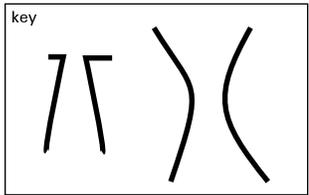
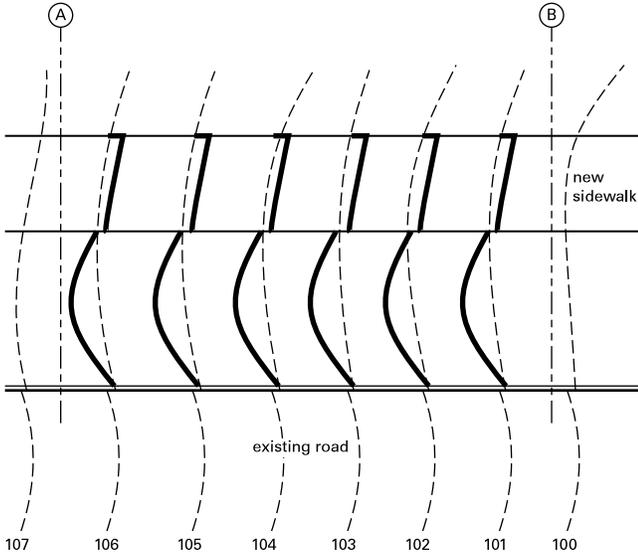


Solutions

1. To channel the runoff between the road and sidewalk, create a valley between the two. Contour lines of a valley “point” upslope, so use the C-shaped contour as shown.



Because the curb is higher than the road, the new contour lines would be added downslope of the highest point. To create sheet flow off the sidewalk into the swale, the contours of the sidewalk need to face toward the swale. Because the sidewalk will be higher than the ground, the new sidewalk contours at the swale will be slightly offset (in plan view) in the direction of the downward slope and must jog back along the raised edge of the sidewalk on the other side.

2. As a Group I (institutional) occupancy, a nursing home would be required to have extensive alarm systems and be sprinklered throughout. Occupants of institutional buildings, such as hospitals, prisons, and nursing homes, often have limited mobility and require more warning and time to evacuate the building in case of fire.

Group B (business) occupancies, such as office buildings and print shops, are not required to be equipped with automatic sprinkler systems, and small Group B occupancies are not required to have alarm systems if the occupant load is low or if the sprinkler system is equipped with flow valves that activate an alarm when sprinkler water flows. ~~Although a motel would be required to have smoke~~

The requirements for motels are slightly less stringent than for institutional occupancies, especially for those buildings not more than two stories in height.

~~alarms, it probably would not be required to have a sprinkler system since motels are typically one or two stories high and each guest room has a doorway leading directly to an exterior exit access.~~

The answer is (B).

3. Restoration focuses on the most important time period in the life of a structure. In this case, the most significant time was the Battle of Gettysburg, July 1 through 3, 1863. Therefore, any additions built at other times could be removed. The materials and character of the original structure should be repaired.

Rehabilitation is often used when the property is being converted to a use other than its historical function. It allows more flexibility in the materials and methods of construction that can be used to repair the building, as long as the historic character of the building is maintained.

Reconstruction is the process of rebuilding a lost structure based on historical documentation. One of the most familiar examples of this approach is the buildings and environs at Colonial Williamsburg.

Preservation is the most historically accurate approach. It maintains additions made over time and chronicles the history of the building through the modifications.

The answer is (B).

4. The area of the lot is 60,000 ft². If the floor area ratio is 2, the maximum amount of floor area that can be built is 120,000 ft². The available ground area that can be covered within the setbacks is 270 ft × 130 ft, or 35,100 ft². Dividing this figure into 120,000 gives 3.42 stories, which indicates that three full stories can be built.

The answer is (B).

5. Zoning ordinances are enacted in municipalities to control what types of structures are built in certain locations. Zoning requirements such as setbacks, floor area ratios, and height limitations influence the form of the building that can be constructed on a site and consequently influence the appearance of a neighborhood. Zoning regulations prohibit construction of incongruent building types within a specific area; for example, zoning ordinances would likely separate residential neighborhoods from heavy industrial uses, helping to stabilize property values. Zoning also helps governments plan for the future by restricting the capacity of the land and helping predict the types and capacities of utility systems necessary in a specific area.

The answer is (A), (C), (D), and (E).

Programming & Analysis