Arch 463
ECS
Fall 2021 **Name**_____

Quiz #3

"Active and Passive Design in a Garden City"

For this problem you are a sustainable architecture guru helping Proctor and Matthews deliver "affordable, sustainable, and beautiful new homes" for their project in Canterberry, UK.

Photos and drawings: Proctor & Matthews Architects, AJ 26 Oct 2021

Rendering of the SE-facing community centre, pedestrian way, and central courtyard.

Climate context: Canterbury, UK is located ESE of London and thus has a mild maritime climate with warm summers and mild winters, peppered by rain throughout the year. Prevailing winds are from the SW and NE.

Proctor & Matthews Architects' Garden City in Canterbury

The plan is in doubt after planning permission for the wider masterplan was revoked.

Overall scheme with Proctor & Matthews' project marked in red. North is up.

The 140-home scheme, part of the wider extension of the city at Mountfield Park, was approved by Canterbury Council in 2016 but has been held up due to a number of legal battles. Now Canterbury has quashed permission for the 4,000 home masterplan after the High Court accepted a local resident's bid to launch a judicial review of the decision. Rather than fight it out in court, the council cancelled planning approval, meaning developer Corinthian Land will have to start the planning process again.

According to local news site Kent Online, the local resident argued that the council had failed to comply with its own local plan, failed to sufficiently assess damage to a local nature reserve, and did not provide financial viability assessments for the delivery of affordable housing. The wider development – masterplanned by David Lock Associates – includes proposals for up to 4,000 new homes and 70,000m² of 'employment floorspace' on the south-eastern fringe of the city. Plans at the 5-hectare site include six residential 'clusters', each made up of stepped terraced houses, external courtyards and walled gardens. The elevated site also provides views of Bell Harry, the tower of Canterbury Cathedral, intended as a 'visual connection' between the historic city centre and the new quarter.

The original 2016 planning permission for the scheme expired last year, so the proposals had to be brought back before councillors last December, who approved it again. A spokesman for Corinthian said: 'Elected councillors have now voted twice for affordable, sustainable and beautiful new homes in Canterbury, and it is disappointing to see those much-needed homes delayed again. 'The application will be considered by committee for a third time in the next few months. In the meantime we will continue to work closely with residents and with Canterbury City Council, who are determined to see sustainable, affordable homes built for local people in east Kent.'Constructible,

—Ella Jessel, 26 Oct 2021

Passive and Active Strategies

5 points

1. You are asked to demonstrate how active and passive strategies can deliver the sustainable and beautiful new homes on the site.

On the site schematic below indicate ideal locations for the five systems to showcase their roles in delivering reiable and sustainable energy. On the next page explain your reasoning for selection and placement of each system.

The systems are:

1. **Direct Gain**
2. **Trombe Wall**
3. **Photovoltaics**
4. **Earth Tube Cooling**
5. **Solar Domestic Hot Water**

Schematic design under late morning summer sun.

Active and passive strategy rationales

15 points

2. **Fully explain** each strategy and **discuss** how effecive each one is (pluses and minuses) in meeting the design goal—sustainable and beautiful. Sketch as needed!

1. Direct Gain

2. Trombe Wall

(continued next page)

Active and passive strategy rationales (cont.)

3. Photovoltaics

4. Earth Tube Cooling

5. Solar Domestic Hot Water

Extra Credit

2 points

Critique the use of trees on the site as components of the solar strategies. **Explain** your point-of-view.

Detail of South corner. North is up.