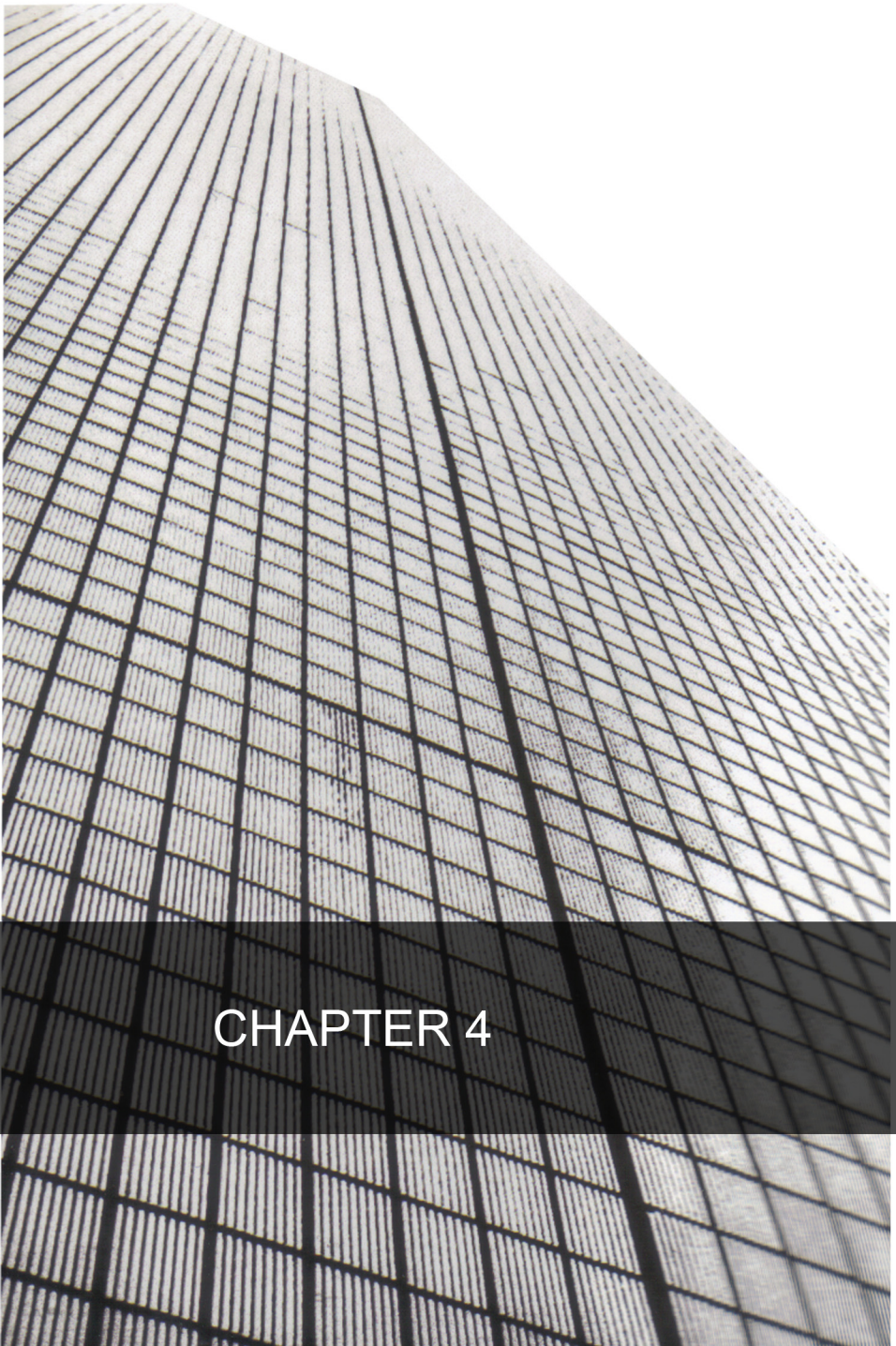


CHAPTER 4

DESIGN APPROACH

4. Design approa
Digital technology in the urban environment

The relationship and role that digital technology and iconology have with contemporary urban environments, was an important investigation for the proposal of a Music Television production studio.

The aim is to rejuvenate a neglected part of the city through the use of entertainment within a public environment, whilst investigating whether technology is able to enhance public use and enjoyment. Will the use of technology make a public space more productive and meaningful, compared to conventional public spaces? Can it create a public realm that is flexible and adjustable to different activities, users and moods? How would technology affect the local spirit of place? These aspects form part of the discussion in this chapter.

Fig. 4.1 Advertising billboards within the urban environment

As we are living in a technological era, we get bombarded with new inventions and technologies everyday. These technologies are designed to help us get through our daily routines faster and more efficiently. However, this is seldom the case as improved technology also puts strain on the user who constantly has to upgrade and learn new software. All these gadgets and technologies that interact and respond to people might unnerve them and seem completely unnatural.

From a different point of view, technology can be seen as human beings' means of adaptation within their living environment. Technology have long since been there in order to assist man's ability to sustain himself - this is evident in the use of the Archimedes screw which early Egyptians used to draw water from the Nile to irrigate their crops. At later stages in history technology was also introduced in countless quests to conquer continents, always present in building settlements, assisted in protection and generally simplifying life.

Therefore technology can be seen as a natural element.

The real question is not whether technology is natural, but whether it is well adapted within our environment.

> "The sustainability of our species depends on the appropriateness of our adaptation."
> (McCullough, 2004:211)

Rejecting technology is not an option, as humans have become too reliant on it. We should rather rethink the way we use technology and make it more susceptible to all elements involved. The response of technology towards place becomes the most realistic adaptation approach.

Society is functioning at an extraordinary fast pace. Commercialism has fostered a culture set on obtaining and dispersing information as quickly as humanly (technologically) possible. People have become more stressed, impatient and are losing all sense of identity within this mad rat race. Laptops, cellphones, PDA's and iPods have become society's accessories, encouraging and increasing mobility as almost everything today can be done on the run. These extreme levels of mobility have altered man's concept of belonging.

To an extend modern society identify themselves more with branding, logos, commercial advertising and signage than they do with place.

Interaction design:

"Interaction design is the discipline of defining and creating the behavior of technical, biological, environmental and organisational systems. Examples of these systems are software products, mobile devices, environments, services, wearables and even organisations themselves. Interaction design defines the behavior (the "interaction") of an artifact or system in response to its users over time. Interaction designers are typically informed by user research, design with an emphasis on behavior as well as form, and evaluate design in terms of usability and emotional factors."

(Interaction design, 2006).

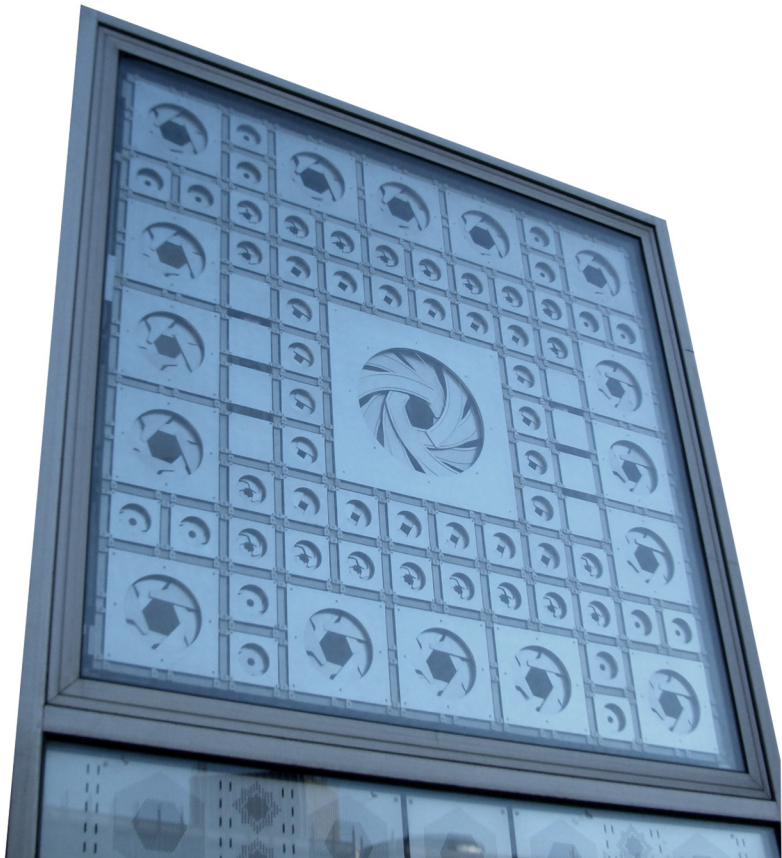
McCullough (2004:157) says the following about the identities of interactive design and new-media technologies:

"…as computing becomes pervasive, the identity of these systems goes beyond the appearance of screens. New forms of ambient, haptic and multi-user interfaces promote the shift from objects to experiences. Instead of emphasising the visual identity of an object, under these circumstances we need to address the process of identifying with an experience…The more that factors external to computers per se become a design consideration, the more the design focus shifts from things to experiences."

It is these experiential qualities of materials, buildings and places that is vital for a responsive environment - taking the mundane and creating something truly extraordinary.

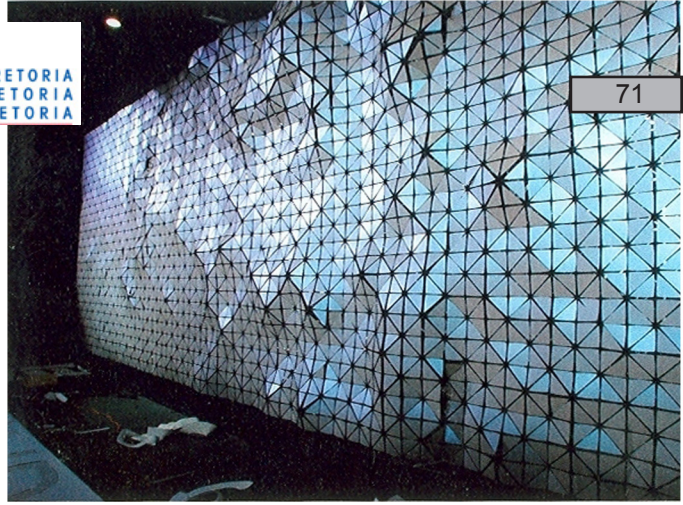
Fig 4.2 Institute du Monde Arab, Paris. 1987
by Jean Nouvel

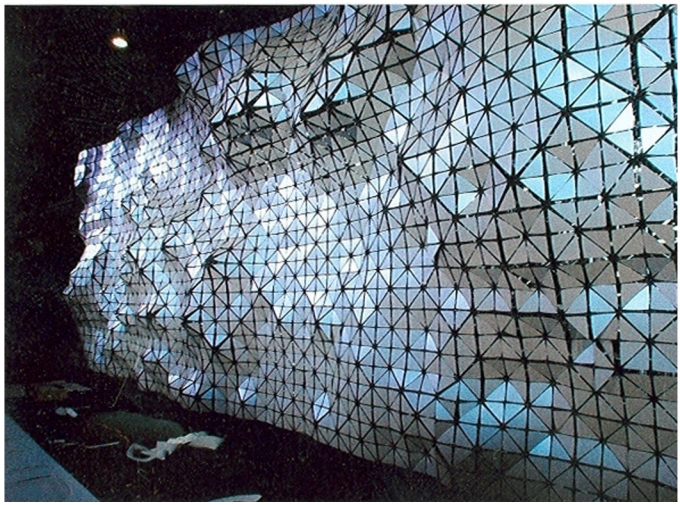
The mechanical shutters expand and contract according to the light intensity outside. This enables the building to regulate the amount of daylighting inside the building.



A good example of this is the Aegis Hyposurface (pictured right). This is a kinetic wall developed by the American firm, dECOi Architects. The wall consists of a number of pneumatic reactive actuators that were built into a basic structural frame. These actuators are then mechanically connected to a surface made up of rows of diagonally divided moveable tiles on the outside of the structure.

The wall reacts to various stimuli such as light, sound and movement. Special software causes the surface to change spatially. The spontaneous movements of the tiles give an almost natural looking simulation of moving waves, among other effects.
(Ritter, A.2007)





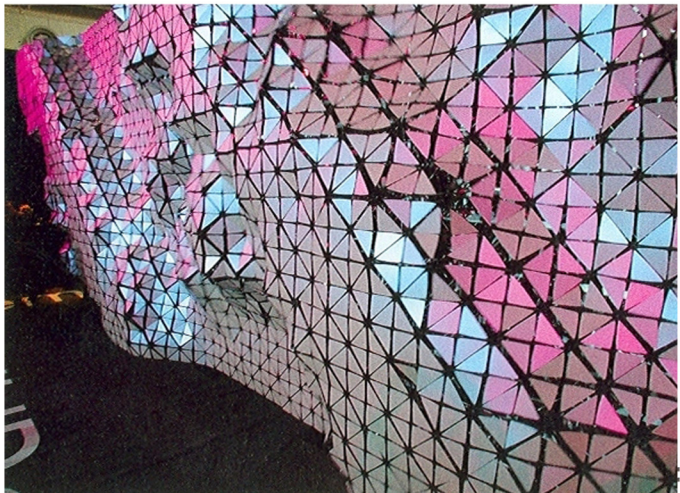


Fig. 4.3 The Aegis Hyposurface in action

Fig. 4.4

“One does not interact with an ordinary sidewalk, of course – one simply walks on it. Only when that surface deliberately responds to you can the relationship be described as interaction.”

(McCullough, 2004: 174)

The interesting attributes of the previous examples is the fact that the experiences created promotes satisfaction. The only way this satisfaction can be achieved is through the unpredicted nature of the system. People are skeptical about having experiences pre-determined for them (like a theme park), and the user should rather be encouraged to determine the outcome of his/her own experience.

The line between proposing something and imposing something is a thin one and the correct balance between them is vital. Also, if one allows for unpredicted activities within interaction design, it might have the potential to lead to cultural expression.

Fig. 4.5

Fig. 4.6

ARCHITECTURE AND TECHNOLOGY

“Appropriate design sets the stage for human experience. Like a great building, it reflects our aspirations, assists our daily rounds, carries collective memories, and provides a repository for many nonfiscal kinds of value.

(McCullough, 2004:164)

In its extensive history, architecture has always functioned as the social organisational elements within the city.

On the other hand, computing took the opposite role. At first it started out as operational equipment and only recently (through the introduction of the Internet and new-media technologies) approached the social organisational aspect.

Fig. 4.5 Interactive elements in public spaces
LED screen next to a busy road.

Fig. 4.6 Crown Fountain, Millenium Park, Chicago.

New-media have introduced an extra layer of activity/ expression within the city, as feature films like The Fifth Element and Blade Runner introduced us to the possibility of media facades as part of a futuristic ideal. However, digital displays are currently being incorporated into buildings across the globe's most influential cities.

These media displays form part of the buildings – not as signs, but as integral elements of the architecture. The technologies that are utilised bring new forms of dynamics into the urban environments. They allow the visual surfaces of the urban environment to change using patterns and colours and through carrying messages or even displaying television. The really interesting aspects of new-media technologies are not just the functions it can be used for, but the fact that the mood, content and quality of the surrounding spaces can be altered, depending on the time of day, season, activities or the individual desires of the users.

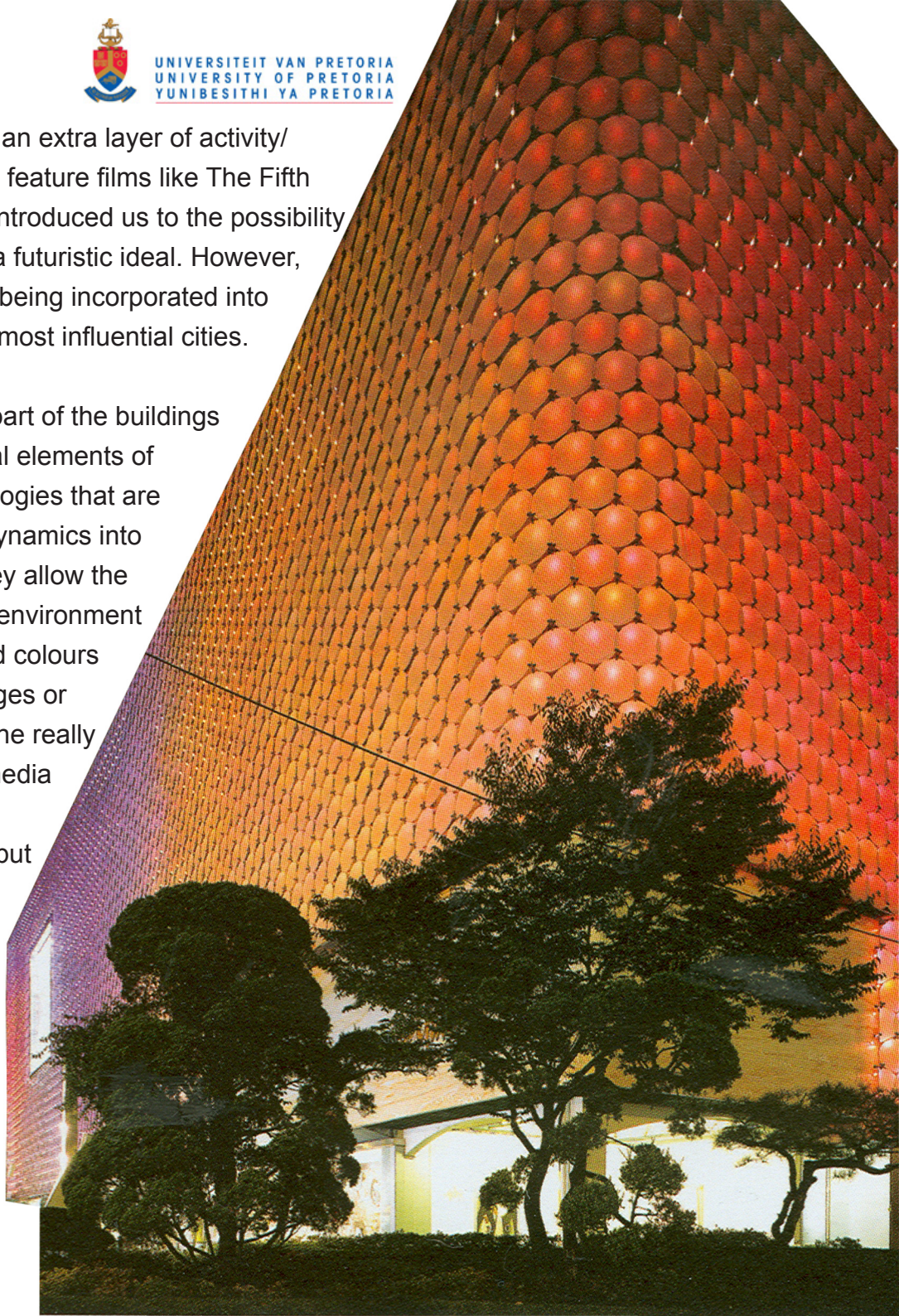


Fig. 4.7 Galleria shopping mall, Seoul, Korea. This effect is achieved through the use of Dichroic filters with LED's. each individual disk acts like a pixel on a giant screen

"…the complex programs and settings require complex combinations of media beyond the purer architectural triad of structure, form and light, at the service of space. They suggest an architecture of bold communication rather than one of subtle expression."

(Venturi,1977:9)

Architecture and technology have always shared a close connection with each other, as architects found design inspiration in the new technologies, like the steel framed train stations during the Industrial Revolution and Modernism.

The integrated nature of technology within architecture today has shifted some of the emphasis from the individual buildings to the interconnections between them. These interconnections enhanced the fact that cities can no longer be viewed as single entities, but rather as networked systems that could have a large impact on the local character/culture. This means that through the role of globalisation, cities on opposite sides of the world can now be connected through technology. Local content can be produced and displayed in London, New York or Sydney through the use of media displays, creating a globalised urban environment without political boundaries.

This creates countless opportunities for cities to be able to express themselves on a global stage. But with these opportunities also comes constraints, one of them being the loss of identity within this globalised community.

The success of these networks - and that of the public spaces that accompany them - lies at their social capabilities. Good public spaces should be able to facilitate cultural expression, public and personal communications and the exchange of information and ideas. This will result in the public space being enriched with meaning for the cities they are located in. The public space can become a place that provides a means through which people could construct and express stories about the city's culture, history and inner functioning through the use of visuals.

Derived from Robert Venturi's book, "Learning from Las Vegas", the tradition of iconology was always experienced through hieroglyphics, sculpture, mosaics and archetypal inscriptions within architecture. Discarded by Modern Architecture as forms of decoration, it lost its relevance. This form of story telling and affirmation of culture on buildings is now re-introduced through new-media technology. (Venturi, 1977:9)

The use of interaction design can facilitate our desire to connect with our surroundings, as described by Malcolm McCullough:

Fig. 4.8 Commercial advertising in Piccadilly Circus, London.

“Practical place-centered design must seek a middle way between a universal uniformity which has been typical of high technology, and a local desire for completely belonging to one place, which has typically been antitechnology. Philosophically, this reflects a profound shift from using technology to overcome environmental limitations toward using it to understand and live more effectively within them.”
(McCullough, 2004:173)

Media Architecture Conference

Fig. 4.9 Advertisement of the Media Architect

The contemporary nature of the above discussion in architectural thought is emphasised by the Media Architecture Conference on interaction design held on the 11th and 12th of September 2007 in London. The main focus of this event was forward thinking discussions on the relationships between architecture, New-media technologies, media-content design and the possibilities that these sectors have to create interactive environments. One of the main discussions was how the use of media-technologies can have a social impact and how urban environments have been able to deal with these technologies entering public spaces. Increased use in public spaces has created a broadening of cultural content within these spaces.

**“We want to network and [illegible] parties for the possibilities of using the digital infrastructure for contributing to a lively urban society, binding the screens more to the communal context of the space and therefore creating local identity and engagement.
The integration of the current information technologies supports the development of a new integrated digital layer of the city in a complex merge of material and immaterial space that redefine the function of this growing infrastructure.”**

– Mirjam Struppek (www.interactivearchitecture.org)

The popularity of these technologies in public spaces have increased due to the fact that it have become cheaper and the technology is also more stable and manageable. City users have also become more media literate
Emphasis was placed on the importance of the integration of media-technologies with the architecture and should become part of the emotional experience. These skins should not cover up the buildings but should instead be incorporated into the buildings form from the start. For the optimum result media-systems should be an integral part of the architecture and should be so constructed as to engage with the building throughout its life.

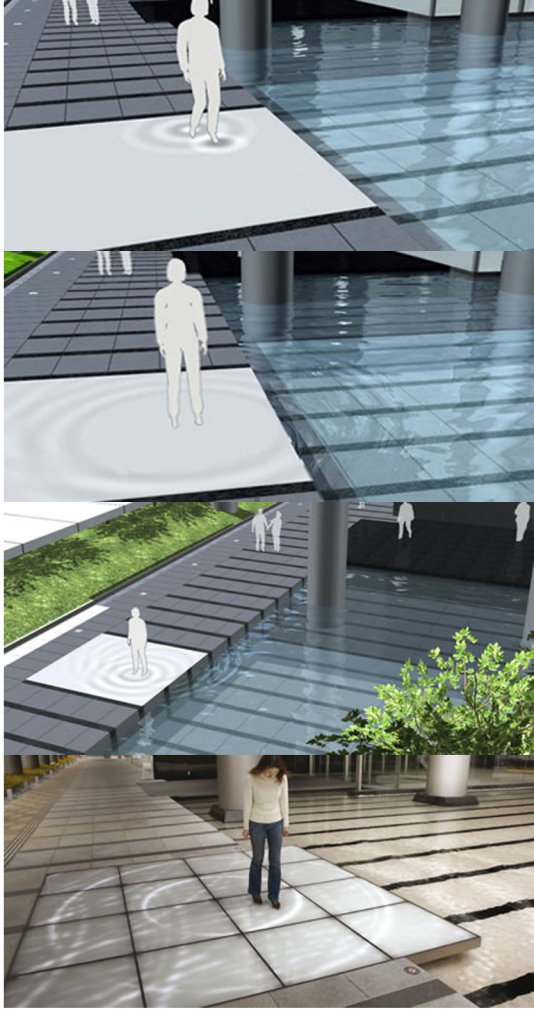


Fig. 4.10 ART+COM’s “Duality” project, Osaka, Japan

Pedestrians walk over a 6 x 6 meters large LED plane, installed right on the edge of the water. The LEDs are covered with translucent glass diffusing their light. With their steps, the passers-by provoke virtual waves on the LED plane, computed in real-time. When these waves hit the edge of the pond, they are extended into the water as real ripples. (www.interactivearchitecture.org)

CHRONOS CHROMOS CONCRETE

Chronos chromos concrete is concrete with thermocromic pigments, which makes it possible to use concrete as a display surface. Graphics and Alphanumerical characters are created on the surface through the use of electrical current. This is achieved through using thermochromic inks to the concrete and applying heat directly by current-carrying nickel-chromium wires. Local colour changes are then produced on the surface in the form of dots, lines or patches depending on the placement of the wires.
An alternative can also be colour changes produced by indirect heating. This technology can be used in applications such as swimming pools.
Other suggestions was that the chronos chromos concrete be used in high pedestrian traffic areas. Colour changes will occur through heat given off by the people standing still or moving around.

(Ritter, A.2007:88)

Fig. 4.11 Chronos chromos concrete applied to architectural surfaces.