Module 3 Speaker Notes: Planning & Policy Drivers 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: 100 minutes

Contents

1. Arrival
2. Introductions and CIRCuIT Background
3. Introducing Module 3 – Learning Objectives
4. What are we trying to achieve?
5. Introduction Activity – Defining your planning priorities
6. Break
7. Transformation and extending life cycles
8. Urban mining and material reuse
9. Adaptability and design for disassembly + general circularity
10. Checking back in
11. Activity: Matching policy interventions with identified barriers
12. City specific interventions as suggested by CIRCuIT research
13. Wrap up

# Arrival

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

|  |  |
| --- | --- |
| 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

|  |  |
| --- | --- |
| 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.  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 3 – Learning Objectives

Time: 5 Total time: 15

|  |  |
| --- | --- |
| 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. | The purpose of this session is to assess the policies and interventions that your city can use to drive the transition to a circular economy in the built environment.  The CIRCuIT project identified a number of enabling policies and regulations to further circularity. The project found there were enabling and prohibiting policies and regulations influencing the built environment set at the national and/or EU level. In this session we will assess the possible interventions and tools to enable a circular economy at the city level and you will be invited to explore how you might apply some of these strategies locally.  By the end of this module, you will be able to:   * Understand the common barriers to implementing circular economy principles * Review the key policy instruments that can be used to drive circularity in your city * Understand policies that can be used to extend lifecycles, increase urban mining, and drive circular construction, and learn from best practice examples |

# What are we trying to achieve?

Time: 10 Total time: 25

|  |  |
| --- | --- |
| Facilitation / Alterations | Script |
| Before jumping into planning actions we want to establish CIRCuIT’s focus areas and the hierarchy of circularity actions to ensure everyone is on the same page and has the correct context.  This section can be as brief of expansive as necessary depending on your participants. | We know planning is a critical lever for cities to pull to drive circularity locally, before reviewing some of the best practice policies it would be good to name what circularity goals your city is currently working towards.  Circular policies and initiatives guide those involved in the construction process through circular design thinking. 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 planning policy 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/). |

# Introduction Activity – Defining your planning priorities

Time: 15 Total time: 40

|  |  |
| --- | --- |
| Facilitation / Alterations | Script |
| This module starts with a comparatively longer activity examining:   * The city/regions local planning priorities * The planning process and influences * The barriers the participants perceive to implementing circular change   This context will help frame discussions around best practice later and will allow the examples to be examined from a practical perspective.  The activity has two key parts, first identifying the goals of the city in planning and the barriers that are faced when trying to achieve these. The second, sketching the planning systems and determining where the most influence is possible to make change.  The activity is set up as discussions between pairs that are then shared with the group. You are free to lead these discussions sections and answer the relevant questions as you wish. | |  | | --- | | We will start the training session with an activity. The activity is about identifying your local circularity and planning priorities, articulating the planning process, and identifying current barriers. This will help frame the best practice and examples and will let us examine them through the lens of practical implementation.  **Part 1: Identifying key goals and current barriers**   1. Please turn to the person next to you and in the next couple minutes agree on one key circularity goal and one key planning goal for your city/region. These can be defined from your team or be drawn from the city’s core strategy document. A few examples could include; increasing the number of affordable housing units, reducing the number of vacant commercial spaces, meeting net zero, improving walkability.   Please share with the group to create a shared list.   1. What are the barriers to furthering your planning priorities? Write down the barriers on a post it notes, one barrier per post it.   Let’s group the barriers. The categories defined in CIRCuIT were as follows: |  * Regulatory Failures   + Regulation can often be hampered by a strong hierarchal system. Issues can also arise when policy lacks clarity on the direction for circularity, policies that look to drive circularity but lack implementation, enforcement and policies that have unintended consequences or existing regulations that inadvertently hamper circular practices. * Market Failures   + Relating to lack of data, externalities not being priced in, insufficient logistics and infrastructure that hinder the market, lack of competition, lack of information and split incentives across the value chain. * Economic Barriers   + Lack of profitability for businesses participating, uncertain payback times, lack of scale driving up costs * Social factors   + Lack of skills necessary to implement circular solutions, cultural attitudes around reuse, and ingrained patterns of behaviour.  |  | | --- | | **Part 2: Articulating the building regulation and planning system.**   1. Now turn to a partner and sketch out the building regulation and planning system. It doesn’t have to be comprehensive we are trying to address how we can embed planning in the system you are a part of.   Please share with the group, we will construct a shared planning and building regulation map.   1. Where are your points of influence? Map out on the planning system where there is the greatest opportunity for leverage and change   Consider the following policy types, have we included all possible levers in this diagram? |  * Legislative and regulatory instruments   The type of policy we will spend the most time reviewing today including building regulations and control, building permits, planning legislation and product labelling (e.g., CE labelling). The requirements can either be prohibitive (e.g., forbid certain behaviour) or be prescriptive (e.g., require certain behaviour). On the whole legislation tends to be prescriptive. Examples of this within the built environment include which all require certain criteria to be met.   * Economic/fiscal instruments   Economic and fiscal instruments are based on a government that influences market mechanisms though for instance subsidies, loans, taxes, fees, concessions of rights. Common examples include the Landfill Tax, reduction of tax such as VAT for certain activities/products, and primary raw materials levy. Also included could be the provision of loans and subsidies for business set up, growth and infrastructure development.   * Agreement/incentive-based   Agreement based or co-operative instruments are voluntary commitments to certain behaviours. They often arise from consortia that share an agenda – mostly consisting of both public as well as private actors (public-private partnerships).   * Information/communication-based   These instruments try to influence behaviour through disseminating information to entice behaviour change. It therefore is limited to one-way communication. Usually considered for public information campaigns, they can also be targeted educational programs to reach a specific audience or providing product related information through certification (labelling) or ranking.   * Knowledge and innovation instruments   Knowledge and innovation-based instruments support actors jointly increasing their knowledge and capacity by engaging in social learning.   * **Strategies and roadmaps**   Strategies and roadmaps provide an overarching direction. By setting strategic goals, objectives and targets, circular economy city roadmaps and strategies can set a direction for a city and inform the development of other policy instruments, such as urban planning requirements or public procurement. |

# Break

Time: 15 Total time: 50

|  |  |
| --- | --- |
| Facilitation / Alterations | Script |
| 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. | Thank you for your effort articulating your key planning goals and defining your planning system.  After a short break we will consider the policy landscape and draw some planning policy inspiration from existing initiatives. |

# Transformation and extending life cycles

Time: 5 Total time: 55

|  |  |
| --- | --- |
| Facilitation / Alterations | Script |
| In this section you will review the planning policy recommendations CIRCuIT developed to further transformation and life cycle extension. You will also review a set of case studies of successful implementation of relevant policies.  As you review the suggested policies and examples, draw out any that are related to the priorities that were raised earlier in the session by the group. | Now that we know what our planning goals are and what levers we may have to drive these within our own planning system, we can review some recommendations and best practice.  One of the first considerations when building in a circular fashion is transformation and life cycle extension. The CIRCuIT project recommends the following planning policy actions to further this work:   * Planning authorities prioritise reuse of assets * Zoning regulations that do not restrict refurbishment * Require that the applicant demonstrates how they reduce carbon by demolition and rebuild option vs. renovating the current building prior to issuing demolition or new development permit * Set requirements that short life span buildings should be modular or prefabricated * Set disassembly targets for shorter lifespan or higher reuse potential buildings or elements   **Examples**  **Los Angeles - The Adaptive Reuse Ordinance**  Type: Agreement/incentive-based  **Summary:** The [Los Angeles Adaptive Reuse Ordinance](https://www.ladbs.org/services/core-services/plan-check-permit/plan-check-permit-special-assistance/adaptive-reuse-projects) (ARO) was adopted in 1999. It encouraged the conversion of historic and other older and often under-used, under-appreciated or even abandoned office buildings in the downtown area into residences. This both accelerated the creation of much needed housing and ensured the preservation of existing structures. It did this by providing certain exemptions from the new building code, including reducing the minimum parking spaces requirement, for those existing buildings that would be developed into housing. Thanks to the ARO housing in downtown LA grew from around 11,000 units to 46,000 units in 2019. ARO was expanded in 2003 into various other parts of the city.  **Vancouver - Empty Homes Tax**  Type: Economic/fiscal instruments  **Summary:** Vancouver instituted an [Empty Homes Tax](https://vancouver.ca/home-property-development/empty-homes-tax.aspx) to help return empty and under-utilized properties to the market as long-term rental homes for people who live and work in Vancouver. This is one of many actions in the City’s 10-year Housing Vancouver Strategy. In November 2020 an increase from 1.25% to 3% in the upcoming year was approved. This is relevant because the tax has reduced vacant properties in the city by 25% since 2017 helping move thousands of homes back into the rental market. The CAD $61 million (US$48 million) in net revenues from the tax has been used to support affordable housing initiatives.  **Milan - Degraded and Abandoned Areas and Buildings Map**  Type: **Knowledge and innovation instruments**  **Summary:** Milan tracks vacant and derelict space in the city. The programme was started in 2014 and now is part of the mechanisms to support the city’s plan Milan 2030 which was adopted in late 2019. The identified buildings are given 18 months to be renovated and put back into use. There is an interactive map online that illustrates where these underused spaces are located. Read more [here.](https://www.comune.milano.it/servizi/edifici-degradati-e-abbandonati?fromSearch=true) |

# Urban mining and material reuse

Time: 7 Total time: 60

|  |  |
| --- | --- |
| Facilitation / Alterations | Script |
| In this section you will review the planning policy recommendations CIRCuIT developed to further urban mining. You will also review a set of case studies of successful implementation of relevant policies.  As you review the suggested policies and examples, draw out any that are related to the priorities that were raised earlier in the session by the group. | Once we know demolition is necessary, we move on to urban mining. The following are best practice planning policy inclusions to drive urban mining in your city:   * Set requirements (%) for amount of material (waste) reused/recycled in demolition permit * Require a pre-demolition audit prior to issuing demolition permit or approving new development permit * Make pre-demolition audit information public * Require a minimum amount of time between demolition permitting and demolition activity * Require a study/report on how waste will be minimised prior to approving demolition of new development permit * Set requirements (%) for number of reclaimed/recycled materials incorporated in new development permit * Require waste hauler to be licenced and identified in the demolition or new development permit * Buildings meeting specific criteria must be deconstructed as opposed to mechanically demolished * Set acceptability standards/certificates for reused materials * Ban the use of certain materials (i.e., non-circular) * Refund a permit “deposit” upon documented achievement of a predetermined reuse/recycling threshold   **Examples**  **Portland – Deconstruction Ordinance**  Type: Legislative and regulatory instruments  **Summary:** Portland has a [Deconstruction Ordinance](https://www.portland.gov/bps/climate-action/decon/deconstruction-requirements) in place for structures from before 1940. This means that buildings that were built before the 1940’s need to be deconstructed by hand as opposed to mechanically demolished. This means many of the materials in the building can be recovered. The Ordinance applies to about 66% of Portlands’ annual demolition permitting requests.  **Vancouver - Deconstruction Hub**  Type: Knowledge and innovation instruments  **Summary:** The [Vancouver Rebuild Hub](https://www.habitatgv.ca/rebuildhub) build’s on Vancouver’s deconstruction and material reuse initiatives, the first of which was implemented in 2011. The key enabler of the project was an initial grant to and partnership with Habitat for Humanity to establish the project. The Rebuild Hub takes on donated materials and resells them to the community. Deconstruction specialist companies such as Unbuilders are key to providing usable construction material. All proceeds go to Habitat for Humanity’s affordable housing projects.  **San Francisco - Construction and Demolition Ordinance**  Type: Legislative and regulatory instruments  **Summary:** Construction and demolition debris in the city may not be taken directly to landfill, and must be recycled/reused as possible. The 2018 update to the regulation requires that facility recovery rates be 3rd party verified. In addition, construction and demolition projects must prepare a Construction and Demolition Debris Management Plan that demonstrates how all material will be diverted from the landfill. The Plan must be approved by the municipality prior to commencement of the project. Monthly project summaries as well as a final report are required. Read more [here](https://sfenvironment.org/construction-demolition-resources). |

# Adaptability and design for disassembly + general circularity

Time: 10 Total time: 70

|  |  |
| --- | --- |
| Facilitation / Alterations | Script |
| In this section you will review the planning policy recommendations CIRCuIT developed to further design for disassembly and general circularity. You will also review a set of case studies of successful implementation of relevant policies  As you review the suggested policies and examples, draw out any that are related to the priorities that were raised earlier in the session by the group. | Some planning approaches tackle circularity in general as opposed to one specific strategy. These policies tend to be performance based rather than prescriptive – looking to achieve a certain outcome as opposed to prescribing specific actions.  **All/Multiple**   * Allowing larger developments where certain environmental criteria are met (e.g., retention of existing building, reuse %, carbon footprint, green building rating scheme) * Allowing faster permitting where certain environmental criteria are met (e.g., retention of existing building, reuse %, carbon footprint, green building rating scheme) * Allowing reduced permitting fees where certain environmental criteria are met (e.g., retention of existing building, reuse %, carbon footprint, green building rating scheme) * Incorporate ratings and targets into building codes * Require the reporting of accurate data (e.g., on waste management, materials quantities) * Set an overarching vision promoting circular construction approaches. * Require a circularity assessment and to be submitted prior to approving demolition or new development permit * Require a life cycle carbon assessment and to be submitted prior to approving demolition or new development permit * Require life cycle costing to be submitted prior to approving demolition or new development permit * Set embodied/whole life carbon limits * Incorporate carbon impact into zoning of areas   **Example – Design for Disassembly**  **Paris  - Plan Climat Air Energie Territorial**  **Type: Strategies and roadmaps**  **Summary:** Paris’ Climate Action Plan includes a target to build more than 30% of (new) office buildings reversibly by 2030 and 50% by 2050. Reversibility is meant as building for deconstruction and flexible use. Read more [here](https://www.paris.fr/pages/nouveau-plan-climat-500-mesures-pour-la-ville-de-paris-5252).  **Examples – General Circularity**  **Stockholm - Carbon Footprint Declaration Municipal Infrastructure Projects**  Type: Legislative and regulatory instruments  **Summary:** Since 2018 the City of Stockholm required carbon footprint declaration for all municipal infrastructure projects costing at least 50 MSEK (4,7 M€ or $5.3M). This policy is now proposed to be extended to cover smaller projects in their entirety by 2021. The proposal recommends that projects look at the whole life-cycle, including use phase climate impacts (B1-B7) for choosing implementation method, and that the end of life impacts and options (C1-C4) be studied, but ultimately requires that only the material (A1-A3) or upfront (A1-A5) emissions be calculated. Read more [here](https://www.c40.org/wp-content/uploads/2022/02/C40-Net-Zero-Carbon-Buildings-Declaration_Public-progress-report_Feb-2022.pdf).  **Vancouver - Green Building Policy For Rezoning**  Type: Legislative and regulatory instruments  **Summary:** The Green Buildings Policy for rezoning introduces a range of new environmental considerations for large projects requesting rezoning in the city. Rezoning is usually requested by large developers who want to build something that is not permitted according to current zoning regulations, usually taller residential properties. Under the Green Building Policy for rezoning applicants are required to complete and disclose the results of a Whole Building Life Cycle Assessment. Read more [here.](https://bylaws.vancouver.ca/Bulletin/G002_2017April28.pdf)  **London - New London Plan**  Type: Legislative and regulatory instruments  **Summary:** The New London Plan was published in 2021. It includes sustainability standards to make London’s buildings net-zero carbon by 2030, as well as the city's first embodied carbon regulations on new buildings. All schemes referable to the mayor - these are projects that meet a certain size threshold, or are in specially designated areas - will have to provide a whole life carbon assessment and a circular economy statement to demonstrate how they have taken action to reduce the building's life cycle impact. Read the New London Plan [here](https://www.london.gov.uk/what-we-do/planning/london-plan/new-london-plan/what-new-london-plan).  **Netherlands – Bouwbesluit**  Type: Legislative and regulatory instruments  New construction of commercial or residential buildings over 100m2 have to submit an environmental calculation assessing both the operation emissions and the life cycle emission and resources indicators, in order to obtain a planning permit. This ensures that the operational requirements do not come at the detriment to circularity or embodied emission requirements. Read more [here](https://business.gov.nl/regulation/building-regulations/).  **San Francisco’s Climate Action Plan**  **Type: Strategies and roadmaps**  **Summary:** San Francisco’s extensive climate plan outlines a number of relevant targets that will set the direction of regulation until 2030. This includes the goal to adapt regulation for adaptive reuse, reduced embodied carbon emissions, and requirements for deconstruction and source separation of materials by 2025. There is also a stated goal to expand regional building reuse markets with the explicit need to support workforce development and small business enterprises. Read more [here](https://sfenvironment.org/climateplan). **Paris - Parisian Construction Pact** **Type: Strategies and roadmaps**  **Summary:** The Parisian Construction Pact or Pacte Pour la Construction Parisienne details 10 priorities for future construction in the city. Two of the ten areas focus on building with adaptation considerations. One priority includes reducing paving and increasing permeability in the city to allow for better drainage and to increase greenspace. The other aims to consider material choices to reduce the urban heat island effect. Read more [here](https://cdn.paris.fr/paris/2021/03/02/343e9528c3a88309b30920627c486c97.pdf). |

# Checking back in

Time: 5 Total time: 5

|  |  |
| --- | --- |
| Facilitation / Alterations | Script |
| This is the transition between two of the three 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 have now reviewed all the CIRCuIT recommendations for planning policies as well as a range of examples from around the world. When we come back we will discuss how these recommendations and examples relate to your priorities in the city right now. |

# Activity: Matching policy interventions with identified barriers

Time: 10 Total time: 85

|  |  |
| --- | --- |
| Facilitation / Alterations | Script |
| In this activity you will be bringing together what you learned from both the barriers and the possible interventions.  This activity will help clarify any questions the learners have and identify what actionable interventions stuck with everyone the most.  Consider using the planning diagram that was constructed at the beginning to illustrate who would be implementing the policy interventions, and at what time these would become relevant. | Now that we have reviewed your priorities, your perceived barriers in the building regulation and planning space and reviewed a full range of policy interventions, let’s put them together.   * Which policy interventions work best to achieve the priorities you laid out today? * How might you look to implement these interventions in your regulatory and planning system? |

# City specific interventions as suggested by CIRCuIT research

Time: 10 Total time: 95

|  |  |
| --- | --- |
| Facilitation / Alterations | Script |
| The research in the project has suggested certain interventions for each of the CIRCuIT cities. It may be valuable to review them with the group.  For more information see: Pdf of pages 33 – 40 of CIRCuIT report D7.1 | We have seen that by pulling certain policy levers, cities have accelerated a range of circularity initatives.  In the four CIRCuIT partner cities, a prioritised set of policies were identified based on the level of control they have within their systems. For example:   * In Copenhagen, most interventions cannot be undertaken though the development/permitting process however it is possible to require certain interventions in municipality buildings. * In Hamburg, it would be difficult to change the building code and HBauO, however there could be opportunities for the Senate to implement strategy and knowledge invterventions by communicating their aspirations and preferences.   With this in mind, let’s finish off with an exercise to explore how you might use policy levers to accelerate circularity in your city. |

# Wrap up

Time: 5 Total time: 100

|  |  |
| --- | --- |
| Facilitation / Alterations | Script |
| Wrap up the training session, thank everyone for their time, ensure you are able to share any necessary documents and that people can reach out to you if they have any further questions. | Thank you to all of you for your time.  We now have a list of potential interventions for the city on planning.   |  | | --- | | Before we leave please write down for yourself which policy intervention you are best placed to help drive, and how you will do that. | |

# Sources

* 1. CIRCuIT Sources

|  |  |  |  |
| --- | --- | --- | --- |
| WP7 | D7.1 |  | Circular economy in urban planning and building permits - possibilities and limitations |

1.2 Other Sources

|  |  |
| --- | --- |
| CIRCuIT’s focus areas | <https://www.circuit-project.eu/focus-areas> |
| ARUP’s Circular Design Framework | <https://ce-toolkit.dhub.arup.com/framework> |
| ARUP’s Circular Design Toolkit | <https://ce-toolkit.dhub.arup.com/> |
| Los Angeles - The Adaptive Reuse Ordinance | <https://www.ladbs.org/services/core-services/plan-check-permit/plan-check-permit-special-assistance/adaptive-reuse-projects> |
| Vancouver - Empty Homes Tax | <https://vancouver.ca/home-property-development/empty-homes-tax.aspx> |
| Milan - Degraded and Abandoned Areas and Buildings Map | <https://www.comune.milano.it/servizi/edifici-degradati-e-abbandonati?fromSearch=true> |
| Portland – Deconstruction Ordinance | <https://www.portland.gov/bps/climate-action/decon/deconstruction-requirements> |
| Vancouver - Deconstruction Hub | <https://www.habitatgv.ca/rebuildhub> |
| San Francisco - Construction and Demolition Ordinance | <https://sfenvironment.org/construction-demolition-resources> |
| Singapore - The Demolition Protocol | <https://www1.bca.gov.sg/buildsg/sustainability/additional-programmes/sustainable-construction/demolition-protocol> |
| Quito - Herramiento Eco-Efficiencia | <https://www.uhph.org/es/concurso/ganadores/herramienta-de-eco-eficiencia> |
| Luxembourg - Law 21 on Management of Waste | <https://www.mondaq.com/waste-management/1227034/waste-management>  <https://economie-circulaire.public.lu/en.html> (luxembourg circular economy) |
| Paris  - Plan Climat Air Energie Territorial | <https://www.metropolegrandparis.fr/en/node/76> [fr]  <https://www.paris.fr/pages/nouveau-plan-climat-500-mesures-pour-la-ville-de-paris-5252> [fr]  <https://www.climate-chance.org/en/card/paris-un-nouveau-plan-climat-fruit-dune-vaste-consultation/> [eng] |
| Stockholm - Carbon Footprint Declaration Municipal Infrastructure Projects | <https://www.c40.org/wp-content/uploads/2022/02/C40-Net-Zero-Carbon-Buildings-Declaration_Public-progress-report_Feb-2022.pdf> |
| Vancouver - Green Building Policy For Rezoning | <https://bylaws.vancouver.ca/Bulletin/G002_2017April28.pdf> |
| London - London Plan | <https://www.london.gov.uk/programmes-strategies/planning/london-plan/new-london-plan/what-new-london-plan> |
| Netherlands – Bouwbesluit | <https://business.gov.nl/regulation/building-regulations/>  (includes link to the building decree 2021 I.e. bouwbesluit) |
| San Francisco’s Climate Action Plan | <https://sfenvironment.org/climateplan> |
| Paris - Parisian Construction Pact | <https://cdn.paris.fr/paris/2021/03/02/343e9528c3a88309b30920627c486c97.pdf> [fr] |

# Further Resources

|  |  |
| --- | --- |
|  |  |