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Holistic Innovative Solutions for an Efficient Recycling and Recovery of Valuable Raw Materials from Complex Construction and Demolition Waste



Strategies for the
recovery and **recycling** of
raw materials
from **C&DW**:

**IRCOW and HISER
projects**

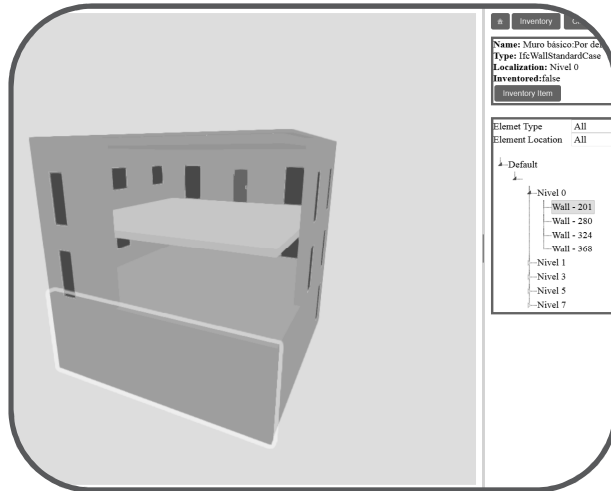
Project duration: February 2015 – January 2019



INNOVATIVE STRATEGIES FOR HIGH-GRADE
MATERIAL
RECOVERY
FROM
CONSTRUCTION
AND
DEMOLITION
WASTE

ircow

Recovery technologies for construction and demolition waste



**4 solutions
(selected for
today)**





IRCOW & HISER projects

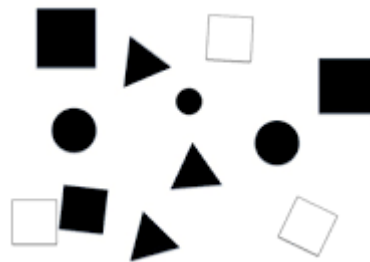
Cost-efficient recovery from C&DW requires
enhanced segregation of materials at works
and integral recycling approaches



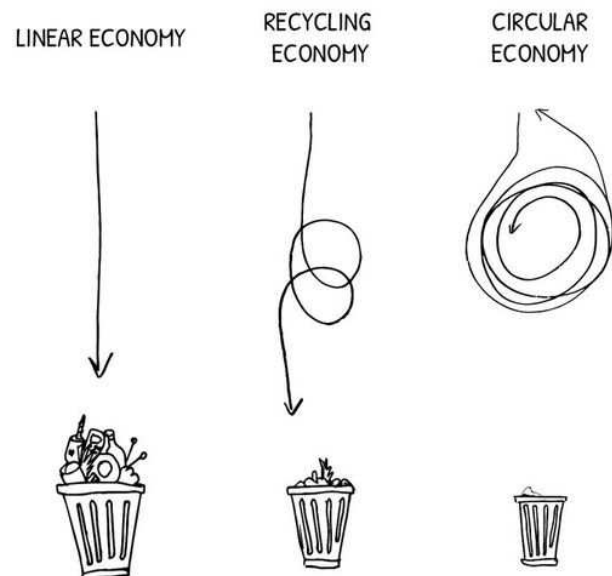


IRCOW & HISER projects

Enhanced segregation of materials at works



Integral recycling approaches





IRCOW & HISER projects

Is technology the key?





Funding

IRCOW



2011-2014

**Innovative Strategies for
High-Grade Material Recovery from
C&DW**

*This project received funding from the EU's FP7
research and innovation programme
under grant agreement No. 265212*

HISER



2015-2019

**Holistic Innovative Solutions for an
Efficient Recycling and Recovery of
Valuable Raw Materials from C&DW**

*This project has received funding from the EU's
Horizon 2020
research and innovation program
under grant agreement No. 642085*





The project has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No 642085.



HISER TEAM



TIIHONENISMO OLAVI

www.hiserproject.eu

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Consortium

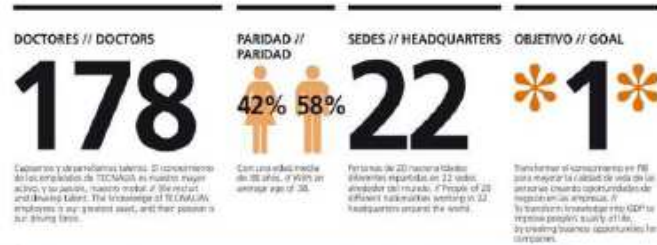
- FUNDACION TECNALIA RESEARCH & INNOVATION
- VLAAMSE INSTELLING VOOR TECHNOLOGISCH ONDERZOEK N.V.
- IVL SWEDISH ENVIRONMENTAL RESEARCH INSTITUTE
- INSTYTUT EKOLOGII TERENOW PRZEMYSLOWIONYCH
- ACCIONA INFRAESTRUCTURAS S.A.
- D'APPOLONIA SPA
- TITECH GMBH
- DERRIBOS PETRALANDA SL
- INGENIEURBUERO TRINIUS GMBH
- CONENOR OV
- ATON-HT SPOLKA AKCYJNA
- BRIJSSE MINERALS & RECYCLING BVBA
- JACOBS NV

IRCOW TEAM



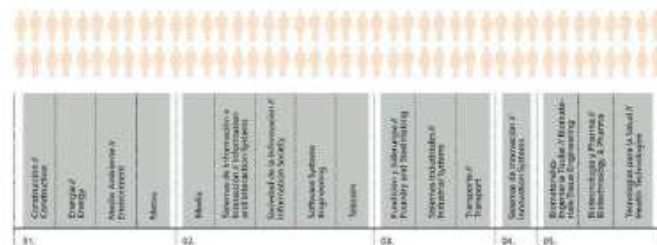


TECNALIA

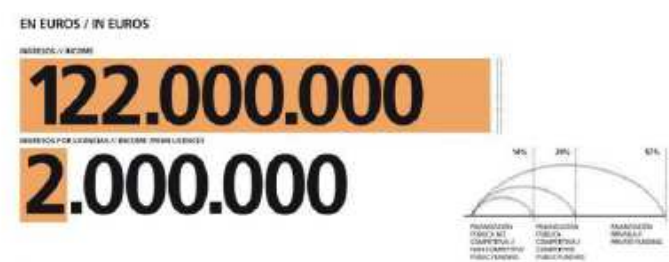


PEOPLE

APORTAMOS A LOS SOCIOS Y SOCIAS DE LA ECONOMÍA LA MEJOR CALIDAD HUMANA Y TECNOLÓGICA. // WE ATTRACT THE BEST AS CALIBRE AND DEVELOP THEIR SKILLS AND TALENT. WE ENRICH THEM TOGETHER AND CREATE VALUE TOGETHER.



WE ARE THE FIRST PRIVATE R&D&i COMPANY IN SPAIN



WEALTH

The project has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement N°



Recovery technologies for construction and demolition waste

VIDEOS AVAILABLE IN YOUTUBE:

IRCOW project: 4 Videos available:

<https://www.youtube.com/user/IRCOWproject>

HISER

Project presentation:

<https://www.youtube.com/watch?v=PqbqMN6POWg>

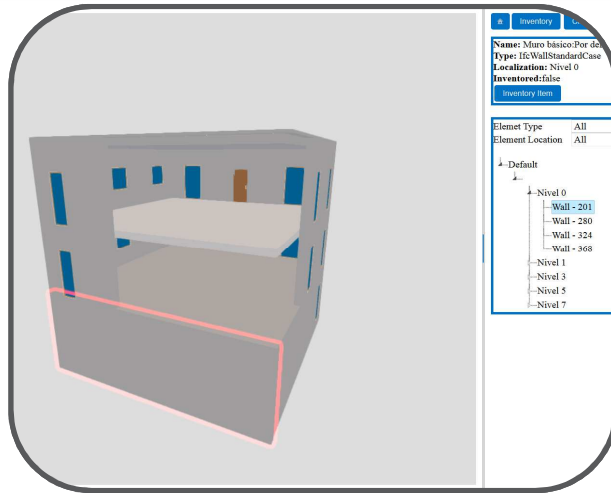
(ADR/LIBS) Case study:

<https://www.youtube.com/watch?v=IHp3G-lOoOs>



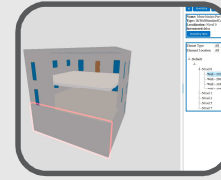


Recovery technologies for construction and demolition waste



BIM-SD tool

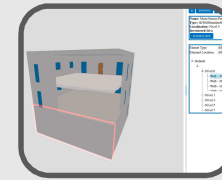




1. BIM-SD tool

What?

- Web software tool
- Pre-demolition stage
- 2 steps:
 - 1) Inventory (onsite)
 - 2) Assessment
- Computerized supporting tool
- Prerequisite: scanning of building for a “basic” BIM-model

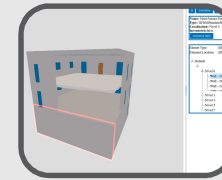


1. BIM-SD tool

1) Inventorying

[video](#)





1. BIM-SD tool

2) Assessing waste management

[video](#)



Recovery technologies for construction and demolition waste

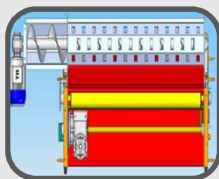


Gypsum plasterboard recycling equipment



The project has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No 642085.



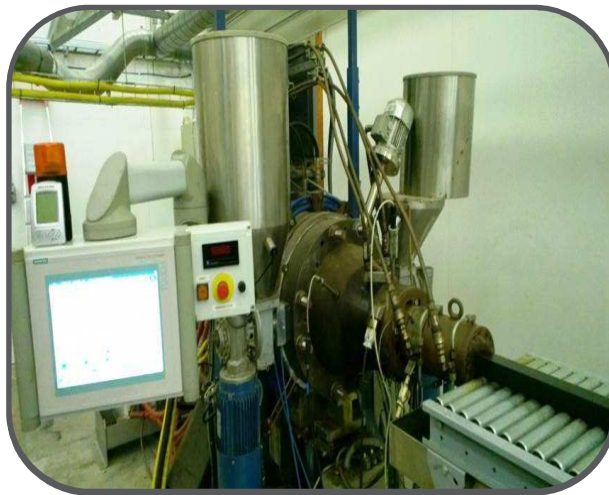


2. Gypsum plasterboard recycling equipment





Recovery technologies for construction and demolition waste



**Extruded composites
(incl. wood fractions and
C&D wool)**





3. Extruded composites

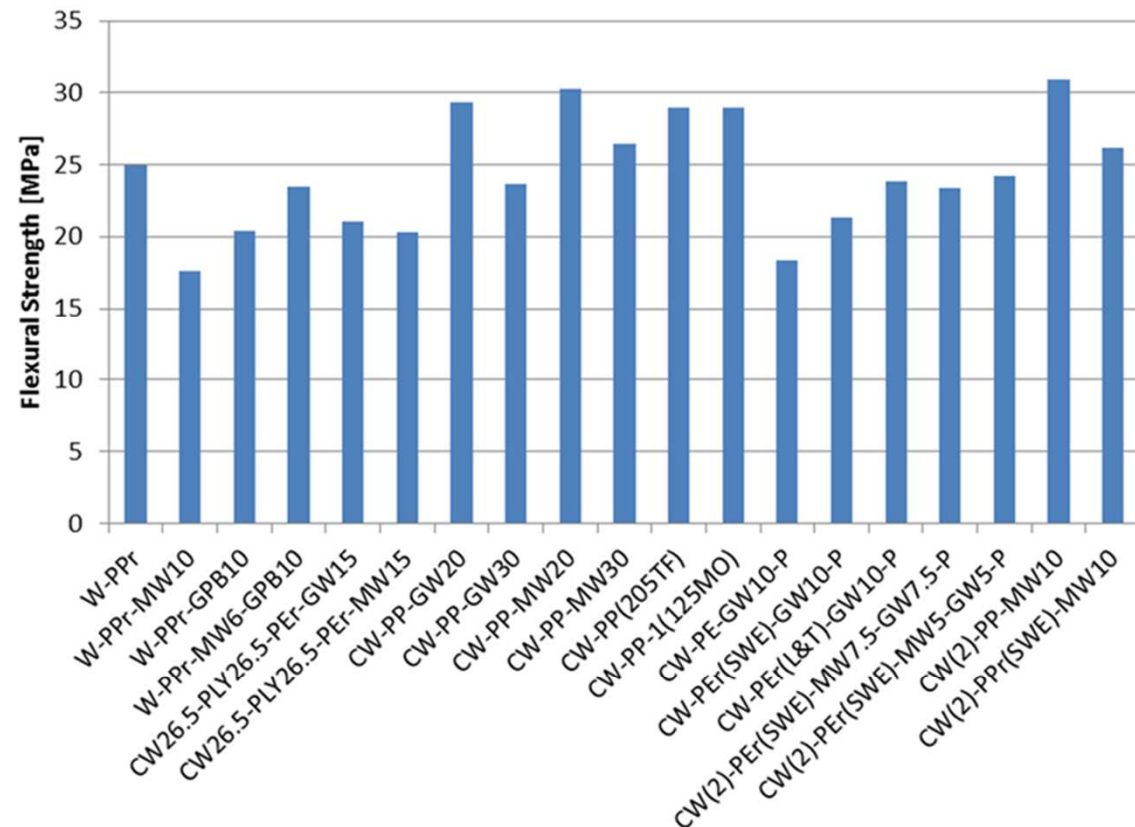
WOOD

- Clean wood fraction
- Painted wood fraction
- Plywood fraction
- Particle/fibre board fraction

C&D (MINERAL/GLASS) WOOL

(Virgin + recycled)
PP and PE

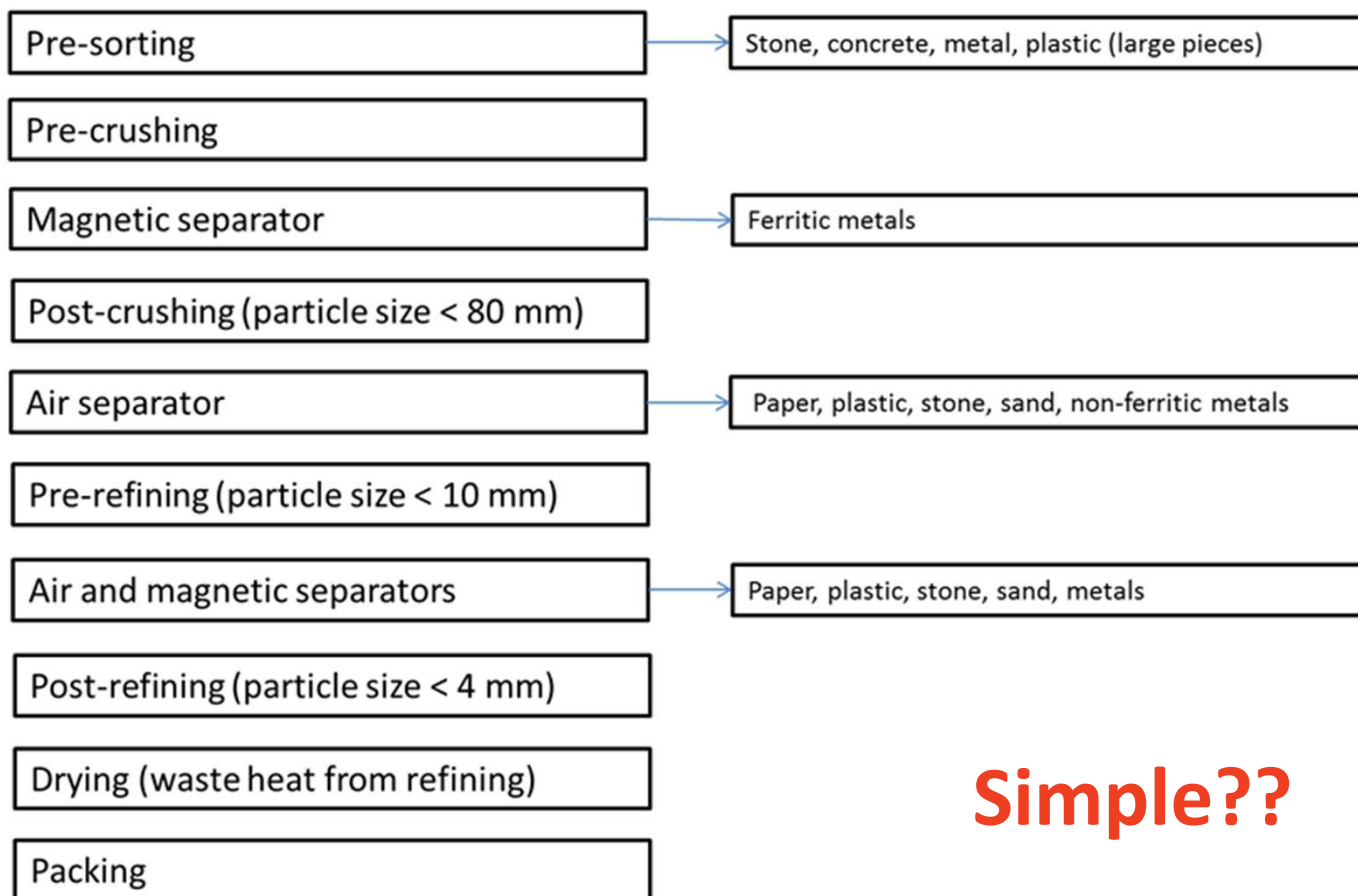
Product development...





3. Extruded composites

Processing concept for C&D wood



Simple??





3. Extruded composites

Pre and post crusher



Magnetic separator



Hammermill



Air- and magnetic field separator





3. Extruded composites





Recovery technologies for construction and demolition waste

ADR Advanced Dry Recovery and (LIBS) quality assessment



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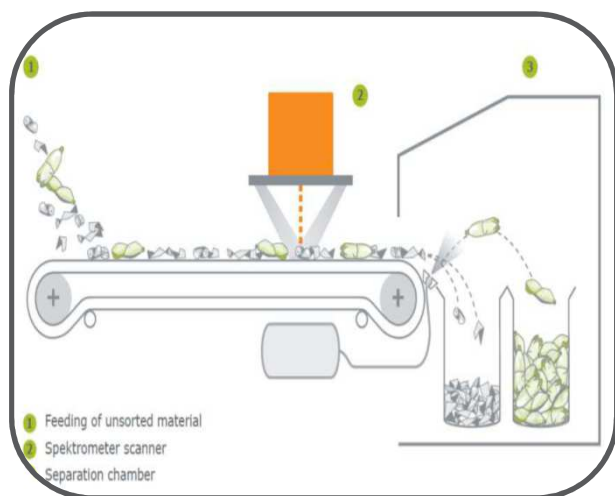
4. ADR/ LIBS

- 1) Recycling stony waste
- 2) Inline quality assessment

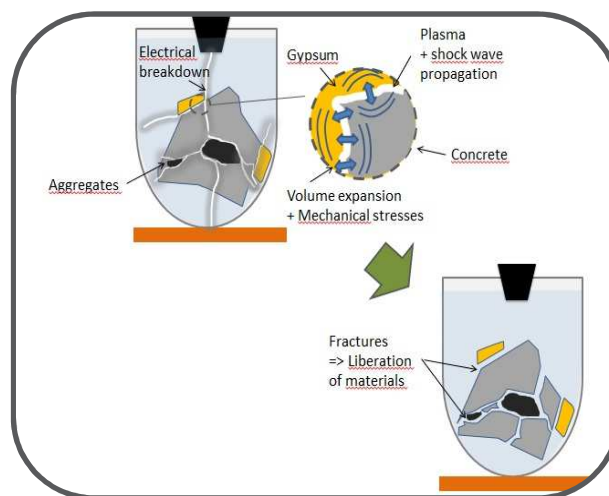
VIDEO ABOUT DEMONSTRATION IN THE NETHERLANDS:
<https://www.youtube.com/watch?v=IHp3G-IOoOs>



There's more!!



Sensor sorting technology



Electro- fragmentation techniques



Standardization Policies Etc.



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<http://www.citg.tudelft.nl/hiser>

HISER International Conference: Advances in Recycling and Management of C&DW Delft 20-23 June 2017

Deadline 31 December 2016

Call for abstracts!

Go to: www.citg.tudelft.nl/hiser

