Wire line
drawing of the
glazed pavilion
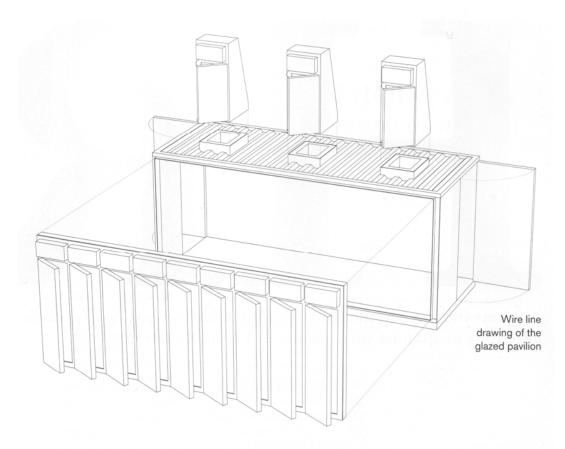
PAVILION TESTS SHUTTERED EXTERNAL INSULATION

Deployable external insulation (DEI) solves the conflict between the natural light provided by large windows and the loss of heat through glazing.

Current Building Regulations are geared towards heat loss mitigation. The result, according to Stephen Gage, Bartlett professor of innovative technology, is that 'often [domestic] facades now contain smaller windows than their 19th-century equivalents'.

DEI takes the form of solid insulated shutters that respond to external temperatures, based on the premise that most buildings are unoccupied most of the time and are at their coldest at night.

Using mechanical methods to operate the shutters would have undermined the sustainability of the strategy, so wax pistons are used instead. 'Wax in the piston melts when it warms and expands with a considerable amount of force,' explains Gage. 'We have created a patented system whereby there are two waxes with different melting temperatures in two different pistons. The shutters open in response to rising external temperatures and shut when temperatures drop.'

Gage, researcher Chris Leung, and a team of Bartlett students are exploring DEI by designing a glazed pavilion. 'Single-glazed units can be used: even with the occupant override, theoretically DEI has the potential to be three to nine times better than a window at conserving heat energy,' explains Gage.

The modified shipping container will sit in the main University College London (of which the Bartlett is part) quadrangle for the duration of the Bartlett Summer Show (21-28 June). After the show the pavilion will be moved to Trinity Buoy Wharf in East London, where the research group plans to obtain real data by monitoring the pavilion's performance for six months.

'[This] is a dynamic system dependent upon occupancy, which is something that current Building Regulations don't take into account. But I think we can make a case to change this,' says Gage. *Kaye Alexander*