Pressed Steel Ceilings

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PLEASE NOTE: ***USE PROTECTIVE GLOVES****

GENERAL

The design of a PRESSED STEEL CEILING usually calls for a ***central pattern*** consisting of a number of **body plates** with or without a **rosette** in the center. This ***central pattern*** is then usually framed with a border consisting of **edge plates** or **moulds.**

The remaining section between the outer edge of the surrounding pattern and the cornice is then covered with a **filler.** The **filler plates** normally have rather small patterns and can be cut to suit the size of the room.

The maximum length of all **plates** and **cornices** is 1220mm (4 ft). Most of the **body plates** are 610mm (2 ft) wide while the **moulded filler plates** can go to a maximum width of 635mm (2 ft 1 in). **Edge plates** and **moulds** can vary between 152mm (6 ins) to 305mm (1 ft) and 457mm (18 ins).

The sizes mentioned are the effective sizes while the actual sizes are slightly larger to allow for overlaps at the lap joints.

HITTING THE CEILING:

When one looks at the design of the PRESSED STEEL CEILINGS to be installed, it will be evident that there must be a beam or supporting base of some sort whenever there is a joint between two plates.

Various methods of installation can be used depending on the structure of the existing roof where the STEEL CEILINGS must be installed e.g. concrete slab, timber trusses, existing plaster ceiling, etc.

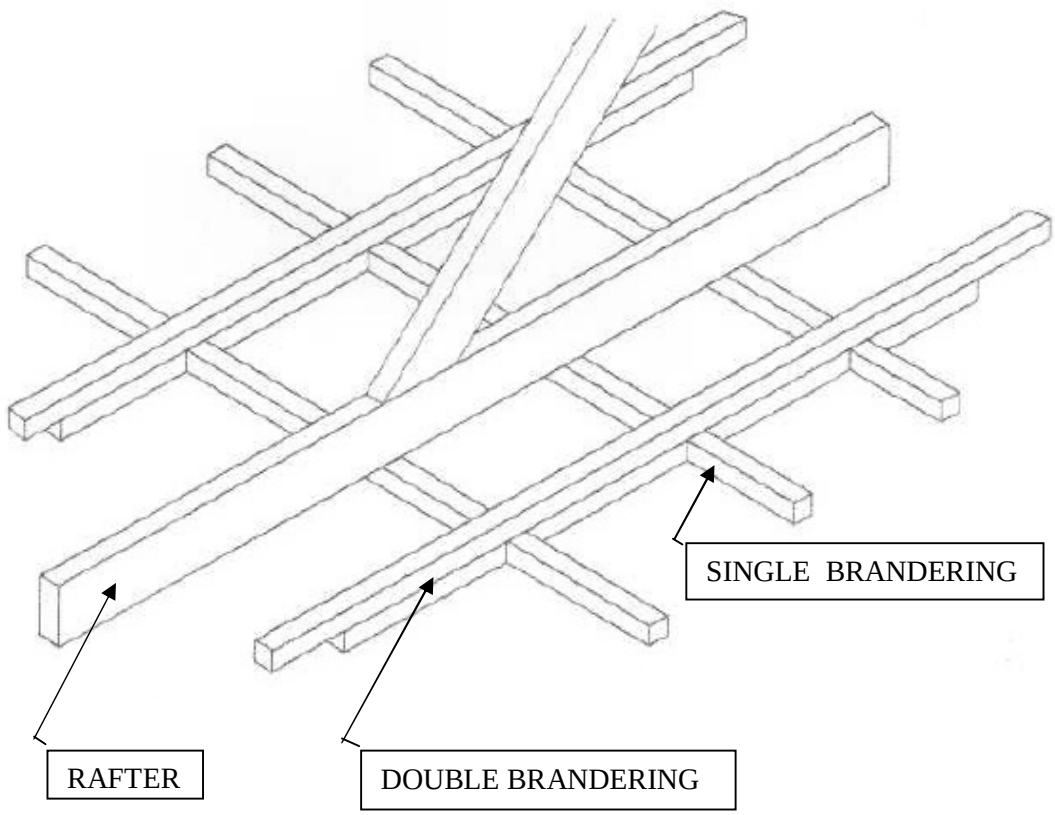
(a) THE TIMBER LATTICE

The most widely used method of constructing the supporting base for a PRESSED STEEL CEILING is certainly the **timber lattice.**

According to this method 38mm x 38mm brandering is used to construct a grid underneath the main beams of the roof structure.

If, for example, the section of the ceiling in question is build up from 1220mm x 610mm (4 ft x 2 ft) plates with 610mm x 610mm squares, it is evident that the **timber lattice** or **grid** must then also consist of squares of the same dimension.

It would also be necessary that the lower surface of the **grid** must be on the same level right through. One way to construct this **grid** is to install brandering (at the required center distances – 610mm centers) in one direction (normally perpendicular to the main roof trusses) and then **"double brandering"** in a direction perpendicular to the first.

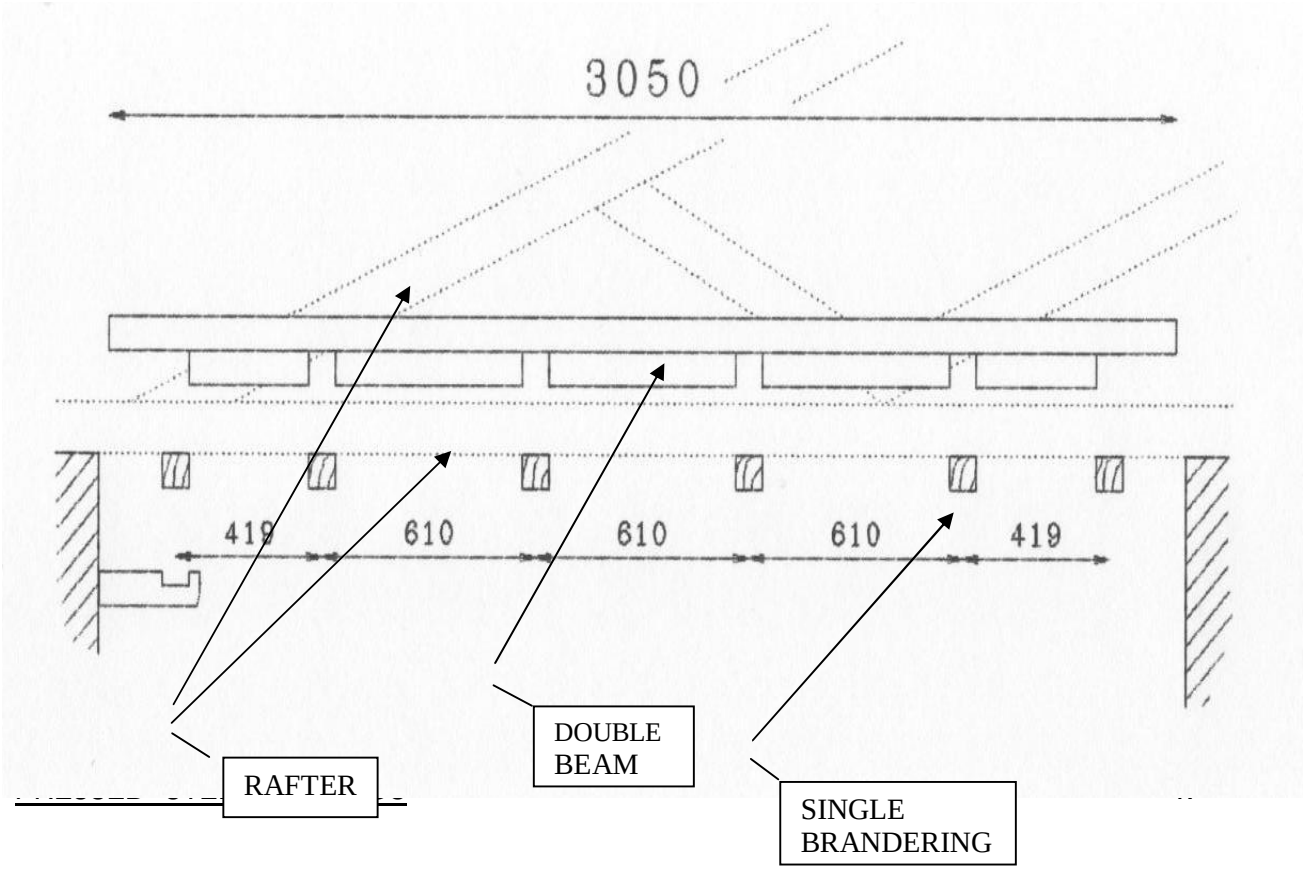


The **"double brandering"** will thus be running parallel to the main roof trusses normally and will rest on top of the single ones that are nailed (or even better screwed) to the main roof trusses.

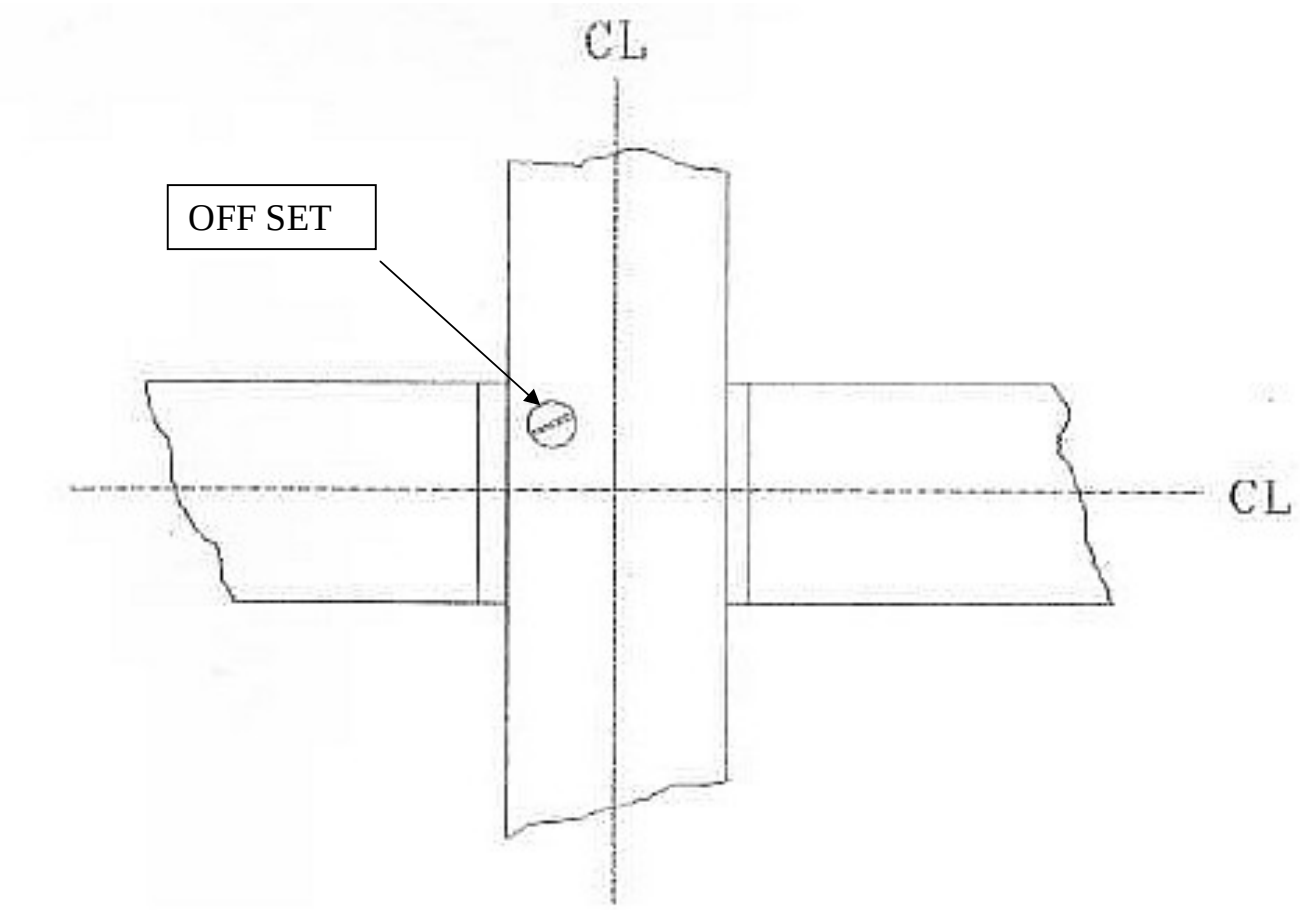
It is true that this method needs a lot of timber due to all the **"fill in"** pieces on the second cross layer, but this method has the advantage that the second layer with the

“fill in” pieces can be made up beforehand with the result that the construction work **“in the air”** becomes much less.

For a room with a span of 3,050m (10 ft) and with a ceiling design of three squares of 610mm plus filler and cornice, a pre-manufactured double beam would typically look as follows:



It is important to remember that the screws (or nails) must be placed **“off set”** at the crossing points of the centre lines of the brandering.



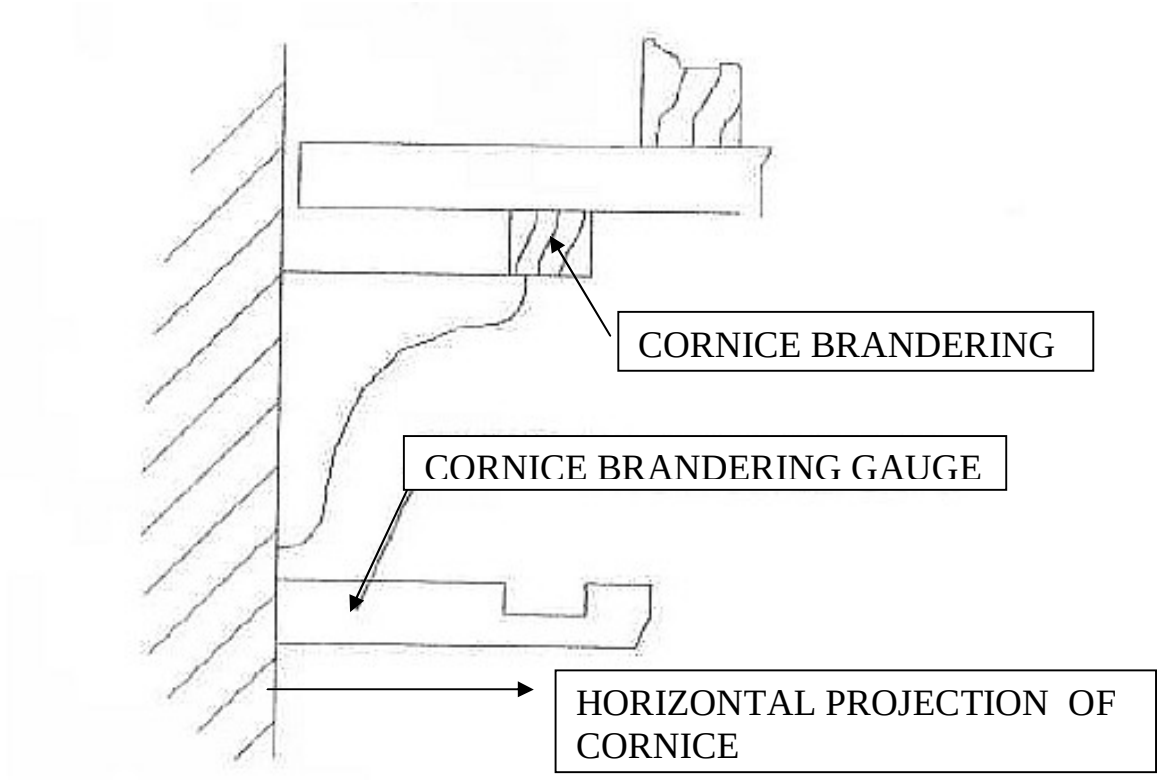
This is due to the fact that the nails holding the plates up will eventually be on the exact crossover point of the two centre lines.

It can not be **over emphasized** that the brandering grid must be installed with the greatest care so as to ensure that the beams are perfectly straight before fastening and to obtain the correct spacing between branderings.

The single and double branderings must also be **exactly 90º** to each other. A **handy tip** is to make a distance gauge from a suitable length of timber (brandering) whereby the distances between the consecutive branderings can be gauged before fastening.

The gauge will of course have to match the specific design of the ceiling that must be installed.

It is also advised to make use of a **cornice brandering gauge** to ensure that the centre line of the brandering to which the cornice will be fastened is exactly parallel to the wall at a distance equal to projection of the cornice that will be used.



(b) INSTALLATION OF CEILING PLATES:

Once the grid is completed the installation of the plates can begin.

It is recommended to use a builders line (fish line) along the centre line of the brandering along which the first row of plates will be installed. Each plate has got circular nail buttons pressed at 152mm (6") distances to facilitate the nails to be used. The pressings are such that the plates should overlap and that these nail buttons should then be **exactly** on top of each other.

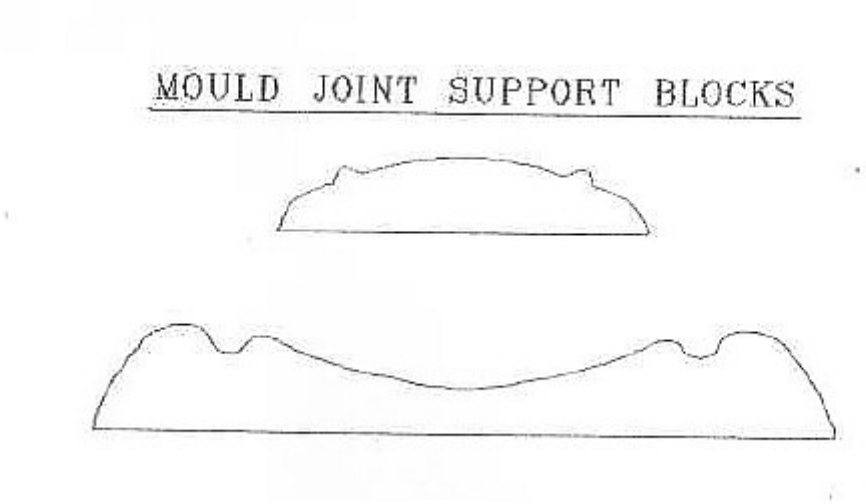
The process of positioning the plate before putting in the nails can be done by hand or preferably by adjustable mechanical struts. Once a plate is in the correct position it can be nailed up temporarily in only about 4 - 6 places. The reason for putting nails in temporarily is (1) to be able to pull some nails out again when the next plate goes in either underneath or on top, and (b) to be able to reposition a plate slightly if necessary.

A **handy hint** is to slip a piece of 3mm plastic tubing, cut in about 12mm lengths, over the nails before hammering them in. The tubing holds the plate up tight long before the nail is driven in completely and at the same time the nails can be easily pulled out with a pair of pliers when necessary.

It is normal practice to complete the main section or body of the ceiling temporarily to make sure that everything matches before the installation of the mould or filler is started.

(c) MOULDS

Whenever a mould is installed, even a moulded filler plate or an edge plate with a mould pressed as a unit, a **"mould joint support block"** is used at the joints between two moulded sections. This is a timber block cut to match the shape or profile of the mould and serves to provide a solid backing behind the overlap. Against this solid backing, the seam at the lap joint can be swaged with a suitable blunt tool or piece of wood to close the seam. If necessary, one or more nails can be driven through the two plates to pull the seam tight.



(d) FILLER OR MOULDED FILLER PLATES:

As the filler plates have got rippled edges due to the patterns flowing through, it is necessary to slip the edges of the filler plates **underneath** the edges of the body plates. Again the use of a builders line is strongly recommended to ensure that the filler plates are installed along a straight line. It is strongly recommended that the filler plates be also nailed up temporarily to ensure that everything matches before permanent nailing up is done.

A filler plate should cover the **full distance** from the edge of the last inner plate to beyond the cornice brandering.

If necessary the filler plate can be cut or trimmed with a tin snips making sure that the side, which has been cut, goes against the wall. Care should also be taken to have proper "pattern matching" wherever the filler plates overlap each other.

(e) CORNICES

The cornice plates are installed such that they cover the outer edges of the filler plates.

Pre-soldered mitered cornice corners are normally used and are installed first. Cornice plates are then installed overlapping at the joints.

A cornice joint support block should be used behind every position where the cornice plates overlap. This is a timber block cut to match the shape of the cornice and serves to provide a backing behind the overlap. Against this solid backing the seam at the joint can be swaged with a suitable blunt tool or piece of wood to close the seam. It also enables the installer to put one or more little nails through the two plates to pull the seam tight if necessary. The cornice **"joint support block"** is fastened to the wall by means of a screw and a Fischer- or Ramset plug and also to the brandering above.

Cornice plates are installed starting from the cornice corners and working inwards towards the centre of the wall. At the exact centre between the two adjacent similar patterns, the two plates are roughly cut to provide a reasonably large overlap. They are then trimmed bit by bit to give pattern matching at the joint. For a perfect joint the two pieces can be soldered together forming a butt joint, otherwise a lap joint (with a small overlap) can be made, using a cornice joint support block at the joint.

It will be clear that the normal patterns of the cornice will suddenly stop at the joint and a mirror image will follow from the joint further on.

If the plaster on the walls is suitable (not too hard or not too soft) the cornice can be nailed to the wall using suitable concrete nails (25mm x 3mm fluted nails for example).

If the plaster is not suitable for the use of concrete nails the cornices can be fastened by using wall plugs and screws as follows:

> The cornice plates are fastened to the wall by first drilling 3mm holes through the nail buttons at the bottom. The length of cornice is then placed temporarily in position between the two joint support blocks by nailing it to the blocks with nails and plastic tubing in the same way as the plates are temporarily nailed up. The positions of the 3mm holes are then marked against the wall (normally by hitting small pop marks with a nail). The length of cornice plate is then temporarily removed.

A 5mm hole is then drilled at each pop mark, just deep enough to accommodate a 5mm Fischer- or Ramset plug and the plugs are inserted. Make sure the rear ends of the plugs

are flush with the wall surface. The length of cornice is then placed in position and a 3mm x 25mm self-tapping screw is then inserted at each plug and tightened.

The top row of nail buttons is used in the normal way and nails are driven through these and through the filler plate into the cornice brandering.

(f) FINISHING OF THE CEILING:

1. Nailing

   All nail buttons at the joints are used to drive in nails. As there are many nail buttons on the filler plates, nails can be driven in at smaller intervals on these.

2. Swaging

   The metal the plates are made of is reasonably ductile and seams not closing nicely can be swaged by forcing the metal to close up the seams.

3. Using sealers

   Seams not closed by nailing and swaging can be closed by using a suitable sealer like an acrylic sealer, which can be painted afterwards.

4. Final painting

   Final painting can be done by using a suitable enamel paint. Eggshell or Matt is the most popular.