

TATA STEEL



Building envelope case study

Deeside Leisure Centre, West Queensferry, Flintshire

Client: Flintshire County Council

Installation contractors: Lester
Fabrications (wall)
Hawkins Roofing
(roof)

System manufacturer: Tata Steel

Active energy system: Tata Steel Colorcoat
Renew SC® with R32
roof profile/C32 wall
profile and SolBond
Integra crystalline
photovoltaic
modules

Close involvement in a recent £5 million leisure centre refurbishment project has demonstrated Tata Steel's ongoing commitment to transform the building envelope from a passive energy conservation role to one of active, efficient and affordable energy generation.

Flintshire County Council wanted to ensure the renovation project was sympathetic to the local environment and that water, energy and materials would be used efficiently and effectively.

The revised building envelope incorporates Tata Steel solutions designed to reduce energy costs and consumption and provide a facelift.



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Deeside Leisure Centre, West Queensferry, Flintshire, is the National Centre for Ice Sports in Wales. It boasts an Olympic size ice pad, skatepark and spa. Other facilities include a fitness suite, 3G football pitches, 8-court sports hall and squash courts.

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The south facing elevation of the building has been over-clad in the Tata Steel C32 profile as part of the Colorcoat Renew SC® transpired solar collector system using Colorcoat Prisma® Slate Grey finish. The C32 fascia was installed over the existing insulated wall cladding.



Colorcoat Renew SC® is an active solar air heating system, with a pre-engineered control system, that uses the sun to generate fresh heated air. It consists of a perforated Colorcoat Prisma® collector that absorbs and captures the sun's energy and converts it into useable, clean, green heat.

A straightforward and low cost solution to achieving Government targets, Colorcoat Renew SC® is primarily suited to buildings where ventilated, fresh air is used to deliver space heating. It can be fitted to any building, new build or retro fit, that has a requirement for space heating during the day.

Installed onto south-facing walls, Colorcoat Renew SC® can be tailored to suit all types of industrial, commercial and residential projects. It is a highly efficient renewable energy system and, in the case of Deeside Leisure Centre, is predicted to deliver 70MWh per year through solar radiation and another 40MWh per year, resulting from reduced thermal losses. Payback on investment is expected within ten years.

The existing roof has been over-clad with 3250m² of the Tata Steel R32 profile using Colorcoat Prisma® Oyster finish.

The new roof's slim, high-performance

SOLbond Integra crystalline photovoltaic modules are bonded directly to R32.

Specifically designed for metal roofs, they provide a high power, lightweight (less than 10kg/m²) solution that is easily supported by the roof structure. The high quality panels and inverters installed at the leisure centre are networked into the building management control system.

The roof system is expected to provide Deeside Leisure Centre with annual electricity savings of 39MWh and is also predicted to yield investment payback within a decade.

Both roof and wall systems provide a functional performance of 25 years with low maintenance costs. They are the result of extensive research carried out at the Sustainable Building Envelope Centre in Shotton, Flintshire, a £6 million initiative involving Tata Steel, the Low Carbon Research Institute and Welsh Government.

Reflecting on the project, Will Pierce, Energy Manager for Flintshire County Council commented: "Tata Steel's comprehensive approach has transformed the building's energy needs and appearance, facilitating increased attendance and worthwhile future energy cost savings."

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