

Clay Office

Art Project and Case Study

Aalto University, Aalto ARTS

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Microbiome

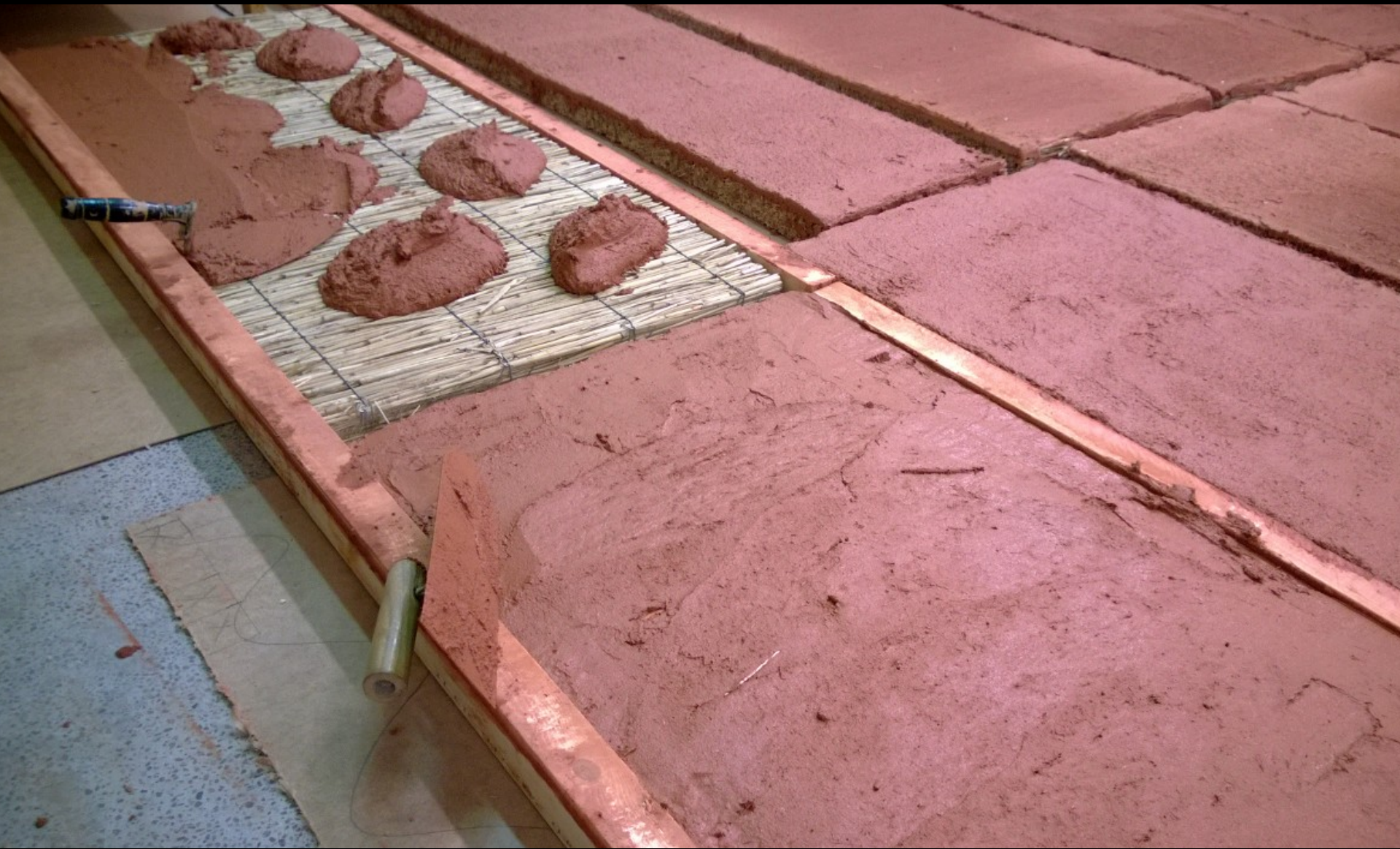
A microbiome is the environment that is made up of the micro-organisms which share our living space, be they beneficial or detrimental. Scientific studies have clearly documented the effect of microbiota, or the lack of certain microbiota, on both physical and mental health. As it becomes accepted by the scientific community that a humans “are supraorganisms composed of human and microbial components” (Turnbaugh, Peter et al., in Nature, Oct 18, 2007), greater attention must be given to how built environments can support a healthy microbiome for healthier people.

In the beginning of the year 2014, we started our collaboration with the Department of Building Technology at Aalto University and Mirja Salkinoja-Salonen, professor in microbiology at Helsinki University. We initially proposed as our possible research question: does clay filter the spores of harmful molds, mycotoxins, or both? However, according to Mirja Salkinoja-Salonen, mycotoxins are oil soluble and stick to surfaces. They do not stay floating around in the air (as do spores) and will probably not pass through clay. Clay will most likely also filter spores.

A new research question thus emerged: do molds grow through clay – from an infested room into another? If yes, does clay promote or reduce production of mycotoxins? Recent research suggests it is possible that certain microbiota encourage the growth of microbes and molds that are benevolent to humans, and thus pushing out toxic molds (Rook, Lowry and Raison 2013: 46-64). In regards to recent discussion in Finland, see also guidelines by Finnish Institute of Occupational Health: “Biosidit ja korjausrakentaminen” and an interview in Rakennuslehti 17.04.16 by Kati Winterhalter of Professor Mirja Salkinoja-Salonen: “Miksi home on Suomessa muita maita yleisempi ongelma?”



**Clay Office for indoor air remediation:
Reed and clay walls inside a regular office room**









Clay walls modified airborn microbial fall-out in an office space

Results of microbial sampling in Clay Office
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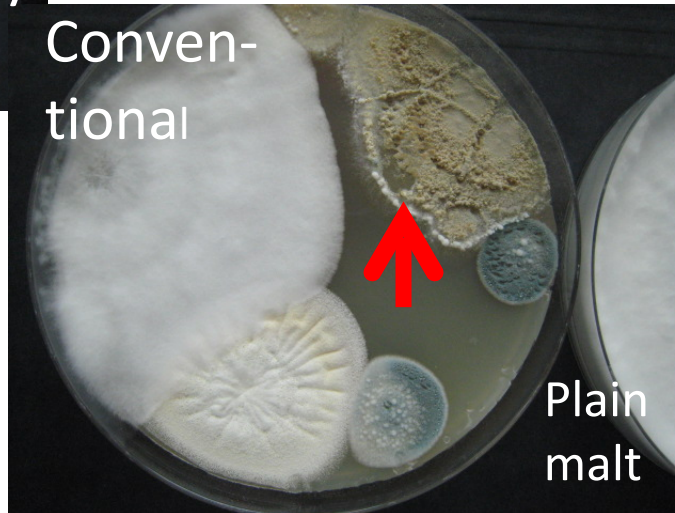


Malt Agar plates , with and without a selective agent (borax, 1000 ppm) were exposed on June 17, 2014, 4 pm for 1 hour, to office air with lids open, then closed, sealed and transported to laboratory, incubated, photographed on July 12, 2014

Boron containing chemicals have been massively used in buildings thermal insulating materials and for mold remediation.

From 1 Feb 2012 banned in European Union for insulation materials and mold remediation of buildings (Directive 78/2012)

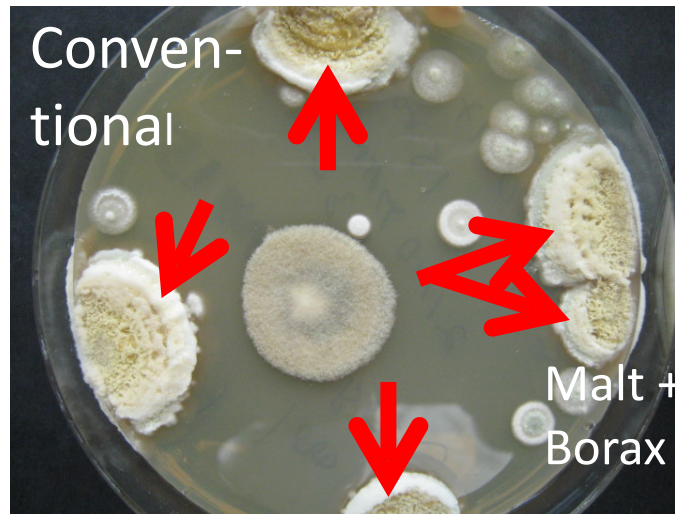
Conven-
tional



Plain
malt

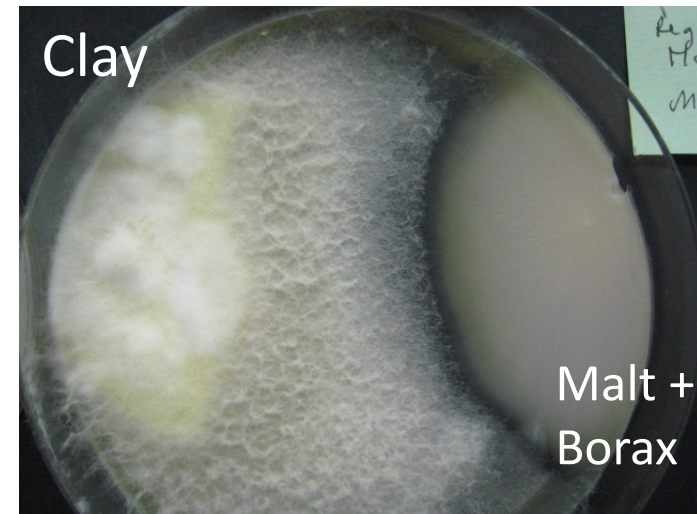
Borax (1000 pm) containing environment (agar plate) favours toxigenic (arrow) spores. Such spores were not present in airborne fall-out of the clay office.

Conven-
tional



Malt +
Borax

Clay



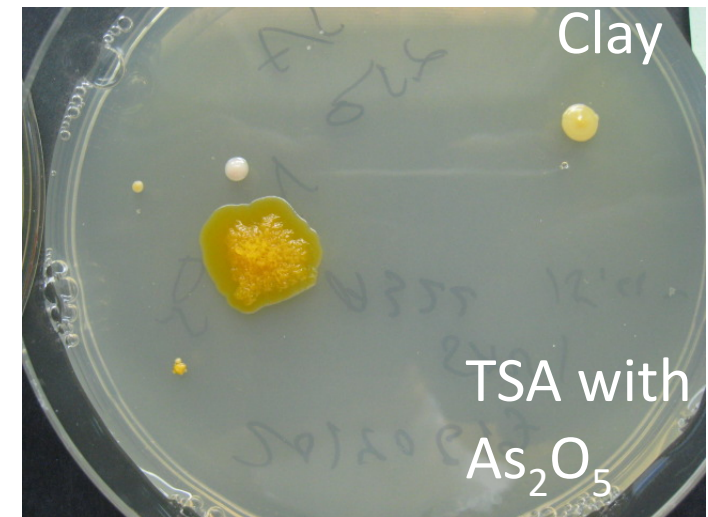
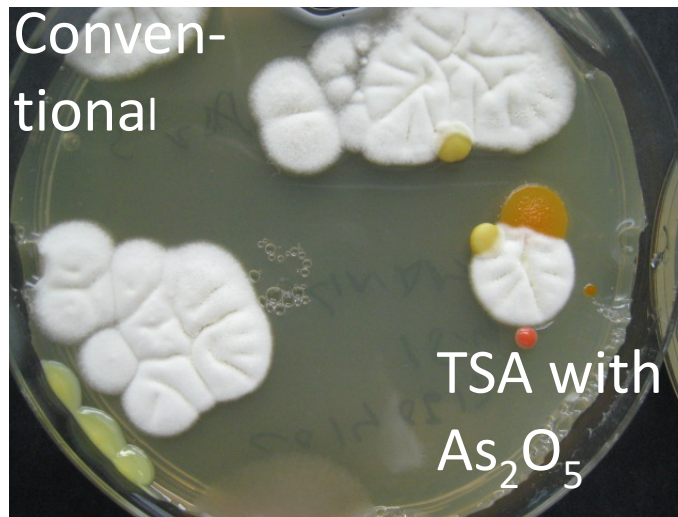
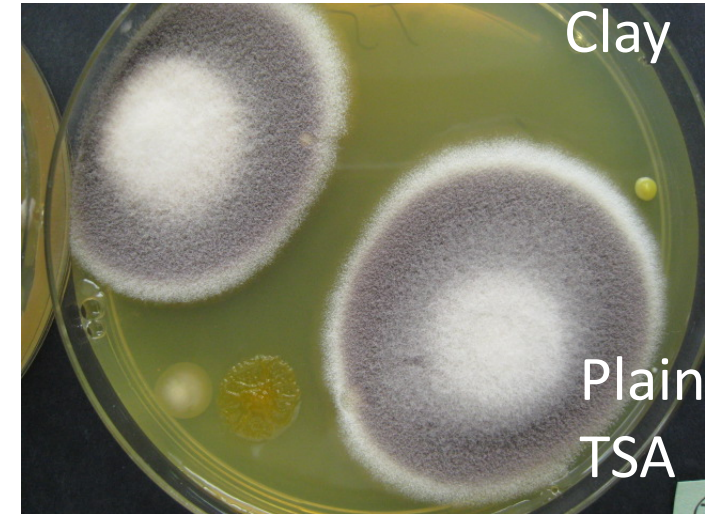
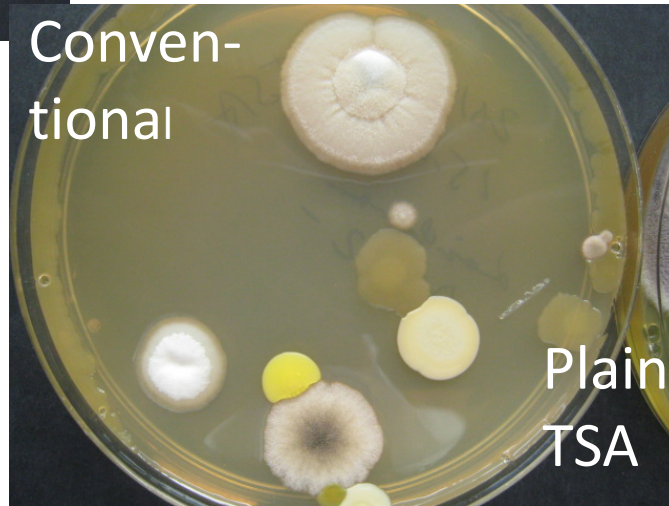
Malt +
Borax



Tryptic Soy Agar plates , with and without a selective agent (arsenic pentoxide) were exposed on June 17, 2014, 4 pm to for 1 hour, with lids open to office air, then closed, sealed and transported to laboratory, incubated, photographed on July 12, 2014

Arsenic oxides are widely used for wood preservation in buildings. Banned in EU (Dir 1048/2005)

Toxigenic *Aspergillus* and *Chaetomium* are arsenic tolerant.



Scientific research offers insights into what are the quantifiable, measurable aspects of human experience. Information drawn out of experimental processes can give direction to our artistic research, outlining what is known concretely, and what is yet to be explored.

Together with Scott Andrew Elliott and Saara Hannula, Pia Lindman built another office room, a comparative room in the same building where the Clay Office is located. This comparative room had the same dimensions and color as the Clay Office, but as building material the research team used drywall (sheet rock/kipsilevy) instead of reed and clay





The research team developed a variety of tests/exercises exploring how test persons developed relations to the two test rooms. These emerging relations that the research team could investigate through interviews of the test persons after the exercises, video recordings of the exercises, and drawings made by test persons after the exercises, expressed behavioral, associative, sensory, and physical aspects of the human experience of two tests rooms.

TEST NO 1

Measuring the Immeasurable

Marking atmosphere by expressing internal state of mind/energy

Make a color drawing before entering the space.

Enter the space, find a comfortable position and focus on relaxing for 20 minutes.

After leaving the space, make a color drawing.

Before



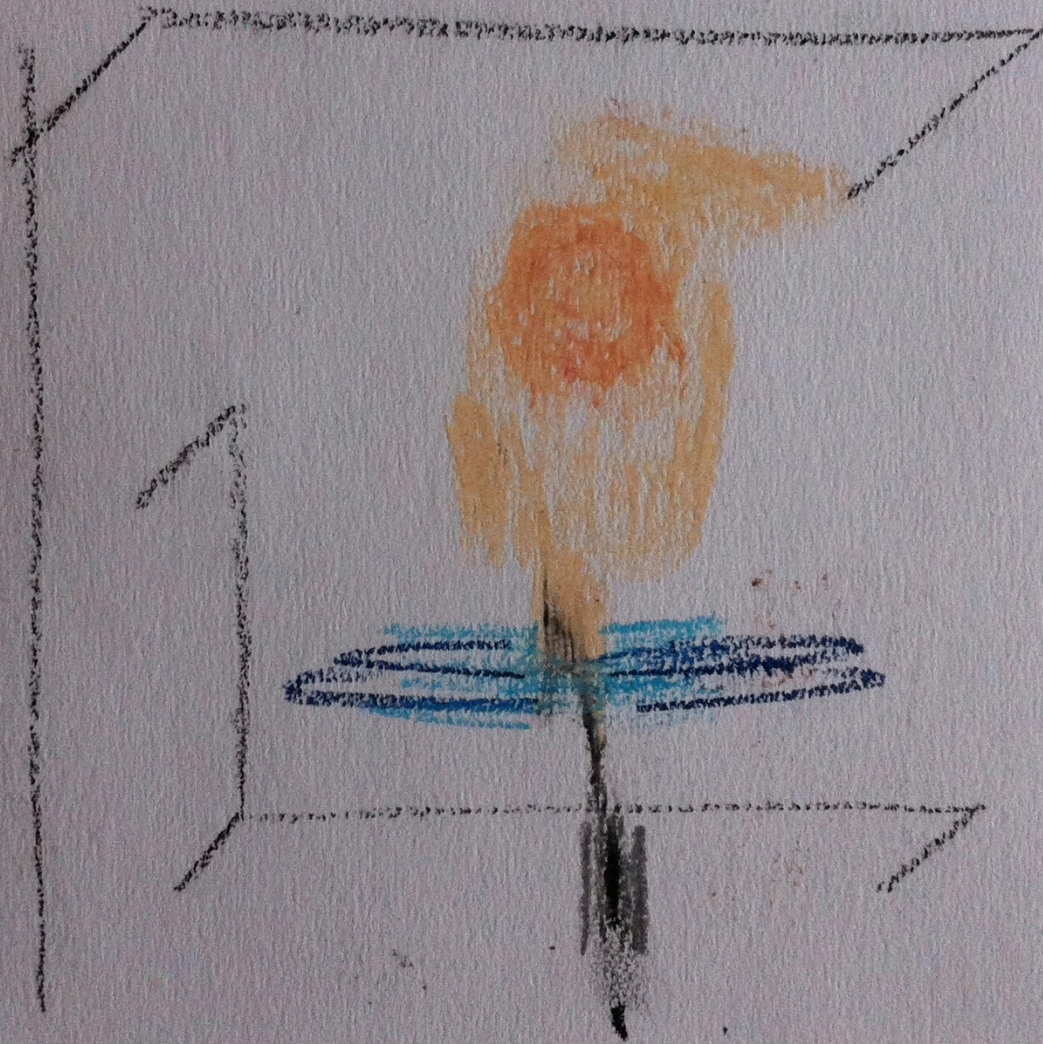
After being in room 2



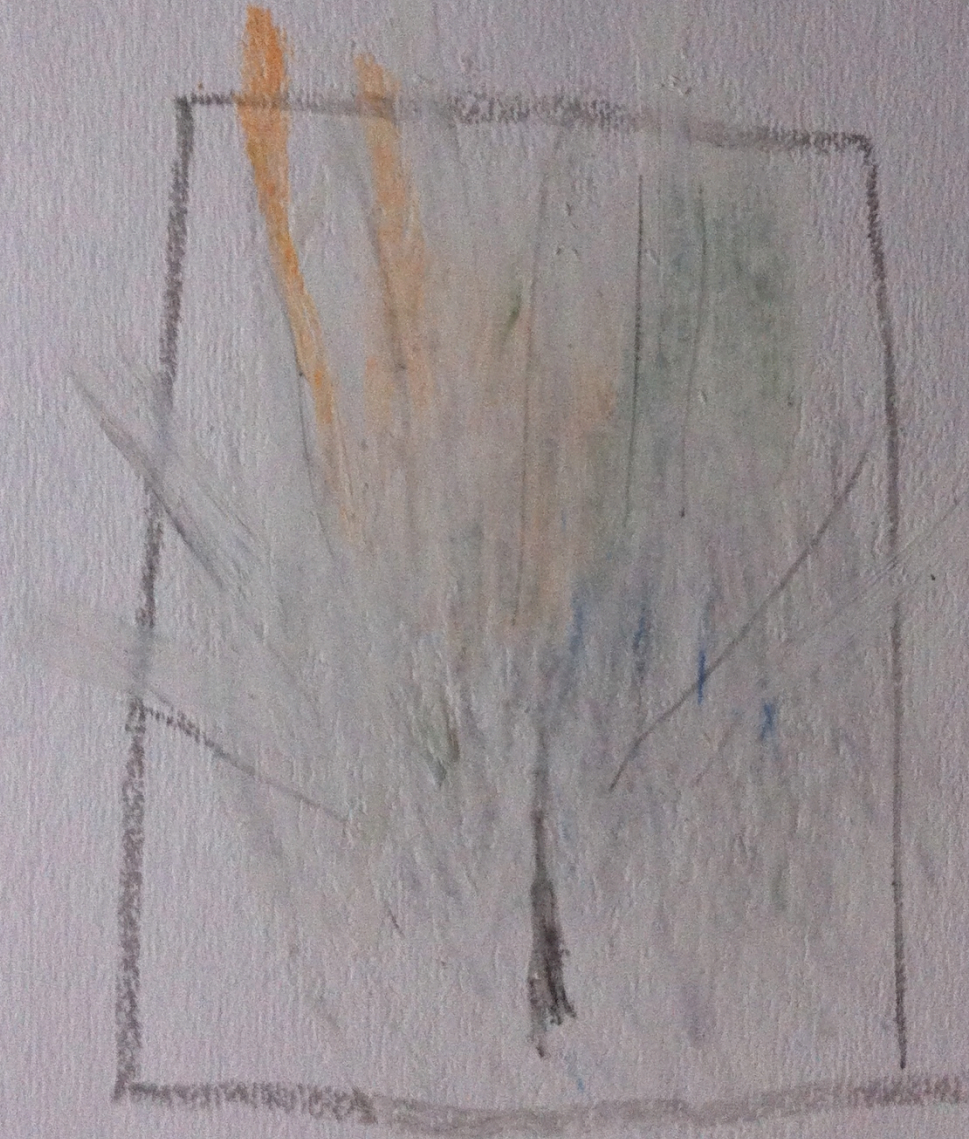
After being in room 1



Before



After being in room 2



After being in room 1



TEST NO 1

Measuring the Immeasurable

General observations

Room 1: Clay Room

Room 2: Drywall Room

ENERGY DIFFERENCE:

Clay room: calm and energized

Clay room: Energy inwards, focused

Drywall room: calm and sometimes sleepy

Drywall: Energy outward, dispersed

TEST NO 2

“Ritual Play” by Marina Kronkvist:
Accessing corporeal and spatial
relations through physical play
Process expresses sense of space







TEST NO 2

General observations from video recordings and interviews

Drywall room

Tends to disperse focus, induce restlessness, yet the room feels limiting.

Tests persons are drawn to shelf and to window, looking out window, daydreaming/meditative state/being somewhere else

Test persons are not touching nor interacting with the room.

Clay office

Test persons are touching walls, interacting with room with sound or voice, movement. Test persons felt connected to this room.

Test persons felt sense of porousness of the walls, that space was continuing because of this quality, that it went beyond the walls. Test persons were drawn to the texture on the clay walls - they saw images in it.

Clay office gathered focus and energized the test persons, yet also made them relax.

Test persons didn't like smell in drywall room, but did like smell of the clay room, and the air quality in the clay room. People found drywall room to be 'fake', like plastic on cardboard, like they were fooled by the color of the paint



