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HOME DESIGN

Best Roof Types for Solar Panels: A Guide for UK Housebuilders

Pitch, orientation and roof type.

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Solar power is no longer a niche upgrade – it will soon be a standard feature of new-build homes across the UK. Alongside rising buyer expectations for energy-efficient homes, new regulations are raising the bar for sustainability in residential construction.

The Future Homes Standard will essentially require rooftop solar to be installed on all new homes from 2027. For developers, understanding roof suitability for solar panels in new builds is now essential for delivering compliant, future-ready housing.

Roof form, pitch, orientation, and layout all influence the performance and viability of a solar installation. Designing solar-ready roofs for new homes can improve energy performance, simplify installation, and increase the market appeal of properties.

In this guide, we explore the best roof types for solar panels in the UK, common design challenges, and practical considerations for integrating solar into housing developments.

Roof Pitch, Orientation, and Shading for Solar Panels

The most effective solar installations depend heavily on roof orientation and pitch.

In the UK, the ideal roof pitch for solar panels is typically between 30° and 40°, oriented as close to south-facing as possible. This angle allows panels to capture the maximum amount of sunlight throughout the year, though east–west arrangements can also work well with thoughtful system design.

The Impact of Shading

When assessing roof suitability for solar panels, shading is a critical factor. Shading can come from:

- Nearby buildings
- Trees
- Chimneys or roof structures
- Dormers or architectural features

Even partial shading can reduce energy yield significantly. Conducting early shading analysis during the design phase helps ensure roofs are optimised for solar generation.

Best Roof Types for Solar

Simple gable roofs tend to be the most straightforward for solar. They typically provide large, unshaded surfaces for panels and minimise obstructions. More complex roof designs, such as hipped roofs, dormers, or multiple roof elevations, can limit usable area or create shading issues, reducing overall system performance. Nearby buildings, trees, or roof features like flues can also significantly affect energy yield.

Another important consideration is the placement of tile vents or soil vent pipe (SVP) exits. These are often positioned in the centre of a roof elevation without regard for solar layouts, but they can take up valuable space and reduce array size. In most cases, they can be repositioned to suit the solar design with minimal effort, if considered early enough.

That said, solar layouts can often be adapted to work around skylights, chimneys, and other architectural features with the right planning. Early shading analysis can help identify and address these issues before construction begins.

On-Roof vs In-Roof Solar Panels for New Builds

When integrating solar on new homes, there are two main installation methods:

- On-roof systems, where panels are fixed above existing roof tiles. This is often the most cost-effective and simplest to install.
- In-roof systems, where panels replace a section of the roofing material and sit flush with the surface. This approach is increasingly popular in new developments due to their cleaner appearance and potential savings on tiling costs.

Each option comes with trade-offs. In-roof systems often appeal for their clean, low-profile appearance and can reduce issues like bird nesting beneath panels. However, they may offer slightly less ventilation and can be more complex to access post-installation.

On-roof systems are generally quicker to install and easier to modify or expand in future, though they tend to be more visible.

Choosing the right system depends on a combination of aesthetic priorities, cost considerations, and planning constraints. Gryd helps housebuilders weigh these factors to find the best fit for each project's goals and constraints.

The Value of Early Solar Design Consultation

Solar has too often been treated as a bolt-on feature rather than a foundational part of the building design. However, integrating solar into the roof design from the beginning leads to far better outcomes. Factors like panel placement, inverter location, cabling routes, and structural load considerations are far easier to address before the roof is built.

Involving solar specialists during the design phase, ideally alongside architects and engineers, can help avoid common pitfalls and ensure the system integrates smoothly with the rest of the build. Even relatively small design decisions made early on (like the placement of vents or dormers) can have a big impact on the viability of a roof for solar.

Planning solar-ready roof designs from the outset helps avoid costly redesigns later.

Designing Solar-Ready Roofs for New Homes

Incorporating solar into the roof design from day one ensures the best architectural integration, cost savings, and energy outcomes. It allows builders to optimise roof pitch and orientation, avoid clashes with other design elements, and plan electrical layouts with solar in mind.

But it's still possible to integrate solar successfully at later stages, provided the roof structure and electrical systems can support it. Even in mid- or late-stage builds, practical design solutions can be developed, though they may come with limitations or additional costs.

Collaborating with solar specialists during the design phase can help navigate both technical and regulatory challenges, ensuring that new homes are built to perform for decades to come.

If you're exploring solar panel roof design for your development, Gryd's team can help advise on system layouts, solar feasibility, and integration strategies tailored to your project. Get in touch to discuss your project or explore tailored solar options for your development.

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