Shoring:

* Shoring is the construction of a temporary structure to support temporarily an useful structure. These support walls laterally.

* They can be used under the following circumstances

1. When walls bulge out. due due to bad workmanship.
2. when wall crack due to unequal settlement of foundation and repairs are to be carried out to the cracked wall.
3. When an adjacent structure needs pulling down
4. when openings are to be newly made or enlarged in a wall.

Types of shoring

1. Raking shores
2. Flying shores
3. Dead shores.

1. Raking shores (Inclined shores):- On this method, inclined members known as rakers are used to give lateral supports to walls. A raking shore consists of the following components:

(i) Rakers or Inclined member
(ii) Wall plate
(iii) Needles
(iv) Cleats
(v) Bracing
(vi) Soleplate.

⇒ The following points are to be kept in view for the use of the raking shoring:-

1. Rakers are to be inclined in the ground at 45°. However the angle may be between 45° and 75°.
2. For tall building, the length of the raker can be reduced by introducing rider raker.
3. Rakers should be properly braced at intervals.
4. The size of the rakers is to be decided on the basis of anticipated ~~thru~~ thrust from the wall.
5. The center line of a raker and the wall should meet at floor level.
6. Shoring may be speced at 3 to 4.5 m speeing to cover ~~to~~ longer length of the bars.
7. The sole plate should be properly embedded into the ground on an inclination and should be of proper section and size.
8. Wedges ~~not~~ not be used on sole plates since they are likely to give may under ~~to~~ vibrations that are likely to occur.

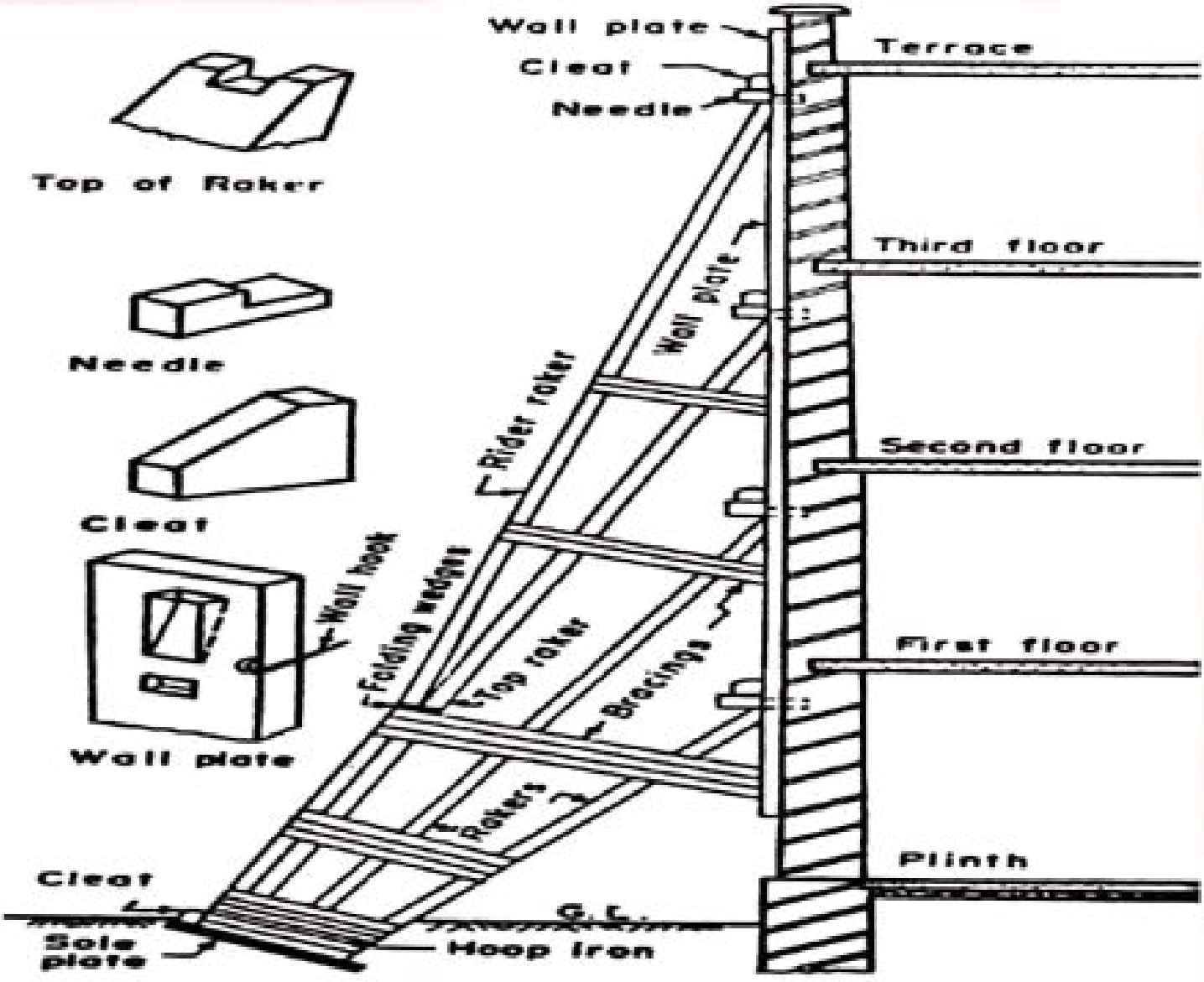


FIG. 18.1. RAKING SHORE.

Flying shores (Horizantal shores.)

⇒ It is a system of providing temporary support to the party walls of the two buildings were where the intermediates ~~of supporting~~ building is to be pulled down and rebuilt.

⇒ All types of arrangements of supporting to the useful structure in which the shores do not reach the ground come under this ~~cap~~ category.

⇒ They flying shore consists of wall plate, needles, cleats horizontal struts and inclined struts arranged in different forms which varies with the situation.

⇒ In this system also the wall plates are placed against the wall and secured to it.

⇒ A horizontal strut is placed between the wall plates and supported by a system of needle and cleats.

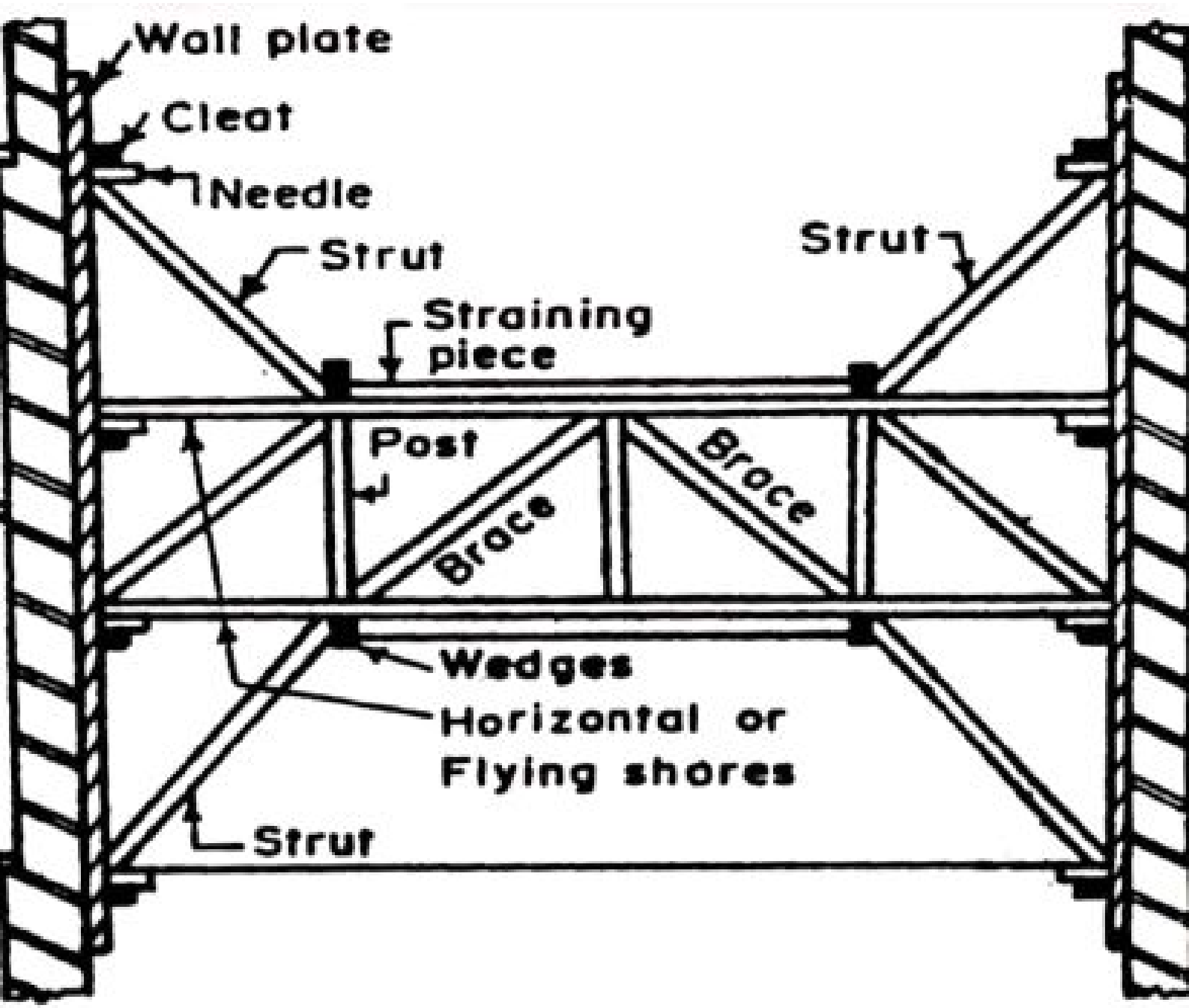
⇒ The inclined struts are supported by the needle at their top and by straining pieces at their feet.

⇒ If the walls are quit near to each other (Distance up to 9m) called as single flying shore.

⇒ When the distance between the walls is more than 9m a compound or double flying shore will be provided.

⇒ The following points are to be kept in view for the use of the raking shoring :-

1. Rakers are to be inclined in the ground at 45°. However the angle may be between 45° and 75°.
2. For tall building, the length of the rakers can be reduced by introducing ~~rider~~ rider rakers.
3. Rakers should be properly braced at intervals.
4. The size of the rakers is to be decided on the basis of anticipated ~~thrust~~ thrust from the wall.
5. The center line of a raker and the wall should meet at floor level.
6. Shoring may be spaced at 3 to 4.5 m spacing to cover ~~the~~ longer length of the bars.
7. The sole plate should be properly embedded into the ground on an inclination and should be of proper section and size.
8. Wedges ~~not~~ not be used on sole plates since they are likely to give way under ~~the~~ vibrations that are likely to occur.



18.3 DOUBLE OR COMPOUND FLYING SHORE

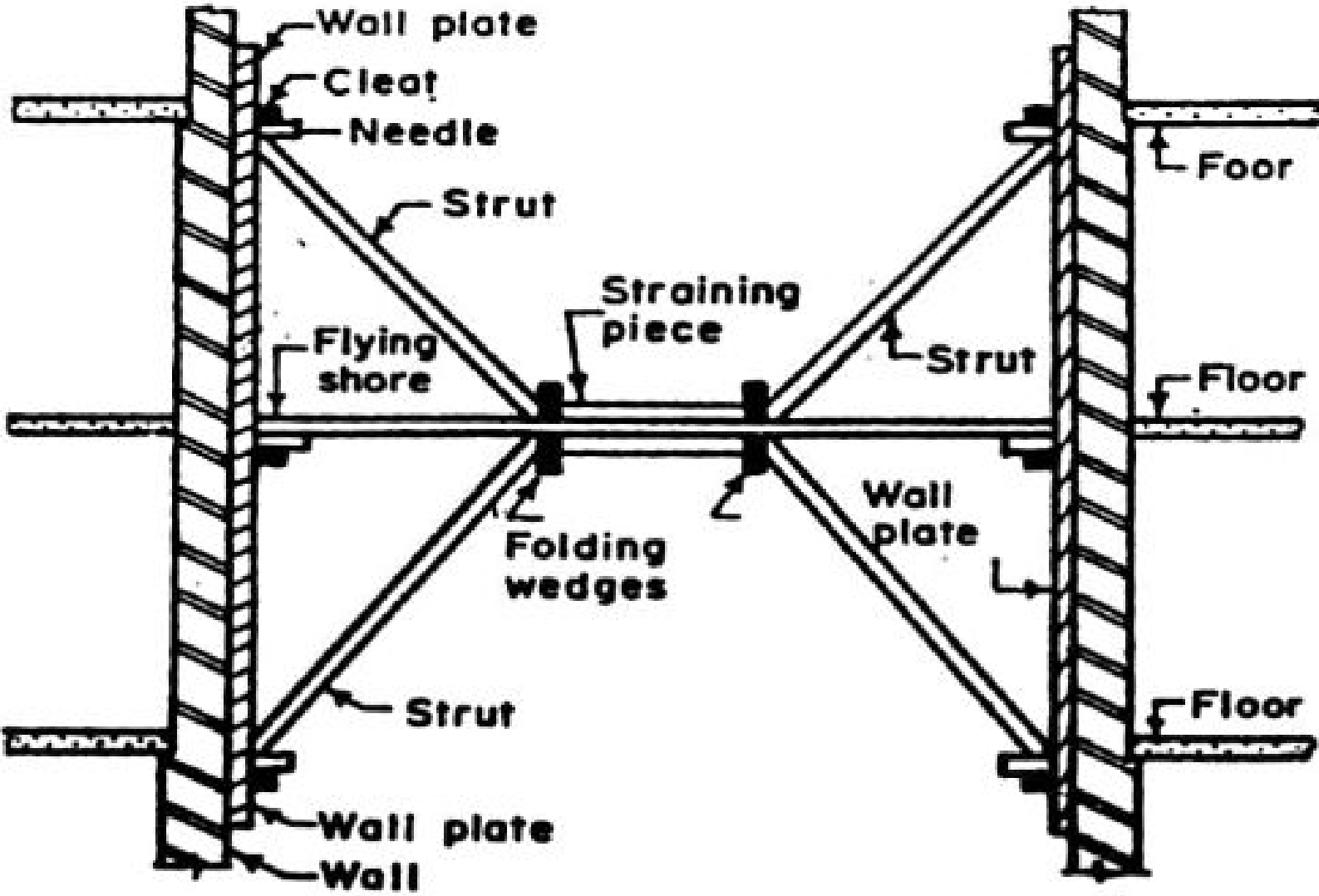


FIG. 18.2 SINGLE FLYING SHORE.

Dead Shores:

- This is consist vertical members known as Dead shores supporting horizontal member known as needles.
- The needle transfer the load of the wall etc. to the dead shores. Such shoring is provided to serve for following purpose.

1. To rebuild the defective lower part of the wall.
2. To rebuild or deepen the existing foundation.
3. To make large opening in the existing wall at lower level.

- Holes are made in the wall at suitable height needles which are made of thick wooden sections or of steel are inserted in the holes.
- Each needle is supported at its two ends by vertical posts or dead shores.
- Dead shores are supported on sole plates and folding wedges.

❖ Points to be kept in mind :-

- ✓ The section of needle and dead shore should be adequate to transfer the load, which can estimated with fair degree of accuracy
- ✓ Needles are spaced at 1 to 2 metres minimum three needles used for an opening.
- ✓ If the opening is made in an external wall, the length of outer dead shore will be greater than the inner ones.
- ✓ If the external wall is week raking shore may be provided in addition to the dead shores.
- ✓ Shores should be removed only when the new work has gained sufficient strength. But in no case earlier than 7 days of the completion of new work. The new work should have proper strutting.
- ✓ Sequence of removal should be ..1 needles...2 strutting from opening.....3 Floor strutting...4 raking shore if any.
- ✓ An interval of 2 days should be allowed between each one of these removal operations.

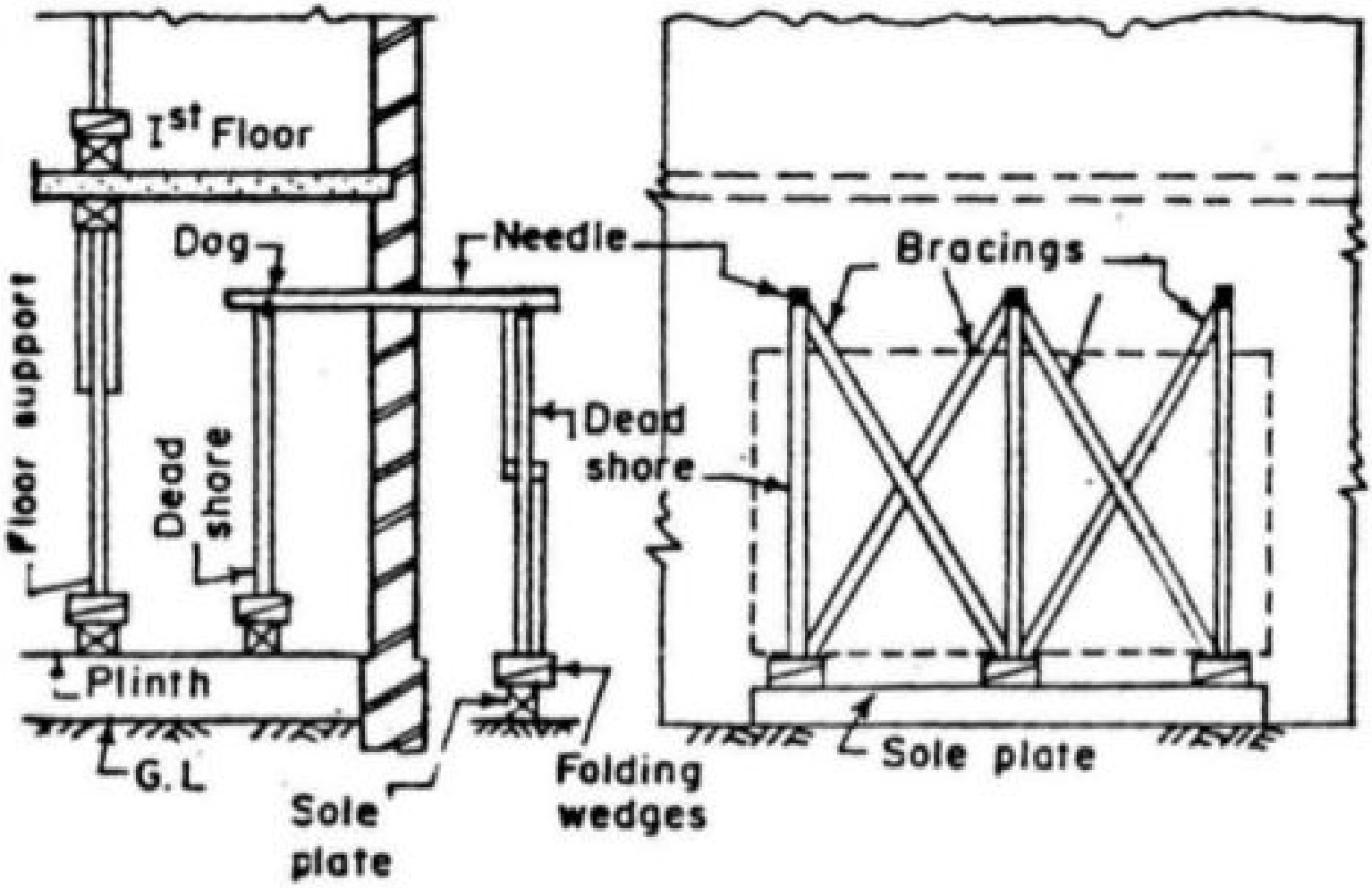


FIG. 18.4. DEAD SHORES (VERTICAL SHORES).