Georgia-Pacific

DensDeck®

Roof Board

CASE STUDY

CATERPILLAR CHOOSE DENSDECK® ROOF BOARDS FOR MAJOR ROOF REFURBISHMENT PROJECT

CATERPILLAR SPECIFY DENSDECK® ROOF BOARDS FOR FLAT ROOF REFURBISHMENT

DensDeck® Roof Boards were specified as ***flat roof recovery boards*** for the roof refurbishment on the Caterpillar facility in Desford, Leicestershire. The aims for the selection of DensDeck® Roof Boards for the flat roof build-up included increasing the overall building performance and fire performance of the new roof build-up, minimising operational disruptions during installation or maintenance, and supporting the prevention of losses in the unlikely event of and or other such catastrophes.

PROJECT NAME	CATERPILLAR FACILITY, LEICESTERSHIRE, UK
CLIENT	CATERPILLAR
CONTRACTOR	NOT PROVIDED
SPECIFIER	FIRESTONE BUILDING PRODUCTS

The 1.8million square foot (167,000 m^2) facility needed to remain operational during the 2011 roof refurbishment, to continue providing worldwide materials distribution.

The first of the key objectives for the refurbishment was an 'Enviro-ready' design of the finished roof which required increased thermal performance and the addition of thin film photovoltaics. The second key objective was to ensure that the roof build-up complied with Caterpillar's stringent insurance requirements as a longstanding client of ***FM Global***.

REMAINING OPERATIONAL DURING THE INSTALLATION OF ROOF COVER BOARDS THROUGHOUT THE ENTIRE ROOF REFURBISHMENT

The original roof, which featured a bitumen membrane and mineral wool insulation, was leaking, compromising the thermal performance of the roof build-up, and posing a risk to the continuous operation of the facility – as well as potential damage to the innards of the facility. The refurbishment works were planned around the need to eliminate operational downtime altogether.

Roshan L Shrestha, product manager at Firestone Building Products, explains: "An area of around 40,000 square metres of flat roof, with large square roof lights and various roof ends, had to be refurbished. We had to ensure the refurbishment works did not impact the daily operation of the Caterpillar facility. Therefore, it wasn't possible to strip the roof layers completely and start anew. We carefully scheduled the work around removing the existing roof and installing the new roof in smaller and less disruptive stages."

The roof was laid in harsh winter conditions across three-months. The whole ***metal roof build-up*** area was divided into smaller zones. The existing roof layers were stripped back to the steel deck. This was followed by installing a vapour control layer and PIR (polyisocyanurate) insulation. DensDeck® Roof Boards were then installed over the insulation and helped ensure the continuous flow of work.

Roshan explains: "The DensDeck® Roof Board adds robustness to the roof build-up. We had to work at speed, and the cover board helped with expediting the installation. Once the cover boards were mechanically fixed, they added compressive strength to the roof assembly. The cover boards also formed a strong, homogenous substrate that helped install the Alumasc EPDM (Ethylene Propylene Diene Monomer) membrane used for this project."

DENSDECK® ROOF BOARDS HELP TO IMPROVE ROOF BUILD-UP ROBUSTNESS

Roshan continues: "The plan was to add a thin layer of photovoltaics to the finished roof. This was one of the main driving factors for the specification of DensDeck® Roof Boards. The addition of a high-performance cover board helped to increase the robustness of the roof system and enable the installation of a photovoltaic system."

Whilst PIR insulation has relatively high compressive strength, the addition of a roof cover board meant that this was further enhanced. The DensDeck® Roof Board also acted as a substrate for installing the EPDM membrane. This helps to increase the performance and longevity of the roof build-up and reduce any maintenance requirements. The latter was an essential consideration as any unexpected maintenance could create instances of costly downtime, as well as the potential for damage to the roof which could place the internals of the building at risk from the elements.

FM APPROVAL – A KEY REQUIREMENT FOR CATERPILLAR IN DESFORD

FM Approvals are an international third-party testing and verification service originating from the USA. They are a subsidiary of FM Global, a leading insurer of commercial and industrial property, that insures one in three of the worlds fortune 1000 companies. FM Global recommends the use of FM Approved products at all its insured locations and many other organisations insured with other providers also specify FM Approved products and roof assemblies.

FM approvals are based on actual losses incurred over years. The data collated is used to inform the development of over 200 FM approval standards. This includes a variety of high-performance markers for fire resistance, wind uplift and hail damage, amongst many others. DensDeck® Roof Board is a product that is included in large numbers of FM approved flat roof and low slope roof assemblies, offering specifiers confidence that roof cover boards can achieve the highest and strictest standards of performance that FM Global measures to. The number of FM approved assemblies that use DensDeck® Roof Boards in a cover board application reached 394,727 in the RoofNav database on the 27th of January 2023.

Aside from continuity of operation, Caterpillar has a substantial loss prevention strategy. FM Global is integral to this strategy, and Caterpillar has a long-established relationship with FM Global that extends to other properties. It was critical that the roof system specified for the Desford facility was FM approved.

Roshan explains: "FM Approval is one of the main specification drivers in the US and is also required for most US companies that operate within Europe and the UK. Outside of these parameters, it is not yet widespread. However, this is fast changing. We are often asked for FM approvals. The expectation is that a product is stringently tested and will perform to a very high standard. And this is why we chose DensDeck® Roof Boards."

Contact us for more information on DensDeck® Roof Boards and DensDeck® Prime Roof Boards. We are happy to discuss how our range of roof and cover boards can help achieve specific performance requirements and speed up the installation of your low slope commercial roof system

DENSDECK RESOURCES

You can book one of our CPDs here

densdeck.buildgp.com/advice-resources/request-a-cpd

And you can read more case studies here

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