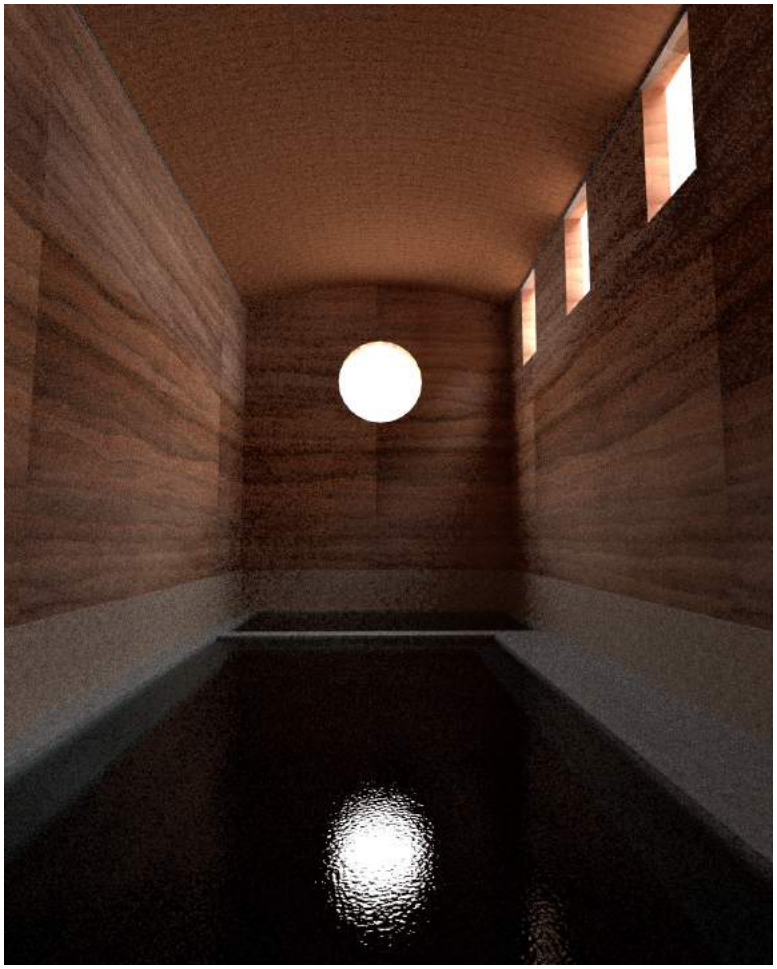

BALNEUM GOVANHILL

Sustainability Degree Show Prize 2018 Entry

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This two page summary consists of excerpts from the Architectural Technology booklet that accompanied the Studio proposal in semester two.

"...the elevator and the toilet. They are the only two valid things that were invented in the past century."[1]

Adolf Natalini - Superstudio

Piped water and the indoor WC & bathroom are perhaps the most undervalued modern conveniences in our homes, yet over the past century this very convenience has increased our consumption of this limited resource.[2] Our supply networks provide potable water to drink, bathe & flush toilets, and everything is disposed into one rudimentary, overburdened sewage system. Plumbing efficiencies result in cramped rooms where we both defecate and bathe, a combination that indignifies both activities.

This project, a bathhouse for Govanhill, attempts to consider bathing more sustainably at a holistic, neighbourhood scale. Its title, Balneum, refers to smaller, private, local Roman bathhouses. It acknowledges the history of bathing in Govanhill, and proposes that shared rituals around water are intimately linked with its strength of community (aside from Govanhill baths, the area was also home to Glasgow's last shared WC). It asserts that technology alone will not achieve sustainability: changes in behaviour and culture[3] to ultimately reduce demand must also be pursued. The proposal, a temple of bathing, imagines that in the near future, we will have a choice of water tariffs: expensive bathing water piped to your home, or an affordable subscription to your local bathhouse.

1. http://st-ar.nl/deadly-serious-%E2%80%93-interview-with-adolfo-natalin
2. https://www.theguardian.com/lifeandstyle/2014/jul/15/why-modern-bathroom-wasteful-unhealthy-design
3. https://www.theguardian.com/fashion/2017/oct/01/vivienne-westwood-secret-to-staying-young-dont-wash-too-much

Research

Construction

As well as needing to meet the structural and environmental demands of a Bathhouse, the chosen construction approach should also endeavour to meet the aspirational design targets of low-carbon construction and healthy building materials' use. The report titled "Scotland's Traditional Building Materials: A consideration of current provision, challenges and opportunities"(2017) by Historic Environment Scotland provides some useful information used to assess the feasibility of vernacular construction materials and methods, as shown in excerpts from the report below. After an assessment of options (opposite), Earth Construction was seen to have the greatest potential.

Table 1: Summary of current material supply situation

Material	Raw material in Scotland?	Scottish source now?	Imported source?	Consistent supply?	Skills to manufacture?	Could we protect or aid access?
Building stone	Y	Y	Y	N	SOME	Y
Slate	Y	Y	Y	N	N	Y
Stone slate	Y	Y	N	N	Y	Y
Lime	Y	N	Y	Y	Y	Y
Aggregate	Y	Y	Y	Y	Y	Y
Timber	Y	Y	Y	Y	Y	Y
Clay and Earth	Y	Y	Y	Y	Y	Y
Brick	Y	N	Y	Y	Y	N
Thatch	Y	Y	N	N	Y	Y
Cast iron	Y	Y	Y	Y	SOME	N
Wrought iron	Y	N	N	N	N	N
Lead	Y	N	Y	Y	Y	N
Glass	Y	N	Y	Y	N	N
Paint	Y	N	Y	Y	N	N

Table 2

Material	Scale of use in Scotland	Technical reasons for use	Potential as low carbon?	Potential for new build?	Sustainability score	Total
Building stone	10	10	8	7	7	**42**
Slate	9	8	8	9	8	**42**
Clay and earth	5	6	10	7	10	**38**
Stone slate	3	8	8	9	9	**37**
Thatch	2	4	10	10	9	**35**
Brick	6	4	4	9	7	**30**
Cast iron	7	8	4	2	3	**24**
Wrought iron	4	10	4	1	2	**21**

Structural Systems Comparison

	Timber Construction	Steel Frame Construction	RC Frame Construction	Earth Construction
Inherent Thermal Mass	No	No	Yes	Yes
Embodied Carbon	Medium - though offset by carbon storage capability	Medium/High - option to specify recycled steel; high energy input	High - can be offset by low-carbon additives and consideration of longevity	Low - dependant of local availability
Dimensional Stability	Low - constant humidity required	High	High	Medium - must be kept dry (though humidity OK)
Resistance to corrosion (moisture, warmth, chlorine)	Medium	Medium	High	High
Sustainable sourcing	Yes	Yes	No	Yes
End of Life	Reusable & Recyclable	Fully Recyclable	Reuse as aggregate	Reusable
Fire Proofing requirement	Yes	Yes	No	No
Skills Availability	Yes	Yes	Yes	No