



# Legal Instruments to Ensure Circularity in Construction: A Focus on Products, Procurement and the Process

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**Abstract.** Public policy objectives highlighting the circular economy transition in construction are clear and ambitious. Now, regulatory instruments and frameworks are needed to embrace and support these objectives. We argue that regulatory frameworks should be (re-)considered using three equally important perspectives to achieve circularity: circular products, procurement and the process. With this paper, we highlight three legal instruments (one for each P) that have the potential to contribute to the establishment of a more circular construction sector in Belgium and the Netherlands. We'll explore the introduction of an extended producer responsibility for construction and demolition waste (products & process); the use of life cycle costing as an award criterion in circular public tenders (procurement) and the need for legal frameworks that enhance cooperation between both public and private construction actors (process).

## 1 Introduction

Efforts in making our society more sustainable are gaining traction. The European Commission is on the forefront of this transition with policy initiatives such as the European Green Deal<sup>1</sup> and the Fit for 55-package.<sup>2</sup> These policy initiatives have already led to various regulatory initiatives, e.g. the European Climate Law.<sup>3</sup>

One of the tools capable of enabling a more sustainable society is the transition towards a circular economy.<sup>4</sup> A circular economy can be defined as an economic system that represents a change of paradigm in the way human society (business models and

<sup>1</sup> COM(2019) 640 final, Communication from the European Commission on the European Green Deal, 11.12. 2019.

<sup>2</sup> COM(2021) 550 final, Communication from the European Commission on 'Fit for 55': delivering the EU's 2030 Climate Target on the way to climate neutrality, 14.7.2021.

<sup>3</sup> Regulation (EU) 2021/1119 of the European Parliament of 30 June 2021 on the establishment of a framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999 (European Climate Law), OJ L 243, 9.7.2021.

<sup>4</sup> COM(2020) 98 final, Communication from the European Commission on a new circular economy action plan: For a cleaner and more competitive Europe.

consumer behaviour) is interrelated with nature and aims to replace the ‘end-of-life’ concept with reducing, alternatively reusing, recycling and recovering resources, energy and materials in order to accomplish sustainable development.<sup>5</sup> A circular economy is the opposite of our current linear economic system (*take – make – waste*), a system focusing on the extraction of virgin raw materials while, simultaneously, not being interested in adequate waste management practices. Although recycling efforts have been implemented in the linear paradigm, a circular system moves beyond recycling, prioritizing the reduction and reuse of materials and products.

This transition to a more circular society requires – as the definition suggests - a paradigm shift. Therefore, all societal actors and sectors must embrace circularity and adapt their current consumption and production processes. Nonetheless, some sectors are deemed to be pivotal in boosting the transition. The construction sector is one of them as it uses a significant amount of resources and generates various waste streams.<sup>6</sup> Several policy initiatives, both on the European and national/regional level, focus on making this sector more sustainable and circular. In previous research, we provided an overview of these initiatives on a European level and in the member states Belgium, the Netherlands, Luxemburg, and France.<sup>7</sup> Then, we tried to establish a potential link between these policy initiatives and tangible statutory legislation on circularity and construction.<sup>8</sup> Our main conclusion was that interest in circularity in construction legislation has just started to gain traction and most national legislation can be traced back to the implementation of the revised European Waste Framework Directive (2018 onwards). New regulatory initiatives have started to appear though, e.g. the eco-design regulation and the construction products regulation.<sup>9</sup>

Our previous analysis shows that legislators and policymakers currently emphasize the *product*-aspect of the circular transition. However, adequate attention should also be given to *process* and *procurement*. These three P’s towards circularity (Product, Procurement & the Process) equally contribute to the development of a sustainable society. Products with circular potential are crucial but without demand, supply will not follow. Public authorities must raise the demand for those products by using public contracts (procurement). Public procurement alone will unfortunately not suffice to create a circular construction system as public authorities are not the only actor bearing the (financial) responsibilities and risks associated with the use of innovative circular materials and methods. Therefore, the various construction actors must truly cooperate in construction

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<sup>5</sup> Voorter et al. (2021), p. 26.

<sup>6</sup> COM(2019) 640 final, p. 11; Van Gulijk (2021).

<sup>7</sup> For an overview of initiatives in various Member States: Van Gulijk and Voorter (2023).

<sup>8</sup> Ibid.

<sup>9</sup> Regulation (EU) 2024/1781 of the European Parliament and of the Council of 13 June 2024 establishing a framework for the setting of ecodesign requirements for sustainable products, amending Directive (EU) 2020/1828 and Regulation (EU) 2023/1542 and repealing Directive 2009/125/EC, OJ L, 2024/1781, 28.6.2024; Regulation (EU) 2024/3110 of the European Parliament and of the Council of 27 November 2024 laying down harmonised rules for the marketing of construction products and repealing Regulation (EU) No 305/2011, OJ L, 2024/3110, 18.12.2024.

practices to incorporate circularity into the whole value chain, making sure the next generation of buildings reaches its full circular potential (process).<sup>10</sup>

With this paper, we will expand on our ‘Three P’s for circularity’ model by introducing a possible research pathway for each of the three P’s. We will discuss 1) one research item from a Belgian perspective (par. 2) as a case study; 2) one research item that has a link with the European perspective, adding some Belgian and Dutch accents (par. 3) and 3) one research item with a Dutch perspective as a case study (par. 4). We will end this paper with a conclusion in par. 5.

## **2 Product: An Extended Producer Responsibility for Construction and Demolition Waste (Belgian/Flemish Regional Perspective)**

### **2.1 Extended Producer Responsibility (EPR) in the European Union**

The European Waste Framework Directive (WFD)<sup>11</sup> regulates the use of extended producer responsibility schemes. Article 3(21) WFD defines an extended producer responsibility scheme as “a set of measures taken by Member States to ensure that producers of products bear financial responsibility or financial and organizational responsibility for the management of the waste stage of a product’s life cycle.”<sup>12</sup> The European legislator expands upon the idea of an extended producer responsibility in article 8 WFD. EU Member States get the opportunity to take measures to ensure that natural or legal persons who professionally develop, manufacture, process, treat, sell or import products have an extended producer responsibility to further promote prevention, reuse, recycling and other recovery operations of waste. Such measures may entail an acceptance of returned products or measures considering the management of waste and the attribution of the associated financial responsibilities. If an extended producer responsibility scheme is created, the general requirements for such schemes – laid down in article 8a WFD – have to be applied by the involved Member State.<sup>13</sup>

### **2.2 The Lack of EPR for Construction and Demolition Waste in Belgium**

The European provisions mentioned above were transposed at the regional level (Flanders, Wallonia, Brussels) of the Belgian federal state.<sup>14</sup> The provisions on extended producer responsibility schemes can, in Flanders, be found in article 21 and following

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<sup>10</sup> Voorter and Van Vliet (2025).

<sup>11</sup> Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain directives, OJ L 312, p. 3, 22.11.2008. This Directive was amended in 2018: Directive (EU) 2018/851 of the European Parliament and of the Council of 30 May 2018 amending Directive 2008/98/EC on waste, OJ L 150, p. 109, 14.6.2018.

<sup>12</sup> The Flemish (Dutch speaking region Belgium) has implemented this definition from the WFD in article 25°/1 of the Flemish (Dutch speaking region of Belgium) waste legislation (Materials decree).

<sup>13</sup> If Member States create EPR-schemes that violate those general requirements, the scheme in question could be annulled by a court.

<sup>14</sup> Environmental competences are largely allocated to the regions in Belgium.

of the Flemish Materials Decree.<sup>15</sup> Article 21 Materials Decree was further implemented by the Flemish government through Sect. 3 of the Flemish executive order considering the sustainable management of material loops and waste streams (VLAREMA).<sup>16</sup>

Initially, the Flemish materials and waste legislation established an extended producer responsibility for the following materials and products: printing waste, discarded vehicles, waste tyres, waste electrical and electronic equipment, waste batteries and accumulators, waste oil, old and expired medicines, waste mattresses, plastic fishing gear waste, litter and used disposable nappies.<sup>17</sup> In 2024 a reference to ‘used fibre cement building materials’ as a product category covered by an extended producer responsibility scheme was added in Flemish legislation with no further context or legal guidance. Yet, an overarching extended producer responsibility scheme for construction and demolition waste in general is still lacking.<sup>18</sup> Several reasons might explain this loophole.

### 1. Heterogeneity of Waste Streams and Construction Layers

At a European level, ‘construction and demolition waste’ is defined as waste generated by construction and demolition activities.<sup>19</sup> This waste type is difficult to manage, as it involves several waste streams (e.g. stony, flat glass, wood, metal, etc.) in various quantities and each with their own characteristics. Setting up a joint and overall extended producer responsibility scheme for all these waste streams may be practically unfeasible and even undesirable.

Moreover, the various materials and waste streams are also part of different layers of a building, each with their own specific qualities and lifespan.<sup>20</sup> Materials belonging to the structure (e.g. concrete foundation) of a building have a significantly longer lifespan than materials belonging to the techniques of a building. Consequently, it seems more complex to subject construction and demolition waste originating from the structure layer to an extended producer responsibility scheme. The structure layer also contains various (stony) material types that are already (able to be) dealt with in a fairly good way within the 4R-framework (reduce – reuse – recycle – recover).<sup>21</sup> Consequently, at first glance, it is not necessary to create a (legal) extended producer responsibility for such

<sup>15</sup> This article is the implementation of article 8 WFD. This responsibility can be attributed to more actors than the producer of the products alone: Van Hoorick (2012), pp. 5-64

<sup>16</sup> Flemish Executive Order of 17 February 2012 considering the sustainable management of material loops and waste streams, Belgian Official Gazette 23 May 2012, 29.590.

<sup>17</sup> Article 3.1.1. VLAREMA.

<sup>18</sup> This is also the case in other European countries, such as the Netherlands. France, on the other hand, already has an extended producer responsibility for construction and demolition waste in place: Décret nr. 2021-1941 du 31 décembre 2021 relatif à la responsabilité élargie des producteurs pour les produits et les matériaux de construction du secteur du bâtiment. <https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000044806344>. Accessed 20 Aug 2025

<sup>19</sup> Article 3, 2c WFD.

<sup>20</sup> Farouk and Abdelsabour (2019), p. 4.

<sup>21</sup> For several examples see: Vrijders J and Romnee A (2018), *Circulaire bouwen – naar een circulaire economie in de bouw*, p. 14.

materials/waste streams.<sup>22</sup> For other materials (e.g. flat glass, glass wool) from other layers, the value chain is not so well aligned yet, making it appropriate to consider a form of extended producer responsibility scheme for these materials.<sup>23</sup>

## 2. The Substantial Amount of Construction Actors

The responsibility for managing and further processing construction or demolition waste does not lie solely with the producers of the various building materials concerned (e.g. flat glass). They do have an important role, of course, as they can design materials that can be easily disassembled and thus dismantled in a cost-efficient way, thereby promoting reuse or high-quality recycling. Nevertheless, the other actors<sup>24</sup> in the construction chain also have a responsibility in realising a circular construction sector. For instance, the demolition contractor should also be able to dismantle and logistically process the various materials.<sup>25</sup> If the demolition contractor is, because of time constraints or high (labour) costs, unable to adequately deal with the released materials, high-quality processing options can still be impeded. Additionally, the architect, an actor with a privileged position in Belgian construction, has to design buildings which embrace circular ambitions, e.g. by including reused materials or materials with recycled content; designing the building in such a way that makes it easy to dismantle when it has reached the end of its life cycle or; to focus on flexible or modular use of buildings. Because of his/her important position within the Belgian construction process, the architect has the means/possibility to align the various actors within the project from its conceptualization to the use or occupation of the building by the client, facilitating circular thinking throughout the value chain.<sup>26</sup>

The question thus arises whether more actors than solely the ‘producer’ can be given an (extended) responsibility for closing the chain of (some) waste streams within the framework of ‘construction or demolition waste’? The preparatory documents of the Flemish material legislation indicate that, under Article 8 WFD, any actor in the supply chain that starts at the extraction or recovery of a raw material and ends upon receipt by the end user of a complete and finished product can be included in an extended producer responsibility scheme.<sup>27</sup> In that way, responsibilities and (financial) risks can be more equally shared between all the actors involved.

<sup>22</sup> Market players have the opportunity to organize their own system of ‘extended producer responsibility’. In that case, Article 8,1 fourth paragraph WFD indicates that Member States can decide that they should apply some or all of the general requirements laid down in article 8a WFD.

<sup>23</sup> Proeftuin Circulair Bouwen (2021), p. 87. There is no legal requirement specifying for which materials a government can decide to create an EPR-scheme. Since the use of EPR-schemes can be far-reaching, we think it would be good to be cautious and not just opt for an EPR-scheme even if it is possible to close the value chain for such materials with less intrusive measures.

<sup>24</sup> For example: the owner, the contractor, the architect, the engineer(s), the user, the demolition contractor, the investor, etc. For an overview of the various construction phases and its key actors: European Commission (2023).

<sup>25</sup> Proeftuin Circulair Bouwen (2021), p. 85.

<sup>26</sup> Infra paragraph 4.

<sup>27</sup> Draft decree on sustainable management of material cycles and waste, nr. 1, p. 27. <https://www.vlaamsparlement.be/nl/parlementaire-documenten/parlementaire-initiatieven/641021>, Accessed 20 Aug 2025.

### 2.3 Legal Tools to Establish an EPR for Construction and Demolition Waste in Belgium?

In the regional laws and regulations of Flanders (the Dutch speaking part of Belgium)<sup>28</sup>, currently three possible legal instruments exist to establish an EPR. Within this subsection, we want to indicate - on a general level - if these instruments could be used to further establish EPR schemes for construction and demolition waste.

First, there is an option to impose an obligation on the construction sector to draft a collective plan.<sup>29</sup> It is a broad instrument that can go beyond a mere ‘acceptance obligation’ (*infra*). The plan can focus on the way specific waste streams are treated or can encompass more general aspects, such as providing information or financial efforts of producers and/or the sector.<sup>30</sup> Waste streams that are already fairly well monitored and treated in construction (e.g. stony rubble) could also be included in a collective plan for construction and demolition waste, ensuring a holistic view. The disadvantage, however, is that a lot of interests and visions (material producers, demolition contractors, etc.) will have to be reconciled in such a collective plan.<sup>31</sup>

As mentioned before, next to the collective plan, a more specific instrument exists as well: the ‘acceptance obligation’. With an ‘acceptance obligation’, specific waste streams within construction and demolition waste can be targeted.<sup>32</sup> The obligation entails that if a consumer buys a specific product, the seller<sup>33</sup> is obliged to accept, without any costs, the similar product the consumer wants to discard. For those streams that are currently difficult to valorise (e.g. flat glass), an acceptance obligation could ensure that the chain is more adequately closed for these streams.

In both cases (acceptance obligation or collective plan), a link with (digital) traceability procedures or product passports should be considered. Such procedure and passports try to ensure that the various materials/waste streams are (or can be) processed at the highest possible quality.<sup>34</sup> The use of traceability procedures will be more time-consuming (and costly) than the business-as-usual scenario, yet we believe that they are necessary to make further progress towards a circular construction sector in which the value chain is fully closed for different material flows by ensuring its quality and giving verifiable information on the origin of materials.

The last possibility includes the entire construction or demolition waste stream in a so-called ‘take-back obligation’<sup>35</sup>, a specific obligation for packaging waste included in the Belgian Cooperation Agreement of 4 November 2008 on the prevention and

<sup>28</sup> Belgium is a federal state in which the competence for waste legislation is attributed to the regions (subnational level).

<sup>29</sup> Article 3.3.1 and following VLAREMA.

<sup>30</sup> Report to the Government with regard to VLAREMA, article 3.3.1.

<sup>31</sup> E.g.: EMIS (2017).

<sup>32</sup> Article 3.2.1.1 VLAREMA.

<sup>33</sup> Article 3.2.1.1 VLAREMA mentions other actors and interactions.

<sup>34</sup> For an overview: Voorter and Koolen (2021).

<sup>35</sup> This is a specific regime and is not the same as the above-mentioned acceptance obligation.

management of packaging waste.<sup>36</sup> After all, packaging waste is also a very diverse stream that is nevertheless dealt with in its entirety.<sup>37</sup>

In all cases, the ultimate financial contribution(s) of all actors involved is an important issue. Producers, demolition contractors, processors, etc. that innovate and are making an effort to close the circular construction loop should be rewarded, for example in the form of lower financial contributions to the extended producer responsibility schemes.<sup>38</sup> Other financial instruments could be explored as well, such as tax breaks, subsidies, easier access to credits for companies with sustainable/circular practices, etc. More research on this topic is encouraged.

### 3 Procurement: Life Cycle Costing (LCC) as the Only Viable Award Criterion in Circular Public Tenders? (European Perspective with Belgian and Dutch Accents)

Article 67 Directive 2014/24/EU expressly states that the contracting authority must base the award of public contracts on the most economically advantageous tender. To designate this tender, it must use award criteria allowing for a comparative assessment of the level of performance of each tender in relation to the subject matter of the contract.<sup>39</sup> The contracting authority has several substantive options. It can award a contract on the basis of 1) price; 2) costs (e.g. life cycle costs) or 3) the best price-quality ratio.<sup>40</sup> If the third method is chosen, it is possible to choose qualitative criteria with an environmental or social angle (or better: circular criteria). This was initially confirmed by the European Court of Justice in the *Concordia Bus Finland*-judgment<sup>41</sup> but is now also explicitly mentioned in European and national legislation.<sup>42</sup> However, the legislation does not include any obligations on the weight to be given to certain award criteria. Consequently, as *Petit* rightly states, the strength of the circular ambitions included in the subject matter of the public contract will depend entirely on the environmental awareness, political will and knowledge of the contracting authority.<sup>43</sup>

<sup>36</sup> It is derived from the European packaging waste directive: Directive 94/62/EC of 20 December 1994 on packaging and packaging waste, OJ L 365, 31.12.1994.

<sup>37</sup> This cooperation agreement was amended in 2020. Cooperation agreement of 4 November 2008 on the prevention and the management of packaging waste, Belgian Official Gazette 29 December 2008, p. 68.366.

<sup>38</sup> Spaans (2017), p. 160; Vermassen (2014), p. 122.

<sup>39</sup> Directive (EU) 2014/24 of the European Parliament and of the Council of 26 February 2014 on public procurement and repealing Directive 2004/18/EC, OJ L 95, p. 65, 28.3.2014, recital 92. Also: Teerlinck et al. (2023), p. 555 et seq.

<sup>40</sup> See for more information: C(2021) 4320, Commission Notice: Guidance on innovation procurement, 18.6.2021, 41 et seq. Also: Meylemans and Schutyser (2023).

<sup>41</sup> *Concordia Bus Finland*, European Court of Justice C-513/99 EC, Judgment September 2002, para. 55.

<sup>42</sup> Nowadays, considerations 92 and 97 Directive (EU) 2014/24, make explicit reference to the possibility to integrate social and environmental considerations in the award criteria. This possibility is also mentioned in article 81, §2, 3° Belgian law on public procurement.

<sup>43</sup> *Petit* (2011), p. 584. However, the possibility to impose mandatory sustainable requirements is under investigation: Janssen and Caranta (2023).

The European Directive has been implemented in the different EU Member States. Within the scope of this section, we focus on the use of LCC in European public tenders but refer to Belgian or Dutch public procurement legislation and scholars whenever this is needed or can provide some interesting insights. In general, public procurement legislation in both Belgium and the Netherlands is not that different, although the European legislator has given Member States the possibility to differentiate on specific topics. For example, the Belgian legislator has not expressed any preference regarding the method used to select the most economically advantageous tender, notwithstanding the fact the European legislator explicitly allowed this: “In order to promote a greater reliance on quality in procurement, Member States should be able, if they deem it necessary, to prohibit or restrict the determination of the most economically advantageous tender on the basis of price alone or cost alone.”<sup>44</sup> The Dutch government, on the other hand, did choose to make use of this possibility. Currently, article 2.114(4) Dutch Procurement Act 2012 stipulates that the public contracting authority must explicitly motivate the choice to award a contract based on the lowest cost or lowest price in the tender documents. The choice to subject the cost-element to a justification obligation is criticised by *Versteeg*.<sup>45</sup> After all, a focus on (life cycle) costs can also lead to desirable (read: circular) results. However, an obligation to justify the mere use of a price element is, in our opinion, a good thing in a circular society as the use of the price criterion does not include the costs that will occur during the life cycle of a product or project.

The concept of ‘life cycle costs’ is more or less addressed in articles 68 and 2, 20° Directive 2014/24/EU.<sup>46</sup> Article 2, 20° defines a ‘life cycle’ as “all consecutive and/or interlinked stages, including research and development to be carried out, production, trading and its conditions, transport, use and maintenance, throughout the existence of the product or the works or the provision of the service, from raw material acquisition or generation of resources to disposal, clearance and end of service of utilization”. Article 68 states that costs related to the life cycle consist of 1) the costs borne by the contracting authority or other users and 2) costs attributed to external environmental impacts associated with the product, service or works during its life cycle. The costs borne by the contracting authority may cover, *inter alia*<sup>47</sup>: 1) costs related to acquisition; 2) operating costs, such as costs for energy and other resource consumption; 3) maintenance costs and 4) costs following from the end-of-life cycle, such as collection and recycling costs. The costs of environmental externalities should be related to the product, service or works over its life cycle, provided their monetary value can be determined and verified. They may include the cost of greenhouse gas emissions and other pollutant emissions as well as other climate change abatement costs.<sup>48</sup> The methodology for calculating costs for environmental externalities should (1) be based on objective and non-discriminatory

<sup>44</sup> Directive (EU) 2014/24, recital 90 and article 67, 2. Also: D’Hooghe and Kiekens (2015), p. 185.

<sup>45</sup> Versteeg (2018), p. 158 et seq.

<sup>46</sup> Also, in Directive (EU) 2014/24, consideration 96. For more information on this concept: Yasar and Van Garsse (2023).

<sup>47</sup> The list of elements mentioned in article 68 of Directive (EU) 2014/24 is not exhaustive.

<sup>48</sup> Directive (EU) 2014/24, Article 68, 1, (b).

criteria; (2) be accessible to all parties and (3) allow a normally diligent operator to provide the requested data with reasonable effort.<sup>49</sup>

Awarding a contract on the basis of (life cycle) costs is a step in the right (read: circular) direction when compared to mere awarding on price.<sup>50</sup> When making use of life cycle costing, many more elements can be considered compared to a sole focus on price and the contracting authority gets a better picture of the total cost of the project, both for himself and for the environment.<sup>51</sup> Furthermore, ‘price’ refers to the amount effectively paid to the successful bidder, while ‘cost’ also takes into account the expenses the contracting authority has to bear after awarding the contract.<sup>52</sup> The life cycle cost criterion can be used as a main award criterion and as a cost criterion to assess the best price/cost-quality ratio of bids with additional qualitative criteria.<sup>53</sup> However, the method(s) to calculate these life cycle costs is/are labor-intensive and complex<sup>54</sup> for public contracting authorities and also not always up to date.<sup>55</sup> Life cycle costing is, consequently, not yet widely used in practice.<sup>56</sup> Indeed, public contracting authorities do not yet have an overview of possible workable methods and the existing uncertainty today will not persuade contracting authorities to make the required change.<sup>57</sup> Concrete tips and practical guidelines are necessities in this respect.<sup>58</sup> In the meantime, alternative forms - for example, the use of a fixed budget or ceiling budget - are a possible way out to further – be it qualitatively - engage circularity.<sup>59</sup>

*Versteeg* indicates that, in the circular narrative, we should eventually even move away from awarding contracts on the best price/cost-quality ratio and, in the long run<sup>60</sup>, solely focus on the life cycle cost criterion when awarding public contracts, both on the European and national level.<sup>61</sup> This argument is very convincing at first glance. It reduces the award phase to a score that can be determined objectively, thereby minimizing problems around (too) subjective assessments. Yet, such approach seems to focus too much on the acquired product/project and too little on the process. By awarding purely on the basis of ‘cost’, the contracting authority no longer has the opportunity to allow interested construction actors to really distinguish themselves on the basis of criteria rewarding a

<sup>49</sup> Directive (EU) 2014/24, Article 68, 2.

<sup>50</sup> Pilcer and Bouzekri (2020), p. 245.

<sup>51</sup> Mortier (2019), p. 853; De Hornois (2019), p. 64; Moras et al. (2018), p. 101.

<sup>52</sup> Mortier (2019), p. 854.

<sup>53</sup> Article 81 Belgian law on public procurement. Also: C(2021) 4320, p. 41 et seq.

<sup>54</sup> Article 82 Belgian law on public procurement.

<sup>55</sup> Versteeg (2018), p. 141 et seq.

<sup>56</sup> Confirmed in: Iraldo et al. (2016), p. 10.

<sup>57</sup> Bruyninckx (2018), p. 557; Van Garsse (2011), p. 235.

<sup>58</sup> E.g.: De Hornois (2019), p. 64; Wouters and Lenders (2018), p. 81; De Koninck and Flamey (2016), p. 303.

<sup>59</sup> This was used in a circular pioneer case in Flanders: Kamp C, ‘t Centrum: <https://www.kampc.be/projecten/t-centrum>.

<sup>60</sup> He mentions “in the long run” because he is also aware of the difficulties public contracting authorities experience today when applying LCC.

<sup>61</sup> Versteeg (2018), pp. 165-166.

good understanding of the transition to a circular economy or higher cooperation potential.<sup>62</sup> After all, *Versteeg* too argued that award criteria can be a stronger incentive than e.g. technical specifications.<sup>63</sup> Therefore, we believe that qualitative award criteria (e.g. focus on cooperation and risk allocation) remain relevant, especially in the construction sector where many construction actors are (or may be) involved in a project. Practice shows that the use of qualitative criteria in European and national public tenders can certainly lead to circular results and to a high potential for collaboration.<sup>64</sup> Awarding a contract based on the best price/cost-quality ratio, including qualitative criteria, thus remains a valid path as far as we are concerned although it will depend on the client itself whether and how it integrates circularity into its contract documents.<sup>65</sup> This is a point of attention.

Awarding a contract based on life cycle costs or the best price/cost-quality ratio are both future-proof. A contract awarded solely on the basis of ‘price’ certainly is not. It would therefore be a strong signal to introduce an European obligation to justify awarding a contract purely on the price-criterion, as is already the case in the Netherlands - the Belgian legislator has not taken up the choice provided by the European legislator.<sup>66</sup> That way, public contracting authorities would be discouraged from taking this ‘easy’ route any time soon. The real trade-off then only takes place between an award on (life cycle) costs or the best price/cost-quality ratio. This should be considered on a case-by-case basis.

#### **4 Process: Enhancing Cooperation Throughout the Construction Value Chain with Stimulating Legal Frameworks (Dutch Perspective)**

On the road to circularity in construction, we argue that the construction *process* is a game changer as well. We see the construction process as a continuous cycle from the first initiative taken by the client to the maintenance works by the (sub)contractor after delivery and the actors responsible for giving the building a second life.<sup>67</sup> Although one easily emphasizes the professional (governmental) client, public authorities or real estate developers to boost circular construction activities - usually due to the fact that these parties have enough financial resources to enable circular construction -, other participants in the construction supply chain have an important role to take up as well. As

<sup>62</sup> E.g. giving their vision on cooperation and risk management within the project; give an overview of potential risks they encountered when preparing an offer for this project; providing statements on several circular indicators (amount of reused materials they can incorporate) with fines they would be willing to face if they’re unable to deliver. Inspiration drawn from a specific circular project in Flanders (Kamp C – ‘t Centrum: <https://www.kampc.be/projecten/t-centrum>).

<sup>63</sup> Versteeg (2018), p. 118.

<sup>64</sup> See for example the case of Kamp C (‘t Centrum) in Flanders (Dutch speaking region Belgium): <https://www.kampc.be/tcentrum/circulair-bouwen-t-centrum>.

<sup>65</sup> Petitat (2011), p. 584.

<sup>66</sup> The duty to motivate awarding a contract on the basis of life cycle costing is, as mentioned earlier, not a good idea.

<sup>67</sup> European Commission (2023), p. 4.

was set out in 2017, in the Dutch Building Agenda, speeding up the circular movement in construction practice requires a social and economic system in which building partners flourish and where *roles, tasks, and responsibilities are clear*.<sup>68</sup> The transition to a circular building sector will, obviously, change traditional roles of building actors and create new roles.<sup>69</sup>

In particular, for *architects*, moving towards a circular construction sector brings on new design challenges in an ever-changing environment of ageing, mobility and urbanization.<sup>70</sup> The circular design is about the alternative functions of buildings, renewable materials, the costs of using the building,<sup>71</sup> and monitoring systems<sup>72</sup> regarding the building's sustainability. Developments like modular and replaceable structures, flexible building structures, adaptability of materials, disassembly and reconstruction prove to be central design principles to reach sustainability goals. According to the European Commission, the design sector is a key driver of a circular construction industry. It sees the architect as a key figure in a circular construction process and it sees circular design as a game changer for the construction industry. The European Commission has set up a working group to present a set of principles for sustainable building design as part of the implementation of the Green Deal. The principles were presented in February 2020 as "European Commission Circular Economy Principles for Buildings Design". The working group clearly pointed to the importance of sustainable design. This should ensure a reduction of waste in the longer term. More flexible use of buildings and sustainable design should make the life cycle costs of buildings cheaper.<sup>73</sup>

One would suspect that this will lead to architects increasingly being contracted to supervise the construction process including demolition, reusing and recycling aspects. After all, architects can easily be(come) key players in circular building processes, as the sustainable design is the basis for circular building.<sup>74</sup> Consequently, the designer's legal position and responsibilities need adjustment. It may be surprising then, that in the Netherlands recent legislation (January 2024)<sup>75</sup> has introduced a new actor in the building process, the independent 'kwaliteitsborger' (quality assessor) who has the obligation to control whether a building meets the legal technical requirements. Notwithstanding the importance of improving quality assurance in Dutch construction practice, it would have been obvious to attribute such important task to the architect who is in the best place to oversee whether the design's (circular) prerequisites are well implemented during the construction process.<sup>76</sup> In fact, in Belgium architects have been attributed this duty; there architects have a far more centralized position in the construction process compared to Dutch architects. This mainly has to do with the fact that Belgian architect have a legal

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<sup>68</sup> Dutch Building Agenda 2017, p. 24.

<sup>69</sup> As we argued before in: Van Gulijk (2019).

<sup>70</sup> Nysten et al. (2018); EBU (2018), p. 20.

<sup>71</sup> TNO (2018), p. 14; Economisch Instituut voor de Bouw (2014), pp. 19-20.

<sup>72</sup> Like BREEAM.

<sup>73</sup> European Commission (2020), p. 8.

<sup>74</sup> One Future Play (2018), p. 84; BNA (2020).

<sup>75</sup> Wet kwaliteitsborging voor het bouwen (2024), accessible via [wetten.nl](https://wetten.nl) - Regeling - Wet kwaliteitsborging voor het bouwen - BWBR0042732 ([overheid.nl](https://overheid.nl)).

<sup>76</sup> Also see Van Gulijk (2021).

monopoly for drawing up plans and monitoring the works.<sup>77</sup> As a result, to Belgian architects a rather stringent ten-years liability system applies which has been fiercely debated for several years now with the aim to reform Belgian architect law.<sup>78</sup> Under Dutch law too, the current liability and insurance system that applies to architects is under pressure, though. In 2018, the Dutch Architects Association issued a manifesto to draw attention to the current irresponsible risk management and liabilities of Dutch architects.<sup>79</sup> This manifesto becomes even more important in a circular building sector.<sup>80</sup>

We argue that if the greatest positive environmental impact in the construction process can indeed be achieved in the design phase, architects will get increasingly important to take their share in the transition towards a circular construction sector.<sup>81</sup> They are expected to participate in interdisciplinary design teams in which they work intensively with the other partners to achieve a circular building sector.<sup>82</sup> New design challenges include mapping the alternative functions of buildings, renewable materials, operating costs, climate systems and sustainable measurement systems. Themes such as flexible and modular construction, adaptability of materials, disassembly and reconstruction are increasingly important design principles.<sup>83</sup> If architects are required to play such a central role in the future construction process, this also requires a stimulating legal framework, as we argued before.<sup>84</sup> It requires explicit attention to cooperation, tasks and responsibilities of all building actors.<sup>85</sup> Construction practitioners themselves also indicated that the real breakthrough in circular construction will only come when the government creates legal frameworks.<sup>86</sup> Since 2023, all public governments must put out circular tenders, which is expected to give an enormous boost to circular design and construction.<sup>87</sup> In 2019, obstacles in laws and regulations were mapped.<sup>88</sup> And in the field of public law, *Van Dam* and *Neerhof* showed that the *Omgevingswet* (in force since January 1<sup>st</sup> 2024) well enables that more rules on circular building, including rules on

<sup>77</sup> Article 4 Wet van 20 februari 1939 op de bescherming van de titel en van het beroep van architect.

<sup>78</sup> See for instance Uytterhoeven (2013); Uytterhoeven (2017).

<sup>79</sup> See <https://www.bna.nl/wp-content/uploads/2018/01/manifest-wij-gaancirculair.pdf>; Van Gulijk (2008).

<sup>80</sup> Van Gulijk (2019).

<sup>81</sup> See Van Gulijk (2022); Transitiebureau Circulaire Bouweconomie (2019), pp. 10-11.

<sup>82</sup> Sociaal Economische Raad (2016), p. 15.

<sup>83</sup> De Architect (2018); TNO (2018), p. 14; Economisch Instituut voor de Bouw (2014), pp. 19-20; See: <https://bna.nl/nieuws/in-energieneutraal-bouwen-ligt-een-architectonische-op-ave-besloten>. Accessed 20 Aug 2025.

<sup>84</sup> See 'Uitvoeringsprogramma Circulaire Economie' 2020-2023, par 4.2 en 4.3. <https://openresearch.amsterdam.nl/page/68671/uitvoeringsprogramma-circulaire-economie-2020-2023>. Accessed 20 Aug 2025.

<sup>85</sup> Bouwagenda 2017, p. 24.

<sup>86</sup> Cobouw (2019), see <https://www.cobouw.nl/aanbesteden/artikel/2021/10/verlaag-drempel-circulaire-bouw-maak-regelgeving-dwingend-101299665>, 19 Oct 2021. Accessed 20 Aug 2025

<sup>87</sup> See 'Uitvoeringsprogramma Circulaire Economie' 2020-2023, par. 4.4.

<sup>88</sup> Kamerstukken II 32852, nr. 97.

reuse of existing structures and building materials, can be included in the environmental plan.<sup>89</sup>

To further elaborate on this stimulating legal framework that is required for a circular building process, it should be noted that in the Netherlands applicable rules for design and construction works are rather fragmented. Most design and construction activities are ruled by numerous general conditions and other self-regulation which have been created by governmental organizations and private parties.<sup>90</sup> On the one hand, these self-regulatory mechanisms provide construction parties flexibility and ownership to develop and adapt rules for construction parties they need. Recently, for instance, a new set of rules to govern early contractor involvement were introduced, referred to as 'Modelovereenkomst Bouwteam Duurzaam Gebouwd 2020'.<sup>91</sup> This set primarily provides rules for the collaboration between designer and contractor during the design phase of the construction project. One of the most interesting elements of the model is its attention to risk management and the life cycle approach.<sup>92</sup> With these kinds of newly developed self-regulatory mechanisms, the Dutch construction sector appears to be quickly agile in order to anticipate changes in society. Furthermore, initiatives like this to further improve collaboration in the construction supply chain correspond to the call for a network approach in construction contracts instead of the mere traditional, fragmented way to rule rights and obligations.<sup>93</sup>

Such network-based cooperation in construction projects can also be well witnessed in integrated model contracts such as Design-Build-Finance-Maintain-Operate (DBFMO), which recently have been expanded with so-called circular modules like 'recycle', 're-use', 'deconstruct', or 'refurbish'.<sup>94</sup> The conceptual basis of these types of contracts is the project and long-term cooperation itself, not one of the bilateral legal relationships in that project. This fits well with a circular construction practice where clients, designers and contractors make commitments throughout the lifespan of a building. Partnership in consortia flourishes in these projects, which leads to the possibility of others than the mere traditional construction parties (client, architect, contractor) to

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<sup>89</sup> Van Dam and Neerhof (2021). Nevertheless, the possibilities to promote reuse of structures and building materials are still limited. Authors argue that including ambitious circular customization in the environmental plan will not yield many circular gains. Building regulations offer more opportunities to do so, such as adjusting the environmental performance requirements, but follow-up steps are needed to actually enforce circularity in building regulations.

<sup>90</sup> Most commonly used are: 'The New Regulation (DNR) 2011. Legal relationship client - architect, engineer and consultant', the 'Uniform administrative conditions for the execution of works and of technical installation works (UAV) 2012' and the 'Uniform administrative conditions for the execution of integrated contracts (UAV-gc) 2005'.

<sup>91</sup> See: <https://www.duurzaamgebouwd.nl/artikel/20200525-warme-ontvangst-voor-nieuwe-modelovereenkomst-bouwteam-dg-2020>. Accessed 20 Aug 2025.

<sup>92</sup> In 2025, a second edition of this model is expected, in which there will be more attention to circular aspects of the design and building.

<sup>93</sup> See Teubner (1998), p. 413; Van Gulijk, (2017); Tjong Tjin Tai (2017).

<sup>94</sup> For example: DBMR, DBFMO-D. An interesting case study is the temporary Court of Justice that was built in Amsterdam for a period of 5 years and recently has been deconstructed and rebuilt as a school building.

participate in the construction contract too. After all, in a circular building sector, suppliers, sustainable producers, people who search for and select circular building materials, and even flying gardeners<sup>95</sup> grow more important.

The position of clients also changes, as instead of owning – and operating – a building, the client can (also) become a customer of a circular service project. He might be mainly interested in the use and performance of the structure instead of its ownership.<sup>96</sup> Circular construction may require that the circular product, such as a removable façade or rooftop, remains the property of the supplier or producer. In that case, traditional builders turn into circular service providers. Accordingly, the service provider remains responsible for maintenance and his final objective is to take back the product for recycling. Obviously, one should avoid problems with ownership of certain parts of a circular structure.<sup>97</sup> Clients and producers need appropriate, flexible property law rules on ownership in circular projects.<sup>98</sup>

On a process level, for each of the participants in a building process the transition towards a circular building sector will bring new challenges and opportunities. One of the biggest challenges we see is implementing, monitoring and assuring circularity from design to operation of the building. The architect seems to be in best place for this, but national legal requirements regarding the scope of the architect's obligations and his liability during the construction process differ per Member State and therefore may significantly impede in the transition described. It is therefore important to allow leeway to a certain extent to construction contracting parties to initiate appropriate legal and operational frameworks for circular construction. Dutch construction practice shows constructive developments in this regard.

## 5 Conclusions

The circular transition requires a paradigm shift. Within this shift, the construction sector is an essential sector that has to act. Evolving towards a circular construction sector will have an impact on the way we interpret and create regulatory frameworks, as a more holistic approach is needed with a more profound focus on synergies and creating opportunities for cooperation and solidarity. Existing legal instruments have to be reconsidered with the circular perspective in mind, while sufficient room should be given to new legal initiatives, if needed.

In previous research, we highlighted the need to approach the legal transition towards a circular economy in construction from three different, but equally important, perspectives (the so-called 3 P-perspective): product, process and procurement. Construction

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<sup>95</sup> For an impression, see: *The Flying Gardeners* (Short 2015) - IMDb.

<sup>96</sup> Backes et al. (2018).

<sup>97</sup> This may cause problems when the property (the building) is sold to a third party. Van der Veen et al. (2014); Mes et al. (2016), p. 160 et seq.

<sup>98</sup> For instance, the 'lease roof', which after a certain period is being replaced and returned to the producer.

products with circular potential should be able to flow easily throughout the construction value chain, strengthened by cooperative efforts from all construction actors. Procurement should be used to stimulate innovation and increase the demand for circular solutions.

Within each context (process, product, procurement), there are various new and existing legal instruments that can have a beneficial impact on the realization of our circular policy goals. Within the scope of this article, we focused on three legal instruments from a European, Belgian and/or Dutch perspective: the introduction of an extended producer responsibility in Belgium; the use of life cycle costing in European circular public tenders and the creation and use of regulatory frameworks for the different construction actors to promote cooperation throughout the whole construction value chain.

All the legal instruments considered can contribute to the realization of a circular economy in the construction sector. Nevertheless, they need to be a part of a holistic approach that links regulatory frameworks affecting the construction value chain with the P-perspectives mentioned above to create a smooth and well-functioning legal basis for a circular construction sector to flourish.

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