

## Technical Study: Vitsoe factory, Leamington Spa

By [Elizabeth Hopkirk](#) | 26 October 2017

The firm behind Dieter Rams' 606 shelving system has created a temple to craftsmanship with its new HQ



Source: Vitsoe

The canteen overlooking woodland, where all the staff eat together

When the time comes for a manufacturer to move out of London and build its own factory the result is typically a prefabricated metal shed plonked in an expanse of concrete. Not so the headquarters of furniture company Vitsoe which has moved 140 miles up the Grand Union Canal from Camden to Leamington Spa.

Its new home is indeed a vast box constructed offsite and erected in 23 days on a 1.3ha site between a giant supermarket, a busy road and a railway. But that's where the similarities end.

Fittingly for a furniture company the new building is made entirely from wood and is crafted like a Chippendale. Just as fittingly for a company renowned for its system-built shelving – which still rolls off the assembly line just as Dieter Rams designed it 60 years ago – the building can be reconfigured, though with a forklift rather than an allen key. It's a bespoke kit of parts.

The single volume – 135m x 25m x 6m – is filled with daylight and fresh air and stands in a landscape designed by Kim Wilkie. At lunchtime a handbell is rung and everyone stops, walks to the huge window at the north end, with its view over woodland, and sits down to eat together. The food is prepared by Vitsø's chef.

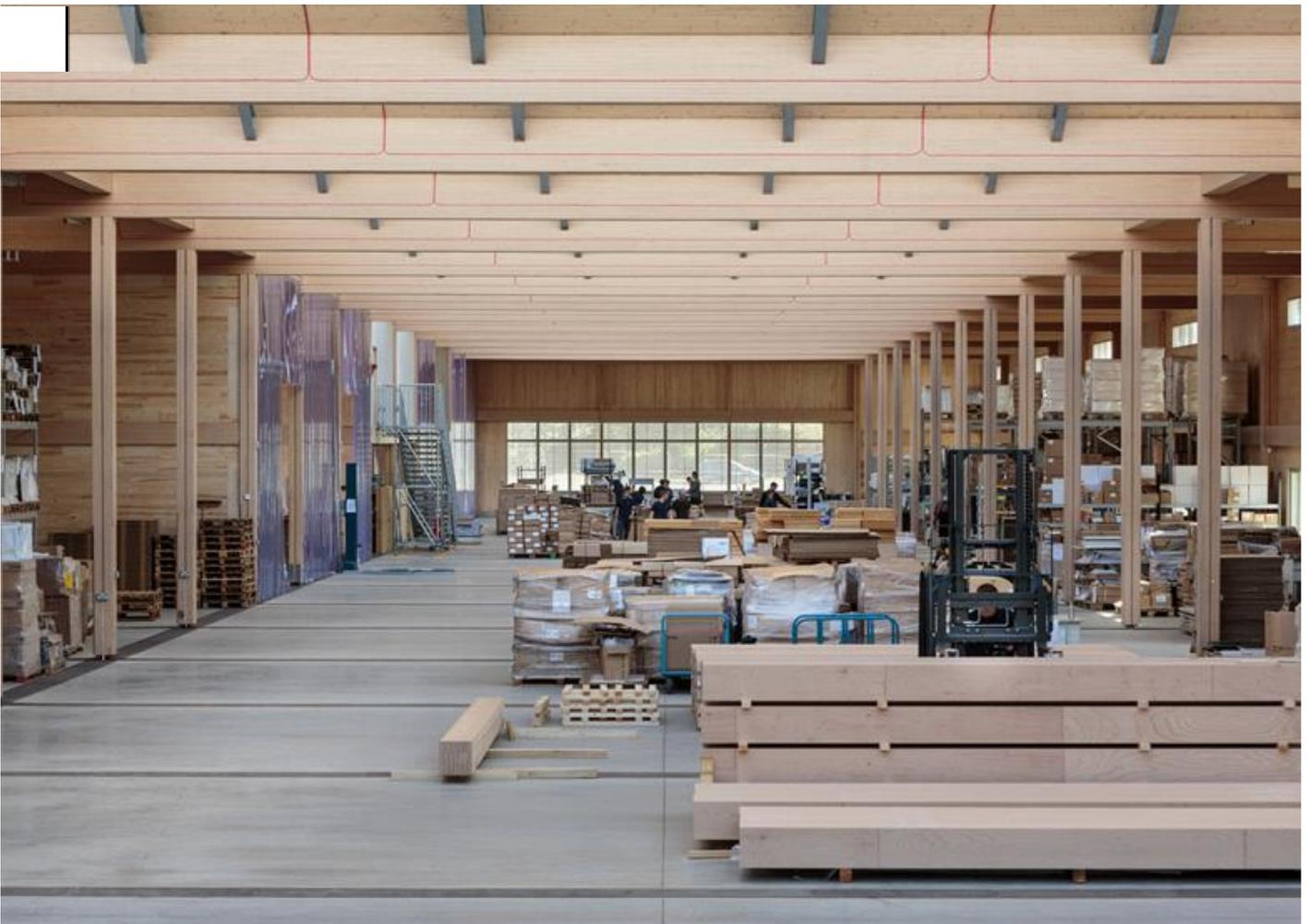
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***“I showed the LVL to Dieter [Rams] and said, ‘I think we could do a building out of this!’  
Dieter said, ‘No way! Oh go on then...’”***

*Mark Adams, Vitsø*

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Clearly, this is no ordinary factory. It is the result of several years of dreaming and research, initially by Vitsø's remarkable managing director Mark Adams who gradually recruited a team to bring the project to fruition. First on board was Martin Francis, designer of superyachts and a former Foster & Partners man. Then came James O'Callaghan, of structural engineer Eckersley O'Callaghan, and Mark Skelly, of environment and services engineer Skelly & Couch. Only then, with the design all but finalised, was an architect appointed.



Source: Vitsoe

The LVL roof beams, which weigh half a tonne, span the full 25m width of the factory

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Timber specialist Waugh Thistleton was hired – but as executive architect. Director Andrew Waugh relished the chance to work on what he describes as a new typology. “This building explores new technologies and methods of construction that blow apart the narrow definition of an architecture described solely by a building’s use,” he says.

If you think the whole thing sounds like the crazy dream of a client with more money than sense, check out the price tag: £5.75 million, or £1,564/sq m (£145/sq ft). Notably, it was funded largely by a bond issue to its customers.

While the design had to be efficient, another important factor was the desire to create as natural an environment as possible, with Adams concerned that year-round exposure to mechanical heating and lighting is weakening human immune systems and severing our connection with nature’s rhythms. Everyone in his factory can see what time of day it is and what the weather is doing, and they’ll feel it on a colder day. There’s no air-con maintaining a steady 21C.

He’s also been influenced by studies suggesting stress and sickness improve in timber interiors. He was introduced at a German trade show to beech laminate-veneer lumber (LVL), an engineered

hardwood whose strength allows beams and columns to be far slimmer than softwood glulam, and was intrigued.

“I showed it to Dieter [Rams] and said, ‘I think we could do a building out of this’. Dieter said, ‘No way! Oh go on then...’



Source: Vitsoe

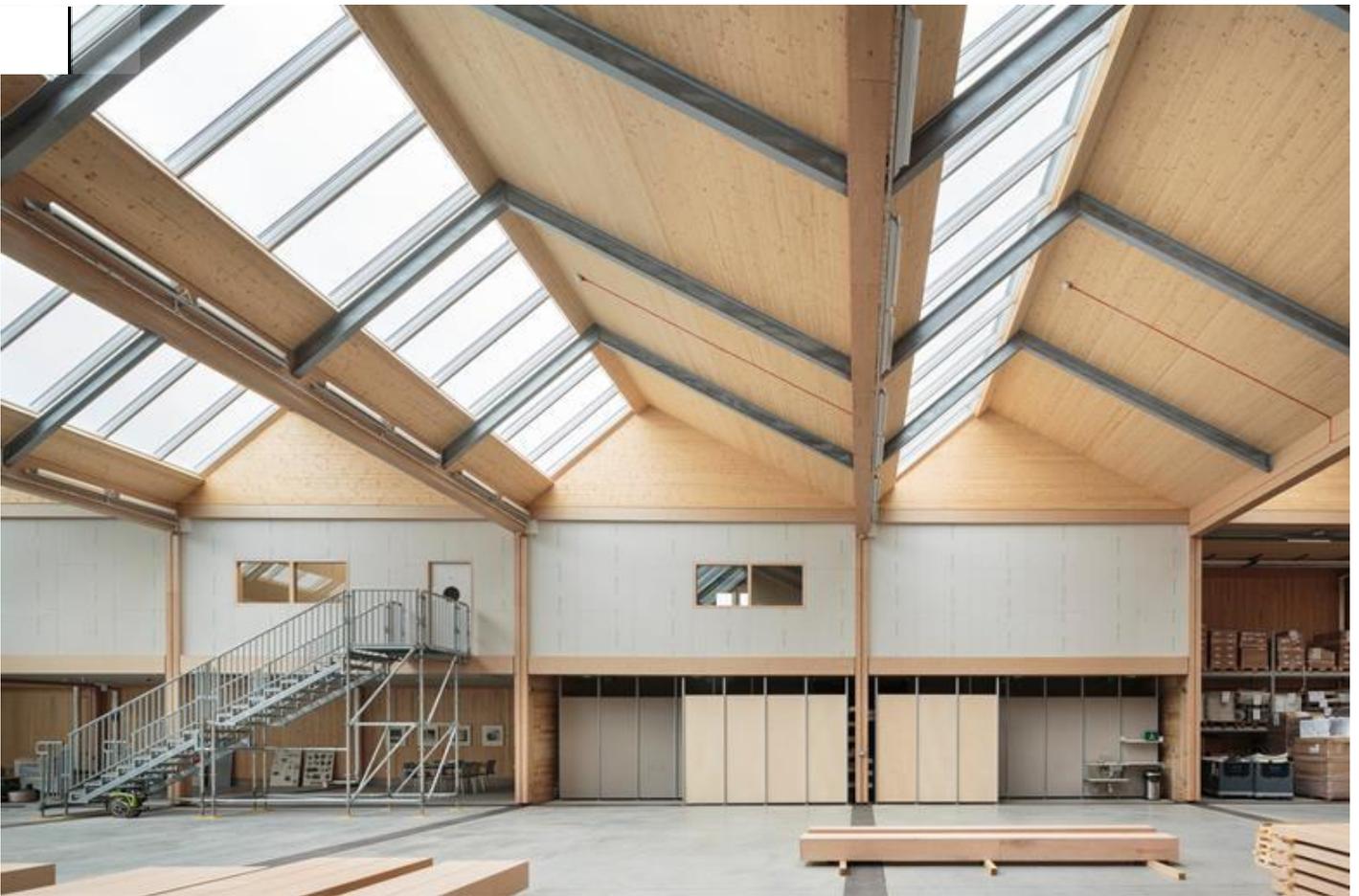
Natural light floods the factory floor

The building is the first in the UK with a structural frame made entirely from LVL. Its strength produces a spare, elegant frame. The roof beams are 600mm deep – comparable to steel, and significantly shallower than the 1400mm CLT would have required.

The walls are built from cross-laminated birch panels 120mm thick – “that’s a serious lump of wood,” says Adams – insulated with a further 160mm of wood fibre. As well as locking in carbon dioxide, timber absorbs and releases water vapour naturally, moderating humidity without the need for air-conditioning. It also muffles sound.

The first design move was a saw-tooth roof using Foster-developed Velux skylights that Adams had been coveting. These were positioned at 40 degrees to maximise north light, which

set the parameters for the structural grid. The factory is divided lengthways into eighteen 7.5m-deep bays. The 25m-long roof beams spanning the width of the factory are supported by two intermediate columns 5m from the building perimeter. This leaves a 15m wide column-free space in the centre. It creates the sense of aisles flanking a long nave.



Source: Vitsoe

The Velux skylights were positioned at 40 degrees to maximise north light

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Adams was delighted when he twigged the grid was the same as Crystal Palace's. Paxton is one of his heroes. "Everyone said what a human and uplifting space Crystal Palace was, despite it having a footprint of 19 acres," he says. "In lithographs you can see the columns repeating. Today too much of our big volume architecture strips away that rhythm."

That rhythm is exactly what you find at Vitsoe. "You might be looking at a cruckframe barn, while I might see a 13<sup>th</sup> -century cathedral," suggests Adams. "If you look up the nave of Salisbury Cathedral you are looking at some of the same elements."

The building has a strikingly domestic feel. Wherever you stand you feel like you're in a room, not a giant hangar. The office shared by Adams and his partner (in life and work), the artist Jennie Moncur, is simply a large table near a section of wall which is hung, of course, with Vitsoe's 606 universal shelving system. No walls or doors: it's visually part of the main floor.

Most of the 19 bays are similarly open. A few have had a mezzanine level literally slotted in using the parallel beams that run horizontally around all four walls. Some of these contain bedrooms for visitors and Vitsoe's housekeeper. Another is configured as a bouldering cave, while two more house the

minimal plant. A dance company – yes – has just moved in and its rehearsal stage will fill another of the bays.

Adams is already enjoying reconfiguring the space. “The whole point of this building was that it would never be finished, just like we are still working on our furniture 60 years later,” he says.



Source: Vitsø

The red smoke detector wires run precisely midway between the roof steels

**Client:** Vitsø

**Concept design:** Vitsø/Martin Francis

**Delivery architect:** Waugh Thistleton Architects

**Structural engineer:** Eckersley O’Callaghan

**M&E engineer:** Skelly & Couch

**Construction management:** JCA Concept Construction

**Timber specialists:** Hess Timber/Plotform

This adaptability has also driven the design of all the services. Everything is exposed. The roof beams have cut-outs at each end for pipes and cables. Down the four faces of every chamfered column run 26mm grooves for cables or 24mm plywood panels.

Once the sub-contractors realised their work would be on show they took enormous pride in it. “The amount of craftsmanship I have witnessed on this site that normally goes unrecognised is amazing,” says Adams. The red smoke detector wires are a case in point. He encouraged the electricians to run these precisely midway between the roof steels. The effect is a virtuoso performance in symmetry. In their hands the wires have become decorative instead of the ugly mess of cabling normally found lurking behind panels.

“The construction industry always wants to put another layer on but we left out everything we could leave out and that saved a lot of time and money,” says Mark. “No paintbrushes.”

The result is a factory like no other, but one which could serve as a model for other manufacturers.



Source: Vitsoe

The whole building was assembled in 23 days

## A brief history of Vitsoe

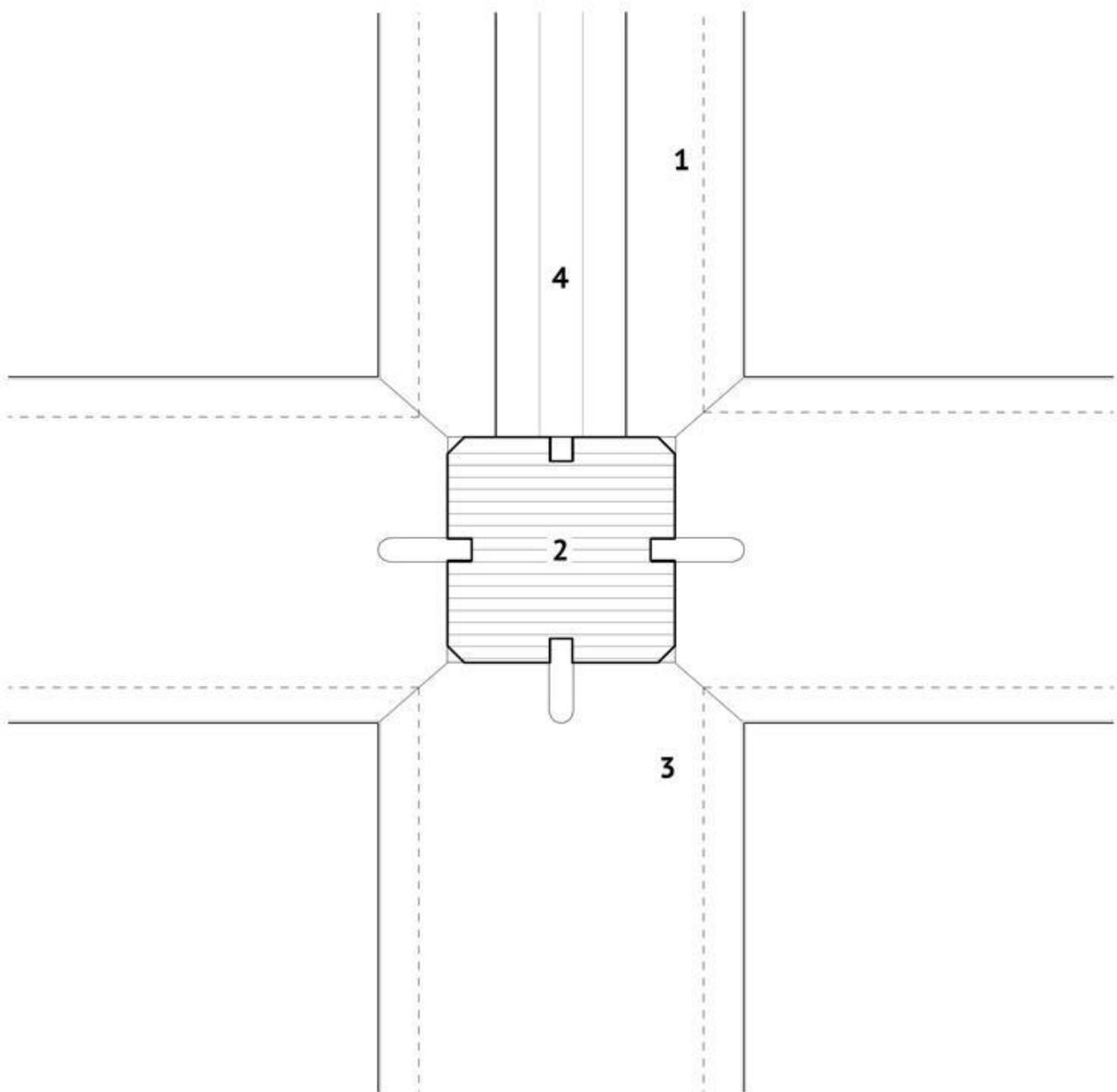
Vitsoe was founded in Germany in 1959 by Danish furniture salesman Niels Vitsoe, working with the industrial designer Dieter Rams. Rams, already famous for his work at Braun, is best known at Vitsoe for the 606 universal shelving system and 620 chair. Both are system-built, just like the new factory.

In 1985 Vitsoe and Rams were introduced to Mark Adams who set up the UK division. When Vitsoe retired he took over completely and moved the company to the UK.

Adams is the son of a property developer who spent his childhood traipsing round building sites with his father thinking, "Surely there's a better way of doing this." He trained as a biologist but has finally been able to put his teenage theories to the test with the new factory.

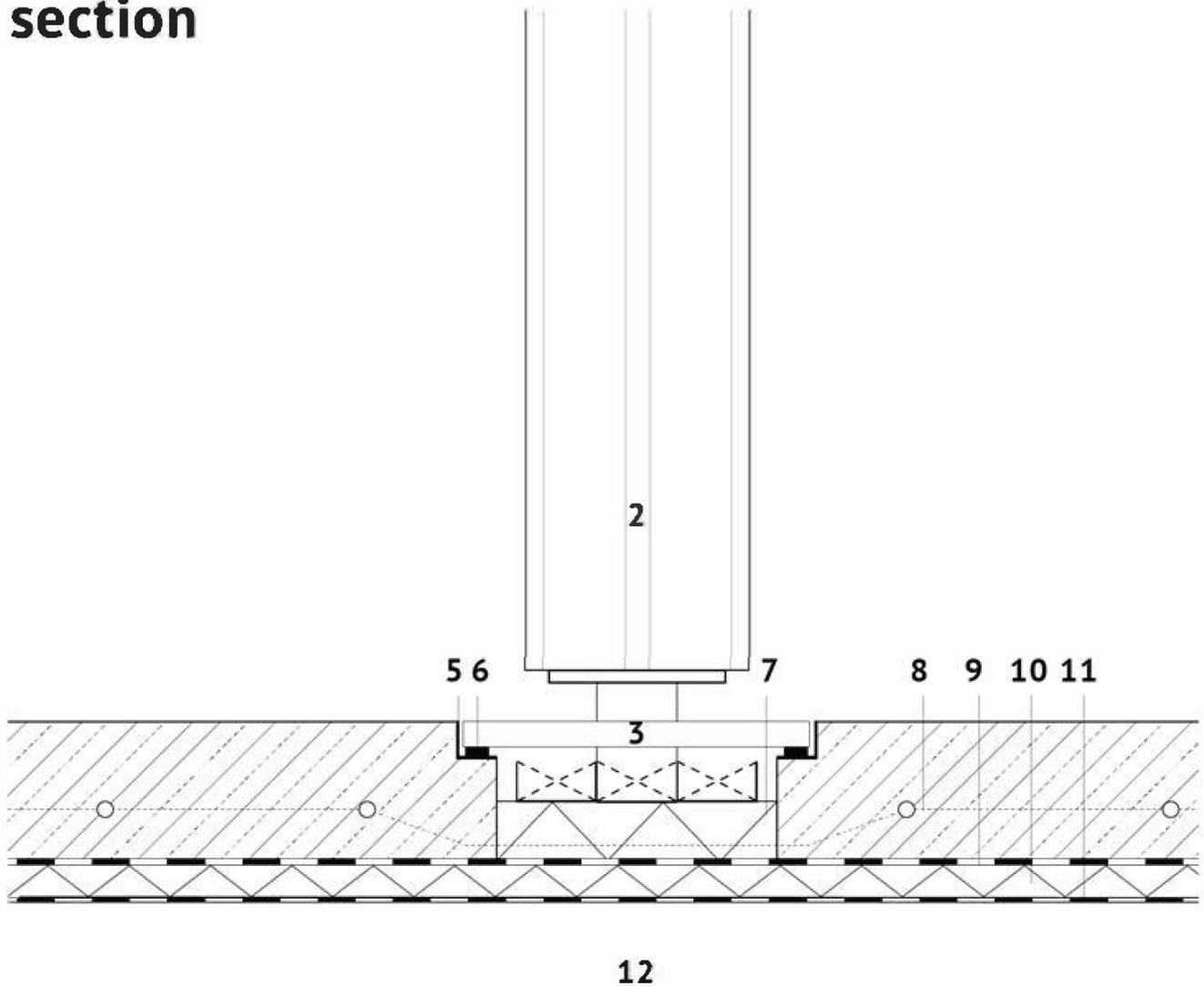
From his artistic mother he inherited a love of craft and that influence is also evident in the new building. “I want schoolchildren to walk in and know how it is built,” he says.

## Column base



- 1 Outline of 350x50 electrical trench
- 2 280mm chamfered beech LVL with routed service channel
- 3 35mm plywood cover
- 4 Shear wall

# Service channel section



- 5** Slab edge protection: galvanised steel angle cast into concrete slab
- 6** Neoprene strip to base of ply
- 7** Closed cell insulation
- 8** Path of underfloor heating
- 9** 500 gauge separating layer
- 10** 50 mm insulation
- 11** DPM flexible waterproofing
- 12** Stabilised ground

