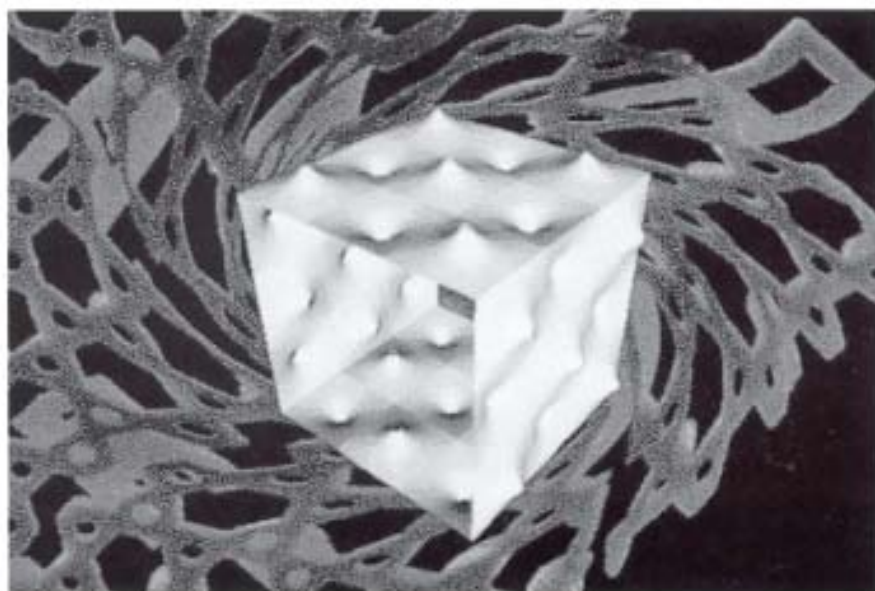




# Textiles and new technology

Edited by Marie O'Mahony and Sarah Braddock





**Ade Adekola**  
 'Smart' fabric for architecture,  
 CAD image  
 Striving for the ultimate in  
 flexible buildings  
 © Ade Adekola

moisture out without letting rain in. Today, we have materials which can decide what to allow in and out, unlike Gore-Tex which is indiscriminate or 'dumb'.

Responsive textile products vary from the visually active, such as a climbing rope which changes colour under stress,<sup>7</sup> to the visually passive such as the 'smart bra',<sup>8</sup> which regains its shape at certain temperatures during washing. These products are made from the same materials as their conventional counterparts with the addition of smart materials – for the rope a dye, and for the bra shape memory alloys (SMAs). There is potentially no limit to the number of responses a material can incorporate. A more complex system of responses is being developed in a carpet underlay which can monitor the characteristics of a person walking on the carpet – size of footprint, height, weight, sex. This could eventually have useful applications in the security industry. However, these are individual products. If smart materials are to realise their potential value they must be incorporated into our whole lifestyle.

Architecture is perhaps the most wide reaching of all the design disciplines in terms of its effect on people. Like all design, it relies on an interaction with people for its existence. Architects' interest in smart materials has come

from a desire to form better links between the building, the environment and its human occupants. Architect Lebbeus Woods looks for an architecture which will allow a more equitable society where man and his environment can interact.<sup>7</sup> One step in this direction is being made at a Japanese university, where a tracking system is being developed which would be contained in carpet underlay and could be used by blind people to find their way around buildings. The system is designed to work via an earpiece connected to the blind person's cane which picks up messages from a recorded tape.

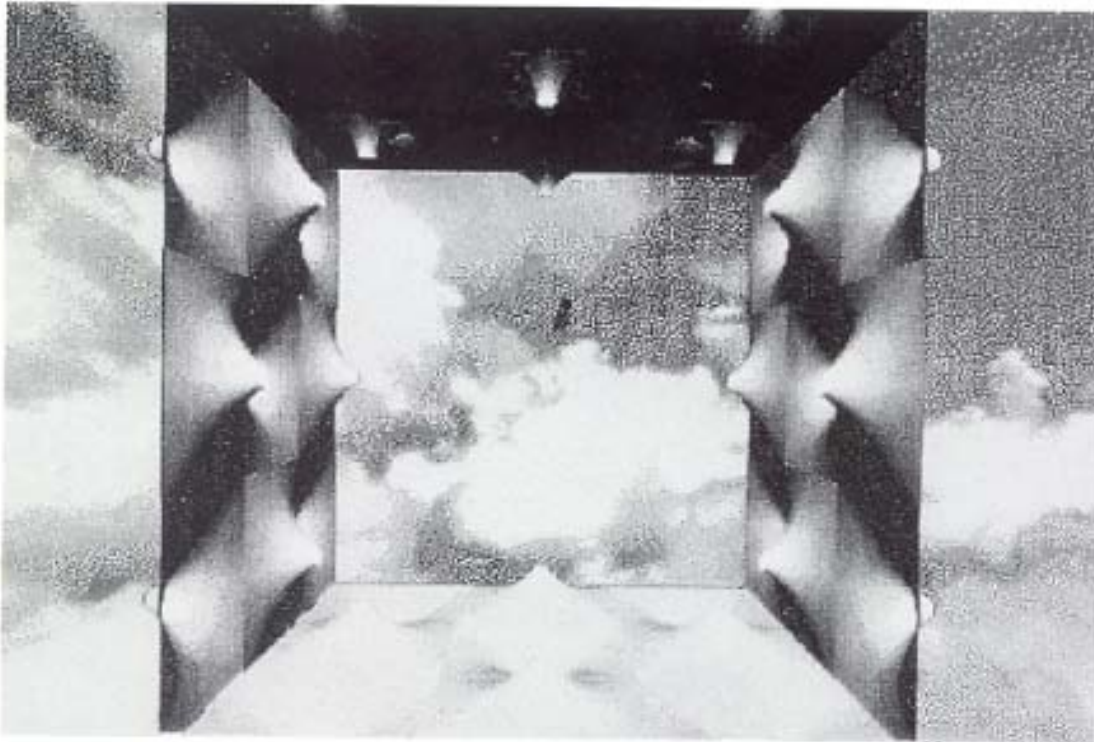
In Britain, architect Ade Adekola is working on a tensile roofing system which can respond to different stimuli: light, proximity and sound, depending on the sensors used. He looks forward to a time when one can arrive home from a busy day, sit on the sofa and have the room fabric respond to your mood! Using medical technology, his roofing system can measure the occupant's pulse rate and decide whether it should adopt soothing/lively/aggressive (physical) mannerisms.<sup>8</sup> Textiles have become particularly important to these developments because they can expand, contract and change shape easily, unlike traditional cladding materials of concrete and steel.

Smart materials are not purely the product of

# Ade Adekola

Ade Adekola was born in Nigeria in 1966. He trained as an architect at the University of Manchester before attending the Architectural Association in London, qualifying with an AADipl in 1992. He has been involved with responsive and 'smart' materials for a number of years. Projects include *Self Inducing Device* (SID), a vertebrae-like structure which moves to attract the viewer, adopting different modes of behaviour (arrogant, bored, aggressive etc.) if the viewer fails to approach it. Other projects include a Passive Cooling Cladding System and a Dynamic Interactive Sheltering System. Adekola incorporates disciplines other than architecture in his projects, such as medical technology for measuring people's

physiological states. He is currently involved in developing an intelligent tensile roofing system which will respond to external stimuli by changing shape. Depending on the sensors used it can respond to changes in light or sound as well as proximity. Since January 1993 Ade Adekola has been running Innovative Design Systems in London. His activities have expanded to include various product designs including the Aero-loil Lamp and Mono Pod Table. He has written various articles and reports on intelligent building systems for publications such as *New Scientist* and as co-author with W McLean, a report to the Earth Centre Project in 1993 on sustainable technologies. He is an avid collaborator.



'Smart' fabric for architecture, CAD image  
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