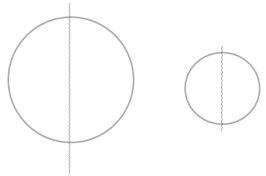
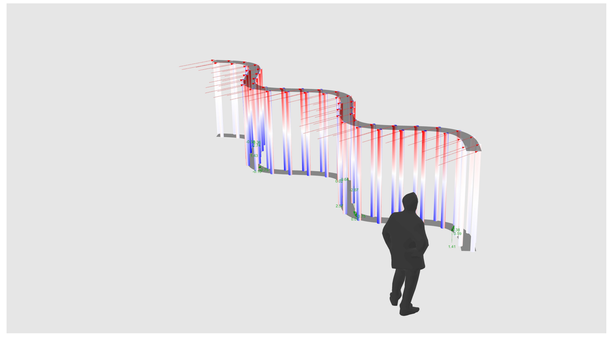
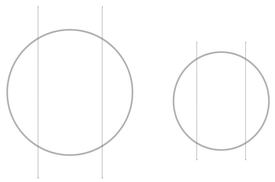
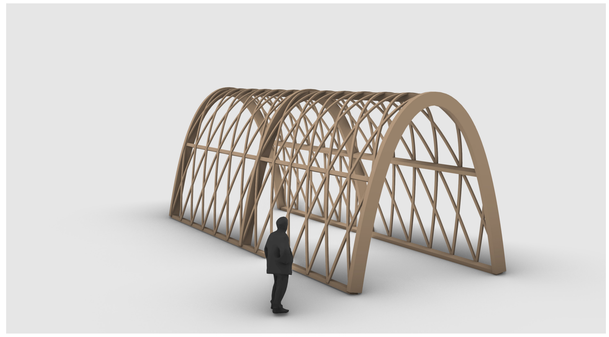
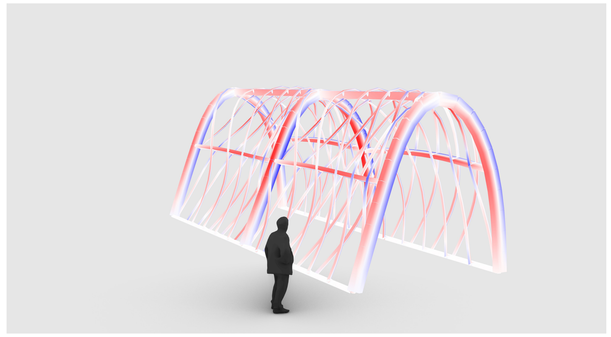
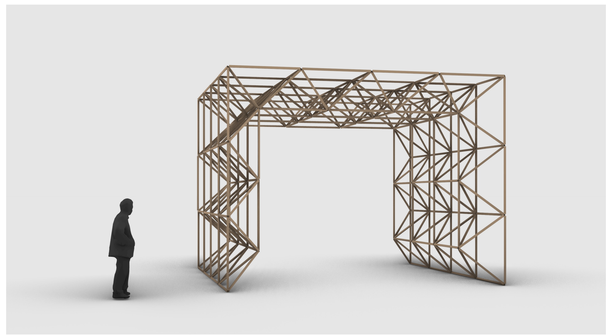
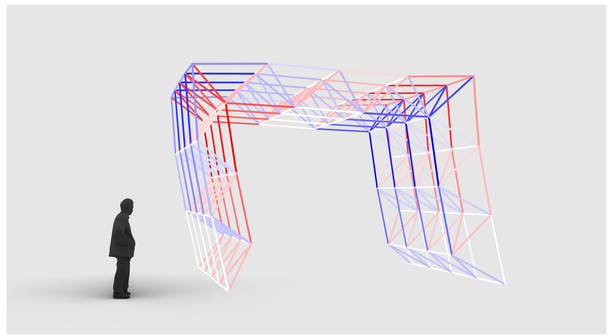
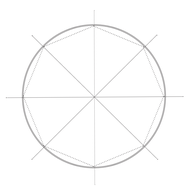
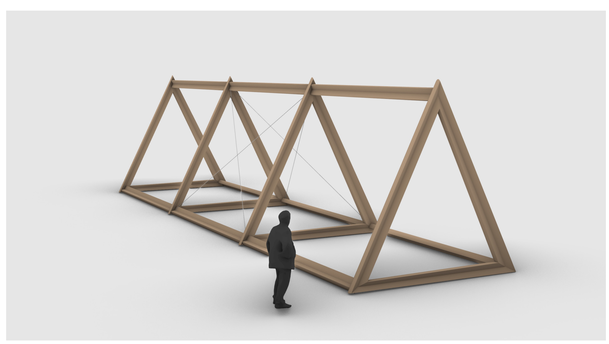
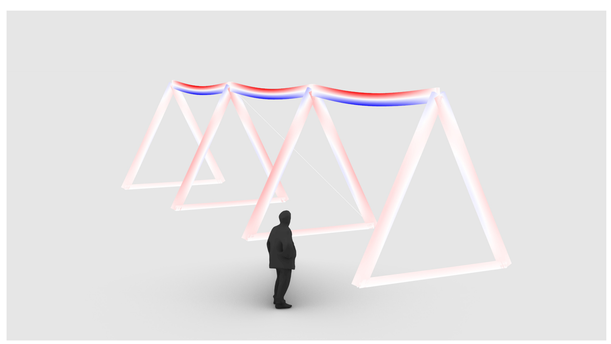
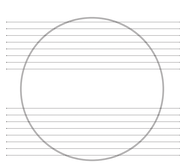
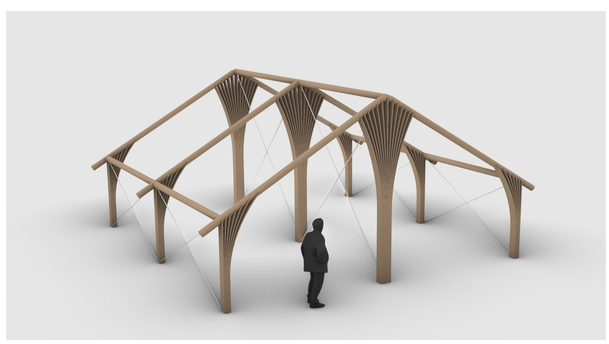
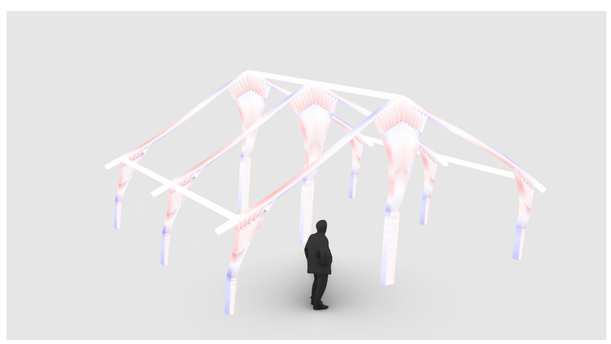
Milling / Cleaving Cut Ø Roundwood	Description	Prototype	Building System	Deflection / Stress Blue: Tension, Red: Compression
	• Cleaved / sawn half-round timber frame. • Uses small to medium diameter roundwood. • ‘C’ shaped panel system for creating sinusoidal curves. • Stackable for multi-storey construction. • Integrated flexible insulation and vapour permeable membrane.			
	• Parallel sawn small and medium diameter roundwood. • Tension wood outer profiles for lattice or multi-layered gridshell construction. • Heartwood core for curved, steam bent arches or mechanically laminated beams.			
	• Quarter-cleaved small diameter roundwood space frame struts. • Re-configurable to multiple geometries and components; deck, wall, roof. • Lightweight, stiff, demountable structures. • Potential for external use (stainless steel fixings + durable cleft timber.)			
	• A-frame constructed from structurally optimised ‘XR’ beams. • Stopped radial-cuts from large diameter roundwood. • Thermally broken structure using interlocking plywood gussets at the axis. • x4 ‘XR’ beams per log. • Low processing waste compared to traditional rectangular section timber.			
	• Splayed / fanned column. • Stopped parallel cuts on a sawmill. • Uses large and medium diameter roundwood. • Uses inherent tension + compression in the material to create a distributed moment connection.			

Home Grown House

Concepts for sustainable, low-cost prefabricated housing made from domestically grown Sweet Chestnut timber.

The HomeGrownHouse project is addressing the underuse of locally sourced, small-diameter round wood in construction in the south-east of England.

The project focuses on coppiced Sweet Chestnut timber for its natural durability, strength and stability.

A demonstrator ‘kit of parts’ for constructing small scale buildings was exhibited in woodland on the Birling Estate, Kent.

Sweet Chestnut Coppicing + The Environment:

• High levels of carbon sequestration:
2640 kg/ha/yr or 9680 kg/ha/yr CO_2 e (only Poplar and Douglas Fir sequester more).

• No replanting - coppice ‘stools’ regrow naturally.
Rotation harvesting every 12-20 years.

• A durable hardwood timber with yields equivalent to Scots Pine: 8m^3 per hectare per annum at 14 years.

• Coppicing beneficial to biodiversity by opening the woodland floor to light.

• Few current markets: biomass and fencing.

LONDON METROPOLITAN UNIVERSITY
ART, ARCHITECTURE, DESIGN

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