

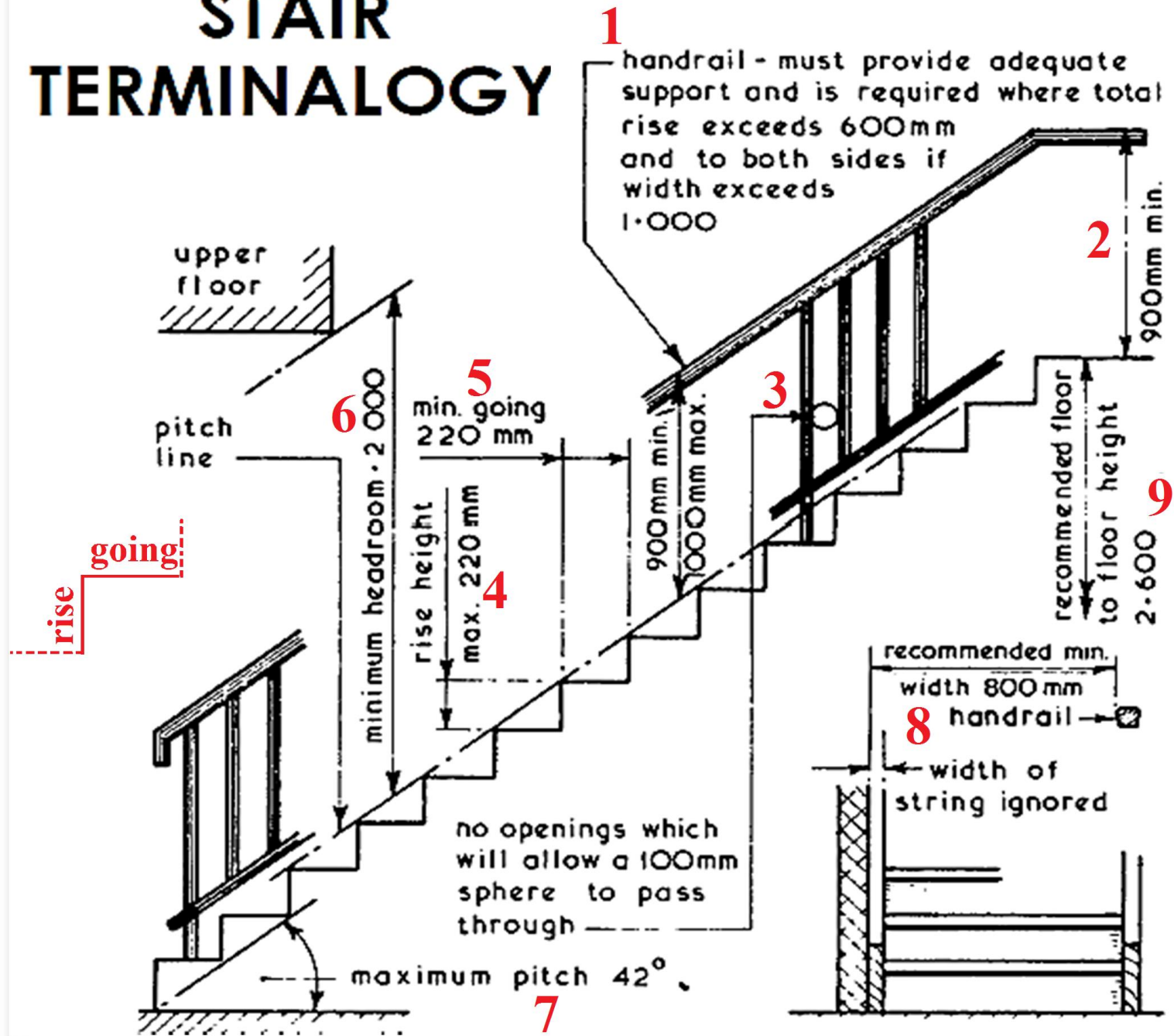
Stairs

Part 1/3 Introduction

Prof. Dr. Khattab Saleem Abdul-Razzaq

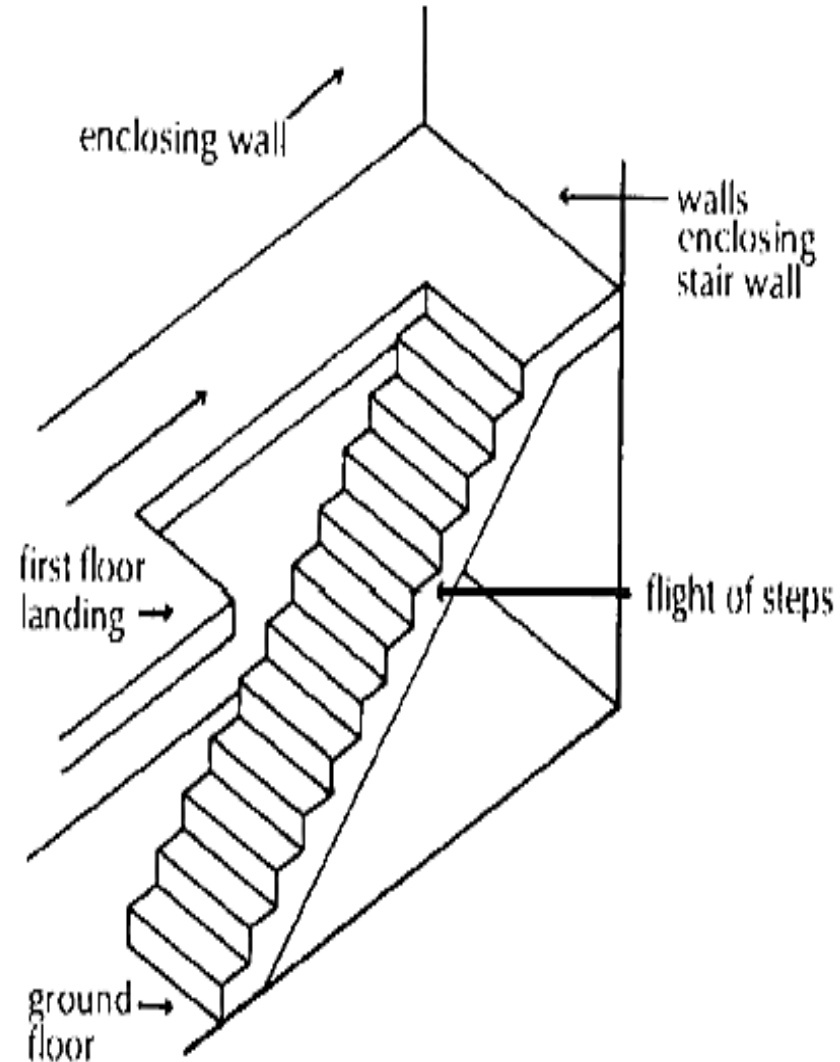


STAIR TERMINOLOGY



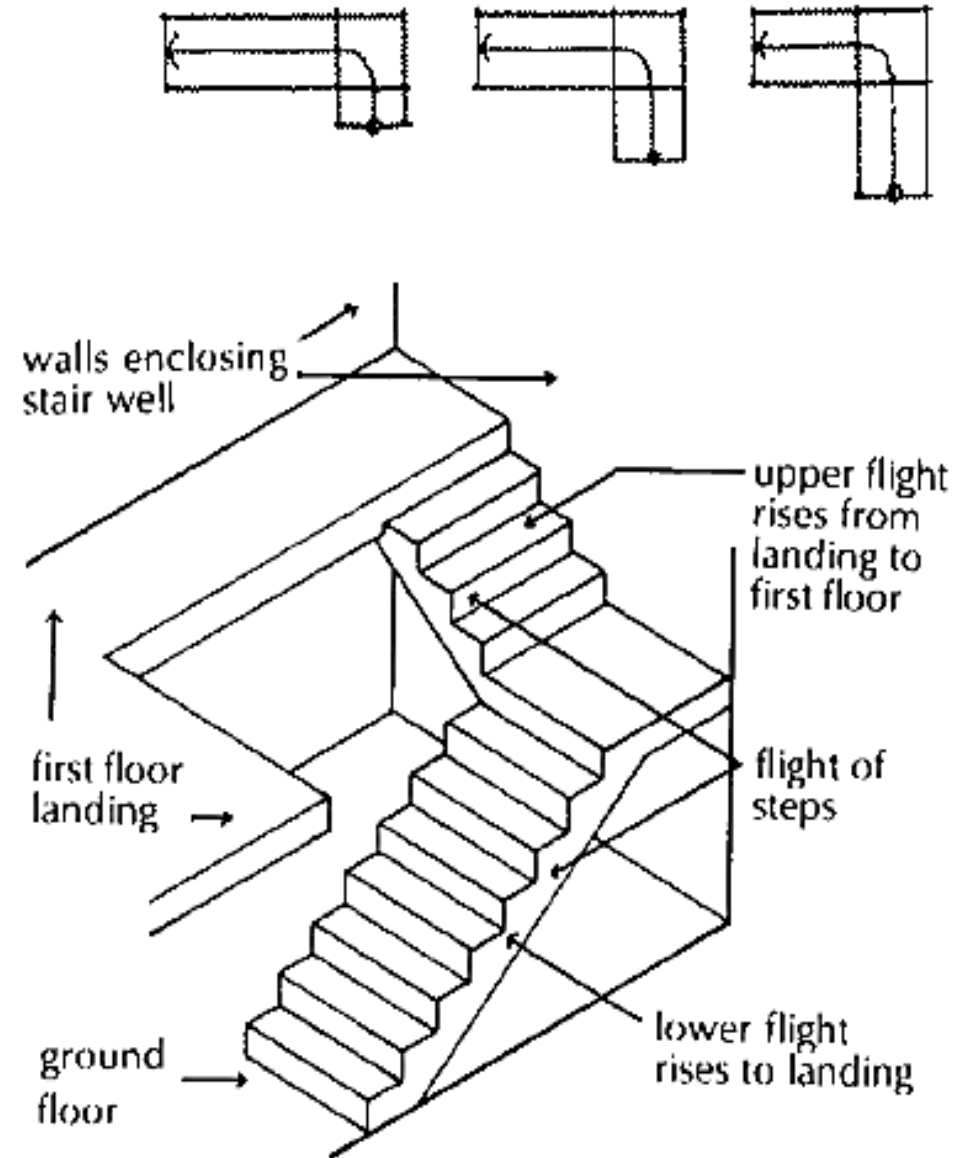
Straight Flight Stair

- Rises from the floor to floor in one direction with or without an intermediate landing.
- Known as 'cottage stair' as well, commonly used in the traditional 'two-up two-down' cottage.
- The most economical use of the straight flight is to locate the stair in the centre of the plan running for front to back.



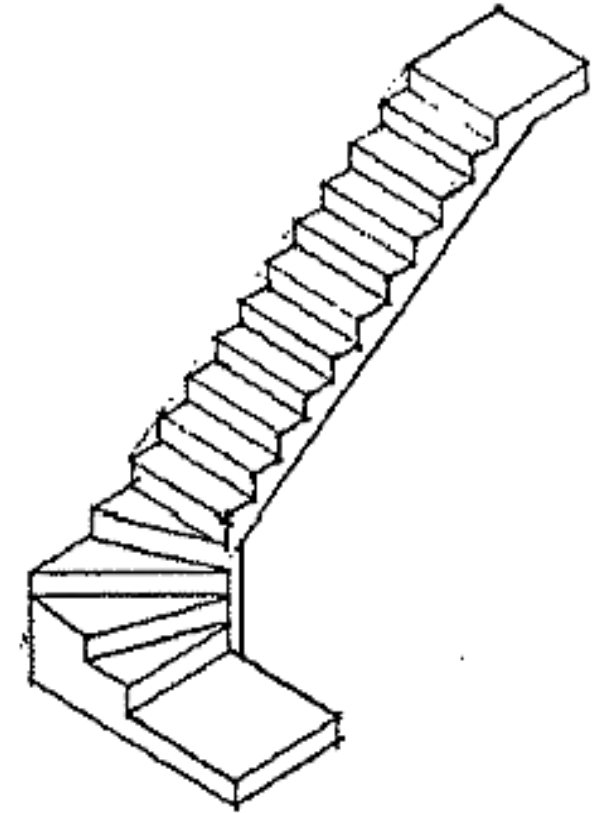
Quarter Turn Stair/ L-shaped

- Rises to a landing between two floors, turns through 90° , then rises to the floor above.
- Good in compact planning.
- The quarter turn sometime will be replaced with winders for economic use of space.



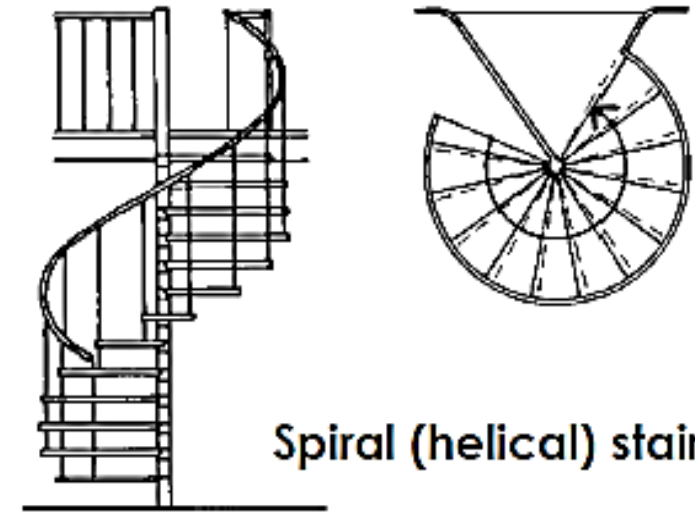
Winder Stair

- Triangular treads/tapered treads that wind around quarter or half turn in place of landings.
- To reduce the number of steps required in the rest of the stair and to economise in space.
- Usually use in domestic stairs.
- Can be hazardous as they only offer little foothold at the interior corner.
- Not recommended for public buildings in the means of escape stairs especially for the very young and elders.

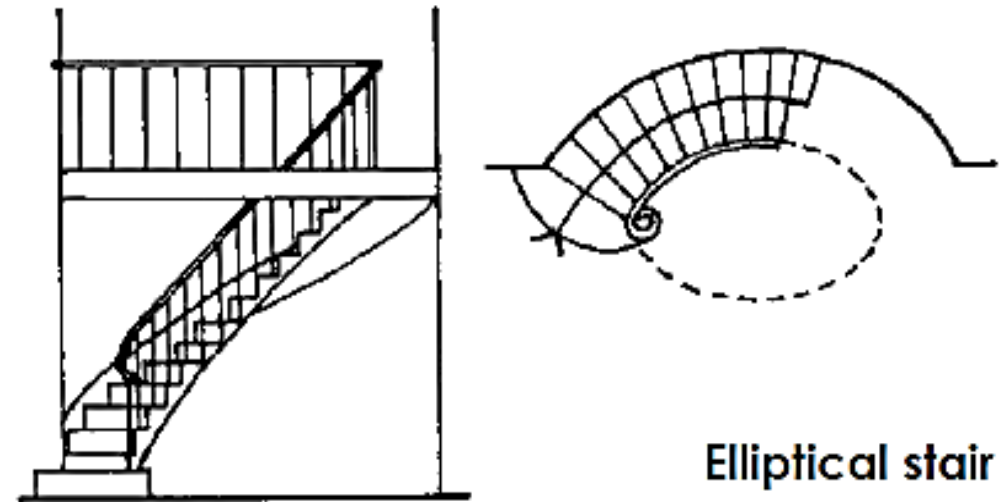


Spiral & Elliptical Stair

- Constructed as either a spiral (helical) stair or an ellipse stair.
- The most economical way to save space, but difficult to use due to the sharp turns. Very dangerous for the very young and elderly.
- Usually use where the space is very limited for access to an intermediate floor of one room.



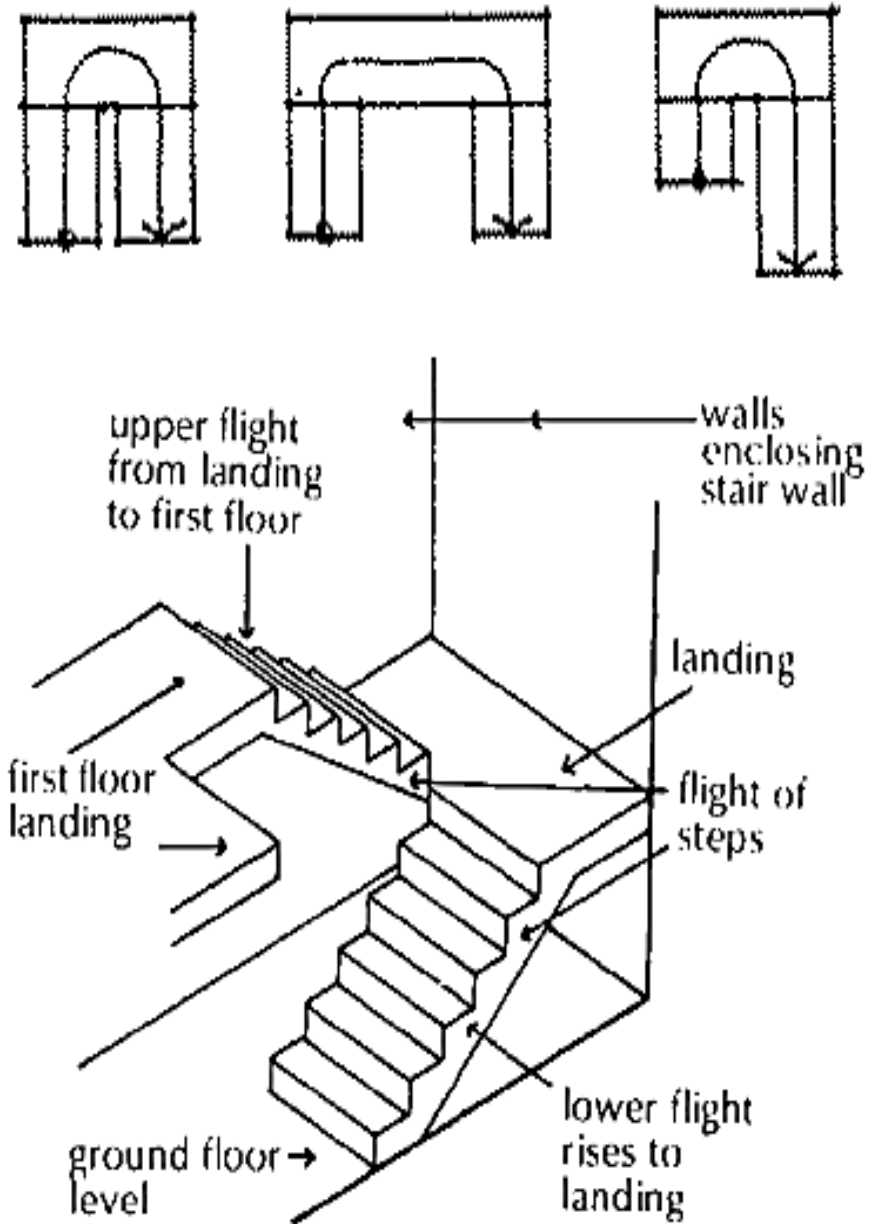
Spiral (helical) stair



Elliptical stair

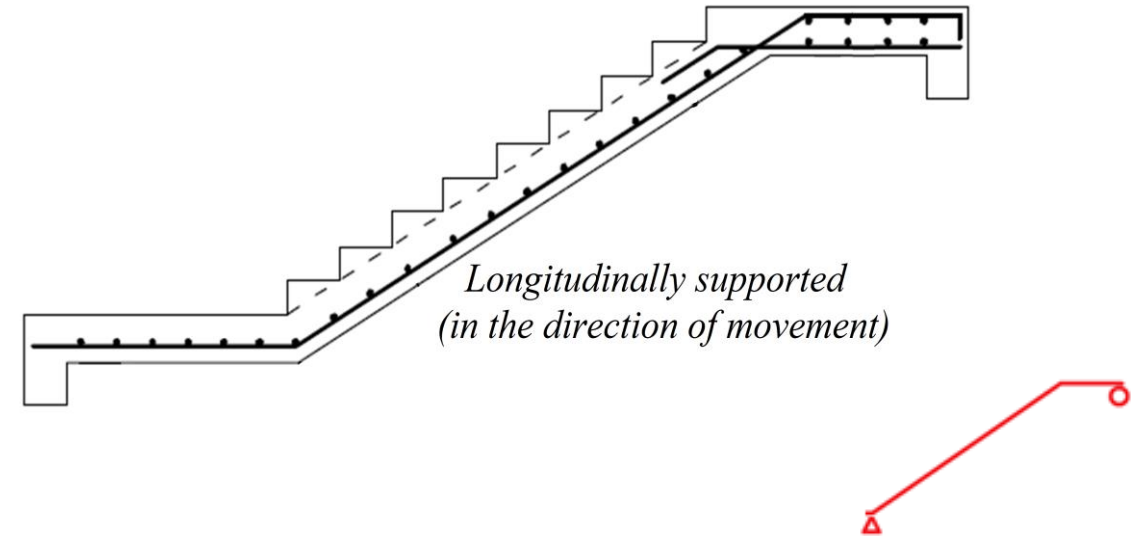
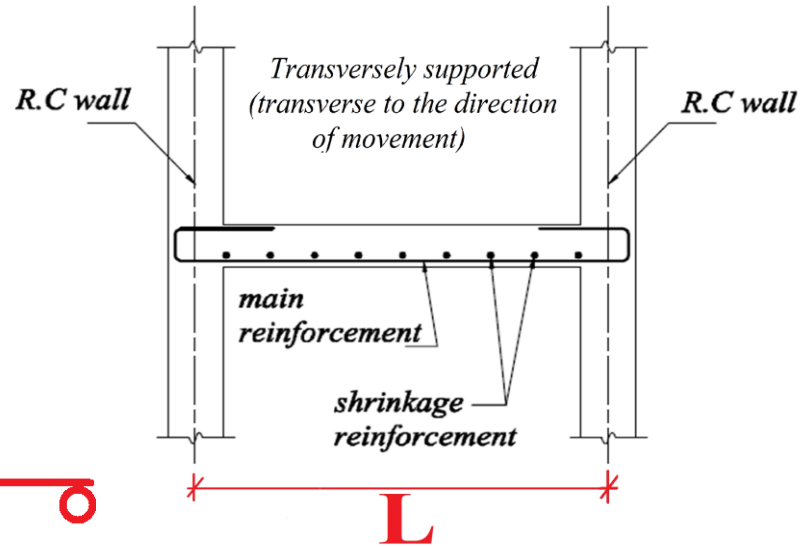
Half Turn (Dog Leg) Stair

- Rises to a landing between floors, turns through 180° , then rises parallel to the lower flight to the floor above.
- The most common arrangement of stairs.
- Advantage – can be constructed within the confined vertical stair well.



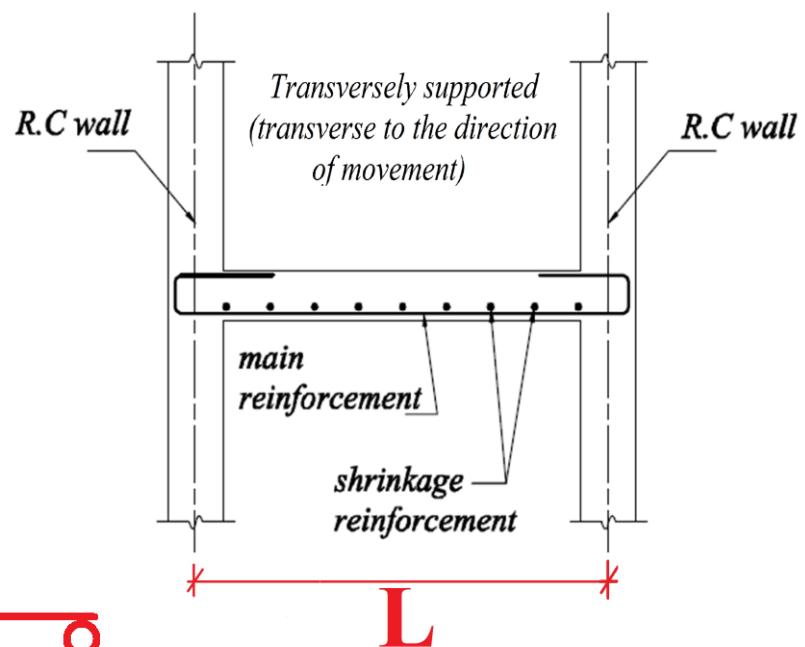
Types of Stairs

For design purpose, they are classified into two types; transversely, and longitudinally supported.



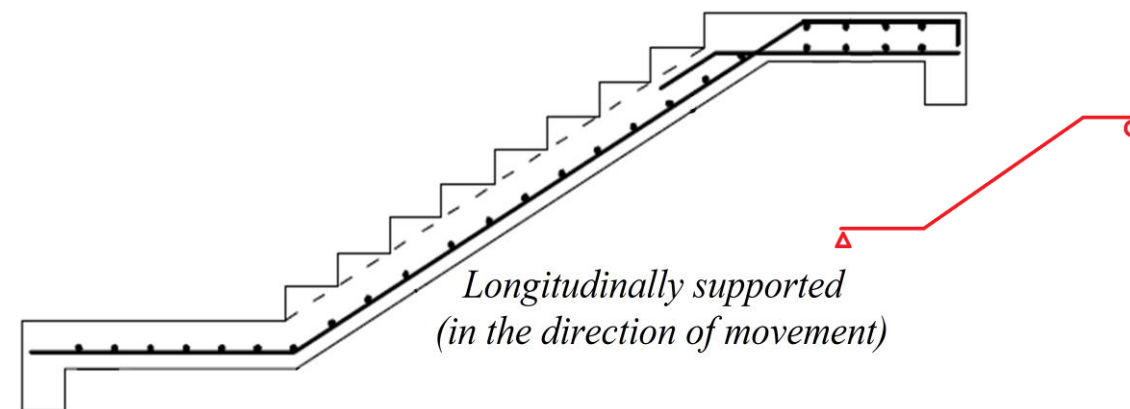
Types of Stairs

For design purpose, they are classified into two types; transversely, and longitudinally supported.



a- Transversely supported (perpendicular to the direction of movement):

- Simply supported steps supported by two walls or beams or a combination of both.
- Steps cantilevering from a wall or a beam.
- Stairs cantilevering from a central spine beam.



b- Longitudinally supported (in the direction of movement):

Longitudinally supported stairs may be supported in any of the following manners:

- Beams or walls at the outside edges of the landings.
- Internal beams at the ends of the flight in addition to beams or walls at the outside edges of the landings.
- Landings which are supported by beams or walls running in the longitudinal direction.
- A combination of (a) or (b), and (c).
- Stairs with quarter landings associated with open-well stairs.