

Arch 463  
ECS  
Fall 2019

Name \_\_\_\_\_

## Quiz #1

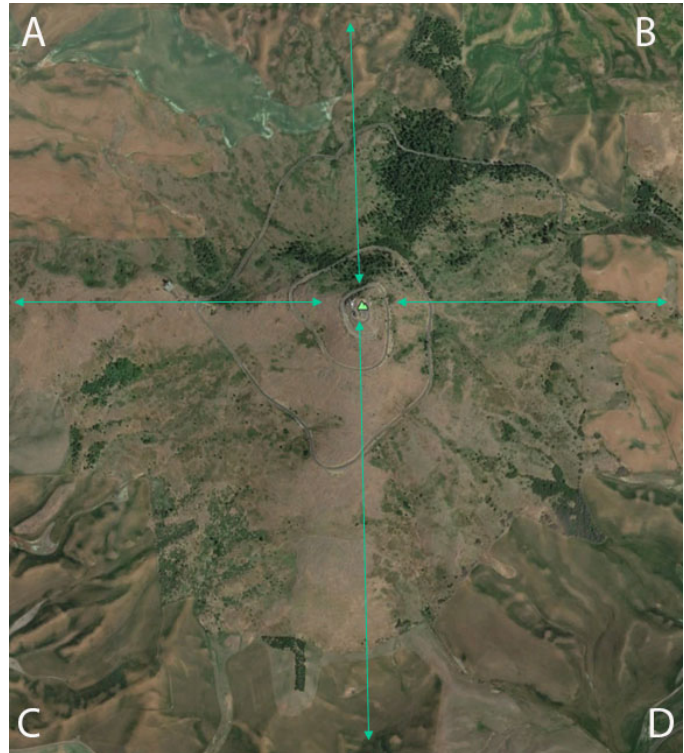
### "Home on the Butte"

For this problem you are the site and climate consultant for a global home construction company. The CEO is interested in developing prototype homes for prominent buttes in a variety of North American climates. Your first assignment is to propose suitable butte positions for four prototypes located in four different typical climates. The CEO has identified three passive design characteristics for each prototype.

**Climate Context.** Four typical climates will be considered, hot humid, hot arid, temperate, and cold.

**Modular Design.** The homes will be modest single-story affordable dwellings.

**Comfort Goal.** Maximize the use of passive strategies for comfort throughout the year.



*The top of the butte is pointed at by the four central arrowheads. It is conical and slopes steeply from the summit in all directions. You should choose the appropriate quadrant and proximity to the summit.*



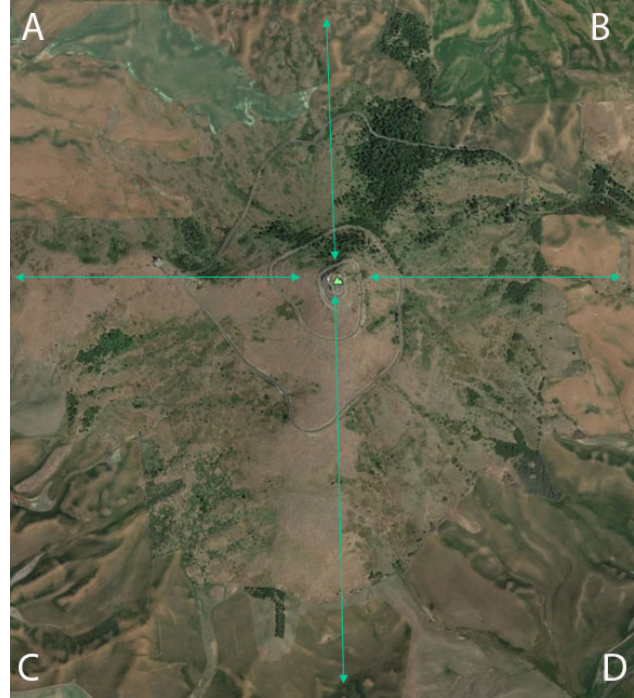
*Two houses from the Apan Housing Laboratory, the site of 32 affordable house prototypes, each designed by a different firm.*

*Images: Architect magazine on-line, Sept 04, 2019*

2.5 points

## Prototype #1

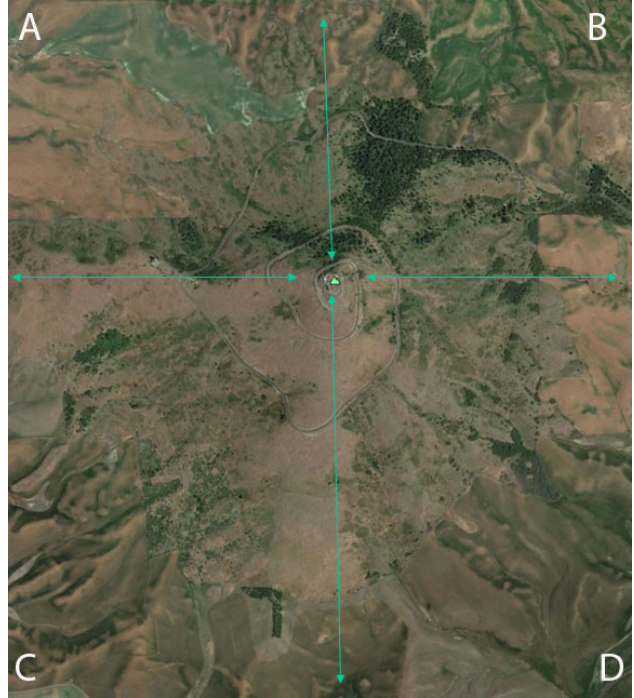
1. This prototype has thick stone walls, small shaded windows, and a central courtyard. On the site plan below show the appropriate quadrant and location for the prototype and explain why and what passive strategies will be effective. Use barrier, filter, connector, switch terminology in your explanation.



2.5 points

## Prototype #2

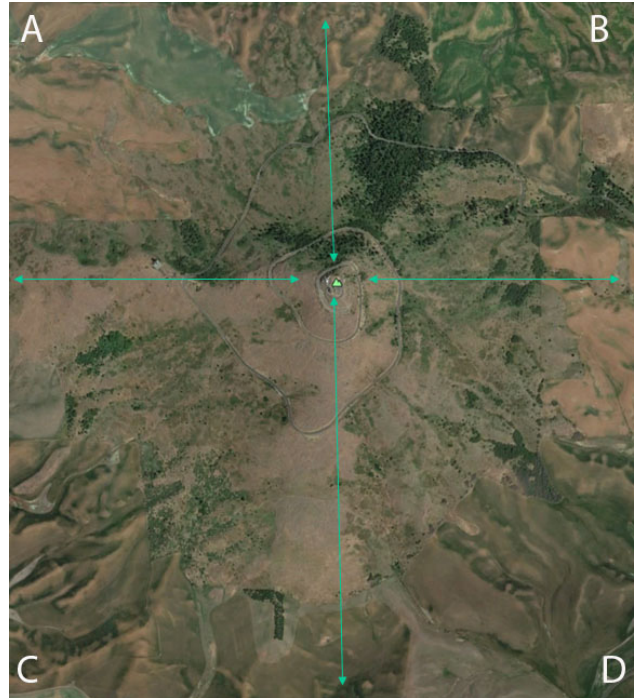
2. This prototype has highly insulated walls, most windows face south, and operable shading devices. On the site plan below show the appropriate quadrant and location for the prototype and explain why and what passive strategies will be effective. Use barrier, filter, connector, switch terminology in your explanation.





## Prototype #3

*2.5 points*  
3. This prototype has thick insulated walls, small windows for daylight, and a central masonry fireplace. On the site plan below show the appropriate quadrant and location for the prototype and explain why and what passive strategies will be effective. Use barrier, filter, connector, switch terminology in your explanation.



## Prototype #4

2.5 points

4. This prototype has lightweight walls, large operable windows, and a roof with long overhangs. On the site plan below show the appropriate quadrant and location for the prototype and explain why and what passive strategies will be effective. Use barrier, filter, connector, switch terminology in your explanation.

