ARCTIC CONSTRUCTION CLUSTER FINLAND

Building a better tomorrow in a changing operating environment

2024

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Avalon Oy | Painopaikka Punamusta Oy | Oulu 2024

FOREWORD FROM THE CHAIR

Greetings from the Chair

Dear reader,

You now have something very valuable in your hands – the future of the northern construction sector. If you are not already familiar with the concept of the Arctic Construction Cluster, you will know the aims and visions of our association by the time you read this publication.

Our aim is to raise awareness of the construction sector in Northern Finland and to promote it in both national and international markets. It is my sincere hope that this publication will inspire you, a current or future construction professional, to join our extensive network and help break down the barriers within the construction industry.

The Northern Finland Construction Cluster is backed by many other strong and experienced players in the northern construction sector, including companies, public authorities, and educational institutions. The association currently includes nearly 100 industry experts who either employ, advise, or train the visionaries of the future construction industry.

I myself graduated as a Civil Engineer in Oulu in 1995. I was a member of the Cluster for about ten years already before my current job description. For our members, being involved is never a full-time job, but rather a hobby and passion.

In short, the Arctic Construction Cluster is a network that can only be of benefit. But you must remember that if you want to get something out of the cluster, you also have to be able to give something back. Participate in the activities of the divisions, share your knowledge and, above all, be active.

You are welcome to join us in taking northern construction expertise and innovations out to the world!

Marko Palonen,
Chair

EXECUTIVE DIRECTOR'S REVIEW OF 2023

2023 has been a year of change for the Arctic Construction Cluster. I started as the Cluster's Executive Director on 1 April 2023, and the change has been big in my life, too: 30 years as a structural design professional were behind me, and a completely new pattern began. Instead of a single company, I am now involved with the whole community of the construction industry and supporting it for the public good. I have found my new job very rewarding.

The Interreg Aurora Scabeac project and the support and cooperation agreement with BusinessOulu have enabled the Cluster to renew its activities. The calendar of events for 2023 shows that there have been many seminars, webinars, and workshops. These events have been accessible to all those interested in the construction sector, students and professionals alike, and they have been mostly free of charge.

The complete stagnation of housing construction that became a reality in 2023 has hit the companies and workers in the construction sector in Northern Finland hard. Nevertheless, the cluster's members have continued to work together diligently in the different divisions. They have shared their experiences and problems and contemplated on the future.

The recession has raised a common concern among Cluster members: how will young, newly qualified professionals react to the recession? The construction industry cannot afford to lose any professionals but must be able to keep these young people within the industry. However, we in the cluster are positive and optimistic, because in Finland people are always building – if not constructing something new, then repairing the old. This message to young people cannot be over-emphasised.

Digitalisation of the construction sector has not yet taken off as it should here in the North, but change is inevitable, and everyone needs to learn and see the benefits. The Arctic Construction Cluster has also acknowledged the fact that we need to work towards sustainable development and the circular economy. No one can ignore these issues any longer.

While economic challenges are setting the framework for the green transition, it is the young people with their values and ideas who will lead us into a new world.

Elina Yli-Luukko, *Executive Director*

THE BIRTH AND GROWTH OF THE CLUSTER

The Arctic Construction Cluster Association was born in 2001 not by chance, but surprisingly, dictated by an unexpected situation. The cluster's renewal into its present form was prompted by the fragmentation of the construction sector and the change in operating conditions in 2017.

The following dates are significant for Northern Finland and for master's degree education in Civil Engineering at the University of Oulu: in 2001, the study programme was discontinued, and in 2017 it was relaunched with the cluster's support.

Discontinued education and the emergence of the cluster

The master's degree programme in Civil Engineering at the University of Oulu, which had been in operation since 1959, was terminated in 2001. This resulted in a difficult recruitment of experts and a reduction in research contracts, which limited the activities. At the same time, the construction sector became even more fragmented because of numerous company restructurings.

In response to these changes, the Arctic Construction Cluster Association was founded in 2001 with the signatures of seven strong players. The acute objective was to support the industry in its need for expertise. However, the main objective was to bring master's education back to Oulu.

Growth into one of the largest building communities in Northern Finland

The cluster achieved its goal in 2017, when the Ministry of Education's regulation was amended to restore the obligation to train and award degrees in civil and urban engineering at the University of Oulu after a break of just under 20 years.

In this new situation as years of objectives had been fulfilled, it was decided to "completely rebuild" the cluster. Its task was to bring together a diverse but scattered construction sector in a broad cooperation, and to support the training received and the upscaling of the whole northern education chain. The involvement of public authorities in the cluster was a new feature.

This created a unique eight-industry entity for the construction sector, a renewed vibrant cluster that acts as an umbrella for cooperation in the northern construction sector. The multidisciplinary cooperation model now involves almost a hundred experts or communities, with no borders in sight.

Today, education and research in this field rely heavily on business cooperation. They are in demand in a globally changing business environment. This change is managed through education and research, but also through a lot of regulatory change, with the public authorities as the best driver.

Needs and solutions will first be identified by sector and consolidated, after which the results will be disseminated to the entire northern construction sector.

Tapani Mäkikyrö

Vice Chair
2019–

Chair
2016–19

What Is the Construction Cluster?

The Arctic Construction Cluster Association is a meeting platform for construction industries and members, as well as an active cooperation network. In its activities, the cluster monitors the development needs of the sector and seeks solutions to them.

Northern trendsetter – influencing the construction industry

In economics, a cluster is a concentration of companies and communities where a network of actors brings benefits and synergies to its members. Unlike an industry association, cluster members may be from different interrelated industries but, for example, geographically located in the same region.

The Arctic Construction Cluster is a tripartite cluster, bringing together construction companies, educational institutions, and public authorities. This tripartism makes it an exceptionally broad-based cluster as a community driving the construction industry forward. The cluster's mission is to bring together construction companies, educational institutions, and authorities in Northern Finland to work for the benefit of the construction sector and regional development.

The Arctic Construction Cluster is divided into seven different divisions by industry and one cross-sectoral team. They identify training, research and study needs that drive the industries forward, and seek and implement solutions to these needs. This purposeful and productive collaboration is the cornerstone of the Construction Cluster.

For all cluster actors and for the future of the construction industry as a whole, one of the key objectives of the Arctic Construction Cluster is to make the industry more attractive. The aim is to attract new students to the field and to make Northern Finland more attractive as an employer, also for recent graduates.

At the same time, the cluster's recognised expertise will increase its impact on decision-making. Especially in the case of regulatory changes and quality and value choices, cooperation between authorities brings added value to the parties involved. In this way, members of the cluster community can play a stronger role in shaping the future of their own industry.

Cluster cooperation also enables export advantage for solutions, products and know-how developed in Northern Finland. It is generated, for example, by the prestige of a recognised cluster of excellence in the industry as well as the development of top export products.

DIVISIONS

The Arctic Construction Cluster Association is organised into seven different divisions, which act as assessors and promoters of the needs of their respective sectors. In addition to the divisions, the cluster also has a Healthy Spaces team that intersects the sectors.

Diamond structure of the cluster by industry

The actors in the divisions are experts in their respective fields, representing companies, public authorities, and educational institutions. The leaders of each division, the Chair and Vice Chair, represent their division on the cluster's board.

The Board, in turn, coordinates and aligns the issues raised by the chapters to the overall objectives and supports the development of solutions, for example in terms of workforce needs, research funding, information flow, or publicity.

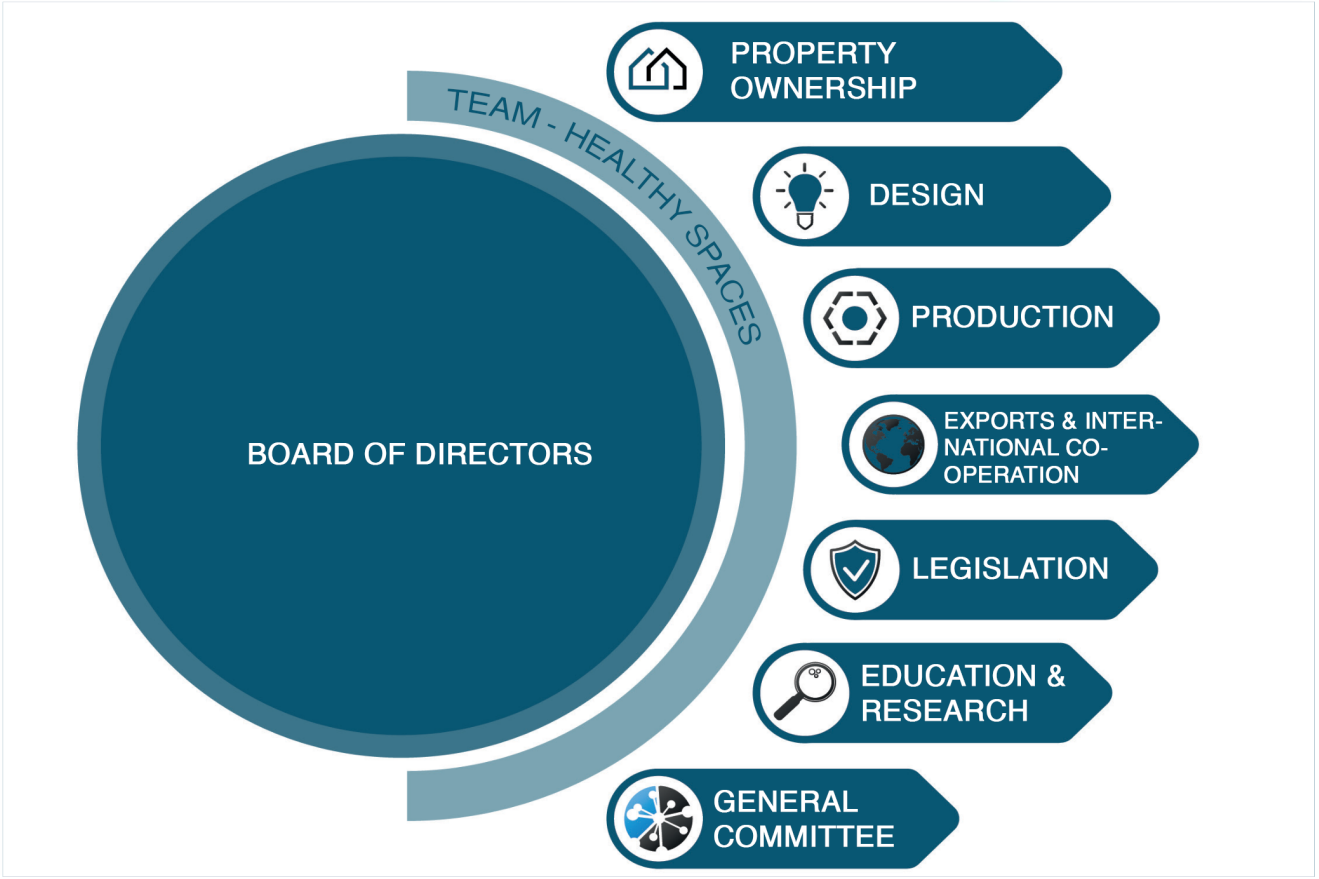
The Design Division has, for example, studied the readiness of newly graduated engineers and architects for the world of work and developing it from the perspective of design firms. The division's members work in the fields of infrastructure, civil and architectural engineering.

The Production Division includes representatives from construction companies and infrastructure, educational institutions, the construction products industry, and construction development. The division has focused on developing training and cooperation with educational institutions, material and energy efficiency, and BIM skills.

The Property Ownership and Construction Division has been separated from the production division in 2019. It is important for the construction and real estate sector that the owners' perspective is considered in the development and education of the field. On the other hand, it is important for property owners to keep abreast of developments in the sector.

The International Division in charge of export and international cooperation aims to investigate the current export situation of construction companies in Northern Finland, and to identify measures that could further improve the competitiveness of operators in the region on the Nordic market, for example through training.

The Public Authorities Division may include a wide range of representatives from municipal and state construction and environmental officials, including those from building control and land use. The division assists the cluster actors, for example by providing guidance on the application of changes in construction regulations and on construction quality work, and in return receives feedback and views from the field through the different divisions of the cluster.



The structure of the Arctic Construction Cluster Finland. Seven sections represent sectors of the construction industry. Additionally, the Healthy Spaces team seeks to combine sectors to find solutions to modern construction challenges.

The Education and Research Division aims to support and promote education and research activities in the construction industry at all levels of educational institutions. It aims to support the design, projection, and funding of new research openings and to obtain pilot projects for research trials. It also supports the development of training at member institutions and cooperation between them.

The General Division's role, in many respects, is to support the other divisions and to be active in the common tasks and objectives of the organisation, including links to administrative decision-making and resource acquisition. The division is responsible for coordinating one of the main tasks of the cluster, namely, to develop the attractiveness of the construction sector, including the important mission of attracting young people to the construction sector.

The work of the Healthy Spaces Team cuts across the different sectors of the cluster and seeks solutions to problems in the industry, also drawing on the expertise and results of the other divisions of the cluster. Achieving and maintaining healthy spaces requires a holistic view at every stage of the building process, whether new construction or renovations. It requires success in commissioning, design, production, and maintenance. The team's experts' specialty areas include renovation and maintenance, building technology, indoor air, building health, and medicine.

NETWORKING IS POWER – THE CLUSTER AS A PLATFORM

The Arctic Construction Cluster Association is a unique meeting platform for three different parties and their eight sectors. These three entities, companies, educational institutions, and authorities form an active network of cooperation in the construction industry, freely usable for the parties for the benefit of the construction sector and regional development.

Each sector of the cluster has a division to present the state of play in the construction industry from the perspective of industry representatives. Communication between the different divisions is based on the divisions initially holding their own meetings three to four times a year. At the Board meeting, which is held about six times a year, the industry representatives take turns to present new ideas and innovations that have emerged within each division. All cluster members are listed on the Arctic Construction Cluster website, so it is also possible to contact representatives directly.

As part of the cluster network, you can get involved in planning future innovations and participate in many other interesting projects. It is also hoped that the network will be useful in achieving members' personal or business goals. For example, through the cluster, companies can get legal advice from public authorities, or trainees for their teams. Students and educational institutions can find suitable clients for their theses or new teachers for lecture halls. Public authorities, on the other hand, get to hear what is happening at the heart of the industry and how new regulations are being dealt with.

One of the most important rules of the Construction Cluster is that each member is represented on an equal footing. Whether it is a government official, a company director, a construction worker, or a student, everyone's opinion matters.

ESCA BRONZE LABEL CERTIFICATE AWARDED TO THE ARCTIC CONSTRUCTION CLUSTER

In October 2023, the Arctic Construction Cluster was awarded the ESCA Label BRONZE quality system certificate, making it one of the registered and quality certified clusters among other European clusters assessed. The quality system certification process took about three months and included a pre-completed 20-page questionnaire and a team audit. An important part of the audit was the recording of the cluster's "success stories" for the auditors.

The European Secretariat for Cluster Analysis awards three different levels of quality labels, the ESCA certificates, to cluster organisations of excellence.

As a result of the audit, the cluster was provided with ESCA's vision on how the cluster could be further improved. A Cluster Board workshop in May 2024 will work on these ESCA guidelines and consider whether it would be useful for the Cluster to aim for Label SILVER or GOLD in October 2025. This would require the cluster to focus more on creating business opportunities for cluster members.

The Arctic Construction Cluster Association is about working for shared values and benefits. Membership of the association is open to any individual or legal entity that accepts the purpose of the association.

The European Secretariat for Cluster Analysis (ESCA)

The European Secretariat for Cluster Analysis (ESCA) is the one-stop shop for promoting Cluster Management Excellence through benchmarking and quality labelling of cluster management organisations worldwide.

The Berlin-based organisation coordinates a network of around 200 cluster experts from more than 30 countries, which offer benchmarking and labelling services on behalf of ESCA. In addition, ESCA provides hands-on advice to cluster managers on cluster development and supports cluster policy makers and programme owners with advice on cluster programme development.

The European Secretariat for Cluster Analysis awards three different Quality Labels to qualified cluster management organisations.

ESCA is an offspring of the 2009 European Cluster Excellence Initiative (ECEI), a pan-European initiative by the European Commission with the aim to create more world-class clusters across the EU by strengthening cluster management excellence. ESCA was established in November 2010 by one of the 13 European project partners, VDI/VDE Innovation + Technik GmbH.


BRONZE Cluster Management Excellence

esca European Secretariat for Cluster Analysis

cluster-excellence.eu European Cluster Excellence Initiative

Certificate FIN022202310C231309

Cluster Management Excellence Label BRONZE – Striving for Cluster Excellence

Arctic Construction Cluster Finland

fulfills the set of "Eligibility Criteria for Cluster Management Excellence Labels" of the European Cluster Excellence Initiative (ECEI) and has participated in a cluster benchmarking process according to the ECEI methodology.

The certificate expires October 31st, 2025.

i. A. Helmut Kergel
Director
European Secretariat for Cluster Analysis, Berlin

i. A. Oliver Ziegler
Head of Government Relations and Senior Project Manager
European Secretariat for Cluster Analysis, Berlin

Facilitated by the European Secretariat for Cluster Analysis (ESCA)
www.cluster-analysis.org

INTERNATIONAL COLLA-BORATION AND THE SUPER CLUSTER

Long-term cooperation with Sweden and Norway has so far included information exchange and jointly planned funding applications. Now, the supercluster idea that has emerged from this cooperation is being taken forward with a bang with the new AB3c Supercluster project.

Cooperation between educational institutions and public authorities

Cooperation between educational institutions is well advanced. Before the budget cuts, students from the University of Oulu in the field of civil engineering received credits from the University of Luleå and vice versa.

– It would be great to get back to this, as Norway, for example, has a lot of tunnels and related construction and design expertise, says **Tomi Makkonen**, secretary and treasurer of the Arctic Construction Cluster.

Public authorities also cooperate a lot through their own project activities. Global issues such as climate change and the EU's carbon neutrality targets are on the agenda of all cities.

– You can go it alone, but at some point, you run out of steam and the budget comes into play. It makes sense to work together when no one is competing with each other, and the problems are similar across climate regions, says Makkonen.

First supercluster project launched

In early 2021, the first cluster cooperation project, the AB3c Supercluster (Arctic Building and Construction Competence Cluster), was launched to explore what kind of construction expertise exists in the different Nordic countries and how well the cooperation can be taken forward to a practical level. The project involves the University of Oulu, Luleå University of Technology and LTU Business AB from Sweden, and Arctic University of Norway, Norwegian Institute of Technology, and Norwegian business incubator KUPA from Norway.

The project has three main strands: research and innovation, industrial cooperation, and new business opportunities for SMEs, and skills and knowledge. Each of the sectors has its own objectives in the project.

– Companies are looking for more business opportunities, partners, and skilled labour. Educational institutions are seeking to develop their training opportunities across borders. From a legislative point of view, the aim is to be visible in the world and to meet global requirements, Makkonen lists.

The project's work is linked to the long-term creation of a construction supercluster in the north.

– The initial aim is cluster-to-cluster cooperation between Finland, Sweden and Norway. Later on, other countries such as Russia, Japan and Canada will be involved.

According to Mr Makkonen, cooperation between clusters is key to ensuring that companies will also be able to do business across borders in the future.

– The industry is based on trust, and it is not easy for a company to build a network of trust without local partners and contacts.

NORTHERN FINNISH BRIDGE EXPERTISE AT THE FOREFRONT OF THE FIELD

Pekka Pulkkinen graduated as Master of Science in Engineering from the University of Oulu in 1980. He has been involved in the design of the Jätkänkynttilä bridge in Rovaniemi, the Tähtiniemensilta bridge in Heinola and the Raippaluodonsilta bridge off Vaasa.

Pulkkinen has also been commissioned to work in India, Vietnam and Australia. Finnish bridge design and expertise is internationally renowned, and for good reason.

What is it about bridge design that fascinates you, Pekka Pulkkinen?

Bridge design involves significantly more structural calculations than, for example, building construction. There are hardly two bridges alike. I specialise in cable-stayed bridges, and one of my biggest personal achievements has been the opportunity to participate in the design of the Jätkänkynttilkä bridge in Rovaniemi.

Why is Finland's bridge expertise internationally renowned?

Finland has identified certain areas of design that we excel in. We have three main pillars: expertise in cable-stayed bridges, wind, and modelling. They all support each other and that makes for a good palette of skills. When you go abroad, you need to have a proven track record of successfully designing and implementing a bridge project and have people who have done it working for you. When we have this and master the theoretical knowledge base, people internationally listen to and are interested in us.

Why is bridge design expertise so strong in the Oulu region?

Speaking on behalf of myself and many other engineering graduates from the University of Oulu, I can say that the university's curriculum in the 70s and 80s provided excellent support for the design of challenging structures. In the bridge design offices in Oulu, the know-how comes from this same era. The energy and will to be good in one's own field, also in terms of design, is one of the human characteristics in Northern Finland. Of course, success also brings more enthusiasm to tackle new assignments and challenges.

You have worked for many years as a teacher at Oulu University of Applied Sciences. What is the most important lesson you want to pass on to future generations?

The better the basic skills, the more successful you will be in working life. You can still learn about project skills after school, but no one can teach you the basics anymore. In school, I also stress the importance of choosing the right type of bridge for the right place. If you choose the wrong bridge, you can no longer make it structurally better by changing the details.

On 26 November 2020, Pulkkinen was awarded the Yrjö Matikainen Prize. In his cluster activities, he emphasises the importance of Nordic cooperation and the identification of excellence and top products in companies.

BREAKTHROUGH OF ECO-CONCRETE AS A PROMOTER OF CIRCULAR ECONOMY

The role of the circular economy in the built environment has grown significantly. Resource efficiency, i.e. the efficient use, recycling and reuse of natural resources, contributes to the latest circular economy objectives in the construction industry. Eco-concrete is one of the most significant circular economy innovations in the sector.

The production of cement used in traditional concrete mixing produces up to 5-10% of global CO2 emissions, depending on the statistics and the way it is calculated. Eco-concrete, also known as geopolymer concrete, solves this problem by using industrial side streams, i.e. waste materials from the production of other everyday materials, as a raw material instead of cement.

Depending on the recipe, eco-concrete produces up to 90% less carbon dioxide emissions than conventional concrete. Its production is not very different from that of conventional concrete: instead of cement, industrial by-products and a chemical activator are mixed into the concrete and the mixture is allowed to harden like conventional concrete.

Professor Mirja Illikainen and her research group at the University of Oulu have been focusing on the utilisation of industrial side streams and waste in the construction sector since 2012. The topic is particularly well suited to Northern Finland, where there is a large amount of industry producing side streams. In 2019, Illikainen and their team made headlines for developing the world's strongest eco-concrete.

- However, the strength of the concrete does not always reach peak figures, nor does it need to. A feature of eco-concrete is that its properties, such as strength, vary according to the properties of the starting materials. It is therefore important that the material properties are selected according to the intended use, says Illikainen.

As an alternative material, eco-concrete does not meet the standards that govern the use of conventional concrete, which limits its widespread use. However, until new standards are finalised, eco-concrete can be used in a wide range of non-structural applications, such as facade panels, noise barriers, flooring, paving, and infrastructure.

- What makes eco-concrete interesting from an architectural point of view is that its colour and appearance can vary widely, Illikainen points out.

The research team led by Illikainen at the University of Oulu has 30 researchers working full-time on eco-concrete. There is no other team in Finland, or even in Europe, that is as large and highly qualified in this field.

- It would be great if the players in our own region could lead the way in using the materials we develop in real construction projects. In addition to expertise in side streams, this region has everything needed to make a breakthrough, from designers and developers to industries producing side streams, Illikainen says.

AUTOMATION AND ROBOTICS IN INFRASTRUCTURE CONSTRUCTION

The idea of automation in construction machinery, which emerged around the 2000s, has now reached the point where automatic machine control systems can be found in the machines of almost every contractor working in infrastructure construction – at least in Finland.

One reason for the explosive growth of robotic automation in infrastructure construction in recent years is its significant economic benefits for the contractor. When automated machines do accurate work all at once, overdigs and repairs are avoided. This results in clear savings in materials and labour costs.

– In Poland, for example, research has shown that avoiding a 1-centimetre overdig on a long motorway section can save the contractor around a million euros in material costs, says Professor Rauno Heikkilä of the University of Oulu. He has been doing continuous research in the field of automation robotics in infrastructure construction since 1996.

Automation robotics for infrastructure construction is based entirely on information modelling technology. In Finland, these modelling guidelines are very advanced, and the latest technology in the field, cloud computing, has already been widely adopted. For these reasons, Finland is by far the world leader in construction-related automation robotics.

– We can thank construction companies and contracting organisations in particular for this, as they have a strong and forward-looking approach and an interest in funding research and development in the field, says Heikkilä.

The continuous development of machine automation is changing the needs of the construction industry. For example, more people are now needed in software and information modelling. However, machine operators need not worry, as the use of fully automated machines will continue to be an option only in special cases.

– Excavators that do not require a human operator are practical for sites located in hazardous areas. For example, in Japan and Norway, where landslides occur in certain areas. Normal construction sites still have operators on the machines, as there are also other people on the sites and unexpected situations can arise, says Heikkilä.

The spread of automation has also been well considered in the education of construction, especially in the Oulu region. The University of Oulu, Oulu University of Applied Sciences and OSAO have been working marvellously together for five years already. It is thanks to this educational cooperation that automation robotics in infrastructure construction has become one of the spearheads of the construction industry in Northern Finland.

– This is thanks to the Arctic Construction Cluster, which brings together northern companies, educational institutions and authorities into an extensive, coherent network, notes Heikkilä.

Rauno Heikkilä is Director of the Structures and Construction Technology research unit at the University of Oulu and Professor of Digitalisation in Construction and Mining. He is also a member of the Board of the Arctic Construction Cluster.

SUMMARY

This booklet entails the story behind the creation and operations of the most comprehensive network in Northern Finland's construction industry, the Arctic Construction Cluster Finland. It describes the diverse expertise and know-how, which many individuals and companies in the community keep at their fingertips. The Cluster consists of the board, seven divisions and a multidimensional team. The aim of the association is to raise awareness of the excellence of the northern construction industry both nationally and internationally.

In Northern Finland, we have several world-renowned spearhead products in the construction industry, such as BIM, bridge design expertise, and advanced infrastructure robotics. That is why we strive to share this know-how to the best of our ability with Sweden, Norway and other Nordic countries. We believe that by giving a piece of our own, we get something at least as valuable in return. And so does our members, almost 100 experts in the Cluster, who in their own profession employ, advise and train future construction professionals.

Everyone is welcome to join the Cluster as themselves, to pursue matters that are important to them. After all, everyone is just as unique as an individual as the cluster is as a cooperation network.

SAMMANFATTNING, NORRA FINLANDS BYGGKLUSTER RF.

Denna broschyr beskrivs om Norra Finlands mest omfattande byggnätverkets verksamhet och hur verksamheten uppstod. Byggnätverkets privata och företagsmedlemmar har olika expertis och kunskap. Norra Finlands Byggkluster består av en styrelse, sju divisioner och ett flerdimensionellt team. Syftet med föreningen är att öka medvetenhet om norra byggindustrins topkunskap både nationellt och internationellt.

I norra Finland har vi flera världsberömda produkter inom byggbranschen såsom BIM, byggdesign kompetens och avancerad infrabyggandets robotik. Därför strävar vi också efter att dela denna kunskap med Sverige, Norge och andra nordiska länder. Vi litar på att genom att ge en del av vårt eget får vi något åtminstone lika värdefullt tillbaka. Och detsamma gör våra medlemmar, nästan 100 experter i klustret som anställer, ger råd och utbildar framtida byggproffs.

Alla är välkomna med i klustret som sig själva och att driva ärenden som är viktiga för dem. Vi är ju alla lika unika individer som Byggklustret är som ett samarbetsnätverk.

Become a Member

The Construction Cluster is a registered association, which is easy to join. You can directly contact the representative of the division of your choice and express your interest in participating in its activities. If you are not yet sure which division you or your company would most benefit from and contribute to the cluster through, you can discuss this by telephone with the President or Secretary of the Board. Applications for membership will be considered at a meeting of the cluster's Board, and new members will be accepted subject to compliance with the Association's rules and policies.

Once the Board has taken a decision, you will be a full member of the cluster and ready to play your part in promoting construction excellence in Northern Finland!

The cluster membership fee in 2023 was €50 for individual members and €500 for corporate and community members.

MEMBERS

Arctic Construction Cluster Finland, Members 1.9.2023

Companies

AFRY Finland Oy
Anfra Oy
A-Insinöörit Rakennuttaminen Oy
A-Insinöörit Suunnittelu Oy
Are Oy
Arkkitehtitoimisto HML Oy
BusinessOulu
Caverion Suomi Oy
Cor Group Oy
Oy Crosslam Kuhmo Ltd
Geobotnia Oy
Granlund Oulu Oy
Hartela Pohjois-Suomi Oy
Iilaakso Oy
Inspector Sec Oy
Kastelli-talot Oy
Kiertokaari Oy
Kiiruna Talot Oy
Kontietuote Oy
Lamit Oy
Lujatalo Oy
Lukkaroinen Arkkitehdit Oy
Luo arkkitehdit Oy
LVI-Sasto Oy
LähiTapiola Kiinteistövarainhoito Oy
MammuttiHirsi
NCC Oy
Nordec Oy
Oulun Pysäköinti Oy
Oulun Sivakka Oy
Pohjois-Suomen Kiinteistösijoitus Oy
Puolustuskiinteistöt-liikelaitos
Rakennusliike Lapti Oy
Rakennusteho Oy
Ramboll Oy
Ruskon Betoni Oy
Ruukki Construction Oy
Sitowise Oy
Skanska Oy
Stenger & Ibsen Construction Finland Oy
Sweco Finland Oy
UKI-arkkitehdit Oy
Vison Oy
Welado Oy
WSP Finland Oy
YIT Suomi Oy
YIT Suomi Oy Elinkaarihallinta
Ylitornion Betonituote YBT Oy

Associations, organizations, foundations

Hengitysliitto ry
INFRA ry Pohjoinen
Oulun Kauppakamari
Pohde, tilapalvelut
Pohjois-Suomen Opiskelija-asuntosäätiö PSOAS
Rakennusteollisuus RT ry
Rakli ry, kiinteistönomistajat ja rakennuttajat

Governmental/public authorities

Kempeleen kunta, kiinteistöt
Muhoksen kunta, kiinteistöt
Oulun seurakuntayhtymä, kiinteistöpalvelut
Pudasjärven kehitys Oy
Rakennusvalvonta, Oulun kaupunki
Utajärven kunta
Yhdyskunta- ja ympäristöpalvelut YYP, Oulun kaupunki

Education and research

Centrian Ammattikorkeakoulu Oy
Kajaanin Ammattikorkeakoulu Oy
Lapin Ammattikorkeakoulu Oy
Oulun Ammattikorkeakoulu Oy, Linnanmaa
Oulun Seudun Ammattiopisto OSAO Oy
Oulun yliopisto, Arkkitehtuurin yksikkö
Oulun yliopisto, Kuitu- ja partikkelitekniikka
Oulun yliopisto, Rakennus- ja yhdyskuntatekn.
Oulun yliopisto, Tuotantotalous
RATEKO, RT:n Koulutuskeskus

Individual members

Number of individual members: 20.
The individual members are highly skilled experts in construction, environmental, and ICT technology.

Board of Directors, Executive Director

Marko Palonen, Chairman
Tapani Mäkikyrö, Vice Chairman
Tomi Makkonen, Expert
Timo Aho, Expert
Esko Järvenpää, Expert

The 1st leader of the sections is a board member and the 2nd leader is a deputy member
Elina Yli-Luukko, Executive Director

Divisions

Design

Building Structures, Engineering Structures, Architecture, Roads and Transportation, Other Infrastructure, Energy and Lifecycle Technology, Building Technology, and Building Health.

1st Leader
Marko Karkulehto, Sweco Finland Oy
marko.karkulehto@sweco.fi

2nd Leader
Janne Pihlajaniemi, University of Oulu
janne.pihlajaniemi@oulu.fi

Production

Buildings and Bridges, Roads and Other Infrastructure, Maintenance and Repair, Circular Economy.

1st Leader
Sakari Jämsä, Skanska Talonrakennus Oy
sakari.jamsa@skanska.fi

2nd Leader
Tero Kivioja, Kastelli-talot Oy
tero.kivioja@kastelli.fi

Exports and international cooperation

Export Condition Awareness, Collaboration Project Awareness, New Business Opportunities, International Marketing

1st Leader
Mikko Heikkinen, UKI Arkkitehdit Oy
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2nd Leader
Pekka Pulkkinen, WSP Finland Oy
pekka.pulkkinen@wsp.com

Education and research

Collaboration within the Educational Chain: University + University of Applied Sciences + Vocational Schools, Cluster Competence Maintenance, Interdisciplinary Research Collaboration, Northern and International Collaboration, Virtual Collaboration Models, Ouka Research Collaboration

1st Leader
Pekka Leviäkangas, University of Oulu
pekka.leviakangas@oulu.fi

2nd Leader
Matti Toppi, Oulu University of Applied Sciences
matti.toppi@oamk.fi

Governmental action

Predictability of Permit Decision Schedules and Conditions, Pre-consultation and Guidance on Quality and Value Choices, Smooth Collaboration, Minimization and Management of Appeals.

1st Leader
Pekka Seppälä, City of Oulu
pekka.seppala@ouka.fi

2nd Leader
Markku Hienonen, P-S Building Cluster Association
markku.hienonen@gmail.com

General committee

Cluster's Connections to Administrative Decision-Making and Research Funding Agencies, Interface with Society, Public Image, and Impact. Appreciation and Attractiveness of the Construction Industry, Recruitment of Young People and Students.

1st Leader
Tapani Mäkikyrö, P-S Building Cluster Association
tapani.makikyro@gmail.com

2nd Leader
Juha Mäntynen, Confederation of Finnish Construction Industries RT
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Team - healthy spaces

An interdisciplinary, solution-focused group that seeks solutions to significant problems utilizing different sections, "from research to production."
Current problem area: Damages - Healthy Spaces.

1st Leader
Timo Kauppinen, P-S Building Cluster Association
tkk@mutsal.fi

2nd Leader

Ville Sormunen, YIT Suomi Oy Lifecycle Management

ville.sormunen@yit.fi

Property ownership

Property Ownership, Construction Management, Maintenance, and Demand Control. The client entity progresses from the need for a service or product to the finished product by utilizing the offerings of different sections.

1st Leader
Ari-Matti Jänkälä,
A-Insinöörit Rakennuttaminen Oy
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2nd Leader
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