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Practical Paper Prototypes

Paper Experiments for the Mirrored Mill

A Matter of Scale *Methods of Analysis and Imagination*
Supplementary Booklet

PREAMBLE This supplementary booklet provides additional notes and insight into the proposed paper-based interventions of the graduation thesis titled 'The River and Its Industrial Ghosts'. It suggests means of re-making and reusing paper, and envisions paper waste as a protagonist in the construction and spatial practices of the building, acting as a narrative tool that reactivates the former riverside paper mill.

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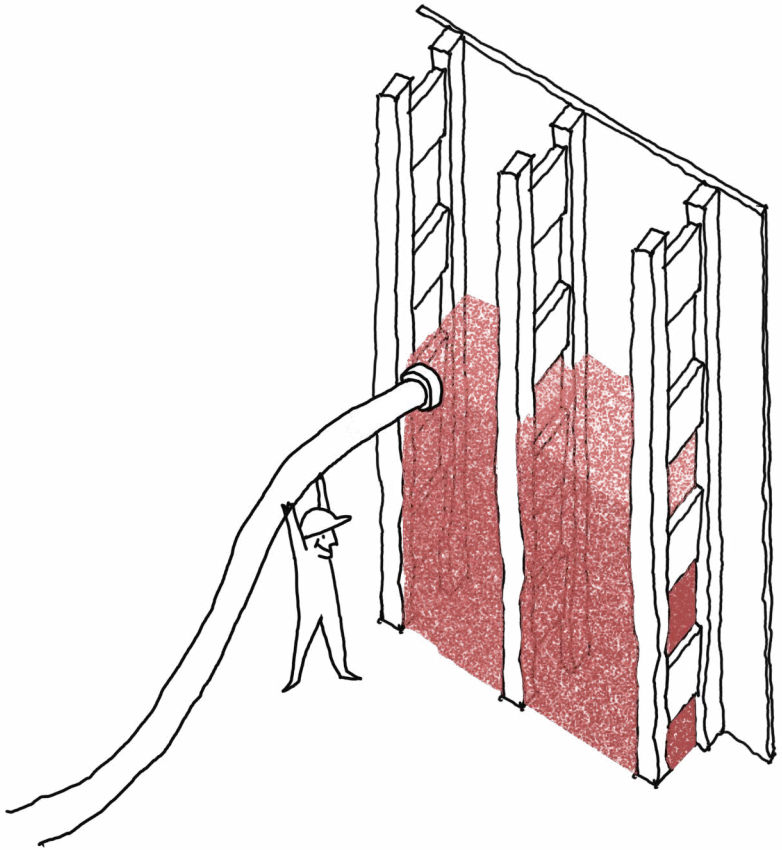


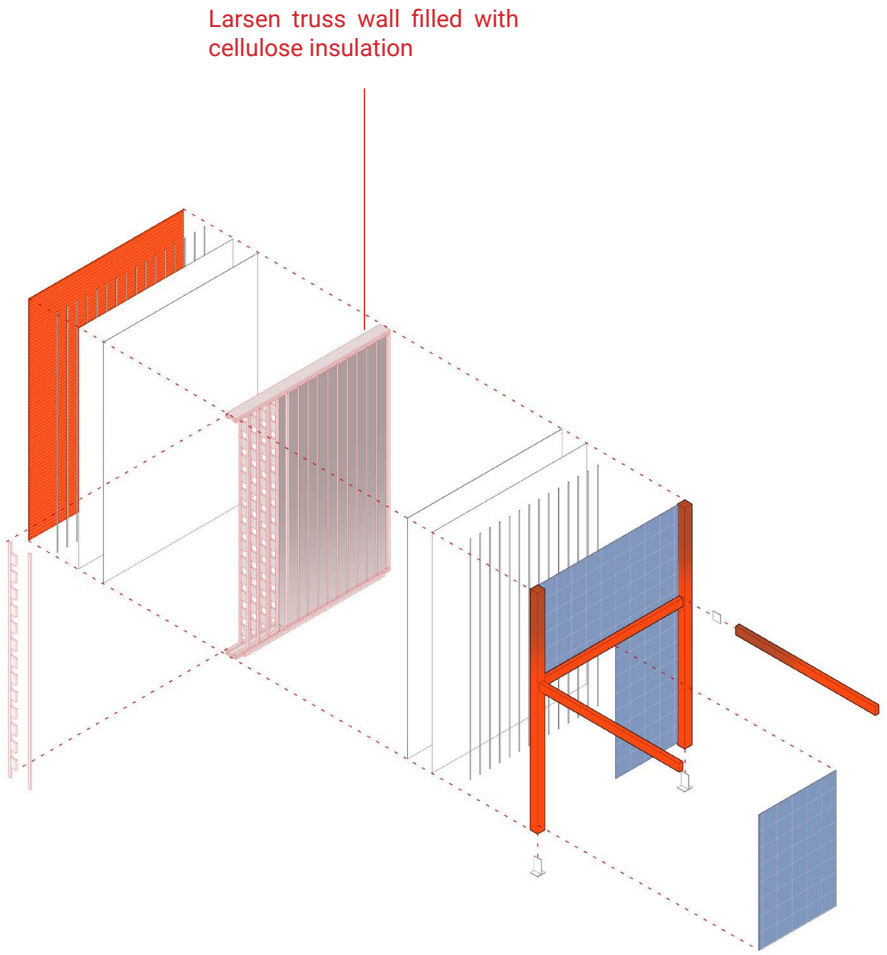
01

Paper as

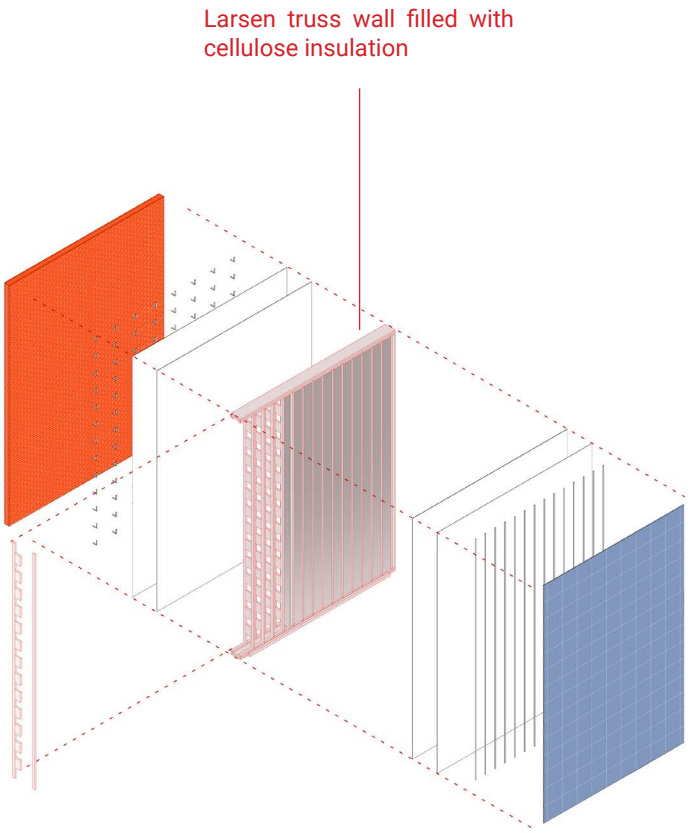
Cellulose Insulation

Tafelsky, T. (2024, October 31). ***Cellulose insulation: A complete guide to the greenest insulation. Eco-Building Products.*** https://eco-buildingproducts.com/blogs/blog/cellulose-insulation-guide?srsltid=AfmBOoo1loNStXbOruUUh5z5l3Iz0sKKaPjVkp920sHSXT4X_gD18pcw

Cellulose insulation is used extensively throughout the proposed building as it is made from paper. Application can be varied, whether it is blown-in, batt insulation, wet-spray or dense-packed. The thickness of the insulation layer is 400mm to combat Estonia's cold climate, and it is a thickness suitable for passive insulation of the building envelope.

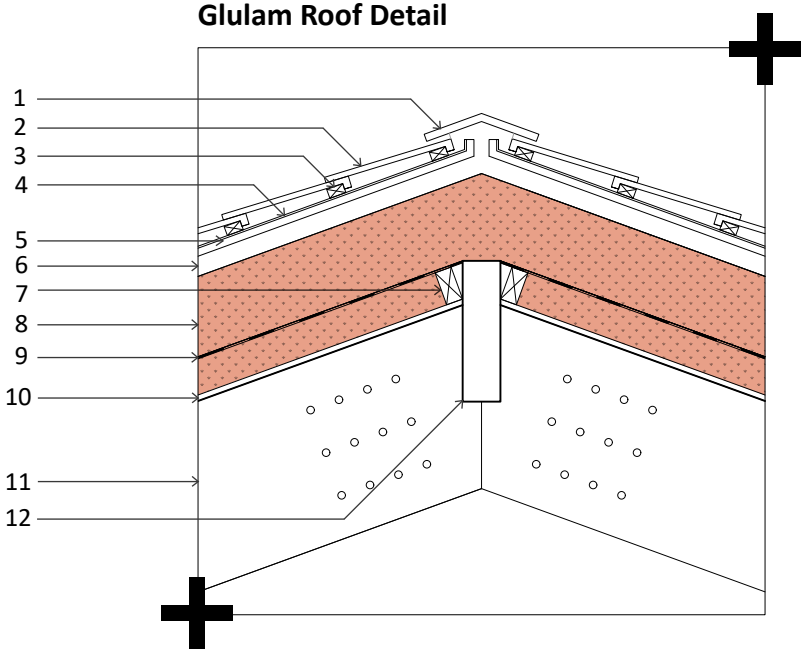


Insulation layer in context of new built walls



Insulation layer in context of retrofitting existing walls

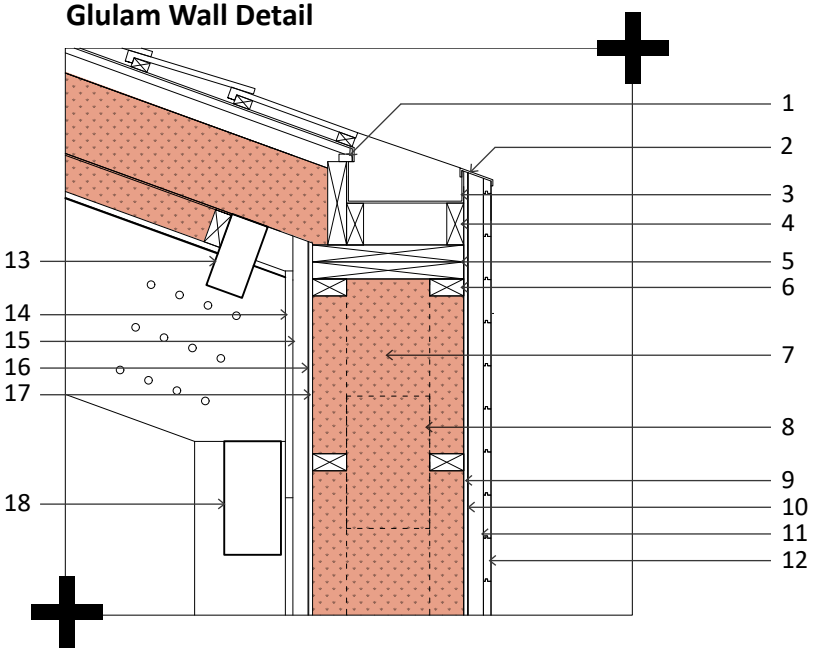
Glulam Roof Detail



1	Ventilated ridge
2	Sliver birch timber shingle
3	Wooden batten 45x25
4	Felt underlay
5	Sheathing
6	Airing
7	Wooden stud 90x45
8	Dense-packed cellulose insulation
9	Vapour barrier
10	Interior lining
11	Glulam roof truss 600x300
12	Glulam ridge beam 370x100

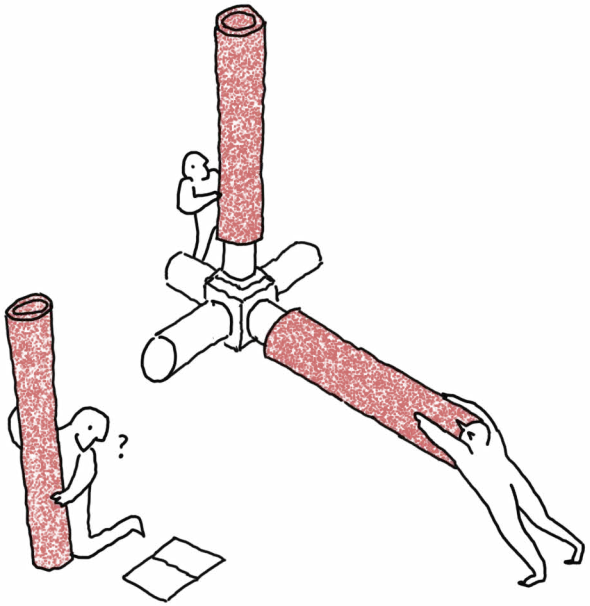
1:20 0 1 2 metres

Glulam Wall Detail



1	Rafter vent
2	Metal flashing
3	Rain gutter 300mm wide
4	Blocking
5	Double top plate
6	Wooden stud 90x45
7	Dense-packed cellulose insulation 600mm thk
8	Plywood gusset
9	Structural sheathing
10	Moisture barrier
11	Vertical batten
12	Silver birch tongue and groove cladding
13	Glulam purlin 200x100
14	Paper-based wall tile 600x600
15	Vertical batten
16	Vapour barrier
17	Sheathing
18	Glulam beam 300x200

1:20 0 1 2 metres

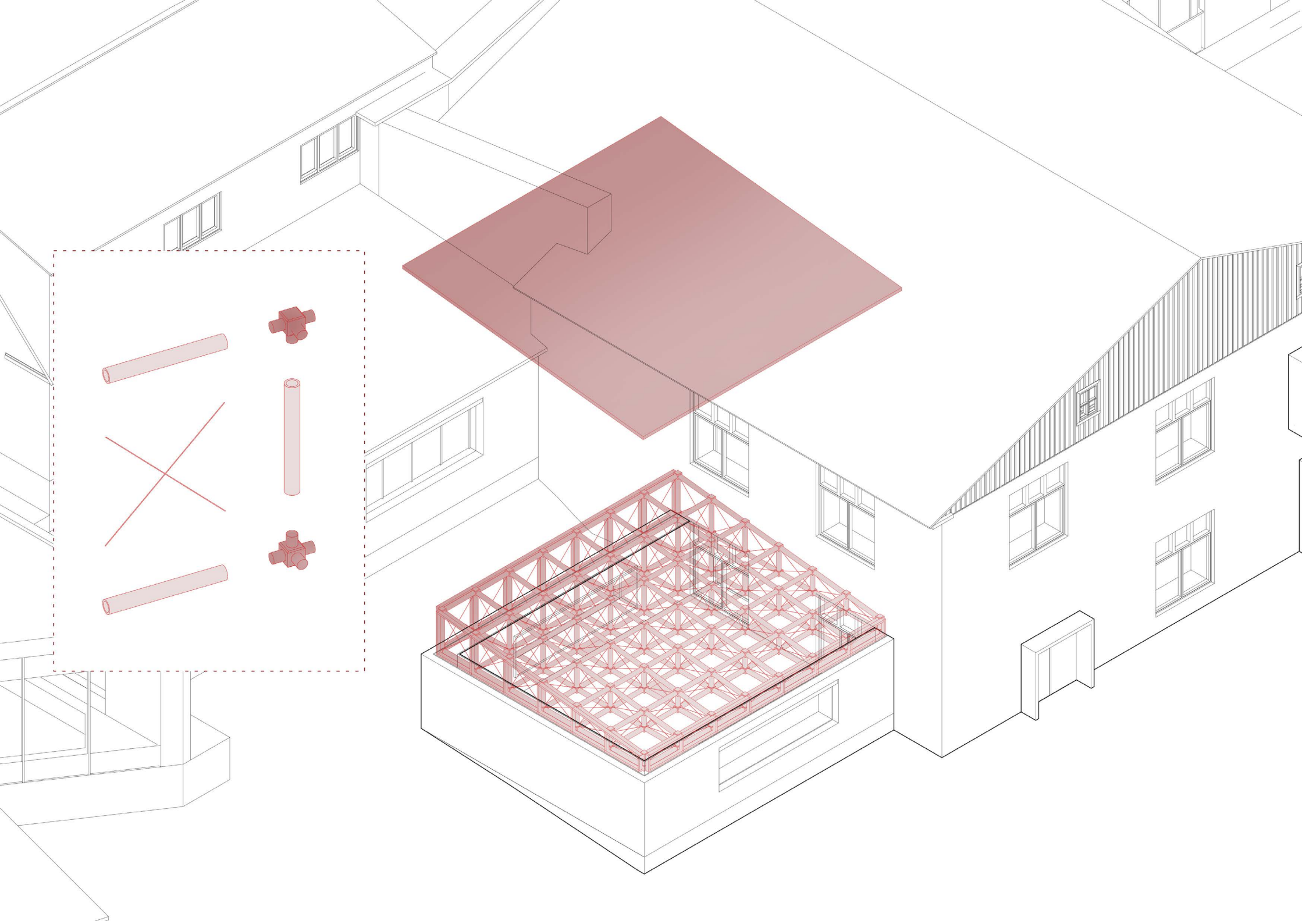


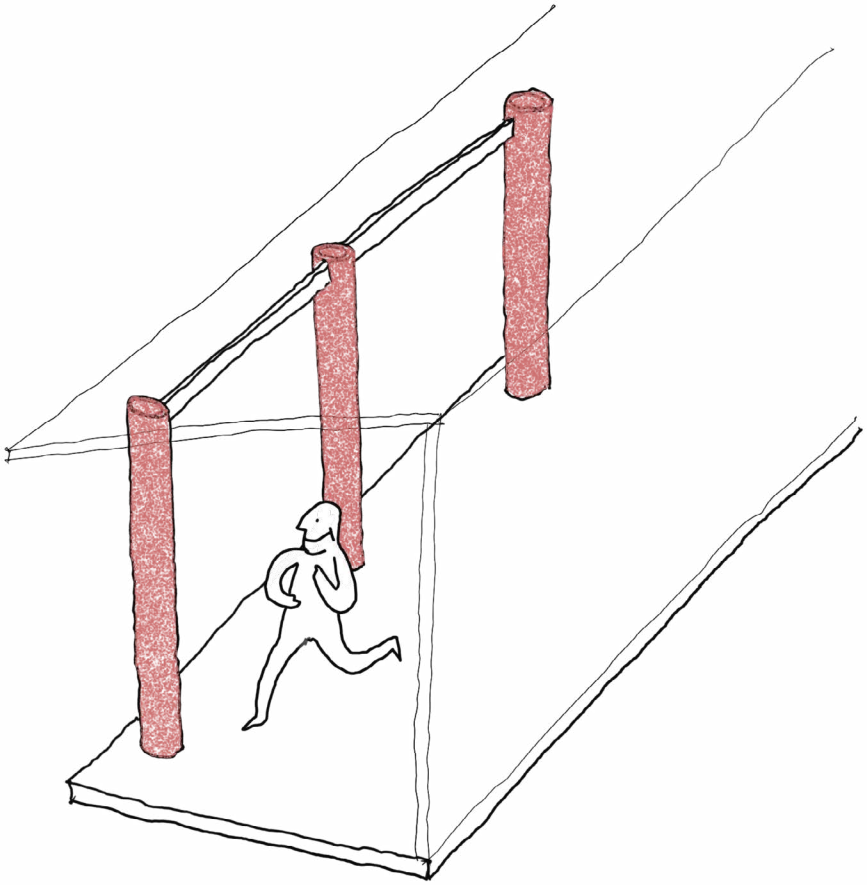
Shigeru Ban Architects. (2013). ***Madrid paper pavilion***. https://shigerubanarchitects.com/works/exhibitions/madrid-paper-pavilion/

02

Paper as
Roof

Industrial paper cores have a strong potential in more structural purposes, as extensively explored by Japanese architect Shigeru Ban. The proposal includes an experimental paper lab attached to the existing paper mill which acts as a testing ground of sorts for future paper experiments on-site. It currently takes on a roof structure inspired by Shigeru Ban's IE Paper Pavilion in Madrid as a prescriptive design gesture and invitation for future ideation.





Shigeru Ban Architects. (1994). ***MDS gallery***. https://shigerubanarchitects.com/works/exhibitions/madrid-paper-pavilion/

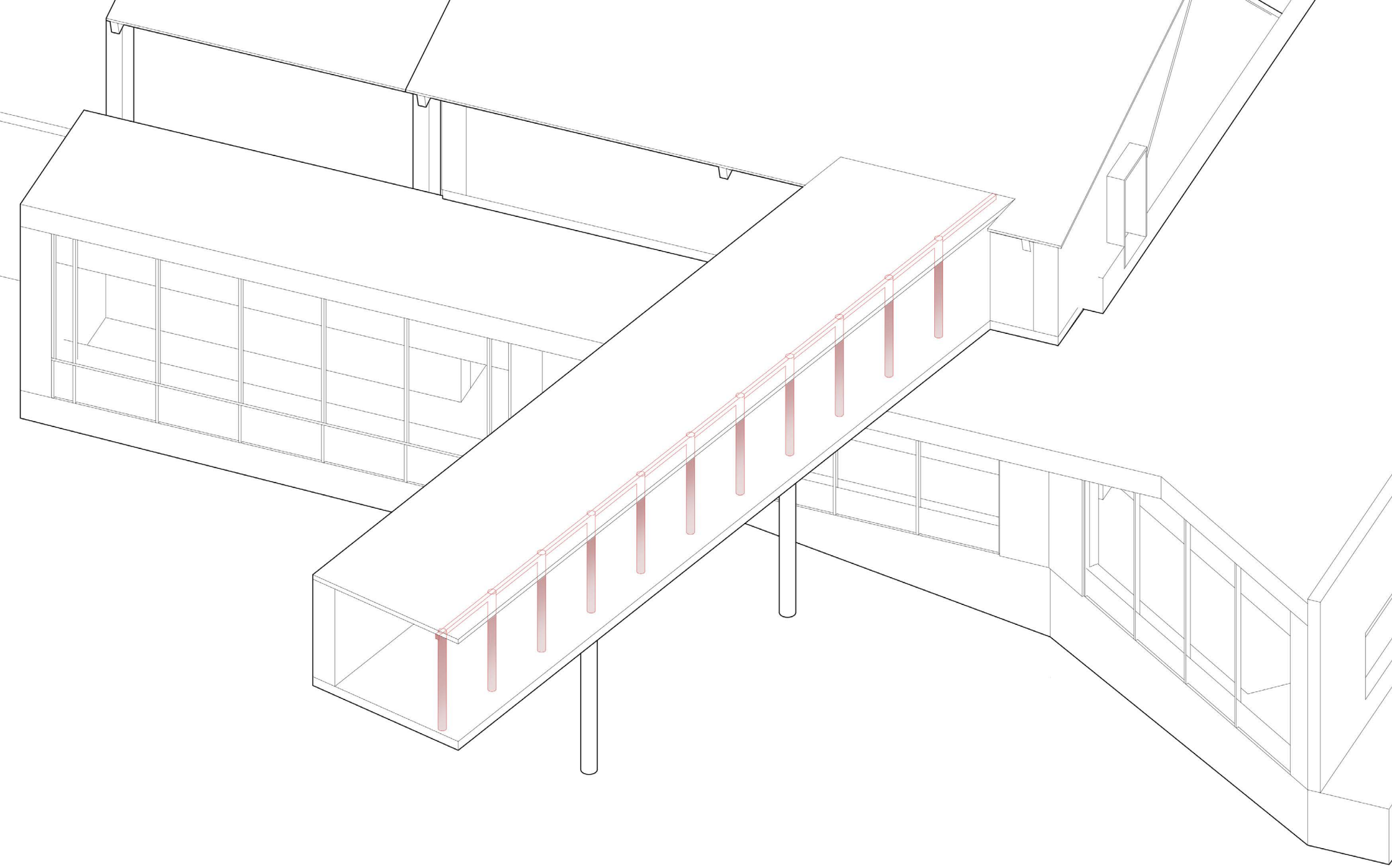
Shigeru Ban Architects. (1995). ***Paper house***. https://shigerubanarchitects.com/works/paper-tubes/paper-house/

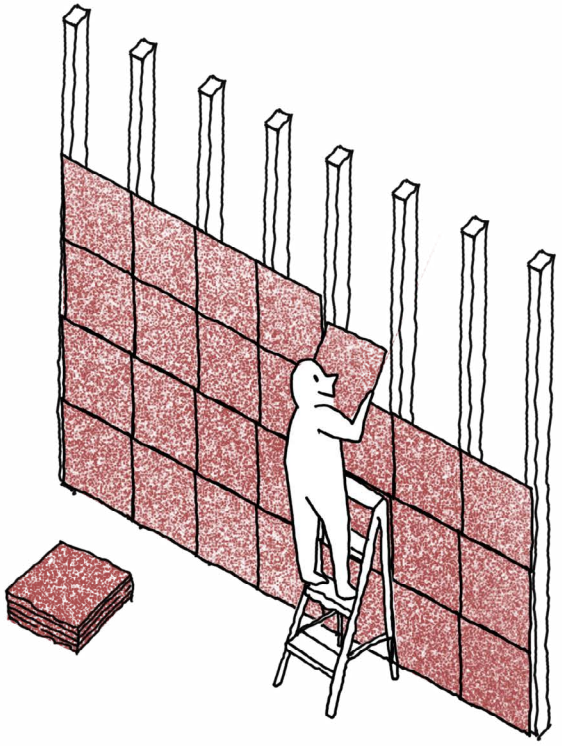
Industrial paper cores have a strong potential in more structural purposes, as extensively explored by Japanese architect Shigeru Ban. The proposal includes a walkway which is partially supported by industrial paper cores.

03

Paper as

Walkway

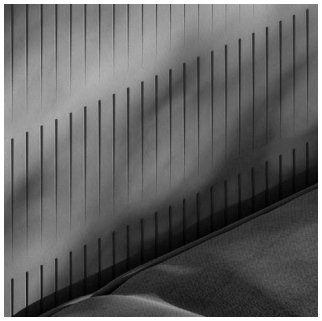




04

Paper as

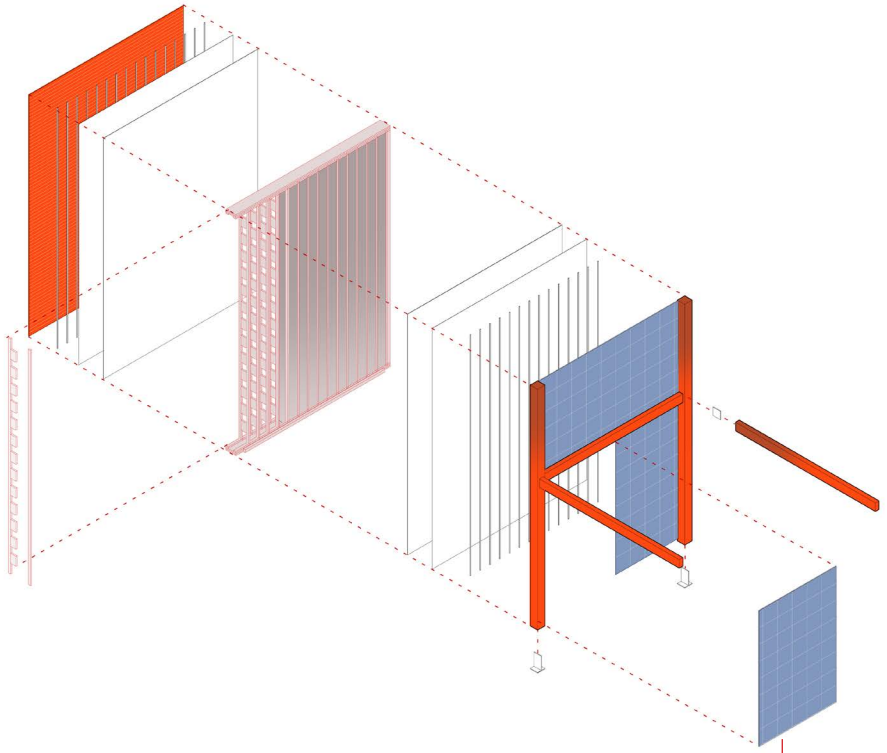
Wall Tiles



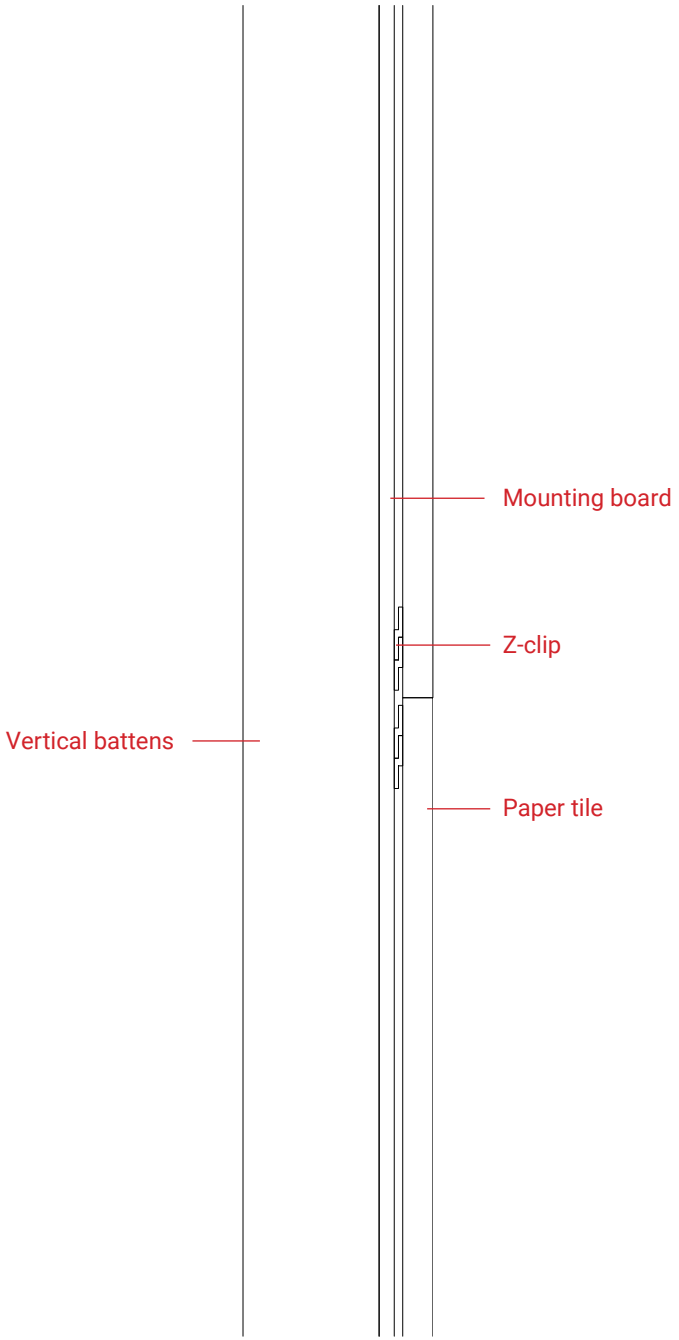
Dear Human. (n.d.) ***Paper tile.*** https://www.dearhuman.ca/papertile/

FRONT. (n.d.). ***Paper waste panels.*** https://www.front-materials.com/paper-waste-panels/

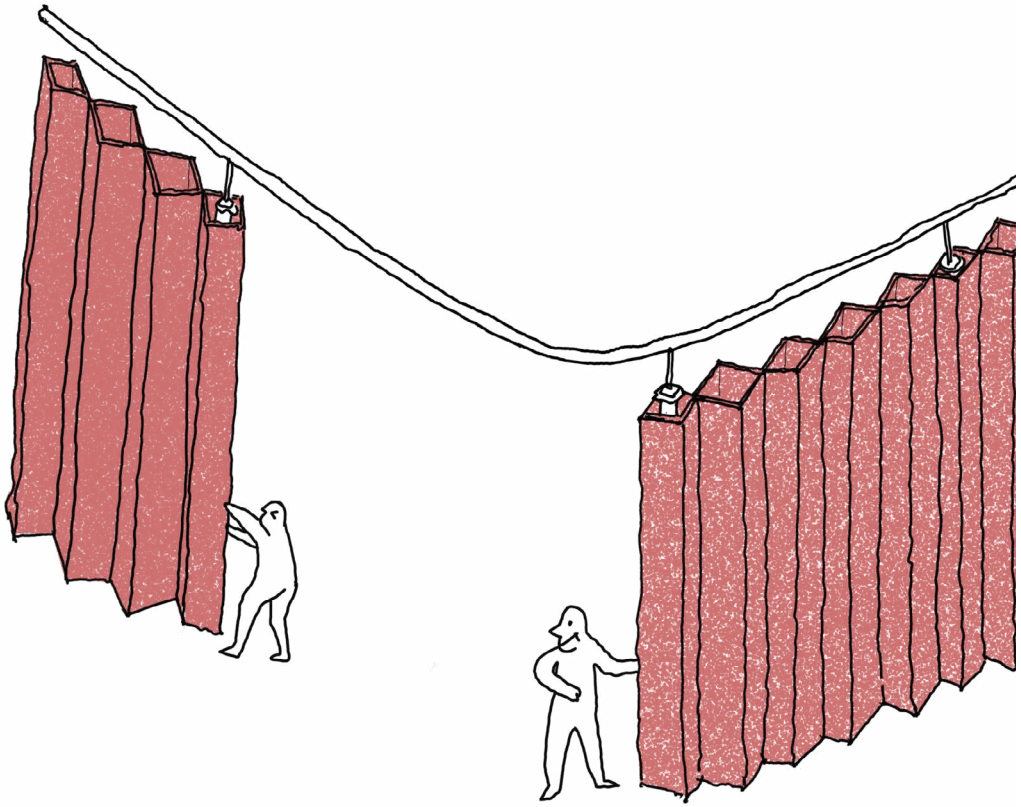
Paper waste can be processed into a pulp and subsequently re-casted into other objects. In this case, it proposes that it is re-casted into tiles applied to internal walls at dry zones.



In-house made paper wall tiles, 600x600mm



1:5 0 50 100 mm



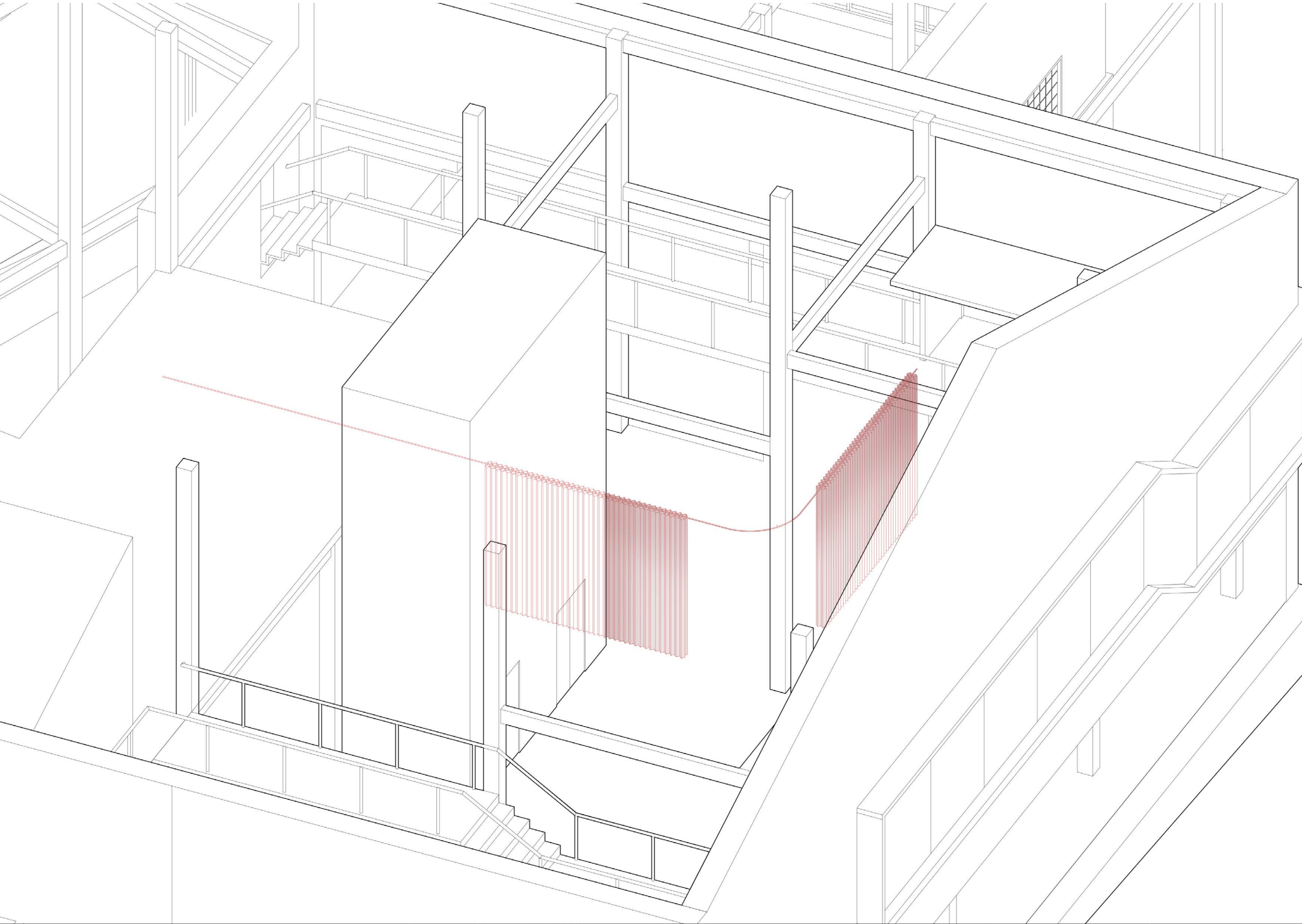
Molo. (n.d.). ***Paper softwall: Flexible freestanding partition.*** https://molodesign.com/collections/space-partitions/paper-softwall-folding-wall/

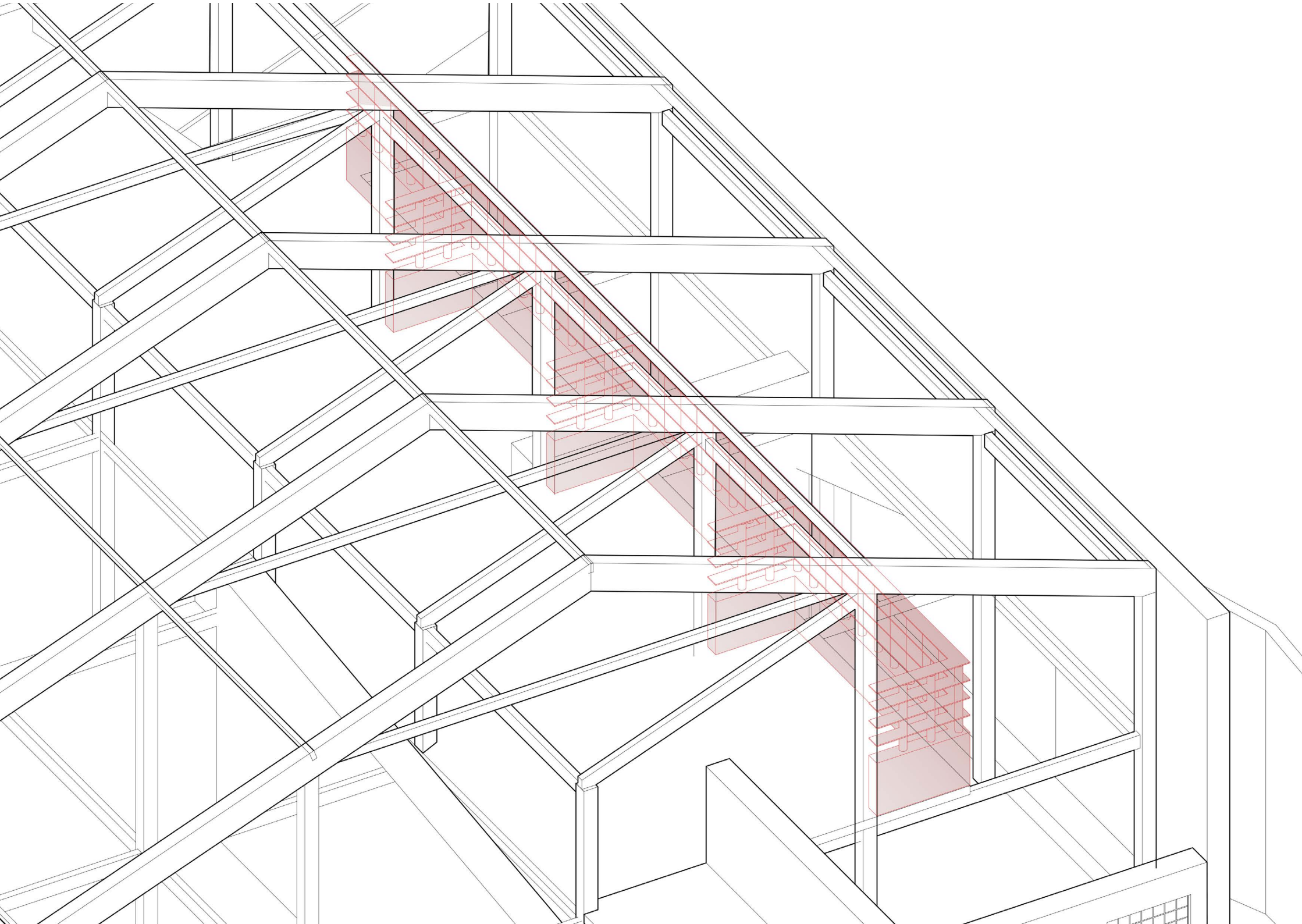
Shigeru Ban Architects. (2021). ***Papertube shelf.*** https://shigerubanarchitects.com/works/papertube-shelf/

05

Paper as
Partitions

Paper can be applied as varied partitioning systems in the building, making the spaces adaptable, flexible, and personalisable. The proposal allows opportunity for the installation of more curtain-like movable partitioning systems, and more immovable systems such as shelving.





06

Paper in
Gardens

Steve. (2019, September 4). ***Composting shredded paper and coffee grounds.*** https://www.valleygardens.com/composting-shredded-paper-and-coffee-grounds/

Rona. (2021). ***Do it yourself: Plantable seed card.*** https://www.rona.ca/en/workshop/diy/plantable-seed-card

Paper waste also has applicable potential in gardens, such as in compost, mulch, or as a soil additive. Alternatively, one of the outputs of the makerspace can be plantable seed cards or other paper-based crafts.