

Exercise 14: Basement Excavation and Backfill

This exercise goes with Chapter 9 of *Estimating in Building Construction*.

1. Determine the amount of excavation needed for the basement in Figures 14-1 and 14-2. A two-foot working distance is required and the excavation will be sloped 1.5:1 (1.5 vertical feet for every horizontal foot).

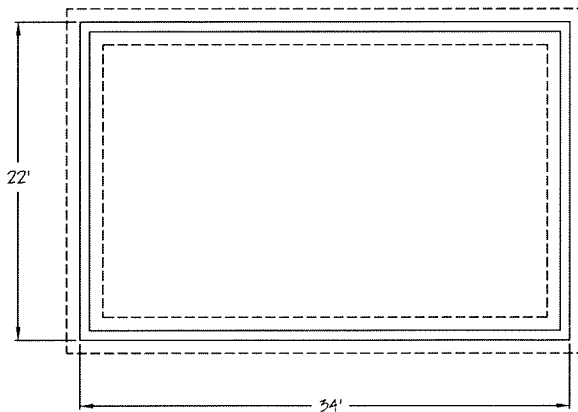


Figure 14-1 Basement Plan View

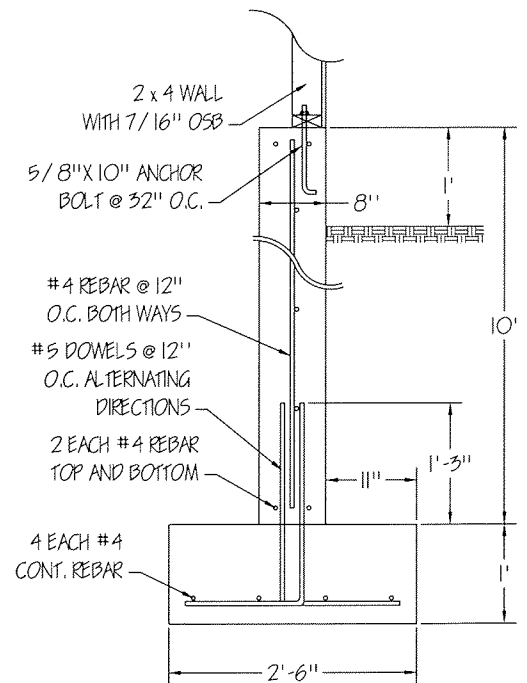


Figure 14-2 Wall Section

2. Determine the amount of backfill needed for the basement in Problem 1. Ignore any backfill inside of the walls.
3. Determine the amount of excavation needed for the basement in Figures 14-3 and 14-4. A one-foot working distance is required and the excavation will be sloped 2:1 (two vertical feet for every horizontal foot). *Hint:* Calculate the excavation for each of the areas separately and add them together.

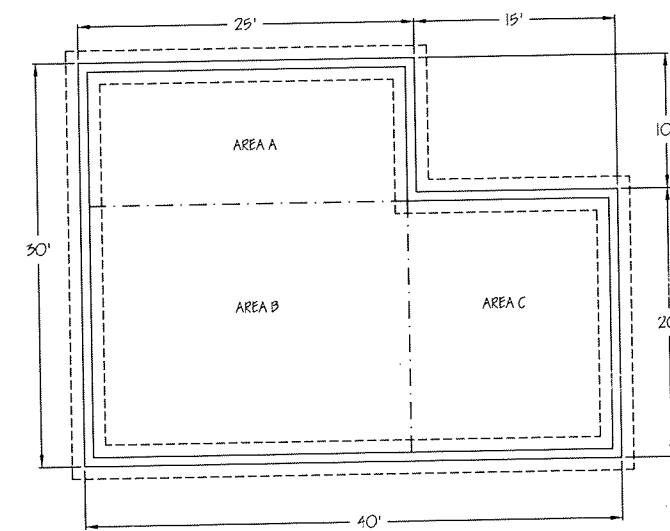


Figure 14-3 Basement Plan View

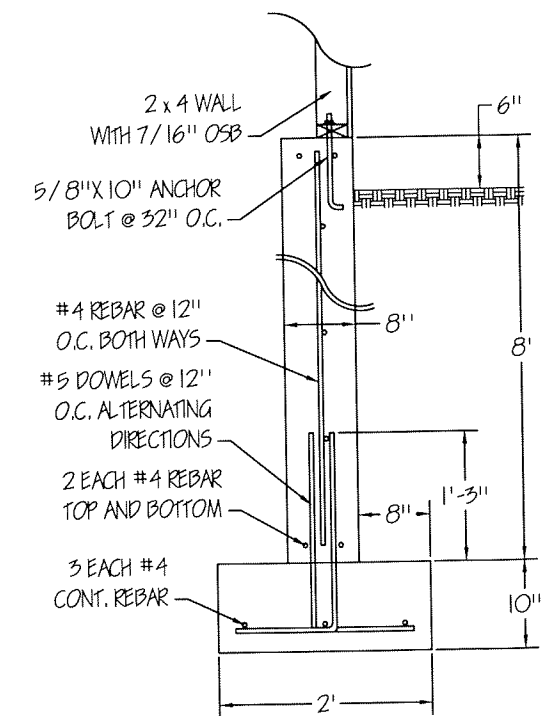


Figure 14-4 Wall Section

- Determine the amount of excavation needed for the spread footings in Figures 15-1 and 15-3. A one-foot working distance is required and the excavation will be sloped 1:1 (one vertical foot for every horizontal foot).

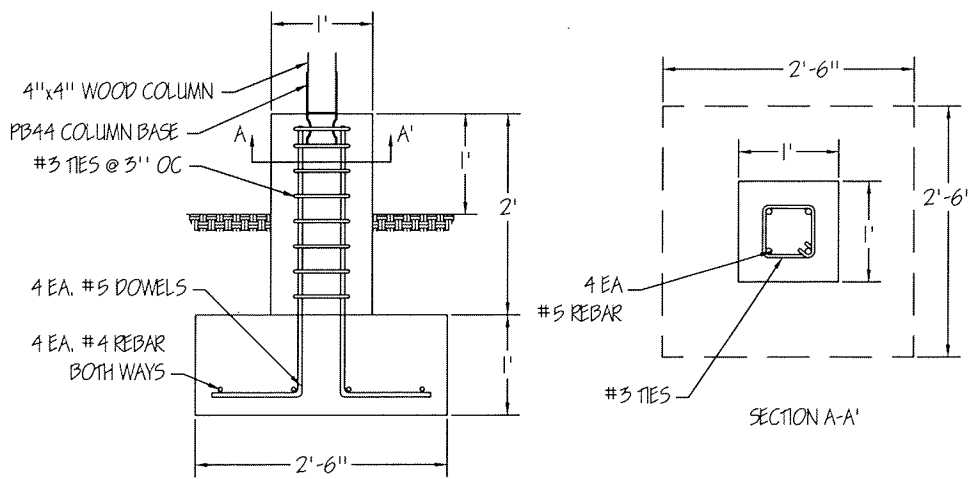


Figure 15-3 Column Section and Plan View

6. Determine the amount of backfill needed for the continuous footing and foundation in Problem 5.
7. Determine the amount of excavation needed for the spread footing in Figure 15-6. A three-foot working distance is required and the excavation will be sloped 1:1 (one vertical foot for every horizontal foot).

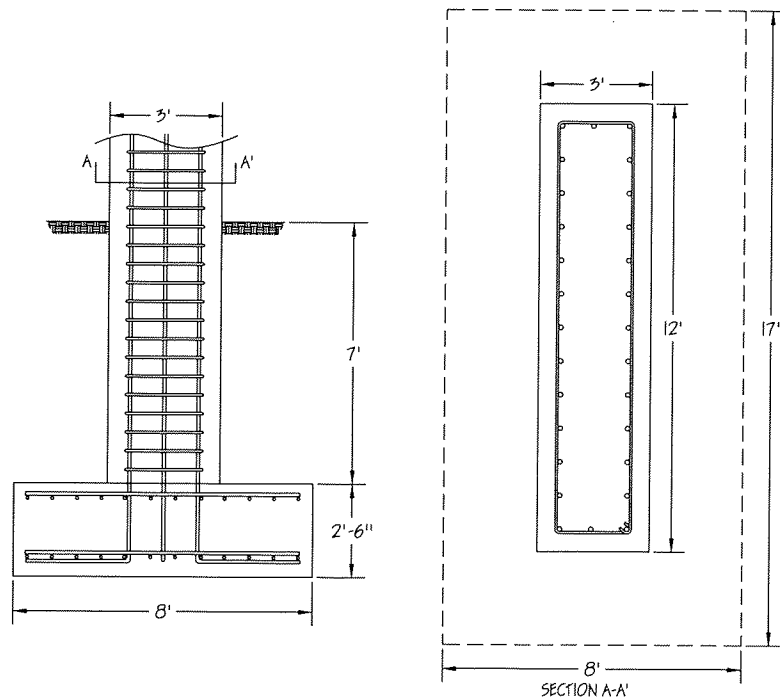


Figure 15-6 Column Section and Plan View