

Arch 464  
ECS  
Spring 2004

Name \_\_\_\_\_

Quiz #2

## "Suntop Water Park"

For this problem you are the water use consultant for the City of Ardmore, PA. The city has purchased the site of Frank Lloyd Wright's Suntop Homes development with plans to turn it into a demonstration project for wise suburban water use. The gently southward sloping site is undeveloped save the one quad-plex that Wright constructed in 1939 and all the paved streets and driveways. The city intends to build the remaining three units as affordable housing for single mothers with several children. One apartment will serve as the office and demonstration unit for the project. All the roofs are flat and the masonry walls that divide the units penetrate the roof plane by about three feet.

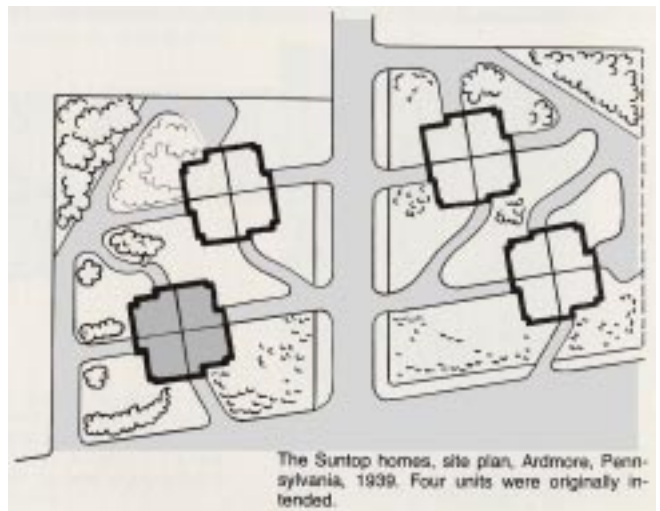
**Context.** "The lot was divided into four gardens and the four houses placed into their adjoining corners. So far as the occupant was concerned, there was absolute privacy in each three-story mezzanine home, which was not overlooked by any other house. But, by grouping the four buildings together, Wright was able to reduce external surface area and building and running costs. Only one of the intended four units was built, and the total building cost was \$16,000." [*Frank Lloyd Wright's Usonian Houses*, John Sargeant]

**Climate.** Ardmore is located on the Main Line just west of Philadelphia, at 40° North Latitude. The summer climate is primarily hot and humid. Winter days are short with low sun angles and summer days are long and bright. Typical annual rainfall is about 42".

READ THE ENTIRE QUIZ BEFORE YOU BEGIN!

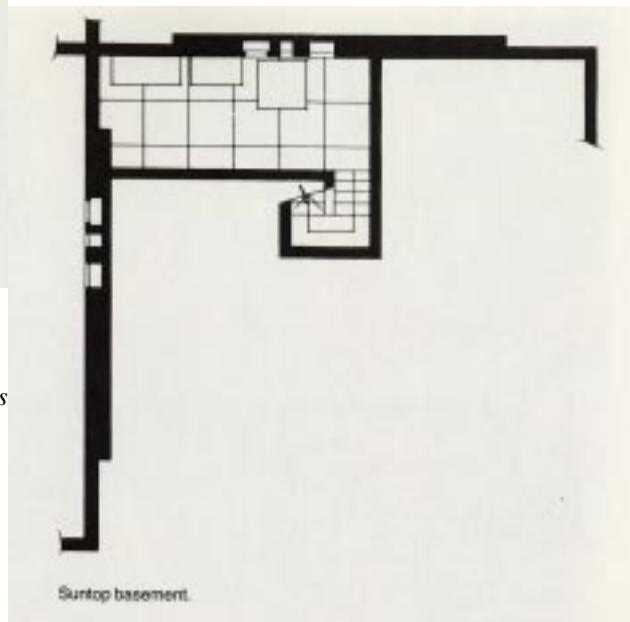
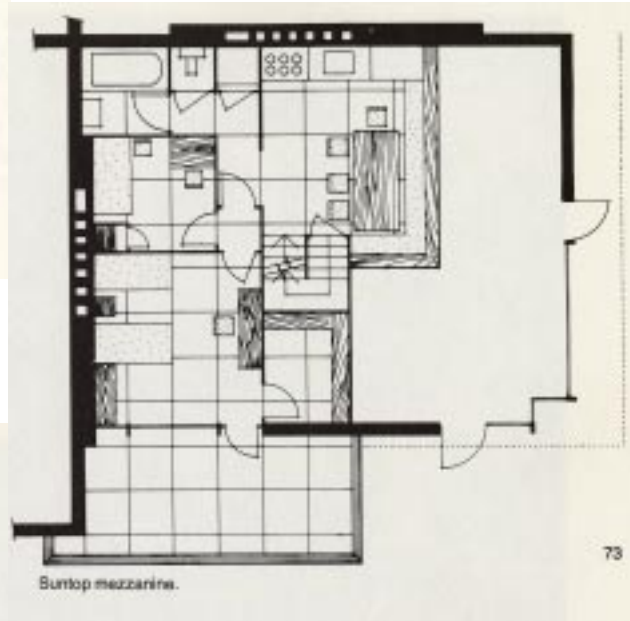
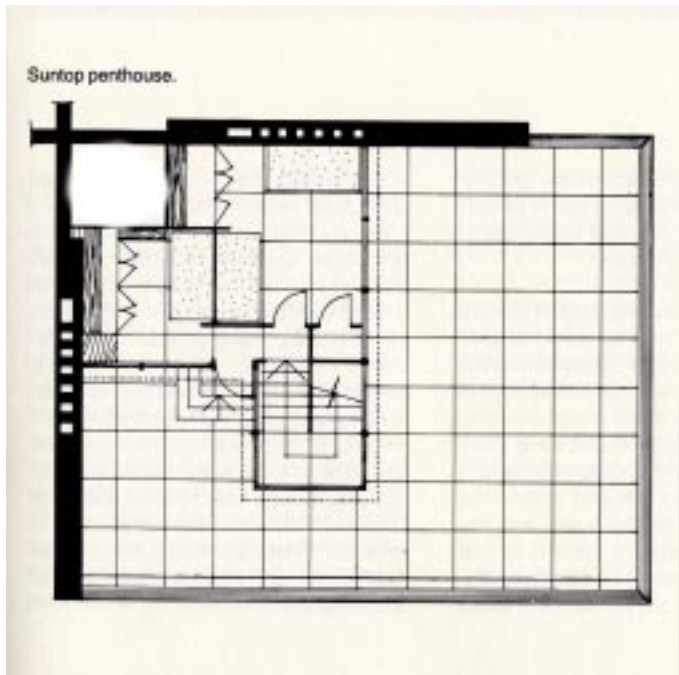


*Suntop unit A from the southeast.*



The Suntop homes, site plan, Ardmore, Pennsylvania, 1939. Four units were originally intended.

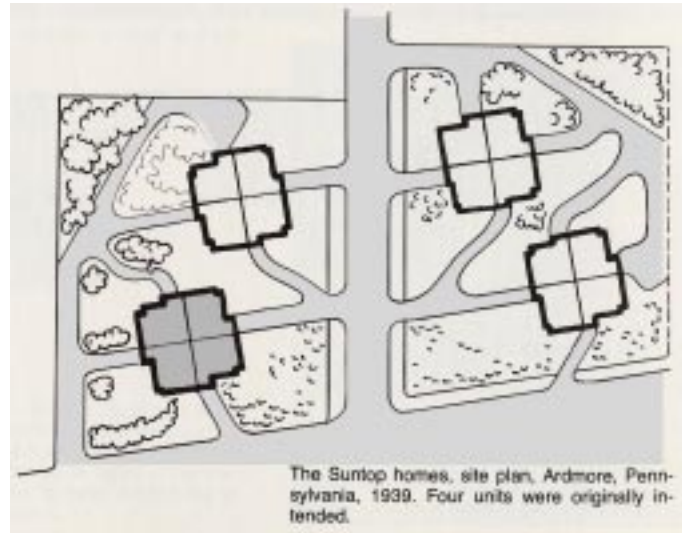
*Suntop unit A is shown in gray. Paved streets are lighter gray. North is up.*



*Plans for the southeast-facing apartment of unit A. The plan is rotated and repeated for each of the apartments.*

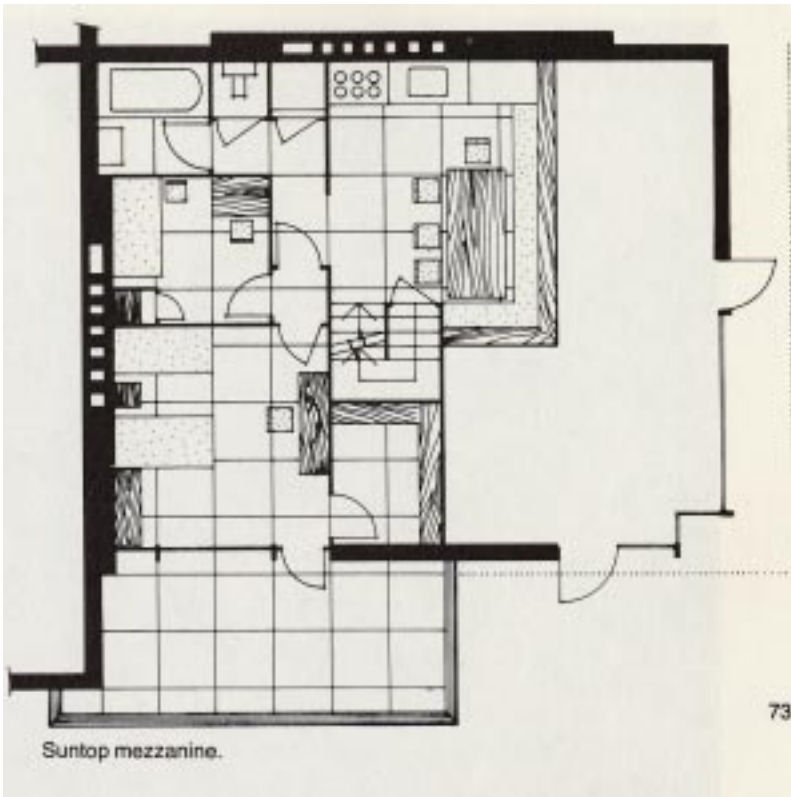
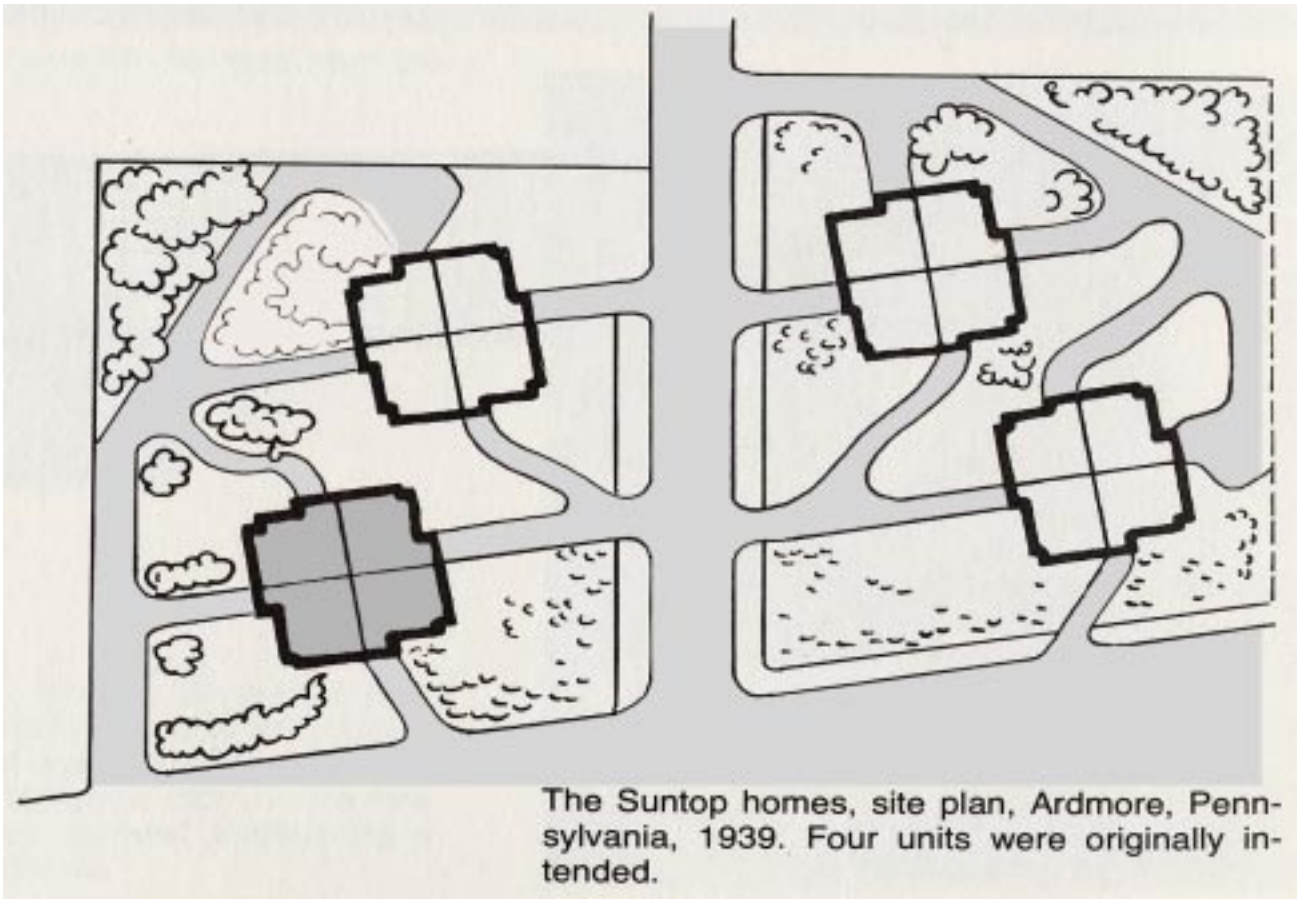
3 pts.

1. **Critique** the water use strategy in the existing building/site. **Point out three glaring weakness.** **Annotate** the building and site plans to illustrate what's wrong.

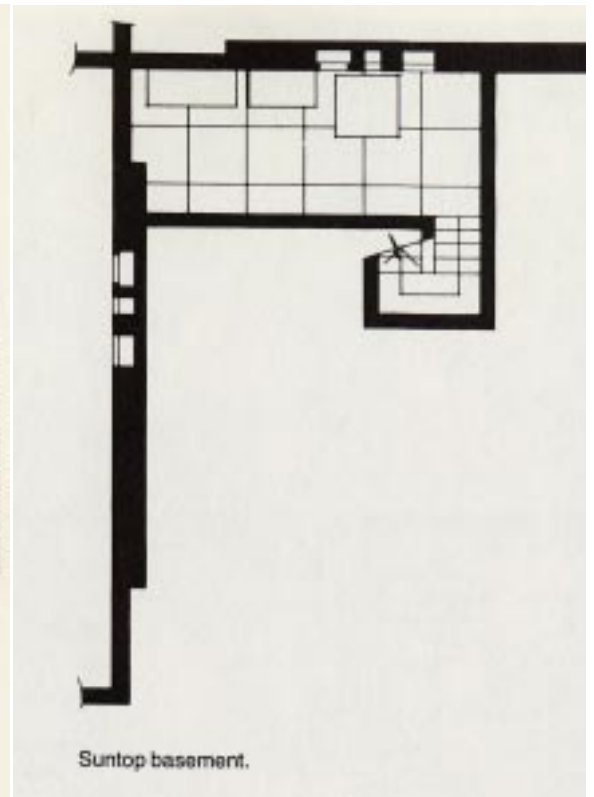


3 pts.

2. **Explain how and why** you intend to update the kitchen and bathroom fixtures to showcase water conservation. Use **sketches and annotations** as appropriate to illustrate your intentions.



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*4 pts.* 3. **Describe** your four-point integrated strategy for water supply and both storm and waste water management. **Use words and sketches** to illustrate your strategy.