

METHODOLOGY FOR A CONTEMPORARY COUNTRY HOUSE DESIGN PROCESS EXEMPLIFIED ON THE BASIS OF MODERN REINTERPRETATION OF AN UMGEBINDE HOUSE

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Abstract

The paper discusses the problem of re-urbanization of a former coal mine spoil tip that buried Wigancice Żytawskie [1] – an urban outpost built of unique umgebinde wooden structures. The main challenge in recreating the concept of the aforementioned village was creating a continuum between yearlong building tradition in the region and contemporary housing needs. Given the fact, that basic structure for a small town is a house, after a thorough study of the historical umgebinde houses in the area, some general ideas concerning such urbanization have been developed. Consequently, design solutions exemplified in this paper have pointed the direction for further development of this village by illustrating the scope of inspiration that may be drawn from historical architecture of the studied region. The study may not only provide solid background for practical decisions concerning re-urbanization of the former coal mine spoil tip in Worek Turossowski, Poland, but also become a voice in the discussion upon the need for finding an appropriate continuation for regional architecture. Specific technologies and constructions should be used when introducing new houses in the closest vicinity.

Streszczenie

Studia nad domami przysłupowymi oraz projekt przykładowego domu przytoczony w artykule są punktem wyjściowym do dalszych badań nad kierunkami rozwoju struktury zabudowy i dogęszczaniem tkanki mieszkaniowej polskiej części Umgebindeland'u. Rosnąca potrzeba nowych domów będzie zmuszała do poświęcania coraz większej uwagi temu zagadnieniu. Dla ludzi identyfikujących się z tym regionem, architektura inspirowana domami przysłupowymi może stać się sposobem na kontynuowanie tradycji we współczesnej, bardziej przystępnej formie. Konsekwentnie – metodologia poszukiwania współczesnej formy tradycyjnego regionalnego domu wiejskiego zaprezentowana w artykule może z powodzeniem zostać wykorzystana podczas projektowania współczesnych domów dla innych regionów w Polsce. Charakterystyczne cechy tradycyjnego budownictwa wiejskiego są niezastąpionym źródłem inspiracji dla współczesnej architektury mieszkaniowej, która dzięki odpowiedzi na aktualne potrzeby, pozwoli mieszkańcom jeszcze silniej identyfikować ich regionem.

Keywords: Regional architecture; Umgebinde; Wooden structure; Vernacular; Lusatia.

1. INTRODUCTION

The author has taken part in a seminar “Carriers of Space Patterns and Construction Types” at the Faculty of Architecture, Technische Universität Berlin. In the seminar the author has been investigating the way in which private investors induce revitalization of umgebinde houses. This research has pointed out the discrepancy between the approach towards the regional architecture between German and Polish part of “Umgebindeland”. It has pinpointed the need for the

study of new architecture that could be introduced to the Polish part of the said region. Thus, the main task of the study described in this work was to answer the need for clear guidelines concerning new architecture in this area. In this article the methodology for the aforementioned study has been presented on the example of Wigancice Żytawskie.

This village located in the district of Bogatynia, Poland lays in so-called Worek Turossowski – a region rich in brown coal explored on the industrial scale [1].



Figure 1.
Localisation of the research area. [Author's schemes]

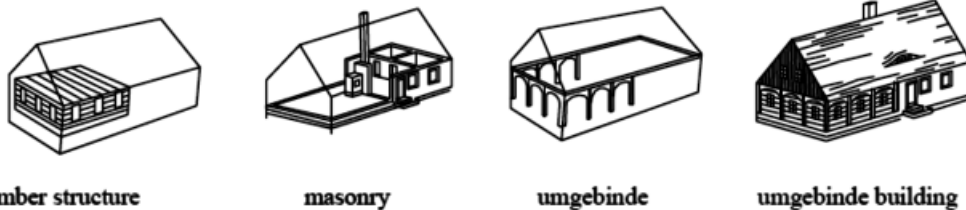


Figure 2.
Scheme illustrating main parts of the umgebinde building. [Author's schemes]

Since this region lays on the borderland where Western and Eastern architectural trends coexisted for a long time, it has developed its own, unique combination of the Western post and beam structure and Eastern massive wooden structure mixed with characteristic to this region umgebinde [2]. The illustration above presents the details of this combination.

This construction was mainly used to raise houses and some public buildings (such as inns) [3] and constructed whole urban structures of villages and small towns in the region [4]. However, with the growing area of spoil tip from the coal mine Kopalnia Węgla Brunatnego Turossów, some of such unique urban outsets of umgebinde structures were deserted and demolished only to be buried under the overburden of coal in 1990s [1]. However, now, in the era of eco-energy, the exploration of the coalmine KWK Turów is being minimized with the aim of complete closure [1]. Consequently, towns and fields that had once been devoured by the coal mine are now returning to the public realm [5]. The problem of recultivation of such overburdens is now a burning issue, especially since, as it is in case of Wigancice Żytawskie, the generation of former dwellers of these towns still express the need of going back to their “fatherland” [6].

As it has turned out during the field study, in the opinion of former dwellers with sentimental memories of the said village – it should be completely restored and brought back to the status from before the demolition by the coalmine [6]. However, rather unrealistic to fulfill, this need brings with it lot of reason. It would be completely unnatural to go to an ultramodern extreme. Consequently, a compromise of both – the old and the new seems to be a wise solution for the region. Modern technologies used to raise such houses will need to be cut-out for traditional scale and form of the houses.

When recreating such a complex organism as a town, undoubtedly the task has to be divided into a whole series of various studies concerning various scales – from such general as infrastructure down to basic urban units such as separate buildings of public institutions or private houses. Thus a well-grounded methodology has to be adopted. This study focuses on the smallest, yet most numerous elements of Wigancice Żytawskie's urban structure – mainly houses, the article exemplifies the methodology for such a study.

A house has been treated as a basic structure. Consequently the main focus of the study has been

put on developing a model house that would compromise the regional traditional architecture with contemporary needs of its' users. Therefore, in the next part of the paper, basic conclusions taken from the analysis of exemplary umgebinde houses will be presented, since they have become the starting point for the design of the model house for the new Wigancice Żytawskie.

2. FUNCTIONS, STRUCTURES AND POSSIBLE MODIFICATIONS

The study has been conducted on the umgebinde houses in the region enclosed by Wyszków, Wolanów (Poland) and Visnova (Czech Republic). Consequently, aforementioned houses have been photographed and compared, and where necessary, measured or confronted with literature and more distant house examples in order to create some generalizations illustrating the basic trends growing in time. Conclusions have been collected in the scheme below:

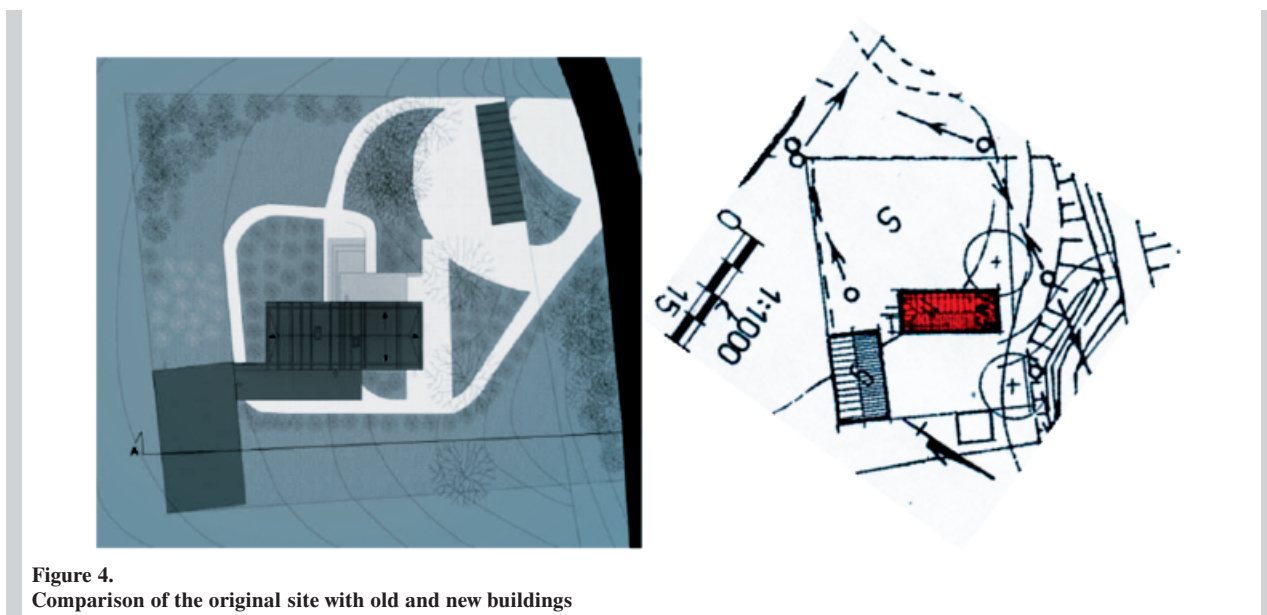
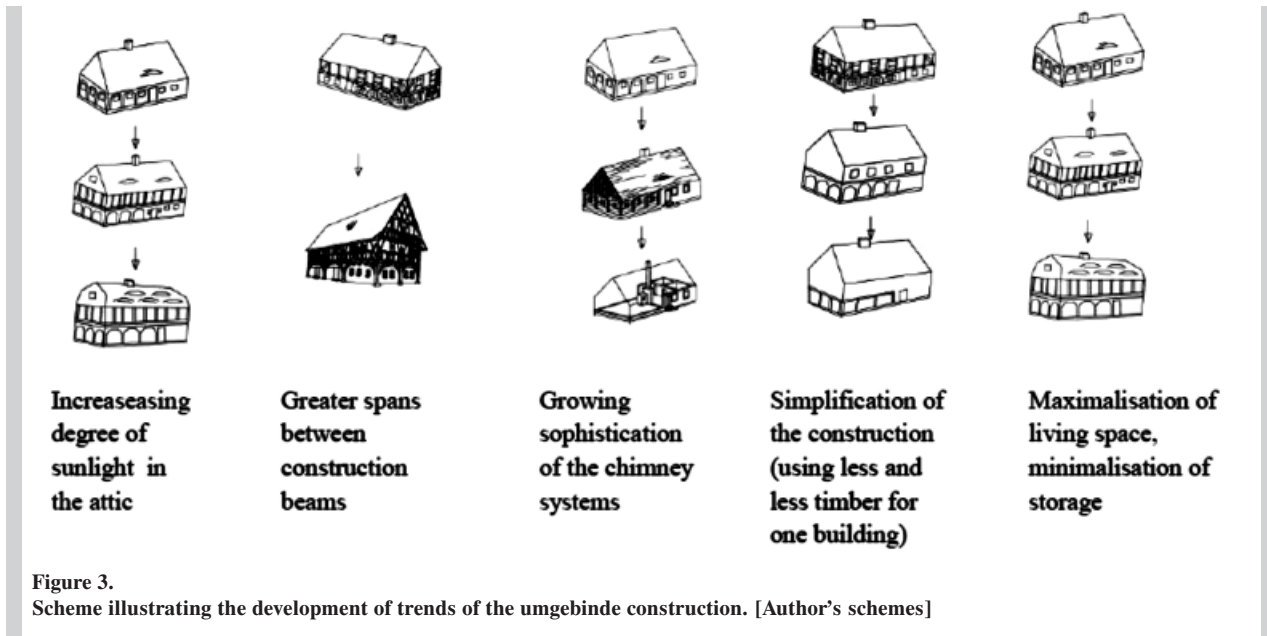




Figure 5.
Author's schemes of the house formerly located in Wigancice Żytawskie



Figure 6.
Authors' photos of the house formerly located in Wigancice Żytawskie (on the left – the house in its original location and on the right – after translocation to Zgorzelec

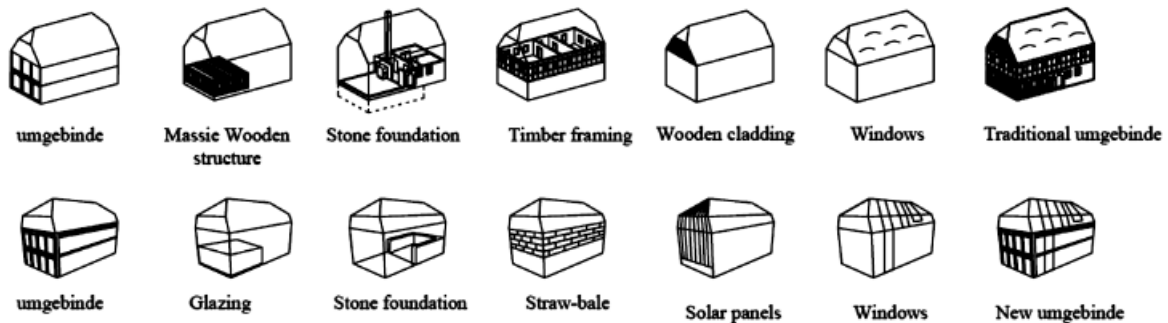


Figure 7.
Comparison of the structure of the old house and the new one. [Author's schemes]

The scheme above is only a summary of a detailed study of such elements as doors, windows, walls, roof shapes, materials etc. The scheme aimed at illustrating the most dominant trends in the development of an umgebinde house. The design of an experimental house focused on investigating to what extent traditional building technologies influence the choice of modern material solutions and influence the overall outlook of the countryside. Such set of basic preconditions has given a vague shape and form of the contemporary house, treated as a next step in the chain of various alternations. However, it would not be sufficient without confrontation with contemporary needs and modern technologies. Therefore a specific

site has been selected as well as hypothetical inhabitants (representing certain needs) of the house. Only then the process of design has been commenced. Such experimental house aimed at investigating to what extent is possible to incorporate old, building patterns into a new structure.

The plan of the site originally consisted of the house and the shed – consequently both plans have been used and filled with new cubature. The shed has been utilized to allocate the majority of water purification installations making the house nearly independent of outer systems, whereas the house has remained its original function of a working place (ground floor adjusted for an office and art studio) and dwelling

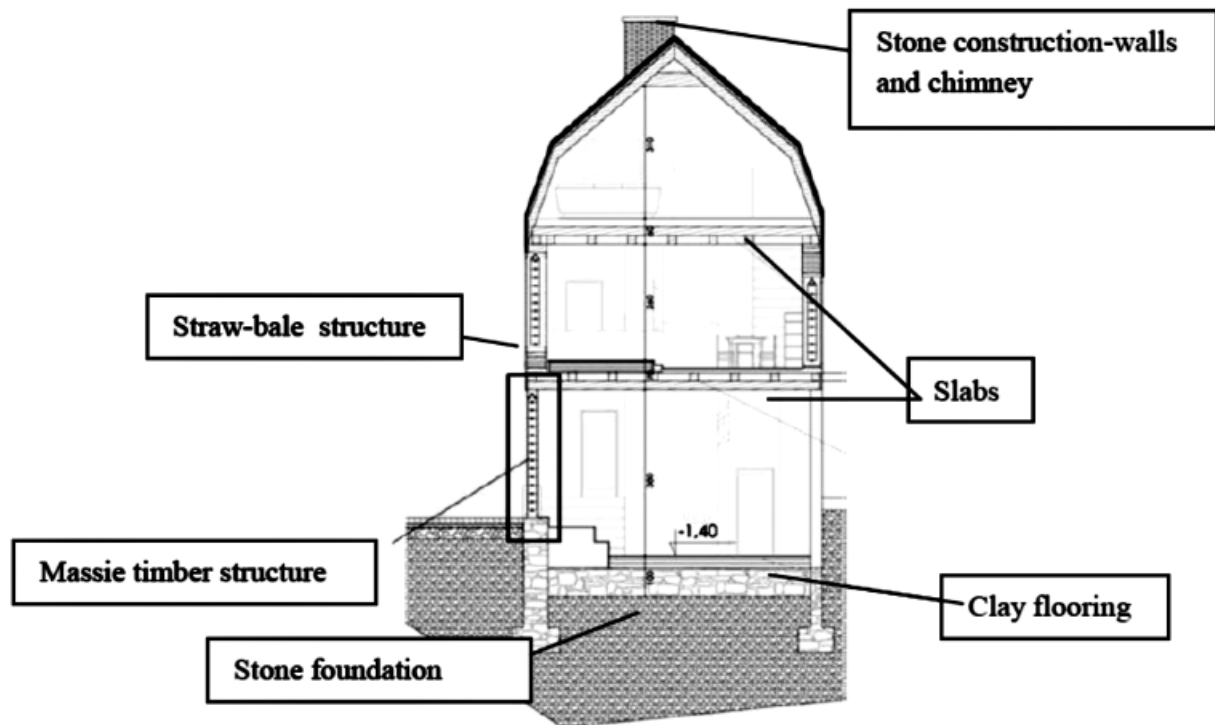


Figure 8.
Localisation of the new structural solutions on the cross-section of the house. [Author's schemes]

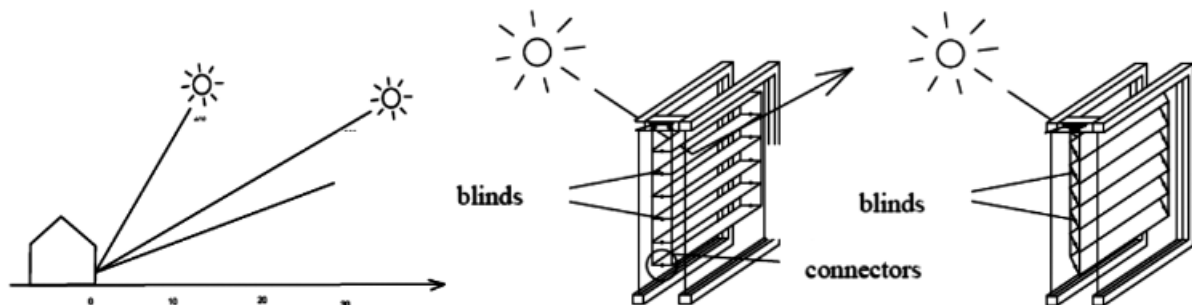


Figure 9.
Mechanism of contemporary interpretation of the massive timber construction. [Author's schemes]

(upper floors for kitchen, living room, bathrooms, toilets and bedrooms).

The most intense research has been made in order to provide the house with a construction that would base on traditional materials such as wood, clay, straw, hay etc. Consequently, after the analysis of the original structures of the house, corresponding modern structures have been chosen in order to build the new house.

For each of the new structural parts of the house a solution adjusted to the technologies accessible in contemporary times has been chosen as a counter-

part for materials used in the traditional house.

Consequently, both floors are connected with long beams that have the unchanged function of the traditional umgebinde – mainly supporting the upper floors. Thanks to that, the ground floor walls may remain as independent as massive timber walls in the traditional house and consequently a sophisticated combination of glazing and blinds might have been introduced – massive timber structure has been replaced by thin wooden blind-like mechanism enclosed between two layers of glazing. It has preserved the traditional function of insulating the

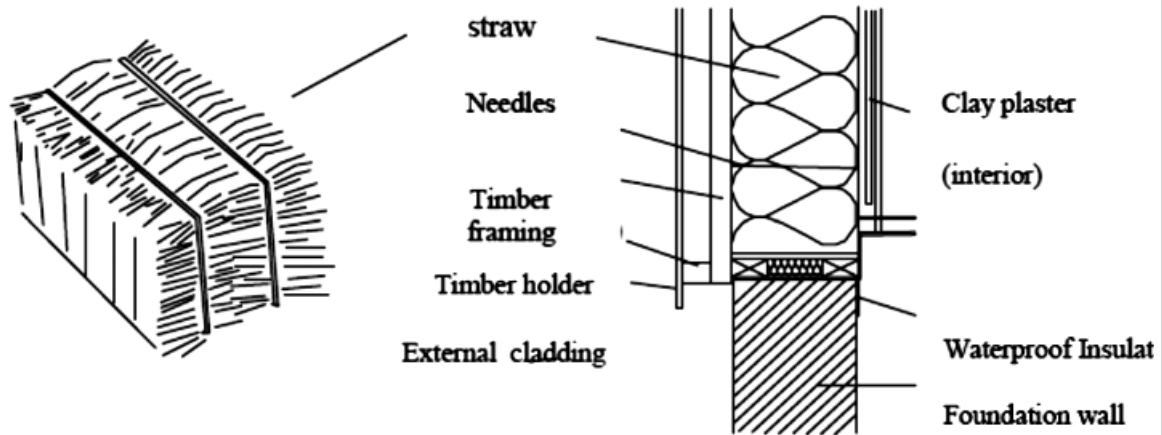


Figure 10.
Modern interpretation of timber framing construction. [Author's schemes]

ground floor, however, it has been enriched in possibility of providing the interior with more sunlight in order to meet more contemporary esthetics. When closed, the blinds resemble horizontal wooden logs of the massive timber ground floor of a typical umgebinde house, when open – allow sunlight in.

For foundation wall a local stone has been used as a reminiscence of the old fieldstone pavements in older houses. However, since in contemporary household the need for vast storage area is limited, the basement is limited to functional minimum necessary for ventilation and heating systems.

Upper floors of umgebinde houses have been traditionally constructed of timber framing filled with clay and hay mixture wrapped around smaller wooden strips. Consequently, in the new design, a straw-bale technology has been chosen. The materials used in this structure are one-to-one correspondence to those used in original buildings with significant difference in dimensions of the structure, in order to meet strict insulation needs of a contemporary wall [7].

Materials used traditionally for roof cover, such as wood or straw were not as important as the overall roof shape. Therefore the emphasis was put on the preservation of the angle close to 45 degrees. Consequently, for the model design solar panel shingles have been chosen due to their energy-production qualities (sole tiles) [8].

Moreover for the purpose of the art studio located on the ground floor, a type of clay groundcover has been selected as a direct inspiration with the method for flooring in traditional houses. It has been enriched with a built-in heating system. The main difference between such technique and historical flooring is the

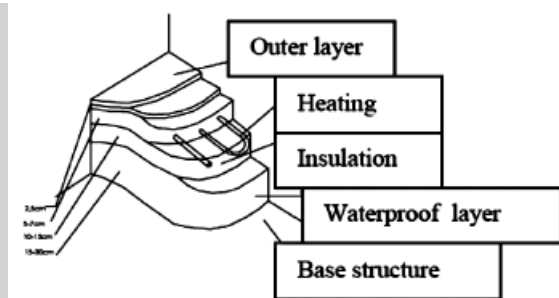


Figure 11.
A scheme of the groundcover on the groundfloor of the designed house

introduction of floor-heating as one of its' layers.

Even though the outer look of the house plays the key role when we take into consideration the whole image of the town, the interior of the house has also been taken into consideration. For the two structural walls that incorporate heating and cooling systems, in order to maximize their surface, they have been given a sculptural character. The texture of the walls has been inspired by local fauna curiosity – sweet water mussel's shell that used to be cultivated in surrounding streams. In order to resemble this fact, the walls have been sculpted as such shells, thus maximizing the heat exchange surface. Such interpretation of this local pearl mussel (*Margaritifera Margaritifera*) [1] has found its reminiscence also in the interior design of the house.

The design of a modern house rooted in the architectural tradition of the region has been proceeded by a study of various scales – from urban scale including the investigation of the typical set-up of the buildings on the site, via basic elements of the house, up to

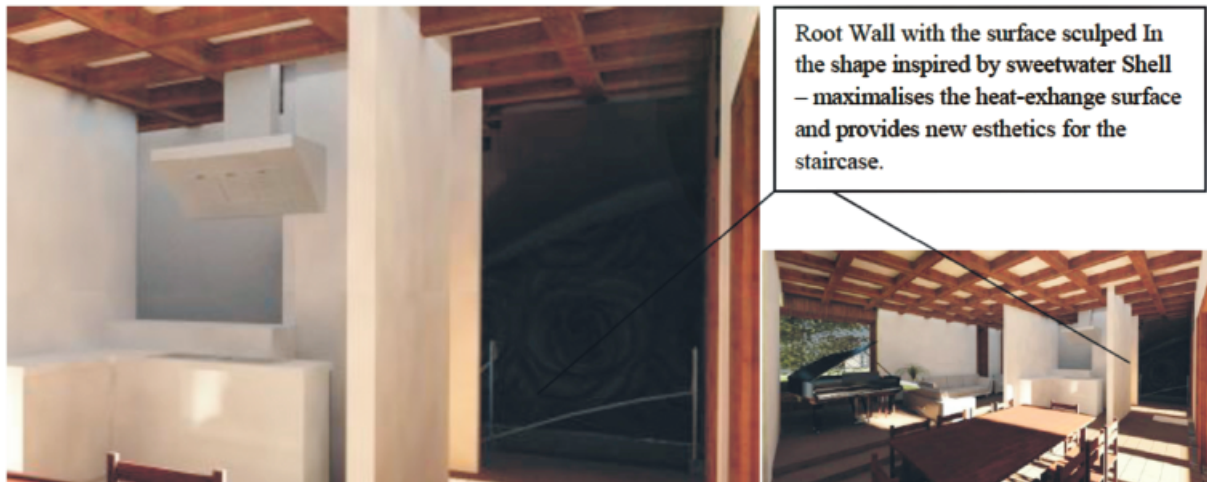


Figure 12.

Interior design details for the new house. [Author's visualizations and models of the lamp and tiles]

minutest details of the interior design inspired by the reminiscence of local material culture.

Such multilayered inspiration has resulted in a contemporary form that is however deeply grounded in the regional architecture and is thus a perfect fit for the closest vicinity.

3. SUMMARY

The study of umgebinde houses and the design of the house presented above are treated as a starting point for the further work that signalizes the need for further development of the study which will aid in the process of densification of urban structure in Umgebindeland. The growing need for new housing will cause growing need for such model houses.

For people identifying with this region, architecture inspired by umgebinde might be a means to preserve local building tradition within more contemporary, thus accessible form. Consequently, the methodology applied in the process of developing a modern interpretation of an umgebinde house described above might be used for other regions in Poland.

Distinctive features of traditional houses are irreplaceable source of inspiration for modern architecture that responds to contemporary needs of their dwellers with forms rooted in local architecture thus enabling greater identification with both – region and its tradition.



Figure 13.

Comparison of the new design (author's visualization) with the house originally located on the site in Wigancice Żytawskie (photography on the right)

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- [6] Unpublished materials documenting one of the annual meetings of former dwellers of Wigancice Żytawskie. Materials has been made accessible to the author by owner of the “Chata Kołodzieja” – restaurant located in an umgebinde house translocated from Wigancice Żytawskie to Zgorzelec by Elżbieta Lech-Gotthardt
- [7] The technology described in Figure 10 has been explored at the conference Cohabitat Gathering 2011 (<http://cohabitat.net/cohabitat-gathering-2011.html> date of access: 14.01.2012), where various unpublished data concerning strawbale construction has been obtained
- [8] SOLE POWER TILES, <http://www.ustile.com/Pages.aspx/Sol-Power-Tile> Date of access: 12.01.2012