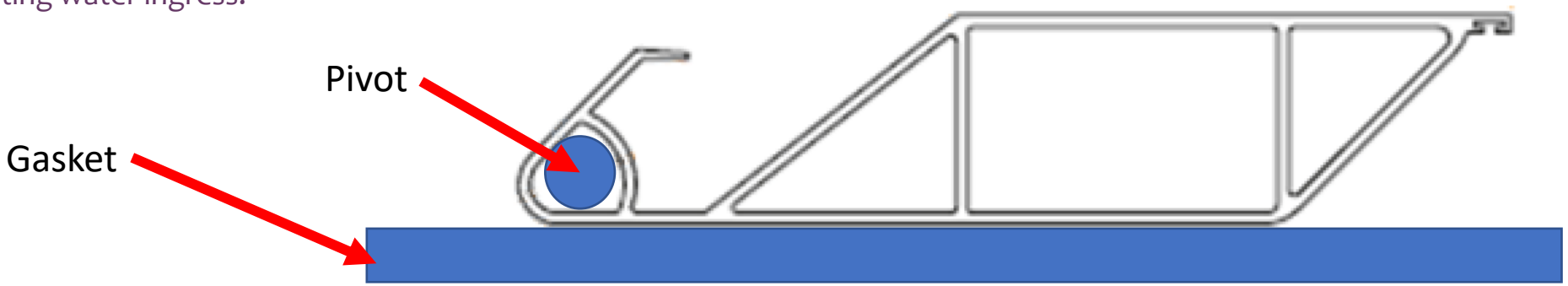
SIWAH



SIWAH

Another advantage is that SAHARA also produces practically all The components in-house as they have their own plastic injection moulding machines, sheet-metal workshops, 3D printing plant, and powder coating facilities. They also follow the Qualicoat Standards for powder coating, which renders their structures very resistant against the elements.

One of the biggest advantages of the SIWAH, is that it is probably one of the most water-resistant bioclimatic structures available anywhere. Unlike most bioclimatics where the blades pivot on a centre shaft, the shaft of the SIWAH is situated near the end of the blade, which enables the blades to sit flush with the gasket on top of the gutter, preventing water ingress.



SIWAH

Despite all the praises about SIWAH, it has to be mentioned that this structure does have its limitations. These are important considerations in making a final choice on which structure will be the best for you.

The first of these limitations is the fact that SIWAH is at this point, only available as a free-standing model, because the pillars are an integral part of the structure and cannot be removed. There is no wall mounted, or wall-to-wall versions, which makes it unsuitable for projects that require such types of installation.

The second limitation is the fact that one can only place multiple structures side-by-side, and not head-to-head. This primarily because the motors of the SIWAH are inserted in the horizontal profiles of the structure in such a manner that one requires a substantial amount of open space on that side of the structure when removing or installing the motors.

The SIWAH does indeed have two motors to drive those sturdy, heavy blades. It should also be considered that SIWAH has a fairly hefty price tag, which is fully understandable and justified when one considers all that pure aluminium, CNC technology and of course two powerful expensive motors, which inflate the price considerably.

In the final instance, it should be noted that the Siwah has maximum dimensions of 4.0 x 6.0 m, which makes covering large areas a pricey affair. However, if you are adamant to have the most waterproof adjustable pergola in the business, it certainly is worth considering.

SAHARA

SIWAH

IASO

PERGOLAM

The Pergolam is a **very advanced outdoor** structure, and can withstand winds of over **100 kmph** (Class 6 EU standards and Class 10 on the Beaufort Scale). This is more than sufficient for our local weather conditions.

The biggest advantage of the Pergolam is surely it's price. It must surely be one of the most reasonably priced bioclimatic pergolas on the market. Now do not mistake this as an indication of poor quality. In fact, the total opposite is true.

The Pergolam compares admirably in quality, longevity and finishing when compared to other similar products. It is with the consideration of IASO's largest markets that all becomes clear. IASO does most of it's business in Spain, Portugal, and Latin America – which are all much more price sensitive than other European and Western markets such as France, Germany and the USA.

It was therefore a matter of necessity to make a product available that was reasonably priced, while being fully capable of competing admirably on quality and looks with other, higher priced products.

It provides the possibility of customisation (very important) with out-of-standard modifications, LED lights, and a range of other attractive, optional

IASO

PERGOLAM

So, despite not being considered one of the “Rolls Royce” models, it is a beautiful, well designed structure that performs way more than adequately for any local application. One can only have admiration for what IASO has managed to achieve with Pergolam. Part of the secret of course lies in clever design and engineering, and the other in the willingness to sacrifice larger margins for larger turnover.

The Pergolam provides the possibility of customisation (very important) with out-of-standard modifications, LED lights, and a range of other attractive, optional features. In addition the overall value for money is unbeatable. Aimed at a very specific market, which in so many ways resembles our own, the success of this model is undeniable, and cannot therefore be disregarded as it is in fact way ahead of anything in it’s class on all aspects.

The manufacturer IASO is a large Spanish concern, with an excellent reputation, and is considered a major player in the highly competitive European Outdoor Market, having been in business since 1979, with numerous branches in Spain and across Europe. In addition they have a significant presence in the export market, notably in Latin America. The assurances and peace of mind that EU certification ensures is an absolute advantage when considering an investment in Pergolam.

IASO

PERGOLAM

A FINAL WORD

Hopefully the information in this brochure has been of some value to the reader, and provided some handy information to enable you to make a quality decision knowing exactly what your options are, and which of those options will suit your specific needs. With so many variable options available the possibilities are almost endless, and ensuring a well-considered, successful final result may be quite a daunting task.

Fortunately, you are empowered by some of the information available from the Genie and his collaborating dealers, to enable you to make the best possible decision. You are therefore also encouraged to do your research independently on the web, list your questions, and contact us for a friendly, no-obligations chat about your Outdoor Living Space. We promise honest, upfront advice without any pressure as it has been our experience that our clients are much more inclined to choose us with confidence as the right people for the job, when they have had the opportunity to weigh their options thoroughly and carefully.

We would in fact rather lose the project, than give poor advice, or leave important information under the proverbial blanket because it could cost us the sale. That way we increase our chances (yours and ours) of a successful, happy outcome, and a satisfying long term relationship that will see you referring friends and family to come knocking on our door, knowing that they can do so with confidence and the assurance that their best interests will be served.

We wish you every success, and many happy memories in your beautiful new Outdoor Living Space.

Complete Outdoor Genie
Living Space Design

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