

Expertise and cooperation in the climate transition

NCC constructs, maintains and develops the built environment. This work is based on know-how, data and expertise concerning how materials, methods and processes impact the environment and the climate, and society in general. Establishing a joint roadmap to reduce the negative climate effects of concrete-based construction was a focus area in 2022.

The climate transition places major demands on the construction industry in general but also represents major opportunities. The transition of society in a sustainable direction and a necessary adjustment to climate change provide potential for investments in infrastructure, the development of energy solutions, upgrades and adaptations of existing buildings and infrastructure, and new investment in buildings.

The climate transition has changed the conditions, and requires innovation and a shift by the entire industry. NCC aims to play a leading role in this shift, based on our customers' needs. In this area, NCC can contribute its high level of expertise – we are specialists with in-depth knowledge and wide-ranging experience and are willing to help our customers with insightful solutions. We understand that tackling climate issues must permeate our business at a profound level, and we view decentralization and responsibility among our units as fundamental.

To contribute to the climate transition, cooperation and dialogue with customers, suppliers and other stakeholders in the industry is also necessary. We must work together to resolve the challenges and reduce the climate impact by developing work methods, materials, products and solutions.

NCC works to reduce carbon emissions,

increase the efficiency of energy consumption, use resources responsibly and increase the recycling and reuse of materials. We provide data, expertise and digital information about processes and products, thus contributing to traceability while also facilitating positive change.

To date, the work to achieve the objective of reducing emissions in the value chain has focused on four prioritized areas:

- Concrete
- Steel
- Asphalt
- Transportation.

Read more about NCC's sustainability work in the Sustainability Report section on pp 82-120.

Prioritized area

Concrete is currently the most widely used construction material in the world. According to the Research Institutes of Sweden (RISE), 25–30 billion tons of concrete are used every year. Concrete offers many benefits – it is cheap, robust, long-lasting, versatile, flexible, moldable, fire-proof and strong. It is a central material in many construction projects, in everything from building construction to infrastructure, such as bridges, water treatment plant, wind turbines and cogeneration plants. At the same time, it has a major climate impact.

Concrete consists of ballast (sand, stones, gravel), cement, which is used as binding agent, and water. More than 90 percent of the climate impact of concrete derives from the manufacture of cement, from which large amounts of carbon dioxide are emitted.

For this reason, NCC has identified concrete as an prioritized area and has set a target of halving its climate emissions from concrete by 2030. Up to 2022, we had only collected data for a minor amount of the concrete that was used, ready-mix concrete, but work is under way to expand data collection. Since 2015, CO₂e emissions from ready-mix concrete have been reduced by 16 percent.

Group-wide roadmap

NCC works on the basis of a Group-wide roadmap for concrete-based construction at both a Group level, where coordination is conducted, and in each business area. The aim is that all employees will be involved and be aware of the transition that is required and thus be able to contribute to the transition. This effort requires close cooperation with suppliers and other players in the value chain, while it is also important that regulatory aspects are considered.

NCC's roadmap complies with both national and international roadmaps. The work has two phases: Minimize and transform.

New concrete formula reduces cracks and carbon emissions in upgrade of Lilla Edet hydropower plant

On behalf of Vattenfall AB, NCC is upgrading the Lilla Edet hydropower plant in order to raise safety and manage larger water flows. The new dam is being constructed using eco-friendly concrete, which reduces both carbon emissions and the risk of cracks in the concrete. The new concrete formula has been developed in cooperation with Vattenfall and Thomas Betong. By replacing a part of the cement with fly ash and using larger ballast grains, the carbon footprint of the concrete has been reduced by 30 percent compared

with the previously prescribed formula for the plant. This is the first time that fly ash has been used to this extent and in this type of structure. The concrete formula has been devised in order to minimize cracks that arise when the concrete hardens. The fly ash and the larger ballast grains help to reduce heat development for the concrete, which also results in lower temperature fluctuations. This means that less cooling is required to manage these fluctuations.



National initiatives

NCC participates in a range of national initiatives for reducing the climate footprint of construction, such as:

- In Denmark, NCC is a partner in the “Bæredygtigt Beton Initiativet,” which consists of 35 proposals for reducing CO₂ emissions from building and infrastructure project contracting
- In Finland, NCC, together with other industry players, is a member of a government initiative aimed at developing sector-specific roadmaps for reducing CO₂ emissions
- In Norway, NCC has joined “Eiendomssektorens veikart mot 2050,” so that the property sector will promote a society that will be sustainable by 2050
- In Sweden, NCC is a partner in “Roadmap for fossil-free competitiveness – Construction and Civil Engineering sector,” whereby NCC will take responsibility for its part in achieving a climate-neutral value chain by 2045

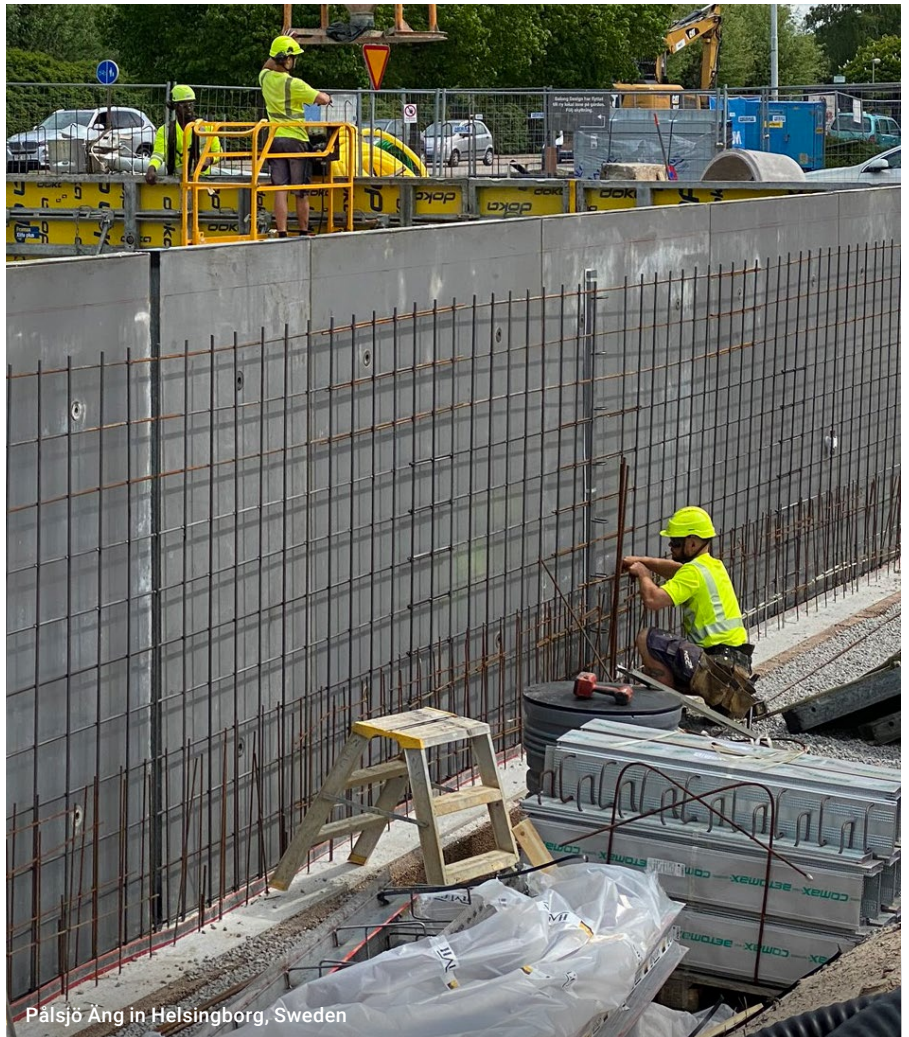
Minimize climate impact of concrete-based construction

Efforts to minimize climate impact are conducted from three perspectives.

- Right concrete in the right place: Not using a concrete grade that exceeds the requirements of the different components of various structures but that still satisfies requirements in respect of function, strength and durability.
- Minimize the amount of cement in concrete: Increase the use of “eco-friendly concrete”. This entails replacing part of the cement with materials that resemble cement but that have a lower carbon footprint, such as slag or fly ash, which are by-products of other industrial processes.
- Minimize the volume of concrete: Optimize the design and minimize all components of a structure. NCC is reviewing the design of its structures to ensure an efficient use of resources and to minimize the amount of concrete, and is working to reduce waste in production.

Transform concrete-based construction

Halving our climate footprint is possible within the framework of contemporary knowledge, known available technology and existing standards. To eventually achieve climate neutrality, we need to identify efforts and techniques that can generate long-term effects. Implementing these, which includes new methods and materials, is the second aspect of NCC’s roadmap: transforming concrete-based



Pålsjö Äng in Helsingborg, Sweden

Reduced climate footprint of building projects

In Sweden, there are several examples of NCC participating in construction projects that have succeeded in reducing the climate footprint of concrete. The Building Sweden business area decided in 2022 that all of its projects will use eco-friendly concrete as their point of departure as part of the implementation of the Group-wide roadmap.

At Pålsjö Äng in Helsingborg, NCC is building 73 rental apartments in three multi-family buildings and 11 row houses, as well as supplementary buildings, on behalf

of Helsingborgshem. In the procurement of this project, the focus was on reducing the climate impact during the construction process. The buildings will be provided with solar panels and there are plans for sedum roofs. This project will include an optimized structure that will be poured on site, as well as concrete with a lower carbon footprint than conventional concrete. Carbon emissions from production will be 10 to 45 percent lower. Some of the joists have been cast using concrete with less than 100 kg CO₂e/m³, which is very low in this context.

At the Kungsörnen residential housing project in Helsingborg, NCC has focused on lowering the carbon footprint by reducing the amount of concrete, minimizing waste, optimizing the use of concrete and streamlining the design. In large parts of the project, NCC has used eco-friendly concrete, based on about 40 percent slag. Through this structured and target-oriented work, the climate impact was reduced to nearly half, compared with other corresponding construction projects.



construction. This effort remains at an early stage, but it includes supporting development and promoting the use of such techniques as carbon capture from

cement production for recycling or storage, the development of innovative technical solutions for construction, and promoting increased recycling and reuse of concrete.

Expertise throughout the construction process

During 2022, NCC's 12,500 employees, together with our customers, developed and pushed the progress of construction projects forward throughout the Nordic region. Expertise and experience enable our project teams to anticipate and manage the challenges and opportunities that arise during a construction process, and to propose proactive solutions to the customer.

Attracting and developing the best talents in the industry is decisive for NCC's competitiveness. Common values and behaviors are a cornerstone of NCC's strategic direction. During 2022, we have continued to build a successful culture based on NCC's Star behaviors - four behaviors that guide all employees on a daily basis and at the same time describe what customers can expect from NCC. Two years after the launch, we are now starting to see positive effects on our culture in several areas, such as collaboration, customer orientation and knowledge sharing.

We have a good reputation among our candidates, which gives NCC high ratings in the follow-up of the recruitment process. The employee survey shows high commitment and a willingness to recommend NCC as an employer. During the year, NCC launched a new, modernized employee survey which, through such features as increased frequency and transparency, focuses on continuous improvements and on the performance of the team.

NCC wants to recruit and retain the best talents in the industry. An increasingly complex construction process requires specialists and experts in many different areas. To satisfy the growing demand for skills, we need to reach largest and most relevant skills base possible. Diversity and inclusion are therefore a prerequisite for success. NCC applies zero tolerance to discrimination, no employees should be impeded in their development and careers

Number of employees in the Nordic region

12,500

Norway
1,450

Finland
1,100

Denmark
2,150

Sweden
7,800

NCC is a long-term and stable employer in the Nordic market.

due to unfair treatment and we strive for a balance between women and men in NCC's management teams and monitor this.

High employee engagement

7.9/10

From NCC's employee survey, above external benchmark.

Good reputation among candidates

8.9/10

"NCC offers good career opportunities" Feedback from candidates in NCC's recruitment processes.

Zero tolerance of discrimination

8.7/10

"I am secure in the knowledge that I will not be discriminated against, harassed or bullied at NCC." From NCC's employee survey, above external benchmark.

NCC Site Introduction

NCC Site Introduction is a new, safe and efficient digital induction tool targeted at the more than 100,000 who are introduced to NCC’s production worksites each year. The new Group-wide process simplifies the compulsory steps that all NCC employees, sub-suppliers and their partners need to complete prior to starting work at any of NCC’s sites. Before arriving at a site, everyone must have completed and passed NCC’s site introduction. Rollout commenced in Sweden during 2022 and will continue in the other Nordic countries in 2023.



We develop the best project teams in the business

The increased specialization and complexity of construction projects imposes high demands on skills, leadership ability and customer understanding. NCC places great importance on developing its own employees and today it has an extensive portfolio of industry-specific skills and leadership programs. A sound balance between internal and external recruitments to various key positions secures continuity and development.

NCC has a large number of young talents in the company and wants to develop them into future leaders and specialists. All business areas have their own talent programs, which are combined with Nordic network meetings for knowledge sharing.

Concurrently, we offer high-quality development programs to the most experienced managers. One example is the Mega Project Management Program, which is aimed at experienced project managers and has been continuously developed since its inception in 2018. In 2022, cooperation with Oxford Global Projects, world leaders in research on mega-projects, was initiated in order to further strengthen our capabilities in leadership and the construction process.

For division and department heads, there is the Senior Executive Program, a

leadership program in collaboration with IMD Business School in Lausanne and an important part of NCC’s work with succession.

A safe and healthy work environment has the highest priority at NCC

All employees at NCC’s worksites must contribute to a safe and healthy work environment, so that everyone returns home from a workday free from injury. The occupational health and safety work always involves suppliers and subcontractors. NCC has set a target of reducing

common accidents and eliminating serious incidents and accidents with a potentially fatal outcome. In recent years, NCC has succeeded in steadily reducing its accident frequency rate at production worksites, albeit with a small increase in 2021–2022. In 2022, NCC launched NCC Site Introduction, a new digital program focusing on worksite safety. When it is fully implemented, everyone who works at our worksites will have undergone high-quality safety training prior to coming to and starting work at a worksite.

Accident frequency

NCC has a Group-wide occupational health and safety (OHS) target for the number of work-related accidents resulting in more than four days of absence per million working hours (Lost Time Injury Frequency, LTIF4). In 2022, the LTIF4 rate was 4.1, which was higher than in 2021.

The target for 2022 was 3.0.

