



BROCHURE TOPIC GROUP CONSTRUCTION

APRIL 2023

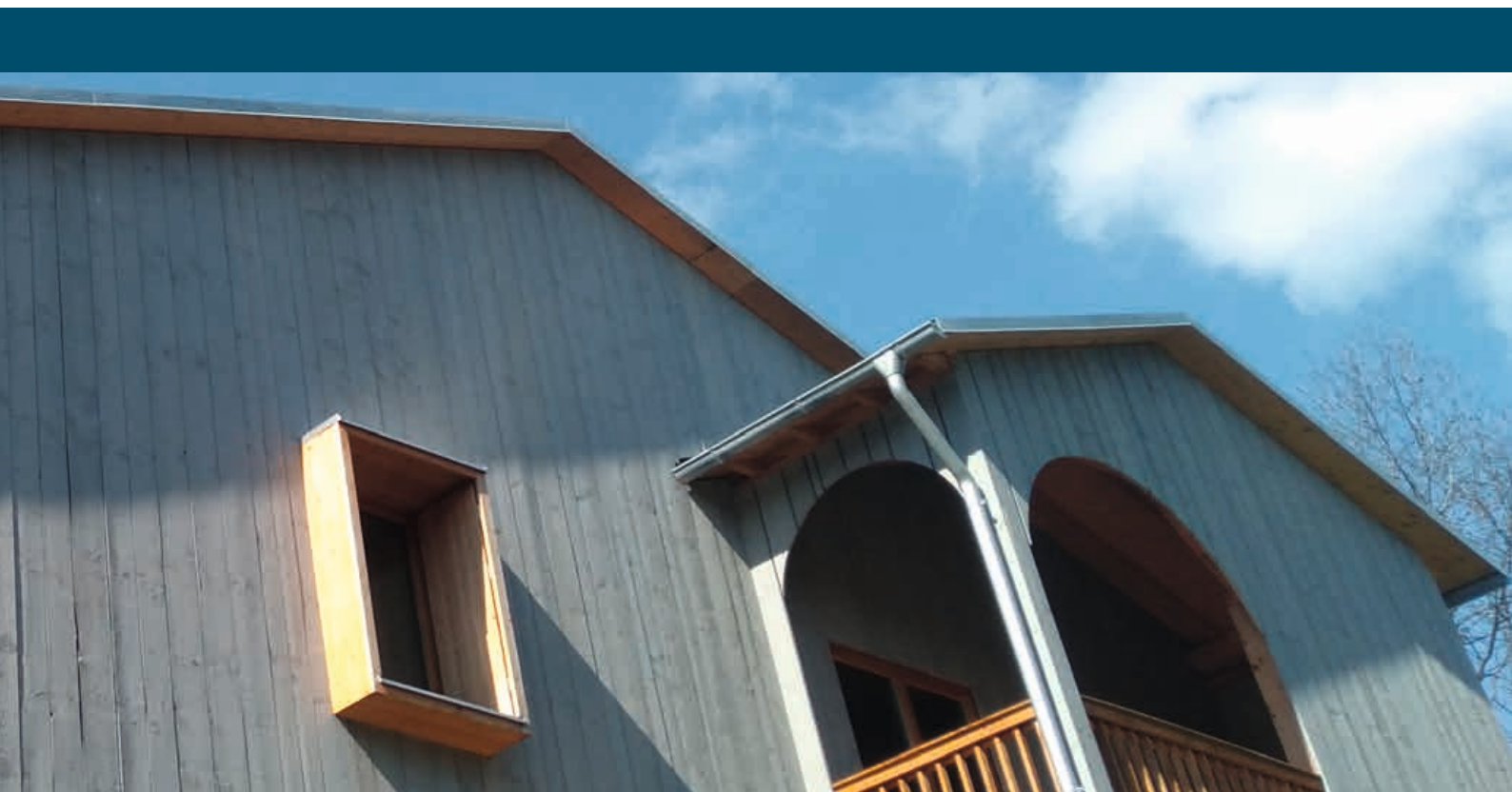


**EUROPEAN FEDERATION
FOR LIVING**



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PREFACE BY ERIC DANESE

B&O Gruppe was a great host of the EFL Topic Group Construction in the beginning of April 2023. My special thanks to Thomas Wagner and Dominik Herwegh of B&O Service for their excellent organisational skills and kindness. Together EFL managing director Joost Nieuwenhuijzen, we have made a full and inspirational three-day programme which took place in Munich and Bad Aibling in the southern part of Germany, called Bavaria.

This event focused on the latest developments in sustainable housing construction, decarbonisation, wooden buildings, renewable energy and circularity. The project visits in Munich and Bad-Aibling showed us the latest developments of B&O Group in Bavaria. The participants – delegations from social housing organisations based in Belgium, Germany, Finland, France, Italy and the Netherlands – gained a variety of information during these days.

On day 1, we visited the project *Dantebad II* in the vibrant city of Munich. Many thanks to Aline Buss and Luis Ramón Bencomo of B&O Group for the informational tour and the insights of this social housing construction project. Day 2 and 3 of the event were filled with exciting lectures and provided space for discussion, reflection and exchange of information among the participants. Another highlight was the guided tour in Bad Aibling. During this tour on the second day, the sun was shining brightly and we have seen and taught much about the start and development of this *Zero Emissions Quarter*, which was once a USA army base.

This brochure not only looks back on the inspirational three-day event. It is also a document to capture information, insights, and lessons learned.

I am looking forward to the next event Topic Group Construction event!

INTRODUCTION AND OVERVIEW

From the 4th to the 6th of April 2023, in total 26 participants and members of Topic Group Construction met for a three-day event in Munich and Bad Aibling, Germany. Parts of the programme were being joined by a delegation of EFL member Setlementtiasunnot. Setlementtiasunnot is a social housing organisation based in Helsinki, Finland.

The main topic of discussion of this event was decarbonisation and construction in wood. The programme encouraged Topic Group members to reflect on the way we have built for decades and the transition towards a much more sustainable way. This way – the only way? – must lead to more homes and less or no CO2 output. On the first day, we visited the social housing project *Dantebad II* in Munich. On the second and third day, we dived deeper into the main subject with presentations from experts, practitioners and EFL members. The site visit of the *Zero Emissions Quarter* in Bad Aibling allowed us to see various ways of wooden constructions and alternative ways for brick and concrete constructions. The programme led to insightful discussions between participants and sparked ideas for applying lessons learned to their own organisations.

ABOUT THE TOPIC GROUP CONSTRUCTION: The Topic Group Construction – led by Eric Danesse, Chief Design Officer in Charge of Innovation and International Relationships at Villogia – was created to explore all aspects of construction, from cradle to grave, and through the 3 challenges of climate change, affordability, and design. It addresses themes such as materials, architecture, modern methods of construction, BIM, circularity, urban planning, biodiversity, energy, and more. The TG regularly organizes best practice site visits, including: workshops, onsite tours, et cetera, as well as meetings with inspiring talks from experts from across Europe. We have looked into cost and resource efficient ways of building for example: offsite, modular construction; promoting innovative building and neighbourhood design and construction. The members of the Topic Group Construction are actively tackling the challenge of energy retrofitting of buildings in order to reach climate goals.

ABOUT B&O GRUPPE: As a full-service provider for the housing industry, B&O Group combines traditional craftsmanship and innovative technology. The core of B&O's success, which has lasted for more than 60 years, is above all

the team, consisting of professionals from various trades, architects and specialist planners as well as IT specialists. They all work hand in hand - because 'having a home' is important.

A clear thematic focus on the housing industry and many years of trusting cooperation with employees and partners determine the corporate philosophy of B&O Group. Craftsmen, architects, construction planners and programmers work hand in hand here to reconcile sustainability-oriented management, digitization and social responsibility and to set new impulses for the industry.



ABOUT MUNICH AND BAD AIBLING: Munich is the capital and most populous city of the Free State of Bavaria. With a population of more than 1,5 million inhabitants it is the third-largest city in Germany, after Berlin and Hamburg. Munich is a global centre of science, technology, finance, innovation, business, and tourism. The city enjoys a very high standard and quality of living, reaching first in Germany and third worldwide according to the 2018 Mercer survey. It has been rated the world's most liveable city by the Monocle's Quality of Life Survey in 2018. Munich is also consistently ranked as one of the most expensive cities in Germany in terms of real estate prices and rental costs.

Bad Aibling is a spa town and former district seat in Bavaria on the river Mangfall. It is located about 56 kilometres southeast of Munich. Bad Aibling has a long history. The town and its surroundings were once settled by Celtic tribes (from about 500 before Christ until 15 before Christ). And after Roman occupation, it was finally settled by Bavarii tribes in the 5th century AD. In the year 1933, Bad Aibling officially became a town. After the Second World War, the area evolved into a major centre for intelligence organizations and secret services. Nowadays, it is known for its spa.

FIRST DAY

WELCOME AND INTRODUCTION BY THOMAS WAGNER (B&O SERVICE)

■ THOMAS WAGNER (B&O SERVICE): PRESENTATION OF B&O SERVICE AND INSIGHT INTO THE GERMAN AND BAVARIAN HOUSING MARKET

About B&O: The B&O Group has its roots in more than 60 years of tradition in roofing. In 1999, the craft company was asked to renovate the roof of the Munich Olympic Stadium with its 8,300 plexiglas panels - a project of the century and today part of the B&O logo. The project was a milestone in the company's history and at the same time a turning point. B&O developed from a roofer to a service provider for the housing industry and has continued to grow ever since. A lot has changed since then, but the entrepreneurial spirit has remained. The conviction that the key to success is the combination of: high quality, sustainability and profitability. Today, around 2,300 employees support this idea.



■ SITE VISIT IN MUNICH: DANTEBAD II

About social housing project Dantebad II: the German magazine Local Life has written about the way of living in Dantebad. Just as this article in DBZ, called: Wohnen am Dantebad.



SECOND DAY

The second day consisted of keynote speaker and lectures. The presentations can be found on the closed member area of the European Federation for Living. For more details: [Click here to view the presentations.](#)

KEYNOTE SPEAKERS AND LECTURES

■ HEINZ SCHEVE (B&O BAU): PRESENTATION OF B&O BAU WITH A FOCUS ON SERIAL REFURBISHMENT

B&O has got many projects in the area of Berlin, Frankfurt and Munich. At this very moment, there are not a lot of competitors in wooden construction. It is still a niche. Heinz Scheve informs the participants about the several wooden constructions and components B&O is using (e.g.: prefabricated insulated wood frame construction with integrated windows High quality roof insulation. Flat lying PV modules). The social housing project 'Dantebad II' in München, which we visited, has a wooden hybrid system construction. Prinz-Eugen-Park, another project for GEWOFAg München is built with prefabricated wooden

components. The installed quantity of around 750 tons on wood grows back in the Bavarian forests, to be reached in less than an hour drive from München.

Outcry to think outside of the box concerning the costs. On the other hand: all costs are increasing, demand is high, but because of strict regulation the social housing organisations do have to look at costs because of the fixed rents of the social dwellings. This is getting quite impossible to handle. So, the market to construct as a social housing organisation is about to die. This is happening in Germany and France as well.



■ PASCAL CHAZAL: OFF SITE WOODEN CONSTRUCTION

Demand for housing in France is high. And since ages, the French have been building with local materials. So circularity was – for a very long period – part of the culture. The invention and use of concrete in housing made this, unfortunately, disappear. Nowadays, buildings are not only built from concrete and bricks, but also very complex due to technology. This is why the amount of construction is decreasing, concerning Pascal Chazal. It is getting more and more complicated and too expensive.

Pascal Chazal has a strong presentation about the inefficiency of the construction industry. Standardisation is a good solution to get normal, lower prices for apartments. Standardisation does not mean: everything is the same. Not at all. Various exemplars to show the diversity of standardised modular buildings.

Chazal explains why off site wooden constructions are much more efficient and cheaper to be made. The structure, improvements and efficiency of the automotive industry is a good way to compare with the construction industry. As opposites! The component approach is, in his perspective, the answer. So, this is also the solution for construction. In construction, a lot of buildings are unique. But still very similar. This makes a lot of buildings unnecessary expensive. Also, wood/timber is preferable for a building product instead of using concrete. And, a wooden construction is an off-site

construction. It is also a change of mindset. Prefabrication is not the same as industrialisation. Prefabrication is a building approach, not a product approach (equals industrialisation). There is standardisation everywhere, but we are not aware. Which makes it so strong.

About Zen Modular: Reinventing construction for exceptional living experiences. Zen Modular offers the best of off-site construction for faster, eco-responsible, and economical projects.

About Groupe Hors Site: Hors Site is all about wooden constructions built off site.



■ TILMANN JARMER AND SEBASTIAN STRECK (NAGLER ARCHITEKTEN): EASY CONSTRUCTION AND PERFORMANCE OVERVIEW OF THE B&O PROJECT AT DANTEBAD (MUNICH) CO2-NEUTRAL CONSTRUCTION AND USER BEHAVIOUR IN RESEARCH HOUSES

This presentation was meant as a (technical) introduction to the area of the Zero Emission Quarter in Bad-Aibling. Besides a residential area, this is room to experiment. On the premises there are three buildings built in: wood, bricks and concrete. These three houses have the same lay-out and were – obviously – inhabited during the experiment for all kind of measurements.



■ SITE VISIT IN BAD AIBLING: B&O ZERO EMISSION QUARTER



Tilman Jarmer gave a perfect introduction to the site visit on the Zero Emission Quarter in Bad Aibling in Germany. A couple of colleagues of B&O guided us, explained, gave (historic) insights, and answered our questions about the development of the zero emission quarter.

■ EFL MEMBERS UPDATE: STATE OF THE ART EXCHANGE ON ALTERNATIVE MATERIALS AND/OR BUILDING SIMPLE

In 1852, the first concrete house was completed after. Since then, you can speak of a concrete legacy in France. Around 90% of all buildings are in concrete (2020). Nowadays, new regulation have made this less. And in the future, more and more building will be built without or with less concrete. In 2032, concrete will be in less than 40% of the new buildings. This is a big challenge because it's a change of mindset as well. Due to this new law, there has been an explosion of low carbon solutions since 2021. Within the country there are various experiments and studies on costs using different materials to build houses. So is Villogia. Insulation with straw for example is still the same price. But it will be cheaper in the future, Villogia expects, due to regulation. It will increase demand. Also due to regulation, finding partners is much more easier.

Joseph Stiftung is more focused on hybrid constructions (concrete/wood). At this moment, the housing organisation is gaining more information about these kind of construction. They have just couple of projects with concrete wood hybrid construction at this moment. The costs are a hurdle, because social housing is restricted in rental limitations. GEWOBA adds to this, that the sector has many decades of experience

in making houses in the traditional way of construction. This process has been made efficient and well-known, that embracing a new way of construction is difficult. Simply, because it is relatively new and thus unknown. This new mindset will take some time to adapt.

Zonnige Kempen has executed a project classified as cultural heritage. CLT but stone/brick on outside because of cultural purposes. The original bricks were reused, the framework was preserved as much as possible. No plaster is being used. Tiles only in kitchen, toilet and bathroom. Collective heating system + solar panels. Rainwater is collected and being used to flush the toilets. It is regulated by an electric system. But as all North West European countries: brick and concrete still rule the world.

The Netherlands are – in general – a clay brick country. Concrete pre-fab industrialised system. Nowadays, wooden elements and construction are more and more embraced e.g. Dutch builders as *Van Wijnen* and *BAM* are focusing on timber. Maybe the biggest barrier for social housing organisations: concern about the maintenance costs of wood/timber.

■ CHARM UPDATE BY DR. IR. AD STRAUB (UNIVERSITY OF DELFT)

The Interreg NWE funded project CHARM started late 2018 and will end in 2023. The project aims to optimise the (re)use of materials and natural resources in social housing construction. Starting with four social housing organisations from Belgium, France, the Netherlands, and United Kingdom, the project has several demonstration exemplars. These exemplars consist renovation and new built construction and are prosecuted by Zonnige Kempen, Paris Habitat, Woonbedrijf en GreenSquareAccord. Lead partner of the project is the University of Delft.

Now the demonstration exemplars are (being) finalized in 2023, we collected almost all outcomes and lessons learned. The partners of CHARM have various ways to disseminate and secure the know-how on the demonstration exemplars. We have organised three online training sessions for the French, English and Dutch/Belgian social housing industry. Also, during the years updates on the project have been

presented in various ways and at several international events and meetings. Another instrument to disseminate and secure the knowledge is a tutorial.

The University of Delft has developed and produced a tutorial. This tutorial consists of three parts of about ten minutes each. The draft tutorial is being presented to all participant for their

About CHARM: the main project objective of CHARM is to optimise (re)use of material and natural resources. Other objective is to demonstrate innovative approaches for housing renovation and asset management that prevent downcycling. The project also wants to secure adoption of these approaches within the housing organisation partners, as well as to accelerate the adoption of such approaches throughout the social housing industry. Have a look at the CHARM website for more information.



THIRD DAY

PRESENTATIONS

The third day consisted of various presentations. All presentations can be found on the closed member area of the European Federation for Living. The following will describe shortly the sum-up of the presentations. For more details: [Click here to view the presentations.](#)

■ ULRICH KLAMMSTEINER (CASACLIMA): THE (TOO?) HIGH DEMANDS ON CO₂-NEUTRALITY IN THE CONSTRUCTION INDUSTRY: GOALS AND PATHS

In short the presentation of Ulrich Klammersteiner is about complexity. He explains how it has become so complicated nowadays. And that a clear vision is needed to become the best in the industry. As Thomas Alva Edison already stated: without execution is just hallucination.

CasaClima has the ambition to perform better than the European goals. Sustainability certification. On site checks (by measurements) by CasaClima. Klammersteiner gives several examples of construction to show how the CO₂ neutrality can be reached by using different kind of methods e.g. relatively low glazing percentage of the building, and materials, such as: insulation with Woodfibre or hemp.

About CasaClima: The CasaClima Agency is a center of excellence for energy-efficient and sustainable construction and renovation that is widely recognized throughout Italy and now increasingly also on an international level.



■ SEBASTIAN CLARK KOTH (TECHNISCHE UNIVERSITÄT MÜNCHEN): LOW-CO₂ BUILDING MATERIALS FOR IMPROVING ENVIRONMENTAL BALANCE AND ROBUSTNESS – LESSONS FROM THE RESEARCH HOUSES

The data of the three houses on the site of Zero Emission Quarter of B&O have been collected. Sebastian Koth share the conclusions so far. He also explains the way the data was collected in the three houses (lightweight concrete, solid wood, masonry/brick). Much technical information has been given on heating (demand versus consumption), energy consumption, and thermal comfort.

About Technische Universität München (TUM):

At TUM, talents from all over the world come together to inspire each other, learn from one another and create

innovations together. Our mission? As one of Europe's most outstanding universities in research and innovation, we find solutions to the most important scientific and social challenges of our time.



CONCLUSIONS AND LESSONS LEARNED

- Build in standards and prefabricated to make it cost efficient
- Refreshing to understand that 'keep it simple' is also a solution
- The importance and understanding of behaviour of the habitants/tenants: inform and influence
- To reach zero is impossible and not needed. NEB is already a big win.
- Demand for wood will rise and that makes it – expectedly – more cheaper. This is because a higher demand will make wood as a construction material a more common good. Therefore, we expect more competitors will enter the market. Then, the price will become less expensive than it is right now.
- Broader networking to share the knowledge and experiences
- Exchange of different points of view and cultural differences
- Different points of view on the building/construction
- Gap regarding the skills. We need more skills
- Effect of behaviour: best practices to reach the goal
- Different ways of
- The costs of construction: for sho a problem to tackle this
- We need to go to low tech solutions but different regulations in the countries make it more difficult
- Low tech is also more comprehensible for the inhabitants/tenants
- Costs: this is one of the biggest challenges





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