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Felt Space: Responsive Textiles, Fabric Dwellings and Precarious Housing

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In 2010, LOVO films, a Belgian production company, produced a television advertisement for Natural Gas, Belgium. The thirty-second spot showed the thermostat flicking on, and a house warming up for its morning routine. As the director noted, it's hard to portray warmth in a television setting. Thus, trying to convey the "soft" heat of natural gas, he chose to use knitting, which slowly covers the surfaces of the home. The idea here (underscored by a second film about the making of the commercial, which includes a number of shots of grandmotherly women knitting and holding tea cozies), is that textiles provide warmth and comfort – they are in this sense, a strong evoker of home-ness and security that might find its metonymic corollary in security blankets, quilts and favoured pieces of worn clothing.

In this paper, I take the "comfort" of textiles, to look rather at the opposite – at textile homes and buildings that paradoxically use a "common sense" notion of textiles-as-comfort to illustrate threat, danger and upheaval. While home might be a "place of residence and refuge," a conglomeration of affects, nostalgia and memory, it is also an idea and a physical entity seemingly constantly under threat from micro- and macro- stresses of daily living. I'm interested in membrane interiors and exteriors that purposely or accidentally reveal problematics of precarity and discomfort under late capitalism. I begin with the low-tech, the handmade, and a series of houses designed primarily to draw attention to issues of homelessness, community and women's labour. From there I move on to examples of high tech houses and dwellings made or enhanced with intelligent and smart textiles and designed specifically to draw attention to matters of population growth, sustainability and post-disaster possibility. Though drawing attention to a variety of issues, in these projects, textiles are often positioned as a solution to trenchant problems, and the high-tech textile edifices and products that emerge describe what I call felt space, a particular constellation of comfort, community and safety. Many imagine utopian futures and possibilities. But, as conclusion, I look underneath the comforting narrative, asking about the other, darker, side of textile manufacture and disposal, and I find even in these apparently utopian buildings a more complex history. Given this, I suggest that in the link between textile and home can be found the multiplicity and interwovenness of contemporary systems. In short, the combination of textiles, fabric and home have much more to tell us about wider issues than might be initially apparent.

In June 2006, as part of the London Architecture Biennale, the group KnitArchitecture gathered together to produce a two-story dwelling, knit by group members and passersby from used building materials: rope, plastic bags, and other garbage. Draped over the scaffolding of an already-existing building, the knitted structure became a favourite of Biennale attendees, who would stop and rest in the installation's rocking chairs, or participate in the building's construction. *KnittingSite*, as it was called, is just one of a number of large-scale knitted or crocheted structures and dwellings, counting among their number several "charity play houses" designed to raise money for, among other things, a children's hospital, Oxfam, an eldercare facility, and the recording of a series of oral histories (which were told in the knitted house); a knitted gas station; a knitted apartment by artist Olek (recently on sale for \$90,000);

and numerous other smaller scale projects that include knitted cities, floppy buildings, and in one of my favourites, small-scale knitted reproductions of the houses of known murderers, made by artist Freddie Robins. One might also point to Annette Streyl's knitted corporate buildings, which undermine the power and authority of such institutions by rendering them in wool, Loren Schwerd's *Mourning Portrait* series, a group of destroyed houses crafted from hair extensions found in New Orleans in the wake of Hurricane Katrina, or Maria Adelaida Lopez's series of houses made from dust collected during her stint as an immigrant house cleaner.

What all of these houses, and the numerous others that didn't make this list, have in common is a play on the perceived domesticity of knitting, its relegation to the home and to private space. Each of the artists or groups reverses or plays off of a stereotype of knitting, reversing expectations as the "garments" grow to more than life size, take over the hard walls of a building, or document intimate spaces in unexpected materials. In effect, they turn expectations inside-out. In doing so, they often use these reversed expectations to make critical commentary.

In 1999, Canadian artist Janet Morton knitted *Cozy*, a giant knitted sheath for a house that stood on Ward Island, a tiny island just opposite Toronto, Ontario. Made from 800 cream-coloured recycled sweaters,¹ Morton actually sat on the roof of the house knitting together the pieces of the work, while her friend and owner, Sean Tamblyn, continued to live inside.² Morton used reclaimed sweaters on purpose, with the idea of capturing the histories of the used garments, both in terms of who had worn them and who had made them.³ The knitted house was received largely as reclaiming a lost domestic history and glorifying the work of middle-class women for whom knitting had been a pastime, a comfort and an important domestic skill.⁴ Despite such reviews, *Cozy* was also described repeatedly as a "wooly womb," and faltered into a kind of patriarchal dismissal even as it inspired awe at the effort of Morton's labour in knitting together an entire house.⁵

A year after its display on Ward Island, *Cozy* was reworked as an installation in downtown Toronto under the auspices of the Textile Museum of Canada. There it took on an entirely different persona. Removed from the quaint house on Ward Island, and re-set at the centre of a city struggling with a homeless problem, the work that had been interpreted as a reclamation of women's labour, became instead a commentary on homelessness and specifically, on the exclusion of homeless populations from Toronto's parks through a number of increasingly draconian city bylaws. No longer held up by Tamblyn's house, *Cozy* in Trinity Park was installed on a metal scaffold. Without the solid house underneath, the walls billowed in and out, giving the impression of a living and breathing being.⁶ Installed in front of the finance-scape of downtown corporate Toronto, and set against a backdrop of pricey condominiums (at the height of the pre-2008 real estate boom in Toronto), corporate headquarters, a church and a giant shopping mall, *Cozy* was purposely installed in such a way as to seem totally out of place, but at the same time friendly and welcoming. It was the very softness of the wool

¹ Morton used panels from the sweaters, but knitted them together. In other words, the project was not knitted from scratch, but rather combined already extant textiles into a whole.

² Quinton, np.

³ Janet Morton, interview conducted by Emily Rothwell, October 2005.

⁴ See, for example Barb Hesterman. "Gallery show expresses themes using knitted craft." *Beacon Herald* (Stratford) 3 February 2001: C4; Mark Gollom. "Artist creates woolly womb with house cozy." *National Post* 8 November 1999: D2; Clint Burnham. "Textile Artist has Richmond in Stitches." *The Vancouver Sun* 24 August 2006: np.

⁵ Robin Laurence. "Knitted Works Needle Norm." *The Georgia Straight*. July 27, 2006: np.

⁶ Quinton, 8.

house set amid the glass and steel towers of Toronto that for many viewers and reviewers evoked mixed notions of home(lessness).⁷ Fluid interpretations were possible, and many reviewers remarked on both the comfort and warmth of *Cozy* as well issues of homelessness without noticing any kind of contradiction at work.

Textiles have this fluidity. Their ubiquity makes them in some ways the ultimate commentator, as they touch on myriad histories. Textiles are inextricably bound up with technologies, performance, social relations, economies of scale, geography, globalization, trade, and questions of ethics and sustainability. They touch issues of immigration, sweatshops, commodity chains, pink-collar labour, environmental concerns, agriculture, commodity fetishism, and everyday life. In the case of *Cozy* all of these possibilities were open, and many of them were touched upon in the numerous reviews. *Cozy* seemed comfortable both with critique and also with intimate encounters with interiority, sheltering, and warmth.

These textile structures seem to promote a sort of corporeal encounter, encouraging an intersubjective exchange between the viewer/participant, the artists, the woven and knitted walls and the larger audience. Highlighting the sensorial over the scopophilial, buildings like *Cozy* or *KnittingSite* open environments that I describe in my title as “felt space.” Such spaces, it seems to me, are ripe for interpretation as oppositional – both in the way that they encourage affective interpersonal encounter that suppresses social emphasis on individualism, and, particularly in the case of the knitted houses, in the way that the very process of their making questions underlying issues that tend to bolster systems of power.

The questions raised by Janet Morton’s house, and by proxy by all of the other knitted homes and buildings seem somehow expected. The links are easy to follow. Thus, I became interested in whether it was the kind of textiles (that is, knitted and traditional textiles) that allowed for a fluidity of interpretation, or was it textiles in general? Do high-tech structures made from textiles hold promise of the same kind of openness? Take, for example, *Soft House* by Kennedy and Violich architecture – an open concept home where curtains act as solar “energy harvesting textiles” capable of generating up to half of the daily power needs of the average US-American family.⁸ These high-tech and often mobile structures are part of a much wider application that Bradley Quinn calls “textile futures”—faster, lighter, stronger textiles that can stop bullets, hoist satellites into orbit, and withstand temperatures hot enough to melt steel.⁹ Tiny fibres, writes Quinn, will rebuild the world.¹⁰ Truly exciting projects are currently being imagined that cross the boundaries between art, experimentation, and architecture, and offer endless unfettered possibilities. A September 2009 issue of the magazine *Fabric Architecture*, for example, showcased flexible and provisional housing proposals that can be easily transported and quickly assembled in post-disaster scenarios.¹¹ Another issue from September 2011 focused on the

⁷ Doris Green. “About Janet Morton.” *University of Madison Wisconsin* (April 2004): <http://www.arts.wisc.edu/artsinstitute/IAR/morton/about.html>.

⁸ Kennedy and Violich Architecture. *Soft House*. (2012): http://www.kvarch.net/#project/soft_house.

⁹ Bradley Quinn, *Textile Futures: Fashion, Design and Technology* (London: Berg Publishing, 2010).

¹⁰ See also Philip Beesley and Sean Hanna. “Lighter: A transformed architecture.” In *Extreme Textiles Designing for high performances*, Matilda McQuaid, ed. (London: Thames & Hudson, 2006), pp. 105- 135; Mark Garcia. *Architextiles: Architectural Design* (London: Academy Press, 2007); Aurélie Mossé. “Energy-Harvesting and Self-Actuated Textiles for the Home: Designing with New Materials and Technologies.” *DUCK Journal* 1 “What is Textile Design Research? (Summer 2010), pp. 1-10.

¹¹ *Fabric Architecture Magazine*: <http://fabricarchitecturemag.com>.

application of high-tech fabric solutions to environmental catastrophe and questions of sustainability (for example, sophisticated, technologically enhanced awnings that provide natural shade instead of air conditioning).¹² Others meander along the line between design and medical research providing, for example, thermochromatic bedding to monitor the temperature of premature babies or the elderly, textile environments wired with “ambient intelligence,” or actuators and computers that can adapt environments, manipulating devices or calling emergency services (for example).¹³ In all, smart textiles respond dynamically to a variety of situations, and in these scenarios, the infinite potential of smart textiles is writ large. But at the same time “textile futures” remain essentially that: imaginative propositions that may change the future, but largely exist only in theory. Is it possible that the speculative nature of many of these projects allows them to push the limits of imagination, but forecloses their actual critical potential?



Figure 1. SweaterLodge.

To develop my point, I turn to a project that falls somewhere between the high-tech projects just introduced, and the low-tech houses discussed previously. In 2009, Vancouver architecture firm Pechett and Robb designed *SweaterLodge*, an enormous fleece sweater that doubled as Canada’s Pavilion in the 2006 Venice Architecture Biennale. Four stories tall and fabricated entirely from bright orange fleece made from 3,150 recycled plastic bottles, *SweaterLodge* commented specifically on sustainability and self-sufficiency. It was also a playful take on the “outfit” of urban west coast dwellers – a fleece jacket made in enormous proportions (complete with an X Large size tag). On a smaller scale, the project evoked warmth, orange safety-wear, and NorthWest coast indigenous culture (via the word play *SweaterLodge*/sweatlodge and idea of the sweatlodge as a space of thought and enlightenment). All

¹² Ibid.

¹³ Centexbel. “Smart Textiles and Smart Materials.” *Centexbel* (2012): <http://www.centexbel.be/smart-textiles-and-smart-materials>; See also Harald Reiter. *Philips: sense and simplicity: The development of E-Health in the field of cardiovascular medicine (The Role of Smart Textiles)*. (EHRA Summit, Philips Research Europe, 2010).

energy in the inhabitable building was provided through a harvesting system connected to stationary bicycles, and the crates in which the garment/building was transported were multifunctional, transforming into scaffolding and furniture for the pavilion. In all senses, *SweaterLodge* was meant to be interventionist, a playful imagining of a sustainable future.

The coverage of *SweaterLodge* was largely positive, focusing on its utopian intent. Unlike *Cozy* (which arguably had a similar mandate of creating a building from recycled materials) there are no reviews of the work that in any way equate it with traditional feminine handcrafting. Instead, wrote the commissioner of the project, “*SweaterLodge* may appear as a warm fuzzy space, [but] it is also an environment designed with complexity and subtle meanings.”¹⁴ In this, *SweaterLodge* was removed from the register of knitted buildings and inserted into a distinctly male design space, the distinction being carried through the dissimilarity between woven/knitted traditional fabric and felted or non-woven “new” fabrics.¹⁵

Shown again in Vancouver in 2011, a second message emerged as the architects now publicly noted that the work showed possible models for sustainability, but also demonstrated how an apparent love for nature and the outdoors can disguise “supersized consumption of outdoor culture.” Stephanie Robb also noted that the very advent of fleece depended on over-consumption. Noting the number of bottles that went into making the fleece, plus an additional 2600 that went into making furniture for the second exhibition in Vancouver (the crates having been destroyed) Robb said, “The beauty of this one is seeing the stacks of the bottles and what that represents.... They can get ground down and made into that [fleece], but Jesus that’s a lot of stuff!”¹⁶

In both of the projects discussed, there are a series of interpretations that can be made solely by engaging with the surfaces and presence of the work; solely by engaging with the materiality of the textiles. In both, as well as in *KnittingSite*, observing the exterior demands a reading of passages of memory that trace the action that made the building – the recycling of bottles or sweaters and the obvious labour of putting those together into a structure. Here then, in the soft insufficiency of the knitted buildings is an architecture somewhere in-between the architecture of excess with which Elizabeth Grosz describes virtuality (a post-binary in-between space between the built and the unbuilt) and the solid materiality of the known architecture profession.¹⁷

Following Grosz, and by way of conclusion, I’d like to move beyond the surfaces of these textile structures right into the fibres of their being – the wool and fleece that hold them together and that link them to darker histories and darker futures that can also be told through textiles. Both buildings speak to an overwhelming consumption, to a world drowning in textiles and other goods but constantly producing more. But where I argued that *Cozy* is highly open to contextual and wide-ranging interpretation through its connection to a variety of well-known histories of textile production and circulation, I’m not sure that the same can yet be said for the smart and intelligent textiles. Part of this is for good reason – many of the projects promise extremely exciting solutions to trenchant problems

¹⁴ Greg Bellerby. “Commissioner’s Essay.” *SweaterLodge* (2005): http://www.pechetandrobb.com/sweaterlodge/commissioner_essay.html.

¹⁵ This despite the fact that felting is an ancient technology.

¹⁶ Janet Smith. “Seeing Orange All Over Again at SweaterLodge.” *Georgia Straight* (online) 13 January, 2011: <http://www.straight.com/article-367908/vancouver/seeing-orange-all-over-again>.

¹⁷ Elizabeth Grosz. *Architecture From the Outside: Essays on Virtual and Real Space* (Cambridge: MIT Press, 2001), pp. 1-10.

(medical, housing and otherwise). Nevertheless, in the very makeup of many of these textiles, often at a nano level, can often be found a reflection or repetition of the problems they seek to solve – and unlike the easy-to-overlook contradiction between homelessness and comfort that worked with Morton's *Cozy*, there is something unseemly about drawing attention to the underlying flaws of potentially utopian projects.

Take fleece, for example. Fleece is a soft napped insulating synthetic fabric made from Polyethylene terephthalate (PET). It is, in essence, plastic fabric, and has been widely advertised as an environmentally-friendly way of diverting plastic from landfills. Certainly this was the message of *SweaterLodge*. Though not technically a smart textile (in that it is no way wired or enhanced), fleece seems to promise a vast increase in textile's competency, offering the warmth of wool without the weight, and creating something useful and popular from the detritus of a wasteful society.

In 2006, the same year that *SweaterLodge* was shown at the Venice Architecture Biennale, a group of scientists from Australia published an article showing that when washed, the plastic particles making up fleece were not stable.¹⁸ Rather, with each wash, fleece jackets were shedding up to 2,000 polyester fibres, and those micro-plastic fibres were ending up in oceans and on beaches. According to a follow-up article in *Science Now*, the plastic from synthetic lint (from fleece and other synthetic fibres including those used in yoga and leisure clothing) were making their way through sewage treatment plants. It is noted, ““Not a single beach was free of the colorful synthetic lint. Each cup of sand contained at least two fibers and as many as 31. The most contaminated samples came from areas with the highest population density, suggesting cities were an important source of the lint.”¹⁹ Bioaccumulation (that is, the ingestion of microplastics at various levels of the food chain) is difficult to trace, but the effects are clear in terms of the build-up of plastic micro-particles in the massive “Great Pacific Garbage Patch” some twice the size of the state of Texas.

Seen in this light, the fleece used for *SweaterLodge* is both a solution and a problem. It skips the use of pure petroleum in recycling PET, but in creating a felted non-woven fabric made of tiny shedding plastic particles, it actually *creates* significant environmental damage. Similar claims can be made for almost all of the utopian projects described above, many of which offer sustainable solutions, but do so only from a starting point of petroleum-based synthetic fabrics. The utopian visions promised through intelligent and smart textiles almost inevitably come back to oil. Even Janet Morton's *Cozy* made entirely from recycled sweaters, plugs into narratives of over-consumption that in turn unravel into a litany of environmental abuses and unsustainable practices at the roots of fast fashion.

Thus, what might it look like to consider what are ostensibly art and design projects from a perspective that takes in to account not just the being or present object, but also its manufacture and disposal? I chose the textile homes on purpose because I think that they begin to do this through the multivalent connections that can be made for each project. Even the brief consideration of *Cozy* and *SweaterLodge* presented here suggests a much more complicated layering of linkages and understandings than is present, for example, in the way that the Natural Gas commercial shown at the outset of the presentation interprets the textile home solely as one providing warmth and comfort.

¹⁸ Mark Anthony Browne, et. al. “Accumulation of Microplastic on Shorelines Worldwide: Sources and Sinks.” *Environmental Science and Technology* 45.21 (2011), pp 9175–9179.

¹⁹ Elsa Youngstead. “Laundry Lint Pollutes the World's Oceans.” *Science Now* 21 October 2011: <http://news.sciencemag.org/sciencenow/2011/10/laundry-lint-pollutes-the-worlds.html>

Textiles, clothing, and apparel are almost always thought of as cut off from their processes of production. Bruce Robbins suggests we focus on the opposite—the shocking moment when one realizes that one’s clothes have been made by people, cultivated from the soil to become the finished garment in one’s hands through the hands of hundreds of others, not to mention systems of manufacture, transportation, and commodification.²⁰ Robbins calls this moment of realization the “sweatshop sublime,” the moment where the whole system is revealed and made accessible, and one can view and understand the anchoring of traditional and smart textiles in new and old formations of capital.

The wobbly structures described above speak to an in-betweenness, and so the knitted buildings unravel outwards through a series of links that potentially provide a model for getting at and understanding some immensely complicated problems. As it stands, textiles can’t solve what the humans making, inventing, distributing, and profiting from them also can’t solve—that the very materiality of new fabrics depends on the same exhaustible commodities. Ignoring these links means making projects that offer only surface or symbolic solutions. On the other hand, applying a kind of material criticism to smart textiles means admitting that what on the surface may appear utopian is layered, fallible, and compromised, but nevertheless still laden with potential and possibility.

²⁰ Bruce Robbins, “The Sweatshop Sublime,” *PMLA* 117 no. 1 (January 2002): 84–97.