

HOW WE COLLECTIVELY DEVELOP A

Climate Neutral Building and Construction Industry



Malmö city, a Fossil free Sweden & Swedens Building and Construction Industry

AS THE FIRST MUNICIPALITY IN SWEDEN, Malmö city signed "A declaration of Cities Commitment to the 2030 Sustainable Development Agenda." By 2020 at the latest, Malmö has committed to developing an integrated and holistic development strategy for how to reach the global goals for 2030, in the shape of a local Agenda 2030 shaped by the city council. In the Environmental Plan as well as in the overarching strategy for the city, the city council has listed its main goal: that Malmö by 2030 will be Sweden's most environmentally friendly and efficient city. All building and construction shall be characterized by long-term thinking, smart energy solutions, and materials adapted to the surrounding environment.

TO REACH THESE AMBITIOUS GOALS, Malmö's work on climate change must include the building and construction industry together with the already prioritized energy and transportation sectors, as the building and construction industry is responsible for approximately 20 percent of the total climate impact. Malmö has also, together with the Swedish association, "Climate Municipalities," committed to the national roadmap towards 2045. Malmö City Council has through their budget provided the mandate for the city planning board to work with other relevant planning boards in the city to propose strategies for how Malmö is to reach a climate neutral building and construction industry in the city. The city planning office has been trusted with the responsibility of investigating and proposing suggestions for such strategies.

THEREFORE MALMÖ CITY SUPPORTS the industry's initiative "Local Roadmap for a Climate Neutral Building & Construction Industry in Malmö 2030" (LFM30) as well as its process. In concurrence with this initiative, the city is working together with city council to propose a strategy for climate neutral construction which is consistent with LFM30. Malmö City intends to participate in the execution of LFM30.

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THE BUILDING SECTOR IS RESPONSIBLE FOR NEARLY A FIFTH of Sweden's carbon emissions. There is a large need to look at the whole value chain when trying to set goals, implementing measures, and executing projects with the aim of reducing emissions. There is also a large potential for profitable investments when we plan for the long run. The national road map for a climate neutral, sustainable, and competitive building and construction sector implemented as a part of the Fossil Free Sweden initiative has as its goal to reach climate neutrality by 2045 at the latest. The industry's initiative "Local Roadmap for a Climate Neutral Building & Construction Industry in Malmö 2030" is an ambitious and good initiative which we think will contribute positively to the development of the region both when it comes to reducing emissions and creating a competitive business environment. Many projects and activities need to be executed during a short period of time for this to succeed. The most important part of the puzzle for us to reach a successful result is a strong local connection. The strong and expressed ownership of these questions from actors within the building industry as well as the local value chain shows that this roadmap has the potential to inspire more cities and actors to present their own local roadmaps to contribute to Sweden's climate neutrality objective.

/ SVANTE AXELSSON
Fossil Free Sweden

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Federation

"A Climate Neutral Building and Construction Industry in Malmö by 2030 at the Latest"

The need for effective climate measures

The building sector is responsible for more than 20 percent of Malmö's total climate impact. In Malmö city's budget for 2019, there is a stated priority to propose strategies for climate neutral construction. There are many projects such as housing, schools, preschools, infrastructure, and parking in the pipeline through initiatives such as the 'Sweden agreement' and the 'financial package for large cities.' Therefore, there is a need to find new, climate neutral solutions that don't stop at making Malmö more sustainable, but also create a market and financial incentive for climate neutrality in the building and construction industry.

For this to happen we need to evaluate construction methods and building materials based on their function as well as their climate impact, starting to view the climate impact from the building process with a life cycle perspective. In Malmö's environmental plan, accepted by the city council, there is a stated objective for Malmö to become Sweden's most climate efficient city and that Malmö as a region shall become climate neutral by 2030. As the first municipality in Sweden, Malmö has signed the Agenda 2030 and intends to include its objectives in the municipality's overarching objectives.

Sweden's first local roadmap

On the 25th of April, 2018, the first national roadmaps for a Fossil Free Sweden were submitted to the government. Today, the initiative includes 350 actors who have all signed the declaration. The building and

construction industry's participation shows that they not only are able, but also want to take a greater responsibility for the environment as well as future generations. In order for implementation to happen, however, there needs to be a market and geography in place. Malmö as a city has particularly ambitious climate targets, and many good examples in the city could offer just this market and geography.

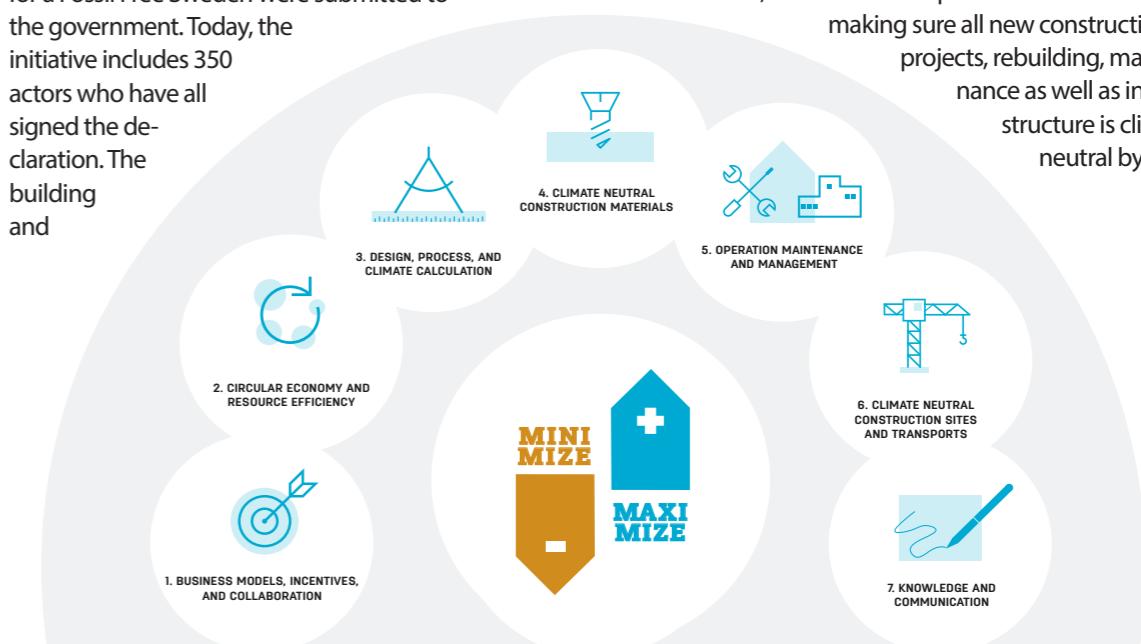
Sweden's first local roadmap

The development of a local roadmap was initiated with a feasibility study conducted by Malmö city together, with among others, Sustainable Building in the South. This process revealed potential roads forward as well initial ideas regarding strategies and objectives to reach climate neutrality within the building and construction industry in Malmö.

WE HAVE SIX OVERARCHING, INDIVISIBLE, AND STRATEGIC FOCUS AREAS:

- Business models, incentives and collaboration
- Circular economy and resource efficiency
- Design, process, and climate calculation
- Climate neutral construction materials
- Operation maintenance and management
- Climate neutral construction sites and transports

With these focus areas and the overarching objective in mind, we will take this plan from idea to reality making sure all new construction projects, rebuilding, maintenance as well as infrastructure is climate neutral by 2030.



– OUR OVERARCHING GOAL –

To do less, more, and fewer at the same time

In order to achieve climate neutrality within the building and construction industry we need to implement measures which gradually raise the requirements which partners must meet. Step by step it is our objective to optimize the processes through adding, subtracting, and substituting methods in our projects to reduce the climate impact as well as make it possible to follow up and continuously learn from our actions.

The life cycle analysis will guide us

Life cycle analysis (LCA) is an important tool to judge the environmental impact from a product. It is also important for getting a picture of the resource flows and value chains included in the building process resulting in a final product. In this way, the LCA provides a great opportunity to see more clearly what one can do to reduce one's impact on the environment. An LCA for the building process is categorized according to the building's or the construction site's separate stages.

A BUILDING STAGE					B USAGE STAGE							C FINISHING STAGE			
A1-3: PRODUCT STAGE			A4-5: BUILDING PRODUCT STAGE												
Raw material resources	Transportation	Manufacturing	Transportation	Building and installation process	Usage	Maintenance	Reparation	Exchange	Rebuilding	Operating energy use	Operating water use	Dismantling, demolition	Transportation	Handling residual product	Disposal
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4

From product stage (A1-A3) and the building production stage (A4-A5) to the usage stage (B1-B7), and final stage (C1-C4).

In this roadmap, an LCA completed at an early stage of the building project is called a climate calculation. LCA and climate calculation are calculated according to the National Board of Housing, Building and Planning standards for LCA as well as IVL Swedish Environmental Research Institute's certified climate calculation. Carbon storage and biogenic coal are both included in these calculations.

– OUR OVERARCHING GOAL –

Malmö grows sustainably – together

We support the objective that Malmö reach climate neutrality in the building and construction industry by 2030 at the latest. We commit to implementing gradually the overarching goal and promises in our own businesses and organizations. The promises comprise detailed goals within six strategic focus areas, are dependent upon each other, and are not replaceable. The detailed goals generate possibilities and obligations in every organization's leadership group, in the value chain, towards customers as well as users, suppliers, and other relevant parties. We are transparent, measure our efforts, make sure to follow up, and continuously communicate if and how we are reaching the objectives within the roadmap.

Actors within the construction value chain

För us to continue taking steps towards climate neutrality within the building and construction industry as well as the realization of the roadmap, which is not only inclusive but also executable, a common understanding and willingness is needed from both private and public actors. The roadmap directs itself at all of those who in any way work with construction of new buildings, structures, or renovation/rebuilding/demolition. Malmö city and larger private and public actors within the construction industry are key participants in the project in order to achieve positive results that move society forward. But all actors need to take responsibility for their

part. To succeed, all actors in the value chain must contribute to the roadmap based on their expertise, capabilities, and own agency.

RELEVANT AND INVITED PARTICIPANTS IN THE LOCAL ROADMAP 2020 ARE:

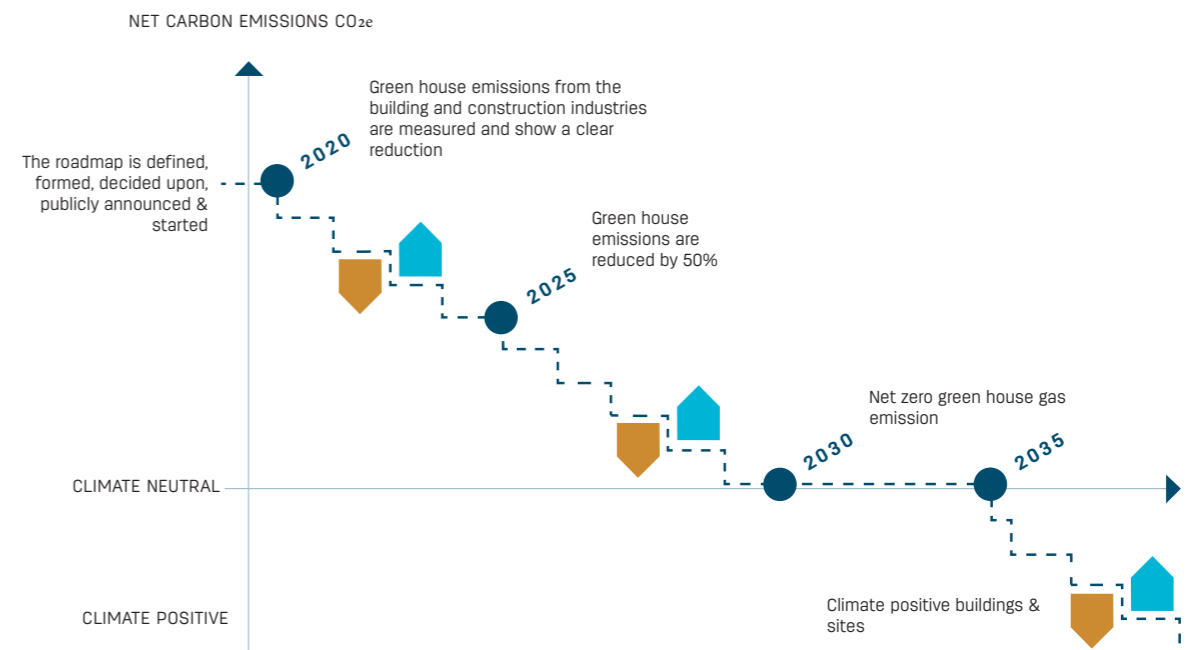
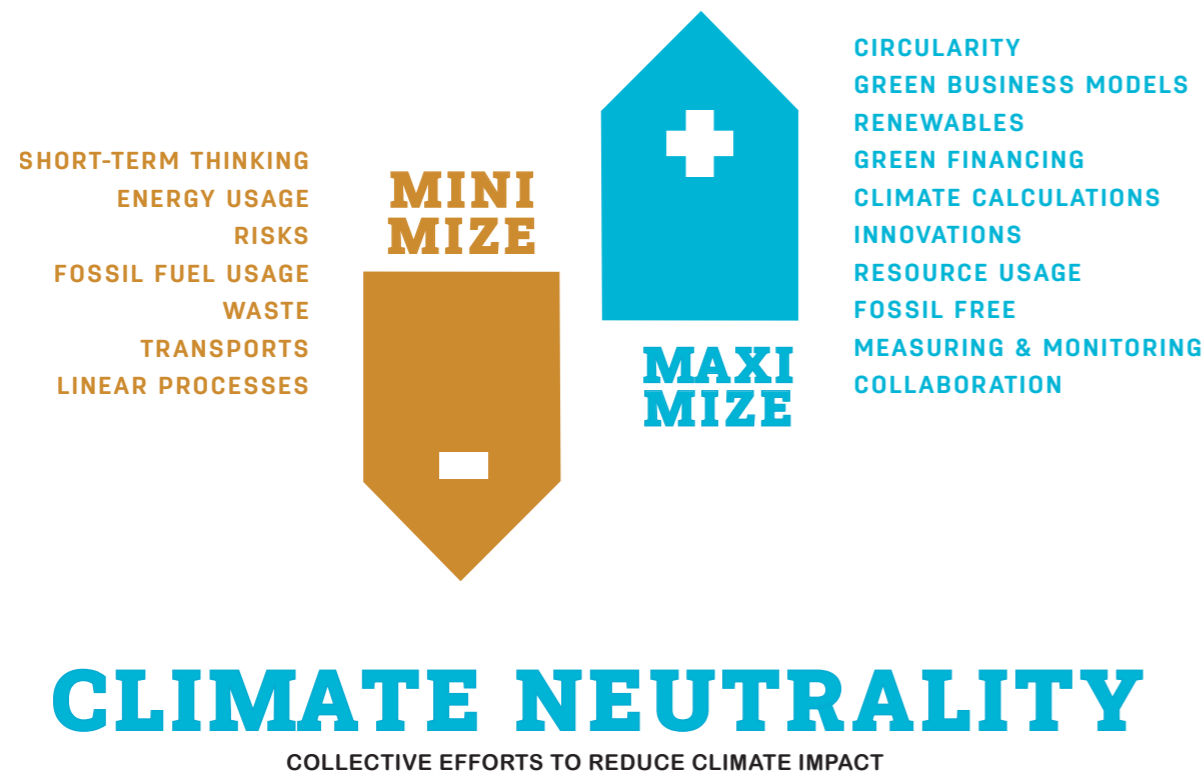
- Malmö city (in all of its differing roles)
- Publicly owned companies
- Purchasers/developers (private and public)
- Financial actors
- Builders/prime contractors
- Subcontractors
- Suppliers
- Consultants
- Higher education and academics
- Other actors and organizations

FOLLOW-UP

Method and reference guide for shared measurement and analysis of current situation will be presented 2019-2020

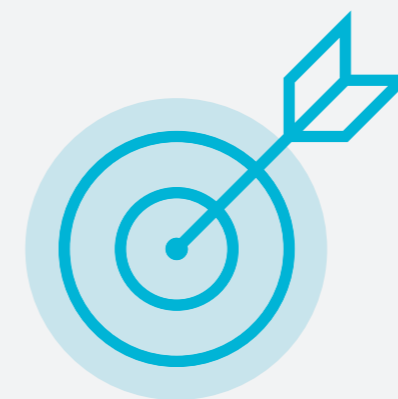
First quarter 1-2 2021, each actor reports their own current situation analysis for 2020, and the progress that needs to be made each year.

Actors must hereinafter continuously report their progress - and the activities which are executed within each strategy and focus area.



– WE PROMISE –

“To implement Malmö’s roadmap and objectives for a climate neutral building and construction industry in our own organization or business”



– OUR STRATEGIES –

Business models, Incentives & Collaboration

We adopt climate neutrality goals and obligations in our own organization’s budget and operations process / business plan based on the objective to halve climate impact by 2025, achieve climate neutrality by 2030, and climate positivity by 2035 in all projects. We collaborate in a target-oriented way, learning from and including each other in the process so that we reach our goals as well as increase competencies and skills in the area of climate impact throughout all of the actors’ value chains.

- We promote green financing solutions whose purpose it is to stimulate investments with a lesser climate impact.
- We develop our own skills and promote networking and collaboration with others.
- We report our results (actual emissions) openly every year and relay learnings to others through our work with the roadmap (for example through theoretical emissions in already planned building projects).
- As banks, we develop innovative and sustainable financing solutions, for example through initiatives such as Bankers for Climate. The rest of us request

financing packages, such as green loans and lower capital requirements.

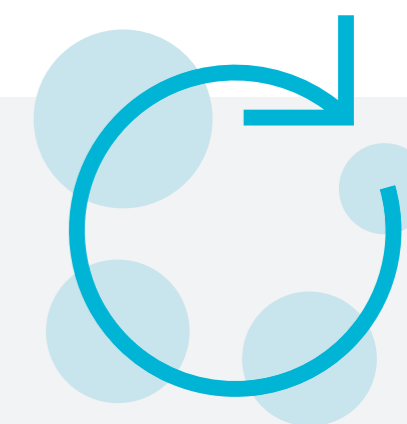
- As developers, when selling our own land or building rights, we strive towards making deals with the least climate impact.
- We call for Malmö city to provide similar conditions when selling land independent of which materials are chosen.
- We call for Malmö city to investigate and try different incentive structures in order to increase the total share of climate neutral construction.
- We work proactively and take responsibility for reducing our climate impact, based on our agency and the material suppliers’ capacity to reach their climate neutrality objectives.
- We influence our supplier chain when it comes requirements surrounding climate neutrality, competency, and follow-up, through formal agreements and other procurement decisions.
- As developers, we pledge to start at least one climate neutral building project by 2025.

Circular Economy and Resource Efficiency

- We value and choose our building materials from the chain of suppliers circularity and climate impact factors as well as function. We include spillage and waste in the climate calculation, successively reduce the total amount of waste as well as the share which is incinerated. We phase out the use of dangerous substances in our building materials and thereby promote the possibility of circularity.

- We strive towards 100% circular use of materials. Therefore we promote circular, resource-efficient as well as circular and bio-based building methods by gradually setting stricter requirements on circular building materials, sharing services, and reuse in our public procurements.

- We act to minimize spillage in every stage as well as the total amount of waste that is generated by setting requirements and following up on each project as well as its end usage, for example through incineration, reuse, or landfill burial.



– OUR STRATEGIES –

Design, Process & Climate Calculation

We base our design, construction process, material decisions, and methods on a life cycle analysis. We optimize our use of resources in a circular and efficient manner.

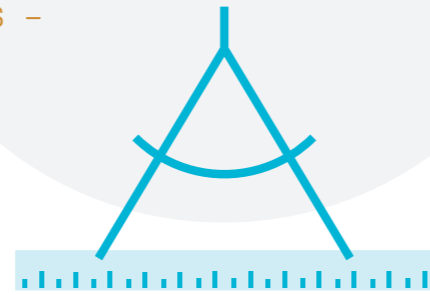
Step by step, we digitalize the whole planning and building process, integrating the climate calculation from an early stage with the help of established tools like 3D-design and renderings. We use a shared and open model for our climate calculations (based on LCA-methods) which are quality-assured, standardized and comparable, for the purpose of follow-up and knowledge sharing. Of those of us who have the agency to do so, at an early stage and for every step in the building process, we take responsibility and influence our partners to minimize their climate impact in building and construction projects as well.

- We work together and develop operating procedures in close collaboration with relevant actors to create a readable and sustainable architecture with integrated energy- and ecosystems, mobility- and material-optimized solutions, as well as socially based solutions.
- We support and strive towards climate neutral incentives, initiatives, design, and innovations.

Climate Neutral Building Materials

We climate optimize buildings through our choice of materials and design. We always prioritize renewable and circular building materials. In the procurement process, we successively set higher targets when it comes to share of material that is reused, recycled, and renewable, resource efficient as well as climate neutral. We require climate information, EPD (Environmental Product Declarations), for all building materials.

- We prioritize circular building materials in all building processes, with a focus on measures that have a large climate impact, such as the framework and foundation of a building. We also optimize materials so that they are as resource-efficient as possible, based on the material's different characteristics.



- We aim to work in accordance with established procurement requirements, method- and certification schemes, for the purpose of setting requirements, guiding, and reporting.
- As developers, we include climate calculations in our business and project decisions, in accordance with the National Board of Housing, Building, and Planning's guidelines for LCA. As other relevant actors, we strive to fulfill the developers' requirements as well as the project's ambitions. We all act to develop an LCA so that all possible measures as well as carbon storage in materials are included from hereon.
- We develop processes in close collaboration with architects, design engineers, material suppliers, and purchasers to create a more sustainable architecture with energy- and material-optimized solutions. The architecture emanates from the place's history and physical surroundings and has as its aim to strengthen the city's attraction and characteristics over time.
- As developers, we make sure to have conversations with the city early on in the planning process, reaching better climate results with the help of the zoning plan and building rights processes.
- We call for Malmö city to regulate zoning plans so that business conditions are the same regardless of chosen materials.



- We work together to raise successively the standard within our industry when it comes to climate requirements for the material that is used in our value chains, with a special priority on material with a high climate impact.
- We collaborate to find processes where all important suppliers of building materials successively choose to favor sales, both via internet and brick-and-mortar, of building materials with a substantially lower climate impact than alternatives - all other things being equal.
- Our supply chain sets requirements on, and asks for validated information which shows the building materials' climate impact, also known as EPD.

– OUR STRATEGIES –



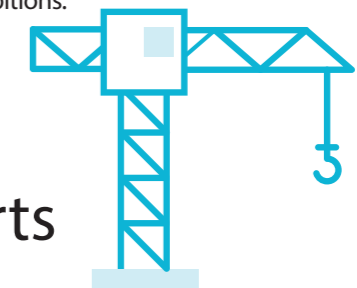
Climate Neutral Management, Operations & Maintenance

As property owners, we implement measures (such as energy efficiency measures) which minimize the property's climate impact. When rebuilding, we choose materials and methods based on climate calculations and resource efficiency, with the purpose of reaching climate neutrality in our property management activities. We always have the conscious client and tenant in mind when working with operations or property management. If possible, we only make additions or investments in a current building after consultation with the users of the place. We strive to implement local and fossil free energy production methods, preferably integrating solutions in the building itself.

- As developers, we pledge to implement measures (such as energy efficiency measures and smart grids) which reduce the building's net total emissions of greenhouse gases (B1, B6, B7), for the purpose of reaching climate neutrality in our property management by 2030 at the latest. All of us other actors pledge to reach the developers' and their projects' ambitions.
- As developers, we use climate calculations to make essential decisions surrounding maintenance, reparations, exchange, and rebuilding (B1-B5) for the purpose of promoting the right choices of building materials, construction systems, and methods to reach climate neutrality in our project management activities by 2030. All of us other actors aim to reach

the developers' and their projects' ambitions.

- As developers, we promote systems, tools, skills, and follow-up management systems within property management which help to reduce climate impact when it comes to management and maintenance. All of us other actors strive to reach the developers' and their projects' ambitions.
- As developers, strive first for densification, renovations, additions, and rebuilding rather than tearing down already existing buildings/properties to build new ones instead. All of us other actors strive to reach the developers' and their projects' ambitions.
- As developers, we strive towards reaching 100% renewable energy for all heating and operations in the building. Locally produced renewable energy, for example solar cells, are prioritized. All of us other actors strive to reach the developers' and their projects' ambitions.
- When renting or leasing, we use green and sustainable contracts as our standard, together with the property owner and vice versa. The purpose being that it should be easy to live and work in a climate friendly way when maintaining our buildings.
- Smart grids need to be developed as a measure for reducing climate impact. All of us other actors strive to reach the developers' and their projects' ambitions.



Climate Neutral Building Sites & Transports

We reach climate neutrality within building and construction projects and optimize transportation methods to/from/on the building site based on climate calculations. This is achieved by using fewer machines run on fossil fuels, a high degree of industrialization, pooled deliveries as well as sharing services.

- Climate neutral energy production and energy efficiency in all of the building processes' stages by the year 2030.
- We work together in the industry to promote the development of processes which contribute to reducing the total need for transportation, through

more efficient logistics systems, pooled deliveries, a high degree of industrialization as well as other mobility solutions.

- As developers, we set requirements for environmentally friendly electricity and no fossil fuel energy in new and existing buildings from 2025 onwards. From 2030 and onwards, our building sites are climate neutral (in the building process A1-A5, in the operations B1-B7 and in the final stages C1-C4). All of us other actors strive to reach the developers' and their projects' ambitions.
- Us energy suppliers will provide renewable or recycled energy and electricity by 2025 at the latest.

– ADDITIONAL INFORMATION –

– WE BUILD MALMÖ TOGETHER –

Reference for central documentation as well as definitions of other concepts



Click the images to read more

LFM30. Local Roadmap for a "Climate Neutral Building & Construction Industry in Malmö 2030.

AGENDA 2030, or the 17 UN Global Goals for Sustainable Development have the purpose of eradicating poverty and hunger, realize human rights for all, reach equality and agency for all women and girls as well as secure a lasting protection of the planet and its natural resources. Source : www.globalamalen.se

BANKERS FOR CLIMATE. Promotes objectives and transparency for the financial industry's role in climate issues, raises awareness surrounding climate challenges as well as the development of innovative and sustainable financing tools (for example, clarify the property's climate and environmental standards as well as environmental certifications and climate declarations). Source : www.bankersforclimate.com

CIRCULAR ECONOMY. Circular building is often about different ways of minimizing waste or increasing the share of material that is recycled. Of the good examples that are presented in the report, there are some related to reuse, more resource-efficient materials, reduced construction waste, closed-loop systems, but also completely new business models. Source: IVL, 2018, Circular economy in the building and construction industry, C 338, Anders Ejlertsson, Carina Loh Lindholm, Jeanette Green, Maria Ahlm.

FOSSIL FREE. Free from fossil fuels and fossil fuel-based raw materials. Source: Fossil Free Sweden, 2018, Roadmap for a fossil free competitive landscape, Building- and construction industry

RENEWABLE ENERGY SOURCES. For renewable energy sources we include wind, solar, aerothermal, geothermal, hydrothermal (water), and ocean energy, water-powered energy, biomass, landfill mass, landfill gas, gas from sewage facilities as well as biogas. Source : www.energimyndigheten.se

SUSTAINABLE / GREEN RENTAL AGREEMENTS. A green rental agreement clarifies the measures which a tenant and landlord have agreed upon regarding conscious and effective sustainability work. Source : www.energimyndigheten.se

CLIMATE CALCULATION, BM (LCA-TOOL). One example of an effective tool for life cycle analysis (LCA) for a building is IVL Swedish Environmental Research Institute's climate calculation tool for the building and construction industry, called BM. This is a common method used across the industry which makes it possible for a non-expert to produce a sustainability report for a building, for example how large the climate impact is for different buildings and how you can reduce the climate impact by choosing other materials and production methods. Source: IVL

CLIMATE NEUTRAL. Net zero greenhouse gas emissions to the atmosphere. This implies that emissions which occur can be taken up by the ecological cycle, carbon storage in used materials, or with technical solutions and therefore not contribute to climate change. The strategy is first and foremost to reduce actual emissions while compensation measures and carbon storage also can be used to reach climate neutrality.

Source: Fossil Free Sweden, 2018, Roadmap for a fossil free competitive landscape, Building- and construction industry

CLIMATE POSITIVE. More absorption and separation of greenhouse gases than emissions. Source: Fossil Free Sweden, 2018, Roadmap for a fossil free competitive landscape, Building- and construction industry.

LIVSCYKELANALYS (LCA). One method for calculating the environmental footprint from raw material and end usage. Source: Fossil Free Sweden, 2018, Roadmap for a fossil free competitive landscape, Building- and construction industry.

GREENHOUSE GASES. Greenhouse gases are gases that occur naturally in the atmosphere and which cause the greenhouse effect around the world. When the concentration of greenhouse gases becomes too high, it leads to an increased greenhouse effect, and what we call global warming. The most important greenhouse gases are carbon dioxide, methane, nitrous oxide, but there are others as well. Source: www.klimatorlista.se

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LFM30 partners

Associated partners updated daily on www.lfm30.se.

Initiative & Coordination



Our shared objective is that Malmö goes from the drawing board to action, becoming the first city in Sweden to adopt a clear plan for climate neutrality within the building and construction industry. By 2030 at the latest, it is our aim to reach this goal.

Our strength comes from the fact that we all act together, in small as well as big, and on all levels of the building process. The process is open for more actors from the building and construction industry to join.

Join us and help us make Malmö's building and construction industry climate neutral by 2030.

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