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RIVER CLACK NEWS

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This is no ordinary roof This is a CA River-Therm[®] roof!



CA GROUP, the north east-based metal roofing and cladding manufacturer, is currently at work on a new roofing contract using metal roofing sheets of record-breaking size.

For more than two years, CA's technical department has been working alongside ProLogis, a leading global provider of distribution facilities and its architectural team to deliver a cost effective solution for Marks & Spencer's new distribution warehouse in Bradford, Yorkshire.

The project involves a roof size of over 90,000 m², consisting of 1.5 km radius eaves-to-eaves, with CA Roofing Services, CA's principal installation division installing individual lengths of the River-Therm[®] secret fix roofing sheets of 178 metres. Previously, the longest ever roofing sheets to be roll-formed on site by CA Building Products were 118 metres long, and no more than 140 m in the UK by any other cladding manufacturer, so this job is being heralded as truly ground-breaking.

Stuart Brown, CA Building Products technical services, explains the challenges faced when designing buildings of this scale:

"Often, huge buildings of this type need to be of a certain height at eaves level to accommodate the tall racking systems inside, but cannot be significantly higher at the apex of the roof, owing to stringent planning restrictions. This means the architects design a vast expanse of roof that is as close to flat as possible."





What are the most suitable systems in these cases?

“Ordinarily, architects design this type of building with several roof slopes incorporating a number of valley gutters, which effectively reduces the overall height of the building. In the case of this new build, we worked with ProLogis and their design team to both reduce the building height and reduce the number of gutters/drainage systems and eliminating risk of water entering the building. Owing to the flatness of the roof only a standing seam or secret fix roof design was a viable option.”

Are there special considerations to be made while choosing the roofing material?

“Due to the sheer scale of this building, the radius of the curve is 1.5 km, which means there is a 20-30 m wide area at the apex which is almost flat because the curve is so shallow. The risk the specifier faces is that rainwater run-off will take approximately 20 minutes to drain from this area into the gutter, so the roofing material must ensure that the exposure to wind and rain over such a large surface area would not risk water ingress into the building.”

In facing this challenge, the design team had to focus carefully on two areas of the roof before they could choose which product to use. The first was the almost flat central section of roof on either side of the apex, and the second was a zone of 30 to 35 metres from the eaves up slope.

In order to prevent rainwater ponding occurring at the apex, coordination between the steelwork contractor, architect and roof supplier was critical. It was imperative to ensure the steelwork didn't deflect excessively leaving a negative fall at the apex and preventing the water from draining away.

It was found that the main cause for concern would be the area 30 to 35 metres from the eaves up slope, where investigation showed that during storm conditions the wind would have the potential to impede the water flowing from the roof into the gutter, allowing ponding to the extent that water levels could rise above the level of the roof profile.

The reason for this concern was due to one of the key benefits of all standing seam or secret fix roofing products in so much that the seam is breathable. This, combined with the risk of ponding rainwater rising above the profile, presented a potential risk of water ingress into the building. If the profile were to be submerged it would form a path through which water could flow into the roof assembly.

River-Therm® eliminates this risk with its engineered side lap incorporating a built-in drainage channel, so that even in extreme cases where heavy, wind-driven rain causes water levels that overflow the top of the profile, any water ingress is channelled away to the eaves and into guttering.

Stuart Brown continues, *“History has proved that it is always advisable to have a positive fall on any roof to ensure that water flows quickly from the roof into the rainwater management system and does not enter the building. The use of secret fix solutions, such as the River-Therm® will provide security ensuring that this doesn't occur. However, on a roof of this scale, it is critical that the entire construction team is aware of what has to be achieved and delivered.”*

Most standing seam roofing systems would offer insufficient rainwater protection on a roof of this scale. Even when they





are roll-formed on site as River-Therm® is – to offer unbroken sheet coverage over the width of the building – there is still the issue of unsealed or vented seams between sheets along the building’s length. A traditional standing seam could, if inundated by ponding rainwater, potentially leak straight inside of the building, unless it had the River-Therm® patented drainage channel designed into the joint.

“We believe, therefore, that River-Therm® is the only roof system available on the market today that could meet these architects’ requirements.”

To demonstrate the unique design of River-Therm® and to prove how it would operate in storm conditions, CA invited the ProLogis architectural team to Verona, Italy, where an 80 metre long purpose built test rig is permanently set up to illustrate this issue and to provide visual reassurance of how the self-draining system works, under extreme conditions. A separate demonstration unit resembles a swimming pool with the bottom made of a life-sized River-Therm® installation. When the pool is full, not a single drop appears on the underside of the River-Therm® sheets.

As well as solving the rainwater issue, River-Therm® adds several other benefits to projects of this nature. When installed, unlike virtually any other standing seam roof design, a River-Therm® roof is strong and safe enough to be fully walkable, without any need for specific walkways or high density insulation.

Manufactured using Colorcoat HPS200 Ultra® pre-finished steel from Corus, the River-Therm® secret fix roofing solution is supplied CarbonNeutral as part of the Corus Confidex Sustain® Guarantee, which ensures that all of the unavoidable carbon emissions created throughout the entire life of the River-Therm® system, cradle to cradle, are offset by investing in environmental projects worldwide.

This roofing system will also contribute to the project recognition under the Planet Positive™ initiative, which undertakes to offset all of the CO2 expended during the construction of the building - and then to offset a further 10%, delivering a net environmental legacy that meets the demanding sustainable requirements of both ProLogis and Marks & Spencer.



Sangatte Sailing Club

The new Sailing Club has been built in Sangatte, on the shoreline of an existing lake of 24 hectares, making it the ideal location for the practice of water sports.

Conceived as part of a development plan by the CAC (Communauté d'Agglomération du Calais), the Sangatte sailing club is hoping to create a centre for water sports, tourists and environmental activities. Additionally providing several water sport activities for more than 10.000 young people, such as sailing, catamarans, canoeing and, in the future, it will be possible to host boat races under reservation on a 100 hectares water surface.

The centre is designed around two main buildings: a warehouse for the storage and maintenance of equipment and a reception building. The reception building holds a hospitality suite, club house, restaurant and gym as well as five other multifunctional rooms, each of which is 30 m² and can be used for any kind of activity. Between the two buildings, there's a room of technical installations that accommodates solar panels on the roof covering.

The project, designed by architect Isabelle Colas, of the Atelier d'Architecture Colas et Louis shows great awareness towards the harmonic integration of the structure in its territory, a landscape composed of dunes and water mirrors that it is part of Parc Naturel Regional Nord – Pas de Calais. In this scenery, the roof covering plays an important role through its slight shapes of pumped-up sails facing each other pleasantly with the waves of surrounding dunes. Attention to the environment has been given through the choice of technical solutions, such as solar panels to produce

warm water, green roofs and use of recyclable materials like wood and the aluminium of Riverclack®55 sheets. The 55 m long sheets on the reception building, are made of an aluminium alloy (5754) which is not only recyclable but like all 5xxx alloys, has excellent corrosion resistance to seawater and industrially polluted atmospheres.

Paolo Massi

The 5754 grade alloys are used in wide application within Building construction, highways structures including bridges, storage tanks and pressure vessels, and other marine and salt-water sensitive shore applications like the case of this Sailing Club situated next to the English Channel.





Designer:
Place:

Cabinet COLAIS ET LOUIS
Calais (France)

ROOF:
Surface:
Profile:
Material:
Roof Contractor:

2500 m²
Riverclack55[®]
Alu 0.7 mm 9006 Embossed
ESN- CALAIS



crédit Photo: ©PHMüller
La Voix du Nord
Atelier d'Architecture Colas et Louis



Centro Agroalimentare in Verona

A roof covering realized with Riverclack system 10 years ago. 22260 photovoltaic panels are being installed in these days: they are snap-locked to the existing roof panels without any through perforation.

Paolo Massi

The “Centro Agroalimentare” in Verona: one of the largest fruit and vegetable markets in Italy has a 85000 m² floor area facility which is distributed under a 1km long roof constructed over 10 years ago by Iscom with the Riverclack system.

A forward thinking board of directors, from the Veronamercato, after analysing all opportunities of electricity production deriving from renewable sources (photovoltaic systems) and their profitability, called for tenders at European level, inviting the participants to put forward their proposals.

Stakes: a 20-year grant on the fruit and vegetable markets roof covering (placed on the Centro Agroalimentare) to carry out a photovoltaic installation and to benefit from the advantages offered by the Italian government to those who produce and sell electricity deriving from sustainable sources.

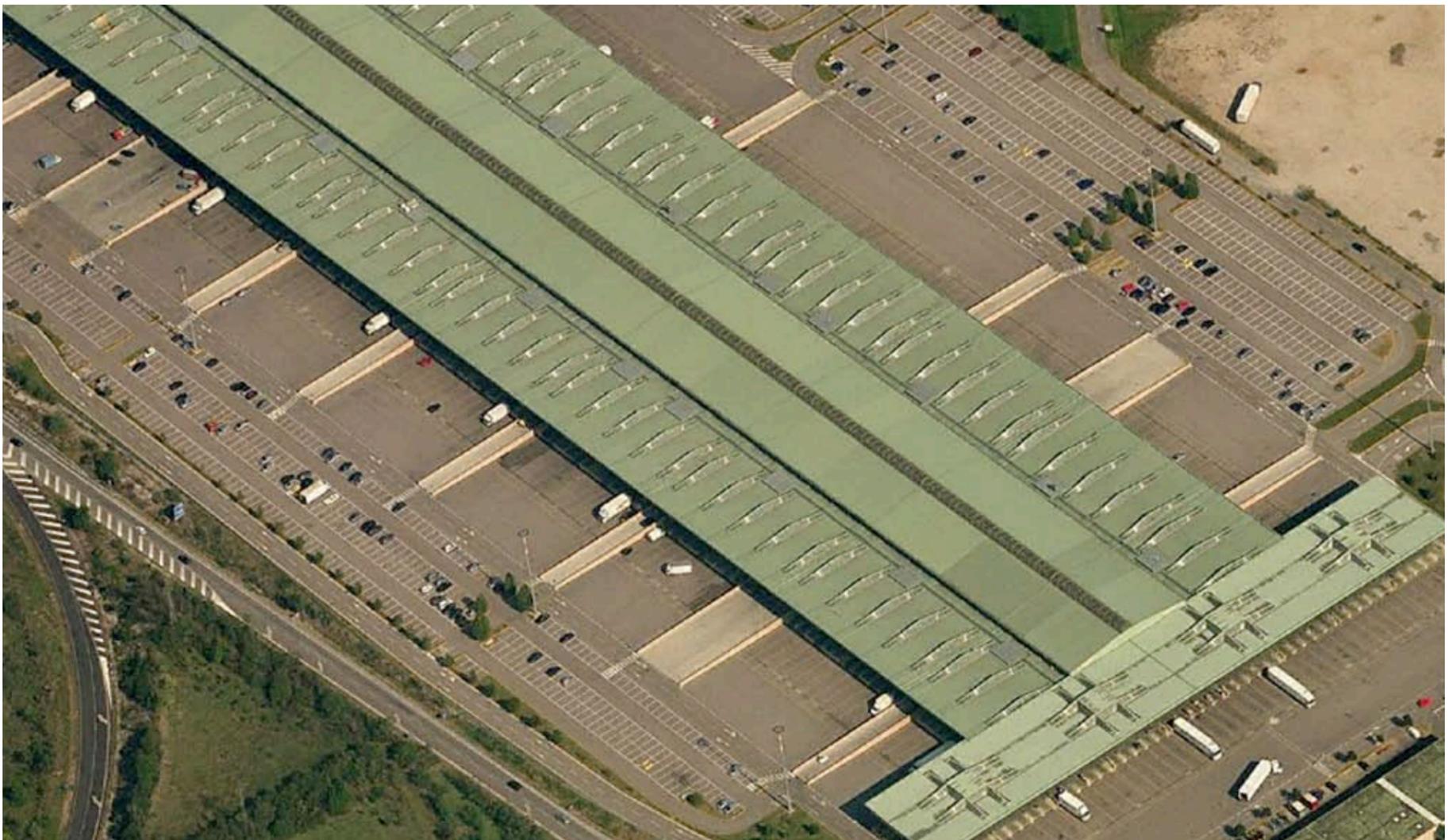
The best proposal, for both quality and economic value, came from Juwi Energie Rinnovabili, the Italian branch of the German group Juwi, based in Italy since 2006 with two offices in Verona and Bolzano.

Juwi holding, a world leader in the realization of renewable sources plant has already planned and installed more than 1000 photovoltaic systems throughout the world with over 300 MW global power. The multinational company also has branches in France, Spain, Greece, Czech Republic, Costa Rica, Canada, Argentina and the USA.

Besides providing practical solutions, Juwi is often also the beneficial owner of its installations, as is now the case with the Agricultural & Food Centre.

During the tender phase, Juwi asked for Iscom’s advice in order to install its FirstSolar FS275 panels on the Riverclack roof installed by Iscom in 1998.

Result: 22260 photovoltaic panels have just been installed on the 1000 m long building without any need to perforate the existing roof covering!





ISCOM Photovoltaic CLIP-IN Solutions

RIVERCLACK ELIOS

the thin film laminate amorphous photovoltaic panel from Unisolar, is glued and seamed into the Riverclack sheet ensuring adhesion for the full warranty of the system.



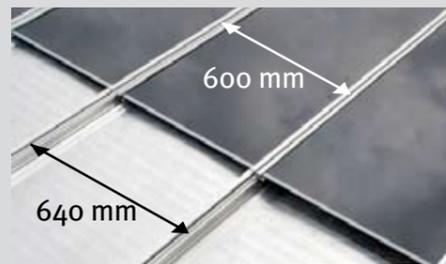
RIVERCLACK ELIOS DECK

By far the best in terms of integration, flexibility and adhesion to the metal of the thin film Unisolar laminate. The unique design of EliosDeck allows the laminate to be bonded to its own metal tray and then clipped into the roof systems external profile.



RIVERCLACK KRYSTAL

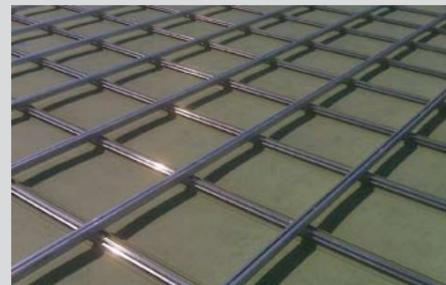
the polycrystalline PV panel that can be clipped straight into the Riverclack sheet profile.



RIVERCLACK 64

the purpose manufactured Riverclack sheets allow any 600 mm wide rigid photovoltaic panel to be clipped into this special Riverclack profile.

** approved by First Solar*



CLIPPING ACCESSOIRES

The engineered solutions for the application of every type of photovoltaic panel of any dimension onto the Riverclack sheets always without through fixations!

As a matter of fact, Iscom has designed this clip fixing system on its Riverclack profiles, allowing not only the integration of the photovoltaic installation without compromising the roofs weatherproofing but also to cut down on the need for additional structures and to speed up installation times.

With this new system, Iscom completes its product range of integrated photovoltaic and application systems for every kind of PV panel of any dimension.

The new installation in Verona is estimate to save 837 tons of CO2 per annum and has the following features;

- FirstSolar FS275 panels
- Nominal power: 1670 kWp
- Energy produced: 1,576,480 kWh/year

Works started in July and will end at the beginning of December. In this way, as Mr. Riccardo Caccia, Veronamercato chairman, declared to the press "for Christmas, Verona will have the most important photovoltaic roof covering in Italy".



Swimming pool in Yerres / Crosnes

Elegance and Sustainable Development

Paolo Massi



Situated in Yerres (28,000 inhabitants) on the bank of the homonymous river which crosses the town, Pierre de Coubertin swimming pool is the result of a project started in 2004 by the community of Yerres, aiming to promote sport meetings and social relationships among its inhabitants.

Thanks to its ideal concept and design, which was conceived as a basis of its functionality, the swimming pool allows the facilities to be utilised for sport activities (with a 25 m x 25 m pool) and at the same time still provide leisure activities. This is thanks to a 240 m² pool dedicated to leisure and a 40 m² pool for the children. The offer of this installation is integrated by a centre, working with autonomy, including cardio-training, sauna, turkish bath and a relax room.

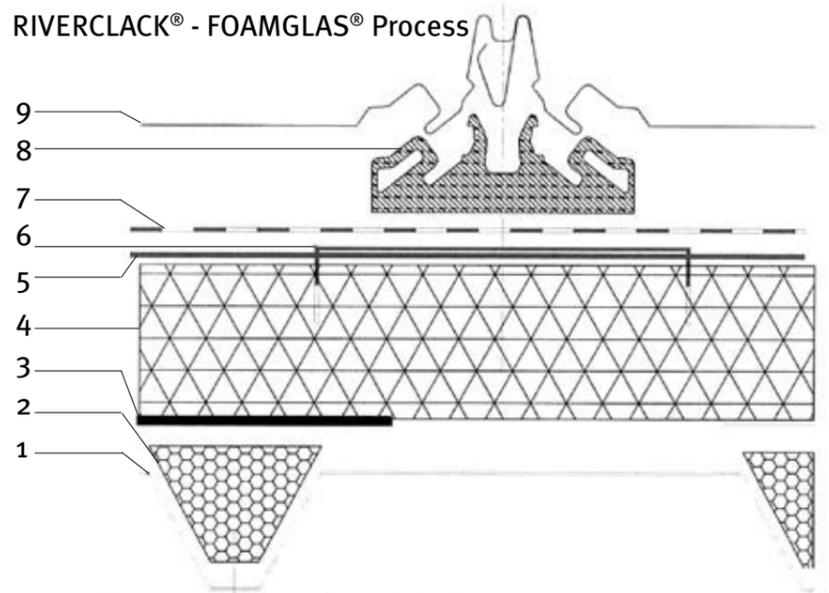
The structure resides with subtlety and elegance along the river Yerres. The great roof, despite its considerable dimensions, extends like a dangling leaf on the levels below and results as one of the most distinctive elements of the project, able to unify the whole building.

The perimeter, fabricated with glass panels, contributes to give the idea of a suspended roof, making the building fit perfectly into the surrounding environment.

The roof, which can be considered as the fifth facade, is lightened by openings on the river side and it has been finished with the aluminium Riverclack®55 sheets in a PVDF coated weathered copper finish, giving the appearance of a copper material without the environmental impact.



RIVERCLACK® - FOAMGLAS® Process



1. Plain or perforated steel deck
2. Acoustic insulation, in the case of an acoustic roof
3. Adhesive tape on top of each rib (in case of perforated decks)
4. Foamglas®
5. Bitumen
6. Foamglas® plate
7. Bituminous membrane
8. Riverclack fixing bracket
9. Riverclack55® or Rivergrip® sheet

Designer: Cabinet DUVAL-RAYNAL-FOLLIOT-LEVERRIER
Place: Yerres (Paris, France)

ROOF:
Surface: 4000 m²
Profile: Riverclack55®
Material: Alu 0.7 mm Old Copper
Roof Contractor: ETANCHISOL

Architect Gilles Leverrier, associated to the DUVAL-RAYNALFOLLIOT-LEVERRIER design firm, stated that the research of an “environmentally-friendly project” has been at the basis of the whole work. Therefore the challenge was to build the facility with least environmental impact both in terms of aesthetic and energy consumption.

At roofing level, the issue of thermal insulation was solved through the use of RIVERGLAS®, a combination of Riverclack® sheets and FOAMGLAS® cellular glass panels, thus guaranteeing a significant thermal and sound insulation together with an excellent hygrometric control.

One of the key features of this sport facility is the shower water recycling system, allowing them to economise on the sprinkler water for the green areas. And this is only the beginning:

The use of Riverclack® sheets will allow them to integrate amorphous silicon photovoltaic panels on the roof in the future. They will be installed with clips and, above all, without penetrating or compromising the elegance of the structure.



Troia Casino Hotel

The flat metal roof as fifth façade



Arch. Roberto Ragazzi

Situated on Troia peninsula, on the south of Lisbon, the Troia casino Hotel is part of the recently restored Troia Resort, surrounded by golden beaches, by the bright blue of the Atlantic Ocean and dived into rich vegetation.

The architectural project of Promontório Arquitectos includes several buildings: a re-established tower and new lower structures, with different functions, such as Conference Centre, the Showing Centre, Casino, Hotel and Spa.

An important factor to consider during the planning stage has been the resort position. In point of fact, Troia Casino Hotel is located on the ocean shore, with unfavourable climatic conditions due to strong winds and constant brackish air.

The sheets' mechanical and aesthetical characteristics have been successful at both planning stage and in the final negotiations.

The flat roof covering of the Conference Centre, Showing Centre, Fitness and Casino have been constructed with Riverclack®55 sheets in mill finish aluminium, thickness 0,7 and 0,5% pitch.





Designer: Promontorio Arquitectos
Place: Troia (Portugal)

ROOF AND WALL CLADDING:

Surface: 5490 m²
Profile: Riverclack55®
Material: Alu 0.7 mm Mill finish
Roof Contractor: SOEMFIS



Since the tower, dominating the new estate complex, has been completely restored, a consequent improvement of the roof coverings of the new buildings was required, as they are considered the fifth façade which could be seen from the surroundings.

The planning phase had considered to adopt the same techniques on all coverings, so as to give an aesthetical and material continuity to the whole structure. Consequently, some Riverclack®55 perforated sheets, applied near hidden technical installations, allowing the working of ventilation systems, have been placed at the same level of the adjacent sheets.

Even the tower façades of the Showing Centre have been covered with Riverclack®55 sheets in mill finish aluminium, installed vertically.

The choice of onsite roll forming had been recommended due to the dimensions and quantities of the surfaces to be covered, exceeding 6,000m².

The technical advice had been strictly given by architect Roberto Ragazzi, whereas roof and façades coverings have been installed by the company LUSOCOBER (www.lusocober.com) di Jorge Ferreira.

