TRI-COUNTY
REGIONAL ENERGY NETWORK
SAN LUIS OBISPO • SANTA BARBARA • VENTURA

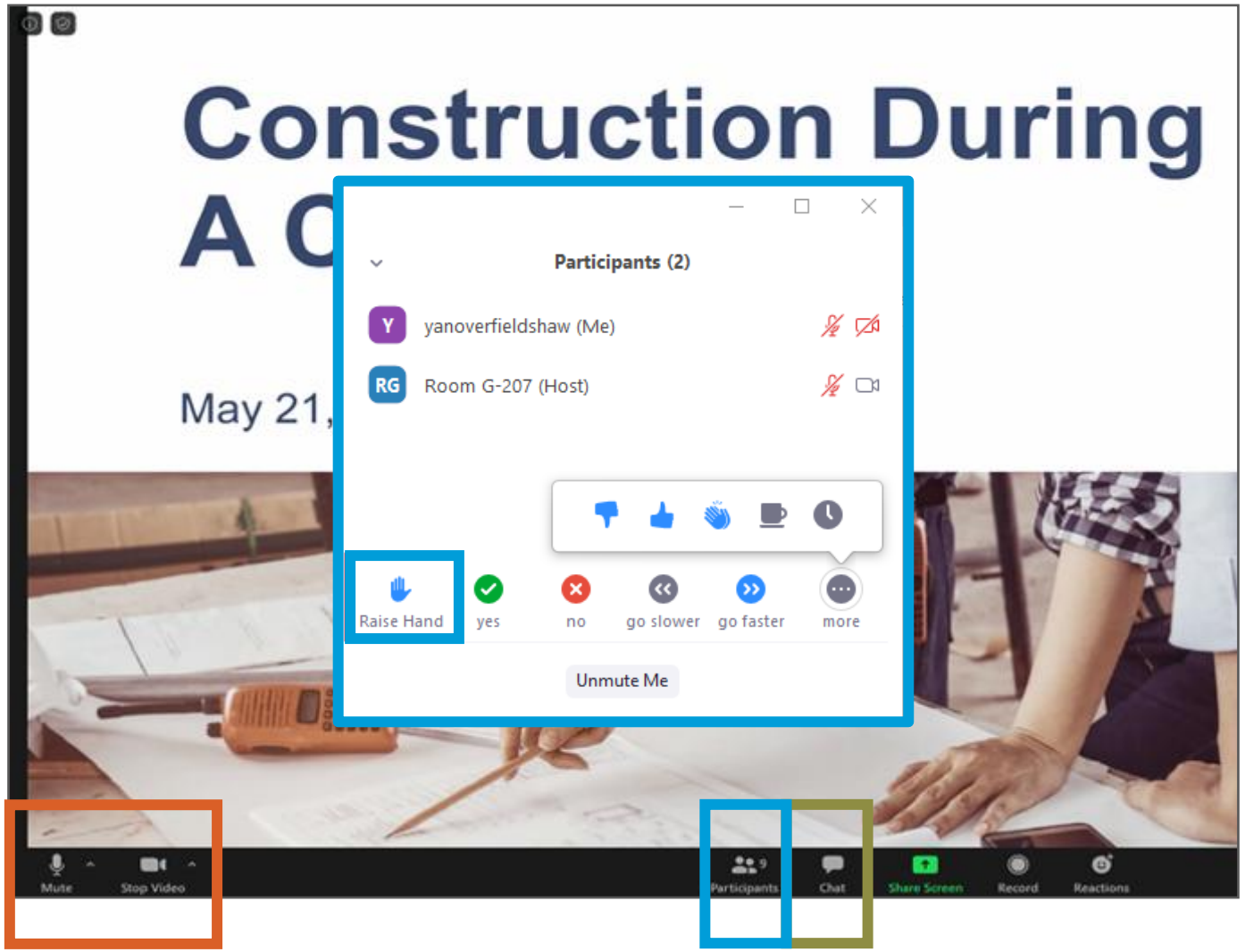
Natural Insulation Options for Low-Carbon Construction

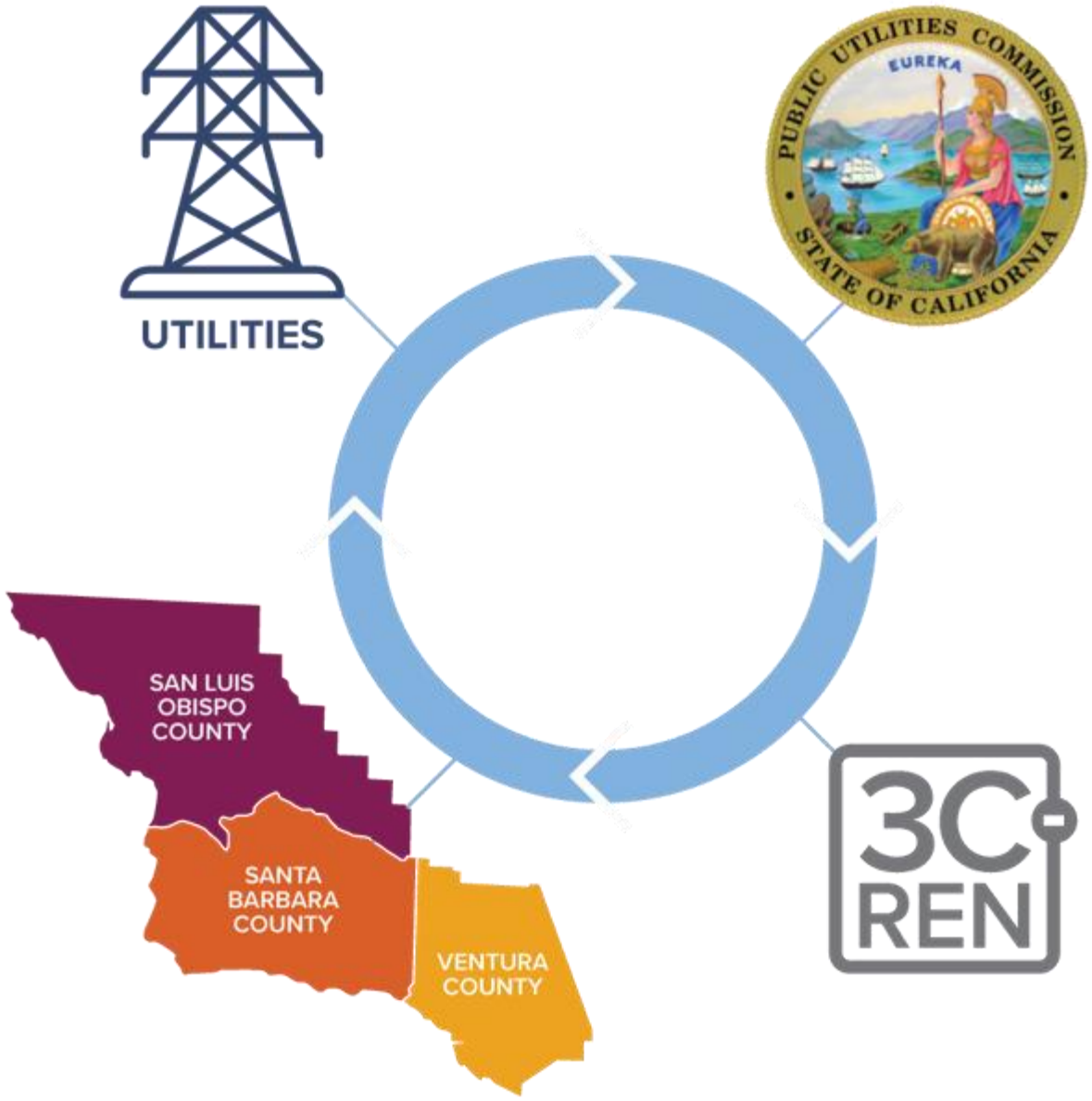
Eric Fenno – Small Planet Supply

June 13, 2025

Zoom Orientation

- Add an **introduction** in the chat.
  Be sure **full name** is displayed.
- Did you call in? Please **share** first and last name with us.
- Please **mute** upon joining
- Use the "**Chat**“ to share questions or comments
- Under "**Participant**" select "**Raise Hand**" to share a question or comment verbally
- Session will be **recorded** and posted to 3C-REN's on-demand page
- Slides/recording are **shared** after most events
- 3C-REN does **not** allow **AI notetakers**, unless used to accommodate a disability.





Tri-County Regional Energy Network

3C-REN is a collaboration between the tri-counties

Our programs reduce energy use for a more sustainable, equitable and economically vibrant Central Coast

Our free services are funded via the CPUC, bringing ratepayer dollars back to the region

Our Services

Incentives

HOME ENERGY SAVINGS

3c-ren.org/for-residents
3c-ren.org/multifamily

COMMERCIAL ENERGY SAVINGS

3c-ren.org/commercial

Contractors can enroll at
3c-ren.org/contractors

Training

BUILDING PERFORMANCE TRAINING

3c-ren.org/events
3c-ren.org/building

ENERGY CODE CONNECT

3c-ren.org/code

View past trainings at
3c-ren.org/on-demand

Technical Assistance

AGRICULTURE ENERGY SOLUTIONS

3c-ren.org/agriculture

ENERGY ASSURANCE SERVICES

3c-ren.org/assurance

General ideas around insulation

- Building science is newish! We don’t know everything.
- Air sealing is just as important as insulation, the shell of your house is a *system*.
- Insulation works best with a bulk layer inside and a thinner, continuous layer of insulation outside.

What is Natural?

- Embodied Carbon
- Minimal Processing
- Untreated or treated with conscious/minimal chemicals

R-Values

- More useful as a standard than a tool (It actually contains meaningful information, but generally we just want to know how materials relate and what total we need)

- Your climate will have specific minimum R-values specified by the code and/or the high performance standard you build to. (Code standards are actually getting to be pretty okay most places)

R value (conventional materials)

- Still Air: R-3.6-4 per inch (nominally)
- Fiberglass: R-4 per inch (Batts) *R-2.5* (blown in!)
- Cellulose: R-3.5 per inch (or R-4 for dense pack)
- Polyisocyanurate (polyiso, foam board) R-6-6.5 per inch

The R value of most insulations is just the difference between the conductivity of the matrix and the air it traps, which is actually doing the insulating most of the time.

A note on Exterior Insulation

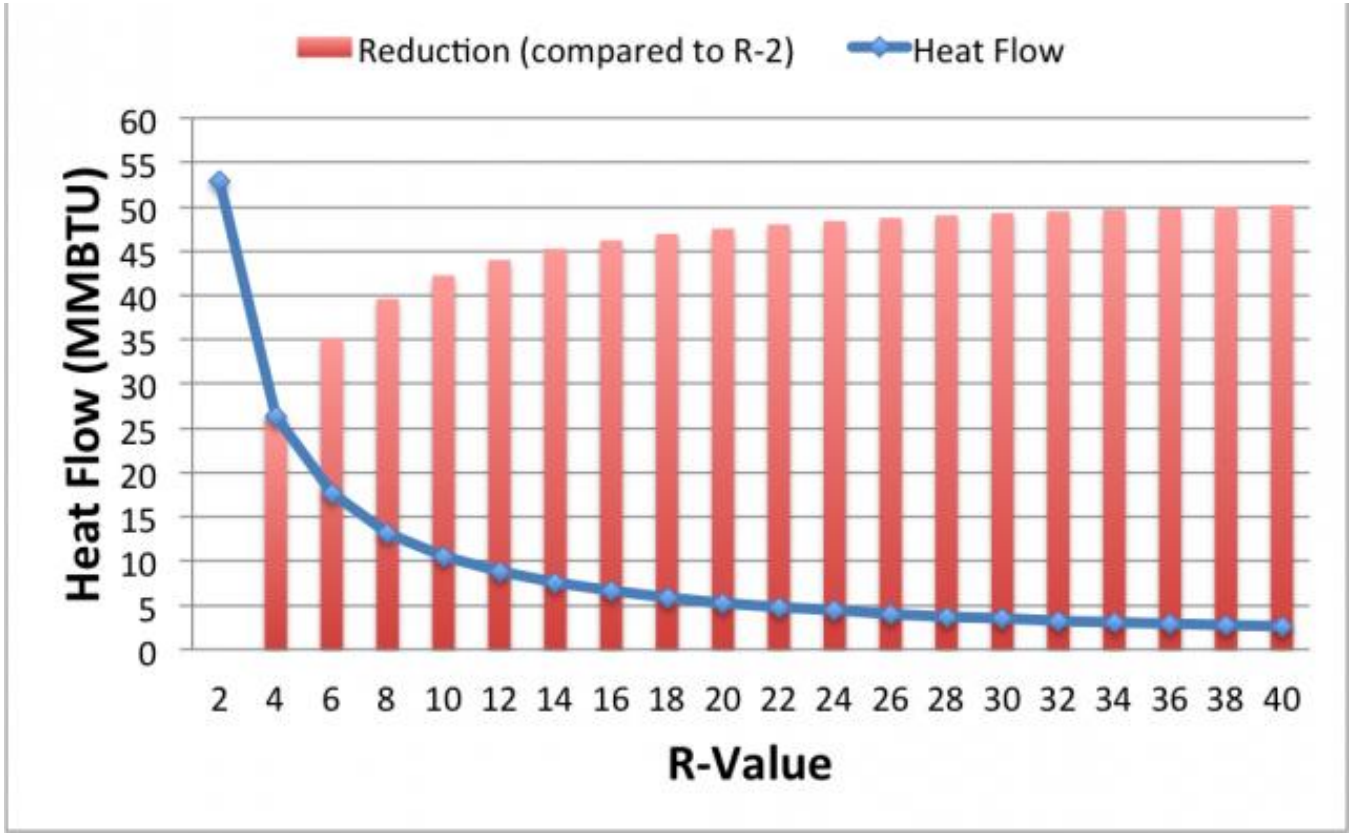


Image: Energy Vanguard, Dr. Allison Bailes
https://www.energyvanguard.com/blog/the-diminishing-returns-of-adding-more-insulation/

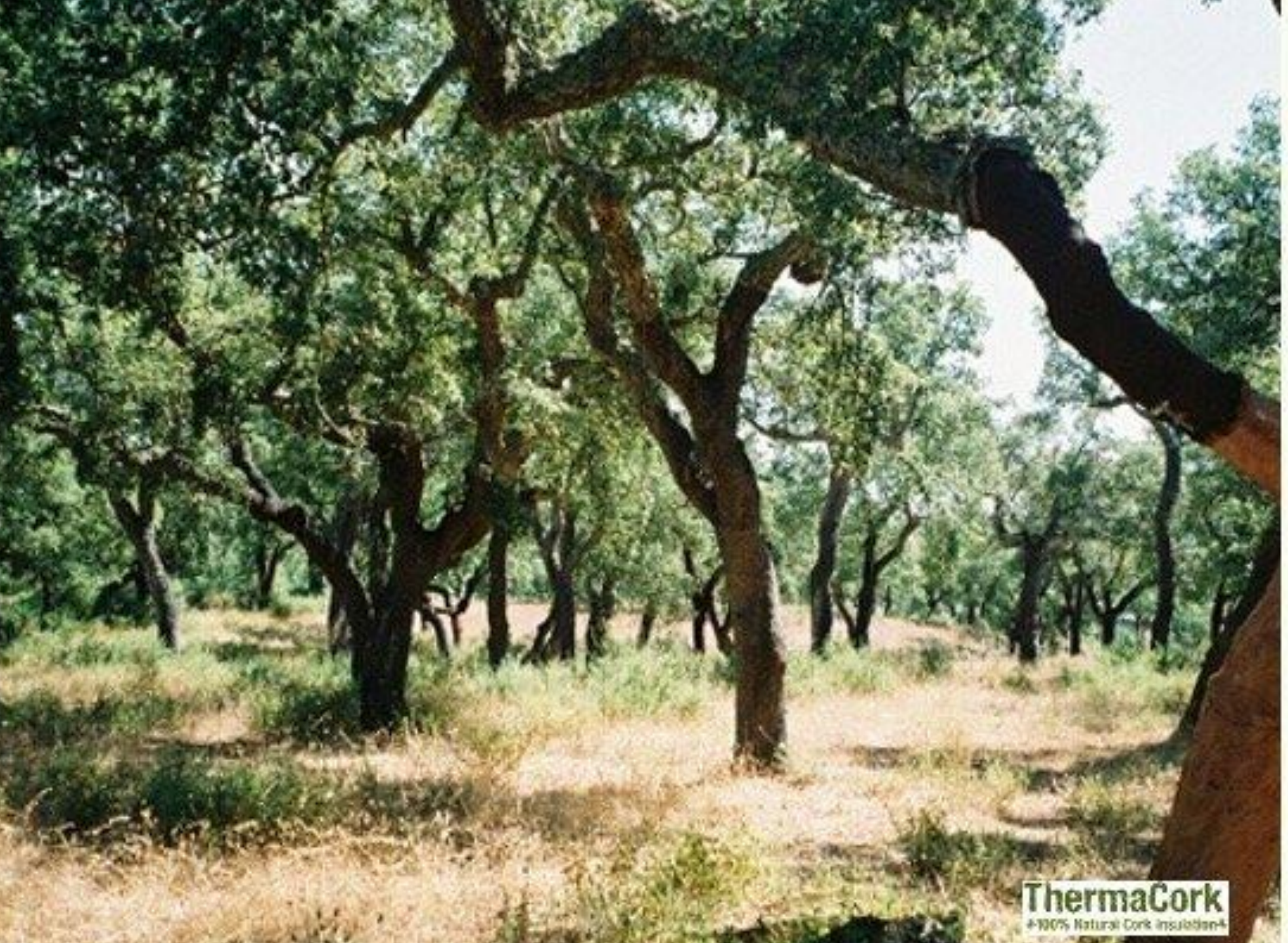
Fiberglass Blown (attic)	2.20-4.30
Fiberglass Blown (wall)	3.70-4.30
Rock Wool Batt	3.14-4.00
Rock Wool Blown (attic)	3.10-4.00
Rock Wool Blown (wall)	3.10-4.00
Cellulose Blown (attic)	3.60-3.70[1]
Cellulose Blown (wall)	3.80-3.90[1]
Vermiculite	2.13
Autoclaved Aerated Concrete	1.05
Urea Terpolymer Foam	4.48
Rigid Fiberglass (> 4lb/ft3)	4.00
Expanded Polystyrene (beadboard)	4.00
Extruded Polystyrene	5.00
Polyurethane (foamed-in-place)	6.25
Polyisocyanurate (foil-faced)	5.0-5.6
Construction Materials	
Concrete Block 4"	
Concrete Block 8"	
Concrete Block 12"	
Brick 4" common	
Brick 4" face	
Poured Concrete	0.08
Soft Wood Lumber	1.25
2" nominal (1 1/2")	
2x4 (3 1/2")	
2x6 (5 1/2")	
Cedar Logs and Lumber	1.33

Fire Ratings

- Class A (Flame spread 0-25) – Do not burn readily, unlikely to contribute to a fire, best rating possible
- Class B (Flame Spread 26-75) – Will burn with prolonged exposure, many wood products are Class B.
- Class C (Flame Spread 76-200) – Flammable, examples are plywood, fiberboard, siding panels, some whole woods.

Cork Insulation

The Cork Life Cycle



CORK FOREST
PORTUGAL

The Montado

Standard Grade

- R4/inch
- Easy installation
- Class B fire rating
- Excellent Exterior Insulation
- Resistive to water
- Dimensionally Stable

Façade Grade

- Exterior rated, can be a finish material
- R3.6/inch
- Fades naturally with exposure to light, creating visual interest
- Can be combined with fluid applied WRB to serve as both cladding and insulation.

Decorative Grade

- Multiple patterns and designs
- Beautiful interior finish
- Sound attenuating
- Durable
- Fantastic accent to interior spaces

Challenges with Cork

- Birds like it (sometimes)
- Not to be used underground/in places with no drying potential
- Can be brittle
- Higher R-value applications can get expensive
- Lead times can be long

Environmental Product Declarations

- Standardized international framework for declaring the lifecycle and environmental impacts of the manufacturing process (or potential thereof)
- Framework developed/owned/administrated by Swedish Environmental Research Institute (IVL)

AMORIM
CORK
INSULATION

EPD Hub

ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025 / ISO 21930

Expanded Insulation Corkboard (ICB)
Amorim Cork Insulation

EPD HUB, HUB-0281
Publishing date 13 February 2023, last updated date 13 February 2023, valid until 13 February 2028

One Click LCA Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Amorim Cork Insulation
Address	Industrial Unit of Vendas Novas: Estrada de Lavre, km 6 – Apartado 7, 7080-026 Vendas Novas, Portugal / Industrial Unit of Silves: Vale de Lama – Apartado 27, 8300-999 Silves, Portugal
Contact details	info.aci@amorim.com
Website	www.amorimcorkinsulation.com

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804+A2:2019 and ISO 14025
PCR	EPD Hub Core PCR version 1.0, 1 Feb 2022
Sector	Construction product
Category of EPD	Third party verified EPD
Scope of the EPD	Cradle to gate with options A4-A5 and modules C1-C4, D
EPD author	Khadija Benis, Greenlab
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal certification ☑ External verification
EPD verifier	E.A as an authorized verifier acting for EPD Hub Limited

The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

PRODUCT

Product name	Expanded Insulation Corkboard (ICB)
Place of production	Vendas Novas (Portugal) and Silves (Portugal)
Period for data	2020
Averaging in EPD	Multiple factories
Variation in GWP-fossil for A1-A3	-11.6 to 12.3 %

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 m^3 of insulation corkboard (ICB)
Declared unit mass	115 kg
GWP-fossil, A1-A3 (kgCO2e)	82.8
GWP-total, A1-A3 (kgCO2e)	-2040.0
Secondary material, inputs (%)	0.0483
Secondary material, outputs (%)	60.0
Total energy use, A1-A3 (kWh)	12300.0
Total water use, A1-A3 (m3e)	2.85

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Amorim Cork Insulation is dedicated to the production of insulation agglomerates with excellent technical performance and strictly 100% natural. The company has a strong foothold in the world market, arising from a rigorous commitment to compliance with the quality standards and demands required primarily by the sustainable construction sector.

In order to achieve certification and total quality, Amorim Cork Insulation seeks high levels of quality and productivity, where the protection of the environment and the preservation of natural resources are a constant, clearly demonstrating its position in the community in which it operates.

PRODUCT DESCRIPTION

The Expanded Insulation Corkboard (ICB) is a natural and fully recyclable solution, consisting only of cork (suberin, lignin and cellulose), with a high thermal, acoustic and anti-vibration performance, especially suitable for use in external and internal walls, slabs and floors, roofs, and ceilings.

Satisfies European Standards EN13170 and EN13172.
Indoor VOC emissions according to ISO 16000: Class A+.

Board dimensions: 1000 x 500 mm.
Thickness: up to 300 mm.
Average density: 115 kg/m^3.

Density (kg/m^3)	Thermal conductivity λ (W/m.ºC)
Up to 115	0.040
140-160	0.043
170-190	0.044
190-210	0.045

Further information can be found at www.amorimcorkinsulation.com.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	-	-
Minerals	-	-
Fossil materials	-	-
Bio-based materials	100	Portugal

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	4554
Biogenic carbon content in packaging, kg C	0.0413424

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 m^3 of insulation corkboard (ICB)
Mass per declared unit	115 kg

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

PRODUCT LIFE-CYCLE

SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D		
x	x	x	x	x	MND	MND	MND	MND	MND	MND	MND	x	x	x	x	x		
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstr./demol.	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Modules not declared = MND. Modules not relevant = MNR.

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

A1. The first stage of the production process consists in extraction of cork from the cork oak. This operation can be performed manually or with electric equipment. Specifically, the raw cork that is used to produce ICB in the factory consists of recycled wooden by-products obtained from the maintenance (pruning) of cork oak forests in Portugal.

A2. After this procedure, cork is transported to the industrial unit by truck and is stored.

A3. In the factory the cork is ground into granules with the appropriate size and placed in an autoclave. Under the effect of pressure and superheated steam the granules expand and are agglomerated, originating blocks. This process occurs only with the natural resin (suberin) of the raw material, meaning that it does not require any extra use of any adhesives. Once formed, the blocks are forwarded to cooling stage, where recycled water is injected at a temperature of approximately 90°C. The stabilization phase, not requiring any use of energy, occurs by placing the blocks in the tunnel and then in a ventilated space. After the stabilization period, the blocks are cut according to the desired thickness and then packed. Expanded insulation cork board (ICB) is a natural product since the cork granules are aggregated solely by the action of the natural resins contained in cork.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

A4. The transportation distance is defined according to the PCR. Average distance of transportation from production plant to building site is 3300 km and the transportation method is lorry (calculation and assumption based on exportation data for ICB). Vehicle capacity utilization volume factor is assumed to be 100 % which means full load. Empty returns are not taken into account as it is assumed that return trip is used by the transportation company to serve the needs of other clients. Transportation does not cause losses as product is packaged properly. Also, volume capacity utilisation factor is assumed to be 100 %.

A5. Corkboard insulation is installed using shiplap joints to avoid gaps. Shiplap joints are formed by cutting identical rabbets into opposite faces of adjoining boards and then overlapping the rabbets. Installation of panels starts from the base of the wall to its top. The boards can be

screwed to the sheathing or framing. During installation, a little waste is generated because of losses and packaging materials. As mentioned in EN 16783:2017, 2% of product is assumed to be landfill waste during installation. The damaged wooden pallets used during transportation are incinerated for energy recovery (considered damaged after an average of 100 uses).

PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover the use phase.
Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

End-of life scenario is based on manufacturer's feedback.

C1. Consumption of energy in demolition process is assumed to be 0.01 kWh/kg.

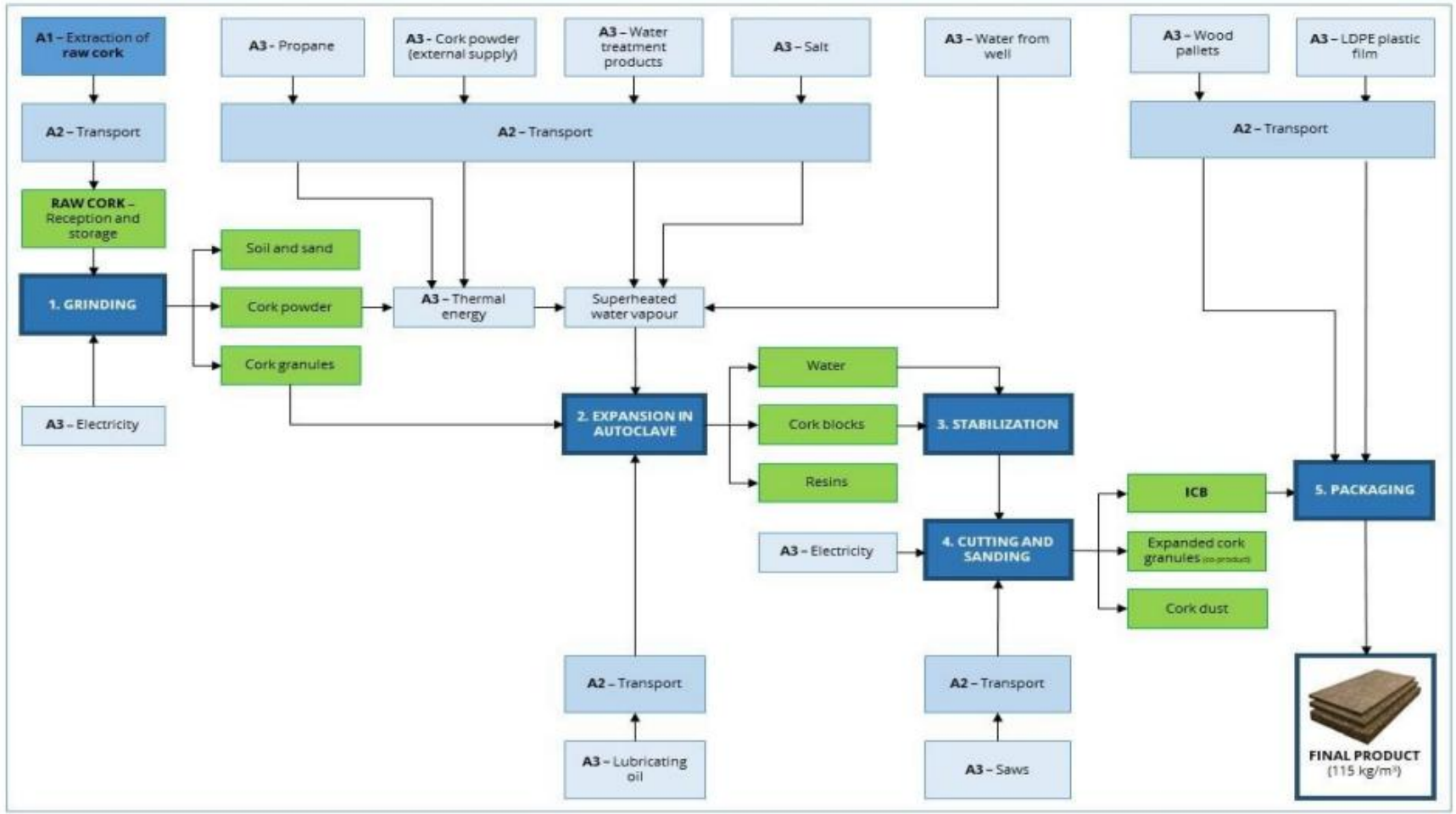
C2. It is assumed that the ICB waste is collected and returned in lorry to Amorim industrial units in Portugal (2000 km in average).

C3. 60% is recycled (grinded) into Expanded Cork Granules, that are sold in the market.

C4. The remaining 40% is deposited in landfill.

D. Correspondingly, 60% is included in Module D for benefits. The benefits and loads of recycling plastic packaging waste are included in Module D.

MANUFACTURING PROCESS



LIFE-CYCLE ASSESSMENT

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

Data type	Allocation
Raw materials	Allocated by mass or volume
Packaging materials	Allocated by mass or volume
Ancillary materials	Allocated by mass or volume
Manufacturing energy and waste	Allocated by mass or volume

AVERAGES AND VARIABILITY

Type of average	Multiple factories
Averaging method	Averaged by shares of total volume
Variation in GWP-fossil for A1-A3	-11.6 to 12.3 %

This EPD indicates the weighted average of the values of two plants, Vendas Novas (Portugal) and Silves (Portugal), by shares of total production volumes.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. Ecoinvent and One Click LCA databases were used as sources of environmental data.

ENVIRONMENTAL IMPACT DATA

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total[1]	kg CO_2e	-4,71E3	5,93E0	2,67E3	-2,04E3	6,22E1	-3,81E1	MND	MND	MND	MND	MND	MND	MND	3,79E-1	2,09E1	6,23E-1	5,13E0	7,26E2
GWP – fossil	kg CO_2e	6,61E0	5,93E0	7,02E1	8,28E1	6,28E1	4,26E0	MND	MND	MND	MND	MND	MND	MND	3,79E-1	2,09E1	6,04E-1	4,97E-1	-1,32E0
GWP – biogenic	kg CO_2e	-4,72E3	3,19E-3	2,59E3	-2,12E3	3,38E-2	-4,24E1	MND	MND	MND	MND	MND	MND	MND	1,05E-4	1,52E-2	1,81E-2	4,63E0	7,28E2
GWP – LULUC	kg CO_2e	7,29E-1	2,14E-3	4,77E-1	1,21E0	2,27E-2	2,53E-2	MND	MND	MND	MND	MND	MND	MND	3,2E-5	6,29E-3	1,36E-3	2,59E-4	-1,05E-1
Ozone depletion pot.	kg CFC_{-11}e	1,39E-6	1,35E-6	6,27E-6	9E-6	1,43E-5	7,36E-7	MND	MND	MND	MND	MND	MND	MND	8,19E-8	4,91E-6	5,05E-8	1,51E-7	-8,45E-8
Acidification potential	mol H^+e	5,01E-2	1,7E-2	1,36E0	1,42E0	1,8E-1	3,93E-2	MND	MND	MND	MND	MND	MND	MND	3,96E-3	8,78E-2	3,33E-3	4,23E-3	-5,43E-3
EP-freshwater[2]	kg Pe	4,48E-3	5,04E-5	1,21E-2	1,66E-2	5,34E-4	3,64E-4	MND	MND	MND	MND	MND	MND	MND	1,53E-6	1,7E-4	6,3E-5	1,06E-5	-5,93E-4
EP-marine	kg Ne	2,36E-2	3,38E-3	5,82E-1	6,09E-1	3,58E-2	1,52E-2	MND	MND	MND	MND	MND	MND	MND	1,75E-3	2,65E-2	4,48E-4	2,77E-3	-2,56E-3
EP-terrestrial	mol Ne	2,21E-1	3,77E-2	6,01E0	6,27E0	3,99E-1	1,58E-1	MND	MND	MND	MND	MND	MND	MND	1,92E-2	2,92E-1	5,47E-3	1,56E-2	-2,26E-2
POCP ("smog")[3]	kg NMVOCe	2,32E-1	1,44E-2	1,57E0	1,81E0	1,53E-1	4,69E-2	MND	MND	MND	MND	MND	MND	MND	5,28E-3	9,4E-2	1,42E-3	5,59E-3	-3,6E-2
ADP-minerals & metals[4]	kg Sbe	3,49E-5	1,64E-4	4,9E-4	6,88E-4	1,73E-3	6,61E-5	MND	MND	MND	MND	MND	MND	MND	5,79E-7	3,57E-4	2,34E-6	5,25E-6	-3,62E-6
ADP-fossil resources	MJ	8,8E1	8,96E1	9,44E2	1,12E3	9,49E2	6,36E1	MND	MND	MND	MND	MND	MND	MND	5,22E0	3,25E2	1,22E1	1,15E1	-8,02E1
Water use[5]	m^3e depr.	2,06E0	2,93E-1	6,08E1	6,32E1	3,11E0	2,01E0	MND	MND	MND	MND	MND	MND	MND	9,73E-3	1,21E0	1,52E-1	5,12E-1	-1,62E0

ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidence	1,11E-6	3,78E-7	6,04E-5	6,18E-5	4E-6	1,45E-6	MND	MND	MND	MND	MND	MND	MND	1,05E-7	1,89E-6	1,02E-8	8,02E-8	-1,26E-7
Ionizing radiation[6]	kBq U235e	3,76E-1	3,92E-1	2,62E0	3,39E0	4,15E0	2,35E-1	MND	MND	MND	MND	MND	MND	MND	2,24E-2	1,42E0	1,05E-1	4,51E-2	3,97E-2
Ecotoxicity (freshwater)	CTUe	1,03E2	6,96E1	6,34E3	6,51E3	7,37E2	1,63E2	MND	MND	MND	MND	MND	MND	MND	3,06E0	2,48E2	7,29E0	1,13E1	1,21E1
Human toxicity, cancer	CTUh	1,95E-8	2E-9	1,06E-7	1,28E-7	2,12E-8	3,96E-9	MND	MND	MND	MND	MND	MND	MND	1,1E-10	6,36E-9	2,87E-10	3,17E-10	-2,37E-9
Human tox. non-cancer	CTUh	4,76E-7	7,61E-8	3,92E-6	4,48E-6	8,05E-7	1,24E-7	MND	MND	MND	MND	MND	MND	MND	2,7E-9	2,94E-7	6,83E-9	1,25E-8	-5,45E-8
SQP[7]	-	3,75E1	7,6E1	2,74E2	3,88E2	8,04E2	7,78E1	MND	MND	MND	MND	MND	MND	MND	1,34E-1	4,91E2	5,31E-1	4,07E1	8,31E-1

Safety Data Sheet

- Administrated by OSHA in the US as MSDS (Material Safety Data Sheet)
- Administrated by WHMIS in Canada

- Lists chemicals of concern / health hazards – usually for the installer (curing hazards, dust created, etc)

Other Resources

- Declare certification
- Red-list
- Living Building Challenge

Declare.

Amorim Cork Insulation
Amorim Cork Solutions

Final Assembly: Silves, Algarve, Portugal
Life Expectancy: Life of Structure Year(s)
Embodied Carbon: -2040kg CO2eq
Declared Unit: 1 cubic meter of insulation corkboard (ICB)
End of Life Options: Salvageable/Reusable in its Entirety, Biodegradable/Compostable (100%), Recyclable (100%), Landfill (100%)

Ingredients:

Insulation: Bark of Cork Oak Tree

Living Building Challenge Criteria: Compliant

I-13 Red List:
■ LBC Red List Free
□ LBC Red List Approved
□ Declared

% Disclosed: 100% at 100ppm
VOC Content: Not Applicable

I-10 Interior Performance: AgBB Scheme French A+ 2011
I-14 Responsible Sourcing: Product Available with FSC Chain of Custody; Salvaged Wood Content

SPS-0002
EXP. 01 NOV 2025
Original Issue Date: 2015

MANUFACTURER RESPONSIBLE FOR LABEL ACCURACY
INTERNATIONAL LIVING FUTURE INSTITUTE™ living-future.org/declare

Sheep's Wool

- Sheep's Wool
- R-3.6 / inch, available, blown-in or in batts.
- Excellent moisture management characteristics
- Binds to formaldehyde, removing from air and making the material antimicrobial over time.
- Class A Fire rating
- Wool sourced in New Zealand
- 50 year warranty, longer expected lifespan
- Not soul-crushingly expensive!

Wool Treatment and Manufacture

Functional unit

Reference service life: 75 years. One square meter of installed insulation material, packaging included, with a thickness that gives an average thermal resistance of RSI=1m2·K/W over a period of 75 years.

Batts

Reference flow: .997 kg per m^2

Thickness: .0399 m

Loose-fill

Reference flow: .607 kg per m^2

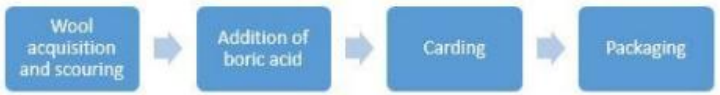
Thickness: .0335 m

Manufacturing data

Reporting period: January 2019-December 2019

Location: Reno, NV

Data represents a mix of primary data from Havelock on the production of the insulation products (gate-to-gate) and background data from SimaPro databases. The quality is considered to be high and representative of the described systems. Data for material processing and product manufacturing were collected in a consistent manner and were checked for plausibility of inputs and outputs to ensure high quality.

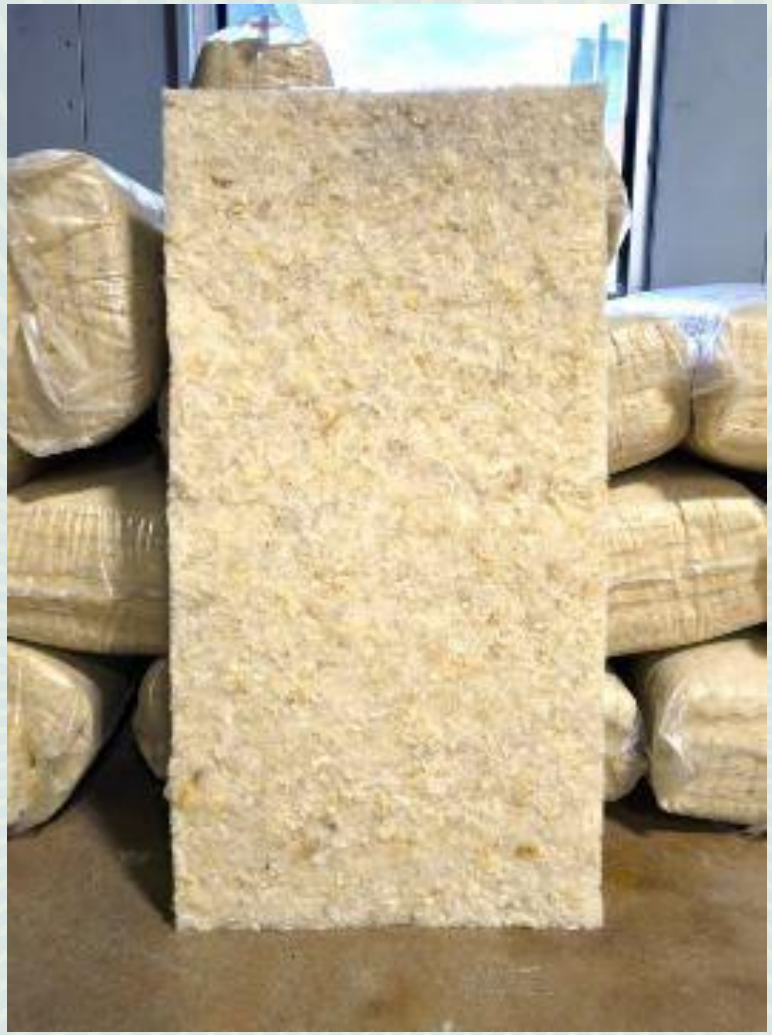


- Harvested and washed
- Transported to US for processing
- Treated with Boric Acid
- Processed through machines to “weave” fibers
- Can be either blown in or batt

SMALL PLANET SUPPLY
PLAN IT WITH THE PLANET IN MIND

Wool Batts

- R3.6/inch
- Easy installation
- Class A fire rating
- Precut on standard framing intervals
- Resistive to water
- Non-hazardous install



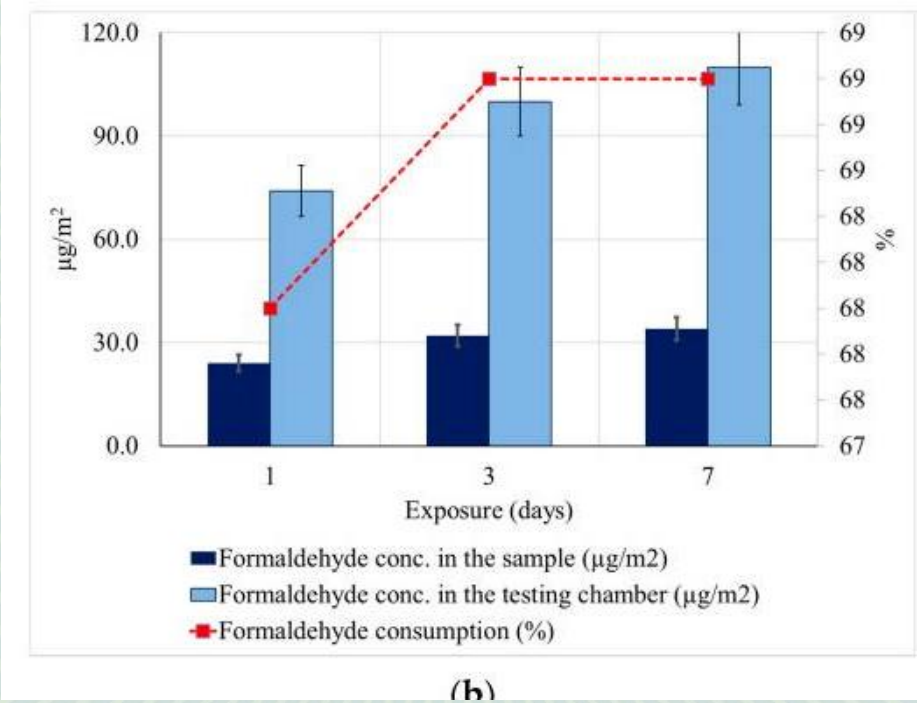
SMALL PLANET SUPPLY
PLAN IT WITH THE PLANET IN MIND

Blown in

- R4.3 /inch
- Retained by netting
- Great for rafters/attics
- Doesn’t sag!

SMALL PLANET SUPPLY™

PLAN IT WITH THE PLANET IN MIND



(b)

Explore more at:

www.smallplanetsupply.com

Study on VOC Absorbtion

- Absorbs meaningful amounts of formaldehyde
- Manages moisture well
- Becomes antimicrobial over time with formaldehyde exposure
- Check out the paper! – Improving Indoor Air Quality by Using Sheep Wool Thermal Insulation


ROTECTED BY
Wool
Performance Insulation


WALLS PR


Havelock Wool


PROTECTED BY


WALLS PROTECTED BY
Havelock Wool
Healthy, High-Performance Insulation


Havelock Wool
Healthy, High-Performance Insulation


Havelock Wool
Healthy, High-Performance Insulation

Questions about Title 24?

3C-REN offers a *free* Code Coach Service

Online:
3c-ren.org/code

Call:
805.781.1201

Energy Code Coaches are local experts who can help answer your Title 24 Part 6 or Part 11 questions.

They can provide code citations and offer advice for your res or non-res projects.

Closing

Continuing Education Units Available

- Contact itzel.torres@ventura.gov for AIA LUs

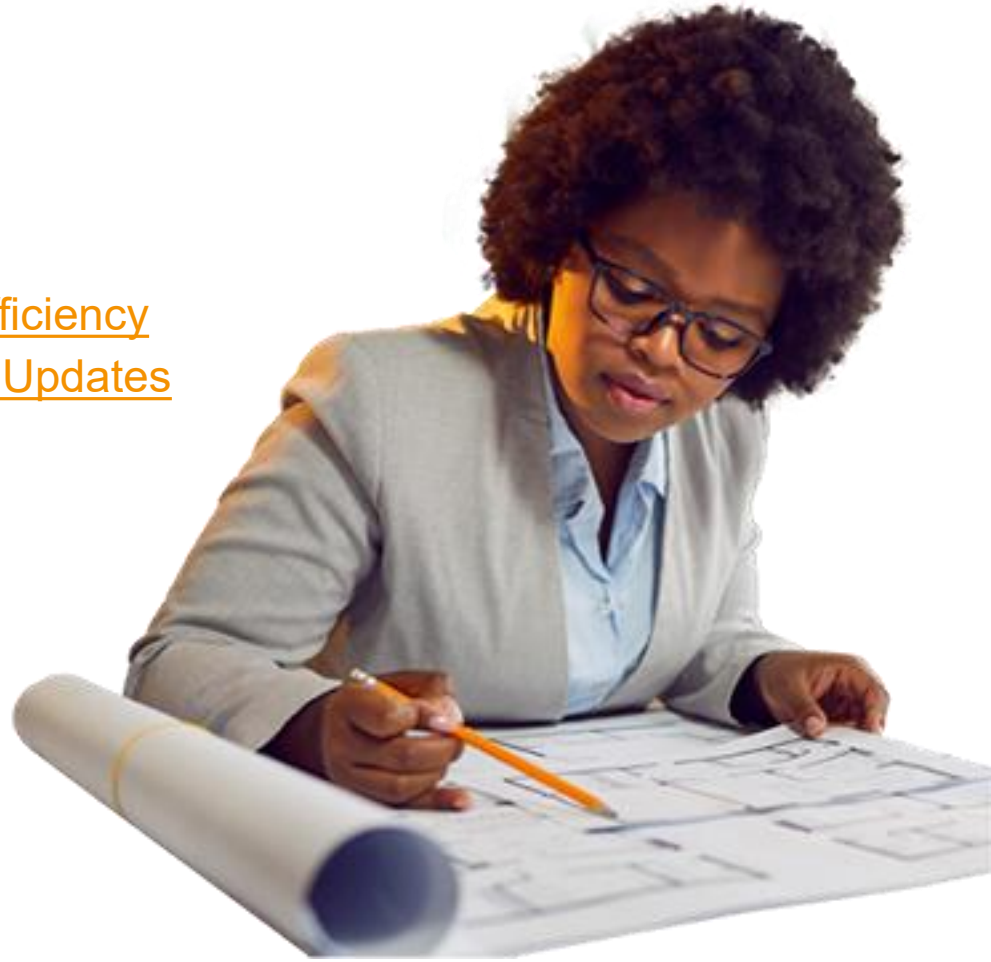
Coming to Your Inbox Soon!

- Slides & Recording

Upcoming Courses:

- 6/17 - Optimizing Heat Pump Zoning for Maximum Comfort and Efficiency
- 6/25 - ADU: Energy Code Implementation Series, with 2025 Code Updates
- 6/26 - Mechanical Systems in Detail
- 6/27 - Ask the Experts: Heat Pump Water Heater Installations

Any phone numbers who joined? Please share your name!



Thank you!

More info: **3c-ren.org**

Questions: **info@3c-ren.org**

Email updates: **3c-ren.org/newsletter**

3C REN

TRI-COUNTY REGIONAL ENERGY NETWORK

SAN LUIS OBISPO • SANTA BARBARA • VENTURA