

LOMOND HOMES

Lomond Breathing Wall Block 8 1 x 2 Bedroom and 1 x 3 Bedroom General Needs House



The Lomond Breathing Wall system is a truly Modern Method of Construction (MMC) that uses “fabric first” principles to deliver affordable, comfortable and low-maintenance housing.

The Lomond Breathing Wall system is based on *Dynamic Insulation* technology (from Lomond’s partner, Energyflo), a simple, building-fabric solution that delivers smarter carbon reduction for low carbon, energy-efficient buildings.

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Dynamic Insulation transforms the external walls into heat exchangers, capturing the escaping heat and using that to pre-warm the incoming air, thus reducing the demand for space heating, so bringing lower energy consumption, hence fuel bills and carbon emissions.

Designed for conventional thin wall construction, Dynamic Insulation easily integrates the insulation and ventilation system into one simple solution that uses familiar building methods, and no ongoing maintenance or costly add-on thermal technologies.

The Lomond Breathing Wall System also brings added health benefits, as the constant background ventilation maintains a low level of relative humidity, improving indoor air quality and creating a healthier living environment.

Derek Grubb, Lomond's project leader for the Fife Housing Innovation Showcase, said: "Lomond Homes truly appreciates this opportunity to participate in the HIS event; it's a great platform to demonstrate our Breathing Wall system to a wider audience.

"Our system is a highly insulated, timber-framed external wall construction, which delivers low heat loss through low U values. It's a high-performance construction solution for low-carbon, energy-efficient homes, which transforms the thermal performance of building envelopes while still maintaining thinner walls and smaller house footprints."

Unique and important aspects

- Reduced heat loss due to low U-values
- Simple building-fabric solution, easily integrating insulation and ventilation
- Reduced condensation risk, bringing improved indoor air quality
- Particularly good ratios of U-value to insulation thickness
- Designed for conventional thin wall construction methods to maintain smaller house footprints

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DESIGN OUTPUTS	PLOT 22 2 Bedroom House	PLOT 23 3 Bedroom House
CONSTRUCTION	Lomond Breathing Wall Timber Frame	
GROSS INDICATIVE FLOOR AREA M ²	83.42	95.76
AVERAGE SUPERSTRUCTURE COSTS PER UNIT (INCLUDING RENEWABLES / EXCLUDING PRELIMS)	£63,983	£73,653
AVERAGE M ² SUPERSTRUCTURE COSTS PER UNIT (SEE NOTE 1)	£767	£769
CONSTRUCTION PERIOD (SUPERSTRUCTURE)	NUMBER OF WORKING DAYS OFF / PRE SITE : 7	
	NUMBER OF WORKING DAYS ON SITE : 83	



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DESIGN OUTPUTS	PLOT 22 2 Bedroom House	PLOT 23 2 Bedroom House
SAP RATING (BASED ON 2009 SAP)	90B	91B
C02 RATING (BASED ON 2009 SAP)	93A	93A
U VALUES		
WINDOWS	0.8	0.8
DOORS	1.40	1.40
EXTERNAL WALLS	0.09/0.19	0.09/0.19
FLOORS	0.16	0.16
ROOF	0.13	0.13
RENEWABLES	Photovoltaic Panels / Voltage Optimisation	
ELECTRICITY GENERATED	147.99	164.06
AIR PERMEABILITY (at Design Stage)	3.0	3.0
AIR PERMEABILITY (Actual)	2.82	2.87
VENTILATION SYSTEM	DynamicWall / CMEV	
BOILER EFFICIENCY	90.0%	90.0%
ENERGY USE		
SPACE HEATING (KWH/YEAR)	2584.02	2767.42
WATER HEATING (KWH/YEAR)	2706.88	2763.53
LIGHTING (KWH/YEAR)	364.54	432.36
ANCILLARY (KWH/YEAR)	244.46	254.74
TOTAL (KWH/YEAR)	5899.90	6218.05
ENERGY COST		
SPACE HEATING (£/YEAR)	80.10	85.79
WATER HEATING (£/YEAR)	83.91	85.67
LIGHTING (£/YEAR)	41.78	49.55
ANCILLARY (£/YEAR)	134.02	135.20
TOTAL ENERGY COST (£/YEAR) EXCLUDING SAVING FROM ENERGY GENERATED	339.81	356.21

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