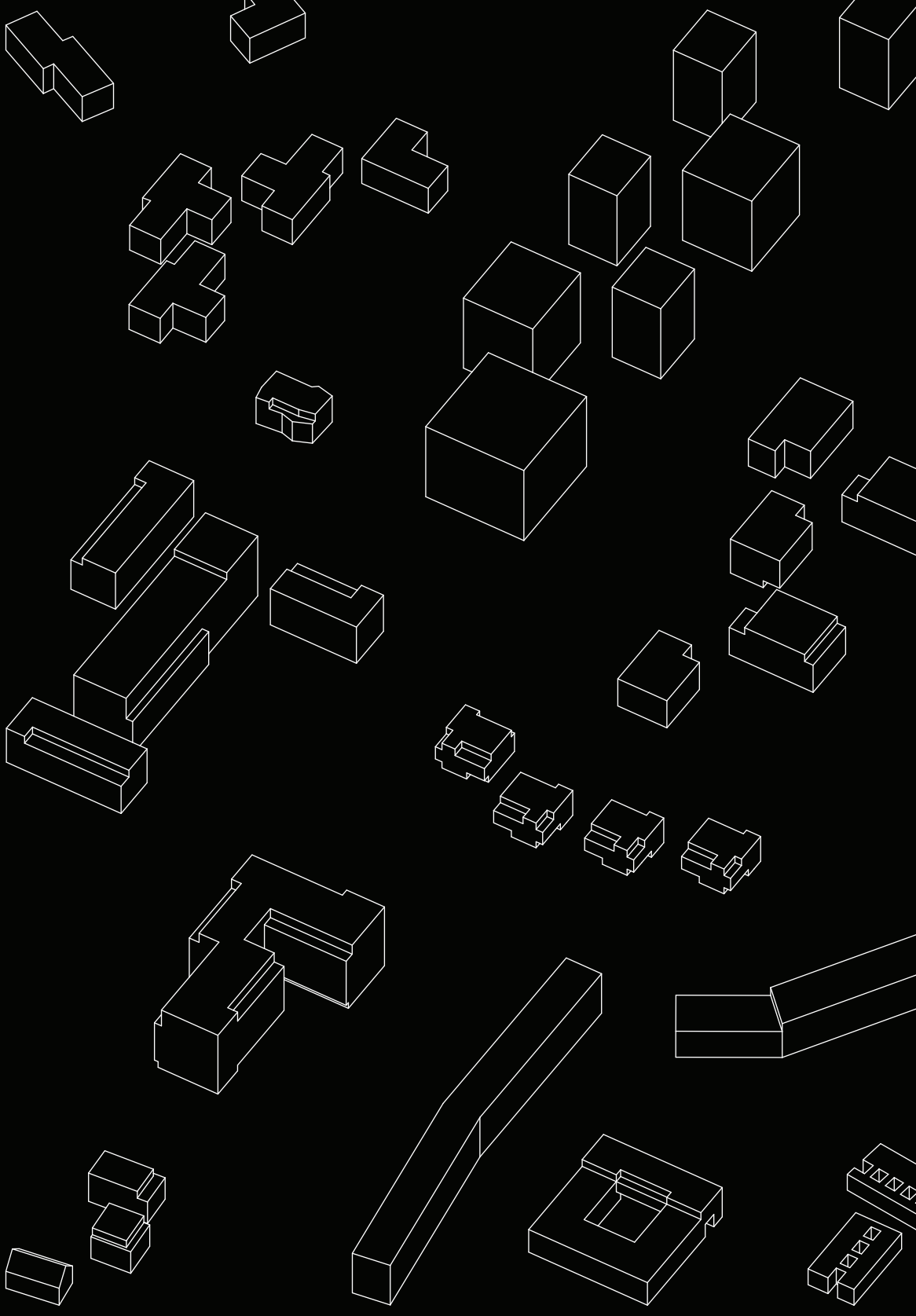

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Economic backbone of Swiss sustainable housing. Case studies

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MAS thesis in Architecture | Housing

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Abstract

The ever increasing media presence of the joint economic and energy crises as well as the lurking climate change prompts many to take up the subject of sustainability. This paper aims to deal rationally with the often neglected economic side of sustainability in the field of multi-family housing. Switzerland was chosen as the geographic domain of the work, as it enjoys unparalleled political stability and economic prosperity confirmed by many rankings and polls as well as by its international position and could be pointed to as "best practice" in the organization of a society.

The goal of the paper is to help better understand the creation and functioning of the state-of-the-art sustainable buildings. Therefore the studied examples are presented as completely as possible. It was author's ambition to assemble the information dispersed across periodicals or missing altogether into a finite set, that could be used as reference for future design work. Both drawings and numbers are included. They are further enriched by dialogues with the authors of top-notch Swiss housing projects.

Basing on the works by P. Meyer-Meierling, S.Menz and R.Buzinkay key economic and energy factors decisive for a housing development are analyzed. Main indicators include geometric optimization ratios of surfaces and volumes as well as building costs and rent prices. They are extended by the inclusion of density as a design tool. Their meaning is explained, their extreme values studied, their benchmarks identified. Also the specific non-quantifiable features, often decisive for the sustainable performance of an estate, are described. A broad pool of recent multi-family housing projects was narrowed down to a group of eleven cases selected by means of deliberately applied criteria.

The eleven cases are presented in the complete fashion including photographs, plans, construction details and factor values with interpretation. The drawings are all in similar scales allowing easy comparisons. Many of the analyzed buildings comply with the Minergie energy standard, others include highly innovative technical solutions that make them of interest in perspective of the paper's subject. They all share high-quality timeless architecture as recognized subjectively by the author, which is just one of their common denominators.

From the eleven examples four were selected to be extended by hour-long conversations with their makers. The interviews with Dietmar Eberle, Lorenzo Giuliani & Christian Hönger, Daniel Lengacher and Christoph Zollinger provide the professionalists' insights into the paper's main issues and challenges in housing construction today. They extend the reach of the research beyond the raw data analysis. The questions asked include the ones about inspirations, beliefs, references as well as the detailed ones concerning particular solutions in the disputed buildings. Their aim was to extract at least a tiny bit of all the experience that lies behind participating in the entire construction process.

In the final part that follows, a brief interpretation presents a comparison of the analyzed buildings. The most inspiring extracts from the interviews are also discussed in this section. A reflection on the applicability of the chosen factors in everyday design refers directly back to the first, theoretical part of the paper. The conclusions point to the necessity of further clarification of sustainability as a term applied to building, and to housing in particular. It calls for further inquiry in the embodied energy assessment techniques, which at present are too obscure or imprecise and perhaps for this reason still not commonplace.

Further research possibilities include the extension of factor value analyses to single family houses as well as broadening of the geographic scope. However the real challenge seems to lie with the issues of sustainable refurbishment and adaptation.

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