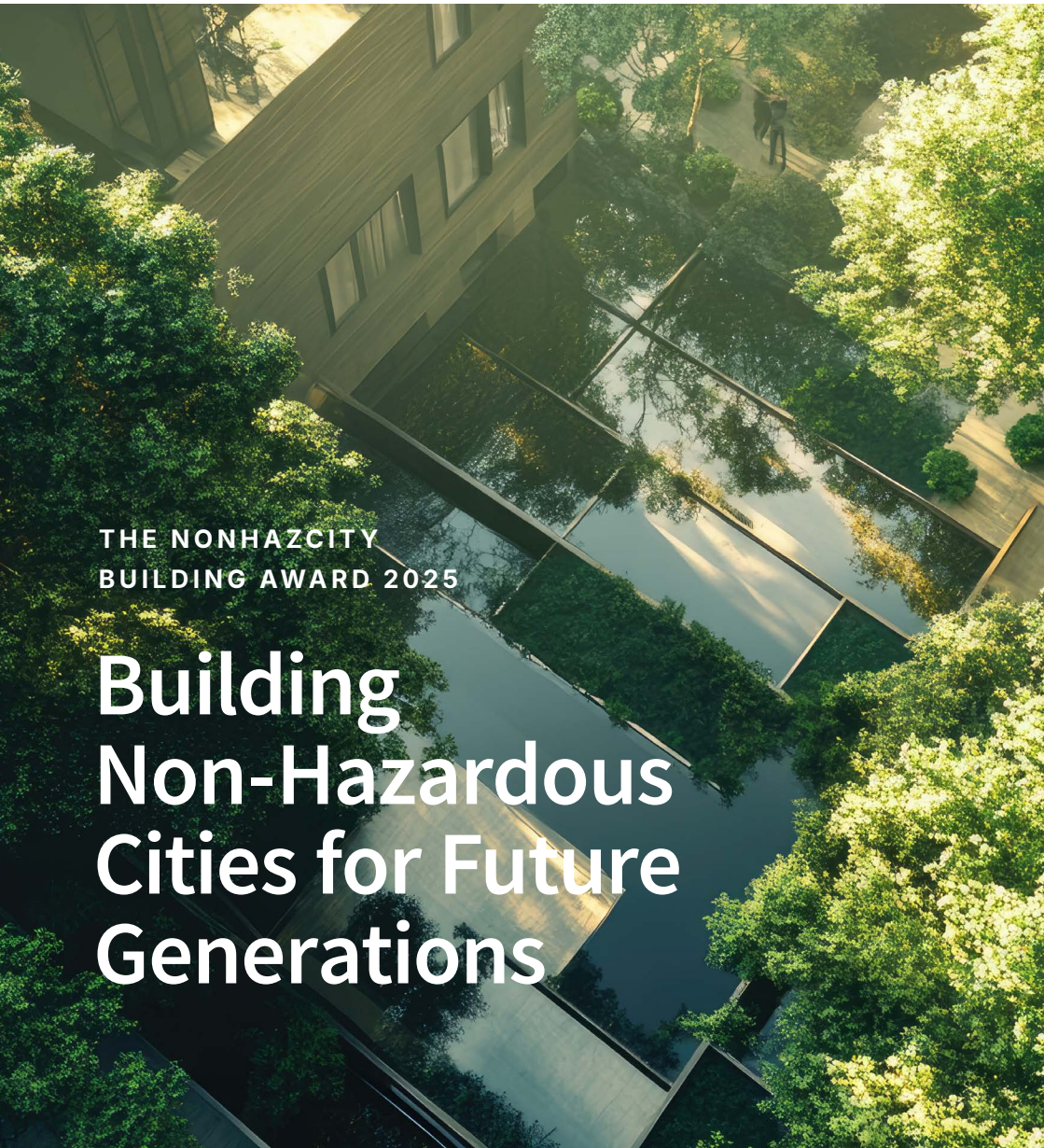
NON HAZ CITY BUILDING AWARD

Interreg Baltic Sea Region

Co-funded by the European Union

SUSTAINABLE WATERS
NonHazCity 3



THE NONHAZCITY BUILDING AWARD 2025

Building Non-Hazardous Cities for Future Generations

Dear Reader,

Buildings stand for generations. The choices we make in construction today will shape the lives, health, and environment of our children and grandchildren. Many materials still contain hazardous chemicals that pollute indoor air, leach into soil, or flow with storm water into the Baltic Sea. These substances can disrupt hormones, impair fertility, or increase the risk of cancer. Their presence lingers in materials long after construction is complete, continuing to harm people and nature.

Building on our experience with the World Future Policy Award, the World Future Council is proud to organise the NonHazCity Building Award, which honours public policies aiming to make construction free of hazardous substances, more circular, and climate friendly.

The Award is implemented within the NonHazCity 3 project, co-funded by the European Union's Interreg Baltic Sea Region Programme, which unites 21 partners from across the Baltic Sea Region to advance non-hazardous and sustainable construction.

In the following pages, you will find inspiring policy examples, recommendations for policymakers, opportunities for transfer, and additional solutions developed within the project.

We extend our heartfelt thanks to all jury members, whose expertise and dedication made this process possible, and to all nominators, policymakers, and experts who supported us by sharing valuable information and insights through interviews.

We invite you to join us in celebrating the winning policies and building non-hazardous municipalities for generations to come!

Neshan Gunasekera
CEO, World Future Council

IMPACT AWARD

Chemical Plan

Järfälla, Sweden

ASPIRATIONAL AWARD

Procurement Tenders Database and GPP

Lithuania

HONOURABLE MENTIONS

Chemical Action Plan and Royal Seaport

Stockholm, Sweden

Guidelines for Sustainable Building

Greifswald, Germany

Sustainable Construction Guidelines

Latvia

Building Non-Hazardous Cities

The construction industry is among the largest consumers of chemical products. These serve a wide range of purposes: they help insulate buildings, prevent mould, fungi, or algae growth, accelerate or delay processing to reduce costs or improve visual appeal. However, the same chemicals that improve performance can also pose serious risks to human health and the environment. Often unnoticed, they turn buildings into a significant source of chemical pollution, particularly through dust and indoor air.

As a result, residents are exposed to substances such as formaldehyde, phthalates, PFAS, heavy metals, flame retardants, isocyanates, biocides, and others. Storm water runoff frequently transports these pollutants into soils and water bodies upon which our food systems depend.

Problematic substances can disrupt hormonal systems, affecting fertility, impairing brain development, or causing cancer. According to the World Health Organization (WHO), chemical exposure contributed to 1.6 million deaths worldwide in 2016. That same year, the Global Chemicals Outlook estimated that chemical-related neurological impairments in the EU alone cost more than 150 billion euros. In the environment, harmful chemicals destabilise ecosystems, place additional pressure on wildlife, and enter our food chain every day.

Risks arise throughout the entire life cycle of building materials. Workers may be exposed during production or, more frequently, on construction sites. Residents are affected through emissions from material surfaces, breathing contaminated indoor air, or through toxic substances leaching into soil and water. Demolition and waste management can be costly and sometimes unmanageable, especially when substances are non-biodegradable or bioaccumulative in addition to being toxic. Their presence undermines efforts towards circular construction by preventing the safe repurposing of buildings and the reuse of materials.

MAKE USE OF AVAILABLE INFORMATION

At the EU level, information on toxic substances is collected and made publicly available by the European Chemicals Agency (ECHA). Producers of chemical products are legally required to provide safety information in Safety Data Sheets (SDS), and many material suppliers use Environmental Product Declarations (EPDs) to communicate the presence of harmful substances. Yet this is where unified regulatory measures end. There is no obligation to evaluate this information nor to apply it throughout the complex supply chains of the construction sector. In short, existing legislation is not yet sufficient.

Chemicals are used in construction mostly to prevent decay, speed-up or slow down precesses. To achieve future re-useability and bring down dismanteling cost, the most harmfull substances should be replaced.

Currently, at most construction sites in the Baltic Sea Region, EPDs and SDSs are neither evaluated nor archived and are often lost – even in 2025. Losing this information makes it difficult to trace materials years later, when buildings and components are intended for circular reuse. Likewise, architects often miss the opportunity to select safer materials at the outset due to time constraints, limited knowledge, and the invisible nature of toxic pollutants in construction products.

The absence of comprehensive regulation presents both a challenge and an opportunity for municipalities. They are in a unique position to ensure that information from EPDs and SDSs is systematically used to make cleaner choices and to avoid the most harmful options and archive this information for future reference to enable reuse.

By embedding **chemical safety** into procurement, planning, and building processes, **municipalities** can play a key role in protecting public health and the environment while advancing circular and sustainable construction.

NonHazCity

THE NONHAZCITY 3 PROJECT

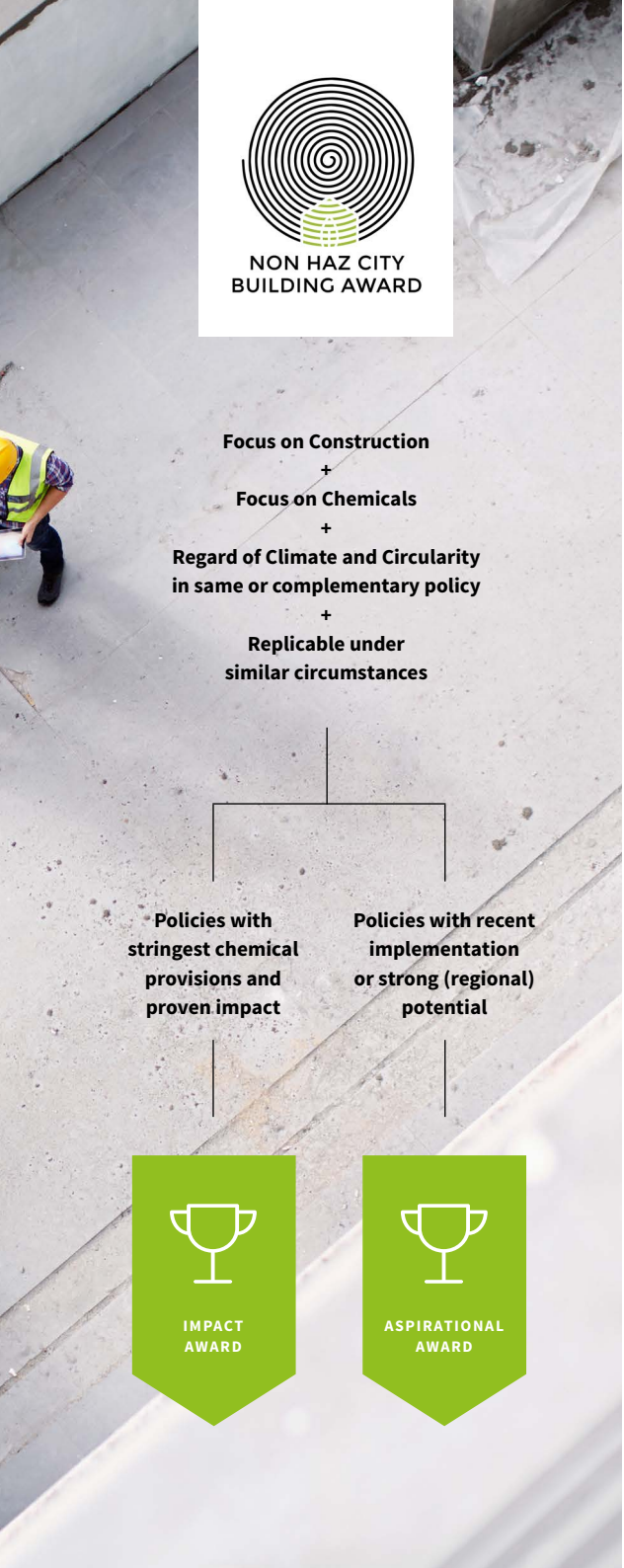
The NonHazCity 3 project (2023–2025), co-financed by the EU Interreg Baltic Sea Region Programme, unites 21 partners across the Baltic Sea region to develop and disseminate solutions for safer and more sustainable building practices. While previous NonHazCity projects primarily addressed consumer products, NonHazCity 3 focuses on the construction sector, equipping municipalities, companies, and citizens with the tools and knowledge needed for non-hazardous, climate-friendly, and circular construction. The project aims to reduce harmful substances in building materials by improving material selection and documentation, public procurement, and construction practices, working towards the vision of a non-hazardous city.

Solutions are developed at three levels, aiming to support municipalities, companies, and citizens in making informed choices:

- Strategic solutions for management and governance in the building sector (recommendations, regulations, standards)
- Practical solutions for builders (technical instructions, fact sheets)
- Communication and education solutions (knowledge campaigns, training materials)

The project also includes the NonHazCity Building Award, which highlights leading examples of progressive policies across the Baltic Sea region.

At the end of this brochure, you will find an overview of solutions and tools developed within NonHazCity 3, offering practical guidance for municipalities and builders.



THE NONHAZCITY BUILDING AWARD

The NonHazCity 3 Building Award recognises and promotes public policies that reduce harmful substances in the building and construction sector.

Eligible policies must be initiated or implemented by public entities such as governments, municipalities, or state-owned companies. While climate impact and circularity are considered in the assessment, they may be addressed through complementary policies and are not the primary focus of this Award.

Beyond recognition, it aims to encourage mutual learning and cooperation among countries and regions that have diverse economic capacities, geopolitical contexts, and historical backgrounds.

To acknowledge this diversity, the Award comprises two distinct but equally valued categories: the Impact Award and the Aspirational Award.

The Award Process

1 CALL FOR NOMINATIONS

The Call for Nominations was announced at the Green Governance Day in Tallinn, Estonia, in November 2023.

2 NOMINATIONS

The Call for Nominations was open until October 2024. There were 16 nominations in total.

3 PRE-SELECTION

Of the 16 nominations, 9 policies were found to fit the specific scope of the Award upon closer examination.

4 RESEARCH

These policies were evaluated in detail throughout Winter 2024/25 via research and expert interviews based on predefined criteria.

5 JURY REPORT

The research results were presented in a comprehensive internal jury report.

6 JURY MEETING

The final decision was reached during the high-level jury meeting convened in May 2025.

7 AWARD CEREMONY

The winners of the Award are announced at a high-level ceremony held as part of the Green Governance Day in Vilnius, Lithuania, in November 2025.

8 DISSEMINATION

The winners and learnings of the Award are shared via social media, project partner websites and a webinar.

Our Team

Mecki Naschke
Project Manager

Bennet Henze
Project Officer

Alexandra Wandel
Former WFC Executive Director

The Award Jury

An international jury of experts from science, politics, and practice took on the challenging task of assessing policies that are each unique in scope, approach, and context. The Award would not have been possible without their commitment and expertise.

Agnieszka Ilola
FINLAND
Head of Secretariat of the Union of Baltic Cities (UBC), Sustainable Cities Commission

Kerstin Effers
GERMANY
Chemist at a regional Centre for Consumer Protection (NRW)

Jana Simanovska
LATVIA
Chair of Environmental, Climate and Energy Subcommittee of the Latvian Parliament, previously with NHC

Marianne Balck
SWEDEN
Toxicologist at Byggvarubedomningen Service AB, involved in NHC3

Jolita Kruopienė
LITHUANIA
Professor at Kaunas University of Technology, involved in NHC3

Mikhail Durkin
SWEDEN
Executive Secretary at Coalition Clean Baltic (CCB), involved in NHC3

Julian Schenten
BRUSSELS
Senior Law and Policy Advisor at Client Earth

I'm delighted to see cities from the BSR leading the way in sustainable construction.

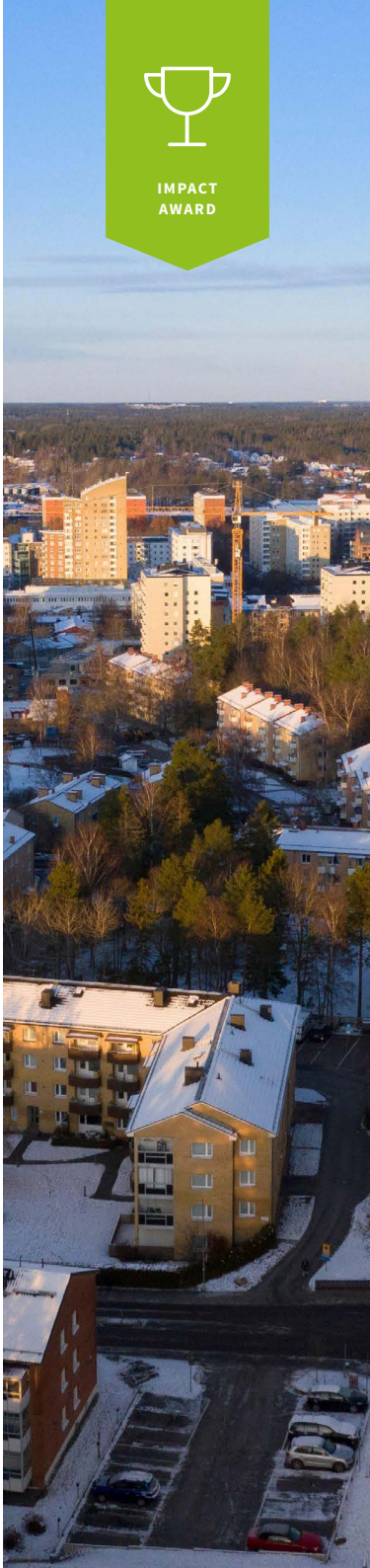
Agnieszka Ilola
Jury Member

Chemical Plan and Action Plans

Järfälla, Sweden (2019)

The Chemical Plan of Järfälla 2019–2024 and the four complementary action plans ensure the reduction of harmful chemicals in all municipal activities, including construction projects. The plan includes a general phase-out list that must be used across all operations, targeting phase-out substances, priority risk reduction substances, and endocrine-disrupting substances. This list draws on sources such as the Swedish Chemicals Agency's PRIO Database, ChemSec's SIN List, and the REACH candidate list. Phase-out and endocrine-disrupting substances must be avoided, while risk reduction substances require individual assessments by the chemical expert specifically appointed for this policy. Adherence is monitored by the chemical expert through annual follow-ups supported by tools such as SundaHus. The total number of chemicals in the municipality is reviewed annually in connection with the annual accounts. The policy mandates comprehensive logging of materials, ensuring transparency and accountability, and requires strict documentation of all chemicals used.

> *This policy goes beyond legal requirements by, for instance, using the SIN List and already considering substances that could reasonably be expected to be banned in the future. This precautionary approach demonstrates foresight that is often lacking in other frameworks.*
>
> — **Kerstin Effers**, Jury Member



Reducing harmful chemicals in construction is one of the plan's focus areas. More specific provisions are detailed in the Building Action Plan, which is applicable to both the municipality and its real estate company, Järfällahus. This plan is reviewed and revised annually. It mandates the use of the SundaHus materials database to assess building materials. Materials are classified from A (low toxics content) to D (insufficient data for classification). Products classified as Class D must not be used, Class C materials must not exceed 5%, and at least 40% of materials must meet Class A standards. Specific provisions for waste management, including material sorting, chemical waste handling, and contaminated soil treatment, are embedded in the Building Action Plan. Additionally, Järfälla municipality requires "Miljöbyggnad Silver" certification for all new construction, both for municipal buildings and privately built projects on formerly municipally owned land. Audits of suppliers, including chemical analysis of products, are also conducted. To accelerate the phase-out of harmful chemicals, the municipal chemical coordinator is authorised to prescribe certain substitutes. The municipality places a strong focus on capacity building.

IMPACT

All materials used have been systematically logged in the SundaHus database. The proportion of C- and D-classified products decreased from 12% in 2018 to 9% in 2023. A consistent strength of the policy is its long-term, systematic implementation over nearly a decade. Chemical requirements are integrated into procurement agreements and construction contracts, ensuring adherence.

It earned the Impact Award for its early and progressive implementation of effective chemical criteria, showing what even a small municipality can achieve.

TRANSFERABILITY

- It has already been successfully transferred to two other municipalities
- Successful implementation depends on general awareness and political will among all stakeholders, along with a minimum of administrative capacity
- Instead of in-house assessments, established material assessment systems and databases can streamline implementation and ensure consistency, provided these are based on SVHC-criteria (such as SundaHus used here, but also BASTA, BVB etc.)
- The example illustrates what can be achieved even in smaller municipalities with limited human and financial resources

Procurement Tenders Database and GPP

Lithuania (2021)

In 2021, the Lithuanian government issued a decree mandating the implementation of green public procurement (GPP) across all public entities. The rollout followed a phased transition plan: at least 10% of procurements were required to meet GPP criteria in 2021, 50% in 2022, and from 2023 onwards, 100% of all public procurements must comply.

The policy addresses harmful chemicals where these appear in specific product-group requirements, such as eco-labelled textiles and selected construction materials. For several construction products, such as windows, doors, paints, and wood-based materials, GPP criteria already include some chemical thresholds. While some criteria target selected groups of chemicals like volatile organic compounds (VOCs), others prohibit all substances with specific hazard classifications. Applying this approach based on hazard classification is important to avoid regrettable substitution (page 22).

To monitor implementation and ensure compliance, particularly at the municipal level, the Central Public Procurement Office established a comprehensive digital database. This system records every municipal purchase along with the applicable sustainability criteria.

Transparency and public availability of the procurement database are crucial and make it valuable.

Mikhail Durkin, Jury Member

Although originally designed for monitoring purposes, the platform now serves as an essential support tool for procurers, who benefit from transparent, centralised access to information on tenders submitted by their peers. The digital system enables real-time tracking of GPP implementation and documentation of the exact criteria applied in each procurement. The scope and nature of sustainability requirements are made transparent, thereby informing and facilitating the decision-making of other procurers. The tool also supports comparison and benchmarking across institutions and encourages coordinated implementation through collaboration among the Central Public Procurement Office, the Ministry of Environment, the CPVA, and other relevant bodies.

IMPACT

In 2024, more than 1.12 million public procurement procedures, out of a total of 1.6 million, were conducted using sustainability criteria, amounting to 8.88 billion euros.

Share of green public procurement by value:

- 2021: 16.2% Green public procurement
- 2024*: 95.4% Green public procurement

Share of green public procurement by number of procedures:

- 2021: 2.7% Green public procurement
- 2024*: 98.7% Green public procurement

The scale of implementation is remarkable, while the overall effectiveness depends on the strength of the applied criteria, which could be further refined. The policy has therefore been recognised with the Aspirational Award for its ambitious scope and strong support to procurers, while encouraging continued enhancement of the chemical requirements.

TRANSFERABILITY

- Its comprehensive scope and robust digital support system offer an excellent foundation that can inspire similar initiatives elsewhere
- A digital database for procurements could integrate additional product and chemical data from established material databases
- It is important that chemical criteria are based on SVHC classification

*Preliminary data for 2024

Chemical Action Plan and Royal Seaport

Stockholm, Sweden (2020)

The Chemical Plan aims to eliminate harmful substances across all sectors, with one chapter specifically focusing on construction. Based on the Swedish Chemicals Agency's PRIO Database and ChemSec's SIN List, building products must not contain phase-out substances, and priority risk reduction substances should be avoided where possible. Products must reach at least the "accepted" level in the Swedish material database BVB, or in an equivalent system. If avoidance is not possible, measures must minimise risks to health and the environment. Substance selection is criteria-based, to prevent regrettable substitution (page 22). A digital logbook documenting the location of all materials used is mandatory and must be transferred to city ownership upon project completion.

Implementation is supported by the dedicated Chemicals Centre, which embeds requirements into procurement processes, checklists, and workflows. It places a strong emphasis on capacity building and practical guidance for both municipal and private actors. The City Development Department ensures that chemical requirements are included in land allocation and development agreements, with follow-up procedures to secure compliance. Each municipal administration and company is responsible for developing procedures to implement and monitor these standards. Compliance is validated through inspections, random audits during and after projects, and chemical analyses of materials.

Although chemical plans are not directly legally binding, this is almost as close as it can get on municipal level.

Marianne Balck
Jury Member

IMPACT

One particular example of the policy's success is the Royal Seaport project, which was also nominated. Together, the Chemical Plan and the Royal Seaport received an honourable mention.

The Stockholm Royal Seaport, Sweden's largest urban development project to be completed by 2030, will provide 12,000 homes and 35,000 workplaces on remediated former industrial land. From the outset, it has applied strict rules on hazardous chemical management embedded in the contractual agreements between the City and all developers. All construction materials must be assessed through national systems like BVB, and developers are contractually required to maintain digital material logbooks. Materials not meeting requirements are reported. Any deviation must be justified and, where possible, alternatives proposed. However, compliance is enforced through inspections, audits, and mandatory documentation at each project stage. Developers must also aim for the Swedish "Miljöbyggnad Gold" certification. By 2023, 94% of all materials had undergone chemical assessment, with 65% of products in residential buildings and 86% in public infrastructure meeting the project's chemical safety standards.

TRANSFERABILITY

- Stockholm stands as an international role model for municipalities with high ambitions to eliminate harmful chemicals (although chemical requirements still continue to be improved)
- Stockholm highlights the value of establishing national systems such as material databases and ecolabels as well as consistent capacity building
- A mandatory logbook to record all materials and chemicals is an effective step to build capacity across the entire value chain
- A key ingredient was establishing a coordinating body with expertise such as a Chemicals Centre for capacity building
- The use of the PRIO Guide and ChemSec's SIN List enables a precautionary and future-oriented approach
- The Seaport shows how strong chemical criteria can be directly linked to land allocation in high value urban development areas
- Such development areas can be used for piloting and capacity building, even without a full chemical plan

Guidelines for Sustainable Building

Greifswald, Germany (2012)

Since 2012, the City of Greifswald has required all public construction projects to be certified by the German DGNB Gold or BNB Silver labels for sustainable construction. These cover a range of sustainability topics, including chemical requirements that predominantly focus on limiting emissions of volatile organic compounds (VOCs) to set thresholds. Architects and construction companies are accountable for meeting these standards and are monitored throughout the process and upon completion, as outlined by the chosen system. While BNB VOC thresholds are not significantly stricter than EU REACH, mandating the use of these ecolabels ensures consistent compliance with the required standards.

IMPACT

The policy has been applied to at least nine projects with consistent political support across administrations.

TRANSFERABILITY

- Greifswald illustrates how small municipalities can advance sustainable and less toxic construction with limited administrative effort by outsourcing criteria, auditing, and verification to established ecolabels
- Ecolabels should include robust chemical criteria, auditing, and material documentation to ensure sufficient stringency
- The approach's strength lies in its simplicity, legal clarity, and cost-efficiency, making it a practical entry point for smaller municipalities with constrained resources
- Engaging external expertise can provide essential support where internal capacity is still developing, and helps maintain consistent quality standards

HafenCity Ecolabel

Hamburg, Germany (2007)

HafenCity, located in central Hamburg, is Europe's largest inner-city urban development project. In 2007, HafenCity Hamburg GmbH started its own building certification system, which has been mandatory for all construction projects since 2010. The HafenCity Ecolabel promotes sustainability in new construction, including non-toxic materials and full documentation of materials to enable deconstruction and reuse. Chemical requirements are mainly defined as emission limit values for volatile organic compounds (VOCs). In 2023, the DGNB Special Award Ecolabel was introduced in partnership with the German Sustainable Building Council. It preserves the core features of the original HafenCity Ecolabel, including the stricter chemical requirements, while placing additional emphasis on ecological sustainability. All construction projects in HafenCity must now be certified with the Special Award Ecolabel, which includes a DGNB certificate and additional ecological and chemical criteria. HafenCity GmbH ensures adherence to its sustainability commitments through contractual sanctions.

IMPACT

From the outset, one of the two labels has been applied to almost all building projects in the area, making this policy a long-standing model of sustainable construction leadership in Germany.

TRANSFERABILITY

- This model is attractive for municipalities that have very valuable and prominently located plots of land, similar to the Royal Seaport
- It offers similar advantages to the Greifswald policy, but differs in being applied to all buildings within a confined area and in having slightly stricter chemical requirements

Quality and Sustainability Programme

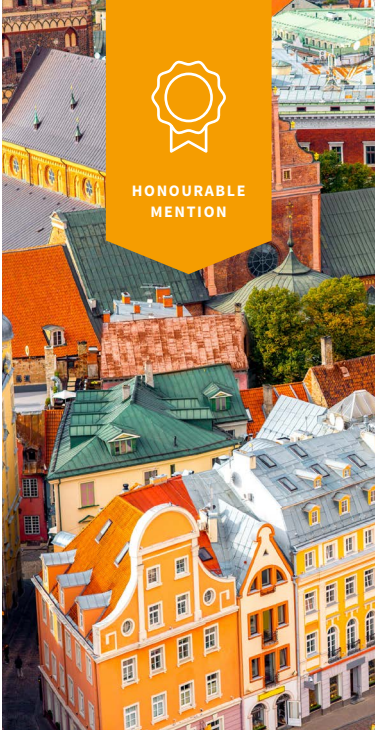
Upper Bryggårdsgärdet, Norrtälje, Sweden (2021)

The Upper Bryggårdsgärdet Quality and Sustainability Programme is a steering document that governs the entire community development process for a new residential district on remediated industrial land in Norrtälje. All detailed development plans are based on the Programme, thereby making its provisions legally binding for both municipal and private development projects. Sustainability requirements and follow-up procedures are also embedded in the land allocation agreements, providing clear mechanisms for compliance and accountability. All buildings must bear an eco-label, and only materials assessed and approved by established Swedish material databases such as BVB, BASTA, or SundaHus are permitted. Standards are designed to evolve, with updated sustainability criteria integrated over time into new detailed plans. Construction in the Upper Bryggårdsgärdet area has only recently begun and is expected to continue for 15 to 20 years.

TRANSFERABILITY

- The approach integrates sustainability goals into all stages of planning and construction through legally enforceable requirements linked to land use agreements
- Mandating the use of a materials database is a meaningful first step and promotes engagement with hazardous chemicals by all actors
- May serve as inspiration for urban development, particularly in combination with more stringent chemical requirements

Sustainable Construction Guidelines



Latvia (2023)

The SJSC State Real Estate is responsible for around 15% of all public buildings in Latvia. The guidelines consolidate various regulatory requirements into one overarching document, including maximum allowable levels of volatile organic compounds (VOCs) in 20 different product categories, and thresholds for substances such as formaldehyde, solvents, and chlorinated paraffins. They require detailed documentation of all interior materials and their impact on air quality, supported by technical data from manufacturers. Contractors are responsible for documenting and controlling performance results using the provided template.

TRANSFERABILITY

- State-owned enterprises can initiate green public procurement at minimal cost
- It is often advisable to introduce a more binding level of implementation and to build internal chemical expertise, or alternatively to rely on an external label

Guide for Circular Management of Construction Waste

Riga, Latvia (2024)

This guide helps builders and planners make informed decisions about which recycled materials can be safely reused with minimal risk of harmful substances, and which should be discarded. In doing so, it contributes to chemically safe circularity.

TRANSFERABILITY

- While it is a voluntary guide, it can serve as a valuable resource.

Types and Transfer of Policies

NO UNIVERSAL BLUEPRINT

There is no universally “best” model, but valuable lessons can be drawn from each example. Readers are encouraged to consult the policy recommendations on the following pages and in NonHazCity publications for guidance, while adapting ideas thoughtfully rather than transferring them one-to-one.

GREEN PUBLIC PROCUREMENT POLICIES

Green public procurement, as seen in the policies from Lithuania, Latvia, and Greifswald (Germany), either mandates all public tenders to meet specific criteria or is driven by public companies. It can focus directly on chemicals and construction or be integrated into broader sustainability plans.

CHEMICAL PLANS

Chemical action plans, such as those adopted in Stockholm and Järfälla, are among the strongest instruments available at the municipal level, where legislative powers are limited. In practice, they often serve as an effective means of putting green public procurement into action and advancing less harmfull construction material.

CHALLENGES IN COMPARISON

The nominated policies show a great diversity of approaches that often overlap or evolve from one another. Comparing them is challenging, as they operate at different levels, ranging from materials and products to entire buildings, districts, cities, and even national frameworks. Their effectiveness depends on how well they are implemented and enforced, as well as on local administrative, economic, and infrastructural conditions. It is also worth noting that other outstanding policies may exist beyond those nominated.

URBAN DEVELOPMENT PROJECTS

In Stockholm, HafenCity, and Norrtälje, urban development projects have transformed former industrial areas into new districts to which stringent chemical requirements can apply, typically enforced via land allocation contracts that may include heavy fines for non-compliance. Situated in attractive locations, these projects have been financially viable and have provided municipalities with strong leverage to ensure compliance. Urban development projects can serve as testing grounds for chemical action plans or green public procurement.

LEARN MORE & GET INVOLVED

Readers are encouraged to connect directly with the respective municipalities, to contact the NonHazCity partner organisations, or the World Future Council for further information. Contact details can be found on the final page of this brochure.

Learnings from the Project and Award Process

Eco-labels[1] are useful for tendering officers and politicians alike, though for slightly different reasons: For tendering officers labels provide a level playing field and prevent exemptions and green-washing, whereas for politicians labels simplify communication and add credibility.

BASIC FRAMEWORK PROVIDED BY THE EU

- "Substances of very high concern" (SVHCs) are being singled out by EU law (REACH); the EU Chemicals Agency (ECHA) updates the lists semi-annually.
- Producers of materials and products are obliged to flag the presence of SVHCs to their customers. The producers of chemicals must supply safety-data-sheets SDS with their products. For other materials there is no obligatory format, though oftentimes suppliers use environmental product declarations EPDs to communicate the SVHCs. According to the REACH help-desk, "a house is an article", thus when commissioning or purchasing an entire building, the supplier is obliged to reveal detailed information in which component SVHCs are present in which concentrations. However since architects and municipalities do not purchase chemicals but materials or commission works, they are mostly unaware of their right to and need for this information and quality of the SDSs and EPDs can be dubious.

Even if municipalities and architects find the information, for them the challenge is how to make use of this expert information.

It is currently not mandatory to aggregate the information on building level that will be important for future re-use or dismantling, although it would save testing cost. Many private or voluntary standards and criteria such as by BVB, Basta, SundaHus and also QNG and DGNB can serve as support-tool for architects and municipalities. Such criteria would also prevent "regrettable substitution"[2]. The easiest is to make reference the ECHA's SVHC lists.

The Finnish M1 emission-standard for construction material relates to indoor air quality and can sometimes pave the way, as it addresses one large group of substance (volatile organic compounds (VOCs)) all at once. In its early days, the German DGNB departed from a similar approach and both showcase that indoor-air quality can be a central driver.

1 Recommended are ecolabels type 1, i.e. that are life-cycle-based and 3rd-party verified.
2 Regrettable substitution = replacing a listed harmful substance with an equally harmful one that is not listed.

The transformation into circular economy in the construction sector requires an active reporting of contained substances of very high concern and substances of equivalent concern for all building products. Without chemical transparency circularity is not possible.

Outi Ilvonen, Scientific policy advisor, German Environment Agency UBA

Since the chemical composition of construction material is not systematically evaluated, it is hard to see through for architects and municipalities, unless they learn to perform a basic evaluation themselves or join a private system that provides such chemical evaluations and which may subsequently be aggregated at building level (as in BVB traffic-light system). Without similar evaluation systems, laymen cannot easily spot which nor how many harmful chemicals are present in a given material, nor how complete systems compare in terms of toxics.

LESSONS FROM SWEDEN

Swedish municipalities joined forces with suppliers to establish the BVB-organisation which now carries out such assessments of chemicals in construction materials. It is a non-profit that requires financial contributions from both municipalities and material producers.

Logbooks are used to document all material choices and the chemical substances present. We recommend a “full content declaration” that includes all substances present above 0.01% (i.e. factor 10 below the legal limit for all substances (REACH). This proved most handy at the time of dismantling (i.e. 80 years later), when harmful properties of further substances have become public.

GLOSSARY

BVB: The Swedish byggvärubedömningen, which is a non-profit that maintains a database of construction material and evaluates the harmful substances.

CCC: ChemClimCIrcle II EU Interreg project for climate protection, circularity, and chemical reduction in public procurements.

ECHA: The European Chemical Agency in Helsinki which governs the databases established via the EUs REACH regulation.

EPD: A voluntary environmental product declaration issued by the supplier of a construction material. When issued, it MUST contain information on SVHCs.

DGNB: The German Green Building Council and has oven criteria for buildings and construction material.

GPP: Green Public Procurement.

M1: Certified indoor air emission class for building materials, Finland.

POP: Persistent Organic Pollutants.

QNG: A German gouvernmental standard oftentimes used by German municipalities and the like.

REACH: Regulation governs the “Registration, Evaluation and Authorisation of Chemicals” in the EU market.

SDS: Safety-data-sheets follow a standardized format and producers, importers and retailers must provide them with chemicals that contain classified substances in the blend.

SVHCs: Substances that from their harmful properties are considered “substances of very high concern” in EU and ECHA lists them in several lists.

VOCs: Volatile organic compounds, such as formaldehyde and benzine that evaporate at room-temperature.

Policy Recommendations

Today's construction, tomorrow's risk or resource?

Make information easily available

- Comprehensive information: Digital Product Passport, EPDs
- Evaluated information: BVB, EU-Ecolabel, M1

EU traffic-light label for construction products

- Rating toxicity, environmental impact & circularity for all construction products (similar to BVB system)
- Simple and accessible to everyone

Mandatory logbooks

- Digital register of utilised products incl. chemical content (comparable to BVB logbooks)
- Enables chemical transparency, selective demolition & high-quality recycling

Full chemical declaration & traceability

- EU-wide product database: One harmonised system comparable to BVB
- Covering all construction products with detailed chemical composition

Extract from NonHazCity Project policy recommendations curated by project partner UBA.

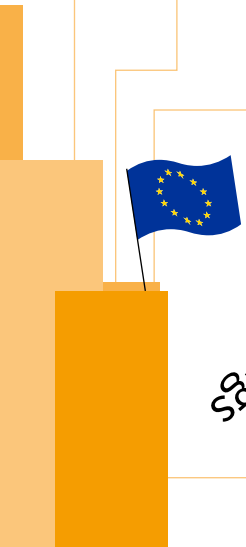
Procurement guidance (GPP)

- Harmonize & mandate minimum GPP criteria: EU-wide requirements
- Provide plug-and-play support: User friendly procurement templates and guidance (e.g. ‘NonHazCity3’ templates & ‘CCC2’ trainings for municipalities).

Strigent mandatory minimum requirements

- Zero pollution ambition for soil and water:
  Exterior materials should be free of biocides and PFAS
- Limit SVHC in all construction materials (< 0.1 %)
- VOC emission limits (e.g. M1 certified)

construction → climate-friendly CO2 savings



Pre-demolition audits

- Catalogue of harmful substances and reusable components
- Ensures that only non-toxic materials re-enter the economy

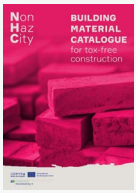
Recycling/re-use quotas

- Define end-of-waste criteria for pollutant content in recycled building materials
- Declare recycled content in building products

From our project we see that the key to circular material usage is the knowledge about all substances therein.

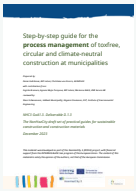
Jolita Kruopienė, Professor at Kaunas University of Technology, involved in NHC3

PROJECT RESOURCES



The **catalogue** offers a collection of building materials and their harmful components to help planners and builders with product selection.

The **Strategic Guide for Local Authorities** contains recommendations for the development of customized strategic solutions to increase the efficiency of administrative processes.



The **step-by-step guide for process management** provides recommendations for the selection and application of various methods and tools in all construction phases.

The **Do-it-yourself guide for citizens** enables the realization of the building turnaround for do-it-yourselfers.

The **NHC3 fact sheets** for construction professionals have been created to increase their knowledge of chemical aspects and relate them to the circular economy of materials and the energy efficiency of buildings.

Project Website:
interreg-baltic.eu/project/nonhazcity-3/

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Interreg Baltic Sea Region

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SUSTAINABLE WATERS
NonHazCity 3

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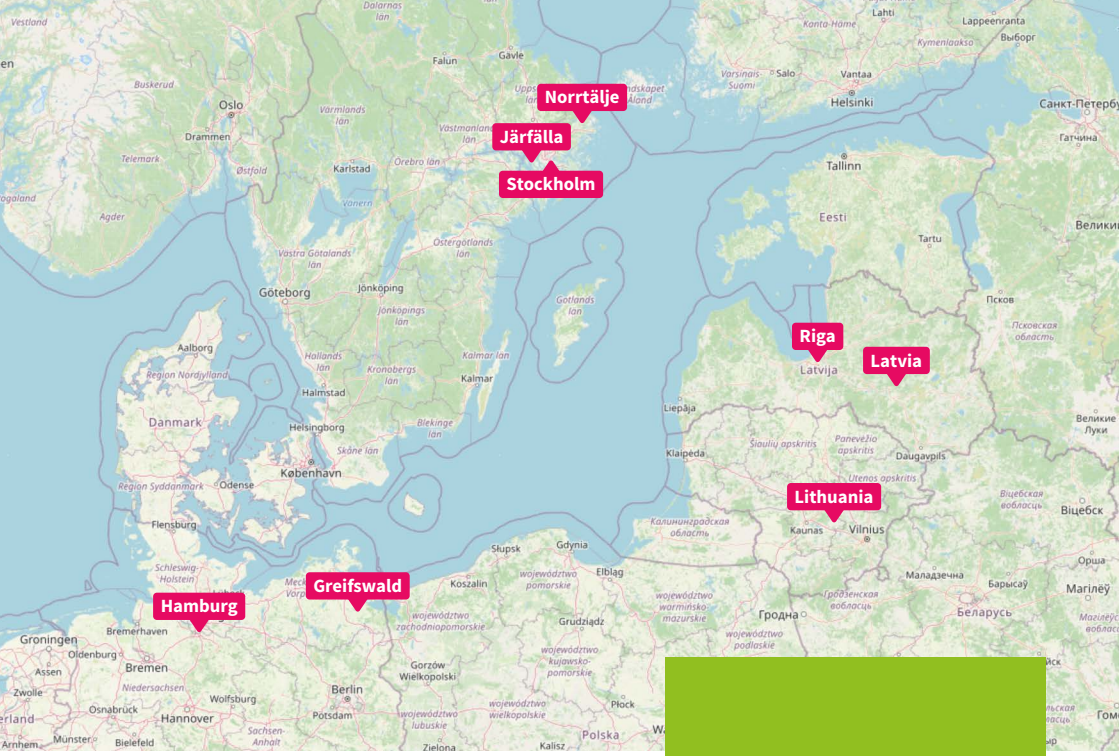

We want to avoid substances that we today know are problematic, but also manage the fact that we will know more about how problematic in the future. A building will be used for many years and will have to live up to future chemical requirements as well. If we are not risk-adverse now, the cost for both removing and handling hazardous waste will continuously increase.

Arne Jamtrot, Jenny Fäldt and Sara Zentner
Stockholm Chemicals Centre

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