

# MODERNISM OR TRADITION IN LOW-TECHNOLOGY? A HUMANISTIC PERSPECTIVE ON THE ARCHITECTURE OF PAULINA WOJCIECHOWSKA

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## Abstract

Low-tech is an important, but at the same time largely underestimated movement of contemporary architecture. The first part of this paper attempts to discuss the characteristics of this phenomenon in the context of the grand ideas of Modernism and demonstrate how important it is to define it. The existing definitions of low-tech presented in the second part of the article bear a significant downside as they only focus on the physical aspects of this movement, i.e. materials and methods of construction. The third part of the paper suggests an alternative definition which allows extending research to include a psychological perspective onto the movement and incorporates the motivation of the creators and users of low-tech architecture. Based on the case study of Paulina Wojciechowska's work and the newly proposed definition combined with a model based on the psychological theory developed by Erich Fromm, the paper attempts to introduce a narrative that reveals more about low-tech than even the most detailed description of physical materials and methods of construction

## Streszczenie

Nurt low-tech jest istotnym a jednocześnie niedocenionym fenomenem współczesnej architektury. W pierwszej części niniejszy artykuł podejmuje problematykę tego zjawiska w kontekście wielkich idei modernizmu obecnych w tym ruchu. Dotychczasowe definicje low-tech zaprezentowane w drugiej części mają istotną słabość, ponieważ skupiają się jedynie na fizycznych aspektach tego ruchu – materiałach i technikach. Zaproponowana w drugiej części alternatywna definicja zbudowana w oparciu o teorię Ericha Fromma pozwala na rozszerzenie badań o psychologiczne ujęcie tego nurtu o kontekst motywów twórców i użytkowników. W Trzeciej części na przykładzie studium przypadku odnoszącego się do twórczości Pauliny Wojciechowskiej zaproponowana psychologiczna definicja low-tech pozwala prowadzić narrację, dającą wgląd w istotę low-tech ukazując więcej niż jedynie fizyczny opis materiałów i technik.

Keywords: **Low-tech, Philosophy of Technology; Earth Construction; Straw Bale Architecture; Paulina Wojciechowska; Erich Fromm.**

## 1. INTRODUCTION

### 1.1. Technological and humanistic values of modernism

Exactly 100 years have passed since Werkbund was born. It later on transformed into Bauhaus and became one of the most important milestones of Modernism. Critics such as Kenneth Frampton agree that it was the decisive catalyst of modern architecture, but even so they identify its sources in the ideas

of the Enlightenment [1]. Significantly, a similar perspective can be observed in the case of scholars who consider Modernism in far broader horizons than only architecture, such as Jürgen Habermas, who claimed that today this grand European project is at risk. It is therefore worth asking about the condition of these ideas today, and who may proclaim themselves the continuators and heirs of Modernism [2].

## 1.2. Methodology

In order to tackle the question concerning modernist values embedded in contemporary architecture movements, two separate steps have been undertaken in this paper.

The first step is based on a literature review from the 1970s until today in which the two contradictory movements low-tech and high-tech have been juxtaposed. Initial definitions of those movements are given and changes of the paradigms and perception of those movements have been tracked and illustrated in relationship to the main values of modernism.

In the second step, the modernist values that were profoundly humanistic have been analysed based on the main humanistic categories developed by Erich Fromm. The humanistic analysis has been undertaken on the case study of the architecture of Paulina Wojciechowska – a renowned strawbale and earth architect.

Interviews with the author, visits to her building sites and participation in the construction process of her projects served as material which has been organised according to categories described in the psychological theory developed by Erich Fromm. The belief here being that that this humanistic narrative gives us a deeper insight into the role of technology which transgresses simplistic definitions based on tools, materials and physical products of architectural design.

## 2. IS LOW-TECH OR HIGH-TECH THE RIGHTFUL HEIR OF MODERNISM?

Enthusiasts of cutting-edge technology eagerly claim that high-tech is the one and only offspring of the modern idea of progress. They would most likely claim that it is what transformed modernist ideas into the prevailing mainstream notions of mass production, automatization, and the introduction of machines and computers into architecture. However, it may be postulated that modernist references to technology were merely derivatives of fundamental humanistic concepts.

Christopher Wilk, author of *Modernism Designing a New World 1914 – 1939*, claims that “Modernism was not born as a style, but as a loose collection of ideas” [3]. Among the main features of Modernism, Wilk identifies most of all the search for utopia – eagerness to change the world, or the belief that one day (in a year, 10 years, a hundred or more years’ time) the world may be a better place. Another feature of

Modernism that Wilk points out is consideration of health in the context of individuals and the society as a whole. These ideological inspirations were balanced by linking architecture with technology and industry. In Bauhaus, this was evidenced by the introduction of various practical courses, during which students were asked to interweave art with their profession in an almost tangible way. Before they engaged in designing cities and houses, they were asked to engage their creativity in the most practical tasks, such as designing tableware, clothing, fabrics, etc.

When you look at these modernist ideas, such as the wish for changing and improving the world or combining theory with practice, you may notice that since the Enlightenment they were present not only in the mainstream of history shaped by architectural historians such as Frampton [4] or Pevsner [5] –who established the canons of the history of architecture. It seems that for nearly 300 years an alternative, parallel world of architecture has existed and developed, which attracted far less attention of theoreticians, even though it embodied the modernist ideas in a very profound way.

### 2.1. Pioneers of the two shades of Modernism

Frampton begins his story of the pioneers of Modernism with people such as Claude-Nicolas Ledoux or Etienne-Louis Boullée because they sought new forms and reduced ornamentation [4]. However whilst these designers are important it might be worth considering Habermas’ argument that Modernism did not begin with aesthetics but with *ethics*. With this in mind perhaps it is worth looking for our pioneers elsewhere. When Ledoux and Boullée were drawing their theoretical projects, another French architect François Cointeraux devoted his work to practical research, which in 1793 gave birth to the publication of thirty volumes of *The Earth Building Manual*, in which he wrote: “Let me point out that it would be worthwhile to employ this method of construction across the whole Republic, whether for the neatness of towns and honouring the people, or whether to save timber which is used for building in great quantities, or whether to avoid fires or protect farmers from cold and excessive heat” [6].

Also in Poland, when the intricate classicism of Stanislav August Poniatowski was in full bloom, Polish architect Chrystian Piotr Aigner (1756 – 1841) published a book entitled *Budownictwo wiejskie z celgry glino-suszoney* (Rural architecture made of

sun-dried brick) in which he wrote: “If in my work I am taking architecture back to the fundamental needs of life, I am taking it back to the source from which it grew” [7]. Going back to the previously mentioned modernist ideals one might wonder: whose ideas, Boullée’s and Ledoux’s or Cointeraux’s and Aigner’s, are more geared towards introducing an actual change in the world? Whose visions are tilted towards the health of individuals and societies? Whose ideas are more determined to combine theory and practice? With all due respect for the widely-acknowledged canon of architecture – the answer is more likely people who dealt with earth and natural buildings, who proposed a Copernicus-like revolution in architecture’s mission, a vision that related to reshaping the whole society...

When discussing the heirs of Modernism it is worth asking: Who believes today that the world can be profoundly different. Who is posing broad questions concerning health? Who combines theory with practice? It seems that those who first noticed the potential hidden in plain earth available to everyone gave shape to the alternative modernist tradition, which has lasted until now.

## 2.2. Fathy – Le Corbusier’s alter ego?

An equally characteristic example of an alternative history of architecture may be found in the period of classical Modernism. At the time when the ideals of international architecture were enjoying an unequivocal approval and when Werkbund organized the building works of their “architectural manifesto” – the hallmark settlement of Weißenhof in Stuttgart- in another part of the world an Egyptian Hassan Fathy embarked on a career in architecture. His memoir published as a book *Architecture for the Poor* provides an insight into his motivation and the architectural discourse at the time [8]. Even though he studied architecture at a university which promoted modernist ideas, he came to what was then a shocking conclusion that in reality the idea of universal ‘international architecture’ that fits any place in the world is a dangerous folly. Egypt was so different from Europe that the concept of houses in the form of white prefabricated boxes, which engulfed Europe, were entirely unsuitable for a village on the river Nile. The state of Egyptian economy at the time meant that products imported from Europe, including concrete, plastics or steel, were extremely expensive. Fathy started looking for an alternative. He found it in Nubia, which was too far out in the south to be ‘contaminated’ with European exports.

He went there to see architecture built by people who did not have access to modern materials. He was amazed at what he saw. Nubian settlements were neat, houses were comfortable, and lots of people knew how to build them. Methods of construction that were otherwise forgotten, such as erecting walls or ceilings out of sun-dried earth bricks, were still in common use there – and they did not involve concrete or even timber, which is scarce in Egypt.

When Fathy was given a task of building a new settlement in New Gournah, he decided to give these methods their second youth by modifying the technique to meet modern requirements [8]. This allowed him not only to find an architectural alternative, but also to combine the philosophy of the material with other issues. His designs, such as the New Gournah Mosque (Fig. 1), at a first glance seem to be typical traditional architecture, whilst in fact they are an innovative attempt to reinvent and rediscover new building methods unpractised at the time of the designs were made. Fathy believed that thanks to this building method, people will not only be able to build houses for themselves that would address their individual needs, but they will also gain a new profession which would give them a better living than tomb raiding. His aim wasn’t only to give people more self-sufficiency. He also wanted them to be proud of their heritage and culture. Like all modernists, he wanted to change the world and he believed that architecture could be healthier not only in a metaphorical sense, but also literally. He was convinced that only practical actions and solutions can lead the way to this revolution. He was, therefore, a modernist, albeit one that exceeded the contemporary canons of modernity. In this sense, perhaps it would be justified to call him an alter-modernist?

## 2.3. Clutching at straws of natural architecture

In the context of contemporary phenomena in the building industry, the alternative architectural tradition becomes more and more aware of its distinctive character and significance. High-tech enthusiasts may well be surprised to discover Modernism in low-tech, –modernist ideas are clearly convergent with the fundamental values associated with natural architecture. When conferences on straw bale buildings were first organized in the US in the 1980s, there was a consensus that this architecture should be different – and this principle did not refer merely to what the walls should look like. It was agreed that this type of building should be available to everyone, and that knowledge about this method of construction should



**Figure 1.**  
New Gourna Mosque by Hassan Fathy. Photo: Marc Ryckaert

be shared rather than patented. Natural architecture was meant to be available to as many potential builders as possible [9]. Barbara Jones – the first person who managed to introduce straw bale buildings in Europe – devoted her work to the idea of simplifying building methods and follows the motto: “I always think about whether it is possible to design a given building in a simpler way without it losing its qualities” [A]. Literature dealing with earth and straw bale building techniques very often emphasises the ethos of empowerment for non-practitioners [9]. Many examples prove that natural building methods allow non-practitioners to fully participate in erecting buildings. During the retrofitting of a bungalow in Bridport in 2012, moments when one of the future inhabitants with a walking disability fully participated in the construction process served as a great inspiration (Fig.2). The same participatory collaborative method is embedded into the philosophy of building the so-called Earthships developed by Mike Reynolds (Fig.3), constructing earth walls and domes (Fig. 4) and a number of workshops which attract volunteers interested in eco-design (Fig 5).

These qualities include architecture produced by designers dedicated particularly to creating a healthy environment – one that is easy to build and environmentally friendly. Barbara Jones believes in what the modernists believed – that the world can be fundamentally changed and made healthier by blending

theory with practice. Jones clearly spelt out the main reasons for using straw were in her seminal work, pointing to sustainability, energy efficiency, affordability, health and fun [10].

The low-tech movement, which promotes unprocessed and recycled material such as unfired earth, straw, bamboo, old car tires or recycled paper tubes is often overlooked. The inspiration that it carries is underrated even though it embodies the most crucial ideas that shaped contemporary architecture. This marginalisation may be a result of a number of reasons. The movement isn’t appealing enough for the photographers of architectural magazines, but most of all – it questions the status quo of economic growth. Additionally, one of the first hurdles that analysts face is the attempt to define the movement. What is low-tech? As a result, those who deal with low-tech as a movement must first face the task of trying to establish its definition and the difference between high- and low-tech. The following two parts of this paper will discuss two distinctively different approaches at defining this Movement: firstly – as a negation of high-tech, which manifests itself mainly through tools and materials, and secondly – as a product of the attitudes of its creators with particular mind-sets.



**Figure 2.**  
Construction of Straw Bales Bungalow retrofitting in Bridport, UK; Photo: author



**Figure 5.**  
Paper tube construction by Shigeru Ban (Vitra Design Museum Workshop at the Domaine de Boisbuchet); Photo: author



**Figure 3.**  
Earthship by Mike Reynolds in Taos, USA; Photo: Mike Reynolds



**Figure 4.**  
Nubian vault construction designed by Gernot Minke; photo: Gernot Minke

### 3. TERMINOLOGY – HOW HIGH IS “HIGH” AND HOW LOW IS “LOW”

#### 3.1. Is the term “low-tech” appropriate?

There are important reasons for the idea of ‘low technology’ to be also referred to using the synonym of ‘low-tech’. Firstly, it is also in common usage outside English-speaking countries. Secondly, it refers to a movement which is in contrast to an architectural style commonly referred to as *high-tech*. The terms therefore draw on a precedence and it is likely to be understood and used in other contexts/locations. Thirdly, prefixes such as *high* and *low* have a tradition of their own and they carry a wealth of associations, which result in the rich context of these terms. Fourthly, the suffix *-tech* indicates a significant feature of this movement concerning technology. This makes it possible to narrow the definition down and differentiate low-tech from other phenomena that it is often mistakenly associated with that are actually – by their nature very different from it- for example the so called “eccentric architecture” [11] or “fantastic architecture” [12], whose main characteristic is their unusual form.

The fact that modern language has embraced terms such as high- and low- or even soft or appropriate technology shows that nowadays questions concerning technology became engraved in the main discourse, which suggests that understanding the phenomenon of low-tech may be crucial.

#### 3.2. The meaning of “low” and “high”

In the English language, the prefixes *low* and *high* have been used for centuries and bear various connotations. An example of terms that have existed in

English for a long time is the pair: *low-church* and *high-church*. Originally, *low-church* was used to describe a faction of the Anglican Church which put little emphasis on rituals, figures of authority, hierarchy and sacraments, in contrast to what was referred to as *high-church*. The same terms appeared in the jargon of British scholars who in the 1960s were attempting to combine the culture of technical and humanistic science into one social science, which was meant to become a university course. Scholars who were striving to transform this programme into a scientific discipline were referred to as high-church, whereas the term low-church was used to describe scholars who sought practical solutions, particularly with regard to the problems of third world countries [13]. Semantic similarity may also be identified with words such as *low-key*, *low-profile*, *low-income* or *low-cost* (e.g. *low-cost housing*). To some extent, similar connotations reflect the broad social and ecological context of low-tech.

### 3.3. High-tech in architecture

Since the late 1960s in North America and the United Kingdom the word “high-tech” has been used to denote sophisticated specialised technology [14]. This term was associated with a vision of perfect, mechanically-operated environment, which was to bring revolutionary changes in human life. However, the optimism related to high-tech had been criticized since its birth. For instance in 1972, Professor Jewkins wrote: „The only thing that is truly *high* with regard to *high technology* is high risk” [15]. High-tech used to refer to a style that first appeared in the early 1970s. Joan Kron and Suzanne Slesin, authors of *High Tech: the Industrial Style*, attempted to define architecture which, as they put it, could be characterised by “nuts-and-bolts, exposed-pipes, technological look... Some people call this phenomenon “the industrial style” but we call it high tech” [16].

The *Centre National d'Art et de Culture Georges Pompidou* built in Paris in 1977 and designed by Richard Rogers and Renzo Piano was hailed as the architectural high-tech manifesto, which made the term fashionable. For some, this style has been readily associated with the architectural tradition of the 19<sup>th</sup> and 20<sup>th</sup> century McKean due to its rational features: minimal use of materials, functionalism [17], or “showing off” the technical side of the buildings, “nuts-and-bolts and pipes”, to use Kron and Slesin’s phrase. For others high-tech became a synonym for formal overstatement. In the 1979/1 issue of *Architectural Journal* dedicated to high-tech, Smyth

went even further: “Late modernism undertook on the modernist ideas of forms, and took them to such extremes in overstating formal structure and the technical appearance of a building that would not have been accepted in classical modernism, and so it should rather be called high-tech” [18]. What is particularly noteworthy is the ambivalent definition and reception of high-tech that could be found in *The Oxford English Dictionary* 1989 edition. In this definition high-tech started to be associated not so much with high technology, but with imitation. This aspect of superficiality was the one that started to be criticized the most by those who turned to low-tech.

### 3.4. Low-tech in architecture

The term low-tech first appeared in the *Third Barnhart Dictionary of New English* in 1973 [20]. In the late 1970s low-tech started to be associated with historicism in architecture, and as time went by also with “smart simplicity”. In the early 1980s, low-tech was described mainly as the opposite of high-tech as used by Nikki Henriques [19]. Still in 1998 *Collins English Dictionary* defined low-tech as merely a “fashion in interior design that involves objects and materials typically associated with simple technology”. However, at end of the 20<sup>th</sup> century some dictionaries such as *New Oxford Dictionary* provide definitions that associate low-tech in architecture not so much with a style, but rather with a strategy – architecture with passive systems of water and heating installations in buildings [22].

The term has also been embraced in other countries. In his article *High-tech, low-tech* published in the German journal *Bauwelt* in 1988, Helmut Schulz treats low-tech as a new movement in architecture [23]. Since the 1990s more and more frequently the term low-tech has been used for simple innovative solutions. Sometimes it is also used as a synonym for passive energy systems, which can be found in the book entitled *Low-tech-Light-tech-High-tech* by Swiss professor Klaus Daniels, who wrote: “In our office we work in line with a philosophy which says that firstly we try to use all the passive methods. [...] this is what low-tech is to me” [24]. In 1998 The Swiss magazine *Werk Bauen und Wohnen* published an article entitled *High-tech als Low-tech* (High-tech as low-tech) which presented a minimalist design of a school by Valentin Bearth and Andrea Deplazes as “an example of a project in which progressive solutions have been developed not on the basis of accumulating technological tricks, but on rejecting them” [25]. In 1999 the French magazine *Architecture Interieure Créé* used the

term low-tech to refer to a radical redevelopment of a museum, which included taking down 19<sup>th</sup> century ornamentation [26]. In the Dutch press, a project involving cheap raw materials, such as timber and perforated sheets, designed by Arconico based in Rotterdam, was described as using low-tech to express “new self-confidence in the new millennium”. In 1993 a new architectural practice opened in New York called Lot/ek (which according to the suggestion of its Italian founders should be pronounced “low-tech”). It attracted attention by the provocative use of recycled materials [27]. In 2002 Polish-English Dictionary, (*Wielki słownik angielsko-polski*) explained the adjective low-tech as “involving traditional methods” [28]. This definition is relatively imprecise as this term is typically used to refer to innovative solutions that make use of simple, although so far uncommon methods of construction.

Even though the term low-tech has been used more and more frequently, its definition still lacks precision -and many dictionaries do not even have an entry for it. This may be indicative of the fact that its definition is still being coined. In the architectural world, low-tech is primarily associated with architecture that uses simple, raw or non-processed materials. The Pompidou Centre’s director of architectural projects, Jean Dethier, uses the term low-tech for architecture made of earth, paper, straw bales or bamboo [B]. The same notion was adopted by Adrian Mostaedi, author of *Sustainable Architecture. Low-tech Houses*, who wrote:

“Rediscovery of traditional methods that have been partly forgotten... together with technological innovation, has made it possible to establish the key to sustainability. Those architects in this field ... which shows that ethics in architecture is essential for the consolidation of this awareness if one wishes to avoid creating an uninhabitable world” [29].

## 4. PSYCHOLOGICAL APPROACH

### 4.1. The new aspect of the definition of low-tech

The dictionary definitions of low-tech quoted above are imprecise in the sense that they primarily focus on the physical outcome/product, and low-tech is not merely based on tools and materials. It is easy enough to imagine high-tech designers proposing straw bale, timber, bamboo or earth components. It is also not the case that low-tech creators deny technology – they do sometimes use computers and solutions considered as cutting-edge technology. Perhaps rather than describing the physical and material properties

of low-tech buildings it is worth focusing on the character traits and the motivation of its creators?

This would change the research subject and also require a different definition of low-tech, one of an architecture whose creators have consciously given up modern technology, which had a crucial impact on the fundamental features of the work or the process in which it was created. Such a definition makes it possible to avoid the trap of too narrow a selection of examples and focus on the motives. Furthermore, it also makes it possible to apply psychological models and methodology to research in this area.

### 4.2. Erich Fromm’s model is waiting to be translated

In his works, the psychologist, psychoanalyst (and arguably one of the most important thinkers of the 20<sup>th</sup> century) Erich Fromm, tried to determine people’s personalities and character traits on the basis of their relation with the surroundings. It is worth noting that the definition of ecology originally coined by Ernst Haeckel also says that ecology is the “study of interactions among organisms and their environment” [30].

In this light, the issues that the psychologist and social critic Fromm was preoccupied with – analyses of human traits in relationship to their environment – were very much convergent with the issues of ecology. Fromm believed that a person’s character may be shaped and changed depending on the social environment [31]. This begs the question as to whether the society that creates the low-tech movement may have a different impact than the society that creates high-tech. Fromm claimed that the crucial differences in people’s attitudes (which he also called orientations or characters) may be identified in three key areas: (1) attitude towards freedom and identity – seeking one’s own identity and freedom to discover and pursue one’s maximum potential and skills vs. seeking freedom only as a form of escapism – escaping from responsibilities; (2) creativity and active life – fascination with creating things and being active because one loves manifestations of life (biophilia) vs. activity caused by acting out of anxieties or fears of signs of life (all living beings are to some extent unpredictable); (3) love, togetherness with others and nature – seeking contact with others and with nature because one wants to share and combine other people’s qualities with one’s own vs. wishing to be loved and attracting attention in a narcissistic way, not caring about others and without wanting to exchange or combine values and potential [32].

We believe it is worth translating Fromm's model into the language of architectural analysis. However, such a "translation" has not been undertaken yet and it requires extensive research. The following paragraphs first briefly present the technology, to then suggest using Fromm's categories as a general outline for narration of a specific case study involving a low-tech creator and technology. Without taking on too ambitious a task for one article, the narrative of the following paragraphs will make it possible to bring out certain aspects that are convergent with Fromm's model.

## 5. CASE STUDY – STRAW BALE ARCHITECTURE AND PAULINA WOJCIECHOWSKA

### 5.1. Introduction: Technology and Creator

The first straw bale buildings started to appear in the late 19<sup>th</sup> century in Nebraska, US. There are two basic methods of construction: Nebraska style, with load-bearing straw bale walls or the timber-frame method in which the straw bales are only used as infill. Despite there being several dozen of successful builds, by the 1950s they had been forgotten. Their renaissance took place in 1970s. The straw bale movement began with organizing conferences in the 1980s, where straw bale enthusiasts exchanged practical experience, and also established the "ethical rules" according to which this method of construction should be not patented, and the know-how should be widely available to support people who want to build their own dwellings.

This case study will focus on the first person who used this method of construction in Poland – Paulina Wojciechowska. She is an architect, whose walk of life took her to distant parts of the globe. She was born in Poland, spent her childhood in Afghanistan and India, and after having settled in the UK, she graduated from Architecture at Kingston University. Even when she was a student her interest gravitated towards a simple, local architecture, one that would – as she put it – "address our primary needs, both physical and spiritual" [C]. After having spent several years in mainstream architectural practices in the UK and having been qualified as an architect, she decided to fulfil her dream of going to North America in a search for natural architecture. She got in touch with Cal-Earth in California and Nader Khalili known for promoting a method of construction that used rammed earth bags, called superadobe. For several years she actively participated in the activities of

architectural pioneers and became one of the key figures of the natural architecture movement. Her quotes and articles can be found in publications discussing low-tech alongside articles of other experienced creators of this movement.

During her stay in America she participated in erecting several superadobe buildings and also carried out her own project. After returning to Europe, her work spanned the world of architectural practices and the projects she initiated. Her experiences with superadobe formed the basis for some important publications on this method of construction [33]. Wojciechowska created an organization called Earth, Hands and Houses, the aim of which is to promote eco-friendly low-tech architecture. [34] After 2000, Wojciechowska initiated building a house in Przelomka, at Czarna Hańcza in Poland – Poland's first building made of straw bales plastered with clay [Fig. 6, 7]. Soon afterwards building work started on another bigger straw bale house in the same village [Fig. 8, 12]. Since 2003 she has been coordinating works on her subsequent projects carried out in Poland involving straw bales, earth construction or superadobe – constructions often covered with extensive green roofs [Fig. 9]. These buildings invariably radiate the ingenuity of technical and natural solutions, and win hearts with their ecological appeal. Every year Paulina Wojciechowska holds workshops in Europe but also in Asia and Africa where participants have an opportunity to learn about architecture made of earth, straw bales or superadobe as well as other natural building methods [Fig. 10, 11, 13].



**Figure 6.**  
Cottage in Przelomka by Paulina Wojciechowska. First Straw bale construction in Poland; Photo Paulina Wojciechowska



## 5.2. Freedom and Identity

### Independence and searching for one's own identity:

As with many other creators of straw bale architecture, for Paulina Wojciechowska low-tech became an attractive alternative. It gave her independence that was impossible in architectural practices. She admitted that the creative freedom that she has experienced whilst working with straw outshone anything that she had experienced working in a practice. Paulina Wojciechowska admits that for her, working on a computer is an alienation from what she would like to perceive as architecture: "On the screen I can see yellow lines, red lines, marks. I know that they indicate a building, but it's just so abstract and distant! You can't compare this with earth and the smell you can feel on your hands" [C].

*I wanted to feel the freedom that nature seems to have. I have experienced many limitations in the world I come from. I wanted to escape this. I wanted to be free. I wanted to feel my power in order to understand and enjoy the opportunities that earth gives and that were now in my hands* [C].

### Practical approach, direct contact with the material:

Wojciechowska is primarily a practitioner. On a building site, when interested passers-by arrive to ask questions, she often acts guardedly. Ornate claptrap speeches are not her style. Even though she enjoys company, she probably prefers to listen and work rather than taking centre stage.

The opportunity of having direct contact with the material is what attracts many people to the projects and workshops run regularly by Paulina. One of the participants thus explained his fascination: "How could you overestimate the moment when you prove to yourself that you can mark your presence in the world with your own bare hands" [C].

Freedom to create: For practical reasons it is the easiest to build straw bale buildings that have straight angles. This follows from the rectangular shape of a straw bale. Despite these limitations, straw bale buildings are at times sculptural artworks facilitated by the properties of earth, often used as plaster. Massive walls with a cover of clay a few centimetres thick, proposed by Paulina, are a unique, friendly and very plastic material. A thick layer of clay plaster, which is a characteristic trait of Paulina's architecture, makes it possible to create the interior there and then. Her houses are often filled with small sculptural elements, niches, clay shelves, cupboards, ornaments, etc.

Respect for identity of a place: Creators of straw bale architecture are willing to draw on local traditions. In

her project in Przełomka, even though Paulina prefers a thick English thatch, she decided to cover the roof with a different Polish method of thatching in order to honour local tradition. This is probably the reason why some people treat her building as an example of local architecture, even though it is in fact an experimental solution.



Figure 7. Construction of straw bale cottage; Photo Paulina Wojciechowska



Figure 8. Kadłubówka cottage by Paulina Wojciechowska; Photo Paulina Wojciechowska



Figure 9. Green Roof Cottage near Warsaw by Paulina Wojciechowska; Photo Paulina Wojciechowska

### 5.3. Creativity and being active

Technology as a catalyst for a “change in the world”: For many people straw symbolises a revolutionary material. Among its enthusiasts you can often hear the words of Masanobu Fukuoka, Japanese farmer and philosopher celebrated for his natural farming, who said:

*I believe that a revolution can begin from this one strand of straw.*

*Seen at a glance, this rice straw may appear light and insignificant.*

*Hardly anyone would believe that it could start a revolution. But I have*

*come to realize the weight and power of this straw. For me, this revolution is very real. [35]*

Creating not only material objects: Straw’s revolutionary character lies in its availability and the opportunities to be creative and active. People like Paulina create much more than physical constructions. If this wasn’t the case, it is likely that nobody would be mentioning a small hut in the North-East of Poland. The slogans of straw bale creators are addressed to emotions and they are intended to awaken the unused energy that is sleeping in people and indeed a new tradition has been brought to life, which already has its history, customs, masters and meeting points. During an interview Paulina emphasized the fact that this method of construction contributes to believing in one’s own capabilities. She supported this claim with an example of an unemployed man who was helping her. He suffered from apathy and a lack of self-confidence, – a common feature of people who have been unemployed for an extended period of time. Meeting Paulina and learning her method of construction unleashed an inexhaustible energy within him. He worked very hard, felt happy and dreamt aloud about how he will now be able to build his own house of nothing (i.e. out of straw), start a new life and maybe even teach others. [C]

Method of construction that encourages action: To a certain extent, the tradition of straw bale buildings stemmed from the American pioneering spirit of “talk is cheap”. Architect Alex Linde said: “In Europe there is so much discussion and philosophy that by the time you build one house, in America with the same amount of energy you would have built four” [D]. Creators of this method of construction value ingenuity and practical intelligence above thoughtfulness and sentimental conservatism. This is facilitated by the fact that this method of construction is characteristic of a considerable tolerance of error. Uneven walls and irregular fittings add to the charm,

whilst imprecision can often easily be corrected or accepted. Paulina Wojciechowska usually returns to the oldest but efficient method of throwing clay onto the walls using bare hands. This method creates a natural texture, but it’s also an interesting experience of working with earth. As opposed to cement, direct contact with clay does not harm the skin.

Supporting life: On many occasions, Wojciechowska has proven her sensitivity to the signs of life, feelings, interactions and human creation:

*Already during my studies [...] I’d rejected the mechanistic view of architecture. My works were a discovery of living beings, places where they come into contact with the structure, and the urban spirit. I wanted to show a city [...] in which life could play its vital role. [C]*

Straw supports life even due to the mere fact that it is a natural product, and so before a straw bale was produced, it sustained life that developed and interacted with the environment. People who opted for this type of architecture have, subconsciously or consciously, decided to co-exist with the environment.

Method of construction not only for professionals: Even more so than earth buildings, the movement of straw bale architecture is associated with self-builds; this is evidenced by the sheer number of manuals that encourage amateurs to take up this building method, and more importantly by the number of buildings erected by non-professionals. During their lifetime, buildings such as those built by Wojciechowska require renovation every three to four years. The outer layer often cracks and is washed down by rain. There are ways to counteract this, but the most common and easiest way is to regularly replaster the building, which is similar to painting the walls with paint, although in this case it is a layer of clay. This refers to a tradition that ties human beings with the environment in which they live. Dwelling is treated as if it was a living organism – something that needs to be looked after.

Metaphor: strong although seemingly weak: The metaphors construed around straw bale architecture are close to the ideas often associated with earth, i.e. simplicity and general availability. Straw brings to mind weakness. Many people associate it with the story of three little pigs, where the straw house was blown away by the wolf, hence many people are surprised with the qualities and durability of straw bale architecture. It may be treated as a symbol of strength from something that is seemingly weak. This paradox is illustrated by a phrase used by one of the workshop participants, who said that “using straw you can make a rope to tame the wild horse of contemporary architecture” [E].



Figure 10.  
Earth Bag Dome in Zambia; Photo Paulina Wojciechowska



Figure 11.  
Earth Bag Dome in Zambia; Photo Paulina Wojciechowska

#### 5.4. Love – togetherness with people and nature

##### Method of construction that encourages cooperation:

In the 1980s and 1990s the popularisation of straw bale houses was based on workshops, personal relations, meetings and establishing a rule that the solutions around straw bale architecture should be popularised rather than patented. The pioneers who are engaged in this idea, even though scattered across the globe, exchange their experiences in public. The element of cooperation – handing over straw bales to one another or erecting timber frames – is often perceived as the magic of this building method. Participation and a special atmosphere of building a house together is strongly associated with straw bale constructions.

##### Method of construction that encourages sociability:

Paulina Wojciechowska admits that what seems particularly attractive in this type of architecture is the opportunity of meeting interesting people. The atmosphere that is prevalent in architectural practices, she claims, means that people often have very formal interactions with a curtain of official politeness hanging between them. Straw bale building sites attract many eccentrics for whom such bureaucratic barriers do not exist. This means that they allow people to feel they are social creatures.

##### Method of construction that is eco-friendly:

Straw has insignificant embedded energy. Harvesting and transporting straw is usually very cheap and straightforward and does not require a lot of energy. Unlike timber, straw grows quickly and is more easily renewable. As opposed to bamboo, it can be harvested in various climate zones (excluding deserts and arctic climates). Straw produces practically no waste or contamination. Erecting a straw bale building does not require heavy machinery. Straw is a waste material that is often problematic for farmers, who burn it to get rid of it which means producing CO<sub>2</sub> – a greenhouse gas.

The following are annual emissions of carbon dioxide from burning straw: rice straw (1 million tonnes) releases 56k tonnes of CO<sub>2</sub>, and rye straw (97k tonnes) produces 5k tonnes of CO<sub>2</sub>. If we were to reharness this potential, this would allow the building of approximately 5 million residential houses with a surface area of 220 sq metres each every year [36].

Bonding with nature: Many creators of straw bale buildings emphasize their bond with nature, often simply through the mere fact that they refer to their buildings as “natural architecture”. Wojciechowska claims that she enjoys working with people and

nature, and is happy to see her buildings surrounded by gardens and orchards. Interest in this material and respect for nature emerges easily with the experience of the power of these robust buildings made out of fragile dry stalks.

In many aspects straw bale buildings encourage contact with the surroundings, which is often manifested in the building's relation to the surrounding greenery. Wojciechowska's buildings seem to coexist with nature and encourage sociability. These qualities translated into Fromm's discourse would need to be called biophilia.



**Figure 12.**  
Kadlubówka cottage by Paulina Wojciechowska; Photo Paulina Wojciechowska



**Figure 13.**  
Earth Bag Dome in Zambia; Photo Paulina Wojciechowska

## 6. CONCLUSIONS AND SUMMARY

Low-tech is a movement that carries with it a number of important modernist ideas for healthy, socially-relevant buildings available for anyone. Despite disparaging opinions, this movement does not reject the development of technology, but rather than that, it is an attempt to develop technology whilst integrating it with ethics. Currently, low-tech is underestimated, marginalised and misunderstood. The reasons behind this lack of comprehension are partially the existing definition, which places the emphasis on physical objects, materials and methods of construction. Redefining low-tech in the context of the motivations and aspirations of its creators would make it possible to look at the movement afresh and extend the scope of research concerning this phenomenon. An example of such deepened research could be found by adapting the psychological concepts coined by Erich Fromm. The narrative suggested in this article – based on Fromm's model and referring to the work of Paulina Wojciechowska who herself often refers in their articles to those humanistic ideas and concepts [37] – gives hope that such a description may be able to reveal more about the essence of low-tech than focusing only on the material aspect of this movement. To ensure that such an approach is comprehensive and fit for the purpose of architectural analysis would require a more extensive interdisciplinary project of translating psychological models concerning motivation, personalities or the socio-cultural impact of the environment on creators into the language of architecture.

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## NOTES

- [A] Author's interview with Barbara Jones 2013.06.20
- [B] Author's interview with Jean Dethier, 15 June 2000
- [C] Author's interview with Paulina Wojciechowska, 20 December 2013, London
- [D] Alex Linde's talk at Lehm Konferenz in Berlin 2002
- [E] Author's interview with a workshop participant, Sussex, UK, 18 May 2010

