

Graduation Plan

Master of Science Architecture, Urbanism & Building Sciences



Graduation Plan: All tracks

The graduation plan consists of at least the following data/segments:

Personal information	
Name	Tristan Pieter Willem van Ham
Student number	4064321
Telephone number	06-22547550
Private e-mail address	tristan.van.ham@hotmail.com

Studio	
Name / Theme	Architectural Engineering
Teachers / tutors	Architectural/Main Tutor: Mauro Parravicini Technical Research Tutor: Jan Jongert Building Technologie Tutor: Engbert van der Zaag
Argumentation of choice of the studio	<p>Firstly because the studio INTECTURE of AE grants great freedom of subject and location choices so that the graduate can create his or her own graduation project.</p> <p>Secondly because Architects are becoming more and more housing technicians that ensure comfortable houses and buildings, transforming the current housing stock instead of creating new. This means that with this moving focus of the profession also architects themselves need to change their focus.</p> <p>Thirdly, the changing present context and environment. Our environment is changing, extreme weather patterns are getting more common and it is with almost certainty caused by human interference. This means that not only do we need to change the current building stock to more futureproof standards but also to change our way of living to a more futureproof and less harmful way of continuing. Changing regulations already demand that buildings are energy neutral build by 2020.</p> <p>Concluding this argumentation, Architectural Engineering is the symbioses between aesthetic and technologic, both rational and sensitive. Capable of understanding the past, history and tradition and seeing the future, improvements and solutions. Thus the most logical choice of graduating any studio would be INTECTURE of AE.</p>

Graduation project

Title of the graduation project	Power-City Nieuw-West
---------------------------------	-----------------------

Goal

Location:	Amsterdam Nieuw West - Slotermeer
-----------	-----------------------------------

The posed problem,	An outdated building that is not sufficient to modern sustainable standards, depletion of fossil fuels, the main energy provider, and a changing environment caused by global warming.
--------------------	--

research questions and	<i>"How to make Amsterdam Nieuw West self-sustaining using renewable energy sources?"</i>
------------------------	---

design assignment in which these result.	<i>"How to create or redevelop a building that makes Amsterdam Nieuw West energy, water and thermally self-sustaining or helps in this process, while preserving the heritable value of the location?"</i>
--	--

Over 1/3 of the current housing stock (2.6 million out of 7.2 million) was built before 1964 ("Statistics of the Dutch Building Stock," 2012). A large proportion of this group is outdated and no longer energetically sufficient according to current living standards and/or regulations. Meaning that these buildings, at the moment 50 years or older, need to be updated towards current standards and regulations. One of these regulations is the Dutch EPC-demand of 0.0 by 2020 (ir. den Dulk, 2012).

The question that remains is "how to match the energetic demand of the location to the current production that surpass the demands set over fifty years ago?" This general question is what architects will have to deal with upcoming years and thus it is wise to already start developing towards and thinking about new ideas and solutions.

The city of Amsterdam, its government and municipality faces like every other big city in the Netherlands these problems. For instance in the "Westerlijke Tuinsteden" Western Garden cities where large amounts of pre- and post-war flats are located all waiting to be updated. With upcoming regulations it is vital that these building blocks which have a historic value are updated in a sustainable way in order to provide in future needs and demands.

Instead of focusing on a single dwelling it might be wise and helpful to see the neighborhood, Slotermeer Oost, or even city parts, Amsterdam Nieuw-West as a whole to solve this difficult question. Trying to update larger parts of Amsterdam as a whole and answering the sustainability question in a more communal way might solve a lot of the difficulties that now lie ahead.

In order to solve these sustainable question the general systems within the chosen location will be analyzed in order to come up with an integrated suitable solution that benefits the whole or a part of the neighborhood of Amsterdam Nieuw-West. In doing so the relevant systems need to be found, possibilities need to be analyzed and these renewable solution need to be integrated in a design.

Process

Method description

Literature study,

Firstly, starting the research by reading and gathering relevant information about the topics “Self-sustaining/Autarkic” and “Nieuw-West”

Site visits,

Both visiting Nieuw-West and potential relevant projects that show Autarkic signs.

Case studies,

Analyzing relevant projects out of these possible visited sites, to enlarge the data, information and basic understanding of both the concept as the context.

Analysis,

Analyzing the different flows of the selected city and city-part, analyzing the neighborhood, the heritable value, the idea behind the city-part and the optional alterations.

Research by Design,

During the research phase the design might still be unclear. Once the choice between a new building and altering the older buildings is taking shape, in order to make progress with the design general sketches will try to force and push the design further.

Design by Research,

After the majority of research has been done, both heritable research as thematic and premature designs have been researched the eventual design will be based on the information gathered by these researches.

Literature and general practical preference

Basic knowledge about The Location

Bosvelt, W., Hylkema, C., Selzen, R., & Slot, E. (2014). Amsterdam in Cijfers. Amsterdam: Gemeente Amsterdam Retrieved from <http://www.ois.amsterdam.nl/media/Amsterdam%20in%20cijfers%202014/#2>.

Bosman, F., le Fèvre, S., Stam, T., & Spier, M. (2011). Energie en ruimtelijke ontwikkeling. Amsterdam Retrieved from <https://www.amsterdam.nl/gemeente/organisatie/ruimte-economie/ruimte-duurzaamheid/ruimte-duurzaamheid/>.

Basic knowledge about Sustainability

Jefferson W. Tester, Elisabeth M. Drake, Michael J. Driscoll, Michael W. Golay, & Peters, W. A. (2012). *Sustainable Energy Choosing Among Options* The MIT Press.

<http://www.scribd.com/doc/252518054/SUSTAINABLE-ENERGY-CHOOSING-AMONG-OPTIONS#scribd>

V. Yanovshchinsky, K. Huijbers, & A. van den Dobbelsteen. (2012). *Architectuur als Klimaatmachine*.

“Metabolism”

Van Timmeren, A. (2006). *Autonomie & heteronomie: integratie en verduurzaming van essentiële stromen in de gebouwde omgeving*: Eburon.

<http://repository.tudelft.nl/view/ir/uuid%3Aff010022-f6c1-4141-9fd2-dd7a56d723f4/>

Bastein, T., Roelofs, E., Rietveld, E., & Hoogendoorn, A. (2013). Kansen voor de circulaire economie in Nederland.

<https://www.rijksoverheid.nl/documenten/rapporten/2013/06/20/tno-rapport-kansen-voor-de-circulaire-economie-in-nederland>

Andy van den Dobbelssteen, Nico Tillie, Marc Joubert, Wim de Jager, & Doepel, D. (2009). Towards CO2 Neutral City Planning - the Rotterdam Energy Approach and Planning (REAP).

Gorree, M., Kleijn, R., & van der Voet, E. (2000). Materiaalstromen door Amsterdam.

Energy Flows

van den Dobbelssteen, A., Broersma, S., & Stremke, S. (2011). Energy Potential Mapping for Energy-Producing Neighborhoods. *International Journal of Sustainable Building Technology and Urban Development*.

http://www.researchgate.net/publication/233451136_Energy_Potential_Mapping_for_Energy-Producing_Neighborhoods

Balocco, C., & Grazzini, G. (1999). Thermodynamic parameters for energy sustainability of urban areas. *Solar Energy*, 69(4).

<http://www.sciencedirect.com/science/article/pii/S0038092X0000694>

Addis, B. (2006). *Building with Reclaimed Components and Materials*. London: Earthscan

De Bosatlas van de Energie. (2012). Groningen: Noordhoff Uitgevers.

CBS. (2015). Energiebalans; aanbod, omzetting en verbruik. Retrieved: 12 December, 2015

from <http://statline.cbs.nl/Statweb/publication/?DM=SLNL&PA=83140NED&D1=a&D2=0-1%2c11%2c34-35%2c49-50&D3=l&HDR=G1%2cG2&STB=T&CHARTTYPE=1&VW=T>

Reflection

Relevance

The project “Power Plant/Garden City Nieuw-West” is a very generic project but made very site specific. This is because the general information of material and energy flows is more generic and the content and information could be re-used for other locations. The information regarding the site and the alterations between the “autarkical city” and “Powerplant Nieuw West” make this project in total site specific but still relevant for further investigation and research on this field.

Time planning

