

READING PASSAGE 2

You should spend about 20 minutes on **Questions 14–26**, which are based on Reading Passage 2 below.

Halley VI research station, Antarctica – review

The British Antarctic Survey's new research station at Halley Bay is a portable pod structure that uses scent, colour and curves to take the edge off the world's longest winter

“How’s the weather?” I ask Pat Power, base commander of the Halley VI research station. “Glorious,” he says, on the other end of the phone, “it’s up to minus three today.” This, in the place where Power has been stationed continuously for the past 16 months, is as good as it gets. On the Brunt ice shelf, 75 degrees south, it drops to -40°C or -50°C in winter. But the temperature is not the worst of it – there are also 100mph winds carrying vicious particles of ice (called spindrift), endless snow and months of darkness each winter. It’s about 700 miles from the next group of humans. Supplies arrive twice a year, but they keep two years’ worth in reserve, in case anything goes wrong with the deliveries.



It might seem that architecture is a redundant luxury in such a place, dominated by the hard mechanics of survival. The British Antarctic Survey thought otherwise, and in 2004 employed the Royal Institute of British Architects to hold a design competition for their new £26m station. Its purpose is to study such things as the Earth’s magnetic field, atmosphere and the effects of climate change. The hole in the ozone layer was first spotted from this site in 1985.

The competition was run in the way that should be standard for things such as schools and libraries but rarely is. Shortlisted entrants were properly paid to develop their designs, and a genuinely open process led to unexpected winners – the tiny architectural practice of Hugh Broughton – in partnership with the engineers Faber Maunsell, which later merged with the giant international design and engineering company Aecom. Because it’s only possible to

build in Antarctica for 10 weeks in the year, and with great difficulty even then, only now is the base complete and fully functioning.

Halley VI is a line of four-legged mechanical beasts, seven blue and one red, like a desert caravan gone astray or a figment of science fiction. Living here is as close as you can get, on Earth, to living in space, and the structures look the part. They also echo the futuristic fantasies of the 1960s architectural dreamers Archigram, in particular their proposal for a Walking City in which ambulant megastructures would stalk the Earth. There is, however, nothing fantastical about the station: everything is for a reason.

One of the motivations for building Halley VI is that Halley V was being progressively engulfed by snow, as were four previous stations built there since 1956. The ice on which it stands is moving at a rate of 400 metres a year, and one day will break off and float away, so Halley VI can be relocated when necessary. It can also be regularly raised, to keep it above the perpetual build-up of snow.

Its eight pods are arrayed in a straight line, side-on to the prevailing wind, as this is the best way to slow down the formation of drifts. They are aerodynamically shaped to encourage the wind to blow the snow into places where it is least inconvenient. They're clad in what Broughton calls "super-duper glass fibre", to protect them from the weather.

The trickiest part, according to the lead engineer, Peter Ayres, was getting the building to the site. Its elements were as much as possible standardised and prefabricated, some in South Africa and some in Hull, to minimise the amount of building work in the Antarctic. They were transported in units no heavier than nine tonnes, to avoid breaking through the sea ice across which they would have to be dragged, assembled close to Halley V and then pulled another 10 km to their current position.

The making of Halley VI was part sophisticated technology, part grunting effort that the builders of the pyramids would have recognised. Power confesses to some nervousness – "Our biggest worry was that these systems had not been tested at these temperatures. We didn't know how things would work." Failures could have been lethal, but "thank God, everything is brilliant".

The engineering, remarkable though it is, is only part of the story; equally important is preserving the sanity and spirits of the people (16 of them in winter, up to around 70 in summer) confined here together for months on end. If you work at Halley, your personality is first vetted by the British Antarctic Survey, but according to Power you still "get clashes. You have a wide range of disciplines and people who would not usually socialise together in the outside world." You also have a degree of isolation that Broughton says "is impossible to convey – you are truly cut off. There is no escape." There is the lack of sunlight, which can lead to "nightwalking", where people get up and go to sleep at times out of step with the hours on a clock.

Halley VI has a view to the outside from every bed and daylight falls on the corridors from above. “An endless flat ceiling” is avoided, and its height rises and falls. Cedar panelling is used for its scent, to mitigate sensory deprivation. A colour psychologist, Angela Wright, came up with a “spring palette” of bright but not violent colours. In winter, artificial daylight bulbs slowly turn on in the morning, to simulate dawn. Bubble-like windows allow people to immerse themselves in the astonishing aurora australis.

The big red pod contains the social areas, including a bar, lounges and places to play pool. In Halley V the bar looked like an old-fashioned pub or a British Legion club; the new version has bright contemporary furniture and what Broughton calls “a free-flowing space” that includes quiet areas, as well as space for “lads having a laugh”. (There are currently 71 men and two women, one of whom is the base commander.) Power acknowledges that “people loved the old bar,” but, he says, the new one is “a lot more social. It’s more modern.” He’s less equivocal about a cathedral-like window in the red pod: “It’s brilliant. The sun shining in is glorious.”

Prior to winning the competition, Broughton worked on visitor centres, cafes and “interventions in historic environments”. More recently he has designed a museum extension in Maidstone. These are not obvious preparations for taking on the Antarctic wastes, but, he says, Halley VI involves “a lot of old-fashioned architecture”, the organising of light and space around human activity. It’s also a publicly funded project achieved with an exemplary competition.

If the question is: “Do you need architecture at the South Pole?” the answer seems to be yes.

Sources

Moore, R. (2013, February 10). *Halley VI research station, Antarctica – review. The Guardian*.
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