

SUSTAINABLE COMPACTNESS AND ECOLOGICAL ARCHITECTURE

Masterwork:

Two-apartment residential building in Budaörs

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and Economics

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DLA Theses

'... how small all-human happenings are! ... '
Mihály Babits: *As a strange messenger...*

Compact building shaping has proven to be an important part of energy-conscious architecture. Reducing energy use is an important element of ecological thinking and, in particular, ecological architecture. Consequently, the pursuit of a tight, compact building design is in itself a creative behaviour towards an ecological approach. This is true even where such a design intention is not consciously ecological and does not necessarily involve the use of other elements of ecological thinking and ecological architecture, since the reduction of environmental pressure can be achieved independently of such aims, although not in all possible respects.

A multitude of contemporary architectural examples show that energy awareness, sustainability and – through them or on their own – ecological way of thinking, although to a very different extent and in different ways, are almost always present in today's design practice, so the relevance of the topic is hard to question.

In order to consciously apply an ecological approach in architecture, it is important to have a deeper knowledge of the available tools and their application possibilities and significance. Compact design is a particularly important element of the toolbox of ecological architecture because it is primarily conceptual and not exclusively material, and can therefore determine the fundamental characteristics of a building, its internal order in the course of its design and, through this, its relationship to its environment. Due to the importance of this effect raises the possibility of examining other possible aspects of the pursuit of compactness.

The relevant question is therefore how and in which areas the striving for solid architectural formation appears in ecological architecture, and whether compactness and the striving for compactness can be a metaphorically organizing element of the ecological architectural creative process in a broader sense, in a more indirect sense.

keywords: energy-conscious approach, ecological approach, ecological architecture, environmental awareness, sustainability, compactness, solid architectural formation



HaysomWardMiller Architects: Lochside House

1. Thesis:

An important intellectual tool for retreating architecture can be compact architectural shaping, through which buildings have a better chance of becoming autonomous 'entities' that function in harmony with the environment, and through which the environmental impact of buildings can be significantly reduced in many respects, including in material terms.

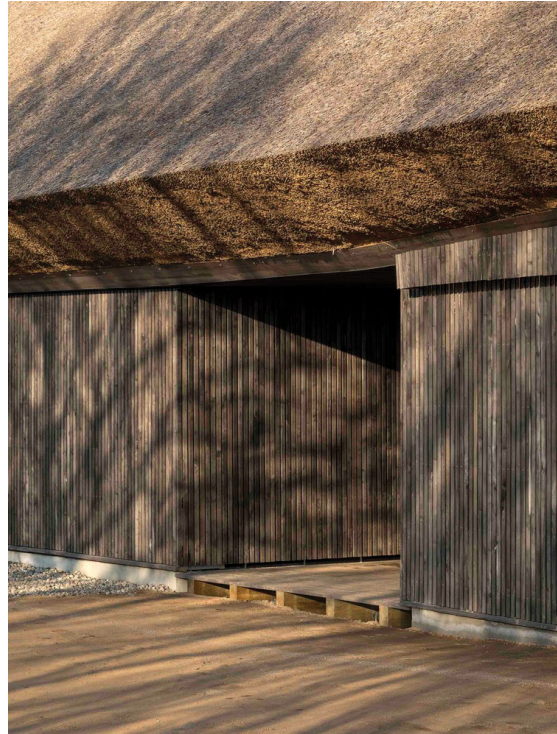
Retreating is something like finding the location of the former dried-out riverbed and releasing the water back into it. Reducing the size of the ecological footprint is also a retreat, a cutting back of high entropy 'reaches'. Intervention and non-intervention, leaving and restoring flows, the responsibility to build and 'not to build' are all crucial in ecological architecture. Retreat also means looking for intellectual and material possibilities found in the built and natural environment that 'do not require intervention'. We cannot ignore the need to relate our building activity to the whole life cycle of the host environment and the built object.

Do we build something or do we just let something build? Do we find things in our environment that want to be built, can we keep something alive around us? Asking these questions over and over again can be the feedback platform that helps us to keep a constant eye on ecological compliance.



Dorte Mandrup: Wadden sea Centre, Ribe, Denmark

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2. Thesis:

Architectural compactness can be interpreted as a symbiotic system created by the building and its surroundings, where the building and its surroundings carry compactness not in themselves, but in their coexistence.

The emblematic expression of an ecological approach is to find the place of building in an ecological way. The embeddedness of the built object in the natural environment is an essential element of the ecological approach. Seeing together, examining and showing the cooperating elements in their relationships, and thus striving for wholeness is an important part of the creative process. In ecological construction, the possibilities offered by local building materials, climatic conditions, landscape-terrain conditions of the immediate and wider surroundings of the site, cultural and sociological embeddedness have an even greater influence on the whole construction process. It is possible that the host landscape element and the building placed in it may be less compact in themselves, but together they form a tight formal unit.



Pedevilla Architects: CiAsa Aqua Bad Cortina house

3. Thesis:

A building that is compact in form has a better chance of becoming ecological not only in its realization, but also in its spirituality.

The mere mass shaping of the building always has an influence on the possibilities of validating the ecological approach. This effect is of course reciprocal. Geometrically, there are solid forms that can be justified by calculations, but they can be transformed by the extremely diverse functional, aesthetic and other aspects in the process of becoming a building. Examination of very early examples of architecture shows that the influence of nature, the possibilities and constraints in the use of natural resources, had a particularly strong influence on the shaping of buildings and structures from the very beginning of construction. If, as our technological possibilities expand, greater freedom in architectural formation is combined with the comprehensive knowledge and functioning of the ecological thinking, then the consciously ecological shaping of buildings can be an important tool of „retreat” and thus of striving for compactness.



Bruno Fioretti Marquez Architects: Kindergarten, Lugano

4. Thesis:

Condensing functions that are separated in time but have similar spatial needs into a common space or group of spaces – that can be used flexibly by several user groups –, and thus making the architectural programme more compact, can be an important tool for making more efficient use of environmental resources in architectural spatial design.

A significant part of certain spatial needs – imposed on built spaces or placed there for convenience –, can be met outside built spaces, in the natural environment integrally linked to the built environment. Compactness can thus appear in reducing functional needs. The ergonomic needs of the people using the building, as well as the activities carried out in the building – as a set of forms of movement that occupy the interior space –, are an additional dimension of compactness. Functionality is closely related to the question of durability, since increasing the lifetime of a building also means time compression of use value. An important element of an ecological approach is to ensure that a building can continue to perform its function for as long as possible, thereby reducing the environmental impact over its entire lifetime.



Glenn Murcutt: Marie Short house, New South Wales, Australia

5. Thesis:

Even the compact formation of smaller building elements can play a significant role in interacting with the environment, responding to environmental impacts and taking advantage of their positive effects.

An important feature of ecological, 'retreating' building structures is that each structure combines the performance of a range of functions, thus significantly reducing the energy content of the production and use process. Meeting the various needs independently with significantly specialized structural elements entails a continuous and significant increase in environmental pressure. The feasibility of an ecological approach depends to a large extent on the choice of structure and the use of materials that integrate several functions, often referred to as 'third skin'. In ecological architecture, the choice of structure with this approach, necessarily leads to a reinterpretation of the role of the various building structure elements and, through this, to the change in the form of structural elements. Past elements of form can be rediscovered and reimagined; consciously reshaped or new structural elements may appear.



ancient-building, belfry

6. Thesis:

An important characteristic of ecological building culture is its density, as the result of interaction between the culture, intellectual content of the human communities and their environment, that was created over generations.

The relationship and interaction between community and architecture has an important role to play in ecological architecture. At the same time, the way in which this results in a purified 'condensation' of community knowledge is also very important. It is similar to the way evolution works, how tried and tested solutions and well-trodden paths maintain a very slow, groping development. Adapting to nature, the environmental condition of the moment and preserving and further shaping the values of mature community knowledge acquired over many years is an important part of the ecological approach. This is manifested in the formal appearance of objects and buildings, in the simplicity of the use of materials, in the care and maintenance of buildings, in the preservation of the created value.

It is important to emphasise the communal nature of this kind of building culture and the timeliness of its development, because ignoring this and superficially applying formal elements can lead to misguided choices.



Marc Sherratt Sustainability Architects: Residential units, Johannesburg

7. Thesis:

If we accept that natural, organic forms are necessarily present in the formal world of ecological architecture, and that they carry their aesthetic and functional contents in unity, and if we also accept that the mode of communication that can carry several, or even several different messages in one element is saying more concise, then we can rightly say that condensation appears in ecological architecture also in this way.

'Natural' forms carry their aesthetic and functional contents simultaneously, at the same time, in all ways of manifestation of their existence. In the relationship between man and nature, the way in which natural forms are perceived plays an important role. The messages that reach the observer through the perception of the environment are extremely complex. The complex set of signals from nature necessarily involves the coherence of the different modes of perception, since they have the same source in nature. In this way, it also has a message value if this coherence is disrupted. The disharmony between man and the environment that we perceive today is due to the fact, that the artificial, often manipulated environment does not have this coherence.