

MODULE 1

Tox-free, circular and climate-friendly buildings

1.2. The role of municipal leadership

Interreg
Baltic Sea Region



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SUSTAINABLE WATERS

NonHazCity 3

Sustainability in the construction sector

Why does this matter now?

- Construction shapes health, climate impact, and resource use.
- Decisions at the stages of design and procurement lock in outcomes for decades.

Three priorities:

- Eliminate **hazardous substances** in materials and products.
- **Enhance circularity**: design for reuse, disassembly, and high-value recovery.
- **Reduce emissions** across the life cycle, not only in operation.

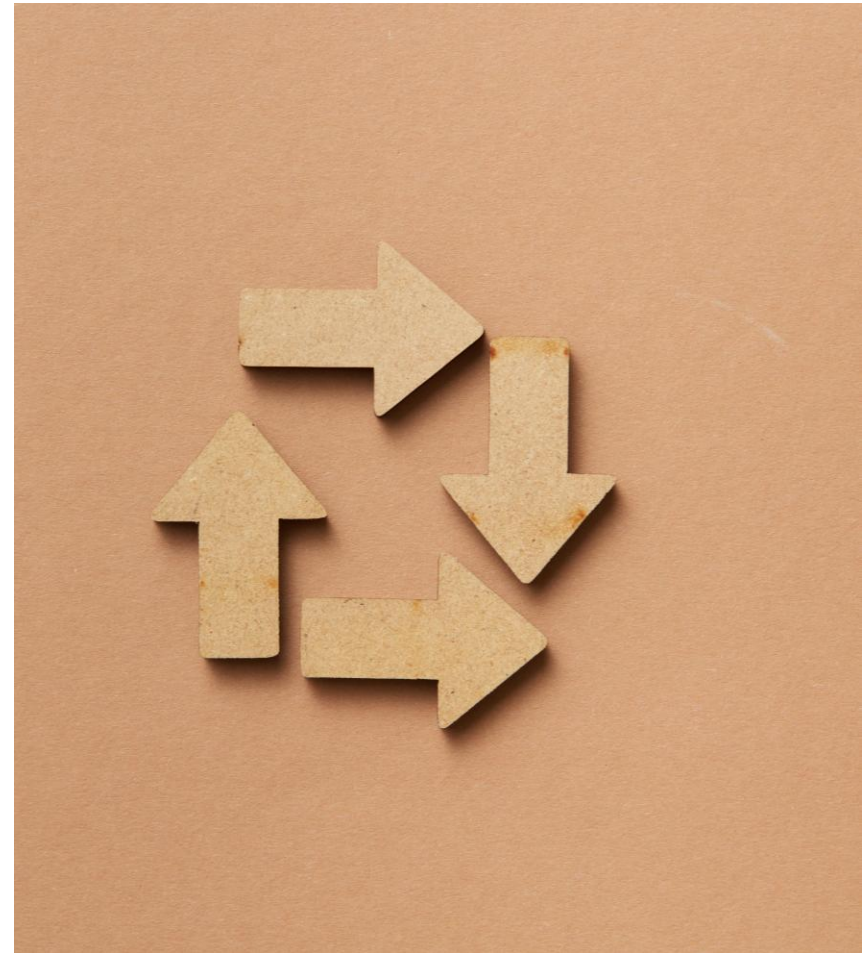
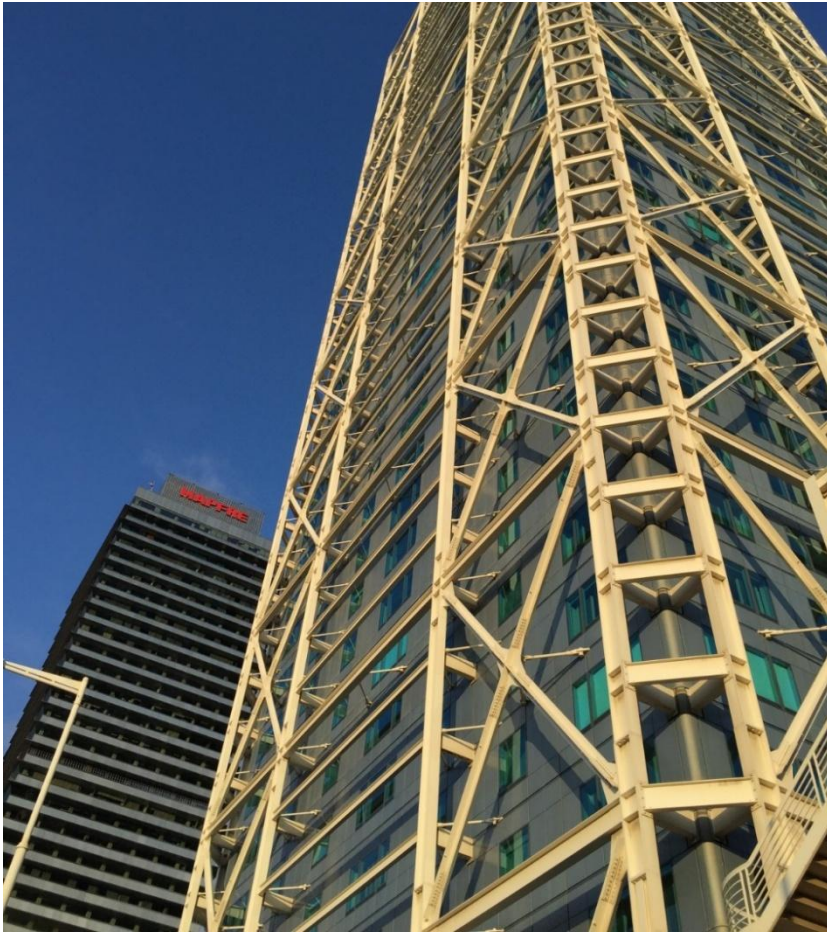


Photo by DS stories



Construction procurement is different



Why does it need special handling?

- High complexity and stakeholder count
- Long asset life; decisions lock in costs and impacts
- Multiple risk interfaces: design, site, supply chain, maintenance

Procurement focus areas:

- Quality and compliance plus health and circular criteria
- Early contractor and supplier engagement for feasibility
- Whole-life value, not the lowest upfront price



The case for tox-free construction

Health & environment

- Low-VOC finishes; formaldehyde-free and phthalate-free options.
- Avoid persistent and bio-accumulative substances where possible.

Performance without trade-offs

- Modern alternatives meet or exceed technical specifications.
- Clear documentation and third-party verifications aid selection.



Image by Studio Iris from Pixabay



Benefits of tox-free construction

Societal & health

Protecting people

- Reduces exposure to hazardous substances for children, staff, and building users
- Prevents long-term health problems linked to persistent harmful chemicals
- Improves indoor air quality, enhancing comfort and well-being

Environmental protection

- Lowers use of persistent pollutants that can accumulate in nature
- Supports cleaner, healthier ecosystems by removing harmful substances from the built environment

Community-level awareness

- Raises awareness within municipality, residents, and the private sector about the importance of tox-free materials
- Encourages broader adoption of non-toxic practices across sectors



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Benefits of tox-free construction

Market & regulatory impact

Market transformation & innovation

- Clear municipal demand encourages suppliers to develop safer, innovative materials.
- Expands the availability of non-hazardous building products.
- Supports companies in building expertise and improving competitiveness.

Driving future-proof regulation

- Proactive tox-free procurement aligns with emerging legislation and future market expectations.
- Helps municipalities to anticipate regulatory changes and reduce future compliance risks.

- Strengthening municipal leadership.
- Positions the municipality as a responsible, forward-thinking buyer.
- Demonstrates how procurement can shape healthier, cleaner construction practices and reduce chemical emissions at scale.

Image by Stefan Schwehofer from Pixabay



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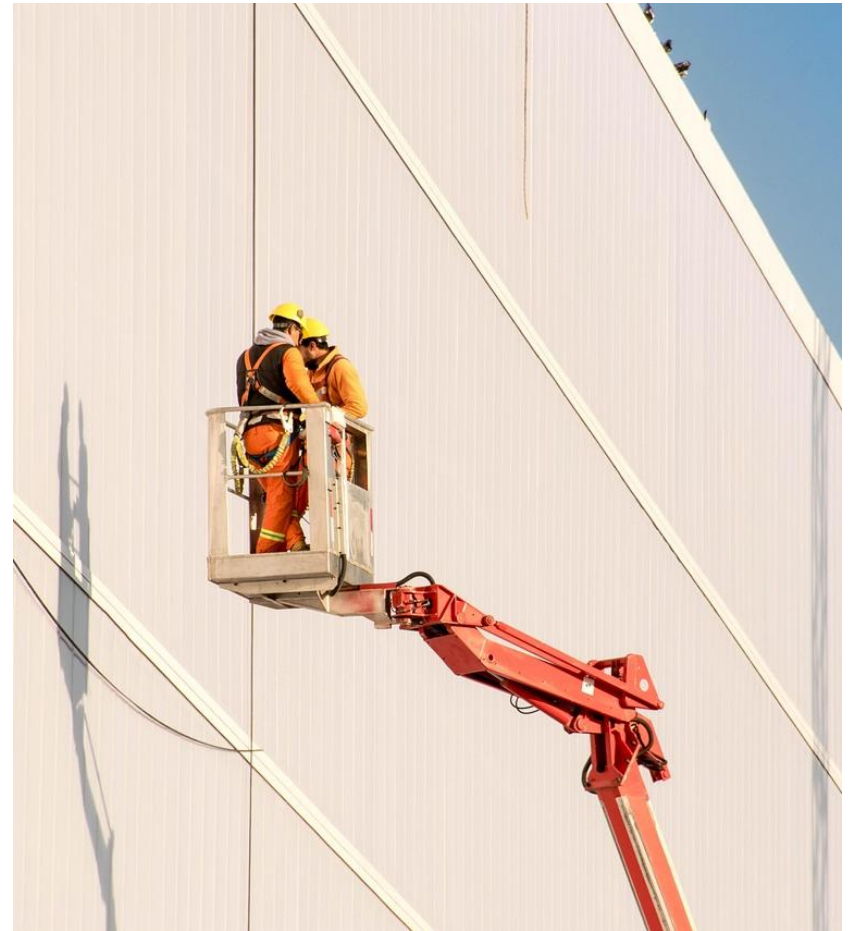
Challenges and opportunities

Common barriers

- Awareness gaps and “we’ve always done it this way”
- Perceived cost premiums and split budgets (capex vs opex)
- Limited market information on safer alternatives

How can common barriers be overcome?

- Through the use of pilot projects and market dialogue to de-risk
- By specifying outcomes and performance, not brand names
- By building internal capacity; sharing templates and lessons learned



EU public procurement context

Scale and influence

- Public procurement represents a significant share of EU GDP (often cited around 14%).
- Construction absorbs a large portion of this spend, shaping markets and standards.

Why do municipalities matter?

- Local authorities set expectations for safer, circular materials.
- Transparent criteria can raise the bar across suppliers.



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Green Public Procurement (GPP): overview



Demands attention at every stage:

- Planning and design phase - architects and engineers can specify materials with low toxicity profiles
- Procurement stage - GPP guides the selection of suppliers and materials meeting stringent environmental standards
- During construction - storage, handling, and disposal procedures to minimise environmental contamination and health risks
- Post-construction - GPP influences ongoing maintenance activities

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GPP in construction

Realising its full potential requires **collaboration among stakeholders** and capacity-building initiatives



Case example: Hyvinkää Ecolabelled Daycare: Approach & process

Project overview

- Finland's first Nordic Swan-certified daycare centre (completed 2017).
- Aimed to ensure a healthy indoor environment for children and staff.
- Part of Hyvinkää's broader environmental strategy.

How the procurement was structured

- Ecolabel criteria applied: energy efficiency, low-toxicity materials, restrictions on phthalates, brominated flame retardants, and formaldehyde.
- Extensive two-phase market consultation to assess supplier readiness.
- Request for Information (RFI) + two-hour technical dialogues with each tenderer.



Case example: Hyvinkää Ecolabelled Daycare Results & impact

Cost & performance

- Early estimates suggested a 25 % higher cost, but competition and interest meant there was no additional procurement cost for the municipality.
- Strong energy requirements led to lower operating costs, balancing long-term value.

Project delivery

- Wider-than-usual market dialogue prevented construction-phase problems.
- The winning bidder (Teijo-Talot Oy) invested extra effort in material analysis, benefiting future projects.

Market transformation

- The project raised awareness of ecolabelled construction across suppliers.
- Encouraged companies to develop expertise in environmentally friendly construction.
- Demonstrated how ambitious municipal requirements can reshape the market.



Solutions for NonHazCity 3



Guidance

- **The step-by-step guide process management** provides recommendations for the selection and application of various methods and tools in all construction phases.
- The **Draft strategic solutions for managing procedures for construction materials and sites** aim to provide recommendations for strategic solutions.
- **Strategic solution** for managing hazardous substances in buildings and construction materials: procurement, building certificates and restrictions



Info materials

- **The building catalogue** offers a collection of building materials and their hazardous components to help planners and builders with product selection.
- 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.
- **The Do-It-Yourself guide** for citizens enables the realization of the building turnaround for Do-It-Yourselfers.



Thank you!

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