

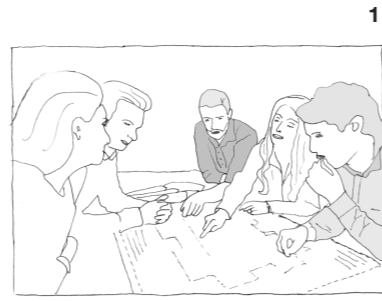
Man-Milled-Home

Digital Design & Fabrication Meets Self-Build

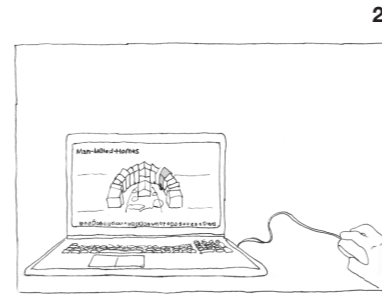
Digital design & fabrication is the new frontier in business competition for both manufacturing and service industries. Bringing computer-aided manufacturing systems onto site facilitates a tremendous increase in flexibility and efficiency without a corresponding increase in costs.

House building in the UK is still shockingly out of pace with technological advance in other sectors and our Man-Milled-Homes show that by combing their skills self builders could lead the way in efficient and ecological housebuilding in the UK.

The Design Process: Employing Accessible Design Technology to Empower Self Builders



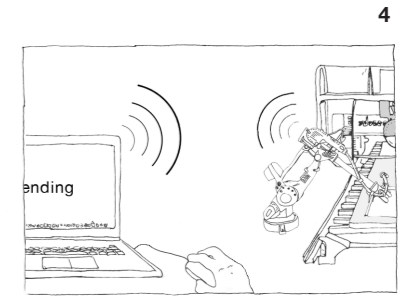
Working with architects the community establishes design parameters



Individuals & families select their plot within the agreed framework.

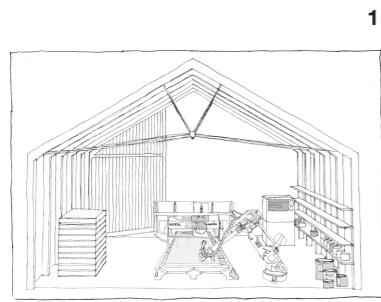


Individuals & families customise their dwelling using simple design software.

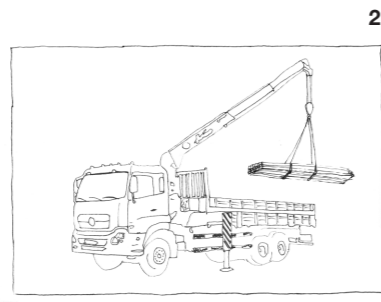


Designs are sent to the on-site digital manufacturing hub.

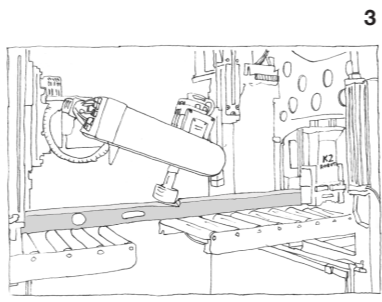
The Construction Process: Digital Design & Fabrication Meets Mass Co-operation.



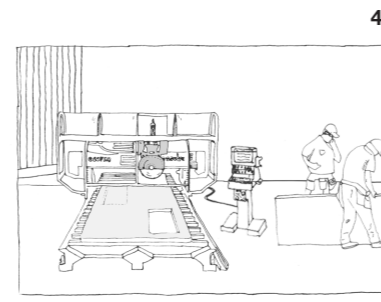
Digital manufacturing hub installed on site (machinery to be rented from timber supplier)



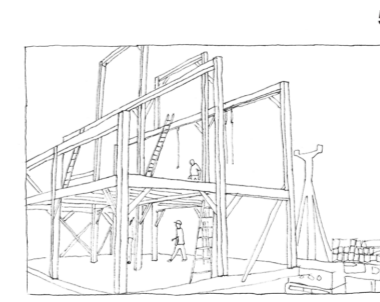
Raw materials are delivered to on-site processing hub (glulam beams and clip laminated flooring & studwork)



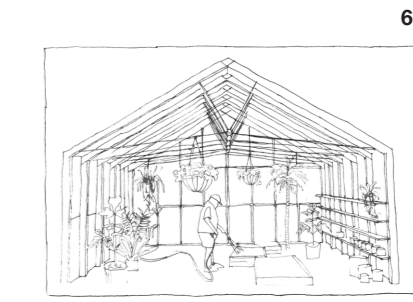
Exo-skeletal structural timber framework is milled by trained members of the self build community



Individual dwelling components are milled by trained members of the community



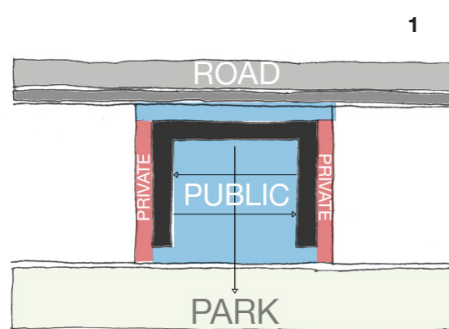
Community sequentially constructs framework and individual dwellings



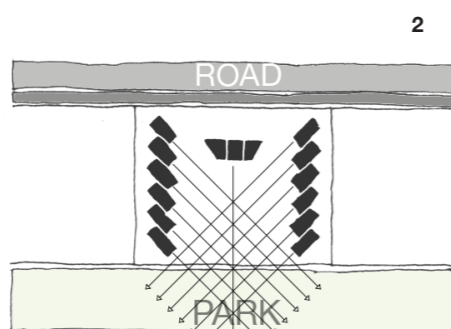
Computer aided sawmill is returned to timber supplier and manufacturing hub re-purposed as community greenhouse



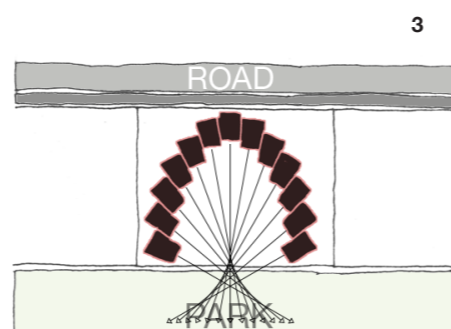
The Site Layout Concept: Establishing the Design Parameters:



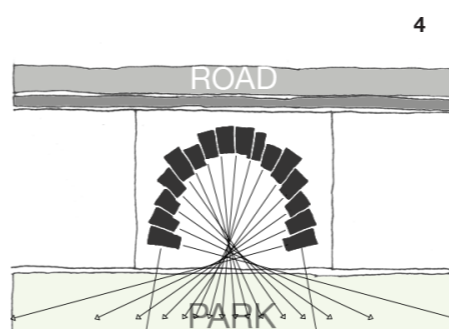
Maximum amenity space including public and private gardens



All dwellings afforded a south-facing views over the park



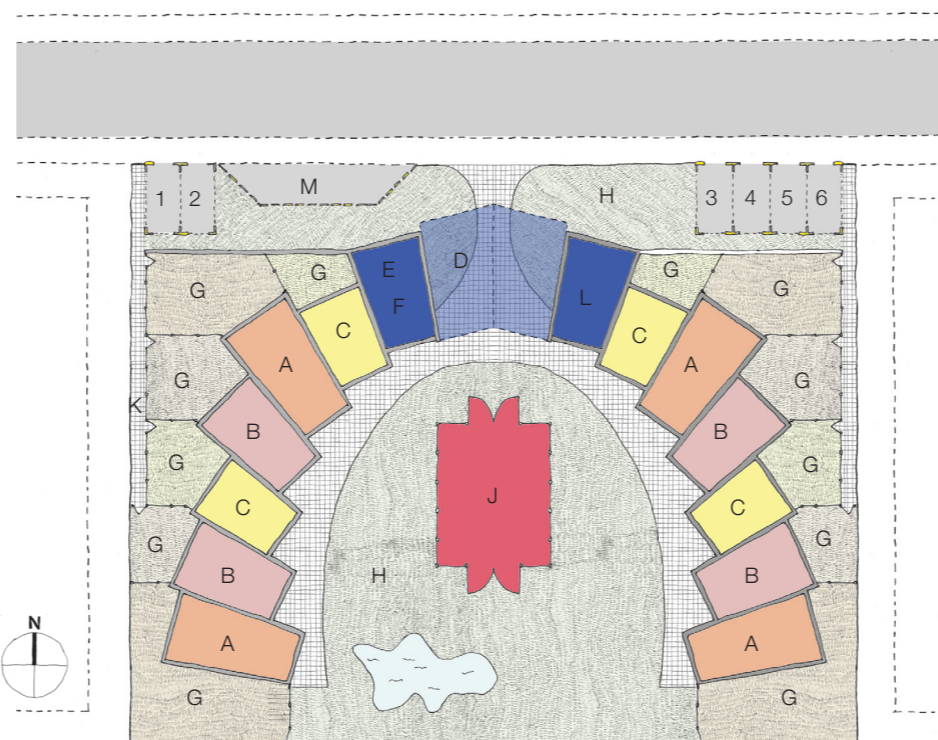
Continuous building envelope minimising thermal loss & cost



Building footprint altered to accommodate dwelling sizes

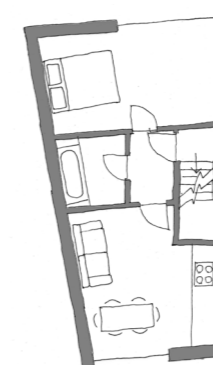
The Site Plan: Key

- A - 5 person dwelling (3 storey house - 101m²)
 - B - 4 person dwelling (3 storey house - 81m²)
 - C - 3 person dwelling (3 storey house - 64m²)
 - D - 2 person dwelling (single storey flat - 46m²) - stacked on 1st and 2nd storeys
 - E - 1 person dwelling (single storey flat - 37m²) - stacked on 1st and 2nd storeys
 - F - Ground floor cycle storage area and communal stair access to 1 & 2 person dwellings
 - G - Private garden space for 3, 4 & 5 person dwellings
 - H - Communal garden space, landscaped and planted, including pond and mature trees
 - J - Communal greenhouse (digital manufacturing hub while scheme is under construction)
 - K - Rear access to private gardens
 - L - Communal bin store at ground level and communal stair access to 1 & 2 person dwellings
 - M - Vehicle set down area
- Parking** - 6 parking bays provided as well as a set-down bay for loading / unloading

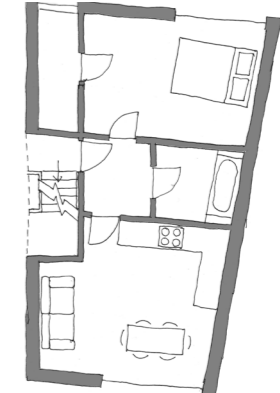


Example floor plans @ 1:200

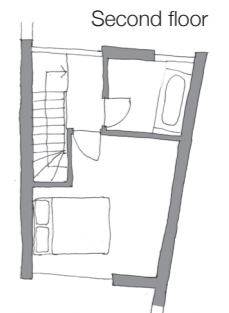
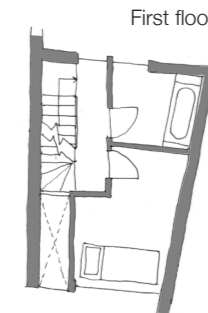
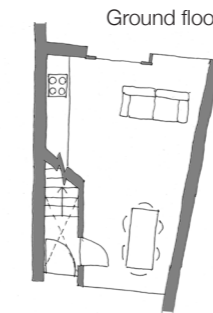
1 person flat - 37m² GIA



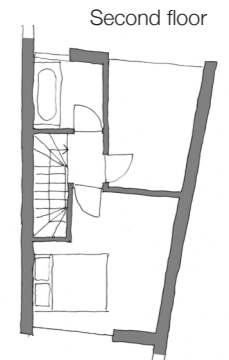
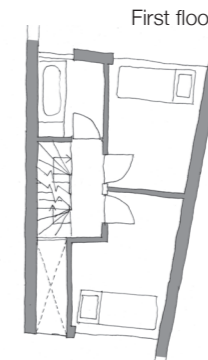
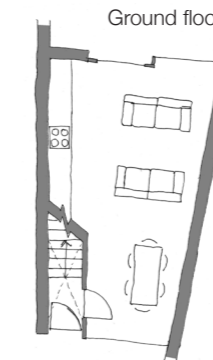
2 person flat - 50m² GIA



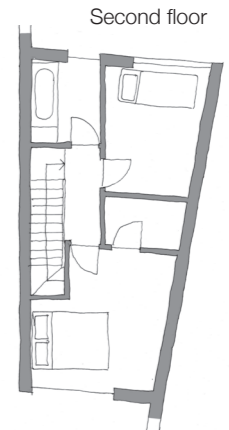
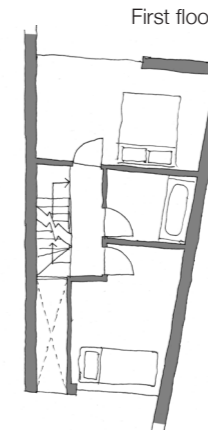
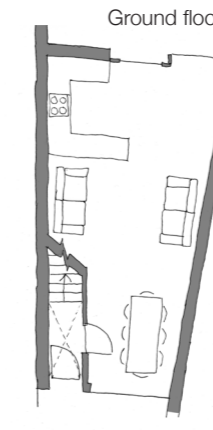
3 person house - 64m² GIA



4 person house - 81m² GIA



5 person house - 101m² GIA



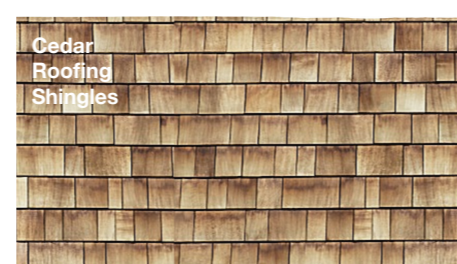
0m 2m 5m 10m 20m

Construction & Materials: Technology Meets Sustainability

The construction materials of Man-Milled-Home have been chosen for their compatibility with computer aided fabrication and their sustainable credentials. All natural materials are employed for both the primary structure and the external envelope (water proofing and insulation)

Building element	Material
1) Structural framing	Glulam timber beams
2) Floor decks	Eurban Lignatur timber
3) Insulation & rain-screen cladding	Expanded cork cladding
4) Roof	Cedar singles

Both timber and cork are natural and recyclable materials and both act as significant CO₂ sinks, making the proposal a carbon negative development. We estimate the 20 dwellings will sink 600tonnes of CO₂



Man-Milled-Home

Costing report

The costings below are based on delivering the following - all complete to passive house standards (see site plan for details):

Dwellings:

- 4 x single dwellings @ 37m²
- 4 x couple dwellings @ 50m² four at families of three, four
- 4 x three person dwellings @ 64m²
- 4 x four person dwellings @ 81m²
- 4 x five person dwellings @ 101m²

Additional provisions:

- Cycle store
- Community manufacturing hub / greenhouse
- Communal bin stores
- Private amenity
- 6 x parking bays & roadside set down area
- Hard and soft landscaping of the entire site
- All services connected to mains supply.

Works Package	Construction Element	Materials	Labour	Total
Works Package 1	Set up, Clearance, Demolitions....	£ 8,800.00	£ -	£ 8,800.00
Works Package 2	Foundations (up to DPC)	£ 63,000.00	£ 73,700.00	£ 136,700.00
Works Package 3	Ground Floor Slab or Suspended Floor (including insulation)	£ 38,180.00	£ -	£ 38,180.00
Works Package 4	Drainage & Service Trenchwork	£ 5,150.00	£ 34,500.00	£ 39,650.00
Works Package 5	Specialist Building System (eg timber frame, SIPs, etc if applicable)	£ 206,500.00	£ -	£ 206,500.00
Works Package 6	External & Internal Walls (including insulation)	£ 79,476.20	£ -	£ 79,476.20
Works Package 7	Intermediate Floor Zone (if applicable)	£ -	£ -	£ -
Works Package 8	Fireplace & Chimney (if applicable)	£ 20,000.00	£ 10,000.00	£ 30,000.00
Works Package 9	Roof Structure, Insulation & Covering	£ 49,001.00	£ -	£ 49,001.00
Works Package 10	Joinery (Windows, doors, stairs, skirtings...)	£ 218,140.00	£ -	£ 218,140.00
Works Package 11	Specialist Products (eg; Eco products...)	£ -	£ -	£ -
Works Package 12	Electrical Installation	£ 49,000.00	£ 40,000.00	£ 89,000.00
Works Package 13	Plumbing Installation	£ 76,000.00	£ 50,000.00	£ 126,000.00
Works Package 14	Heating Installation	£ 55,000.00	£ 12,000.00	£ 67,000.00
Works Package 15	Plastering (or dry-lining)	£ -	£ -	£ -
Works Package 16	Kitchen and Utility Units (+ appliances)	£ 50,200.00	£ -	£ 50,200.00
Works Package 17	Decorations & Wall Ceramics	£ 3,948.00	£ -	£ 3,948.00
Works Package 18	Floor Finishes	£ 18,775.00	£ -	£ 18,775.00
Extras	Engineering fees additional to those in foundation design	£ -	£ 36,000.00	£ 36,000.00
	TOTAL	£ 941,170.20	£ 256,200.00	£ 1,197,370.20
Works Package 19	Road connection, parking, paths, cycle facilities, street lighting, bin areas, landscaping	£ 130,700.00	£ 10,500.00	£ 141,200.00
Works Package 20	Communal areas/access to homes - eg stairways, halls, lobbies, lifts (if required), storage	£ 21,750.00	£ -	£ 21,750.00
	TOTAL	£ 152,450.00	£ 10,500.00	£ 162,950.00
	GRAND TOTAL's	£ 1,093,620.20	£ 266,700.00	£ 1,360,320.20
			Average cost/home	£ 68,016.01

Please see overleaf for a detailed breakdown of the above costing and specification of typical build ups.