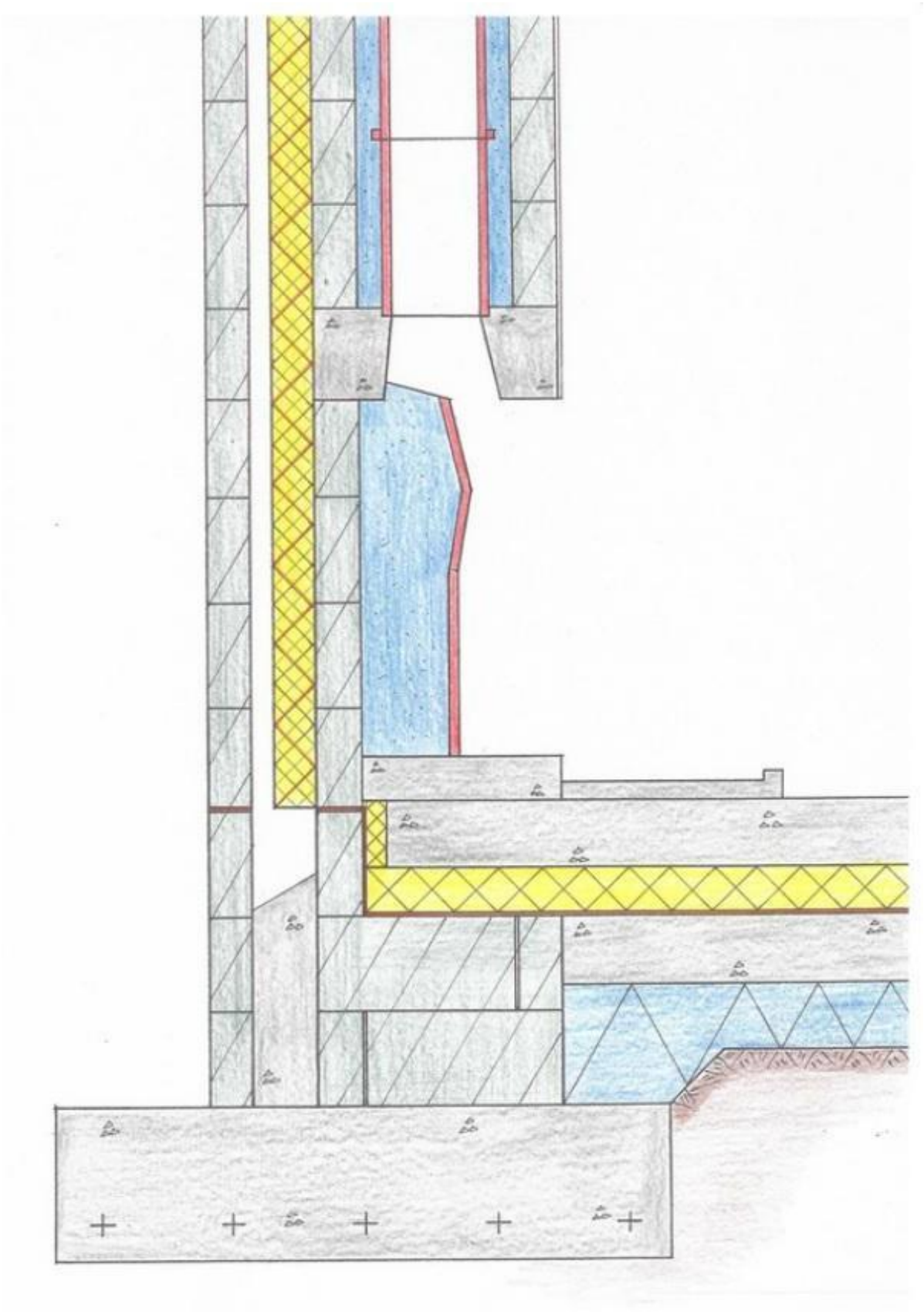
Construction Studies

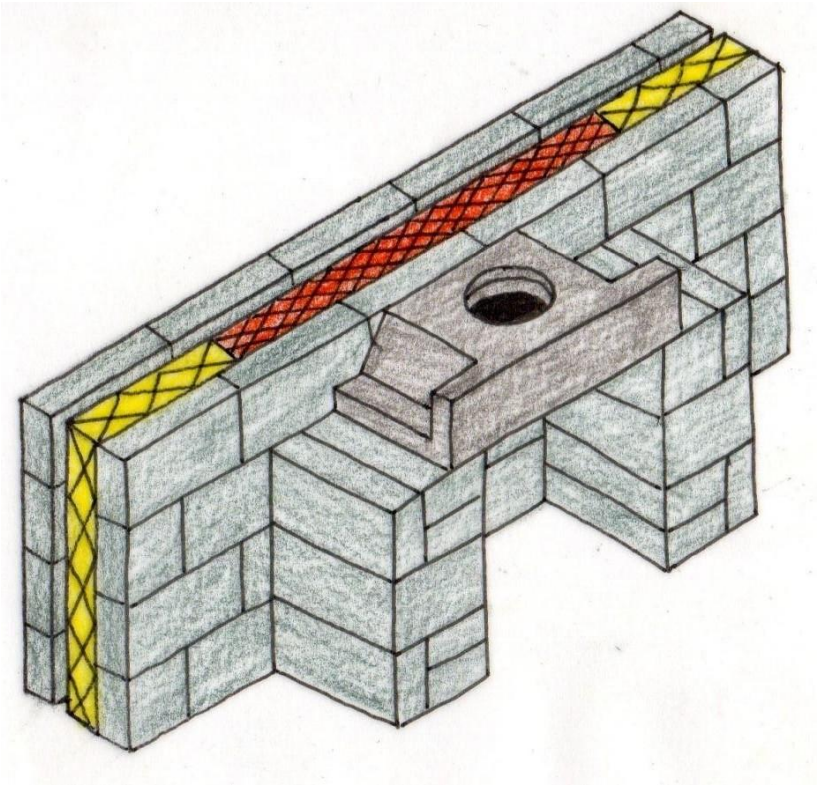
Internal Construction

Fireplace Detail



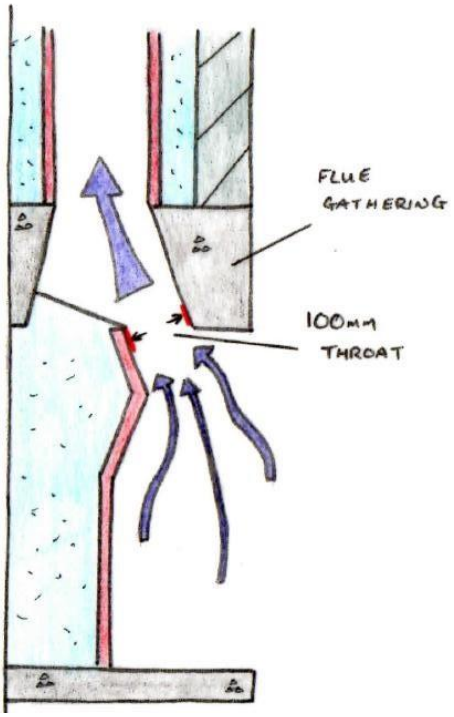
The foundation must be extended under the fireplace to ensure that the extras loads of the fireplace and chimney are catered for.

Non combustible insulation must be used behind the fireplace to prevent the risk of fire.



A 500mm minimum hearth must extend from the fireplace to ensure safety from heated elements from the fire.

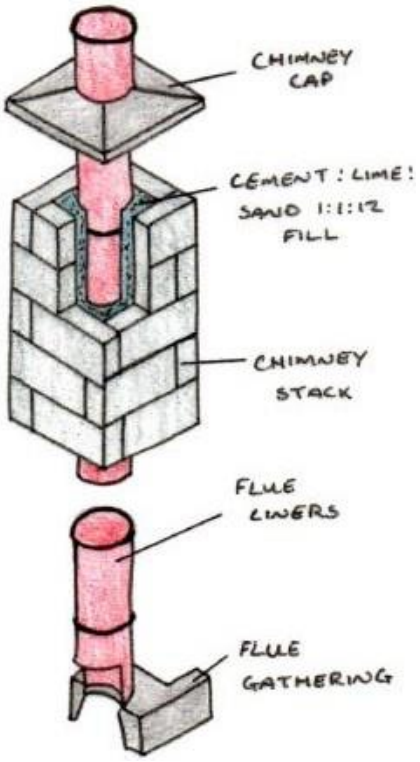
The height of the fireplace should not exceed 550mm, ensuring that smoke does not trickle into the room before being drawn up the flue.



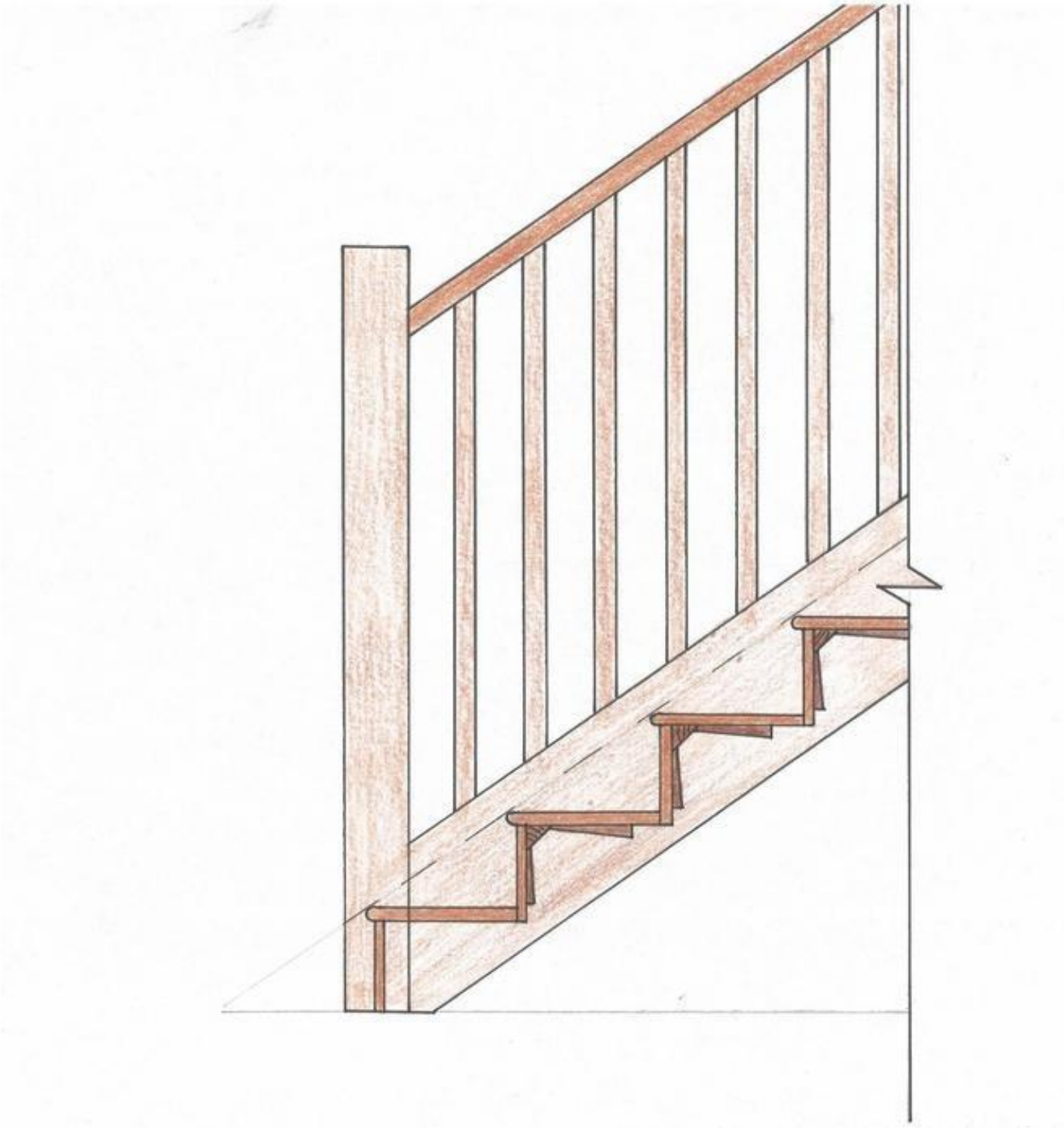
A precast concrete flue gathering is used to ensure that a 100mm throat is in place. A variation in the size of the throat will have a significant impact of the performance of the fireplace. (It creates a sufficient 'pull' for the smoke of the fire)

The flue liners are installed as the chimney stack is raised.

The cavity around the flue liners is packed with a cement, sand and lime mix in the ratio 1:1:12.



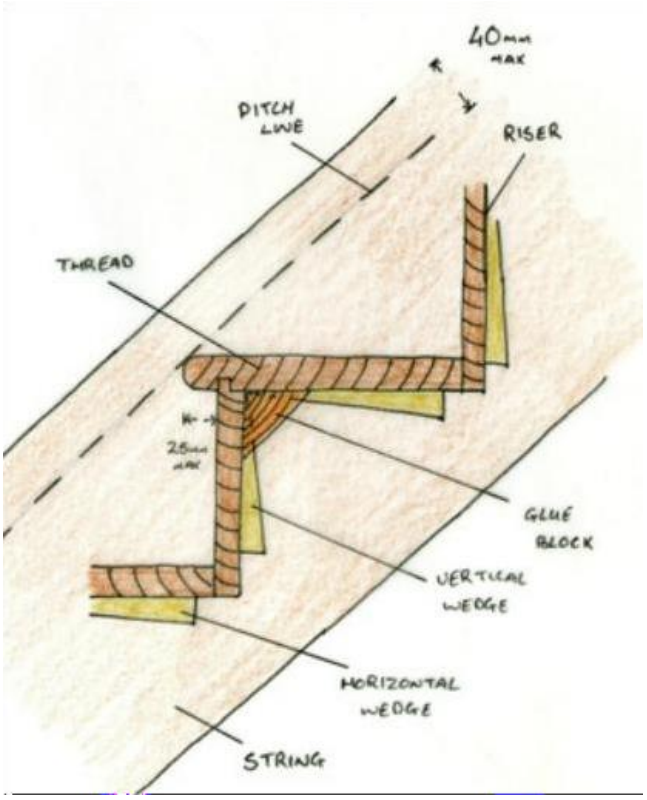
Stairs (Bottom)



The design of a stairs should ensure that it’s strong, stable, durable, but most importantly safe.

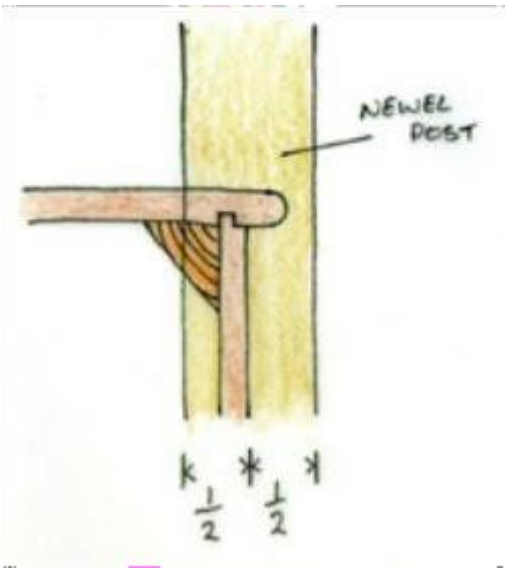
Many design factors influence the safe use of a stairs, including:

The step itself, meaning the rise and going, ensure that there is adequate space for a secure placing of the foot but also ensure that a step is not too high, causing a tripping hazard.



The staircase itself consists of two strings, in which the steps are housed into to ensure a secure and safe unit.

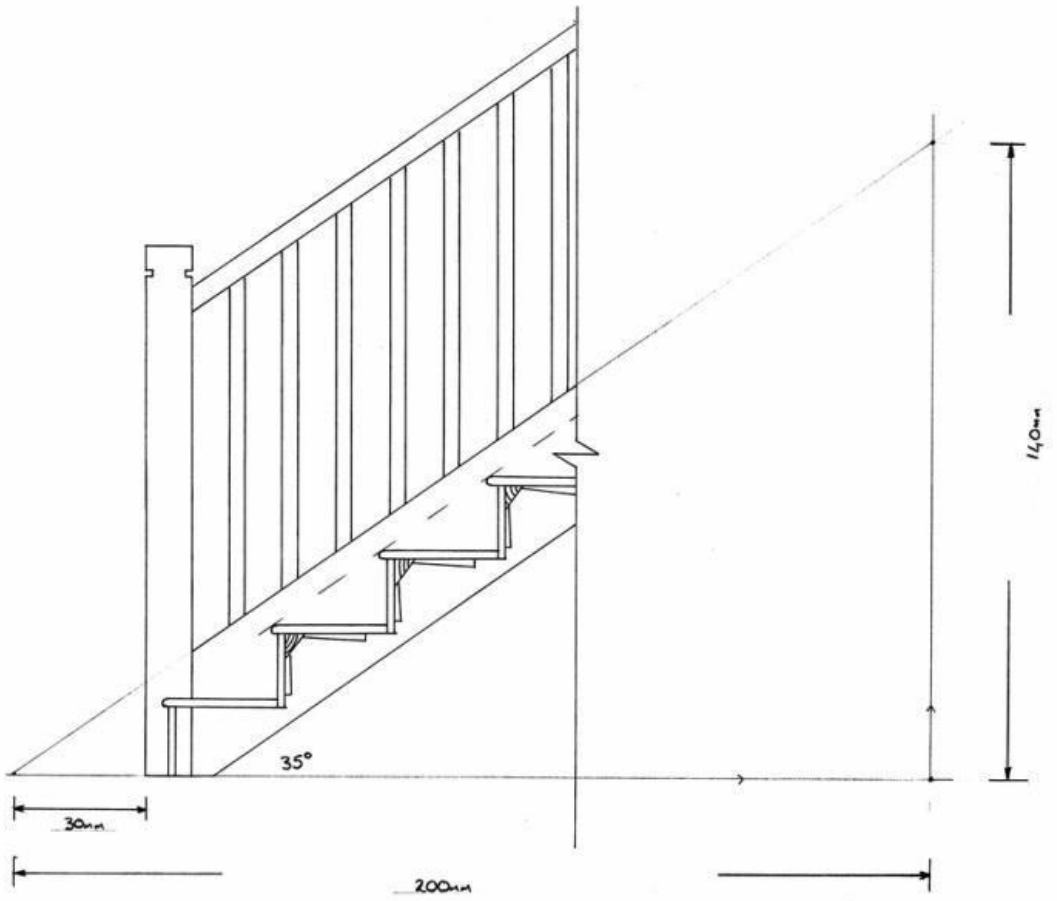
The Newel Posts at the top and bottom of the stairs, ensure that the flight of stairs is connected to the ground floor and landing.



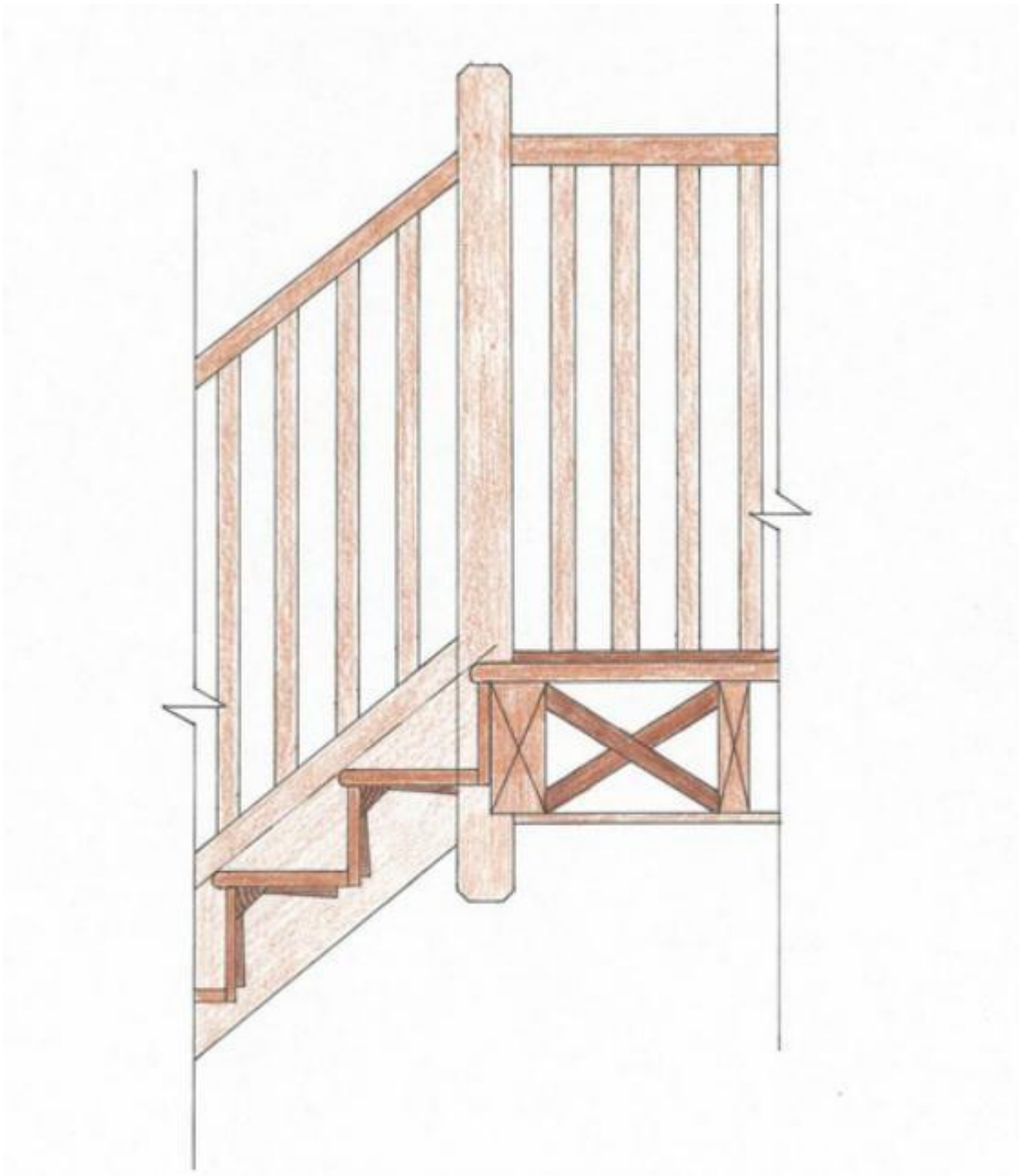
The handrail is parallel to the string and is fitted into the newel posts. The handrail and the balusters form the balustrade which provides protection on the open side of the stairs.

In the detailed drawings given, the stairs are drawn at 35 degrees. The best way to achieve this angle is to draw across 200mm and up 140mm and join the points.

This will give you the top of the string, which you can then step across 30mm to find the edge of the newel post.



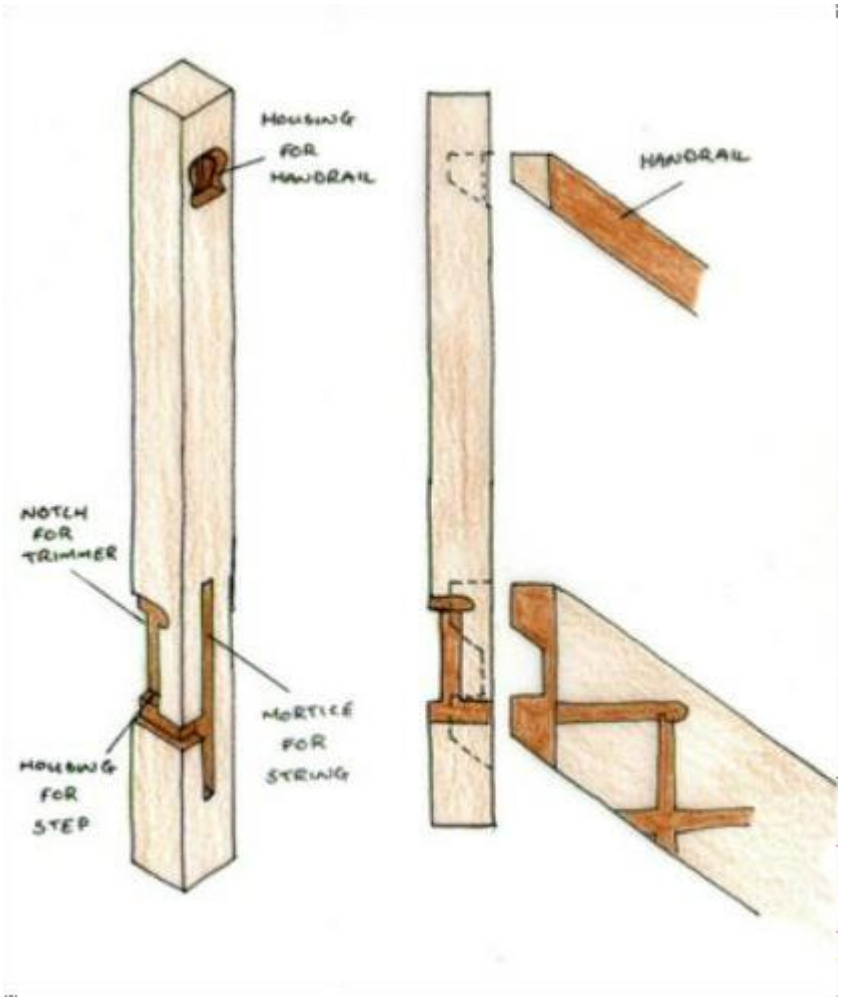
Stairs (Top)



The top of the stairs detail displays the joining of the staircase with the landing of the upper floor.

The Trimmer Joist provides the support for the stairs, with the newel post being notched over it.

The final step, which includes the riser and landing, is also housed into the newel post, similar to how the other steps are housed in the strings.



It is also vital that the balusters and handrail on the landing meet the required regulations of 900mm min.

The distance between each baluster on the landing is also the same as the staircase, with a maximum width of 100mm.