



McKeon construction

# THE ROUND HOUSE



# Target Market?????

- Originally aimed to cater for elderly people for will not be as physically capable as they once were and would like to downsize they're home or find one which can cater to issues they may face with they're physical abilities.
- But could also cater to young people who can buy the house when young and expand and grow their house for life as they themselves expand and grow they're family and lives seeing many generations live in the house while not overcrowding the building, as in today's age it is more and more common to have three generations of a single family to live in one house
- due to the affordability, eco-friendliness and uniqueness of my design I believe it would appeal to people from many different walks of life not just the target market.

# Inspirations

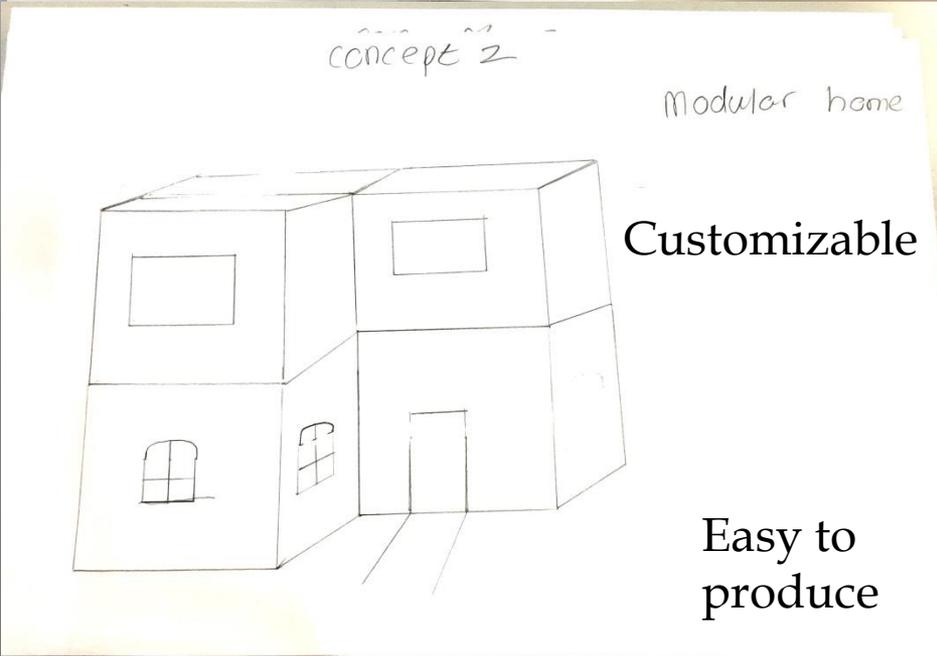
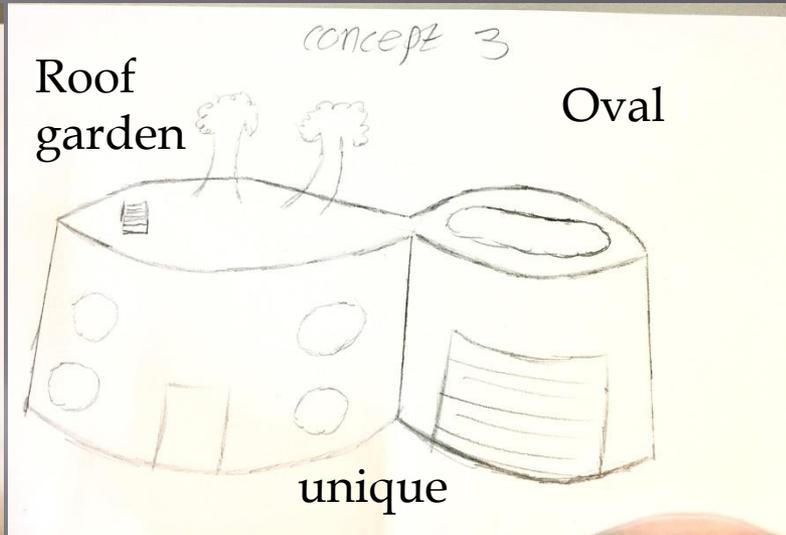
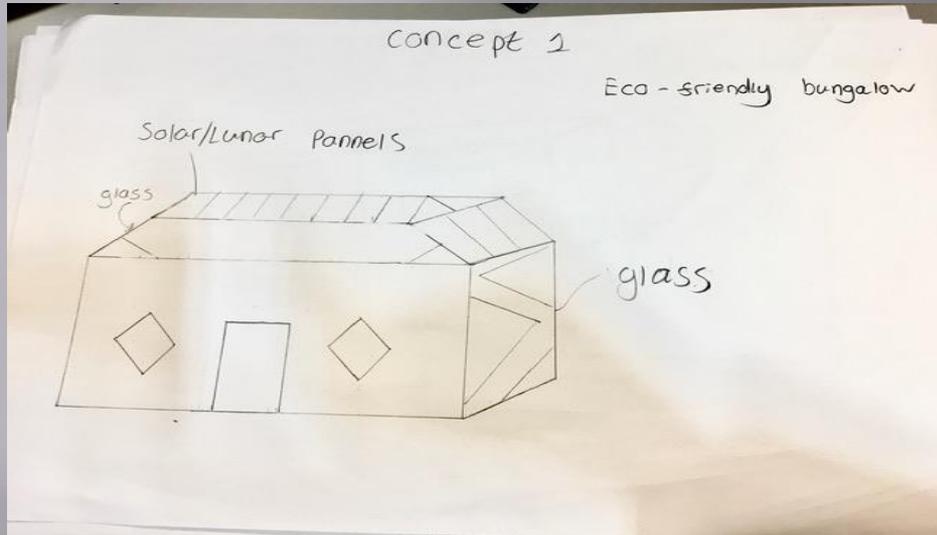
Concept  
inspiration

many aspects influenced my design such as the brief, issues to consider and press release documents supplied by the mobile challenge organisers. These documents gave me a rough idea of what I could do and utilise to gain an advantage over the others when coming up with design concept

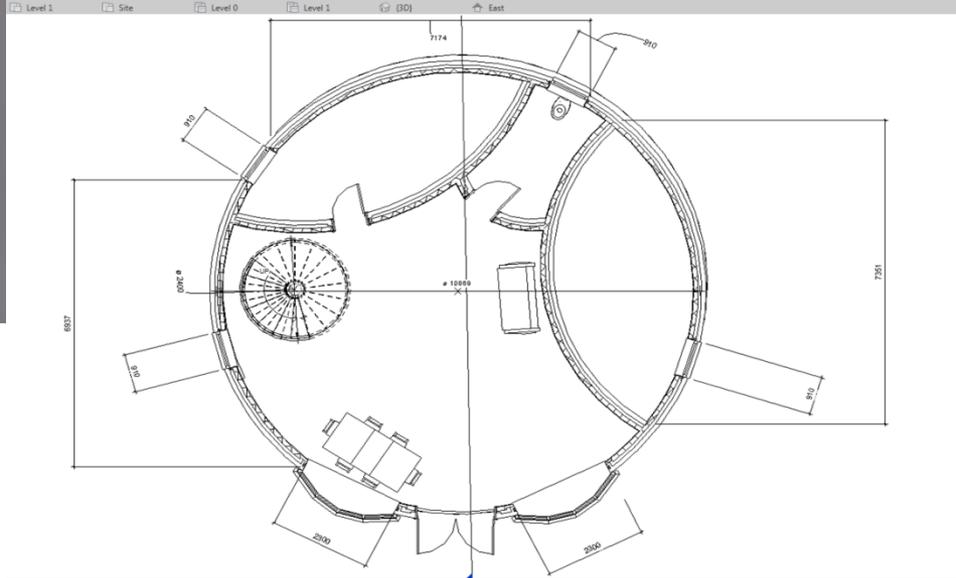
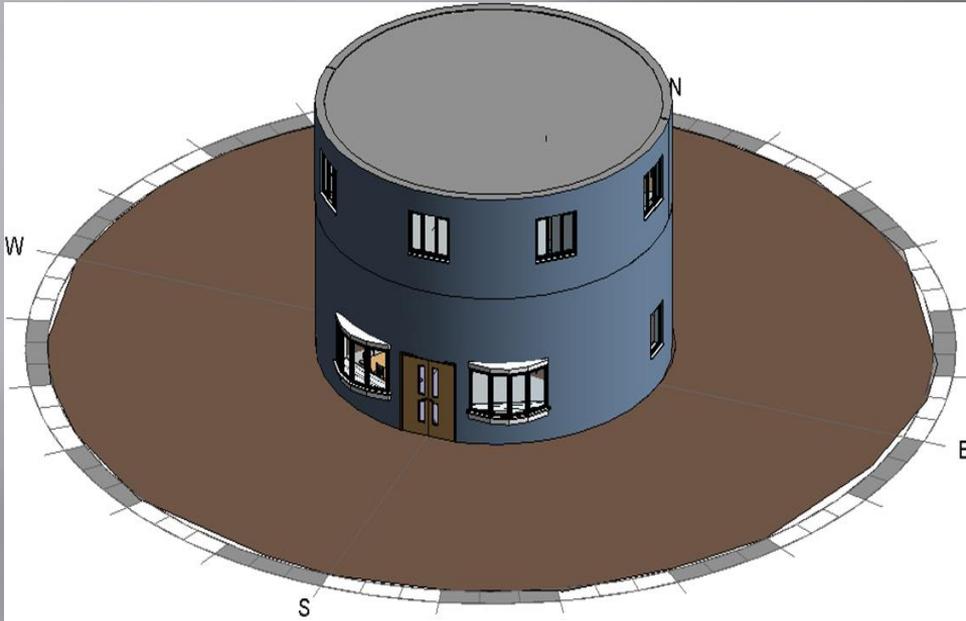
I believe I understood the goals of this challenge was to create a house which is affordable, eco-friendly , sustainable



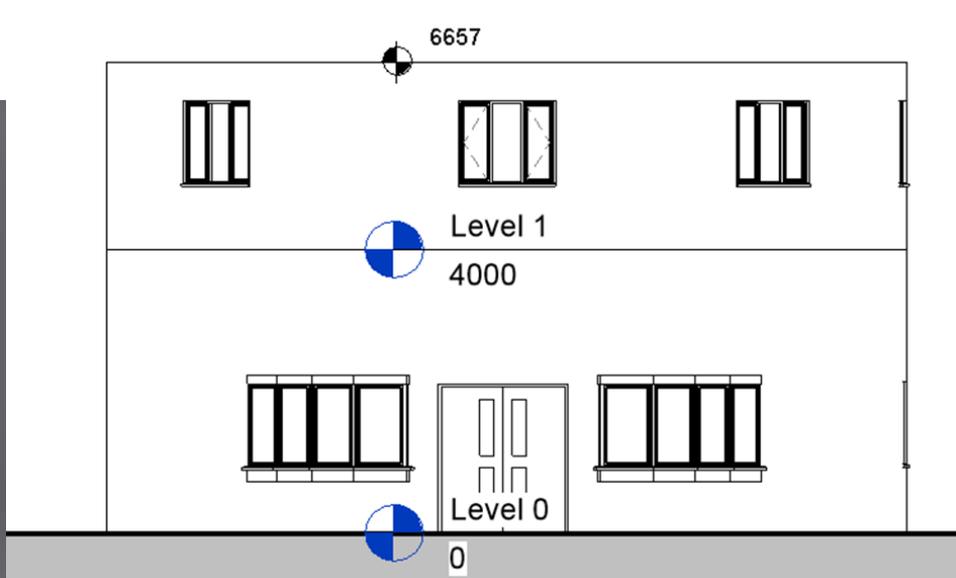
# Concept sketches



# Final design



Final design was a blend of two of the previous concepts



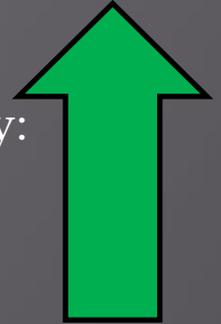
# Why round?

- Energy efficient - Since round houses have less surface area, relative to floor space, there is less surface coming into contact with the weather outside. Therefore, it takes less energy to maintain their interiors to comfortable temperatures
- Cheaper by nature - Round houses can cost significantly less to construct. They use 15 to 20% less materials per square metre than a rectangular design. Less surface area means they are also less costly to maintain over time.

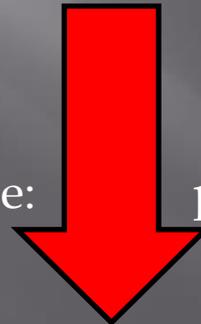
Energy bills cost:



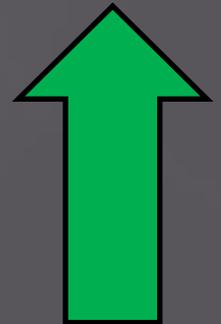
heating efficiency:



Cost to produce:

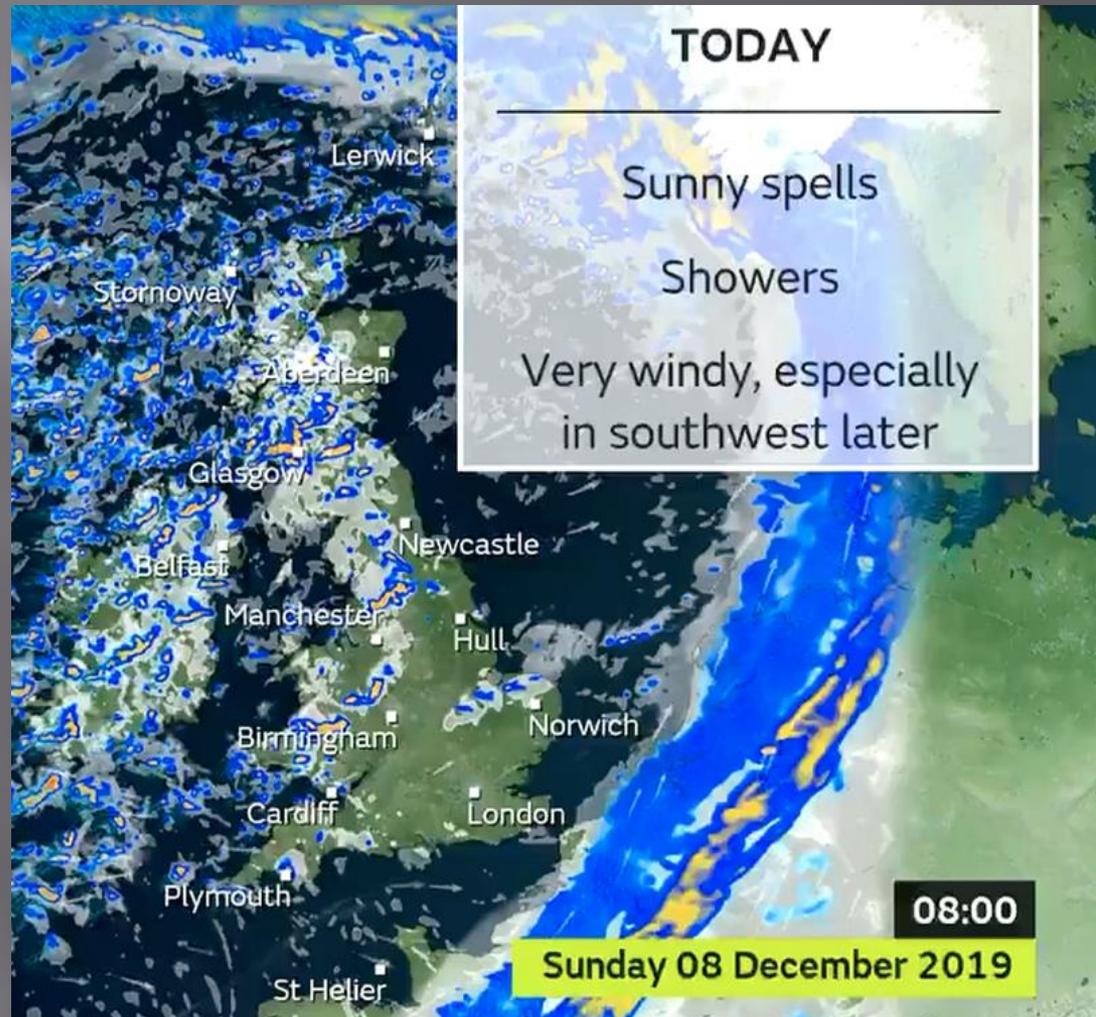


profit from sale:



# Why round?

- Wind resistance - The aerodynamic properties also make round houses more resistant to hurricane-level winds. Round houses are a good alternative in areas prone to gale-force winds and hurricanes.
- Winds will beat strongly against the face of traditional homes, causing damage if winds are strong enough
- Increase in extreme weather due to climate change.



# Specification

## Materials:

Foundation: recycled concrete

Flooring: green oak laminated planks

Walls: reinforced hempcrete

Roof: EPDM rubber / technoNICOL roof shingles

## Pricing:

Foundation: £6,356.63

Flooring: £1296

Walls: £6,339.30

Roof: £891.68

Windows: £1,645

Doors: £499.95

**OVERALL: 17,654.10**

Designed to build, not to smoke.  
**HEMPCRETE**



**CARBON  
NEGATIVE**

EDMED

FB.COM/EDUCATIONNOTMEDICATION

# costing

## Walls

Cost
volume of walls= $2 \times \pi r x h$
$2 \times \pi \times 5.435 \times 6.657$
$= 227.3306395 \text{m}^3$
$= 227.4(1\text{dp})$
Block thickness=8cm
No.blocks per pallet=142
$\text{m}^2$ per pallet = 14.2
price per $\text{M}^2=26.26$
price per pallet= 372
$227.4 \div 14.2 = 16.02 = 17$
(rounded) pallets
required
$372.90 \times 17 = \pounds 6339.3$

## flooring

$A = \pi r^2$   
 $A = \pi \times 5.435^2$   
 $A = 92.80021225 \text{m}^2$   
 $\pounds 15 = 1 \text{m}^2$   
 $\pounds 15 \times 93 = \pounds 1395$  in  
 total

## foundation

Excavate  $30 \text{m}^3 = \pounds 812.80$   
 Bulked up  $45 \text{m}^3$  loaded  
 into lorries  $= \pounds 685.19$   
 Soil disposal tipping  
 charges  $= \pounds 1,125.00$   
 Reinforcement mesh  
 $= \pounds 384.00$   
 Concrete foundations  
 $25 \text{m}^3 = \pounds 3,349.64$   
 Total  $= \pounds 6,356.63''$

## roof

$25.14$  per  $3 \text{m}^2 = 9 \text{m}$   
 $A = \pi r^2$   
 $A = \pi \times 5.435^2$   
 $= 92.80021225 \text{m}^2$   
 $92.80021225 \div 9 = 10.31113469$   
 $11$  packs  $\times 25.14 = \pounds 276.54$   
 Total  $= \pounds 276.54$  for shingles  
 EPDM rubber:  $A = \pi r^2$   
 $A = \pi \times 5.435^2 = 92.80021225 \text{m}^2$   
 (93 rounded)  
 $\pounds 87.73$  per  $9.15 \text{m}^2$   
 $93 \div 9.15 = 10.1$   
 $10.1 \times 87.73 = \pounds 891.68$

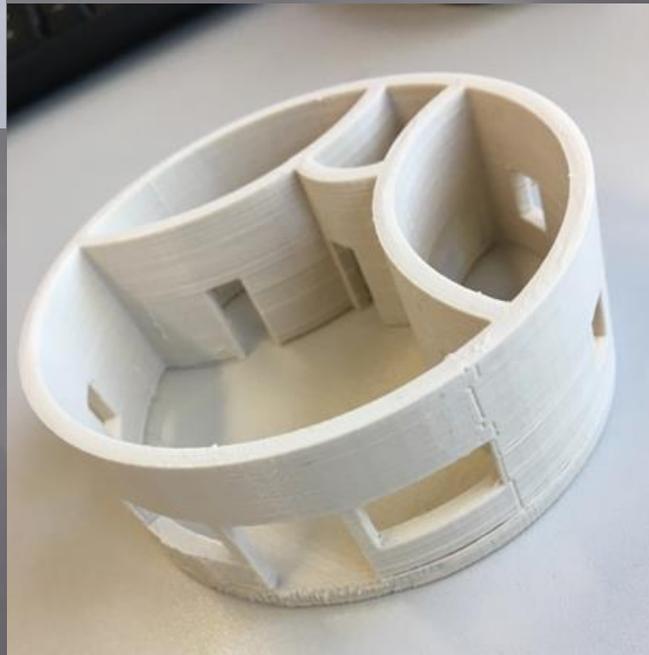
# Future of the round house

- young people who can buy the house when young and expand and grow their house for life as they themselves expand and grow they're family and lives seeing many generations live in the house while not overcrowding the building, as in today's age it is more and more common to have three generations of a single family to live in one house
- Due to the very affordable cost to build my design, (£18,000 this price can increase or decrease depending on suppliers for materials, location, nearby services and infrastructure) these homes can be retailed at around 25-40 thousand.
- In the uk a small Victorian style, one bedroom homes can cost upwards of £100,000. I strongly believe that my design could fill a gap in the market for cheap affordable but high quality homes in the inner cities and suburbs which will be a refreshing and much needed change to the housing market
- If my design could be marketed properly and introduced to the target market areas I believe this design could make a very good revenue and after the first year of selling the design and if selling a high enough volume of homes I see no reason why this design couldn't make millions of pounds within the first 5 years of it being on the market

# Final product



# Final product



# Issues with project

- ▣ Well its round...
- ▣ Issues finding accurate amounts of materials due to irregular house shape
- ▣ Software issues with Revit due to shaping issues and general malfunctions such as Revit not responding to inputs and preventing me from placing down components
- ▣ Cutting and making physical model

**Any questions?**