Module 2 Speakers Notes: Public Procurement for a Circular Built Environment

Please refer to the [how-to guide](https://www.circuit-project.eu/academy) which explains how to use these speakers notes.

Total estimated time: 110mins

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# Arrival

Time: 10 Total time: 0 (not part of full time)

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| Facilitation / Alterations | Script |
| If in person, get everyone settled into the room. If possible, provide the group with refreshments etc. Review any housekeeping required of the space – fire exits etc. If online, wait a few minutes for everyone to arrive. Run through how you will use the technology, when/how to use the chat box, explain how they should get your attention if they would like to speak or ask a question.  |  |

# Introductions and CIRCuIT Background

Time: 10 Total time: 10

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| Facilitation / Alterations | Script |
| Introduce yourself, tell the group how you have worked with circular building issues in the past / why you are the one delivering training. Provide a brief background to the CIRCuIT project (see script) for those who may not be familiar. Invite everyone in the room to briefly introduce themselves. Ask them to share how they have previously worked with circular construction. This is a good way to get to know everyone, but also allows you as the facilitator to get an insight into who has experience with which areas of learning.If you and the participants are all already familiar with each other go around the room and have everyone mention what they wish to learn from this session. Thank everyone for attending. | [CIRCuIT](https://www.circuit-project.eu/) is a four-year Horizon 2020 project. This means it is funded by the EU’s Research and Innovation arm. The main purpose of the project is to mainstream circular construction in European cities. The project has run across four cities: Copenhagen, Hamburg, Helsinki, and London, with over 31 partners. With this many people taking part, you can imagine the range of work that has been completed. We work across three themes: urban mining and material reuse, transformation and life cycle extension, and design for disassembly and adaptability. The consortium has developed pilots and assessed best practice across these themes. The findings and results of these are what we want to share with you via training.  |

# Introducing Module 2 – Learning Objectives

Time: 5 Total time: 15

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| Facilitation / Alterations | Script |
| Introduce the purpose of the session. (see script) Connect the learning objectives of the module with the job descriptions and previous experiences learners shared in their introductions. Highlight how some of the learnings might be particularly relevant for some attendees. The full set of CIRCuIT training sessions can be given as stand-alone sessions or as a series to the same group of learners. Contextualise the module accordingly. Highlight any city policies or initiatives that are related to the learning outcomes of the module. Emphasise how these learning outcomes may be able to help further work on these areas.  | In this module we will review the current procurement strategy and criteria in your city, the CIRCuIT recommendations for embedding circularity in public procurement criteria, as well as some best practice procurement examples. It should be noted that the implementation of circular procurement practices is still in its infancy. We encourage public and private sector clients to evaluate and share their learnings to continue to build the knowledge of effective circular public procurement. We will also review some non-regulatory ways to engage the construction industry in discussions around procurement.By the end of this module, you will be able to…* Name a range of procurement strategies and examples of procurement policies that encourage circularity on construction projects.
* Understand how best practice procurement policies can be integrated into your procurement processes
* Identify ways to engage the construction industry in discussions around procurement
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# Why circular procurement?

Time: 15 Total time: 30

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| Facilitation / Alterations | Script |
| Start by asking everyone to confer with a partner on the three city priorities for circular economy in the built environment in the short to medium term. Ask the groups to share their lists. Write these down virtually or on a flip chart. Highlight any overlaps, pick up to three points the group can agree upon as priorities.If you are aware of any high-level goals or strategy documents at the city level, feel free to mention them when discussing city goals.When reviewing design strategies, if your learners are circular economy experts, you can reduce the review time of these strategies as they will already be familiar. If you would like to dig even further the sub actions to all the strategies listed are also available on the [toolkit website](https://ce-toolkit.dhub.arup.com/).  | Public procurement accounts for [15-20% of global GDP](https://ellenmacarthurfoundation.org/circular-public-procurement-a-framework-for-cities#:~:text=Public%20procurement%20accounts%20for%2015,economies%20by%20applying%20circular%20economy), and sub-national governments are responsible for almost 50% of procurement decisions. Public procurement is often considered an effective lever to introduce more circular practices into construction on municipal land. City governments therefore have an important role to play in shaping a market for circular products and practices through their purchasing decisions. Cities and local governments have varying levels of regulatory power but almost all control some aspect of procurement.In relation to construction, circular procurement means procurement of construction projects that follow circular economy principles (i.e. ‘circular construction’ projects). This means that particular attention should be paid to:* Potential opportunities for renovation of existing buildings rather than demolition and rebuilding,
* Planning for closing material loops and extending lifecycle of materials already in the ideation and project development phases of construction works,
* Using materials that are either reused or recycled,
* Using materials that can be either reused or recycled,
* Supporting material reuse and recycling via design choices,
* Flexible construction, so the building can serve multiple purposes,
* Ensuring the quality of building materials used, i.e. that they are functional and do not contain dangerous or unwanted substances,
* Ensuring traceability and documentation of materials throughout the construction process and beyond.

CIRCuIT found that current criteria in use focusses primarily on new construction and material circularity; they often rely on third-party certifications; and they are often formulated as award criteria, rather than minimum requirements. More attention to renovation and transformation potential, setting higher ambitions, and ensuring their enforcement through setting minimum requirements are recommended. Additionally, criteria should be tailored to tenders of different project stages.

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| We know procurement is a critical lever for cities to drive circularity locally. Before reviewing some of the best practice procurement policies it would be good to name what circularity goals your city is currently working towards. For example, are you looking to reduce construction waste generation, reduce embodied emissions through the inclusion of reused and recycled material?  Turn to the person next to you and write down what you think the city’s three main short to medium term goals are in relation to circularity in the built environment. If you have a plan or strategy document in place that you reference too, please do mention it.  Please share with the group what you believe the priority circularity goals in the built environment are for the city.  We will use these to guide our focus throughout the session and to find the procurement activities that are most likely to support these priorities.  |

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# What strategies are we trying to drive?

Time: 10 Total time: 40

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| In this section of the training, we are reviewing the design tenets of circularity to ensure everyone in the training is on equal footing as to what the ‘end goal’ is. When reviewing design strategies, if your learners are circular economy experts, you can reduce the review time of these strategies as they will already be familiar. If you would like to dig even further the sub actions to all the strategies listed are also available on the [toolkit website](https://ce-toolkit.dhub.arup.com/).  | Most of CIRCuIT’s work has centred around the following [three strategies](https://www.circuit-project.eu/focus-areas): * Urban mining, improving material reuse
* Transformation and life cycle extension
* Designing for adaptability and design for disassembly

These three strategies are an intentional sub section of the broader list of circular design strategies to allow for focused work during CIRCuIT. To fully understand how we can apply procurement to further circularity in the built environment we will briefly review a more complete list of strategies. We will be using [ARUP’s circular design framework](https://ce-toolkit.dhub.arup.com/framework). Please note, there are many ways to organise circular design strategies which may all be slightly different from each other, this does not mean one is superior to the rest. These frameworks also continue to evolve as we learn what to emphasise within circular economy. 1. **Build Nothing**
	1. Refuse unnecessary construction: This strategy aims at avoiding the intensive material use linked to the construction of a new building by, first, reassessing if a physical building is necessary for the envisioned requirements, and if so, assessing if an existing building can be used to meet them.
2. **Build for long term use**
	1. Increase building utilisation: This strategy aims at the reduction of upfront resource consumption by maximizing the utilization of spaces and avoiding use-free periods in the building programme.
	2. Design for Longevity: This strategy aims at maximizing the value of the building and its components over time, optimising value retention and value recovery potential
	3. Design for Adaptability: This strategy aims at enabling the adaptability potential during the use stage. Functional life span of buildings are short and it is of importance that buildings have the ability to adapt to new functions to retain their value.
	4. Design for Disassembly: This strategy aims at enabling the disassembly potential at end of service life. The useful life of some components in buildings outlast their service life as part of a system.
3. **Build Efficiently**
	1. Refuse unnecessary components: This strategy aims at meeting the project requirements with minimal material consumption.
	2. Increased material efficiency: This strategy aims at meeting the project requirements with minimal material consumption. At all levels, it aims for an efficient use of materials at a maximum level of performance.
	3. Reduce the use of virgin and non-renewable materials: This strategy aims at the prevention of virgin abiotic material consumption (particularly critical raw materials) and promotion of secondary products and materials.
4. **Build with the right materials**
	1. Reduce the use of carbon intensive materials: In the building industry, embodied carbon can be responsible for more than half of the total life cycle carbon emissions of a new construction project. As upfront carbon immediately cuts into our remaining carbon budget to stay below the agreed 2°C temperature rise by 2050.
	2. Design out hazardous/pollutant materials: This strategy aims at preventing the use of materials that have a negative impact on the other planetary boundaries than the Global Warming Potential.

To explore this hierarchy further please go to the [ARUP circular building design guide.](https://ce-toolkit.dhub.arup.com/)  |

# Approaching circular procurement

Time: 15 Total time: 55

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| Facilitation / Alterations | Script |
|  | Before we explore the best practice policy types and examples for procurement, we will briefly review the [circular procurement process as detailed by the EMF](https://ellenmacarthurfoundation.org/circular-public-procurement-a-framework-for-cities):**Step 1:** Setting yourself up for success* Set and communicate the level of ambition
* Build internal capacity and collect data: learn from other cities, form a working group, collect market research and data, conduct market dialogues
* Identify opportunities for pilots

**Step 2:** Adapt criteria and requirements * Develop circular criteria

Ensure procurement processes support circular criteria and consider existing buildings first. Before building new, existing buildings should first be considered for transformation. City governments can consider retrofit procurement to meet new standards. When the city does consider that new buildings are necessary, consider the reuse of materials, and designing for flexible use and eliminated waste:* Reusing materials and choosing recycled materials is one approach but for those virgin inputs that are needed, looking to switch to regeneratively sourced inputs (where appropriate) will be critical.
* When procuring new buildings, consider ensuring that they are designed for flexible use and eliminate waste during the construction and deconstruction phases. If a building has to be deconstructed, your municipality can also promote the reuse and recycling of building materials so that they don’t end up in landfills or incinerators.

Cost efficiencies can be achieved when circular procurement criteria and outcomes are included as early as possible, allowing for a lifecycle approach to building projects. See on the slide a checklist of questions to consider when you approach circular building procurement.**Step 3:** Run a circular tender process * Assess needs and review assets
* Engage relevant departments
* Adapt selection and evaluation

**Step 4:** Mainstream circular public procurement * Learn and improve
* Support innovation and emerging innovators
* Align business support with circular objectives
* Creating an enabling regulatory environment
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# Tender criteria recommendations

Time: 10 Total time: 65

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| Facilitation / Alterations | Script |
| In this section we will review CIRCuIT’s plug-and-play list of tender criteria and there will be an activity to get participants thinking about the tender criteria in their city. | Purchasers (municipalities) have various ways of incorporating circular economy into construction projects at their disposal, with tender criteria being one of the key levers. The main types of criteria that a municipality has at its disposal are:* Selection criteria – requirements that a tenderer must meet in order to be allowed to bid.
* Technical specifications, also known as ‘minimum requirements’ – requirements that must be met by the winning bid to be selected.
* Award criteria – additional optional criteria that, if met, make a bid more competitive.
* Contract performance clauses – specific measures taken to ensure that certain aspects of the winning bid have been met during the project, or after the project is completed.

Particularly the technical specifications (minimum requirements) and award criteria make room to incorporate circular principles into public tenders.We will now complete an activity to see where there are opportunities to make the tender criteria in your city foster more circularityMunicipalities vary when it comes to procedures for public tenders and for setting tender criteria. Let us start by exploring if circular economy criteria are currently reflected in your city’s public tenders for building projects. These may support any of the circular economy objectives we discussed so far, including the protection of existing buildings, waste reduction, promotion of material recovery, reuse and recycling, or design and demolition strategies.

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| **Step 1** Working in pairs or with someone in your team or company...Identify a recent building project commissioned by your city. This may have been a new building project or a renovation, and include or exclude the demolition of an existing building or structure. **Step 2** Research the procurement strategy and tender criteria for this project: * What procurement strategy was being used? Were there one or more tender stages?
* What tender criteria were being applied? Note the key selection criteria, technical specifications and award criteria
* Did any of these criteria support circular economy outcomes? Which were they and what circular economy objectives did they support
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Work carried out in the CIRCuIT project identified a range of interventions that could be used to address the barriers to circularity. These interventions were identified based on an extensive literature review and from city experiences. CIRCuIT has developed a “plug-and-play” list of tender criteria for various projects (renovation, demolition, and new construction) and various tenders (project development, design, and execution stage) that municipalities can use in their own procurement processes. To review the full list of criteria, please refer to D7.4.In particular, the interventions that could be suitable for inclusion as criteria in public tenders are: *[see slides]*

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| *Revisit the building project and tender criteria you identified in Exercise 1.***Step 1** Working in the same pairs... Thinking about the tender criteria we have just discussed, what would you have changed or added in the procurement of this project, in order to make it more circular? **Step 2** List the tender criteria you would propose to embed in your city’s public tenders to promote circularity in your building projects. Consider if they differ depending on the type of project **Step 3** Consider what needs to happen to change your city’s procurement criteria: * Who leads on procurement for building projects in your city?
* What procurement criteria can be determined at city level?
* What influencing procurement policies would you like to shape?
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# Best practice examples – potential broader policies they can support

Time: 10 Total time: 65

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| Facilitation / Alterations | Script |
| In this section you will review best practice examples of how to introduce circularity into construction procurement. Each type of policy will also include example language to include.If the group has identified one of the individual sections as a focus area for the city, spend more time discussing this area.  | The Climate Neutral Cities alliance released an [embodied carbon reduction policy framework](https://www.embodiedcarbonpolicies.com/) in 2021. It details a range of policies that reduce embodied carbon including circular strategies. It also specifies some of the most impactful procurement policies with example language. We will be reviewing the different policy options available according to their categorisation. 1. **Green Frameworks For Public Buildings**

Forcing all public buildings to follow green public procurement scheme that includes embodied carbon requirements may simplify municipal project requirement setting. When a city can use a national, federal or European Union set of requirements, or a suitable commercial green building certification system, those can be applied instead.**Policy Examples** 1. EU - Green Public Procurement (GPP)
* Summary: Green Public Procurement for office buildings by European Commission. The GPP template is a flexible procurement scheme that incorporates different levels of technical ambition and complexity. For materials, it has different types of categories of demands, including use of recycled content in concrete and masonry (from 15 % to 30 % in main building elements) as well as carbon impacts of building materials with different options. It also includes reuse of demolition waste (from 55 % to 80 %) and limits to the amount of construction site waste generated (from 110 to 70 kg per square meter GIFA). The criteria for materials emissions are in decreasing order of ambition and complexity: 1) LCA for main building elements; 2) collect EPDs for main building elements; 3) require recycled and re-used content; and 4) require reducing transportation impacts of heavy materials. Read more [here](https://ec.europa.eu/environment/gpp/index_en.htm).
1. Oslo - FutureBuilt
* Summary: FutureBuilt is a decade-long programme set up by a broad partnership consisting of Oslo Municipality, Bærum Municipality, Asker Municipality, Drammen Municipality, Green Building Alliance and the Norwegian Association of Architects.  The goal of the project was to establish model projects which achieved a minimum of 50 percent reduced greenhouse gas emissions from transport, energy use and material use.  In total 37 model projects were completed including schools, nursing homes, bicycle parks and more. The programme ran until 2020. Read more [here](https://www.futurebuilt.no/English).

Example Language1. **Establish Carbon Limits for Building Materials Procurement**

Set carbon intensity limits for key materials for the major construction material groups for all city projects and implement in public procurement. Ensure same requirements are enforceable also for construction projects where the city is buying or long-term leasing the building. These can be demonstrated using Environmental Product Declarations for example. These would be required when a project is bid, and then completed, so that the purchase is verifiable.**Policy Examples** 1. Los Angeles - Buy Clean California Act
* Summary: Following Mayor Garcetti’s Executive Directive No. 25, Los Angeles was the first local government to adopt California’s Buy Clean California Act, which regulates the Global Warming Potential of steel, flat glass and mineral wool procured by the municipality for public projects. LA has required Environmental Product Declarations (EPDs) for these materials from January 1st 2021, and will require the GWP limits to be met in all municipal procurement by July 1st 2021. The city will also examine additional carbon intensive building materials to be included in the future. Read more [here.](https://carbonleadershipforum.org/buy-clean-california-limits/)
1. Portland - Low Carbon Concrete Initiative
* Summary: In 2016 a supply chain analysis showed the city of Portland that construction services were the largest contributor to their supply chain GHG emissions, and that concrete is one of the most GHG intensive materials typically used in City construction processes. Portland’s Low Carbon Concrete Initiative was set up to target concrete that is used in city projects. Starting in January 2020 all concrete mixes in all city projects were required to provide an Environmental Product Declaration. In May 2022 the City announced its maximum Embodied Carbon Thresholds for concrete mixes used on City construction projects which will go into effect January 2023. The thresholds were based on recommendations from a multi-stakeholder workgroup convened to advise the City on establishing such thresholds. In order to understand how lower-carbon concrete mixes perform compared to traditional 100% cement mixes, the City has also been conducting pilot tests of different lower-carbon concrete mixes. Read more [here](https://www.portland.gov/omf/brfs/procurement/sustainable-procurement-program/sp-initiatives).
1. Norway – Statsbygg
* Summary: The Norwegian government construction organisation Statsbygg applies a requirement for using only products with EPDs for concrete, steel, insulation materials, gypsum boards, natural stone, wood-based boards, floorings, ceilings and roofing membranes. Of these, concrete, steel, gypsum and insulation have maximum emission limits. For pilot projects, limits are set also for other material types. Concrete carbon limits have been set for different strength classes. For steel, requirement is expressed as recycled content. For insulation the requirements vary by type of insulation. Read more [here](https://www.vke.no/siteassets/dokumenter/presentasjoner/04_morten-dybesland_statsbygg-og-epd-tekniske-installasjoner-31.05.18.pdf).

Example Language 1. **Requirement of Recycled Aggregates**

Develop a procurement policy that sets a minimum level of recycled or reused aggregates and soils in municipal projects, if available within a predefined sourcing radius. The designers can choose the optimal uses for those masses based on the project. This type of policy would have most impact on infrastructure works**Policy Examples** 1. Denmark – Sustainability in Construction and Civil Works
* Copenhagen, Denmark requires in their Sustainability in Construction and Civil Works that “Roadbuilding works must use crushed builders’ rubble as a substitute for base gravel, provided that this is technically or economically sustainable. Requirements for environmental quality have to be met. The crushed rubble must not contain any bricks, tiles or concrete that could be reused instead”. These requirements apply both to projects the City commissions, as well as the projects the City supports. Read more [here](https://kk.sites.itera.dk/apps/kk_pub2/pdf/762_9gqRMgTcg3.pdf).
1. France – Reused Building Waste Materials in Road Construction
* France has a current goal to achieve a 50 % share of reused or recycled building waste materials in road construction for materials bought by national and local authorities in 2017, rising to 60 % by 2020. This can help ensure having a market for most of the recycled aggregates processed from construction and demolition waste.

Example Language1. **Circular Materials Purchasing Strategy**

Implement a strategy to define procurement in a manner which ensures that the market will either certainly or very likely deliver a circular solution in response. Procurement can be designed to focus on materials efficiency, circularity, maintainability, repairability and end of life opportunities.**Policy Example**1. Amsterdam - Amsterdam Circular Strategy 2020 - 2025
* Summary: Starting in 2022, all new urban development and public space design will be based on circular criteria. Starting in 2023  the city will implement circular criteria in its procurement and tendering policies for buildings and other public spaces. This means building with Amsterdam's circular criteria for the built environment which are: building with fewer materials, building with reused and/or bio-based materials, and implementing adaptive and modular construction. Read more [here.](https://www.amsterdam.nl/en/policy/sustainability/circular-economy/)

Example Language  |

# Break

Time: 15 Total time: 80

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| Facilitation / Alterations | Script |
| This is the transition between two main topics of this session. Share that we will be moving on, and that now is the time for any remaining questions on the last section. Take your time answering these if time allows, if not tell the learners you will follow up on the session with responses to the questions. Allow for a comfort break. | We’ve just reviewed some of the key recommendations for including circular requirements in your procurement guidelines. In the next section we will review non-regulatory best practice |

# Non-Regulatory Best Practices

Time: 10 Total time: 100

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| Facilitation / Alterations | Script |
| In this section you will be reviewing the best practice principles of collaborating with developers outside of a procurement activity. This section does not include an activity but if your learners have a lot of experience with developers it may be valuable to encourage discussion about their experiences here.  | Procurement is often used as way to test new ambitious regulation, to take the first steps towards new ways of working. For this reason, a comfortable two way dialogue between the city and the construction industry including developers will be key. Much work must happen outside of establishing regulations to ensure the industry are aligned and ready for the city’s goals. The CIRCuIT project conducted a range of interviews and these were the best practice actions that emerged from the investigation into how to best approach dialogues with developers:1. Clarify political priorities and environmental requirements for developers
* Developers often found there was a lack of vision set by the municipality, and that various agendas were introduced at various stages of planning. Avoid this by setting clear city goals and creating a strategy.
1. Provide developers with a clear overview of the planning process – from planning submission to building permit
* A simple overview of the planning stages was essential to understanding when CE initiatives should be included, and ensure they were not compromised in the switch between planning teams.
1. Talk circularity as early as possible
* Early discussions resulted in more follow through on CE approaches
1. Create synergies between the city goals and the goals of the developer
* An effort should be made to find parallel interests between the city and the developer
1. Set fewer requirements in local plans to allow for CE solutions
* Update local regulations to either make CE solutions easier by for example relaxing aesthetic requirements, or to incentivise CE outcomes by increasing floor area allowance for example.
1. Establish channels for communicating policy change and new knowledge on CE
* Allocate resources to communicating changes, establish a cross sector forum on the topic
1. Use data and knowledge on CE as a driver for educating planners and developers
* Creating a process focused best-practice catalogue was pointed to as a key component for future success
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# Setting a vision for the city and next steps

Time: 10 Total time: 110

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| Facilitation / Alterations | Script |
| In this section you will review what was covered during the training session, and ask participants to define what they will take forward from this session. Thank everyone for their time and ensure they have a way to get in contact with you in case they have any questions. | In this session we have* Come to a consensus on the city’s short to medium term circular economy goals
* Reviewed the procurement process as it stands today
* Reviewed best practice examples and strategies for procurement in cities
* Considered how we might apply these best practice steps to our procurement

Considering one of the CIRCuIT outputs indicated that an issue developers found when working with cities is the lack of clear vision when it comes to goals and procurement. Let us now define a clear vision, what steps will you take to further develop your requirements on circularity in construction procurement? |

# Sources

* 1. CIRCuIT Sources

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| --- | --- | --- |
| WP7 | D7.3 | Recommendations Instruments for Dialogues with Developers |
| WP 7 | D7.4 | Recommendations: Criteria for public tenders on construction [not yet published] |

1.2 Other Sources

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| ‘Public procurement accounts for 15-20% of global GDP’ | <https://ellenmacarthurfoundation.org/circular-public-procurement-a-framework-for-cities#:~:text=Public%20procurement%20accounts%20for%2015,economies%20by%20applying%20circular%20economy> |
| Arup Circular Design Framework | <https://ce-toolkit.dhub.arup.com/framework> |
| Arup Circular Design Building Toolkit | <https://ce-toolkit.dhub.arup.com/> |
| Circular Procurement Process EMF | <https://ellenmacarthurfoundation.org/circular-public-procurement-a-framework-for-cities> |
| CNCA Embodied Carbon Policy Framework | <https://www.embodiedcarbonpolicies.com/> |
| Case Study: Buy Clean California Act | <https://carbonleadershipforum.org/buy-clean-california-limits/> |
| Case Study: Portland Low-Carbon Concrete Initiative | <https://www.portland.gov/omf/brfs/procurement/sustainable-procurement-program/sp-initiatives> |
| Case Study: Norway Statsbygg  | <https://www.vke.no/siteassets/dokumenter/presentasjoner/04_morten-dybesland_statsbygg-og-epd-tekniske-installasjoner-31.05.18.pdf> |
| Case Study: EU Green Public Procurement  | <https://ec.europa.eu/environment/gpp/index_en.htm> |
| Case Study: Oslo FutureBuilt | <https://www.futurebuilt.no/English> |
| Case Study: Denmark, Sustainability in Construction and Civil Works | <https://kk.sites.itera.dk/apps/kk_pub2/pdf/762_9gqRMgTcg3.pdf> |
| France, Reused Building Waste Materials in Road Construction  |  |
| Amsterdam Circular Strategy 2020-2025 | <https://www.amsterdam.nl/en/policy/sustainability/circular-economy/> |

# Further Resources

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| ICLEI big buyers on circular construction materials | <https://circulars.iclei.org/wp-content/uploads/2020/09/BBI-CCM-lessons-learned.pdf><https://bigbuyers.eu/fileadmin/user_upload/Big_Buyers_lessons_learnt_Circular_Construction.pdf><https://circulareconomy.europa.eu/platform/sites/default/files/k.dietz-iclei-circular-procurement-as-an-enabling-tool-for-secondary-material-markets.pdf> |
| Case study on procuring circular asphalt in eU | <https://bigbuyers.eu/fileadmin/user_upload/Big_Buyers_lessons_learnt_Circular_Construction.pdf> |