Poreform
Water absorbent surface and subterranean basin, Las Vegas, NV, USA

Main authors
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Project data
Context Architecture, building and civil engineering
Client Water Pore Partnership (WPP)
Background Research project
Planned start May 2016

Summary and appraisal by the jury
The design proposal for the city of Las Vegas repositions water infrastructure as a civic project. Faced with a significant shortage of water in an arid region, local drainage systems are incapable of handling and collecting the water that floods the city, which is positioned in a valley when it rains. Poreform, a porous concrete surface poured in place with fabric formwork, manages to absorb water, feeding rain runoff into subterranean basins with a capacity of over 75,000 megallons (271 billion US gallons). Capable of rapid saturation and slow release, the pores of this “urban skin” are sites to a new infrastructure that reframes water as a valuable resource rather than a liability.

The jury commends the project’s objective to consider infrastructure as an architectural undertaking. Instead of considering infrastructure as a mere servant to utility, it is redefined as a truly public matter of concern and treated as equally social in scope and design – an unpurged site for making and altering space. The proposal additionally foresees the need to treat water as a common good by proposing a modulated ground surface for water retention in prevenent urban flooding. While designed for a specific site, the project offers a welcome answer to the general problem of water scarcity – a straightforward, but nonetheless beautiful proposition for a global challenge.

Sustainability concept
Over time, water infrastructure has been hidden underground, transported behind barriers, and removed outside the city limits. Moving water into the city then requires a fragile network of energy outputs and economic inputs, which has proven difficult for growing urban environments. Contemporary design like Las Vegas requires a new water infrastructure that is local, scalable, and carefully calibrated to the complex urban context.

The proposal rediscovers towards environmental resiliency and adaptability, and seeks an active role in shaping the public realm. Las Vegas is an arid city that suffers from periods of extreme water scarcity punctuated by destructive flooding in the densely urbanized areas. The city continuously strains against the outer limits of the available water supply in an effort to prevent systemic shortages. Meanwhile, because Las Vegas is positioned in the center of the Vegas Valley hydrogeologic basin, the water infrastructure of the city is incapable of absorbing the 100,000 megallons (27.3 billion US gallons) of rainwater that flood the city center every time it rains.

Poreform, an urban surface – an intelligent and flexible system of pores – is a proposal that absorbs and collects water like a skin for the city. Capable of rapid saturation and slow release, the pores of this urban skin are sites to a new adaptable infrastructure below its surface. The client, the Water Pore Partnership (WPP), is seeking to implement Poreform as a new water infrastructure for Las Vegas, and eventually other urban environments.

For Las Vegas, Poreform is calibrated to absorb the 100,000 megallons of rainfall which is captured and released from a primary basin, the Downtown Tank. This principal water retention tank is the subterranean counterpart to the Poreform surface. When dry, the Downtown Tank is a temperate and temperamental space for exhibitions and performances. When there is rainfall, the tank keeps downtown from flooding, and offers components of indication from above so that the public is always aware of water scarcity or excess.

We seek an architecture of carefully engineered infrastructure and a newly powerful civic realm, built within the sustainable economy of a resilient city. Poreform proposes a way of focusing the public’s attention on infrastructure that is the least visible, but most vulnerable, in today’s cities. A growing public awareness of water infrastructure can positively affect usage, conservation, and strategic growth.

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