



FUTURES TRADING

WHITEPAPER on how to scale-up the re-use of building materials and decarbonize the built environment.

“For systemic change to happen, for the real estate industry to embrace the circular economy, the current risks of the key industry players need to be mitigated and incentives identified. The solution needs to manage future risks, be financially beneficial for both the seller and the buyer, and follow a streamlined process where the actions and outcomes are known in advance - the very principles of futures trading.”

This white paper is part of the Circular Buildings Coalition's 'Blueprint Projects' initiative, which aims to support organisations that transform the built environment by addressing a key leverage point for change. The views, information, and opinions expressed in this publication are solely those of the author(s) and do not necessarily represent those of the CBC and its co-initiators. The author(s) is solely responsible for the content and accuracy of the information presented herein

The Circular Buildings Coalition (CBC) is a collaboration that convenes industry leaders who aim to accelerate the deployment of circular solutions as a way of securing a global built environment operating within planetary boundaries while ensuring a just transition. The CBC is an initiative of Metabolic, WorldGBC, WBCSD, EMF, Circle Economy and Arup. The CBC is funded by Laudes Foundation.

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FUTURES TRADING:

a way to scale up the reuse of building materials and
decarbonise the built environment.

February, 2024



Circotrade captures buildings' unrealised value by listing, gauging and trading its components via an innovative futures contract and trading platform. In this way, Circotrade overcomes the financial and logistical barriers to reuse and boosts the uptake of secondary construction materials and products.

Futures trading: a way to scale up the reuse of building materials and decarbonise the built environment.

Executive summary

Real-estate owners, asset managers, developers, contractors – they all have the means to move the entire built environment ecosystem into action, to empower teams to reduce embodied carbon, decrease the use of natural resources and eliminate construction and demolition waste via a new way of procuring, designing, building, managing and deconstructing our buildings: the circular economy.

Yet only 1% of materials from a standard demolition process are reused; the value of the remaining 99% ([ADEME 2022](#)) is destroyed, creating over a third of Europe's waste ([European Commission 2020](#)). The built environment industry needs to accelerate the shift from a linear 'take-make-waste' economy to a circular 'reduce-reuse-recycle' system.

But this is not happening today and financial risks are one of the main reasons. For a building owner, preparing a building's materials for reuse by others is risky business: high upfront capital expenditure for an uncertain future demand. For development and construction teams, budgeting costs and availability of reused materials in advance of purchase is near to impossible. Specifying large amounts of reused materials and products without known technical specifications or guarantees can be uninsurable.

So, how can we overcome these barriers to increase adoption of material reuse?

For systemic change to happen, the current risks faced by the key industry players need to be mitigated and incentives identified.

The solution needs to manage future risks, be financially beneficial for both the seller and the buyer and follow a streamlined process where the actions and outcomes are known in advance – the very principles of futures trading.

This paper will focus on how commodities futures trading can move the sector towards reuse of construction products and materials to achieve this shift. It will examine how futures trading manages risks and provides financial advantages, and detail how three innovative processes can come together to create this new asset class from the existing building stock.

Circotrade demonstrates that with futures trading, material reuse now not only makes financial sense, but also manages the new regulatory and market risks facing the sector when it comes to the demand for decarbonisation and circular economy action.

By inventorying and valuing existing buildings' materials and their embodied carbon – well before renovation or deconstruction – a critical mass of future materials can be reliably identified and collected. A new tradeable asset class is born.

Owners can then plan for their materials' future reuse via a new Futures Trading Contract and Marketplace – creating value whilst taking the risk out of the process. Future costs, timelines and revenues are now known quantities

The time is ripe for the property and construction sector to make a whole-hearted change. Circotrade is here to bring about this change by bridging the gap between the real-estate investment world and its financial constructs on the one hand and the proponents of sustainability and climate change on the other – unlocking the future value of building materials that would previously have been discarded.

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Introduction: A world under climate siege – buildings and circularity matter

Combatting climate change in the real-estate and construction industry is crucial. The construction industry alone emits 11% of annual CO₂ emissions ([WGBC 2019](#)), deploying over half of resources extracted globally along the way.

Yet we continue to build a city the size of Paris every week ([UNEP 2017](#)). Building anything uses embodied carbon and the carbon clock is ticking.

Only 1% of materials from a standard demolition process are reused; the value of the remaining 99% is destroyed ([ADEME 2022](#)¹), creating over a third of Europe's waste ([European Commission 2020](#)²).

According to the Ellen MacArthur Foundation, current efforts to tackle decarbonisation are focused on energy-related measures, and those would only address 55% of the emissions; a circular economy is required to tackle the remaining 45%. Furthermore, according to calculations by the Ellen MacArthur Foundation: "A circular economy could reduce global CO₂ emissions from building materials by 38% in 2050, by reducing demand for steel, aluminium, cement, and plastic."

"A circular economy could reduce global CO₂ emissions from building materials by 38% in 2050, by reducing demand for steel, aluminium, cement, and plastic."

Ellen MacArthur Foundation

The circular economy enables decarbonisation and reduces the use of natural resources. Hence, there is a need to accelerate the shift from a linear 'take-make-waste' economy to a circular 'reduce-reuse-recycle' system in the built environment. This paper will focus on how futures trading can move the sector towards reuse of construction products and materials to achieve this shift. The paper also aims at presenting the levers required for futures trading to create an enabling environment to successfully scale the transition to wider reuse practices and take-up, and the various obstacles that are yet to be overcome to achieve this scale-up.

1. Bringing the power of finance to the circular economy

The built environment needs to embrace the circular economy at scale and at pace.

¹ As per ADEME, L'Agence de la Transition Ecologique, in their [March 2022 report](#): "In North-West Europe, only 1% of building materials are reused after their first implementation. Although many of them are technically reusable, they end up in recycling, crushed, incinerated or landfilled."

² As per the [European Commission](#): "Construction and demolition waste (CDW) accounts for more than a third of all waste generated in the EU. It contains a wide variety of materials such as concrete, bricks, wood, glass, metals and plastic. It includes all the waste produced by the construction and demolition of buildings and infrastructure, as well as road planning and maintenance."

But this is not happening today, and financial barriers are among the main reasons: it is more expensive to deconstruct carefully than to demolish with a wrecking ball, more expensive to harvest building materials than send them to landfill, more expensive to transport and store materials than to dispose of them.³ For a building owner, preparing a building's materials for reuse by others is risky business, entailing upfront capital expenditure for an uncertain future demand.

Buying reused materials rather than virgin materials can be seen as risky too: budgeting the cost and availability of reused materials in advance of purchase is near to impossible. Running a development appraisal without knowing the cost of construction means that most developers will base their assumptions on known virgin materials and products, thus engraining the exclusion of reused materials in the process from the outset.

The difficulty of specifying reused materials and products without known technical specifications or guarantees and foreseeable availability also encourages development teams to design with virgin materials. Indeed, professional indemnity insurance is regularly cited as a factor hindering reuse specification. Only later on in the process – in the construction execution phase – would teams look to swap out virgin materials and products with reused ones. This limits the ability for meaningful recourse to reused assets.

The built environment needs to embrace the circular economy at scale and at pace.

But this is not happening today, and financial barriers are among the main reasons

For systemic change to happen, the current risks faced by the key industry players need to be mitigated and incentives identified. While there are many obstacles to the shift to material reuse, there is one that has a powerful ability to remove the others: financial viability.

So, how can we overcome these barriers and increase adoption of material reuse?

The solution is to adapt a financial construct that goes all the way back to ancient Mesopotamia and Hammurabi's Code, which stipulates that the sales of goods and assets – at that time, agricultural commodities – could be delivered for an agreed price at a future date. This mechanism provided financial security and forward visibility in an otherwise uncertain world. Enter the first active derivatives market, otherwise known as futures trading.

To get the key sector players on board, the Circotrade solution needs to manage future risks, be financially beneficial for both the seller and the buyer, and follow a streamlined process in which the actions and outcomes are known in advance – the very principles of futures trading.

³ A Study by L'Institut Français pour la performance du bâtiment (IFPEB) in 2022 identifies seven steps needed for material and product reuse, which represent additional costs. The required activity/cost varies according to the type, condition and location of the material or product to be reused and can include the additional cost of careful removal, on-site packaging, transport to a refurbishment facility, refurbishment (some materials need to be cleaned, sanded, re-cut, repaired, tested, recertified), interim storage, transport to final destination and installation on site. Their study shows that up to 40% of the resale price of a reused material or product is composed of the logistics costs of transport and storage of the reclaimed material prior to sale. Reducing storage time is a key advantage of future's trading.

Futures trading: a way to scale up the reuse of building materials and decarbonise the built environment.

a. How futures trading manages risks

Why a futures market? The benefits for buyers, sellers and specifiers are fourfold:

1. **Forward planning:** buyers and sellers can plan ahead and lock in quantities and prices for future transactions. Development teams have access to an online 'supermarket' of future reused materials, allowing teams to design to specification, to budget and to scale with certainty.
2. **Visibility:** a futures market provides transparency and insights into market trends, volumes and provenance of materials to be released in the future, and price movements.
3. **Supporting the financial burden:** the system makes it easier for companies to invest in the recovery, reconditioning and recertification of materials, as they can accurately predict their costs and revenues.
4. **Market efficiency:** by providing a platform for buyers and sellers to come together and trade in a standardised way, futures trading can help increase liquidity and reduce price disparities.

In addition, European regulations increasingly impose environmental obligations on real-estate owners, builders, property developers and manufacturers of materials. But these players lack the forward visibility, reliability and critical mass of a major reused materials market that they require.

Access to such a materials market would present the following advantages in managing regulatory and fiscal risk:

1. Providing proof of carbon and circular actions for extra financial reporting in line with low carbon and circular economy regulations
2. Enabling the design and construction of low-carbon buildings required by the most recent building regulations
3. Allowing owners to monetise their materials rather than incurring non-recoverable waste disposal costs including rising landfill taxes
4. Facilitating manufacturers' extended responsibility and circular manufacturing by locating, recovering, matchmaking and/or sourcing secondary materials for their products rather than outsourcing end-of-life product management via eco taxes

b. How can this principle be applied to the built environment?

Never before has this concept been used for secondary construction materials.⁴

So why now? The three main drivers of change are:

- Awareness of the climate crisis and its link to construction's embodied carbon
- Widespread industry decarbonisation plans – either voluntary or compliance-driven – and the budding technologies and methodologies to accompany them
- Supply-chain disruptions and price volatility of raw materials

By inventorying and valuing existing buildings' materials and their embodied carbon – long before renovation or deconstruction – a critical mass of future materials can be reliably identified and collected. A new tradeable asset class is born.

⁴ The concept was first introduced in the Ellen MacArthur Foundation/Arup report "Realising the value of the circular economy in real estate" in 2020, which laid out five new circular business models for real estate. One of these was: residual value – tradable futures contracts related to the value of building materials at deconstruction.

Owners can then plan for their materials' future reuse via a new futures trading contract and marketplace – creating value while taking the risk out of the process. Future costs, carbon savings, timelines and revenues are now known quantities.

c. Process innovation, but not too much!

In addition to providing the benefits noted above, the processes of the futures trading model need to be clear, robust and verifiable to reassure the market participants.

Circotrade has incorporated third-party verification, quantity surveying best practices and dynamic valuation within their business processes with the objective of respecting the currently prevailing design and procurement processes used by the sector.

Circotrade's futures contract stipulates that all materials and products traded on Circotrade's platform are verified for reuse, reconditioned and recertified as needed and delivered to the point of pickup agreed at point of sale. This process is the responsibility of the seller and can be facilitated by third-party suppliers with which Circotrade is in partnership. This means that the specifier or the buyer has access to a catalogue of future reused materials, with known specification, quality, quantity and availability, that can be incorporated into their projects early on – just like virgin construction materials and products, thus avoiding unnecessary change to the current specification and procurement process.

The seamless ecosystem of processes, suppliers and platform has been developed to facilitate the sales process with the possibility for the seller to preselect suppliers within the platform, to requalify materials as needed. In this way, the seller can ascertain their future costs before fixing their listing price and concluding the sale.

Didactic user guides have been developed from both the seller's and the buyer's standpoints to explain the steps in the process. These can be found in Appendix a.iii. and a.iv.

d. The three steps to futures trading

Circotrade has developed several key innovative processes to prepare and execute asset trading, which are an integral part of the three-step Circotrade solution:

Circoscan: All existing buildings – no matter how new or old – are considered as material banks waiting to be discovered. Circotrade has decided to team up with a cutting-edge data-science-supported inventory app and a reuse inventory and urban mining specialist team to create a digital model listing an existing building's materials.

Circopass: A digital record using international methodology to quantify, value and register a building's circular and CO₂ footprint on Circotrade's trading platform. Circotrade has teamed up with third-party cost consultancy/quantity surveying practices and specialist reconditioning / remanufacturing / recertifying suppliers to ensure that both the quantity and quality of the materials traded on the platform are fit for purpose. The quantity adjustment process has been especially developed in conjunction with these specialists.

A user's guide of the inventory process and the quantity adjustment process can be found in Appendix a.i. and a.ii.

Circotrade's futures contract and trading platform completes these processes to ensure that the buyers get what they buy and that the sellers do not meet with any unwelcome surprises.



The Circotrade solution

 **Circoscan**

Building inventory
Creation of a digital model listing your building's materials.

 **Circopass**

Circular and CO₂ passport
Your building's circular and carbon footprint is quantified, valued and registered.

 **Circotrade**

Futures market
Hold or sell your new value stream on an OTC trading platform to track & trade your materials over time.

Circotrade

i. Step 1: Create the asset class at scale and at pace

Circotrade's strategy is to deploy their platform and processes in major cities with high levels of property investment and development for economies of scale and massification effects.

Europe is the key geographical target, due to the advancement of green legislation and corporate and public support for the climate agenda as well as a concentration of megacities. Testbeds for launch will be London and Paris – Europe's two biggest real-estate investment markets.

Circotrade will initially focus on inventorying a portion of professionally managed commercial real estate where asset ownership is massive. It is estimated at more than USD 2 trillion in 2022 for the initially targeted countries (source: [MSCI 2023](#)). Ownership is also highly concentrated: the top ten real-estate investment managers held approximately €617 billion in European assets under management (AUM) in 2023 (IPE RE Guide 2023).

The majority of buildings in these investors' portfolios are sizeable in both value and surface area. Likewise, the materials and products in commercial real estate tend to be standardised and therefore ubiquitous, providing good efficiencies in inventory, valuation and product listing.

Initially the most common building elements will be monetised. Categories such as HVAC will follow

Circotrade's target markets to scale the asset class :
Major cities with high levels of property investment and development;
Europe because of its progressive green legislation;
Launch in London and Paris – Europe's two biggest real estate markets.

when maturity of the sector has been achieved and specialised requalification suppliers have emerged.

Building material inventories of existing buildings will be undertaken using Circoscan.

Futures trading: a way to scale up the reuse of building materials and decarbonise the built environment.

1

Enter into a Circoscan & Circopass Framework agreement

By deciding to engage Circotrade's specialised teams to carry out an inventory of your portfolio's buildings, your company is on the path to decarbonizing your portfolio as well as creating value through the circular economy.

The materials and products in your buildings will be carefully inventoried, valued and registered on our platform for their new lives to begin by being redeployed in other projects and in other buildings when their useful life in your buildings comes to term.

If you haven't yet started your journey with Circotrade, please contact us for more information.

Contact us



ii. Step 2: Ensure the measurement and pricing is robust and reliable

The Circopass is a digital record which quantifies, values and registers a building's circular and CO₂ footprint – providing real-time estimates of the resale value and the carbon value of the building's components.

The Circopass is included in all Circoscan inventories; it prepares the materials and products for listing by the owner/seller.

Circotrade's price estimations and carbon values are calculated with the support of a leading cost consultancy/quantity surveying partner firm.

The quantity adjustment process

One of the best ways to preserve the value of materials and products is to ensure that they are properly maintained over time, regularly updated, verified, quantified and deconstructed with care. In issuing an option on Circotrade's platform, the seller takes on responsibility for the materials' maintenance, an annual inspection, and engagement of a deconstruction contractor at term.

The estimated package price is calculated by unit rather than by batch, allowing for flexibility needed for price calculation after final quantities have been third-party verified.

In addition to the careful inventory process, Circotrade applies appropriate discount rates on the inventoried quantities to prevent any overestimation.⁵

⁵ The recovery rates or yield rates are informed by current market outcomes on similar material recovery activity coupled with advice from our cost consultancy partner. In time, the rates will be generated through Circotrade's proprietary platform trading data.

Integrity of the materials

All materials and products traded on Circotrade's platform are verified for reuse, reconditioned and recertified as needed and transported to the point of pickup agreed with the buyer. This process is the responsibility of the seller and can be facilitated by third party suppliers with which Circotrade is in partnership.

See our partners





Circotrade's commitments

Our pledges of confidence

- In addition to the seller's commitments, Circotrade applies appropriate yield rates on the inventoried quantities to prevent any overestimation.
- Our estimated package price is based on the quantities multiplied by the unit price.
- With Circotrade, you will only receive materials and products which have been fully verified for reuse and you will never pay for more units than you receive.
- Circotrade's price estimations are calculated with the support of a leading QS partner firm as well as by prices informed by market buyers.

iii. Step 3: The trading contract and platform

The futures contract and trading platform is the final step for Circotrade's solution.⁶ Circotrade has developed a technologically enabled marketplace and a novel option contract to facilitate futures trading of a building's materials and embodied carbon via a matching service.

The trading platform

Circotrade is a B2B over-the-counter (OTC) marketplace. All buyers and sellers are professionals and are duly accredited for trading.

A brokerage team at Circotrade will proactively facilitate the trading activity, which in first instance will take the form of 'club deals' before, in time, moving to purely online transactions.

The platform will provide users with secure cloud access, dynamic valuation and trading capacity, regular updates on bidding transactions initiated, automatic sales entries, and futures contracts generated by the platform.

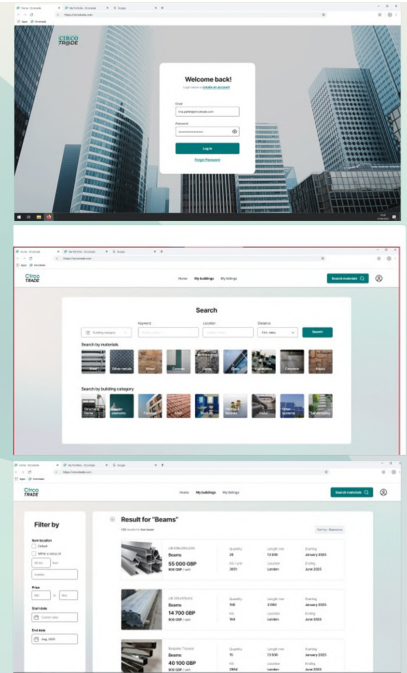
The platform features a secure documentation space, where clients can upload their building documentation and access their ongoing trading contracts.

⁶ Circotrade's futures trading contract takes the form of a call option to be exercised by the buyer on an over-the-counter (OTC) trading platform. Legal advice has been taken and this activity is not subject to regulation, nor are the contracts considered to be regulated financial securities.

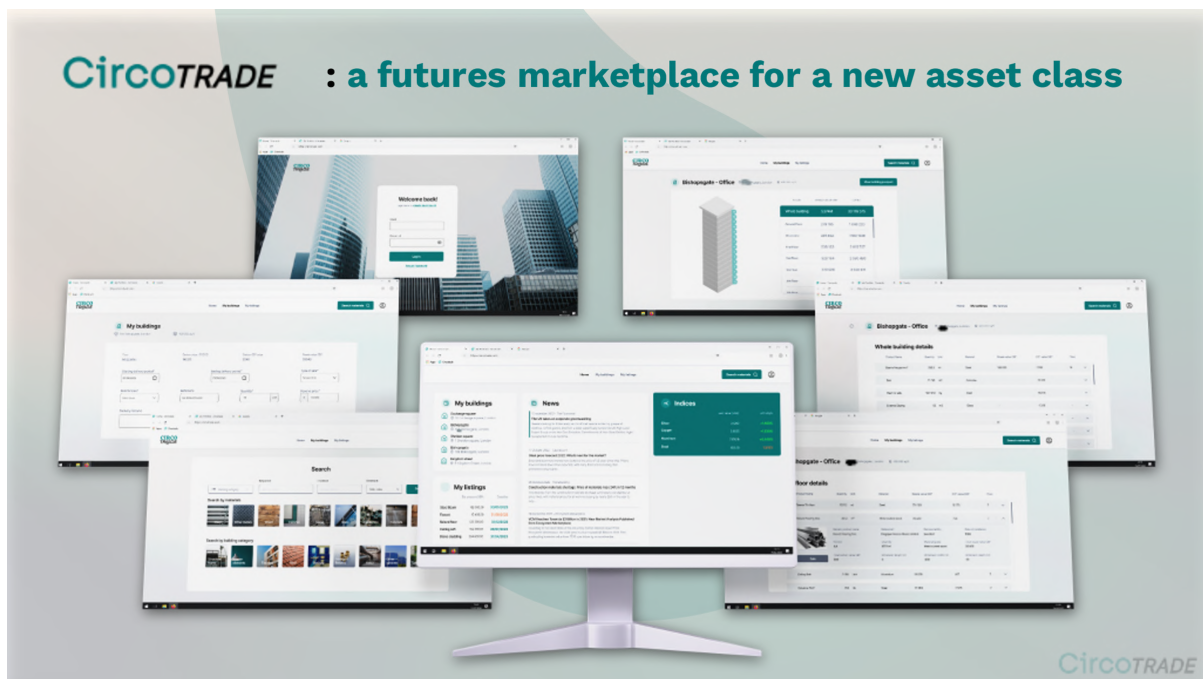
CircOTRADE

Trading platform main features:

- Secure client access to owner's portfolio with ability to register up to five team members.
- Access to anonymized meta data from the full platform for buying, selling & benchmarking purposes.
- Dynamic valuation and trading capacity with regular updates on sales/bidding transactions initiated.
- Automatic sales entries generated by platform.
- Futures contract elaborated by leading legal and accounting practices - delivered within site.
- Downloadable Carbon certificates.



CircOTRADE : a futures marketplace for a new asset class



Buyers, sellers, designers and developers can lock in quantities and prices and track and trade their materials over time.

The 'futures contract' – how it works and who benefits

The contract takes the form of a fixed-price call option.

The main goal in developing the legal terms and conditions for the option was to find a solution that worked for both buyers and sellers. Sellers are able to secure advance knowledge of the sale terms and

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conditions – including unit price and estimated quantities agreed with the buyer – and to create financial advantage upfront, prior to undertaking works to deconstruct, requalify and recertify materials. Buyers can contractually secure the materials and components in advance, and there is no need to provision large sums on their accounts for a forward purchase.

Both of these conditions are accomplished via the use of a call option contract associated with the timing of the final sale at the hand of the seller.

Flexibility for the buyer is also engrained in the contract with the ability to either sell the option onwards to another party on Circotrade's platform, or forfeit the option by notifying the seller during the option exercise period and paying a nominal forfeiture fee.

The futures contract also includes various provisions for roles and responsibilities regarding the quantity adjustments process as described in the previous section and, notably, for materials maintenance and engagement of a deconstruction contractor at term by the seller.

Drawn up in conjunction with leading legal and accounting practices, the contract is delivered within the platform.

e. Ensuring the financial benefits and incentives are tangible

The top investment criterion for any real-estate investor and developer is financial viability, and this clearly needs to be met first. Financial benefits will be the focus of this section.

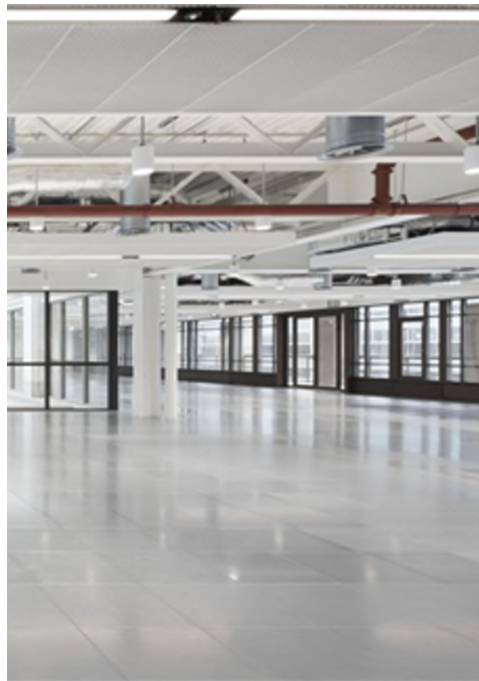
i. The value creation upside

Today, less than 1% of building materials are reused. However, a good part of the remaining materials are perfectly reusable. Circotrade estimates that an additional value of 1% to 2% of the overall market value of a typical office building in central London or central Paris can be created by utilising their constituent materials – as demonstrated in the pilot project presented below. Recognising the elevated market value of commercial property in these two cities – the two most important European real-estate investment markets – this is a tangible benefit.

Monetising the building materials in a 40,000 m² commercial office building in London which was entrusted to Circotrade by a major UK real-estate investment trust (REIT), created an additional value before costs of approximately £7.35 million, or an uplift of 1.5% of market value.⁷

Reuse also means saving approximately 15,500 tonnes of carbon, corresponding to the embodied carbon content within the monetised materials. If calculated at the UK REIT cost base of £60 per tonne of carbon offsets, the reused materials give rise to an additional £0.93 million of value in savings.

⁷ The pilot project considers the full deconstruction of the office building, monetising the structural elements as well as the Category A fit-out. All tenant fit-outs and fixtures were excluded from the resale figures.



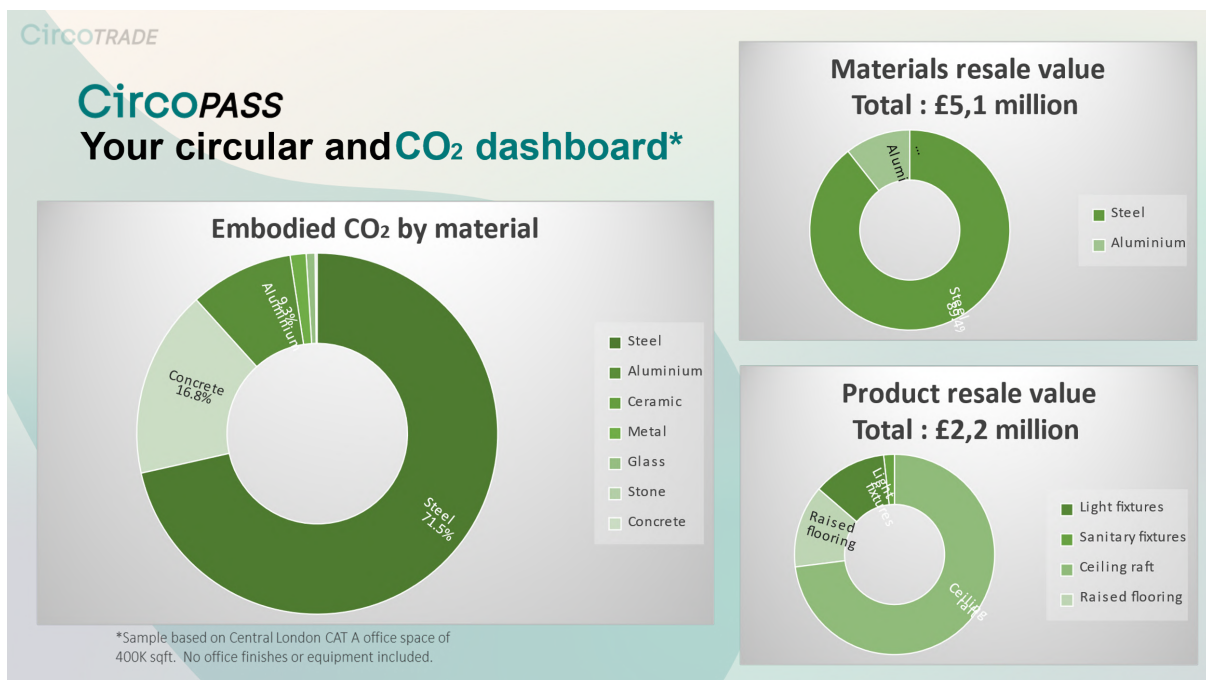
Pilot Project: **Central London building** 37,223 m² NIA/46,388 m² GIA

Methodology:

- Onsite inventory and measurement of a commercial office building in London using various scanning devices
- Focus on 7th Floor with detailed digital inventory. Remainder of building mirroring 7th floor CAT A fit-out materials
- Collection of additional architectural documents to complement scanned information
- Quantification of raw materials and products within this building
- Analysis of data via algorithms, circular and carbon measurement tool & databases
- Mapping of data in Circotrade trading platform

Circotrade

The breakdown of embodied carbon emissions and resale value shows the majority of the resale value is coming from the structural steel, the aluminium, the raised access flooring and the raft ceiling system. Only the materials with known buyers and known market pricing were monetised at this stage. In the future, with the emergence of new sector players, further categories of materials, such as the stone and glass cladding or the mechanical and electrical package, would increase price recovery.



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ii. Futures options – measuring the value

With the support of a leading accountancy and audit firm, and on the basis of the novel futures contract developed with an international legal firm, Circotrade has analysed the following financial treatments.

The cashflow effect

The option to receive 50% of the estimated purchase price in advance of undertaking the deconstruction, requalification and eventual recertification of the materials to be sold for reuse is a non-negligible advantage for the seller. From an accounting standpoint (under the accounting standard IFRS 15 – revenue from contracts with customers), the costs incurred in preparing the materials for resale can be capitalised and released in line with revenue recognition, thus allowing the seller to net off the costs from the revenue.

The accounting advantage

The accountancy treatment goal was to find a solution that worked for both buyers and sellers. The brief provided to the accountancy firm was that sellers should be able to create value in their accounts upfront – prior to undertaking works to deconstruct, requalify and recertify materials.

Buyers should not need to provision large sums on their accounts for a forward purchase, even while contractually securing the materials and components in advance. The advance payment of 50% when exercising the option is similar to the type of payment required in advance for standard construction procurement of materials and products.

Treatment as financial derivative – not for today, perhaps tomorrow

According to the accounting standard IFRS 9, a financial derivative, in the form of an option contract for the purpose of receiving or delivering a non-financial item, would allow for the differential value of the assets under option to be accounted for in the sellers' accounts in line with the fluctuation of the underlying asset's market value. This value creation could be a strong incentive for the sellers on the platform. However, after analysis with the accountancy firm, the currently envisaged form of contract would not meet all three conditions required to qualify as a financial derivative: 1) the value of the contract would need to fluctuate in line with the value of the underlying asset; 2) the seller would need to have the option of settling the sale in cash in lieu of delivering the materials; and 3) entering into the option should not require substantial initial investment. While the two latter conditions are already met by the currently envisaged contract or could be met with slight modifications, the acceptability of the first condition – fluctuation of the value of the option – would need to be market tested. Further analysis is also required to ascertain if the full value of the option could be recognised upon exercise of the call option (rather than the differential value). Pending this analysis, the transformation of the current contract terms into a financial derivative may be deemed worthwhile or not.

The vision: in time, if the asset class and platform were to gain critical mass and the concept of fluctuating value were deemed acceptable to the market, the current customer contract (IFRS 15) could be requalified into a financial derivative and accession to a regulated market status could also be envisaged for heightened liquidity.

Treatment as a 'pure and simple' sale + reserving residual value at the outset

This is the most promising avenue at present. The principle is that certain jurisdictions (IFRS valuation under the cost model and French local GAP have been verified to date) are willing to reserve a portion of value to be excluded from the linear amortisation plan from the outset of a newly developed or refurbished building, on the express condition that the components slated for future reuse have been

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clearly identified, valued and documented. A system such as Circotrade's would be acceptable in principle. This accounting treatment could be applied at the initial entry of a building in one's accountancy – say, for example, at purchase of an existing building from a third party, or at any change in ownership of the same.

Additionally, the reserved residual value – if still outstanding – could be gainfully traded onwards upon the sale of the building. Alternatively, if the components had been sold, the reserved value would transfer into the P&L of the seller.

Valuation as a tool for good

A further opportunity would be to investigate how the residual value of materials that are slated for reuse can be recognised in property valuations. The Royal Institution of Chartered Surveyors (RICS) has been regularly updating valuation practice guidance to include sustainability issues. Notably, Peter Pereira Gray's [Independent Review of Investment Valuations \(2021\)](#) states: "Ultimately, a valuation must reflect the valuer's best estimate of the exchange price at which an asset will trade, and sustainability and ESG factors relating to that property will be inherent in that valuation as the market digests these factors." This provides a potential path towards integrating circular residual value in a property valuation.

iii. The carbon and circular advantage

Supporting decarbonisation targets and planning submissions through virtuous and documented circular economy initiatives is becoming increasingly important for most market players.

Circotrade's carbon calculation is based on the amount of embodied carbon avoided if a material or product were to be used circularly, instead of newly manufacturing it today. The calculation is carried out with a bespoke 'carbon calculator' developed by our cost consultant/quantity surveyor partner in line with the RICS whole life carbon assessment (WLCA) methodology and based on data from reputed embodied carbon databases.

The proforma certificates of reuse and carbon produced by Circotrade's partners can have several uses for the seller:

- a) The pre-validation certificate would be established for the original owner and sold along with the reused materials for unique redemption by the 'circular' end-user.
- b) Reporting future CO₂ reductions in the seller's extra-financial reporting. The embodied carbon that will be saved through engaging in and facilitating the reuse of materials within a building falls under Scope 3 and can be reported in the company's extra-financial reporting.
- c) These provisional certificates attest to the reuse and carbon values, which may give rise to a tax or carbon credit for carbon reduction linked to material reuse or even an eventual bonification of the sale price, dependent upon market demand. These certificates will be downloadable within the platform.

The reused materials certificates and carbon certificates can be used by the buyer for redemption in certification schemes, carbon credit and/or tax credit schemes as well as supporting documentation for circular statements and planning permission, and for environmental statements and reporting. The buyer will need to provide proof of reuse by completing Circotrade's reuse form. Upon receipt and verification, a third-party certificate attesting to the quantities and values is provided.

As demonstrated earlier, these reductions can also give rise to monetary savings equivalent to carbon off-setting costs.

iv. Why Circotrade is different

While there are various European material passport initiatives and online marketplaces for reused construction materials and products, none of the current initiatives have taken the futures trading, financial accountancy and tax incentive approaches that are the guiding principles for Circotrade.

Likewise, most of these initiatives have targeted either new developments (for the creation of passports) or demolition and construction sites (for reselling/redistributing goods via marketplaces – where the quantities are relatively small, irregular and sold on an as-is basis when available).

Circotrade, on the other hand, with its futures trading concept, targets the existing building stock via the current owners/asset managers. This positioning will allow Circotrade to access large quantities of materials as well as to create critical mass upfront, allowing time and visibility for the circular ecosystem to develop and evolve prior to actual market delivery of building products and materials.

Likewise, the materials and products sold on Circotrade will be fully requalified, reconditioned and recertified as needed prior to sale, therefore providing the assurances that will allow the reuse market to scale.

2. Latent demand stymied by a lack of offer

The demand for reused materials is present and growing – notably in line with net zero pledges and emerging circular and carbon legislation for the built environment – but the offer is disparate and quantities are too small and irregular to attract use cases of scale, such as large commercial or residential developments and refurbishments, which are necessary to tip the balance for decarbonisation of the sector. Likewise, current design and procurement methods of major projects also preclude massive recourse to reused materials as they require large quantities, quality assurances and, above all, advance visibility and availability.

Circotrade's objectives to overcome these barriers are direct...

- ✓ To increase the take-up of secondary construction materials and products via providing the financial impetus to property owners and managers to drive circular behaviour throughout the ecosystem by incentivising the massification of the offer side
- ✓ To provide development teams with access to an online 'supermarket' of future reused materials, allowing teams to design to specification with certainty and drive the take-up of reused materials at scale
- ✓ To reduce the related embodied carbon emissions in construction and renovation projects through use of secondary materials and to promote this via futures trading in conjunction with the development of carbon credits or tax credits for reused materials

... and wider-reaching:

- ✓ To decrease construction and demolition waste and its negative environmental impacts
- ✓ To increase material efficiency and avoid excessive use, mining and extraction of primary resources
- ✓ To support the emergence of new professions in materials' recovery, re-certification and reuse via rendering visibility to the volumes and provenance of materials to be released in the future

Circotrade looks to deploy futures trading as a financial construct that can facilitate and promote adoption of circular economy practices on the ground, decarbonising our built environment. This is done through:

- Capturing the unrealised salvage value of a building by inventorying buildings long before any refurbishment or demolition project commences and placing a value on those materials as part of a new futures trading contract.

Futures trading: a way to scale up the reuse of building materials and decarbonise the built environment.

- o Developing a new asset class of reused products and materials by financialisation. This new asset class has the potential to redefine the rules of a building's component depreciation and residual value by capturing the value through systematic inventory and valuation.

Additionally, Circotrade is advocating a new tax credit and/or carbon credit for reused materials and their embodied carbon, which, if successful, would support the creation of new business models in materials' recovery activities as well as carbon accounting and certification.

Circotrade's futures market presents benefits for both buyers and sellers, which will increase the demand for recovered building materials through rendering future material flows visible and predictable as well as scaling supply and demand.

3. Drive the change through the client's seat

Circotrade is a futures trading contract and technologically enabled futures trading platform developed to facilitate and unlock the future value of buildings' materials and products with the aim of reducing construction waste and decarbonising this impactful sector.

We aim to achieve our goal by attracting the main property and construction market players in Europe – via innovative financial incentives – to take an active role in promoting material reuse in their projects via Circotrade. This action will in turn provide the impetus to the entire built environment ecosystem to transition towards the circular economy.

a. Beneficiaries

Circotrade's business proposition is nothing less than a full systems change in the way the industry designs, procures, constructs and deconstructs its buildings. We have undertaken an analysis of how each of the three main categories of market players benefits from the new system.

Circotrade's business proposition is nothing less than a full systems change in the way the industry designs, procures, constructs and deconstructs its buildings.

Firstly, institutional investors and asset managers with large commercial real-estate portfolios in Europe and the UK will increase their ESG credentials, create value for their shareholders/investors, and get a head-start in the race to net zero. These actors will be Circotrade's key target clients to populate the inventory listings. Existing assets in Paris and London will serve as a testbed for project development.

Secondly, construction contractors, developers and their design teams gain access to a database of future reused materials to enable design and construction of low-carbon buildings to specification, to budget and at scale with certainty. This would also provide protection against shortages of materials, which are likely to increase in frequency as a result of climate change disruption.

Thirdly, demolition contractors, salvage companies and building product manufacturers will protect themselves against volatility in construction materials pricing and comply with voluntary and regulatory carbon, circularity and waste reduction targets.

Advocacy for a tax credit

Futures trading: a way to scale up the reuse of building materials and decarbonise the built environment.

Finally, Circotrade's lead position in the advocacy and development of tax incentives, carbon credits and reduced VAT regime for reused materials, if successful, would benefit the entire built environment reuse sector and is not exclusive to Circotrade.

b. A megacity strategy – both needed and effective

The excessive use of resources and the substantial carbon footprint of the construction sector run counter to international net zero commitments. This practice poses a significant challenge for the construction industry, impeding its compliance with increasingly stringent environmental standards and the escalating demand from investors for sustainable building practices.

This challenge is most pronounced within our cities. Despite occupying a mere 2% of the Earth's surface, cities have an outsized impact, consuming half of all resources and contributing a staggering 70% of CO₂ emissions ([Circle Economy Foundation 2023](#) and [2020](#)). As urban areas expand, our paramount focus should be on pioneering solutions to minimise, and eventually eradicate, embodied carbon in these densely populated hubs.

Not only do cities need the circular economy, the circular economy needs cities in order to be impactful, to create efficiencies and to garner critical mass. It is for these reasons that Circotrade has elected a city-focussed roll-out, with Paris and London serving as testbeds for later expansion to Europe's other major cities.

[Closing the Circle](#), a 2023 report by the construction and development company Mace, considers that across seven identified megacities, 77 million tonnes of materials could be retained in the construction supply loop over the next decade. The value of that material is estimated at £10.6 billion over 10 years through the shift to a circular scenario. Topping the chart among the European cities included in the report are Paris at 15.4 million tonnes/£1.39 billion and London at 13.8 million tonnes/£1.25 billion, followed by Berlin at 11.2 million tonnes/£1.06 billion.

c. Circotrade's five-year vision

- A critical mass of European real-estate investors adopting the platform – inventorying a portion of their massive real-estate holdings (USD4 trillion of professionally managed holdings in 2023) to create the offering.
- Demand for reused materials will scale due to the marketplace's reliable and abundant offering, aided by changing design and procurement processes and increasing decarbonation requirements.
- New business models and protocols needed to re-condition, recertify and guarantee materials will be facilitated by the forward-looking order book of Circotrade's futures marketplace, creating a thriving circular ecosystem.
- Finally, our moonshot: As this new asset class gains in favour, the trading platform will move from an OTC market to a regulated financial market, providing even more liquidity.

d. Fostering new business models

Circotrade would also provide the opportunity for re-manufacturing, salvage and demolition companies to trade products and to foster new business models in deconstruction, recovery, reconditioning and recertification of building materials and products. Discussions are underway with several actors in this field with a view to them becoming in-platform partners.

4. Current status of the solution

a. Circotrade's three-step solution status

Step one: Circoscan – inventory

Circotrade has secured commercial terms and conditions with a cutting-edge data-science-supported inventory app, and a reuse inventory and urban mining specialist consultancy. The solution is ready to be launched.

Step two: Circopass – measurement and valuation

Circotrade has entered into a collaboration agreement with a leading international cost consultancy/quantity surveying practice. The quantity adjustment process has been especially developed in partnership.

Step three: Futures trading contract and platform

Platform functionalities are ready to launch in H12024. The suite of legal documentation is underway. The accounting solution analysis is under development.

b. Status of tax credit advocacy

Advocacy for a reused materials tax credit (RUM tax credit) is currently being undertaken with the support of several professional bodies and private-sector actors. Exchanges with the tax authorities have been initiated.

5. Feasibility analyses

a. Methodology: Insider knowledge and qualified interviews

The business proposition, processes and trading platform have been addressed in interviews with real-estate investors, developers, construction companies, planning officers, architects, quantity surveyors, engineers, recyclers/reuse specialist companies and other economic actors within the industry.

b. Findings

i. A hybrid model of in-house and outsourced development

At set up-stage, the key external costs to create the solution consist of:

- ✓ Work with legal and accountancy firms to develop the Circotrade trading concept and contracts
- ✓ Develop the technological platform and bridges to partners' platforms and data lakes
- ✓ Develop graphic user workflows to explain the concept

At launch phase, partnering with external providers on Circoscan and Circopass avoids having to develop the tools, databases and skills to carry out these two key steps to creating the asset class. These elements can be purchased as services to avoid upfront costs.

Further to launch, for the initial 18 months, Circotrade will engage a small team for the key functionalities – technology development, brokerage, key account management and data management.

For the five years following the initial 18 months, the team will be structured around four internal departments: product development, technological development and maintenance, business development, and marketing & communications, led by the CEO and the executive team.

Circotrade is currently trialling the following fee structure with potential clients:

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- ✓ Circoscan and Circopass as one-off set-up costs
- ✓ recurring maintenance/listing fee
- ✓ option issuance set-up fee
- ✓ one-off transaction fee based on sales value

ii. Cultural barriers are linked to local experience and practices

While there is growing acceptance of reuse practices, there are still a large number of professionals in the sector who believe that secondary materials and products lack the proper guarantees and quality needed to be deployed in a new project.

More generally, design teams have not fully embraced the concept of material reuse and the design aesthetic that it can lead to. As end users become more aware of and concerned about climate change and decarbonisation, we foresee a new aesthetic arising, whereby the history and look and feel of reused materials and products can become attractive because of their environmental awareness profile. [The New European Bauhaus](#) is one movement in Europe which is embracing these tendencies.

Cultural differences in beliefs around feasibility of Circotrade's business model exist. In interviews with UK-based professionals, there have been doubts expressed in the ability to obtain an accurate and detailed inventory of materials for an existing building. This is undoubtedly linked to prior negative experience in pre-demolition audits being carried out by individuals without the proper experience and without the necessary digital tools. By selecting professional partners with tested experience for both the inventory services and the digital tool, Circotrade has mitigated this issue.

In France, on the other hand, because resource audits (PEMD) have been mandated by law since early 2023, and several major players have worked on developing digital tools and capacity to carry these out prior to the mandate, professionals in France are confident about Circotrade's inventory process. The queries in France rather focus on whether there will be buyers. This may be because the existing platforms for reuse have experienced difficulties in selling their inventory. This is due in large part to the items for sale being available only in small quantities and not reconditioned nor recertified for reuse. Above all, these items have not been forward sold, so remain in the seller's stock until a buyer can be found, and this can take time and engender storage costs. In general in France, there is a more cautious approach and a preference for tried-and-tested solutions.

In the UK, however, a more pragmatic willingness to experiment has been observed. A burgeoning re-qualifying sector for reuse as well as strong demand for reused products, namely structural steel and raised technical flooring, mean that most UK prospects are comfortable with the sales process of reused materials.

For both markets, there is a need for a seamless, hands-off experience for the key players. Potential sellers were pleased to learn that Circotrade carries out the inventory, pricing, uploading and updating of their materials and product, and all they have to do is decide when they want to sell them and select a reuse requalification partner within the platform. Buyers, likewise, understand and appreciate the simplicity of the interface and search engine, and the didactic nature of the workflow explanations at first approach. More user experience testing will be required in the next phase.

iii. Strong tailwinds for reuse coming from public policy

Public policy aimed at carbon reduction and supporting the circular economy is being progressively rolled out across Europe and will provide tailwinds for Circotrade and more generally for the uptake of reused materials and products in the construction sector. The main policies in our focus markets – Europe, and more specifically France and the UK – are as follows:

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In the EU, the construction sector is one of the priority areas addressed by the EU Circular Economy Action Plan of the European Green Deal. The sector is responsible for [over a third of the EU's total waste generation](#), with construction and demolition waste being one of the most significant waste streams. The uptake of circular economy in the construction sector is influenced by policies in areas ranging from the Waste Framework Directive to the Construction Products Regulation and product standards. Other notable policy frameworks are:

- o the EU Green Taxonomy with its recently [delegated act for circular economy criteria](#)
- o the EU [Carbon Border Adjustment Mechanism](#) (CBAM), which will impose a carbon tax on materials such as iron, steel, aluminium and concrete when they enter the EU. This is to protect EU manufacturers who will need to undertake decarbonisation measures that foreign manufacturers may not. The result will be higher prices for construction materials that are decarbonised *and* for imported materials, as they need to level up with the carbon tax. Reused materials, which are considered as having little to no carbon footprint, will become economically viable and competitive.

In France, legislation has sped ahead and France is one of the first countries to set whole-life carbon thresholds for new developments and major refurbishments.

The [Diagnostic Produits, Equipements, Matériaux et Déchêts](#) (PEMD), which came into effect in July 2023, includes the obligation to undertake a pre-demolition resource audit for major renovations and demolitions over 1000 m².

The [Réglementation Environnementale 2020](#) (RE2020) is the French planning legislation in which whole-life carbon is calculated dynamically and set to reducing thresholds, ensuring that upfront embodied carbon of the building materials is reduced. Reused materials and products attract zero carbon – by convention – in the RE2020 calculations.

The Greater London Authority now requires [Circular Economy Statements](#) for all major projects as set out in the London Plan Guidance – Circular Economy Statements issued in March 2022. The London Plan Policy SI 7(A) sets out targets for minimum levels of compliance. Applicants should provide an explanation for the target that they are committing to and how they intend to meet these targets and monitor performance, including the metrics to be used.

Please note that this is a non-exhaustive list.

iv. Providing time for the ecosystem to catch up

[Requalification and recertification processes](#) are in their infancy for most asset types, with the exception of structural steel, raised technical flooring and manufactured goods such as lighting fixtures or partition walls. By increasing the uptake and forward visibility of the volumes and provenance of reused materials and products, Circotrade's business model of futures trading will in turn contribute to the emergence of new localised professions in the recovery, re-conditioning and re-certification of materials as well as related logistics, creating social value.

[Product or material insurance](#) is often raised as an issue for reused materials; however, this issue becomes less important when materials have been inspected, reconditioned, recalibrated and in some cases even recertified. Architects and engineers are already starting to develop ideas around 'loose fit' specifications as well as a grading chart that would allow defining and identifying categories of specification that vary from those for new materials.

With increasing demand for reuse, insurers will start to offer specific insurances for reused materials. In France, SMABTP Insurance is already offering insurance of up to two years for products sold on a reused

Futures trading: a way to scale up the reuse of building materials and decarbonise the built environment.

construction materials website ([Cycle Up](#)), and building control companies in France such as Alpes Controls offer the [PASS Réemploi](#) (Reuse Pass), a validation of the technical characteristics and performance of the batches of materials, products or equipment intended for reuse. [Bureau Veritas](#), an international building control company, is also expanding its offer to include specific services for reused materials and components.

c. Challenges and mitigation strategies

Timing of the sale/purchase

The timeframe within which materials would become available (i.e. when the deconstruction would be carried out) may not be as long as initially envisaged. From the outset, it was decided to prioritise inventorying buildings that were slated for deconstruction or redevelopment within a period of 18 months to three years. Some potential sellers have indicated that they would not be in a position to contractually commit to delivering their materials until six months prior to demolition.

For best results, Circotrade recommends selling the options as early as possible, as the matchmaking and deal conclusion may take several months. However, once an option agreement is entered into, it becomes a legally binding commitment, so it is essential that delivery of the materials at the agreed time is assured.

Given that the terms and conditions of sale are exclusively determined by the seller, there are very few cases in which it is deemed acceptable to forfeit the contract on the seller's side. Cases of force majeure or rare cases of contractual changes in the seller's situation – e.g. if a tenant is no longer leaving the seller's premises – would be among the few cases in which exceptions to the contractual binding commitment would apply.

Flexibility for the buyer via forfeiture of the option

On the other end of the spectrum, buyers may also want to back out of their commitment when the time comes to exercise the option.

In many cases, the buyer's development team will have already factored the optioned materials into the design for their project, making it unlikely that the buyer forfeits the option. In other instances, the buyer may no longer require the materials but will prefer to sell the option on to another party. In this manner, the original buyer will not be required to pay a forfeiture fee and will recoup the value of their original option issuance fee.

In the rare cases that the buyer does choose to forfeit the option, Circotrade will look for another buyer at similar market terms. This matching process will follow the same steps as the initial sale. The seller can set the window for exercising the option so that there is enough time for Circotrade to secure another buyer if necessary. For some materials and products, Circotrade will be able to propose specific market players to intervene as buyers of last resort. The seller will also receive a forfeiture fee from the original buyer.

Product not selling

Not all materials listed on the market will find buyers at the initial asking price. There are a few options for this eventuality:

Circotrade regularly updates its price estimates for reused products on the platform, until the product has been optioned. There is a possibility that market conditions have changed since the initial listing and

Futures trading: a way to scale up the reuse of building materials and decarbonise the built environment.

Circotrade will notify the seller if a change in asking price is deemed necessary to attract a buyer. Circotrade may be in the position to propose a buyer of last resort for some materials and products.

In other cases, Circotrade will propose to list the offering first on a local material exchange and then on a donor exchange, so that the materials remain within the circular economy. The ultimate aim is always to ensure that as many materials and products as possible find a new life and avoid entering the waste stream.

Logistics and storage

Additional logistical and storage measures may be required if the buyer and the seller's timelines do not match.

While Circotrade's futures trading platform will endeavour to minimise logistics and storage costs through advance matchmaking, facilitated by a critical mass of sellers and buyers in a dense urban context, it is envisaged that limited extra storage could be provided on an as-needed basis by the requalification partners, who would already be handling the materials in their facilities.

Public authorities may be willing to make disused municipal land or buildings available to help with storage needs for the longer term. This will be an opportunity to explore.

d. Remaining challenges

Critical mass at launch

A remaining challenge is reaching a critical mass of sellers on the platform before opening for live trading. While Circotrade's business model specifically targets large institutional investors' portfolios to populate the sales inventory, clients may not be willing to engage sufficiently in advance of the trade, and the critical mass at launch may not be achieved.

The potential to collaborate in a win/win partnership with other material passport providers – bringing added value to their clientele through monetisation of their materials – in order to create and kickstart the asset class is under analysis.

A flexible approach to dealing with material passports issued by other market suppliers is important, as standardisation of material passports is not yet in place. Circotrade envisages creating a data transfer bridge between various passport suppliers' formats and the Circotrade platform. Verification of the quality of data would also be carried out prior to migrating other passport suppliers to the Circotrade platform.

Working with other passport providers would have the added advantage of rendering a clear, compatible and harmonised output of the materials and products inventoried in one single platform. Discussions with European passport providers are on-going.

6. Call to action and conclusion

In conclusion, the real-estate industry has the potential to revolutionise the built environment through the implementation of circular-economy principles, thereby reducing embodied carbon, minimising natural resource usage and reducing construction and demolition waste. However, the current scenario shows a mere 1% of material reuse in standard demolition processes, causing significant value destruction and contributing to a substantial portion of worldwide waste.

To instigate this transformative shift from a linear ‘take-make-waste’ economy to a circular ‘reduce-reuse-recycle’ model, it is imperative for real-estate owners, asset managers, developers and contractors to take proactive measures. Financial risks are a major deterrent to this, particularly concerning upfront capital expenditure for uncertain future demand and the challenge of insuring reused materials lacking known technical specifications.

Addressing these concerns is crucial for systemic change, and the key lies in mitigating risks for industry players and identifying compelling incentives. This paper proposes a solution rooted in commodities futures trading, emphasising how this approach can facilitate the reuse of construction products and materials. By exploring how futures trading manages risks, provides financial advantages and integrates innovative processes, the paper highlights the potential of creating a new asset class from existing building stock.

Circotrade’s initiative showcases that material reuse not only aligns with financial sensibilities but also effectively addresses regulatory and market risks associated with the increasing demand for decarbonisation and circular-economy practices. Through the inventorying and valuation of existing building materials, a new tradeable asset class emerges, enabling owners to plan for future reuse through futures trading contracts and a dedicated marketplace. This not only adds value but also removes uncertainties from the process, offering known quantities for future costs, timelines and revenues.

The time is opportune for the property and construction sector to embrace this profound change. Circotrade can function as a catalyst, bridging the gap between the financial constructs of real-estate investment and the imperatives of sustainability and climate change. By unlocking the future value of reused building materials, which would traditionally have been discarded, Circotrade aims to usher in a paradigm shift toward a more sustainable and circular built environment. It calls upon real-estate owners, asset managers, developers and contractors to actively engage in this transformative journey, to transform their buildings into future material banks and their projects into showcases of material and product reuse, contributing to a future where circular practices are the norm and the built environment thrives, while existing in harmony with environmental sustainability.

7. Appendices

a. Circotrade user guides

i. The inventory process

CircosCAN

Your buildings' materials are revealed!

Let the urban mining begin!

1

Enter into a Circoscan & Circopass Framework agreement

By deciding to engage Circotrade's specialised teams to carry out an inventory of your portfolio's buildings, your company is on the path to decarbonizing your portfolio as well as creating value through the circular economy.

The materials and products in your buildings will be carefully inventoried, valued and registered on our platform for their new lives to begin by being redeployed in other projects and in other buildings when their useful life in your buildings comes to term.

If you haven't yet started your journey with Circotrade, please contact us for more information.

[Contact us](#)



2

Fill out the inventory information sheet

This building-by-building information sheet contains a description of the building including address, date of construction (initial construction and most recent major renovations/fit-outs), type of construction, design architect/engineer, surface areas by floor, current use of building, number of tenants. We will also need the contact details of the main team members in charge of each building on your side.



3

Upload your buildings' documentation

All your buildings' documentation can be securely uploaded to your client space on Circotrade. Please keep in mind that the better the documentation the more valuable the materials will be when it comes to sell them on the market and the better the chances of selling the materials at optimal pricing.

[See the documentation wish list](#)

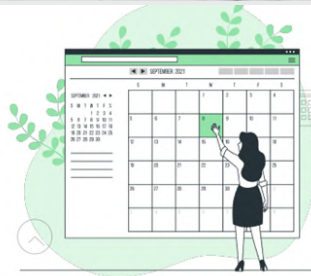
While our specialist inventory teams and the market leading technology we deploy are capable of carrying out an inventory without plans, it is much more effective to base our work on the existing documentation which you already have.

4

Schedule our team's visit to your building

You will be contacted by our team of re-use inventory specialists to agree dates/times for an initial visit to each building with your building manager and facilities manager.

Prior to the visit, our teams will check your documentation and make requests for missing information during the visit.



5

Inspection and inventory by specialists

On-site inspections will be carried out by re-use specialists with the support of a cutting edge digital inventory tool, laser and inventory equipment. Circotrade has entered into partnerships with Europe's leading international professional services company and an innovative digital solutions provider with strong track records in this field.

[See our partners](#)

Material and product measurement and tagging

- Surfaces and areas are measured on site and verified against plans
- Materials and products are photographed and tagged on digital plans.
- Deconstructability, reusability and/or recyclability are noted according to our proprietary measurement scale and predominant market practice.



Your personalised inventory

Your buildings' circular and carbon footprint can now be quantified, valued and registered on Circotrade's trading platform. You can now hold or sell your new value streams on our OTC (Over The Counter) trading platform to track & trade your materials over time.

ii. The quantity adjustment process

Our quantity adjustment process

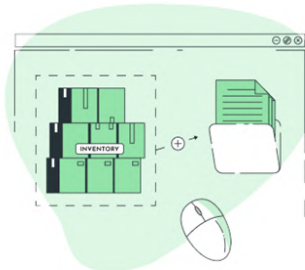
How Circotrade ensures you get what you buy!



The contractual commitments of the seller

Materials and products are kept in good working order

One of the best ways to preserve the value of materials and products is to ensure that they are properly maintained overtime. In issuing an option on Circotrade's platform, the seller takes on the responsibility to maintain, repair and replace these materials over time and in accordance with good estate management practice.



Material change in inventory

It goes without saying, if any material change of quantity or technical specifications intervene on the materials which have been previously inventoried by Circotrade, the seller has the obligation to immediately inform us – keeping our on-line inventory fully up to date.

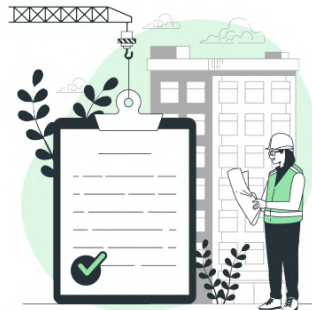
If the materials are already under option, Circotrade will ensure that the buyer can take an informed decision on the viability of the option for their project under the new circumstances. And in the contrary Circotrade will search for alternative materials on the platform.

The annual inspection

The owner is required to provide access to our inspectors on an as needed basis and no less than once a year.

The role of our inspector :

- quantitative verification of inventoried items
- qualitative verification of the inventory
- inventory update on the platform



Deconstruction, not demolition!

The seller engages contractually to have the elements under option deconstructed by a qualified deconstruction contractor. This is a strong element of the Circotrade contract and goes a long way to ensuring that the materials and products sold will be recovered from site in an optimal manner.

Third Party quantity verification

Circotrade employs reputable Quantity Surveying firms to have the quantities of deconstructed elements verified by a third party on site post deconstruction. This service is carried out on behalf of the seller.

Integrity of the materials

All materials and products traded on Circotrade's platform are verified for reuse, reconditioned and recertified as needed and transported to the point of pickup agreed with the buyer. This process is the responsibility of the seller and can be facilitated by third party suppliers with which Circotrade is in partnership.

[See our partners](#)



Circotrade's commitments

Our pledges of confidence

- In addition to the seller's commitments, Circotrade applies appropriate yield rates on the inventoried quantities to prevent any overestimation.
- Our estimated package price is based on the quantities multiplied by the unit price.
- With Circotrade, you will only receive materials and products which have been fully verified for reuse and you will never pay for more units than you receive.
- Circotrade's price estimations are calculated with the support of a leading QS partner firm as well as by prices informed by market buyers.

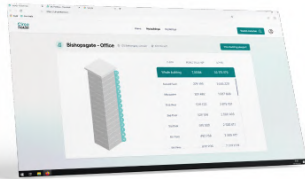
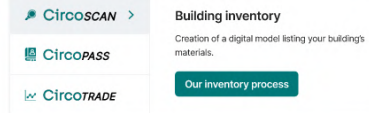
iii. The seller's journey

Your buildings' hidden value is just a few clicks away!

1 Subscribe to our Circotrade platform

As a client of Circotrade, you have secure client access to your portfolio with the ability to register up to 5 team members. You and your team's profiles have been pre-registered on the platform along with their specific rights.
All you have to do is enter the personal user name and password which our team has provided to you, accept the general terms & conditions of our platform, and you are on your way! The first time you access the platform, you will need to change your password.

[Subscribe](#)



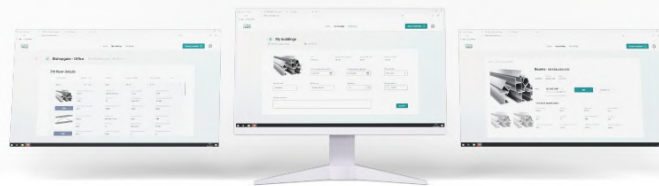
2 We inventory your materials

Via our services CircoScan and CircoPass, your buildings are inventoried and a digital model listing the products & materials is created. To carry out this inventory, Circotrade deploys market leading technology and re-use inventory specialist teams.

[Discover CircoScan](#)

View your portfolio on the platform

Your buildings circular and carbon footprint is quantified, valued and registered on Circotrade's trading platform. You can now hold or sell your new value streams on our OTC (Over The Counter) trading platform to track & trade your materials over time.



3 Select the products/materials to be sold

Each building and each floor contains a list of materials and products which have been carefully inventoried and you can select to sell - in full or in part - at your guise. Automatic sales entries are generated by the platform. A recommended selling price for each package is indicated, as is the value of the embodied carbon savings associated with each package.
You are, of course free to modify the asking price as you see fit. Once the option agreement is entered into, the package price is locked in.

Define the window for the call option

You are free to choose the most appropriate period for the option to take place - in line with your renovation or deconstruction project timeline. At Circotrade, we call this the "call option window". This window forms an integral part of the option you put on the market and will be visible on the platform to all bidders. The window is limited to a maximum of 6 months. This gives you, the seller, the latitude to sell the options well in advance - up to several years before deconstruction - all whilst keeping the flexibility to set the exact date of availability of the materials to be sold up to the start of the six month window.

4 Accept the buyer's bid

An innovative futures trading contract - elaborated by leading legal & accounting practices - where accounting value is created upfront for the seller via a futures option contract - is delivered within the platform.

Enter into the call option agreement

The futures contract provides for materials maintenance and engagement of a deconstruction contractor at term by the seller. For more details on the seller's obligations within the call option, please see the quantity adjustment process.

5 Pre-select your dismantling, requalification, reconditioning and recertification service providers

Circotrade has entered into partnership agreements with various professional service providers to undertake - on your behalf - the necessary deconstruction, requalification, reconditioning and even guarantees and recertification if needed.

These partners are available directly within the platform, facilitating the process of rendering your materials fit for re-use in just a few clicks. You are of course free to select other service providers, as long as they have been vetted by Circotrade.

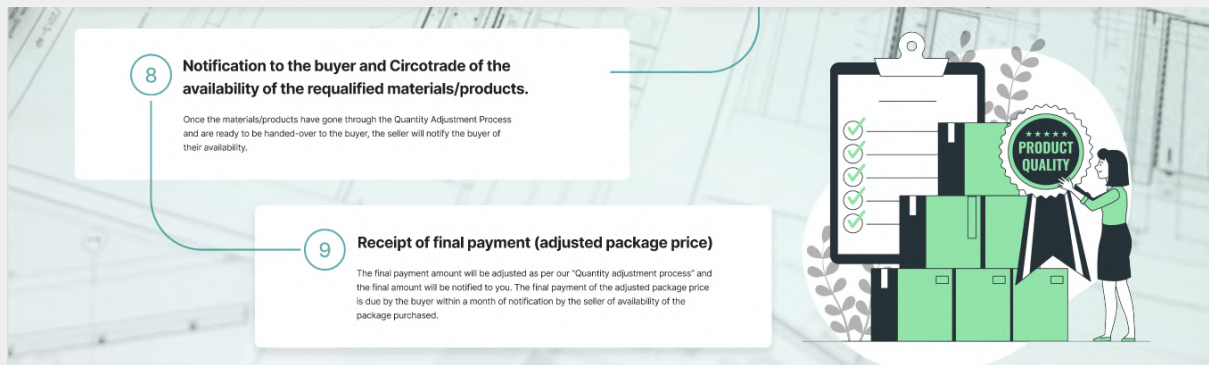
[Discover our partner](#)

6 Notify the buyer and Circotrade of the call option period

When you have visibility on the forecasted date of availability of the package under option, you should notify the buyer of the call option period. This period will be 2 months in which the buyer can exercise the call option.

7 Receipt of payment of 50% of the estimated price of the materials/products

50% of the estimated package price is due when the option is exercised. All payments are carried out between the parties - outside the platform - and notified to Circotrade simultaneously.



iv. The buyer's journey

Re-used materials at your fingertips.

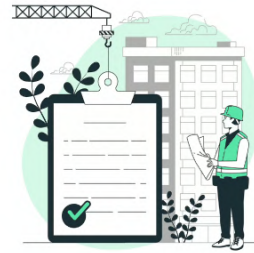
Building low carbon has never been so easy!



6

Final adjustment process & acceptance of materials

Circotrade has developed a unique process to adjust the quantities and final price of sale which includes owners reps and warranties & two stage third party verification. See our quantity adjustment process.

[See more](#)

7

Make final payment

The final payment amount will be adjusted as per our "Quantity adjustment process" and the final amount will be notified to you. The final payment of the adjusted package price is due within a month of notification by the seller to the buyer of availability of the package(s) purchased.

8

Deploy the products/materials in a construction or remanufacturing project

Now you are ready to give your re-used products & materials a second life. In doing so, you increase your project's circular content and decrease your carbon footprint at the same time!

9

Redeem your re-used materials and carbon certificates

The re-used materials certificates and carbon certificates provided by Circotrade are based on robust, internationally recognized valuation and carbon measurement methodology and can be used for redemption in certification schemes, carbon credit and/or tax credit schemes. You will need to provide proof of re-use by filling out Circotrade's re-use form which will be provided to you. Upon receipt and verification, Circotrade will attest to the quantities and values certified.

