



Sheffield
University
Management
School.

ReTraCE

Realising the Transition towards the Circular Economy

Bigfoot - Littlefoot - Barefoot
David Garlovsky
Recovery Insulation

**1st ReTraCE Network School
Sheffield, 3-7 June 2019**





Sheffield
University
Management
School.



THE CHALLENGE TO SPECIFY A LOW CARBON INSULATION IN BUILDING CONSTRUCTION

David Garlovsky, BSc, MSc

Certificate in Social Phenomenology



Sheffield
University
Management
School.



MISSION STATEMENT

“If you improve quality costs will go down and value goes up”

W.E. Deming



Sheffield
University
Management
School.

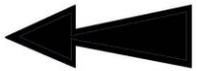
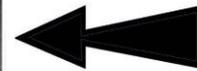
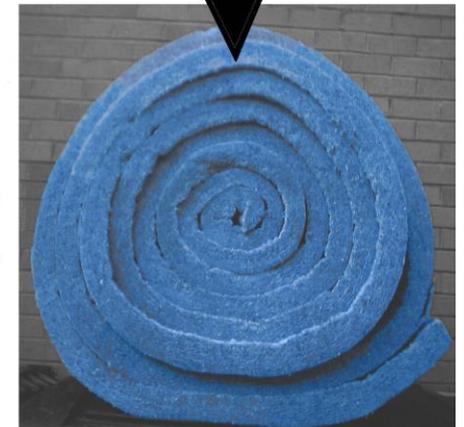
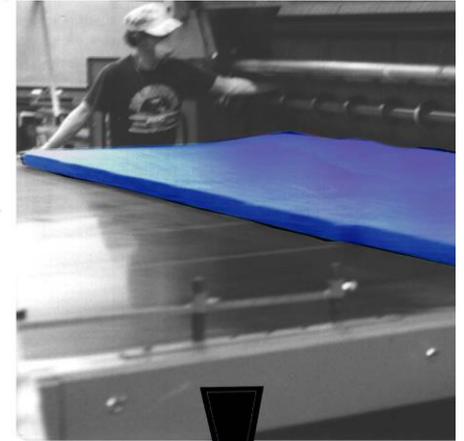
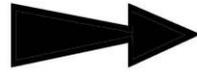


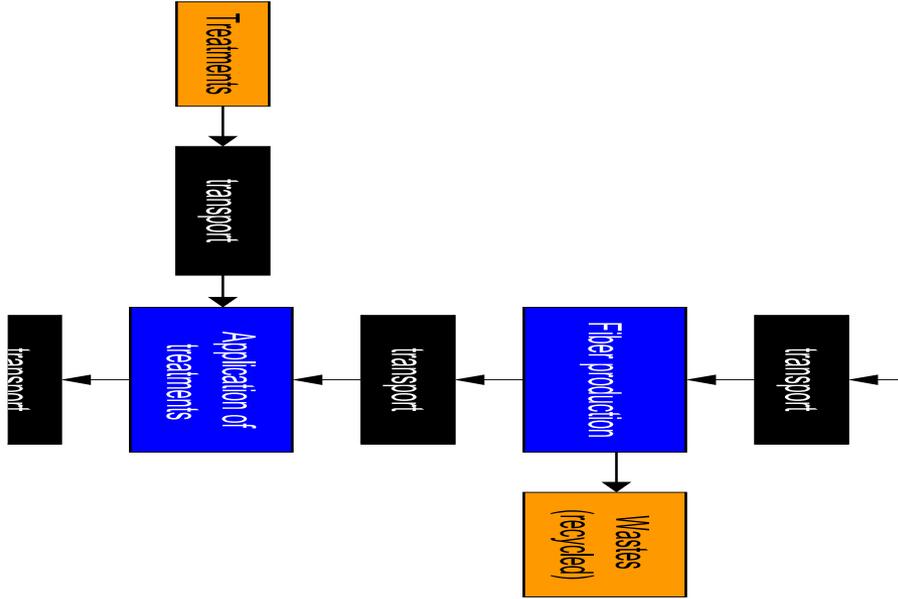


Sheffield
University
Management
School.



MANUFACTURING PROCESS







Inno-therm®/Metisse®



- A low carbon thermal acoustic insulation manufactured from 85% recycled denim/cotton [85% is denim 3 jean's/m² for 100mm thickness]
 - No melamine or phenolic resins.
- Permeated with a safe, deep-absorbing fire - retardant.
 - Recycled cotton sourced and have manufactured by EBS Le Relais Metisse.



Sheffield
University
Management
School.

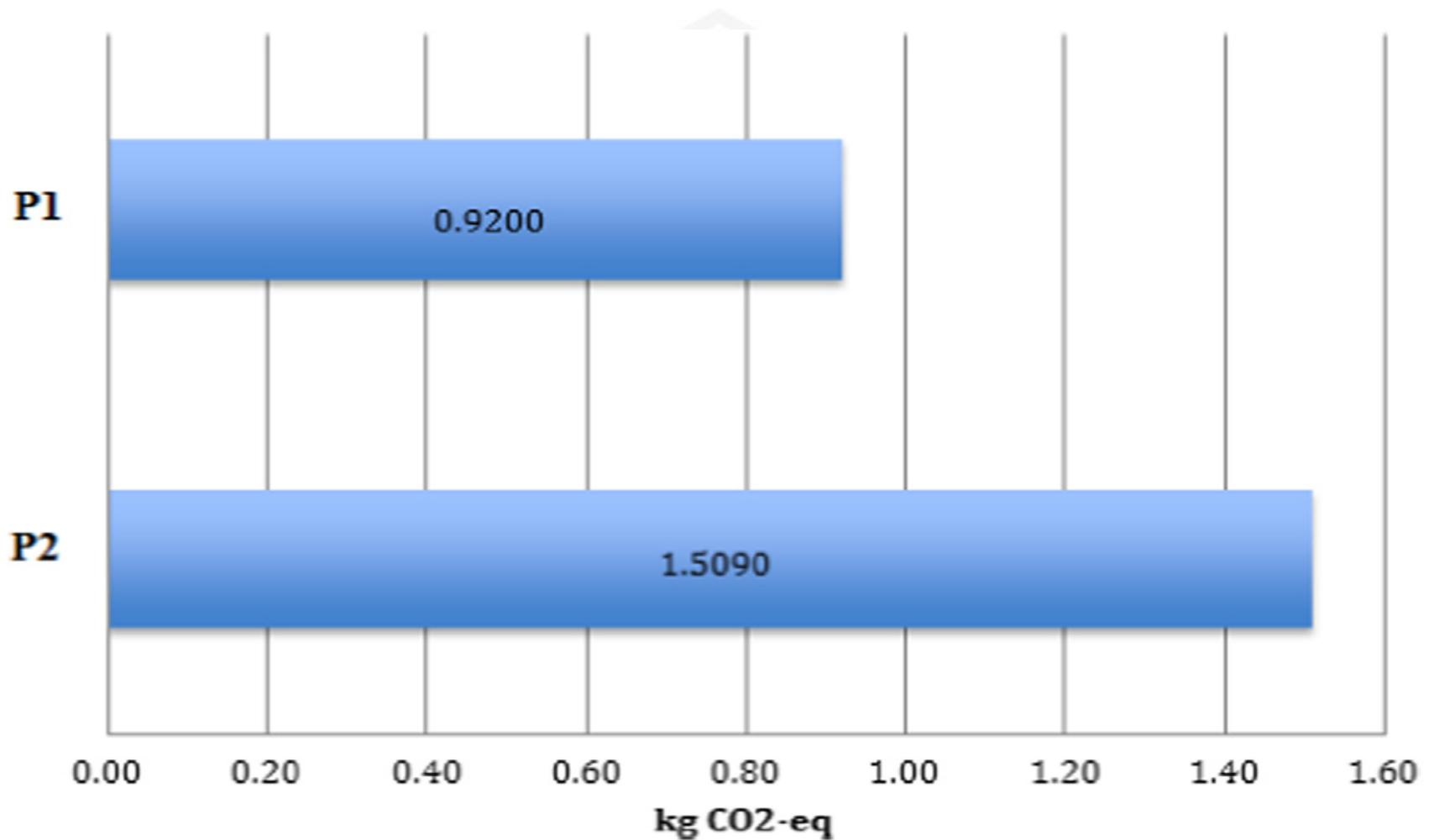


MANUFACTURING PROCESS

<http://www.inno-therm.com/product-information/manufacturing-process/>



Comparative levels of emissions by P1 (Inno-therm) and P2 (stone fibre) supply chains.





Specifying an insulation

Consideration normally only given
to u-values, thermal performance
and primarily cost?



Sheffield
University
Management
School.



We are often miss-informed that conventional insulation is cheap since it is subsidized and create a budget based on this miss conception.

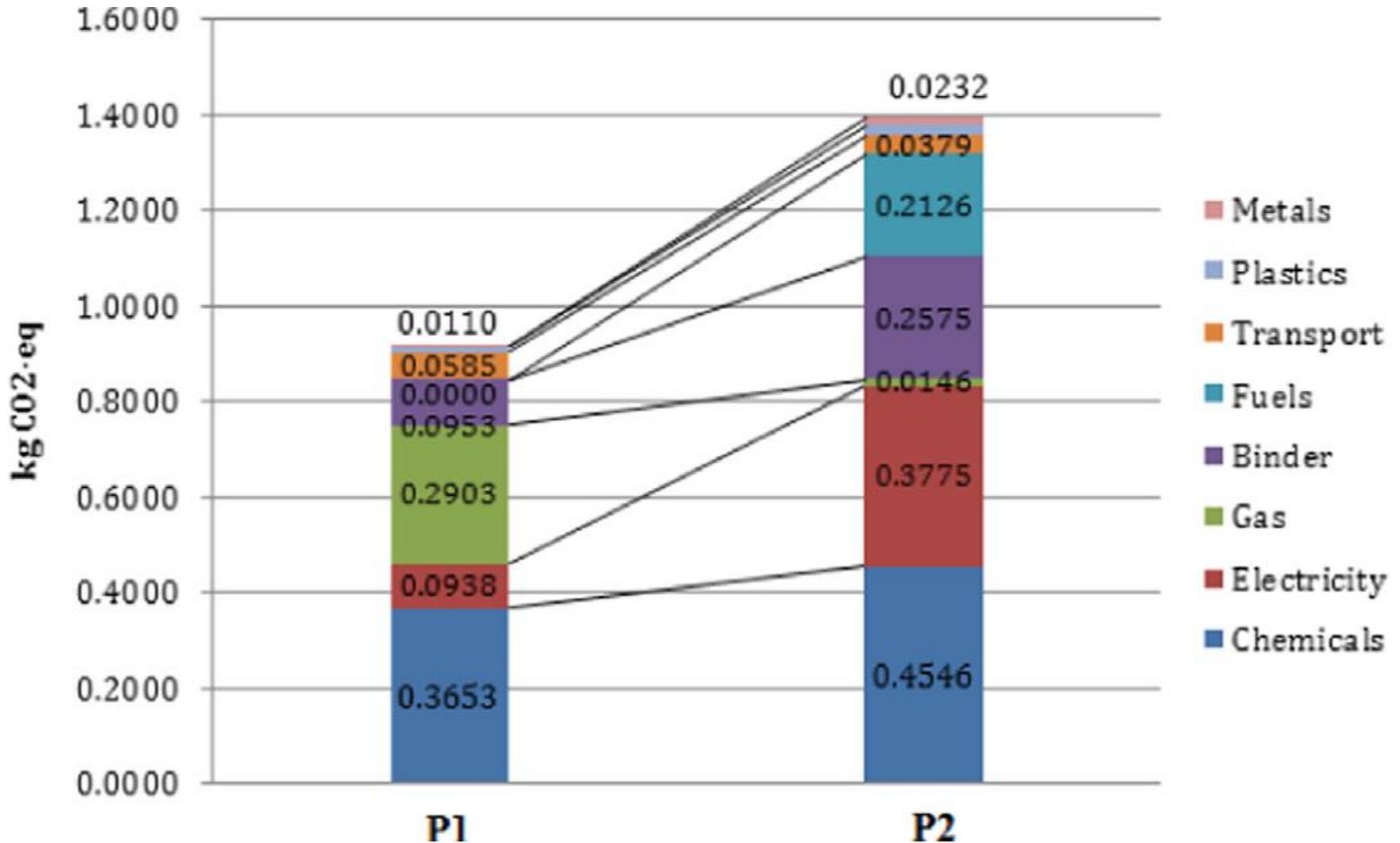


Specifying insulation

What are the reasons why often in the specification of an insulation consideration is not given to the CO₂ emissions used in the manufacturing supply chain?



Breakdown of carbon emissions hotspots in P1(Inno-therm) and P2(stone fibre) supply chains.





EPD CERTIFICATION SCHEME

- Environmental Product Declarations (EPD) present transparent, verified and comparable information about the life-cycle environmental impact of products.
- The International EPD® System is a global programme for environmental declarations based on ISO14025 and EN 15804

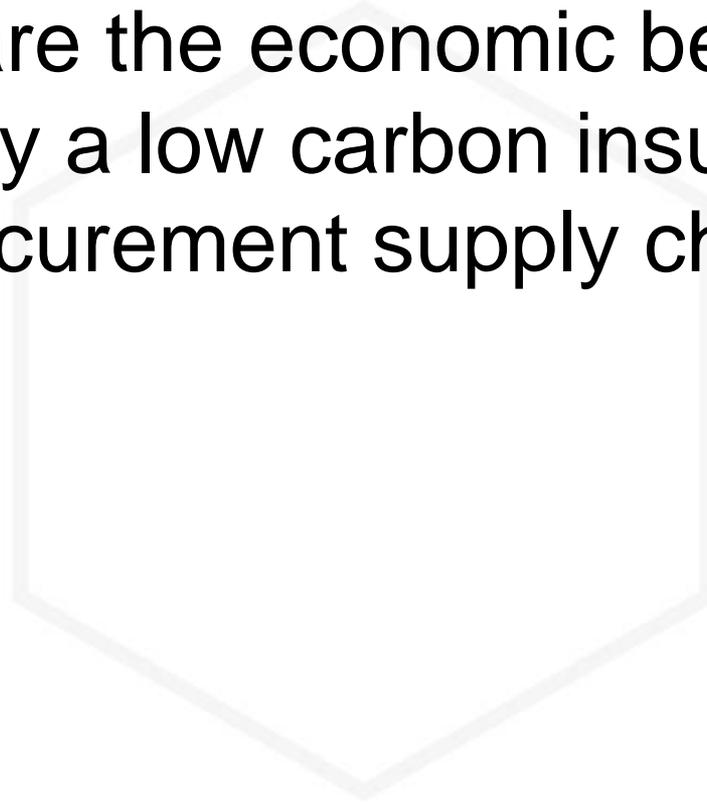


Sheffield
University
Management
School.

Specifying insulation



What are the economic benefits in specifically a low carbon insulation in its procurement supply chain?





Sheffield
University
Management
School.



*“With INNO - THERM we have found a product that happily answers four of our objectives as the product is manufactured in the UK, creating employment opportunities and producing an environmentally friendly insulation. In fact as **INNO - THERM has slightly better thermal properties we were able to reduce the timber stud sizes, which in turn offset some of the cost while still achieving very good U – values.**”*

white design

White Design Architects



INNO-THERM lamda value 0.039 W/mK
for both 20 kg/m³ and 25 kg/m³
density products.

Translates into a typical U-value for **240mm**
depth of material = 0.16 W/ m²K

$$\text{R value} - .24/0.039 = 6.15$$

$$\text{U value} - 1/6.15 = 0.16$$



A U value $0.16 \text{ W/m}^2\text{K}$. is required for roof application to obtain UK building regulations.

270mm thickness of insulation is required and is based on conventional mineral fibre insulation with a thermal conductivity of 0.044 W/mK .



LOW CARBON BUILDING PROJECTS

- 1. South Yorkshire Energy Centre, Sheffield
- 2. Genesis Eco-Building – Somerset College of Design & Technology
- 3. Torfaen (South Wales) Eco Building
- 4. Hemphill Hall, Nottingham (a listed building refurbishment)
- 5. The Materials and Engineering Research Institute [MERI], Sheffield 'eco-house' project.
- 6. [Barnsley College Think Low Carbon \(TLC\) Centre](#)
- 7. Bradford Enterprise Park in conjunction with Modcell
- 8. Eve Saint Lauren Oxford St. refurbishment
- 9. Cultybraggan Camp, Hut 1, Comrie, Perthshire
- 10. Castle Hill School, North Yorkshire – **straw bale**



Sheffield
University
Management
School.



Genesis is a £2.5 million educational resource that displays sustainable construction methods and materials. INNO – THERM is used within the project as a thermal insulation material.

genesis



Eko 45mm acoustic batts

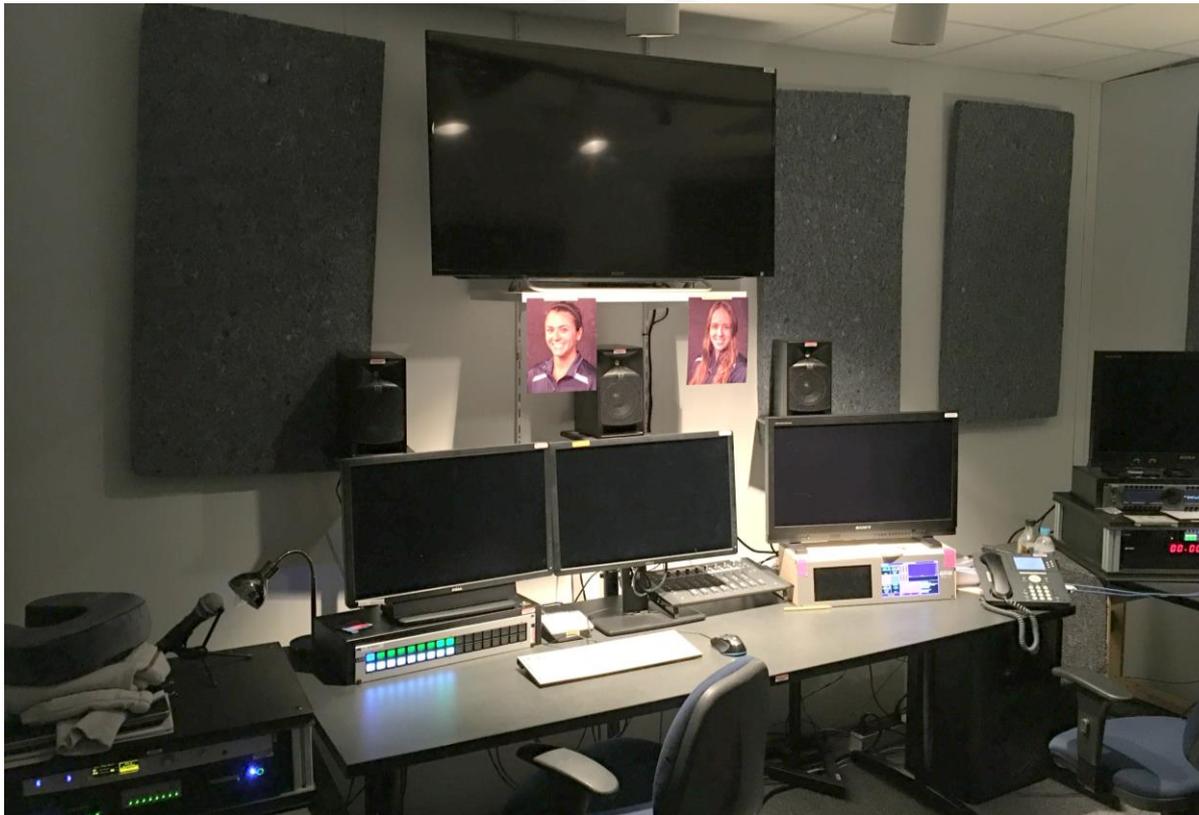
Eko 45mm selected by NBC for:

1. London Games 2012
2. Re-used Sochi Winter Olympics 2014
3. Rio Olympics 2016
4. Pyeongchang Olympic Winter Games 2018
5. Tokyo Games 2020.



Sheffield
University
Management
School.

“The acoustic product made a big improvement to our editing rooms and the difference they made was huge.”





Sheffield
University
Management
School.



Market Inno-therm for use in offices/surgeries, vegan packaging, home & professional music studios and Passivhaus design.





20mm acoustic rolls

- Used for setting-up music studios
- [Amina Technologies](#) in their wall invisible speaker systems
- [Panel UK](#) in their screen systems.



Sheffield
University
Management
School.



50mm installed in the Affordable Eco Home Reach project made from recycled shipping containers





Sheffield
University
Management
School.

*“We used INNO - THERM because of it’s environmental credentials. It was a **breathable product** which was **cheaper than other naturally based insulation materials**, while proving suitable for the application. The **recycled** content was also a factor which we saw as favourable. While it had not been used a great deal over here we felt that its track record across the pond was sufficient.”* Gil Schalom-Mark Stewart Architects



msarchitects



Sheffield
University
Management
School.

*“I cannot imagine a better material for the majority of thermal insulation requirements. As its **installation requires the minimum of skills and no specialist safety equipment during the process.**”*

Jonathan Clennell, Home owner





Research has found

Correlation between poorly conceived energy saving measures and Indoor air quality

Rise in asthma and allergic diseases in the U.K. (Sharpe et al., 2015)



HEALTH EFFECTS OF MODERN AIRTIGHT CONSTRUCTION (RE: Tom Wooley - Building Materials, Health and Indoor Air Quality)

- Pollutants from building materials can cause serious health risks
- Air Tightness but pollutants can get trapped
- Mould And Damp
- Hemac Newwork and problems caused by air tightness'
- Interstitial condensation



Low carbon insulation

How can we become sensitized to consider
that a low carbon insulation
following Circular Economy
is more energy saving
when taking into account
energy use in the supply chain?



Sheffield
University
Management
School.



Circular Economy

In the manufacture of our thermal and acoustic insulation Recovery Insulation with Le Relais LLC fully addresses the economic and supply chain implications in the implementation of the
Circular Economy



Sheffield
University
Management
School.



MISSION STATEMENT

“If you improve quality costs will go down and value goes up”

W.E. Deming



Sheffield
University
Management
School.



InnoTHERM®

Recycled Cotton/Denim Insulation

Recovery Insulation Ltd established in 2002 by Schools & Homes Education Project/Solar-Active as a company/social enterprise [in 2016 became trading arm of Solar-Active] to manufacture a thermal/acoustic 'eco' low carbon non-itch insulation made from reuse/recycled cotton/denim.

mētisse®

Sustainable insulation



Sheffield
University
Management
School.



David Garlovsky

Recovery Insulation™ Ltd.

in partnership with *Schools & Homes Energy
Education Project Ltd./SOLAR-ACTIVE.*

Sheffield S89HE

Phone / Fax : +44 (0)114 2587639

Mobile phone: 07968844891

info@inno-therm.com

www.inno-therm.com