

Kingspan TEK® Building System

LOW PITCH TECHNICAL NOTE 1 – INTERNAL USE ONLY

Introduction

The purpose of this document is to provide technical guidance on the use of the Kingspan TEK® Building System in low pitch applications; to assess the product's suitability; and to ensure longevity of the System. This document will cover initial considerations, limitations and recommendations when considering the Kingspan TEK® Building System panels for use in a low pitched roof.

Product Overview

Kingspan TEK® Building System panels consist of a high performance polyurethane core, sandwiched between two layers of 15 mm Oriented Strand Board type 3. It is currently manufactured in two thicknesses:

- 142 mm (112 mm Polyurethane core, 2 x15 mm OSB facers)
- 172 mm (142 mm Polyurethane core, 2 x15 mm OSB facers)

The product is manufactured with a blowing agent that has zero Ozone Depletion Potential (ODP) and low Global Warming Potential (GWP).

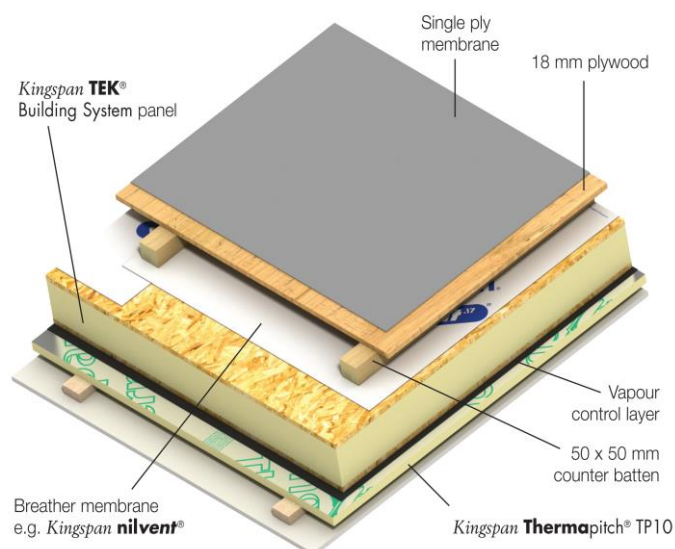
Thermal Performance

The table below highlights the thermal benefits of utilising the Kingspan TEK® Building System as the primary means of fabric insulation. It also shows the U-values that can be achieved by installing a thin layer of Kingspan Thermapitch® TP10 to the underside of the Kingspan TEK® Building System panels.

Thermapitch® TP10	U-value Achieved (W/m ² K)	
	Kingspan TEK® Building System 142 mm	Kingspan TEK® Building System 172 mm
N/A	0.19	0.15
25 mm	0.15	0.13
50 mm	0.13	0.11

Outside to Inside Build Up

Waterproofing system (i.e single ply membrane)
 18 mm plywood
 50 mm deep timber batten cavity - adequately ventilated
 Breather membrane
 Kingspan TEK® Building System (142 mm or 172 mm)
 Vapour control layer (high performance)
 Kingspan Thermapitch® TP10 (optional)
 Batten Cavity – 25 mm x 47 mm
 Plasterboard – 12.5 mm
 Plaster Skim – 3 mm



Key Design Considerations

- Using the Kingspan TEK[®] Building System in a low pitch application as outlined in this document is **not covered** under our current BBA certificate.
- The **ventilated timber batten cavity** is to be created with a secondary deck for the waterproofing to be applied onto. This timber batten cavity should be minimum of 50 mm and be adequately ventilated. For large roof spans, consideration for mid-point ventilating outlets may be required. We would recommend contacting a ventilation system manufacturer for further advice.
- The Kingspan TEK[®] Building System's **minimum falls should be no less than 2°**. Alternatively, the minimum 2° fall in the roof structure can be provided in a timber batten cavity zone with furring's. The minimum depth of the ventilated timber batten cavity must be 50 mm at any point.
- The **fixings manufacturer and structural engineer** should be consulted to confirm the appropriate fixings for securing the timber battens on the outside of the Kingspan TEK[®] Building System and for attaching the secondary deck.
- The Kingspan TEK[®] Building System **should only be used** on roofs where there will be no or very limited foot traffic.
- The Kingspan TEK[®] Building System is **not suitable** on roofs with intensive or semi intensive (heavy weight) green roof finishes. Lightweight extensive roof coverings such as sedum mats can be used, providing the structural engineer is consulted.
- **Structural responsibility**, including creep performance, must be understood and borne by the engineer.
- The ingress of insects / vermin / wind / driven rain and snow should be prevented with appropriate detailing
- A **vapour control layer** (VCL) (typically 1000 - 1200 gauge polythene sheet) should be installed to the underside of the Kingspan TEK[®] Building System panel.
- The internal humidity conditions should be no greater than level 3 – dwelling of low occupancy i.e house.
- All Kingspan TEK[®] Building System elements should be fully protected from wind driven rain, snow and sunlight, via the use of an additional underlying vapour permeable membrane. e.g. Kingspan nilvent[®].
- Discussions with the waterproofing manufacturer are required to confirm the suitability of specification.

Please Note:

Where metal roof finishes are to be applied, please contact the Kingspan Insulation Technical Service Department who will advise on requirements and options for this application.

Every project needs to be assessed by the Kingspan Insulation Technical Service Department to confirm the suitability of the Kingspan TEK[®] Building System in a low pitch application.

Further Details

We hope the information outlined in this Technical Note proves to be of use. If you have any queries or questions please don't hesitate to contact us on the below details:

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