

MEMO 540

BSF – INSTLLATION ON SITE AND
SEALING OF JOINT

ERECTING

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INSTALLATION ON SITE

Check that the receiving box in the column or beam is free from any debris. Also check against drawings that the correct size of knife is being used. Knives are colour coded to indicate the capacity (see memo 510). Before hoisting the beam into position the knife is retracted inside the beam unit, taking care that it goes in the correct way around (see diagrams). Check for smooth movement of the knife before lifting. The beam should be raised to a level approx 10 - 15 mm higher than the final level. When the beam is in the correct position, the knife is pushed out of the beam and into the column unit by means of a crowbar in the mounting slot. The knife should be pushed out until the vertical end of the knife bottoms against the rear of the recess in the column, (see Figure 1.) The beam is then lowered carefully to the final position, making sure that the slots on the underside of the knives are hooked over the safety bar in the column unit.

Before releasing the lifting device, the joint width should be checked. Normal joint width is 15 - 20 mm, and should be adjusted to be as nearly as possible the same width at both ends of the beam. Maximum allowable gap is 30 mm when utilizing the full load capacity. If the joint exceeds 30mm, the responsible Engineer should be contacted to evaluate the solution.

Adjustment of the joint width is done with a crowbar as follows:

Position A: Increase of width (a)

Position B: Decrease of the width (a)

One person can carry out the operation, but the process is quicker and more convenient with one person at each end of the beam being erected.

A final control of correct positioning of the knife can be made by checking the visible length of the slot at the bottom of the knife in front of the column edge. This visible length of the slot should be approx 5 mm for all sizes of units when the knife bottoms against the rear of the recess in the column, see Figure 1.

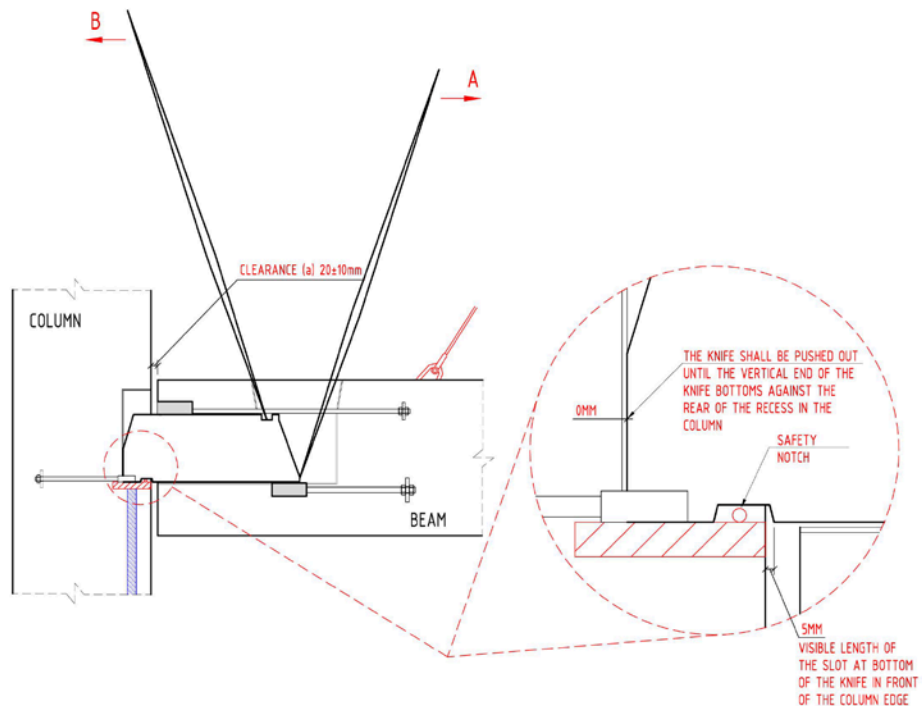


Figure 1: Erection – adjustment of the joint.

ADJUSTMENTS

Minor adjustments in height are possible. If the beam is too low relative to datum, then steel shims may be introduced into the receiving box. These shims should be full width of the recess and fit from the rear face to the safety bar (see fig 1). If the beam is too high relative to datum then it is possible to extend the safety notch forwards to the end of the knife by cutting. This must have the Engineer’s approval and must be carried out to give a full clean bearing. **Cutting higher than the safety notch is not permitted.**

SEALING THE JOINT

The joint (and at the same time the recesses in the column and beam units) are filled with a quick setting concrete based mortar. This will ensure fire protection of the BSF knife.

A suitable grout seal should be used to prevent grout loss. Round, extruded polyethylene or neoprene rod may be used. The diameter should be adequate to ensure a tight fit in the joint without slipping under the weight of grout.

Grouting of the connection should not be carried out until it is confirmed that no further movement or adjustment is required, since this will not be possible after grouting.

Grouting should be carried out using pre-mixed, non-shrink, quick setting cement-based mortar of pourable consistency.

Pouring should take place at the joint, ensuring that both the column box and the joint space are fully filled as shown in Figure 2. Also the access slot and the beam box should be grout-filled.

When the mortar has cured, the joint backing may be removed, leaving a 15-20 mm deep recess. To improve the appearance of the joint a joint sealant may be used as a finish.

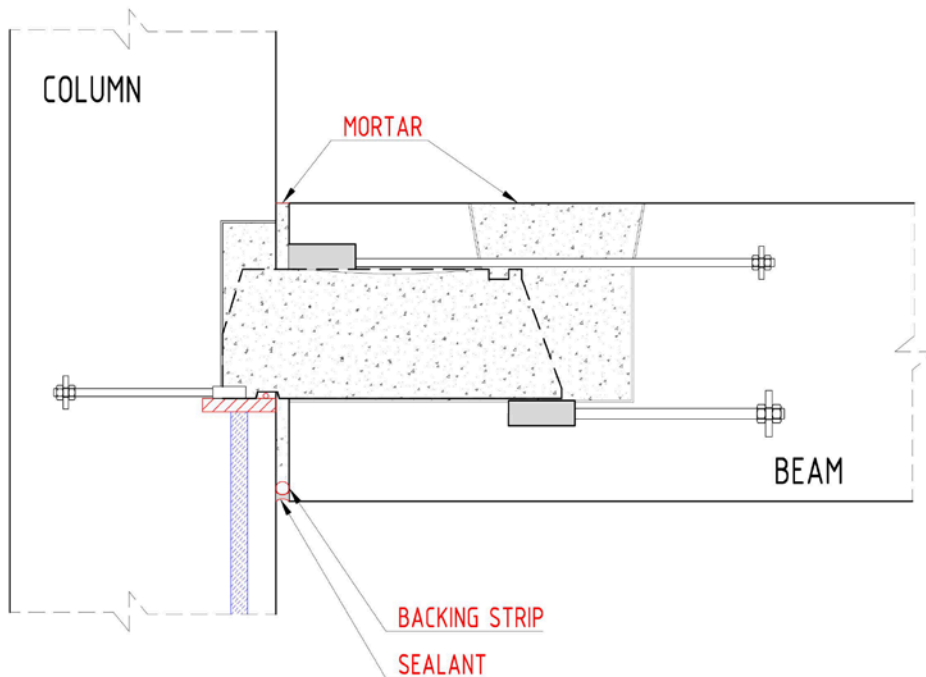


Figure 2: Grouting the joint.

REVISION HISTORY	
Date:	Description:
01.10.2013	First Edition
27.11.2013	Included comments from external review
23.01.2015	Guidance on height adjustment added. Included more information on installation on site.
27.02.2015	Included a nut on the front side of the steel plate anchoring the threaded bars. (To ensure correct position of the plate when casting the concrete).
24.05.2016	New template