

## **PRIORITISE CIRCULAR CONSTRUCTION IN THE CIRCULAR ECONOMY ACT TO COUNTER THE INCREASING RAW MATERIALS SCARCITY IN THE EUROPEAN UNION**

The European Union stands at a turning point. With the upcoming Circular Economy Act (CEA), the European Commission has launched a process that will shape how Europe addresses one of its most pressing, yet too often underestimated, challenges: access to raw materials.

For construction in particular, the stakes are high. Raw material extraction faces growing opposition from local communities, competition for land use, and an overall decline in available resources. Unlike many other commodities, raw materials for construction are heavy, costly to transport, and therefore typically sourced locally. But a rising scarcity is already translating into higher prices and emissions from longer transportation times and distances of raw materials, squeezing competitiveness in one of our largest sectors. In Denmark we are experiencing a significant shortage of virgin raw materials, leading to rising prices for gravel and doubling of prices for sand in recent years<sup>1</sup>. Furthermore, virgin raw materials are finite, and once dug up they become unavailable to future generations. If Europe does not act now, the lack of affordable secondary materials risks undermining both climate ambitions and economic security. Circular construction is therefore not only about sustainability – it is about Europe's ability to remain competitive, to secure resilient value chains, and to deliver on its climate commitments. Construction and demolition waste accounts for about 40% of total waste generated in the EU. Therefore, without decisive action on circularity in construction, the EU will struggle to reach its circularity goals, including the EU's Clean Industrial Deal target to double the circularity rate from about 12% to 24% by 2030<sup>2</sup>.

To address the above, we encourage the European Commission to take the following actions:

- 1. Growing secondary raw material markets through public procurement, standards and requirements.**
- 2. Introducing recycled content and re-use obligations to construction material markets.**
- 3. Revising and harmonising end-of-waste and by-product criteria on an EU level.**
- 4. Supporting infrastructure for collection, sorting and treatment of secondary raw materials.**
- 5. Pricing raw materials according to true cost.**

Each of the five actions is explained in further detail below.

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<sup>1</sup> [https://www.regionh.dk/klima-og-miljoe/program-for-baeredygtigt-og-cirkulaert-byggeri/Documents/Opsamlingsnotat%20-%20Prisudvikling%20af%20genbrugsmaterialer%20\(August2025\).pdf](https://www.regionh.dk/klima-og-miljoe/program-for-baeredygtigt-og-cirkulaert-byggeri/Documents/Opsamlingsnotat%20-%20Prisudvikling%20af%20genbrugsmaterialer%20(August2025).pdf)

<sup>2</sup> [https://environment.ec.europa.eu/strategy/circular-economy\\_en](https://environment.ec.europa.eu/strategy/circular-economy_en)

## **1. GROWING SECONDARY RAW MATERIAL MARKETS THROUGH PUBLIC PROCUREMENT, STANDARDS AND REQUIREMENTS**

Currently, practices in circular construction are not mainstreamed, often because secondary raw materials are more expensive than virgin materials<sup>3</sup>. Part of this price difference is caused by a ‘chicken or hen’ problem of supply and demand. To solve this, we propose the introduction of mandatory circular criteria in all public construction procurement, applied uniformly across Member States. This will create the needed demand for circular practices in construction and allow economics of scale.

We propose circularity criteria should complement price criteria. For example, public construction projects larger than 100m<sup>2</sup> should require a minimum of 20% recycled materials and 10% re-used materials to stimulate a certain demand for circular building materials. These requirements should increase over time. Similarly, criteria could incorporate maximum requirements for the use of virgin materials, aligned with the EU Taxonomy's principles, such as a maximum threshold of 70% virgin raw materials in building projects. While we recommend sectoral public procurement minimum requirements for circular construction to respond to the resource scarcity, raw material crisis and lack of reliable demand for circular materials, we do not recommend fixed requirements for all public procurement in general as it pertains to the DIRECTIVE 2014/24/EU on public procurement.

This framework could be supported by integrating European standards for assessing a building's sustainability and Whole Life Carbon (WLC, EN 15978), to complement circularity in construction with sustainability in the built environment long-term. When public authorities set clear, measurable, and ambitious targets and standards for the market, the private sector can deliver, scale and commercialise circular practices and solutions.

For example, Danish building regulation<sup>4</sup> includes low-carbon requirements for buildings, with thresholds of 4-8 kg CO<sub>2</sub>e/m<sup>2</sup> depending on building type, and thresholds tightening by 10% in 2027 and 2029<sup>5</sup>. Within this framework, re-used construction materials are counted as emission-free in the mandatory life-cycle-analysis, making the shifting to circular alternatives one easy way to adhere to the building regulation and improve whole life carbon performance of buildings.

Furthermore, on 1st of July 2025 an amendment to the environmental protection law on selective demolition entered into force in Denmark<sup>6</sup>, allowing the Ministry of Environment to set standards for pre-demolition audits, demolition and demolition waste, to enable more circularity in the construction sector and mainstream innovative practices. New requirements introduced with the law stipulate that all properties over 250 m<sup>2</sup> to be resource mapped before selective demolition. Further introduced are new procedures, educations and required capabilities in the construction sector and authorisation of demolition companies. New procedures include 1) pre-demolition audits screening for accessibility, volumes, durability, pollution, recyclability, and reusability of materials, as well as assessing the materials

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<sup>3</sup> <https://www.interregeurope.eu/sites/default/files/2024-03/Policy%20brief%20on%20Sustainable%20construction.pdf>

<sup>4</sup> <https://www.bygningsreglementet.dk/tekniske-bestemmelser/11/brv/bygningers-klimapaavirkning-1-juli-2025/>

<sup>5</sup> <https://bygogbaeredygtighed.dk/nye-klimakrav-til-byggeriet-fra-2025-hvad-skal-vi-forberede-os-paa-i-byggebranchen/>

<sup>6</sup> <https://www.retsinformation.dk/eli/ft/202312L00091>

commercial potential, to ease their reintroduction to the market, and 2) standardised procedures for demolition, allowing for structured sorting of materials<sup>7</sup>.

The new rules on demolition applied in Denmark can be a good baseline for EU action, as they are a necessary and effective prerequisite for increased circularity of construction and demolition materials. But they do not alone lead to more recycling and re-use. The next step, which we encourage the EU to consider, is setting requirements for recycling and/or re-use of materials at demolition stage already, since this remains voluntary and thus sporadic with the applied rules. Public procurement of demolition services should also consider addressing recycling- and re-use of materials from demolition to complement targets for procurement of construction materials and services.

Our recommendations on public procurement, standards and requirements:

- **Circularity criteria should complement price criteria for construction.** For example, with requirements for recycled and re-used materials minimums within public construction projects larger than 100m<sup>2</sup>, and/or maximum thresholds for virgin raw materials.
- Integrate life-cycle analysis of a building's whole life carbon footprint into public procurement.
- **Mainstream selective demolition practices** with pre-demolition audits, standardised demolition procedures and circularity requirements for demolition waste.

## 2. INTRODUCING RECYCLED CONTENT AND RE-USE OBLIGATIONS TO CONSTRUCTION MATERIAL MARKETS

Even though recycling and re-use of certain construction materials is technically feasible, it remains the exception. This creates unjustified emissions, large volumes of waste and the avoidable use of finite virgin raw materials. In the Capital Region of Denmark, analysis of circularity in construction in 2024 shows that 97% of concrete waste and 92% of bricks – the two largest construction waste fractions – are recovered instead of recycled or re-used. While better than landfilling or incineration, common recovery operations such as backfilling with crushed bricks and concrete still constitute waste as the materials are downcycled and their inherent function and value reduced. Recovery can also be a barrier to recycling and re-use, as recovery camouflages the waste treatment as circular and sufficient, when in fact it still constitutes waste. This is a problem when better alternatives are available. For concrete and bricks technical feasibility for their re-use and recycling is widely established, yet no mainstreaming or upscaling can be observed<sup>8</sup>.

In cases like concrete, bricks, wood, glass and gypsum, where waste volumes are high and technical feasibility of re-use and recycling has been established, recycled and re-use content obligations for construction and building materials can make sense. These should be oriented towards the observed maximum rates of recycling and re-use in recent years and set these as a minimum for new construction. This would range for above 90% for concrete, and around 50% of glass and gypsum on the lower side, as observed in the Capital Region of Denmark.

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<sup>7</sup> [https://mst.dk/erhverv/groen-produktion-og-affald/affald-og-genanvendelse/affaldsshaandtering/affaldsfraktioner/bygge-og-anlaegsaffald/selektiv-nedrivning](https://mst.dk/erhverv/groen-produktion-og-affald/affald-og-genanvendelse/affaldshaandtering/affaldsfraktioner/bygge-og-anlaegsaffald/selektiv-nedrivning)

<sup>8</sup> [https://backend.orbit.dtu.dk/ws/files/218271061/2020\\_Cirkul\\_r\\_konomi\\_i\\_byggeriet\\_Prim\\_r\\_rapport.pdf](https://backend.orbit.dtu.dk/ws/files/218271061/2020_Cirkul_r_konomi_i_byggeriet_Prim_r_rapport.pdf)

Use of virgin materials should still be allowed in cases where no secondary raw materials can be made available for construction within a set distance and time frame. Ideally, recycled content and re-use obligations are flanked with incentive-based approaches like the EU taxonomy and public procurement guidelines. Recycled content and re-use obligations should be designed to set market standards for construction materials for which circular solutions are well-demonstrated and practiced already.

Our recommendations on recycled content and re-use obligations:

- The EU should explore **introducing recycled content requirements for concrete**, and **re-use obligations for bricks**, to avoid waste when technical feasibility of recycling and re-use is established, and to mainstream circularity in construction.
- When technically feasible, and with available secondary raw materials available within a reasonable distance, **buildings and infrastructure projects should make use of recycled and re-used materials first**. In turn, the use of virgin raw materials over a set target threshold in construction should require the unavailability of or infeasibility of recyclable or re-usable materials.
- The EU should further incentivise circularity of construction and demolition waste through the EU taxonomy and public procurement rules.

### **3. REVISING AND HARMONISING END-OF-WASTE AND BY-PRODUCT CRITERIA ON AN EU LEVEL**

Materials are classified as waste too quickly, particularly excess soil and clay, but also building materials from construction and demolition operations. Danish application of end-of-waste and by-product criteria provisions cause waste of reusable materials.

For example, in Denmark excess soil faces end-of-waste and by-product criteria related barriers to being re-used. An analysis in the Capital Region of Denmark and neighbouring Zealand Region of Denmark concluded that of 7,5 million tons excess soil discarded in 2020-2022, at least 2 million tons could potentially be re-used directly to replace virgin raw materials<sup>9</sup>. The main barrier to re-use of excess soil is reported to be the administrative process related to end-of-waste and by-product criteria. To not end up as waste but as by-product to begin with, excess soil needs to have a direct use-case ready to receive the soil, at the time of excavation. This is not always possible, as excavation and use of soil such as clay, sand and gravel depend on timing of construction works at two or multiple locations unrelated to each other. Therefore, excess soil is mostly treated as waste by default, although it is a valuable resource that could replace virgin raw materials. End-of-waste for excess soil requires an application to the Danish Environmental Agency. Applications for end-of-waste in Denmark currently face 20 weeks processing time, which for the many use-cases renders re-used soil uncompetitive compared to newly extracted sand and gravel. Especially in road construction, excess soil would be suitable to replace large quantities of virgin raw materials, reduce emissions and save costs<sup>10</sup>. A catalogue of 30 demonstrated use cases for excess soil is compiled online by the Capital Region of Denmark, the Danish Builders Association and RealDania<sup>11</sup>. Yet implementation of end-of-waste and by-product criteria renders large quantities of excess soil unavailable for construction projects to tap into.

<sup>9</sup> <https://www.regionh.dk/klima-og-miljoe/raastoffer/Publikationer-om-raastoffer/Documents/Rapport%20-%20Analyse%20af%20jordstr%C3%B8mme,%20september%202024.PDF>

<sup>10</sup> <https://www.co-pi.dk/media/llklmgssu/2025-potentiale-ved-genindbygning-af-raastoffer.pdf>

<sup>11</sup> <https://xn--jordhndtering-tfb.dk/cases-og-eksempler>

The case of excess soil demonstrates how current end-of-waste and by-product criteria procedures hinder technically feasible re-use, slow down circularity, and increase use of increasingly scarce virgin raw materials. Therefore, end-of-waste and by-product criteria should be revised and pivot to classification as by-product instead of waste by default.

Different applications of end-of-waste criteria across Member States make cross-border trade and trust in circular building materials difficult. This problem can be alleviated at the EU level, where the harmonised end-of-waste criteria and mutual recognition between Member States can strengthen the internal market, allow cross-border transport and stimulate the market for secondary raw materials.

To address this, we call for the development of a robust and ambitious EU-wide framework for end-of-waste criteria, moving beyond the current fragmented national approaches.

End-of-waste criteria should be defined at EU level, as national, sub-national or local end-of-waste criteria create a risk of misinterpretation by national authorities. As suggested by the European Environmental Bureau, if national end-of-waste status is made possible, it should be reported to the European Commission for verification and also to all other national Member States so that mutual recognition becomes possible. Each state will assess whether it can recognise the other national end-of-waste status.

Our recommendations on revising and harmonising end-of-waste and bi-product criteria:

- **End-of-waste and by-product criteria should be revised and prioritise classification as a by-product** rather than waste as the default for excess soil, as well as construction and demolition waste.
- The **end-of-waste criteria for construction and demolition waste should be defined at EU level**, as national, sub-national or local end-of-waste criteria shrink the single market for secondary raw materials and reduce transparency.

#### **4. SUPPORTING INFRASTRUCTURE FOR COLLECTION, SORTING AND TREATMENT OF SECONDARY RAW MATERIALS**

An analysis of the need for infrastructure for collecting, sorting and treatment of secondary raw materials has been conducted in the Capital Region of Denmark<sup>12</sup>. This was based solely on the potential increase in circular use of concrete and bricks within the next five years. The analysis shows that at least 10 million reusable bricks as well as 330.000 tons recycled concrete will need storage and treatment each year to be able to enter the market again. This underlines a need for dedicated material banks that provide space and facilities for collection, sorting and treatment of secondary raw materials. Each material bank will reduce emissions and costs, as transportation distance to collection, sorting and treatment facilities is one of the main drivers of costs and emissions in circular construction.

The EU should support public authorities to establish material banks and infrastructure supporting circularity, as these are a prerequisite to circularity in construction. This support should address legal enablers such as permitting, financial enablers such as funding, information provision to match supply and demand across regions and Member States, and

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<sup>12</sup> <https://edagsorden.regionh.dk/cms/HtmlPublication-9446/enclosures/8.pdf>

capacity building for public authorities and private entities tasked with the establishment of material stations.

Furthermore, the lack of digital infrastructure and transparency of available secondary raw material streams hamper economics of scale as well as cross-border trade. Therefore, we encourage the EU to progress efforts to mainstream digital material passports within circular construction and support the establishment of a digital European marketplace to realise the single market for secondary raw materials. For example, Donor-building platforms, that match materials from buildings to be demolished within 1-3 years with buildings that are planned for construction during the same time, should also be explored as an effective digital solution to increase circularity while fitting well with the construction sectors long-term planning.

Our recommendations on infrastructure for collection, sorting and treatment of secondary raw materials:

- The EU should **support public authorities in establishing material banks** and infrastructure supporting circularity.
- The EU should progress efforts to **mainstream digital material passports** within circular construction and support the establishment of a digital European marketplace.
- **Donor-building platforms** should be explored as an effective digital solution to increase circularity.

## 5. PRICING RAW MATERIALS ACCORDING TO TRUE COST

All actions above contribute to enabling the transition to circular construction. Yet as long as virgin raw materials outprice their secondary alternatives, any circular business model will always be swimming against the tide. The cost of virgin raw materials does not reflect their true cost to society. Virgin raw materials are finite, and their extraction irreversible, making their consumption a benefit on the expense of future generations. Furthermore, extraction of virgin raw materials creates land use dilemmas, social conflicts, environmental damage and emissions. All of this is not included in their price. We encourage the European Commission to explore how raw materials – virgin and secondary alternatives – can be priced according to their true societal cost, considering both positive and negative externalities.

Our recommendations on pricing raw materials:

- Virgin raw materials and secondary alternatives should be **priced according to their true societal cost** considering negative and positive externalities. The EU should assess their true cost and take action to correct current pricing.

The Capital Region of Denmark remains at the European Commission's disposal for cooperation and further dialogue on circular construction and the Circular Economy Act.

Please direct any inquiries at Kathrine Jørgensen, Strategic Program Leader for Circular Construction, at [kathrine.joergensen.01@regionh.dk](mailto:kathrine.joergensen.01@regionh.dk). We look forward to supporting the Commission's work on the Circular Economy Act.