Renovation of facades, interiors and accessories

Energy efficiency and aesthetic solution.
Offices
Pensionskasse Hoechst
Cologne, Germany

Project Office building of the employee pension fund of the Hoechst Group VVaG Architect: Gatermann + Schossig
Fabricator NR Metallbau
Year of renovation 2009
Product Reynobond® Architecture composite panels Brushed Aluminium Natural

Project description
Revitalisation of this 60’s-vintage administration complex meant entirely stripping the existing building and installing a new climate control concept. The facades were entirely removed and replaced with a heating and cooling system in the parapet. Large-format panels of brushed aluminium now run in horizontally and vertically oriented rows, evoking interesting, changing effects as the light of day changes.

After the renovation
Before the renovation
College
Wilhelm Leuschner
Niestetal, Germany

Project  Wilhelm-Leuschner College
Architect  RSE Planungsgesellschaft mbH
Fabricator  Holzbau Hellmuth
Year of renovation  2008
Product  Reynobond® Architecture pre-painted aluminium composite panels

Project description
The renovation of the comprehensive school built in 1978 resembled a general overhaul. Nearly every part of the building was updated, down to the shell. One focus was laid on an improved energy management. The heating and sanitary facilities, electrical and fire safety systems and even thermal insulation are now state-of-the-art. But the school’s improvement wasn’t just from an energy standpoint but from a visual perspective as well. Aluminium facades in bright orange and green now provide the schoolchildren with additional motivation.
Residential towers
“Herriot et Suisse”
Le Mans, France

Project: Six “Herriot et Suisse” residential towers
Architect: Nomade Architectes
Fabricator: Inter-Pliage
Year of renovation: 2012
Product: Reynolux® Building pre-painted aluminium 1.47 mm, in three special colours: “champagne”, “gold” and “bronze” at 30% gloss

Project description
An enormous renovation plan launched by the city of Le Mans and the social property managers aimed at transforming the image of a social residential district by proposing a contemporary architecture and integrating a process of sustainable development. These two objectives were achieved thanks to the installation of exterior thermal insulation covering the existing facades of the six towers. In order to break with the monotony and repetitiveness of the prefabricated concrete facades, the architects chose Reynolux® Building aluminium with high-gloss coating for the cladding. Two colours tone on tone are arranged randomly in vertical strips to offer the facade a dynamic aspect.
Social centre
Endesa
Barcelone, Spain

Project Symbolic renovation of a historical building
Architect Alotark Arquitectos & Consultores
Fabricator Truque, Carpinteria Aluman
Year of renovation 2012
Product Reynobond® with EcoClean™ pre-painted aluminium composite panels

Project description
The Spanish power company has selected an old hydroelectric power plant in Barcelona as its new headquarters. A complete renovation is making this historic structure one of the most symbolic buildings in the city. In addition to its outstanding energy efficiency, the 37,000 m² building is also notable for its extraordinary architecture. It combines the traditional facade of the former power plant with a modern, colourful aluminium-glass facade. The special feature: One part of the building was clad with the new Reynobond® with EcoClean™ self-cleaning and air-cleaning panels.
The Reynobond® Architecture ventilated facade creates a second skin around the building, influencing many criteria of energy performance considered in the Kyoto Protocol. It is today’s highest-performance insulation solution for improving the energy balance of the building.

Thermal inertia
The principle of facade ventilation and the presence of insulation moderate the changes in heat and cold over time (thermal phase difference) as well as the amplitude of the changes. This thermal performance contributes to summer comfort, a criterion used in the RT 2102, the French thermal regulation, to limit the use of air conditioning, for example.

Reduction in structural thermal bridging
This double skin permits continuous, homogeneous thermal insulation along the opaque walls. For interior (ITI) or divided thermal insulation, the global performance of building walls is affected by discontinuities in construction (low, intermediate, high floors, partition walls ...). ITI permits 33 % losses, in sharp contrast with the mere 10 % loss when using exterior thermal insulation (ETI). As a result, only a ventilated facade makes maximum use of the building’s thermal inertia.

Thermal performance
Adapt the thickness of the insulation according to the thermal performance desired.

The advantages
- **Reduction in energy consumption**
  The three points defining the concept of the Reynobond® Architecture ventilated facade all work together for a better insulation! The result is a reduction in energy consumption of the building in terms of heating and air conditioning. A ventilated facade is thus an ideal solution for reducing CO₂ emissions.
- **Protection against rain and weather**
  The Reynobond® Architecture ventilated facade protects the load bearing structure and insulation from rain and weather.
- **Lasting protection of investment**
  Exterior insulation permits the interior to be preserved on the one hand (both aesthetically and in terms of space), while still permitting upgrade of a weathered facade to a modern one. Renovation using Reynobond® Architecture ventilated facade permits rehabilitation of old structures into a healthy, durable building.
- **Protection from humidity**
  Water vapour on the wall is rapidly evacuated by ventilation of the layer of air between the Reynobond® Architecture panel and the insulation. The insulation thus retains its effectiveness over the long term, and the building stays sustainably sane. Thermal inertia generated by the facade simultaneously reduces the problems of condensation induced by temperature fluctuations.
- **Acoustic performance**
  A ventilated facade can improve the acoustic insulation index by 8 to 14 dB, depending on the thickness of the insulation and the number of open joints.

Something to keep in mind
The construction quality of the building plays a major role in improving the general thermal performance of buildings.
Reynobond® Architecture
An environmentally friendly solution.

The Reynobond® Architecture ventilated facade contributes greatly to improving the energy performance of buildings and to achieving the objectives defined by the HQE (High Quality Environmental) approach and specific labels such as HPE (High Energy Performance) and Effinergie as well as for passive houses and renovation projects.

Eco-construction goal

Natural design
Colours and textures that can be integrated perfectly into the environment of the construction, for example references to wood and earth, as well as other uniform or metallic tones.

Durability and maintenance
The smooth surface of the Reynobond® Architecture panel limits dirtying and can be cleaned with water or with current maintenance products. Well-maintained, the panel has a very long lifetime; it is guaranteed to hold its colour for 20 years.

Environmental quality
Our research and development service is always looking for ways to reduce the consumption of energy resources needed to manufacture Reynobond® Architecture panels. The environmental qualities of the product as well as its life cycle analysis are documented in the Reynobond® panel EPD (Environmental Product Declaration) file.

Waste reduction
Panel formats optimised to minimise construction waste. Cutting and punching work is done at the fabricator’s factory. The construction site stays clean and work is rapid, which limits the consumption of resources.

Eco-management goals

Thermal performance of the construction is optimised thanks to the principle of the ventilated facade and its insulation, reducing overall energy consumption.

Comfort goals
Thanks to the ventilation in the layer of air in the facade, hygrothermal comfort is considerably improved. Acoustic comfort can also be improved by 8 to 14 dB.

Environmental data available upon request

EPD – Europe
The EN15804-compliant EPD (Environmental Product Declaration) files for Reynolux® pre-painted aluminium and Reynobond® and Reynodual® panels are based on the ISO 14040 standard. They list the environmental qualities of the product as well as its lifecycle analysis (LCA): ecological footprint, lifecycle, recycling of the product... This European document is based on the requirements of the German DGNB certification.

LEED – USA
The LEED certification is the American system for the evaluation of environmental structures. Reynobond® and Reynodual® panels and Reynolux® pre-painted aluminium are helpful to support projects with the maximum two points.

Radisson Blu Hotel | Göteborg | Sweden | Reflex Arkitekter AB | Staticus LEED project
Coca Cola | Madrid | Spain | De Lapuerta + Asensio | ROMGOM, S.L.U. | LEED project | ventilated facade
Reynobond® | Reynolux® with EcoClean™
Reynobond® | Reynolux® with EcoClean™ facades are the first aluminium materials (aluminium sheet metal or composite panels) that are both cost-effective and environmentally-friendly. Using sunrays and the humidity, particles of dirt and smog are rendered harmless. This is how the EcoClean™ coating contributes to self-cleaning of the facade and to removing pollution from the surrounding air.

The advantages of the EcoClean™ coating

- **Protecting the environment**
  1,000 m² of the EcoClean™ coating destroy as much atmospheric pollution as about 80 trees. This is equivalent to the daily emissions of four cars.

- **Improvement of image**
  The facade remains beautiful and clean over the long term.

- **Cost-effectiveness**
  The self-cleaning feature of the EcoClean™ coating considerably reduces the costs of cleaning and maintenance. Over half the costs of cleaning and scheduled maintenance on the facade can be saved.

How the EcoClean™ coating works

Under the influence of sunrays, a photoelectric effect in the titanium dioxide layer results in the creation of available energy from electrons. This energy from electrons creates free oxygen superanions and hydroxyl radicals that lead to the breakdown of organic substances.

Metal and environment

- **Material economy**
  The high resilience of aluminium permits it to support significant loads with less material, or to serve as a framework for other materials.

- **Freedom in design**
  The high rigidity of metals offers greater freedom in creative design.

- **Durability**
  Reynobond® Architecture metal construction products resist bad weather, earthquakes, corrosion and UV all at once. This is an indication of a very long service life without deterioration.

- **Recycling**
  Metals are recycled without changing their quality, because metallic bonds are re-established after re-solidification – even after being recycled multiple times. Even today, over 92% of metal products used in European buildings are recovered over the course of their lives. The energy needed to recycle aluminium is about 5% of the energy needed for primary production.

Source: Les métaux dans le bâtiment – www.metalsforbuildings.eu

Controlled French manufacturing

Reynobond® Architecture panels are all made in France. Arconic Architectural Products have ISO 14001 certification, indicating their voluntary engagement in reducing the impact of their activity on the environment at all levels: water, energy or waste.
The superhydrophilic properties come from the increase in surface energy caused by the electrons. The surface attracts humidity with the result that no drops are formed, but a thin layer instead. The harmful substances that have been broken down slide off this smooth surface or are simply washed to the bottom by rain.

**Application**

The EcoClean™ coating is applied to walls exposed to rain and UV rays.

**Availability**

The EcoClean™ coating is applied onto matte or satin finish, with the exception of the darker satin colours in the quality paint DURAGLOSS® 5000.

**Additional information**

To find out more about the EcoClean™ coating, you can retrieve information, videos or brochures on our Website www.excellence-in-innovation.com, on the EcoClean™ tab.
Reynobond® Architecture, Reynolux® Building and Reynodual® Building

Three economical, ecological and durable solutions.

Reynolux® Building pre-painted aluminium has a finish extremely resistant to UV and corrosion. The Reynobond® Architecture pre-painted composite aluminium panel consists of two Reynolux® pre-painted aluminium sheets around a polyethylene core. Reynodual® Building pre-painted double sheet aluminium panel is suitable for facades with high technical, visual and environmentally-friendly requirements. Coming from the same manufacturing plant, the three products can be obtained in identical colours and combined in the same project. The possibilities for architectural creation are vast – and yours to make use of!

The advantages

- **Light and perfectly flat**
- **UV resistance**
  Due to the paint DURAGLOSS® 5000 the retention of colour in outdoor use can be guaranteed up to 20 years.
- **Resistance to wind pressure**
  Its rigidity permits it to resist bending under wind pressure. Different procedures (reinforcement, more rigid metal…) allow Reynolux® Building aluminium to meet the same requirements in terms of wind resistance as Reynobond® Architecture panels.
- **Durability**
  The material is corrosion resistant, water-repellent and cannot rot! This material will never develop moisture and is also insensitive to heat, freezing and rain.
- **Quality**
  Our 50 years of experience in lacquering aluminium allows us to handle the most prestigious projects in the world today (airports, opera houses, museums, office and residential buildings, stadiums…).
- **Minimal expansion**
  Changes in temperature cause only slight dimensional variation.
- **Economical, cost-effective and easy to maintain**
  Reynobond® Architecture and Reynodual® Building panels and Reynolux® Building pre-painted aluminium are easy and quick to install. They are characterised by a long service life and require little maintenance. Their smooth surface limits dirtying and can be cleaned with water or with current maintenance products.
- **Freedom in design**
  A great flexibility in transformation lets you implement unusual shapes.
- **Accessories**
  Reynolux® Building pre-painted aluminium and Reynobond® Architecture and Reynodual® Building panels can be transformed and combined as desired to make accessories in the same colour, for example angles, acroteres, windowsills, starting profiles, lateral stops with spoilers, crests, joining profiles or radiators.
Facility and flexibility of fastening and transformation

Visible or invisible fastening
The Reynobond® Architecture panel can be fastened using a cassette system for invisible fastening using rivets, screws or adhesive. Visible riveted or screwed fastening reduces your machining costs and installation time. You can find assorted coloured fasteners from your provider: SFS Intec.

Flexible transformation
Easy to transform and to install. Punch, fold and bend Reynobond® Architecture panels for a fluid, homogeneous facade with no angled joints, for example.

DURAGLOSS® 5000: The choice of a coating par excellence
We offer DURAGLOSS® 5000 and PVDF 70/30 coating. DURAGLOSS® 5000 and PVDF 70/30 are of the same level of quality, but DURAGLOSS® 5000 has a greater range of brightness and colours from 3 % mat. This is an innovative concept capable of meeting higher aesthetic needs and longer life requirements at the same time in an optimum manner.

Reynobond® XXL: The ideal dimension for your creative designs
Reynobond® Architecture panels and Reynolux® Building pre-painted aluminium offer the largest sizes on the market: 1,750 mm and 2,000 mm! Your projects gain aesthetic value due to fewer joints, lower costs due to shorter installation times as well as less processing and installation costs per square metre. These XXL sizes can also be combined ideally with other facade products of equivalent sizes, such as curtain walls.
About Reynobond® Architecture, Reynolux® Building and Reynodual® Building

With Reynobond® aluminium composite panels, Reynolux® coil-coated aluminium and Reynodual® double sheet aluminium panels Arconic Architectural Products based in Merxheim/France, a subsidiary of Arconic, an internationally leading company for technologies, engineering and manufacturing processes, offers a wide range of products for architecture and construction. What’s more, they come with all the solid virtues you would expect of a global company. This means, for example, that you get a warranty of up to 20 years on our DURAGLOSS® surfaces. Member of the ECCA (European Coil Coating Association), our company is certified according to the international standards ISO 14001 and 9001 and OHSAS 18001.

Controlled French manufacturing

Reynobond® Architecture, Reynolux® Building and Reynodual® Building panels and sheets are all made in France. Arconic Architectural Products have ISO 14001 certification, indicating their voluntary engagement in reducing the impact of their activity on the environment at all levels: water, energy or waste.