

Research Proposal - Presentation

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How Achievable is Bioclimatic Design to Improve Sustainability Within the Mass House Building Industry?

What are Bioclimatic Houses?

- ✦ A Bioclimatic house adapts to it's environment
- ✦ Building will take climate, solar gains and natural ventilation in to account
- ✦ Building is designed around the local climate
- ✦ *“If you look at older buildings, you see that people were very good at adapting to climate to get the maximum performance, but we kind-of got lazy once air conditioning and electric light came along at the turn of the last century”* Patrick Leonard



- ✦ An older example of Bioclimatic houses are the Spanish Hacienda homes
- ✦ “With the advent of modern technology in the 20th century, contemporary design trends shifted away from being responsive to natural conditions and emphasized instead isolating buildings from nature to try to overcome those conditions” Gregor, 2014.
- ✦ Other features of Bioclimatic construction include using locally sourced materials, low impact construction methods and energy reducing methods post construction to decrease heating, lighting and cooling usage.

Justification of Research

- ✦ According to MacFarlane *“the country needs to build 340,000 homes per year until 2031”*
- ✦ According to new research by construction blog Bimhow, the construction sector contributes to 23% of air pollution, 50% of the climatic change, 40% of drinking water pollution, and 50% of landfill wastes - Which Bioclimatic homes can be a resolution to decrease this.
- ✦ Bad press. Mass house builders receive a storm of bad press and media due to poor construction and ‘copy & paste’ methods.



Aims and Objectives



- ✦ **AIM 1** - Aiming to identify the obstacles and challenges with integrating bioclimatic homes within the mass house building industry.
- ✦ **AIM 2** - Identify whether bioclimatic homes are viable and realistic within the mass house building industry

Objectives



- ✦ Identify the cost implications and whether bioclimatic mass built homes are a viable method of construction.
- ✦ Why do mass house builder not already incorporate more 'green' methods?
- ✦ Explore the bioclimatic housing methods which can be adopted by mass house builders.
- ✦ Are there any house builders constructing bioclimatic homes and how can we learn from this?
- ✦ What legislation or programs are in place to ensure sustainably built homes in the future?

Methodology

- ✦ Qualitative research - Case Study with national mass house builders
- ✦ Interview - Member of Local Authority
- ✦ Secondary Quantitative research - Ready available data, information and sources

Research Challenges



- ✦ Timescale - case study with mass house builder
- ✦ Covid- 19 - interviews and discussions
- ✦ Gap within bioclimatic house building in the UK
- ✦ Finding out future plans for the house building industry
- ✦ Costing of a bioclimatic housing site

References

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