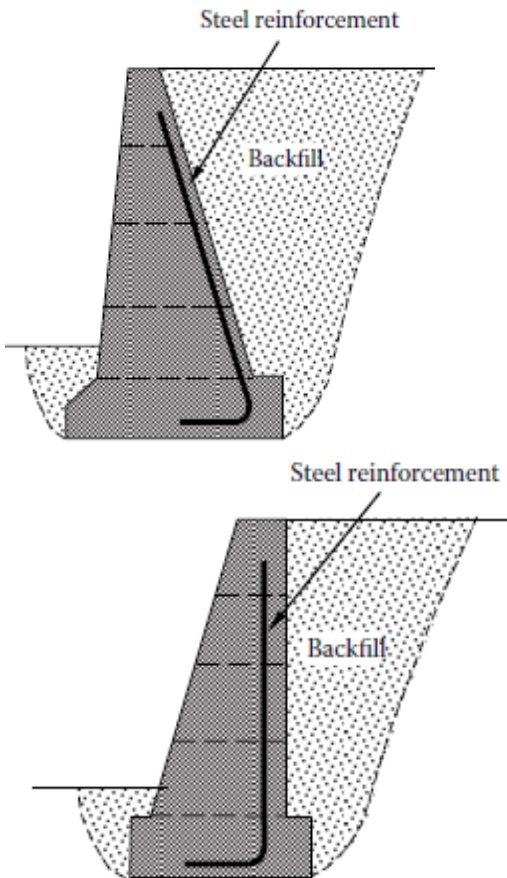


## SEMI-GRAVITY CONCRETE AND REINFORCED CONCRETE CANTILEVER WALLS

### 1. SEMI-GRAVITY CONCRETE WALLS

Semi-gravity walls rely more on internal resistance to bending and shear, and less on self weight than gravity walls. By introducing a small amount of reinforcing in the back of the wall (Figure 6.10) as a connection between the vertical stem and the base, and between concrete 'lifts', a more slender stem can be used, resulting in a reduction of the mass of concrete. It is a form of compromise between the simplicity of mass concrete and the low material content of reinforced concrete. This leads to a cost trade-off between the volume of concrete saved and the amount of steel required. From a durability standpoint, mass concrete is easier to maintain and so whole-life costs may be lower, but if reusability is important, the thinner section of reinforced concrete will be easier to break up for recycling.

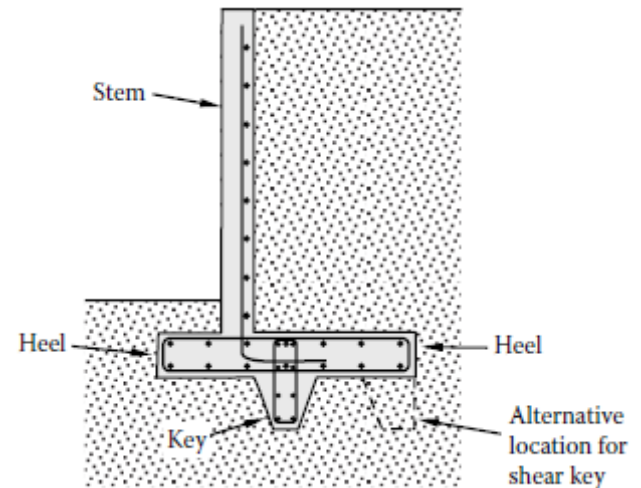


Cross sections through typical semi-gravity concrete walls.

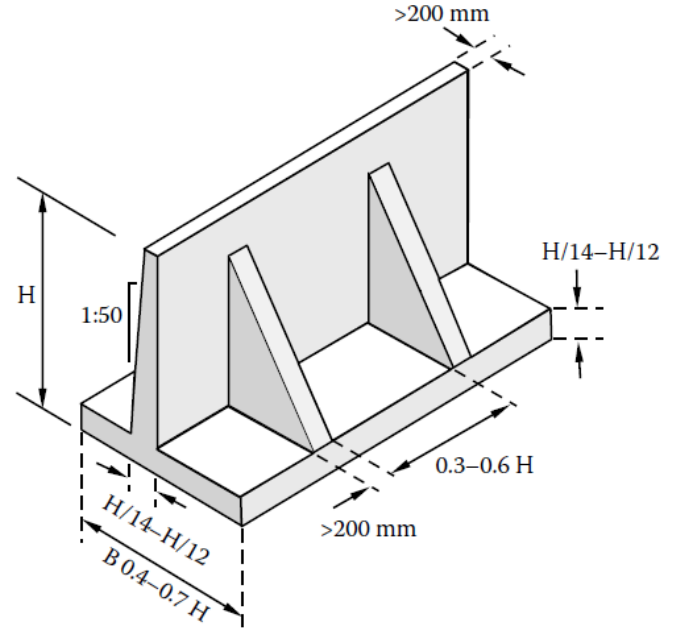
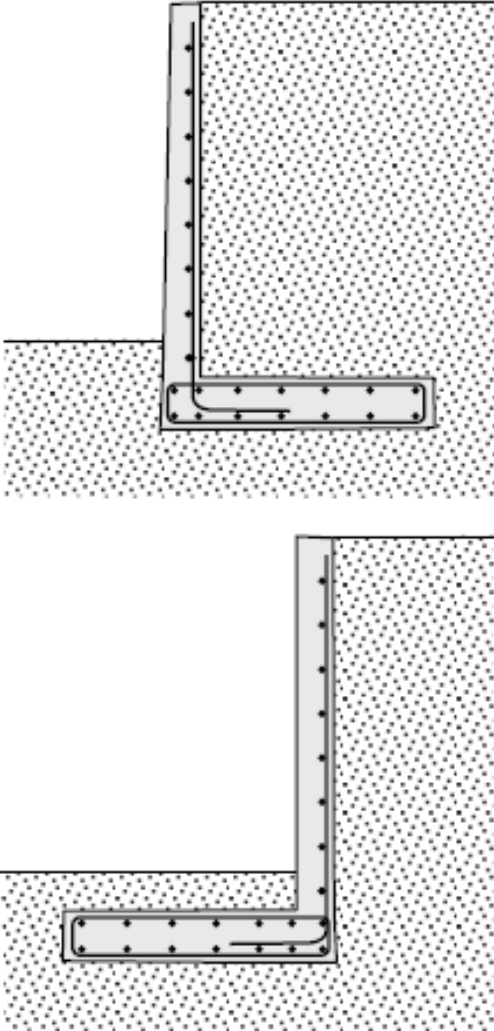
### 2. REINFORCED CONCRETE CANTILEVER WALLS

The most common forms of reinforced-concrete cantilever wall. They are made in the form of an inverted T (Figure 6.12, top) or L (Figure 6.12, bottom), with the latter being either forward or backward facing. The cantilever wall is a reinforced concrete wall that uses the cantilever action of the stem to retain the soil mass behind the wall. Stability is achieved from the weight of the soil on the heel portion of the base slab. A shear key may be used to augment sliding resistance. The very simple form of L or inverted T are suitable for low walls (less than 6 m), but for higher walls, it is necessary to introduce counterforts or buttresses.

Moderate heights of cantilever walls are available as precast units, allowing quick assembly on site. Their finish is generally plain, but can be textured to make them more aesthetically pleasing. In general, the quality of a precast concrete would be expected to be higher than that of an in situ concrete, but this advantage will be offset by the greater cost of transport and handling. There should be little risk of construction failure, provided that the manufacturers' recommendations with regard to installation and backfill are complied with.



## SEMI-GRAVITY CONCRETE AND REINFORCED CONCRETE CANTILEVER WALLS



Cross sections through typical (inverted) T-shaped and L-shaped reinforced concrete cantilever walls.