

Mycelium Mockup

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VOL 500

June 07, 2016

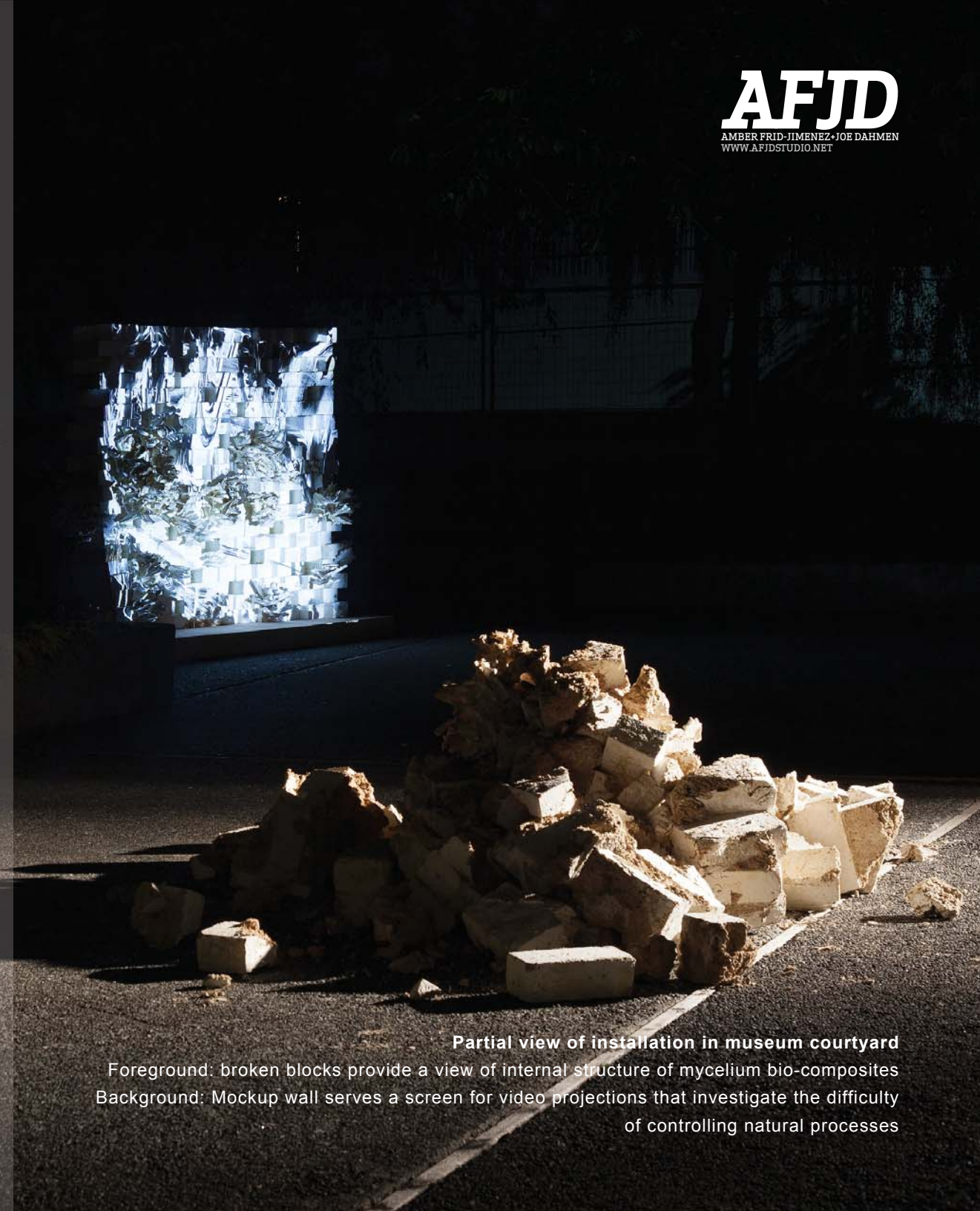
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Mycelium Mockup
Architectural installation
Catalyze exhibition
Museum of Vancouver
Vancouver, Canada
August, 2015
Design: AFJD (www.afjdstudio.net)

AFJD
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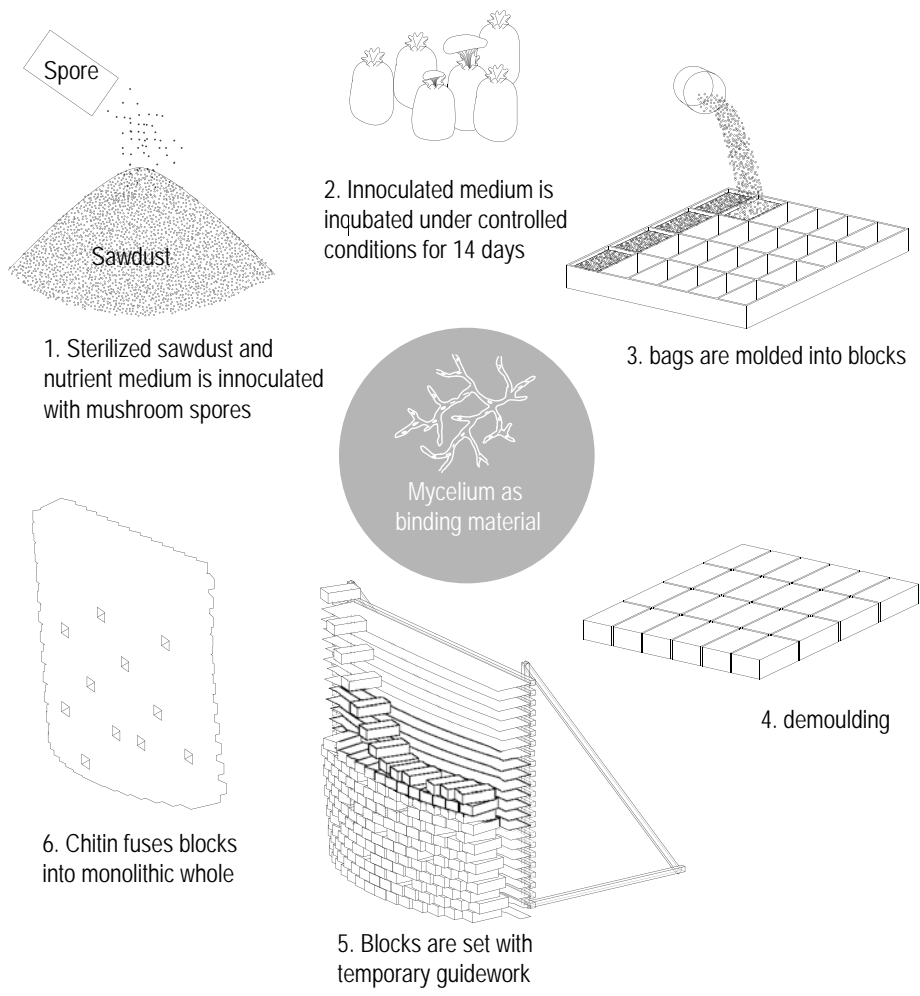
Mycelium Mockup is an architectural installation that uses biotechnology to explore the contradictory relationship of sustainable aspirations to market forces in architecture. The installation is fabricated of cellulosic wood waste and living mycelium, the root structure of mushrooms. This thread-like fungus plays an essential role in the natural world, aiding in the decomposition of materials and converting them to biologically available elements. During the installation, the structural elements of the wall produce edible oyster mushrooms, providing a source of food as well as screen for video projections that investigate the tensions implicit in the desire to control natural processes.

The installation provokes fundamental questions about our relationship to architectural materials. Buildings are erected and razed at a frenetic pace in pursuit of ever-increasing returns on investment in contemporary market economies. Architecture determined by revenue models results in materials that are discarded long before their useful life is over. Rather than building for the ages, sustainability in this context calls for radically biodegradable architectural materials that anticipate their inevitable demolition by encoding organic decay into their basic structure. *Mycelium Mockup* is an exploration of a next generation material that explores our conflicting aspirations latent in the architectural development of cities.

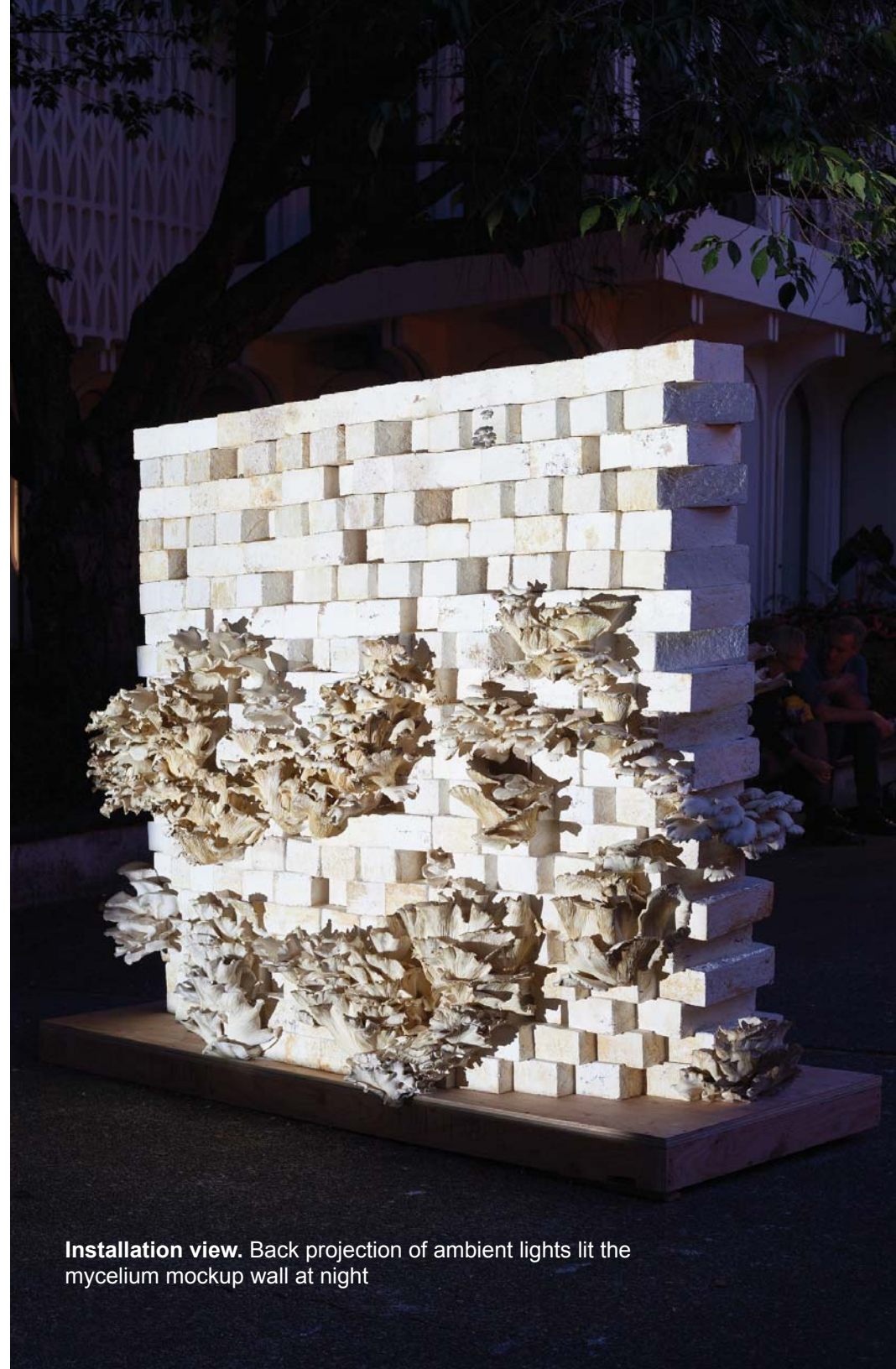


Partial view of installation in museum courtyard

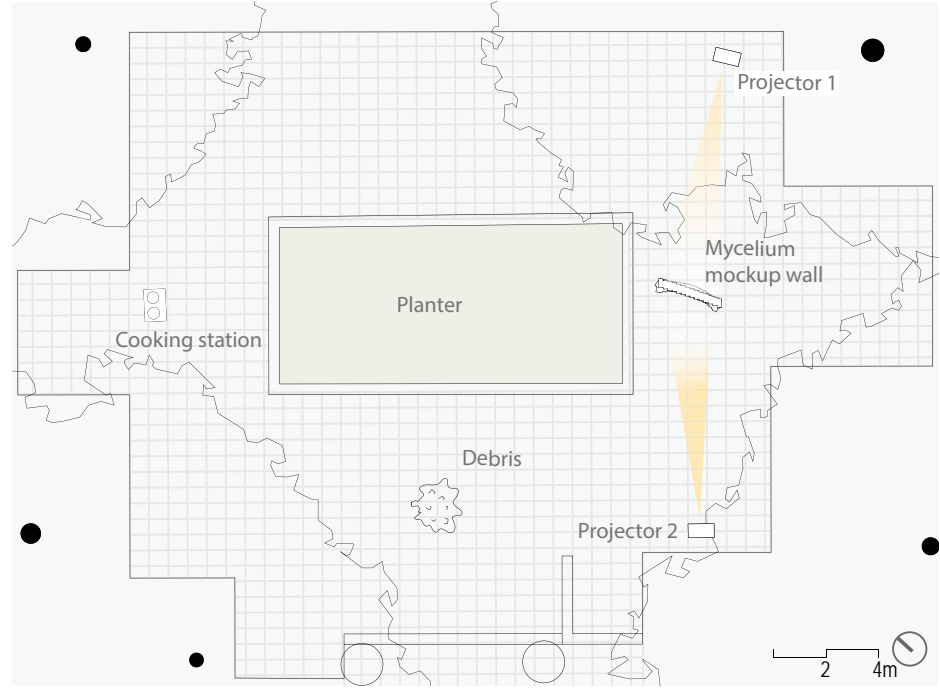
Foreground: broken blocks provide a view of internal structure of mycelium bio-composites
Background: Mockup wall serves a screen for video projections that investigate the difficulty of controlling natural processes



Mycelium Mockup uses sawdust and *pleurotus ostreatus*, a local strain of organic mycelium, as a binder to create a living bio-composite building material that is fully biodegradable. When assembled into the mockup wall, individual blocks of mycelium and sawdust fuse together into a monolithic whole through the production of chitin, a hard white polysaccharide coating produced naturally by the mycelium under specific environmental conditions. At project end, what is not eaten is composted, returning valuable organic matter to the local ecosystem.



Installation view. Back projection of ambient lights lit the mycelium mockup wall at night



left: Video projection on the wall
top right: Site plan showing mockup wall, debris pile, and cooking station
bottom right: Voids in mycelium mockup wall at different angles provide a dynamic response to light provided by projectors



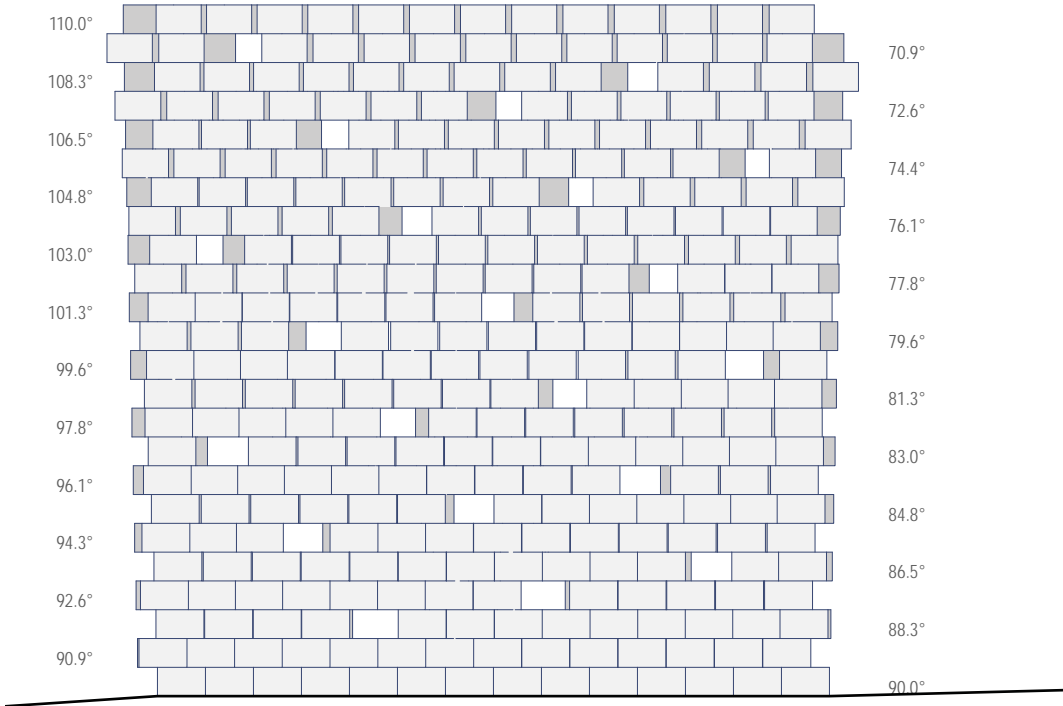
above: Return to nature. The living materials of mycelium mockup digest themselves at project end, rendering the cellulosic materials bioavailable and providing valuable nutrients to the local ecosystem



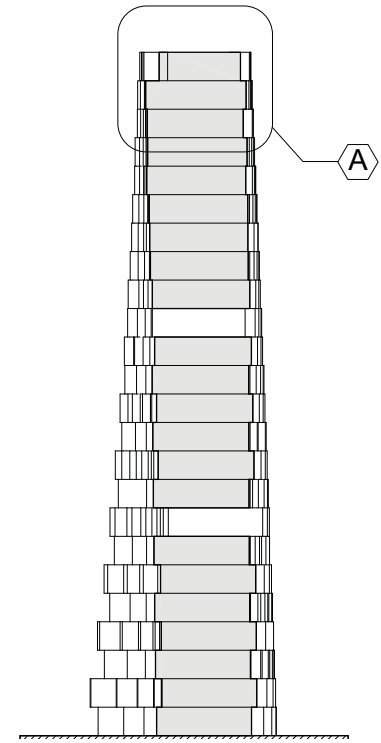
left: Installation view. Edible oyster mushrooms grown on the structural blocks of the wall served at the installation provide a visceral experience of architectural materials

Counterclockwise rotation

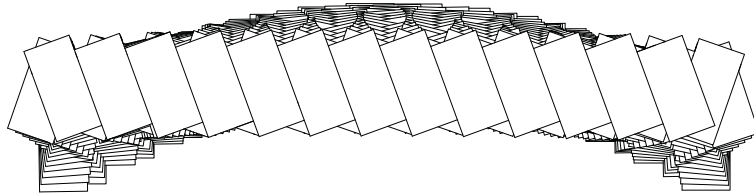
Clockwise rotation



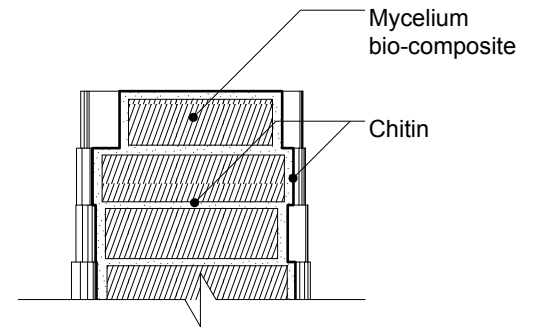
Elevation Scale 1:20



Section A-A' Scale 1:20



Plan Scale 1:20



Detail Section A Scale 1:10

Design factors. The double curvature of the mockup wall stiffens the overall wall structure, while the gradual rotation of blocks maximizes opportunities for masonry cohesion through the growth of chitin between masonry courses. The use of selective voids allow multiple views of the city as backdrop and allows for an interplay of light between projectors located on opposite sides of the wall.



above and below: Block production. After sterilization, inoculation, and incubation, colonized substrates are moulded in batches to produce durable living blocks.



above: Bags of colonized substrates during incubation must be kept free of mold and other competing organisms.

PROJECT CREDITS

Design Firm

AFJD Studio (afjdstudio.net)

Lead Designers

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Design Team

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Location

Museum of Vancouver
1100 Chestnut St, Vancouver, BC

Date

August, 2015

Photography

Krista Jahnke unless otherwise noted

Sponsors

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