

DS18_2014/15

ARCHITECTURE, ENERGY, MATTER 2: FRACKING THE KAROO

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BRIEF 2

1. Title:

ENERGY URBANISM: A 2030 ENERGY STRATEGY FOR THE CAMDEBOO, KAROO, SOUTH AFRICA



2. Aims:

Energy Urbanism is a design brief to develop an energy strategy for the Camdeboo in South Africa. This is an area of the Karoo that includes the historic towns of Graaff Reinet, Aberdeen and Nieu Bethesda, a number of game conservancies and many traditional Karoo farms. Unemployment in the region currently stands at 32,5%. The brief will extend our investigations of relationships between energy, matter, space and architecture, asking for a computationally driven design strategy in response to an energy related question. This will conclude the work for the Interim Portfolio submission in January 2015, which will also include your Energy Economy Data Visualisations and Material Flow (RealFlow) investigations.

3. Description:

You are asked to develop an energy strategy for the Camdeboo in South Africa, taking into account the potential of energy infrastructure to contribution to the economic, social and cultural development of the region. Your strategy should be imaginative / inventive / critical and life-based, respond to the unique features of the Karoo landscape and its geological and human history and acknowledge the realities of global anthropocenic climate change. Key to this will be a reading of the physical and socio-economic landscape of the Camdeboo as an energy field and channelling, enhancing or capitalising on its energies to develop a scenario for its future.

4. Process:

You should begin responding to this brief by articulating a succinct energy related question your strategy will address e.g. How can the Camdeboo Municipality become carbon neutral by 2050? How can the solar / wind energy potential of the Camdeboo Municipality be maximised?

You should then take an initial position on the question you have posed in the form of mappings and diagrams that identify, isolate and spatialise the primary energy source your strategy will work with and your position in relation to it. This initial strategy requires you to manipulate only one or more of four environmental factors: earth, air, sun and/or water. This initial stage of the brief should be undertaken in groups in order to generate discussion and consolidate a position more holistically.

Once this initial position is formulated, you should undertake research to further inform the development of the strategy, the contradictions it throws up, and the opportunities it presents. This might include finding appropriate baseline maps, economic data, demographic data, technical data, existing

development objectives and other data necessary for you to develop your scenario into a comprehensive energy based socio-economic development model for Camdeboo. Once again, this work will be made easier if this work is shared in groups. Once the data is gathered, you will revert to individual work, in order to develop your own stance and priorities within the overall strategy your group has developed.

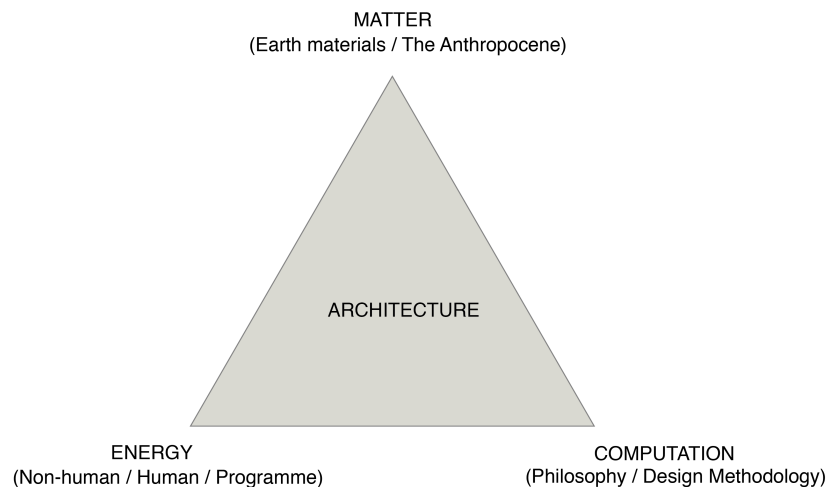
5. Outputs:

1. A schematic masterplan at a territorial scale of your group's design strategy. This should describe your strategy spatially and visually through maps and other visual means (diagrams, animations etc.). This is a group submission.
2. A developed component of the schematic masterplan. This is an individual submission. It will form the basis for semester two work.
3. A single rendered image of your component of the masterplan showing its spatial and architectural qualities. Though the strategy should be presented through one key visual, you might find the need to accompany the main image with other ones that, though less important in size and visual impact, might still be necessary to corroborate your strategy This is an individual submission.
4. Over this period, the South African Energy Economy research will be required to be visualised as a single A1 board, as per the attached template. This is a group submission.
5. Over this period, your Material Flow (RealFlow) research boards will be revisited and completed. This is an individual submission.

6. Calendar:

See updated schedule.

7. Resources:



Our studio framed around three sets of questions: matter (as pertaining to the anthropocene), energy (as resource and programme) and computation (as design philosophy and methodology).

Below are some resources for reference in carrying out the current brief.

MATTER

DS18 is interested in pursuing intersections between architecture, urbanism and geology, framed by debates taking place in science about a new era of geological time, the anthropocene, proposed by chemist Paul Curzon in 2002. According to theorists like Bruno Latour, Timothy Morton and others, this has transformed much of what we have previously assumed to be true: science has become natural

history, our ideas of scale no longer apply and it is no longer possible to behave as if nature were one thing and culture another. Humans have mobilized earth materials, minerals, water, air, and energy in ways that have altered the earth's atmosphere, surface morphology, and future stratigraphy to such an extent that the very idea of what geologists think of as geological systems and what architects think of as urban systems has changed. Dr Jan Zalasiewicz, geologist at the University of Leicester and chairperson of the International Anthropocene Working Group, goes so far as to suggest that buildings and cities are geology, even though by geological standards their time scales are catastrophically fast and their structural nature chaotic. What new ways of thinking and making architecture do these debates open up? Links between architecture and geology are not new: from Baroque grottos, to Viollet-le-Duc's Alpine studies or Buckminster Fuller's geological diagrams, architects have long been fascinated by the formal, material and structural properties of geological formations. However, the notion of the anthropocene takes concerns with the geologic to new levels. The idea that the geological constitution of the planet is markedly anthropogenic is yet to be fully absorbed into our collective cultural imaginary. Recent philosophical tendencies, including new materialism, realist ontologies, object orientated ontologies and post-humanist theories too try to come to terms with the new reality: they argue that geology, anthropology, nature and culture, animate and inanimate earth systems can no longer be seen as categorically distinct, as in the 19th and 20th centuries. The question becomes how architecture engages these shifts and finds new ways of working imaginatively, spatially, temporally and materially with the earth and its processes. You are asked to explore new conceptual frame-works, new forms of expression, new processes and new methods for designing and making architecture that acknowledge the deep interconnections between architecture, the earth and its material processes and the late-capitalist conditions (economic, political, cultural) that shape these. These might range from the obvious and practical, such as the responsible sourcing, use, and re-use of materials, to the radical rethinking of the relationship between man-made and natural worlds. An architecture that engages with the anthropocene is not only environmentally and socially responsible, but latent with new cultural, intellectual and aesthetic possibilities.

Projects:

Architect: Philip Rahm

Web Site: <http://www.philipperahm.com/data/>

Books: <http://www.philipperahm.com/data/books.html>

Project: White Geology, 2002

<http://www.philipperahm.com/data/projects/whitegeology/index.html>

Architect: Vicente Gualart

Web Site: <http://www.gualart.com/>

Book: Gualart, V. (2008). *Geologies: Geography, Information, Architecture*. Barcelona: Actar.

Project: HyperCatalunya, 2003

<http://www.gualart.com/projects/hipercatalunya>

Readings: (* = PDF's in drop box folder)

Bennet, J. (2010). *Vibrant Matter. A political Ecology of Things*. Durham, NC: Duke University Press.

*Crutzen, P. (2002). "The Anthropocene." *J.Phys.IV France* 12(10):1-5. DOI: 10.1051/jp4:20020447.

*Ellsworth, E. and Kruse, J. (2012). *Making the Geologic Now*. New York: Punctum Books.

<<http://punctumbooks.com/titles/making-the-geologic-now/>>

* Gissen, D. (2010). "Introduction." In *Territory: Architecture Beyond Environment*. AD 80(3):8-13.

Morton, M. (2013). *Hyperobjects. Philosophy and Ecology after the End of the World*. Minneapolis: University of Minnesota Press.

*Turpin, E. (2013). *Architecture in the Anthropocene; Encounters Amongst Design, Deep Time, Science and Philosophy*. Open Humanities Press. <<http://openhumanitiespress.org/architecture-in-the-anthropocene.html>>

*Zalasiewicz, J. et al. (2011). "Stratigraphy of the Anthropocene." *Philosophical Transactions of the Royal Society of Mathematical, Physical and Engineering Sciences* A369. DOI: 10.1098/rsta.2010.0315.

*Zalasiewicz, J. et al. (2008). "Are we now living in the Anthropocene?" *GSA Today* 18(2):4-8.

ENERGY

"Many architects wanted to design systems but, on the whole, they were expected to design buildings."
Gordon Pask, 1969.

Projects:

Architect: Buckminster Fuller

Web Site: <https://bfi.org/>

Books: <https://bfi.org/about-fuller/bibliography/books-by-fuller>

Project: World Game, 1960's

<https://bfi.org/about-fuller/big-ideas/world-game>

Architect: Stafford Beer

Web Site: http://en.wikimedia.org/wiki/Project_Cybersyn

Book: Medina E. (2011). *Cybernetic Revolutionaries: technology and politics in Allende's Chile*. Cambridge, Mass: MIT Press.

Project: Project Cybersyn, 1971-1973

http://varnelis.net/blog/kazys/project_cybersyn#comment-3385

Architect: MVRDV

Web Site: <http://www.mvrdv.nl/>

Book: MVRDV. (1999). *MetaCity/DataTown*. Rotterdam: 010 Publishers.

Project: MetaCity/DataTown, 1999

<http://www.slideshare.net/jennchang0/mvrdv-metacity-datatown>

Architect: Bruce Mau Design Studio/OMA

Web Site: <http://www.oma.eu/home>

Book: Mau, B. and the institute without Boundaries. (2004). *Massive Change*. New York: Phaidon Press.

Project: Tree City, Downsview Park, Toronto, Canada, 2000

<http://www.oma.eu/projects/2000/downsview-park/>,

<http://www.pmalarch.ca/projects/strategies/downsview-park-master-plan-tree-city-plan/>

Architect: AMO

Web Site: <http://www.roadmap2050.eu/>

Report: Imperial College, KEMA, McKinsey & Company, Oxford Economics and AMO. (2010).

Roadmap 2050: A Practical Guide to a Prosperous, Low Carbon Europe. European Climate Foundation.

Project: Road Map 2050, 2010

<http://www.oma.eu/projects/2010/roadmap-2050/>

Architect: Lateral Office

Web Site: <http://lateraloffice.com/>

Book: InfraNet Lab / Lateral Office. (2011). *Pamphlet Architecture 30: Coupling - Strategies for Infrastructural Opportunism*. Princeton: Princeton Architecture Press.

Project: Karabou Pivot Stations, 2010

<http://lateraloffice.com/CARIBOU-PIVOT-STATIONS-2010>

COMPUTATION

Projects:

Architect: Andrea Branzi

Web Site: <http://www.andreabranzi.it/>

Book: Branzi, A. (2006). *Weak and Diffuse Modernity: the world of projects at the beginning of the XXIst century*. Milan: Skira; London : Thames & Hudson.

Project: Agronica, 1995.

Architect: Francois Roche

Web Site: <http://www.new-territories.com/>

Book: Ruby, A. with Durandin, B. [edited by] ; with texts by Nikola Jankovic ... [et al.]. *Spoiled Climate. R&Sie Architects*. Basel : Birkhäuser ; Berlin : Springer, 2003.

Project: Dusty Relief/B_mu, Bangkok, Thailand, 2002

<http://www.new-territories.com/roche2002bis.htm>

Architect: AADRL

Web Site: BIOTHING I Repository of Computational Design <http://www.biothing.org/>

Book: Andrasek, A (2009). *A_maze*. HYX Publications.

Project: Mamemo, 2008/09

<http://www.biothing.org/?cat=21>

Architect: WEATHERS/Sean Lally

Web Site: <http://www.weathers.cc/>

Book: Lally, S. (2013). *The Air from Other Planets. A Brief History of Architecture to Come*. Zurich: Lars Muller.

Project: Asplund Library Addition (2006) and Proof 001 (2012)

Architect: Philip Rahm/Catherine Mosbach

Web Site: <http://www.philipperahm.com/data/>

Books: <http://www.philipperahm.com/data/books.html>

Project: Jade Eco Park, Taichung, 2012-2015

<http://www.philipperahm.com/data/projects/taiwan/index.html>

Readings: (* = PDF's in drop box folder)

*DeLanda, M. (1992). "Inorganic Life." In: Kwinter, S. and Cary, J. *Zone: Incorporations*. Barcelona: Zone Books.

Menes, A. and Ahlquist, S. (2011). *Computational Design Thinking*. Chichester: John Wiley.

*Kwinter, S. (2003). *Computational Fallacy*, in *Computational Design Thinking*. London: Wiley. P.211-5.

Also available from DropBox.

*Varenne, F. (2001). "What does a computer simulation prove ? The case of plant modeling at CIRAD (France)", *Simulation in industry - ESS 2001*, Proc. of the 13th European Simulation Symposium, Marseille, October 18-20th, 2001, ed. by N. Giambiasi and C. Frydman, SCS Europe Bvba, Ghent, 549-554.

<http://www.lisc.clermont.cemagref.fr/Animation/magestyc/Fonds_documentaire/Fondsdoc/resumes/Varenne2001.pdf>