The European voice of the **adhesive and sealant industry**

FEICA WEBINAR

Adhesives & sealants in the transition pathway for the construction ecosystem

24 May 2022

11:00 – 12:00 Brussels CET

Proceedings

- Please be advised that this webinar will be recorded. By joining, you are consenting to the recording
- We ask participants to turn off their camera to avoid system performance issues
- Note that you will be muted upon entry. During the Q&A session following the presentations, you will be able to use the chat box to ask questions
- In case we don't have sufficient time during the Q&A session to address your question, please feel free to send your question to info@feica.eu
- The presentation slides and recording will be sent to all webinar registrants

Speakers - Moderator

Mr Dimitrios Soutzoukis (FEICA)

Senior Manager Regulatory Affairs

Ms Ilektra Papadaki (European Commission)

Team Coordinator, Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs (DG GROW)

Dr Dennis Bankmann

Independent scientific consultant on the circular economy

Agenda

11:00	Opening by Mr Dimitrios Soutzoukis, Senior Regulatory Affairs Manager at FEICA
11:05	'Transition pathway for a resilient, greener and more digital construction ecosystem', by Ms Ilektra Papadaki, Team Coordinator, Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs (DG GROW), European Commission
11:15	'Adhesives & sealants in the construction sector: energy efficiency, material efficiency and the role of debonding', by Dr Dennis Bankmann, Independent scientific consultant on the circular economy
11:45	Q&A moderated by Mr Dimitrios Soutzoukis
12:00	Close of the webinar

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Mr Dimitrios Soutzoukis (FEICA)

Senior Manager Regulatory Affairs

Opening and FEICA introduction

FEICA Facts

MARKET

7 market segments

employs more than **45,000** people

14 technologies

470 million euros on Research and Innovation investment

17 billion euros contribution to the EU economy

2% of European chemical industry's turnover

5 million tonnes of adhesives and sealants

250,000 different products for the most diverse applications

COMMUNITY

450 adhesives and sealants producers in Europe

165 adhesives and sealants experts

ACTIVITIES

6 key projects

- Circular economy
- Safe use of mixtures
- Good practice
- Food contact
- Innovation and education
- Model EPDs

85 publications annually

VISION

1 FEICA Vision

"The adhesive and sealant industry is committed to enabling a growing population to live a better life and to use the planet's resources responsibly and efficiently."

FEICA's mission is to support the industry in this objective by focussing on **sustainable development, health & safety and innovation**.

COMMUNICATION

10,000 connections on LinkedIn

5,000 followers on Twitter and Instagram

8 events per year bringing together **3,000** industry stakeholders

Source market information: FEICA/Smithers Market Report 'European Adhesives and Sealants Market 2019-2024

16 National Associations representing 17 Countries +800 members

AFICAM

Danish Coatings and Adhesives Association

APCAS

FCIO Chemische Industrie Berufsgruppe Bauklebstoffe

aseica

FKS Fachverband Klebstoff-Industrie Schweiz

FEDERCHIMICA AVISA Gruppo Adesivi e Sigillanti

Gospodarska zbornica Slovenije

BASA

HASC

HACI Hellenic Adhesives and Sealants Cluster

deTic

PZPFK Polski Związek Producentów Farb i Klejów

DEUTSCHE BAUCHEMIE

SVEFF Sveriges Färg och Lim Företagare

Industrieverband Klebstoffe e.V. German Adhesives Association — Experience Perfect Services

VLK vereniging lijmen en kitten

24 Direct Company Members

3M

CPG Construction Products Group Europe

MAPEI

ac marca Adhesives

DOW

SAPICI

AEROSOL SERVICE

DUPONT

SELENA GLOBAL EXPERIENCE

ARaymond MORE THAN FASTENING

H.B. Fuller

BUILDING TRUST

Sika

AVERY DENNISON

Henkel

SOPREMA

BOLTON ADHESIVES

HUNTSMAN Enriching lives through innovation

SOUDAL

Bostik smart adhesives

Lohmann The Bonding Engineers

TKK SINCE1947

coim

novatech

Wolf Group

19 Affiliate Company Members

AGC

ERGON

MOLGROUP

ARLANXEO Performance Elastomers

HUNTSMAN Enriching lives through innovation

MOMENTIVE

BorsodChem Chemistry for generations

IMCD

NYNAS

covestro

IMERYS

PCC ROKITA

EASTMAN

kaneka

Stepan

Emerald Kalama Chemical

LANXESS Energizing Chemistry

synthomer

Mitsui Chemicals Group

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Adhesives & sealants in the transition pathway for the construction ecosystem

- **EU Industrial Strategy** highlights the need to accelerate EU industry's *green* and *digital* transitions

- Commission proposed to co-create transition pathways for ecosystems, where needed:
  - ***Transition pathway for a more resilient, greener and digital construction ecosystem***
  - ***Transition pathway for chemicals***
  - **...**

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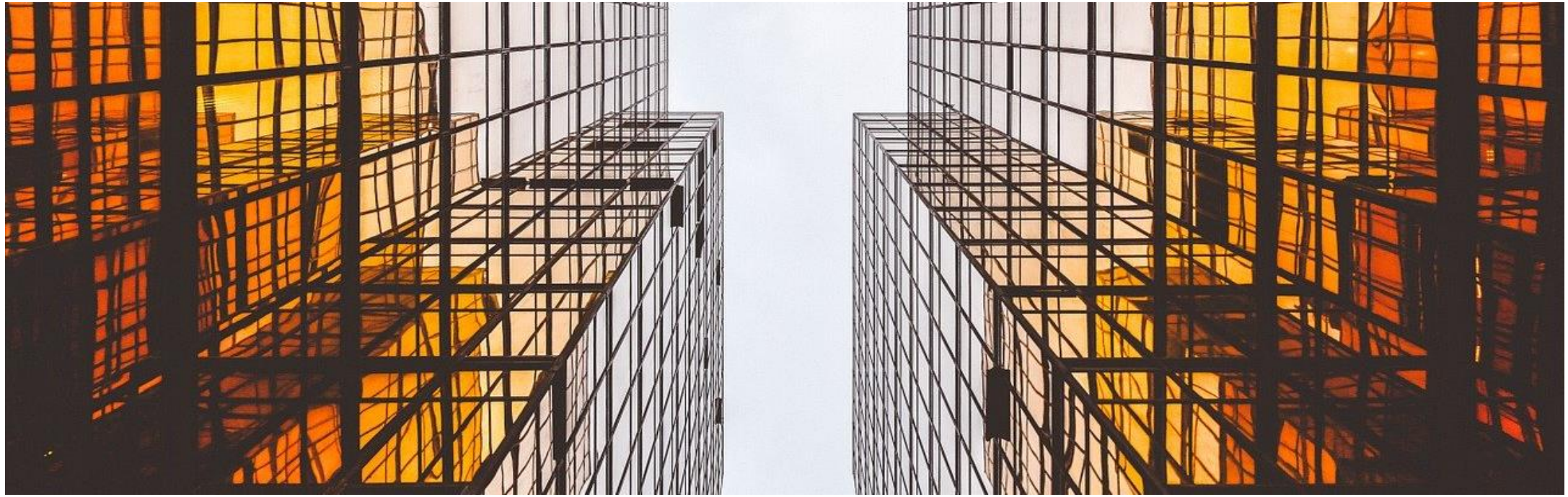
Ms Ilektra Papadaki (European Commission)

Team Coordinator, DG GROW

Transition pathway for a resilient, greener and more digital construction ecosystem

Construction Ecosystem and ongoing policy initiatives

Ilektra PAPADAKI, Team coordinator
DG GROW. H1 Construction, European Commission



European Commission

The Construction Ecosystem

99.9% SMEs

90% micro

5.3 million firms

1 158 billion of value added*

*2nd most important ecosystem in terms of employment and value added

24.9 mil people employed*

Activities during the whole lifecycle of buildings and infrastructure

Architectural and engineering services, operation of buildings, facility management and landscaping. Construction, renovation, refurbishment, demolition. Site preparation, plumbing and other installations, completion and finishing.

The timeline

We are **here**

108 written inputs to the consultation on the SWD

80 commitments reported by stakeholders

207 attendees in the High Level Construction Forum meeting

The transition pathway in numbers

Industrial Strategy

- **High Level Construction Forum, >200 participants**
- Resilient, Green and Digital cluster meetings

Scenarios SWD

- Online Consultation
- Industry Days session and podcast
- Council WG meeting
- Workshop with NEB
- Other events

The Scenarios SWD was published on 15.12.2021

The consultation closed 07.03 with **>100 answers**

Preparation

- **High Level Constructio n Forum 155 participants**
- 5 Co-creation meetings on topics of interest
- Collection of input from EC services

Transition pathway

Publication of the Transition Pathway by end of 2022

European Commission

A complex policy landscape for construction

Renovation Wave

Emissions Trading System

Climate Adaptation Strategy

Construction Products Regulation

New Circular Economy Action Plan

Waste Framework Directive

Sustainable Products Initiative

Zero Pollution Action Plan

European Accessibility Act

Bioeconomy & Forest Strategies

New European Bauhaus

European Skills Agenda

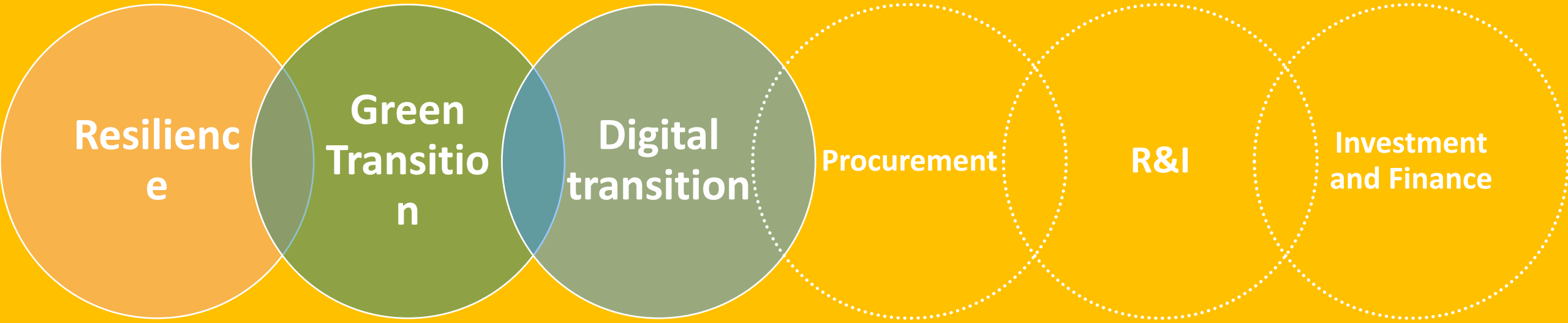
Level(s)

Fit for 55 Package

Affordable Housing

Pact for skills

Main priorities and areas of work



European Commission

Green Transition

Stakeholders report to be interested in and taking seriously the green transition. Most of them indicate to have in place initiatives, strategies and other in order to achieve it.

Challenges

- Need for a common assessment methodology for LCA
- Improve circularity and necessary infrastructure/capacity for circularity
- Skill workforce for the green transition
- Increase climate resilience of the built environment
- Untap the potential of nature based solutions, bio materials and circular materials

Initiatives

- Renovate the building stock
- Foster circularity
- Assess LCA GHG emissions
- Treat construction and demolition waste
- Support bio-based solutions

Potential future directions

- Upskilling
- Work on higher technology readiness
- Develop EoW criteria
- Work further on Life Cycle Analysis

Thank you!

Ilektra PAPADAKI
Ilektra.PAPADAKI@ec.europa.eu

Sources

- Construction and Built Environment
  https://ec.europa.eu/growth/sectors/construction/competitiveness_en
- European Construction Sector Observatory
  https://ec.europa.eu/growth/sectors/construction/observatory_en
- **Staff Working Document** ''Scenarios for a transition pathway for a resilient, greener and more digital construction ecosystem''
  https://ec.europa.eu/docsroom/documents/47996

@EU_Growth

Construction 4.0 Europe

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Adhesives & sealants in the construction sector: energy efficiency, material efficiency and the role of debonding

Why is sustainability in the construction sector important?

The scale of the construction sector

- Approximately 40% of global materials are used for construction[1]

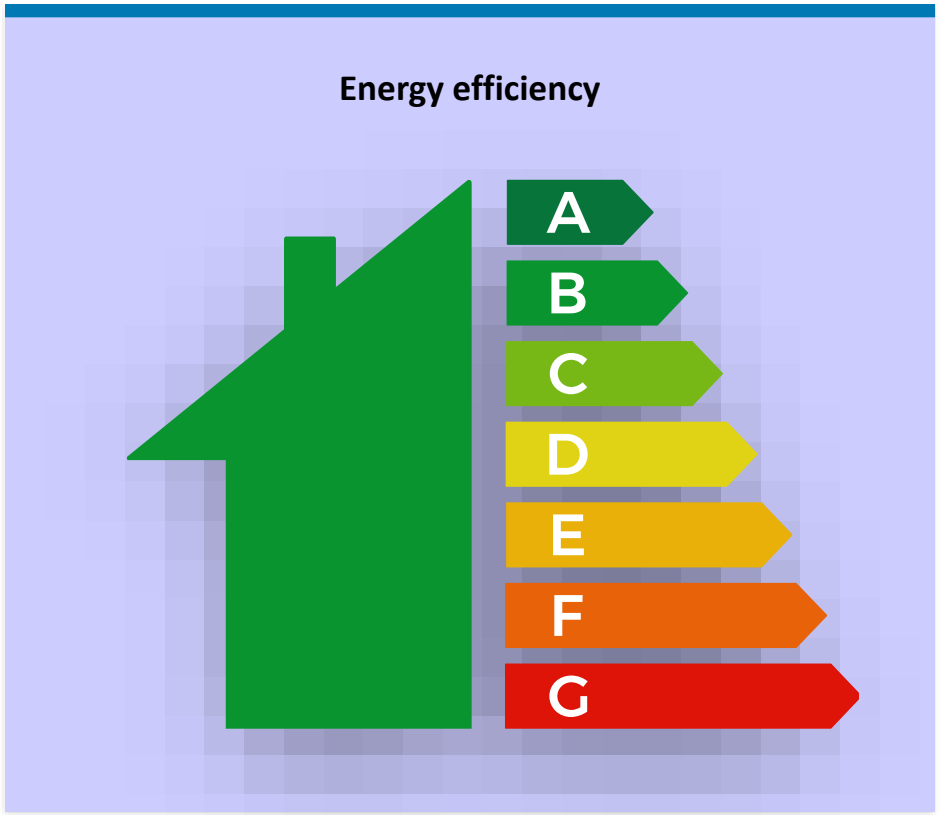
- The full life cycle of buildings in the EU (incl. extraction, manufacture, transport, construction and end-of-life) represents:

  ~ 50% of the total **energy** use
  ~ 40% of the total **greenhouse gas** emissions
  ~ 50% of the raw **material extraction**
  ~ 30% of all water use[2]

- Construction and demolition waste in the EU accounts for 25-30% of all total waste (by weight)[1]

[1] 'Scaling the Circular Built Environment'. wbcsd, 2018.
[2] Study on circular economy principles for buildings' design: Final report., EU Commission, 2021.

Energy & materials: the two key sides of sustainability in the construction sector



Energy efficiency

Energy efficiency: Focus on heating

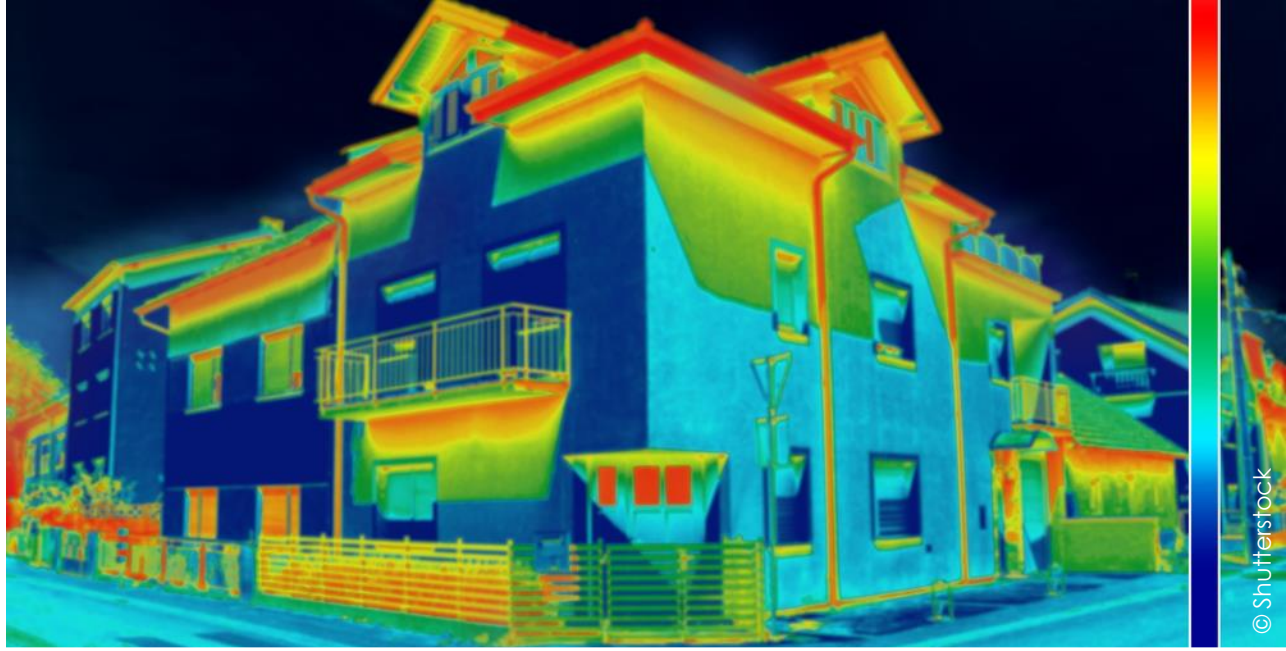
- In the EU, heating, cooling and domestic hot water account for around 80% of energy consumed in residential buildings[1]

- **Thermal insulation and heat sources are in focus for energy efficiency**

  For example, EU Climate Law[2] and Energy Performance of Buildings Directive[3]

- Additional social benefits of energy efficiency

  Protection of vulnerable populations from cold and heat[4]
  Heating cost savings for citizens, addressing energy poverty[1]
  Increased comfort through a noise insulation co-benefit[1]



[1] COM(2020) 662 final: A Renovation Wave for Europe - greening our buildings, creating jobs, improving lives .
[2] Regulation (EU) 2021/1119.
[3] COM(2021) 802 final: Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the energy performance of buildings (recast).
[4] COM(2021) 82 final: Forging a climate-resilient Europe - the new EU Strategy on Adaptation to Climate Change.

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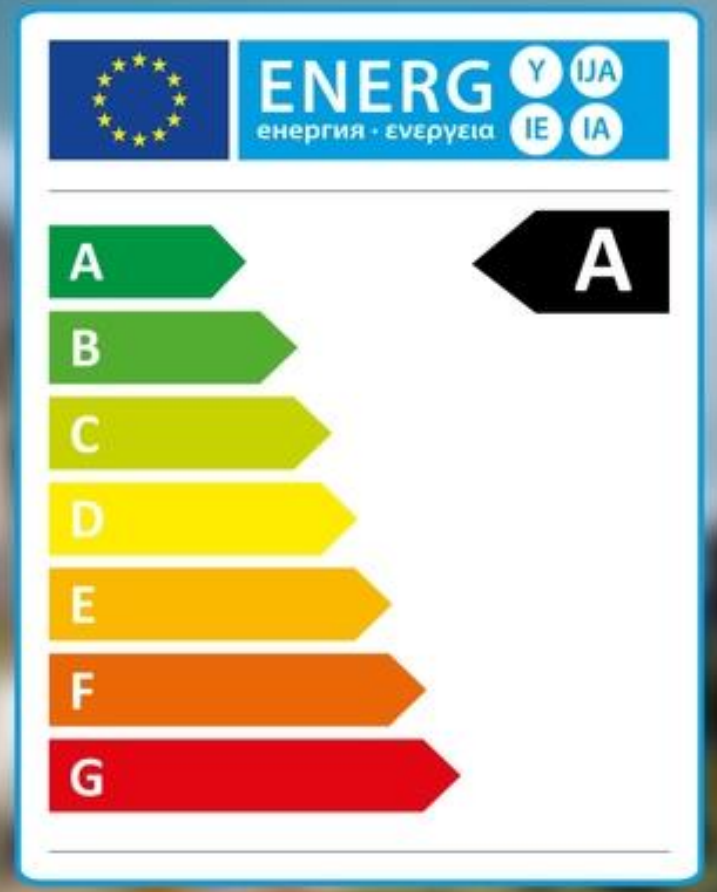
Modern, energy efficient construction is enabled by the use of adhesives and sealants.



External thermal insulation systems

Substantial saving of heating energy and greenhouse gas emissions

Total energy savings potential through insulation ~80%[1]

Additional savings for cooling energy

Increase in relevance as air conditioning is installed more widely (climate adaptation)

Adhesives increase durability and performance of insulation panels[2]

Area bonding offers high shear and peel resistance
Adhesives accommodate thermal deformation stress
Reduced risk of damage to foam panels (cracking) caused by mechanical anchors

[1] 'The Potential for Large-Scale Savings from Insulating Residential Buildings in the EU', Wuppertal Institute, 2009.
[2] https://www.feica.eu/information-center/good-practices/construction-i

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Gap filling with polyurethane foams

- PU foam provides insulating gap filling for compliant integration of elements into the building envelope
- PU foam helps prevent thermal bridges
  e.g., when filling gaps in thermal insulation systems
- **PU foam sealants augment overall thermal insulation performance**

Airtightness of building envelopes

- Airtightness is important to insulation: air leakages can represent up to 50% of energy losses in a building[1],[2]
- Additional improvement of insulation value possible by keeping insulation dry
- **Sealants and adhesive tapes are unique in providing this property**

  Construction elements cannot be produced to tolerances that allow for airtight fit on their own

[1] https://www.feica.eu/information-center/good-practices/construction-iii
[2] https://www.feica.eu/information-center/good-practices/construction-vi

Highly insulating windows

- Sealants enable inert gas filling, improving insulation value of multipaned windows
- Sealants improve longevity by keeping humidity out from the intra-pane area
- Use of direct solar heating enabled through large windows / glazing elements
- **Sealants are key for energy saving multi-paned windows[1]**

[1] https://www.feica.eu/information-center/good-practices/construction-vi

Adhesives and sealants support energy renovation

Clear legislative push for (energy) renovation as part of the EU Renovation Wave

Almost 75% of current building stock is energy inefficient according to current building standards[3]

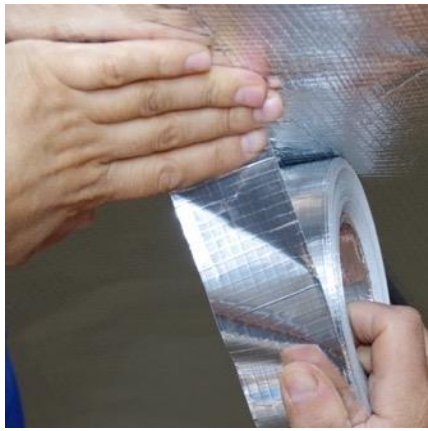
85-95% of the buildings that exist today will still be standing in 2050[1]

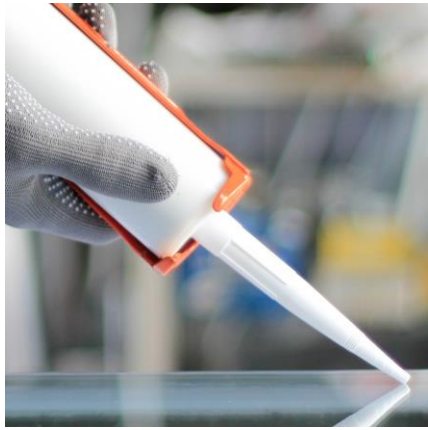
Increase of thermal insulation quality of existing buildings

Adhesives & sealants enable and support energy renovation just as new construction projects

Decarbonisation of heating and cooling energy is also part of energy renovation efforts





[1] COM(2021) 802 final: Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the energy performance of buildings (recast).

Transition to sustainable heating energy

- **Adhesives and sealants are important components of new, 'decarbonised' energy and heat sources**
- Photovoltaic elements driving heat pumps, including necessary electronics
- Solar thermal heating / hot water
- Batteries for solar energy storage, including necessary electronics

Very short carbon footprint break-even time for adhesives & sealants use

To understand the benefits of adhesives/sealants, the focus should be on the finished product[1]

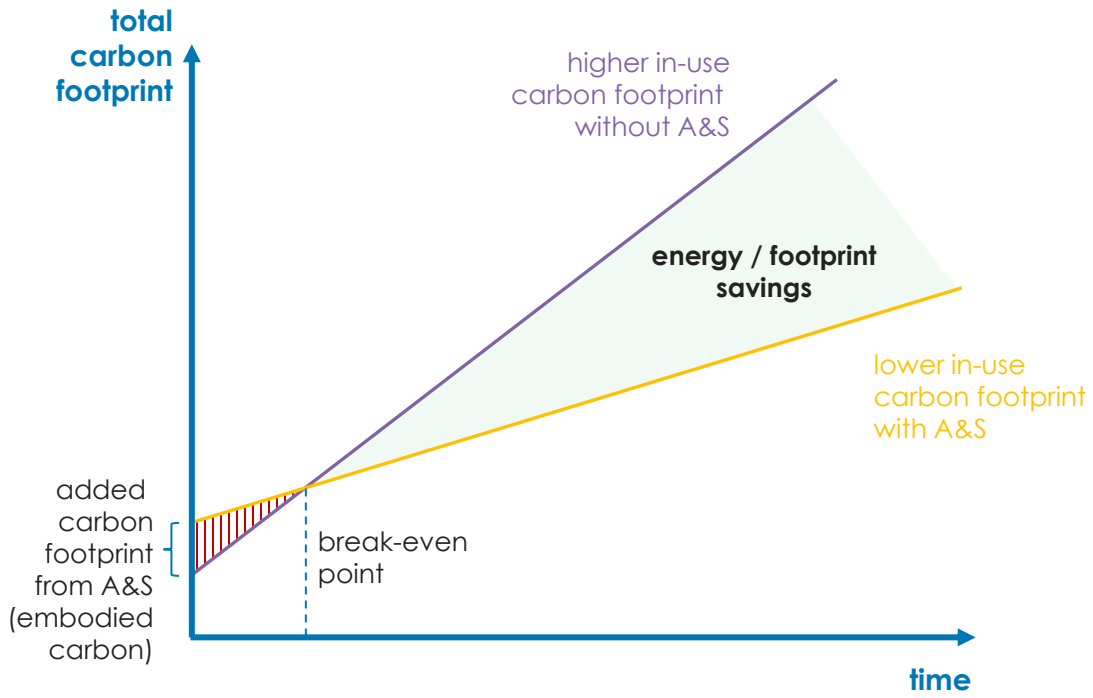
The amount of adhesives / sealants in a final product is very low (construction typically <1wt%). The embodied carbon added by adhesives / sealants to buildings is therefore minimal

Only considering the footprint of the adhesive / sealant would miss the large positive environmental performance of final products that are only possible with adhesives / sealants

Enabling more sustainable finished products and in-use savings can **rapidly** offset the full footprint of adhesives and sealants[2],[3]

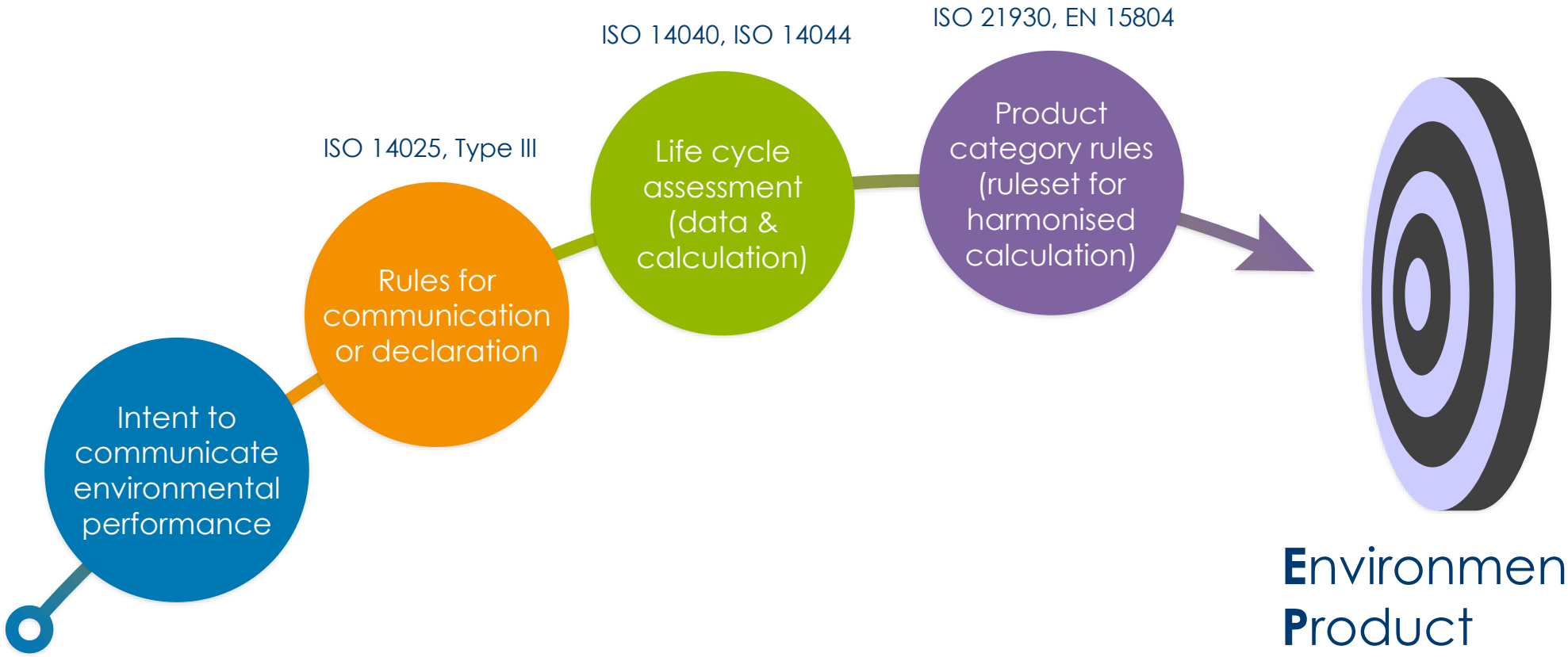
For example, the energy saved over the lifetime of a highly insulated window or an airtight building, enabled by sealants

The break-even for A&S can occur **within days of installation**



[1] 'Circular Economy and Adhesive Bonding Technology'. Fraunhofer-Institut für Fertigungstechnik und Angewandte Materialforschung IFAM, 2020.
[2] Brandt, Bernd, Evelin Kletzer, Harald Pilz, Dariya Hadzhiyska, and Peter Seizov. 'Silicon-Chemistry Carbon Balance: An Assessment of Greenhouse Gas Emissions and Reductions', 2012.
[3] https://www.feica.eu/information-center/good-practices/construction-iii

Quantifying & communicating product footprint



Environmental
Product
Declaration

Adhesive & sealant EPDs provided by FEICA

A number of Model EPDs for adhesives & sealants are offered by FEICA

as ‘Model EPDs’; they describe the maximum environmental impact of a well-defined group of adhesive / sealant products

Grouping is supported by the low weight share of adhesives & sealants in construction products

Typically <1wt% of a building

The Model EPDs provide verified footprint information for adhesives and sealants cradle-to-gate, with added options

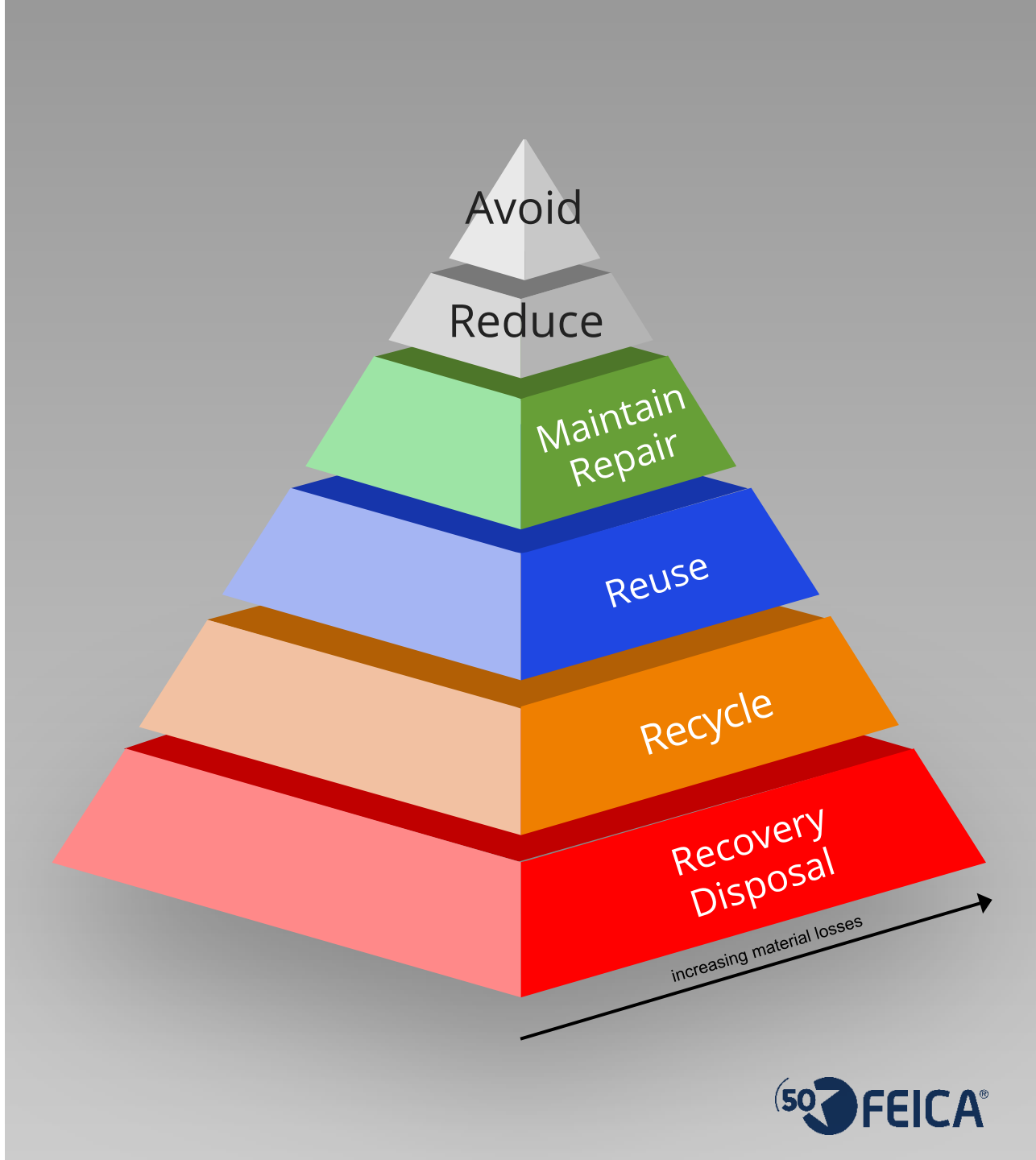
including carbon footprint / greenhouse gas emissions and multiple further indicators

Model approach makes the EPDs future-proof - can be used for new products

Current EPDs fulfil the needs of users to obtain meaningful adhesive & sealant footprint data. Displaying use-phase benefits requires additional data.[1]

[1] Such benefits (e.g., insulation) can be contained n EPDs of finished construction product (e.g., a window) if the use phase / operation phase (modules B/C) are declared. The calculation of such benefits also typically requires the declaration of a functional unit (e.g., covering a given area of a façade), rather than a weight-based calculation.

Material efficiency



The rationale for material efficiency

Preservation of (depletable) resources
Particularly relevant for inorganic / fossil-based materials for which natural reservoirs are not replenished

Reduction of waste
Avoidance of associated footprint and possible negative side effects of waste disposal

Reduction of energies & logistics
Due to lower material (or waste) in transport, production and treatment operations

(Carbon) footprint reduction
Related to the *embodied carbon* in materials and products (as well as other footprints such as water)

Embodied carbon

- ‘Embodied carbon’ is the cumulative footprint of the materials in a product (or building) – it is separate from the use-phase emissions (mainly energy) of a product / building

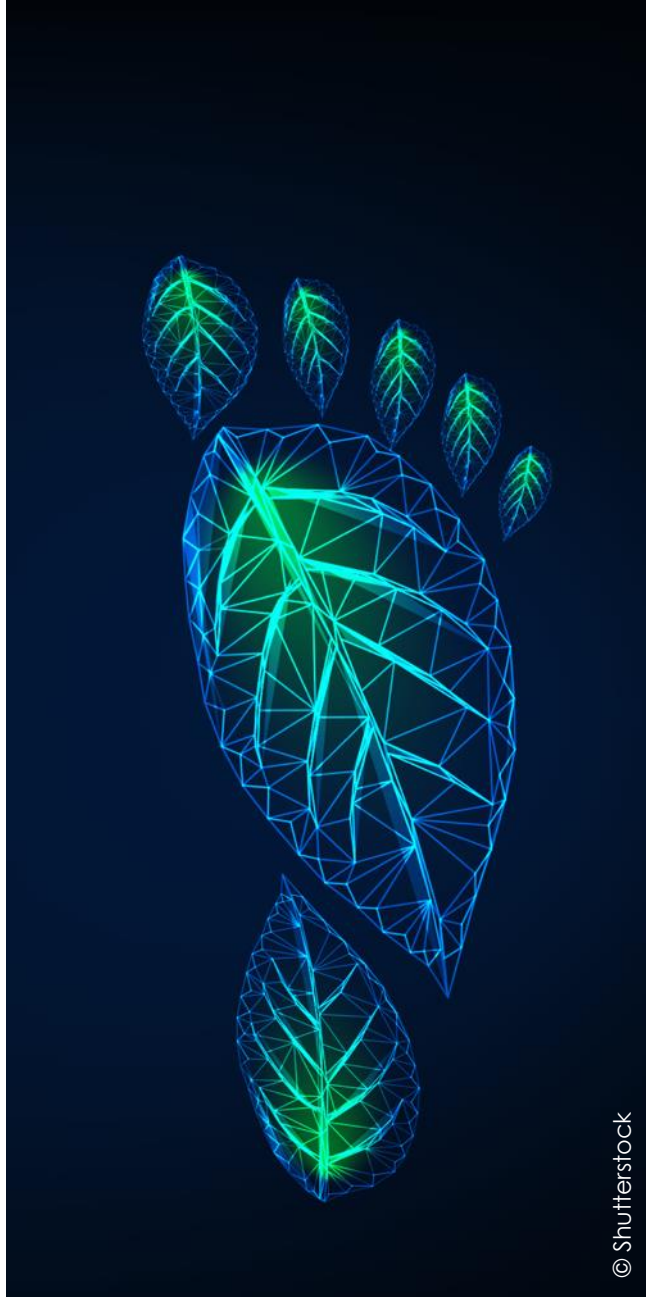
- Embodied carbon in buildings becomes more important as the energy efficiency of buildings rises[1]

  The embodied carbon footprint can be higher than the 50 year use-phase emissions in modern, energy-efficient buildings[1]

- Material-efficient construction with low footprint materials becomes key for further overall reductions of the footprint

  Target setting already in discussion as part of EU initiatives[2],[3]

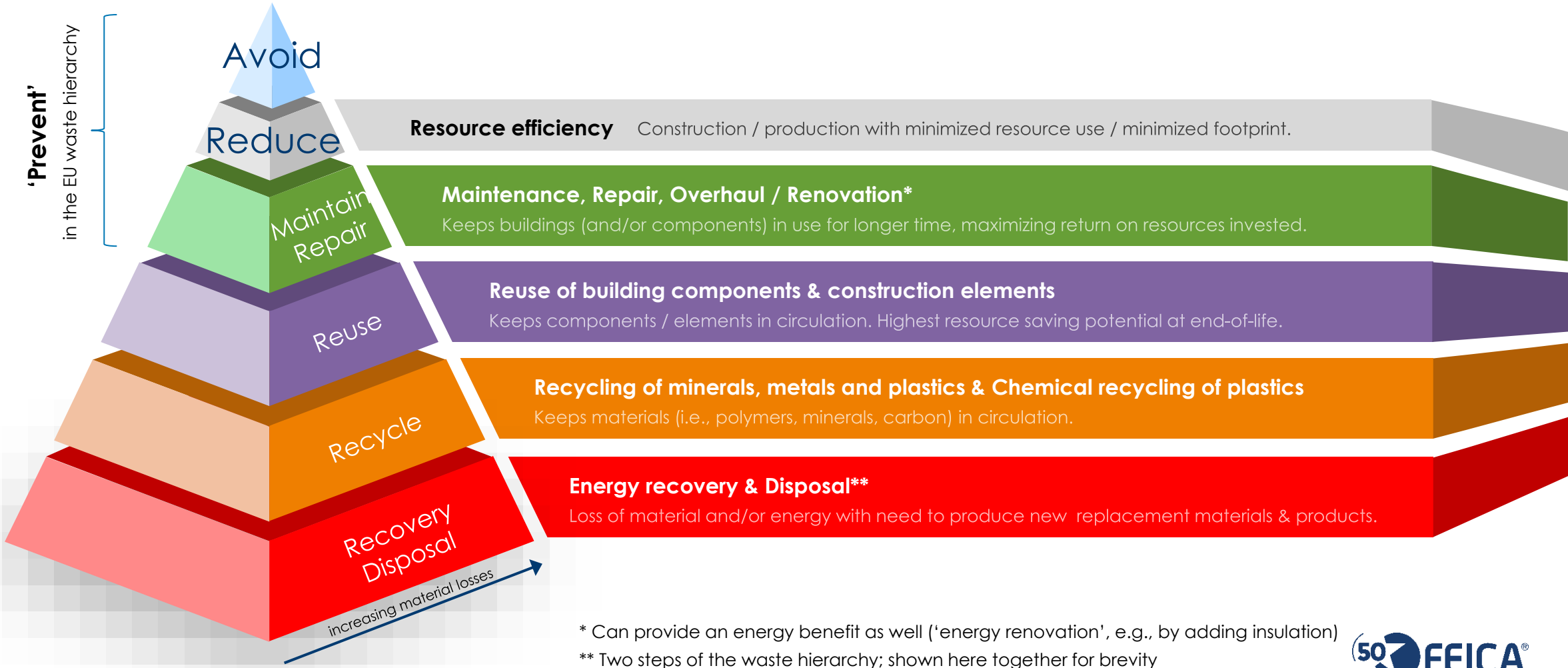
- **Embodied carbon can be addressed through material efficiency – the waste hierarchy[4] logic is a key tool**



[1] Martin Röck et al., ‘Embodied GHG Emissions of Buildings – The Hidden Challenge for Effective Climate Change Mitigation’, Applied Energy 258 (January 2020): 114107.
[2] ‘Scenarios for a Transition Pathway for a Resilient, Greener and More Digital Construction Ecosystem’ (European Commission, 2021).
[3] COM(2021) 802 final: Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the energy performance of buildings (recast).
[4] Directive 2008/98/EC.

The waste hierarchy

based on the EU Waste Framework Directive (WFD), adapted to the construction sector



* Can provide an energy benefit as well ('energy renovation', e.g., by adding insulation)

** Two steps of the waste hierarchy; shown here together for brevity

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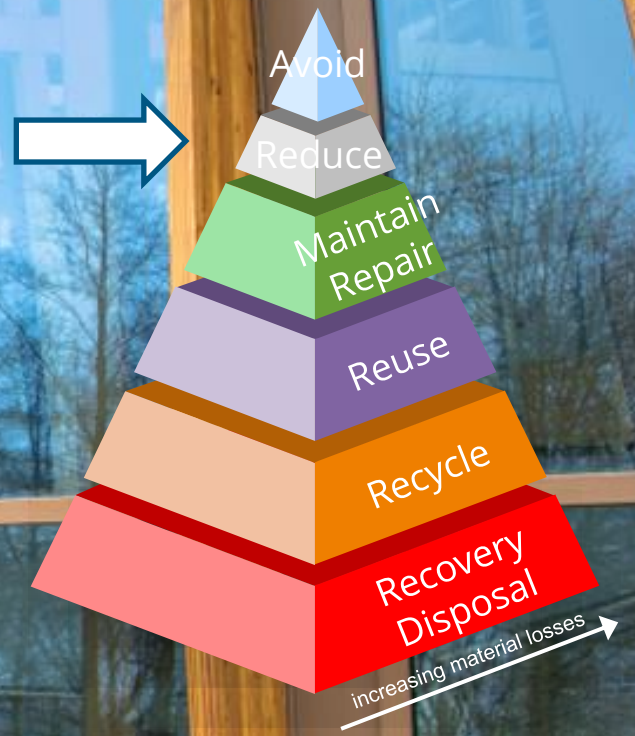
Adhesives and sealants can reduce material usage and enable the use of low carbon raw materials.



Adhesives & sealants can reduce material usage[1]

- Insulated glazing has replaced concrete facades in modern architecture
- Metal profile width can be minimised with high-performance sealants
  reducing weight of materials and footprint
- Adhesives can substitute for steel reinforcements in glass elements

  Direct bonding of glass to frame possible, creating further material savings

[1] https://www.feica.eu/information-center/good-practices/construction-ii

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Adhesives can enable the use of renewable materials

- Engineered wood elements can replace steel beams and concrete elements[1]
  in both residential and commercial construction

- Savings in embodied carbon due to biobased origin, lower production energy and no chemical release of CO_2

  1 ton of wood instead of concrete can yield an average reduction of 2.1 tons of CO_2 emissions[2]

- **Adhesives form a crucial component for engineered wood elements**
  ensuring quality, longevity and reliability

[1] https://www.feica.eu/information-center/good-practices/construction-v
[2] 'A Sustainable Bioeconomy for Europe: Strengthening the Connection between Economy, Society and the Environment'. European Commission, 2018.

Combining reduction and renewable materials

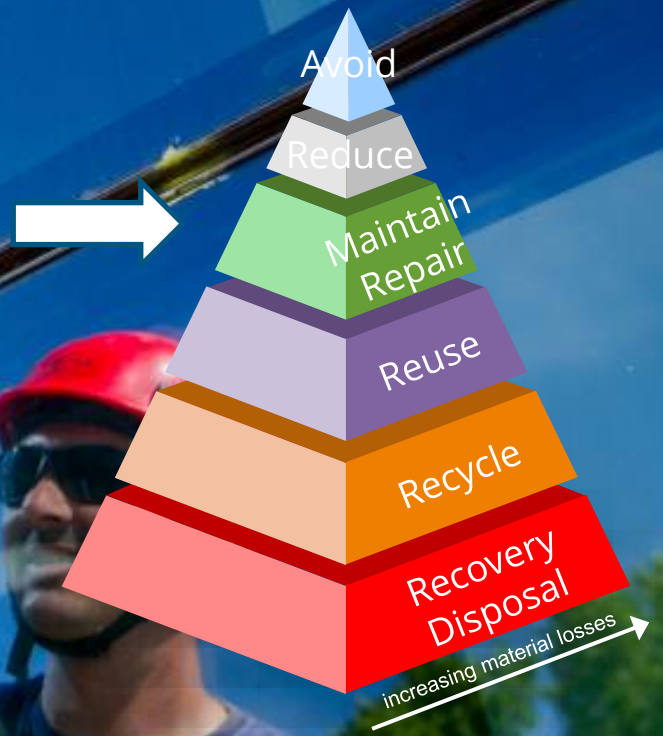
- **Adhesives can combine material saving and use of renewable raw materials**

- Wood and wood / paper composite constructions provide material savings[1]

© Shutterstock

[1] https://www.feica.eu/information-center/good-practices/woodworking

Adhesives & sealants are key to maintenance and repair.



Building maintenance and repair

- **Adhesives and sealants can keep material in use by preventing the replacement of building components**
- Adhesives and sealants can quickly mend damages to prevent follow-on damage which would trigger replacement
- Sealants can extend building stock lifetime, avoiding early component replacement

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Maintenance and repair of machinery

In the EU, about 20% of the machinery is intended for use in construction[1]

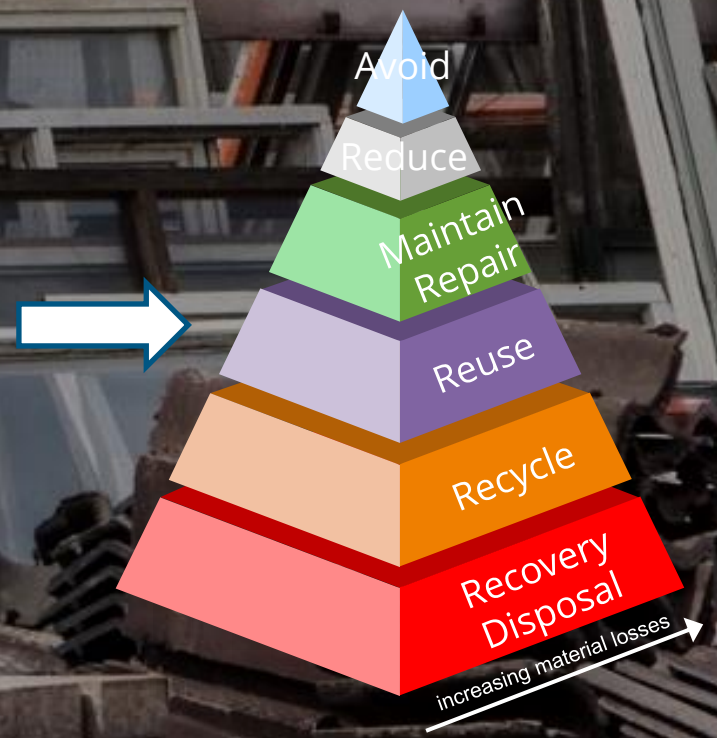
as are 15% of the total repair and installation of machinery and equipment efforts in the EU

Adhesives and sealants are crucial for maintenance and repair of machines

For example: thread locking, retaining, gasketing, sealing, window repair

[1] 'Scenarios for a Transition Pathway for a Resilient, Greener and More Digital Construction Ecosystem'. European Commission, 2021.

Adhesives & sealants can play a positive role in novel reuse approaches.



Reuse

Reuse has a very high footprint savings potential[1]

as it requires the least amount of reprocessing before the next life of the item / material

Reuse in the construction sector is already considered in recent legislative proposals

'[…] emphasise the importance of waste prevention and high quality recycling of construction and demolition waste, the reuse of construction products and the uptake of secondary raw materials.'[2]

Reuse of construction elements may introduce new design, debonding and cleaning requirements

[1] 'The Decarbonisation Benefits of Sectoral Circular Economy Actions'. Ramboll, Fraunhofer ISI, ecologic, 2020.
[2] 'Scenarios for a Transition Pathway for a Resilient, Greener and More Digital Construction Ecosystem'. European Commission, 2021.

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Prefabrication

- Standardised prefabricated modules could boost reuse approaches[1]
- Additional social benefits possible
  such as workplace safety and gender balance in the construction sector[2] and lower cost, more affordable housing[3]
- **Adhesives and sealants can support prefabrication, including automation**

[1] 'Scaling the Circular Built Environment'. wbcsd, 2018.
[2] 'Decarbonisation of Buildings: For Climate, Health and Jobs'. easac, 2021.
[3] EU Affordable Housing initiative, related to EU Renovation Wave strategy

The construction sector is already successful at recycling, including adhesive- and sealant-containing products and materials.

Recycling rates for construction materials

Very high recycling rates for **mineral materials**

Recycling rate of **70-80%** in the EU overall and in large member states[3],[4]

Steel is one of the most recycled materials worldwide

Recycling rate from demolition at an average **83%** in Western Europe[3] in 2001 with examples of some countries at 90% and above[4]

Flat glass can be recycled at high rate (in open loop)

For example: >80.000tons collected for recycling in the Netherlands in 2020, recycled at a rate >**90%**[5]

European VinylPlus network recycles about 700,000 tons of **PVC** annually, about 27% of total available waste[6]

Rewindo system in Germany achieves a **85%** recycling rate for PVC from window frames, roller shutters and doors[7]

Insulation panel related waste is increasingly recycled

overall 10% recycling rate in the EU in 2018[7], but best performer Czech Republic already at **27%**

Recycling rates for construction **wood** waste can reach high levels

For example: Italy > **80%**, France ~ **65%**[9]

[1] 'Emerging Challenges of Waste Management in Europe - Limits of Recycling'. Trinomics, 2020.
[2] 'Mineralische Bauabfälle Monitoring 2018'. Kreislaufwirtschaft Bau, 2021.
[3] 'Life-Cycle Assessment (LCA) for Steel Construction'. European Commission, 2002.
[4] Helmus, Manfred; Randel, Anne: 'Sachstandsbericht zum Stahlrecycling im Bauwesen', 2015.
[5] 'Jaarverslag 2020'. Vlakglas Recycling Nederland, 2021.
[6] 'REPORTING ON 2020 ACTIVITIES and summarising the key achievements of the past 10 years'. VinylPlus, 2021
[7] 'Kunststofffensterrecycling in Zahlen'. Rewindo, 2020.
[8] 'Waste generation, waste streams and recycling potentials of HBCD-containing EPS/XPS waste in Europe and forecast model up to 2050'. Conversio, 2020.
[9] 'Absorbing the Potential of Wood Waste in EU Regions and Industrial Bio-Based Ecosystems'. BioReg, 2018.

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Construction: a unique situation for recycling

The lifetime of buildings is very long

50-80 years by convention but in practice often longer

Long lifetime creates different recycling challenges compared to those of short-lived goods

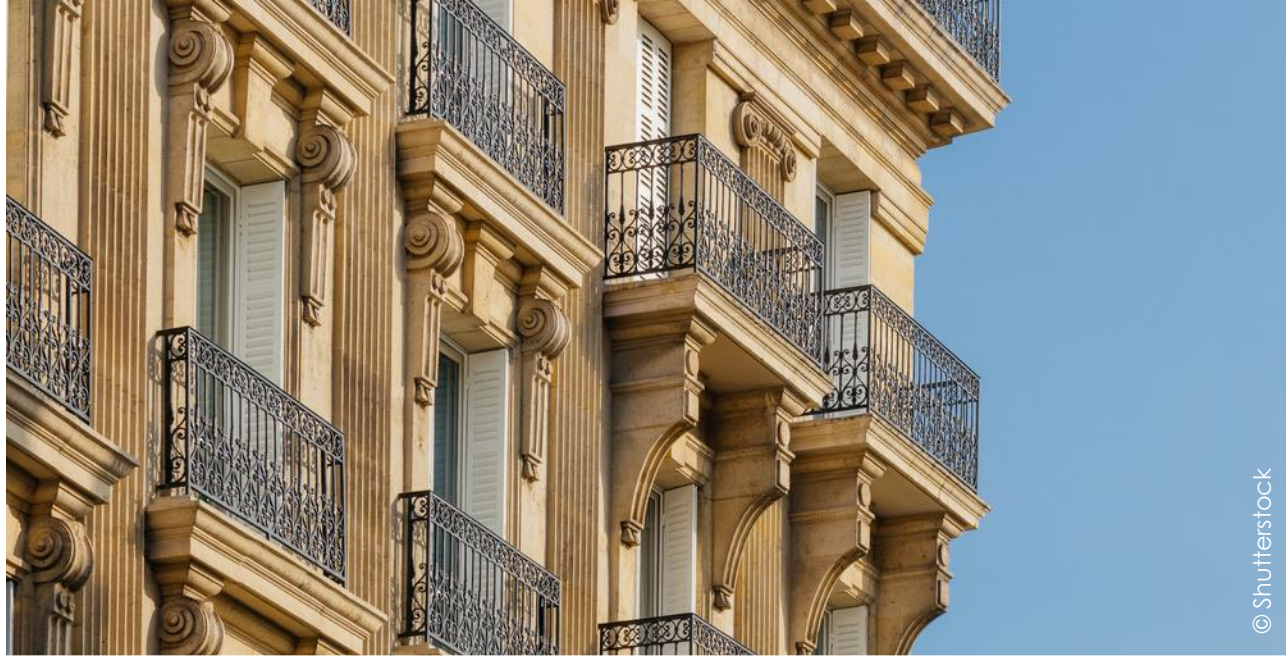
Design for circularity needs to consider the waste management situation of 50+ years in the future

New technologies likely to become available, making ‘recyclability’ definitions difficult today

Chemical regulations may change (‘legacy substances’)

Takeback or deposit schemes difficult to operate

Building materials may have experienced substantial ageing effects when they are collected for recycling[1]



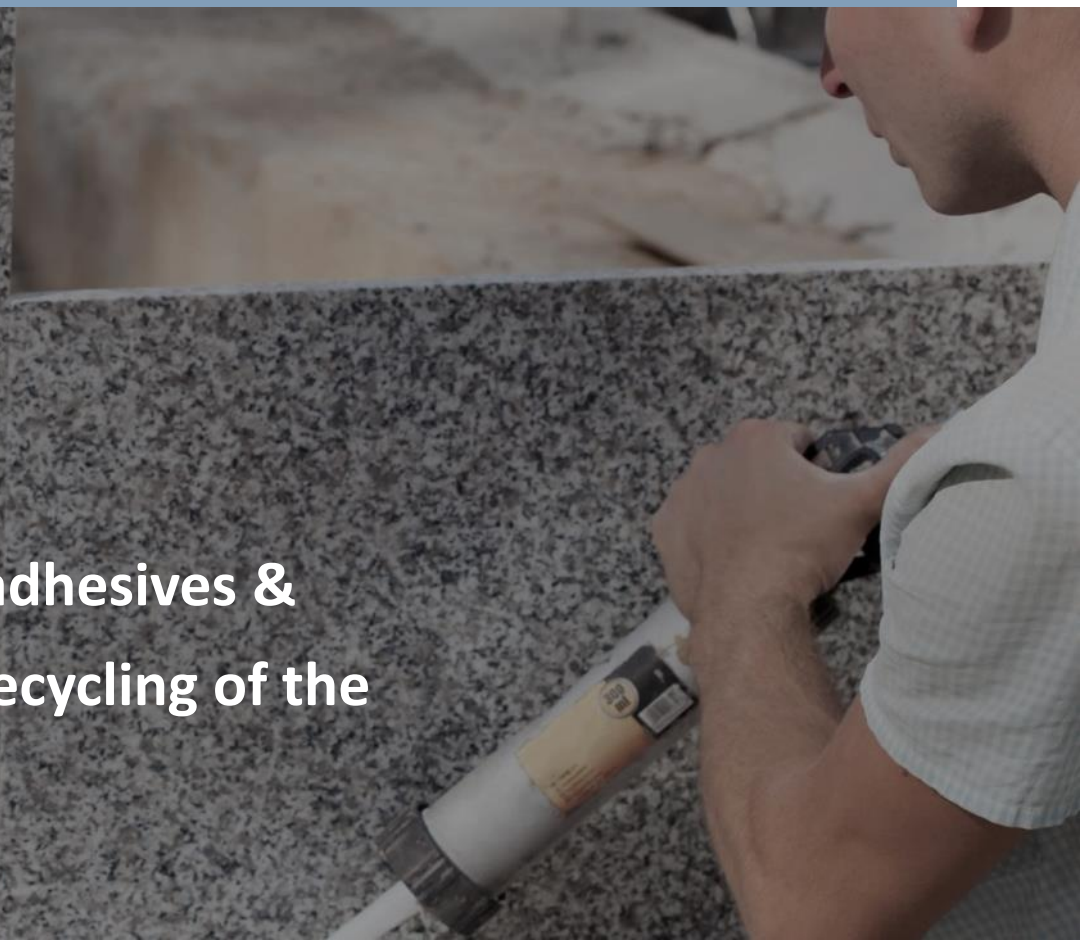
[1] ‘Förderung einer hochwertigen Verwertung von Kunststoffen aus Abbruchabfällen sowie der Stärkung des Rezyklateinsatzes in Bauprodukten im Sinne der europäischen Kunststoffstrategie’. Umweltbundesamt, 2021.

Adhesives & sealants in recycling

and the role of debonding

Due to their small weight % in any given item, (applied) **adhesives & sealants are typically not the target of recycling.**[1]

Therefore, rather than being ‘recyclable’, **adhesives & sealants primarily need to allow for the recycling of the products that contain them.**



[1] ‘Circular Economy and Adhesive Bonding Technology’.Fraunhofer-Institut für Fertigungstechnik und Angewandte Materialforschung (IFAM), 2020.

Recycling-enabling approaches for adhesives and sealants

Compatibility with recycling

where the substrate materials are mutually compatible in recycling

Releasability

where mechanical separation of substrates is feasible

Debonding

where mechanical separation of substrates is not feasible

Few larger items

Higher unit value

Manual separation possible and economically viable

Many smaller items

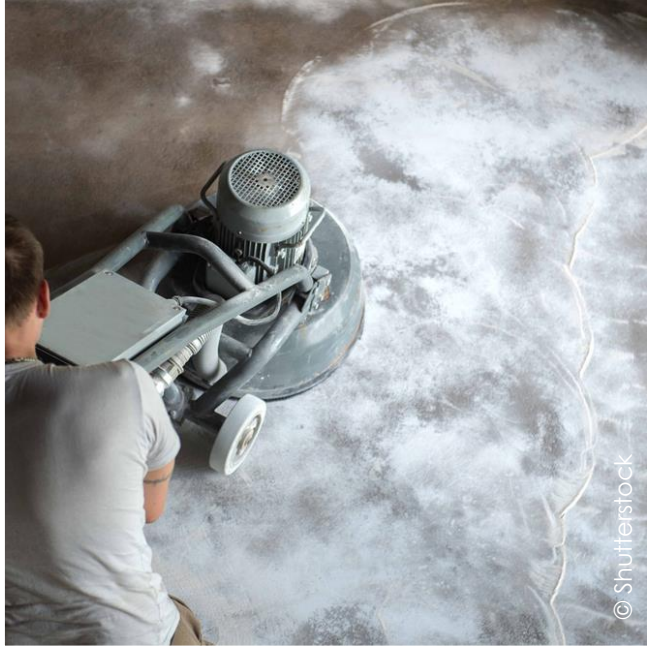
Low unit value

Manual separation infeasible or uneconomic

Fraunhofer IFAM on adhesives

'Large component dimensions with a high dead weight of the single-variety components favour the application of ***mechanical loosening of adhesively bonded joints****. Accessibility for disassembly equipment must be ensured as early as the design or construction phase.* ***Power-intensive processes can be carried out or supported mechanically by automatic machines*** *or robots. Disassembly by heat input is a disassembly option for adhesively bonded products, both in combination with mechanical disassembly and on its own. Disassembly through media influence has already been successfully applied […]*

Consequently, adhesive bonding does not prevent the disassembly of products, but offers promising possibilities for detaching the joints*.*[1]



[1] 'Circular Economy and Adhesive Bonding Technology'. Fraunhofer-Institut für Fertigungstechnik und Angewandte Materialforschung (IFAM), 2020.

Not all reversibility potential is realised in practice

- For all reversible bonds, ecological and commercial considerations determine whether debonding is actually realised

  For example, waste furniture, held together by screws is generally not disassembled during waste treatment

- Realisation of debonding depends on products' value and composition

  In recycling processes, debonding / reversibility compete with other separation processes, often after shredding

- **Highest realisation potential for debonding in reuse approaches**

Removal options for adhesives and sealants in recycling

- **Release by mechanical impact**
  For example: milling, grinding
- **Separation by density / weight**
  For example: flotation or air elutriation
- **Separation by size**
  For example: sieving
- **Recycling of insulation panel waste as one example for such processes**

[1] ‘Förderung einer hochwertigen Verwertung von Kunststoffen aus Abbruchabfällen sowie der Stärkung des Rezyklateinsatzes in Bauprodukten im Sinne der europäischen Kunststoffstrategie’. Umweltbundesamt, 2021.
[2] ‘Potenziale Eines Hochwertigen Recyclings Im Baubereich’. VDI, 2016.

Summary: adhesives & sealants contribute to sustainable construction in multiple ways

Not covered in detail in this presentation but visible in EPDs

Sustainable raw materials reduce A&S footprint

Reduced footprint through sustainable A&S production

Material efficiency; Enable sustainable substrate choices

Enable energy savings during building lifetime

Allow for circularity at end-of-life or during renovation

Agenda

11:00 Opening by Mr Dimitrios Soutzoukis, Senior Regulatory Affairs Manager at FEICA

11:05 'Transition pathway for a resilient, greener and more digital construction ecosystem', by Ms Ilektra Papadaki, Team Coordinator, Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs (DG GROW), European Commission

11:15 'Adhesives & sealants in the construction sector: energy efficiency, material efficiency and the role of debonding', by Dr Dennis Bankmann, Independent scientific consultant on the circular economy

11:45 Q&A moderated by Mr Dimitrios Soutzoukis

12:00 Close of the webinar

Q&A

- Please use the chat box if you have a question

Mr Dimitris Soutzoukis (FEICA)
Senior Manager Regulatory Affairs

THANK YOU

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