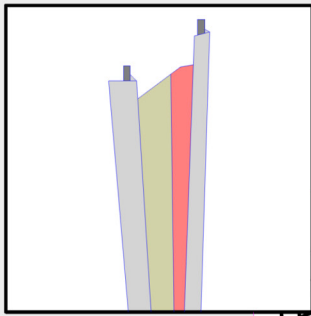


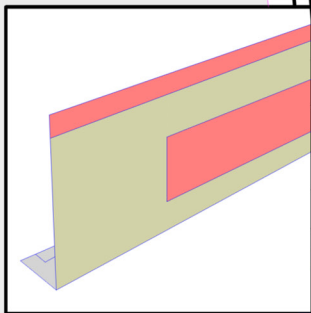
Aquaflexactiv

joint sealing system

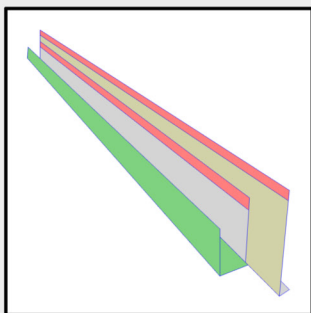
installation guide



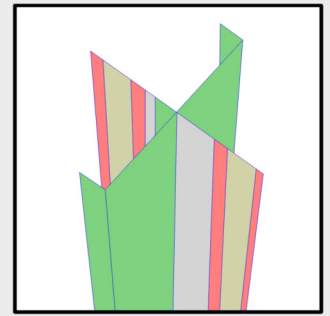
MSA
cracking profile



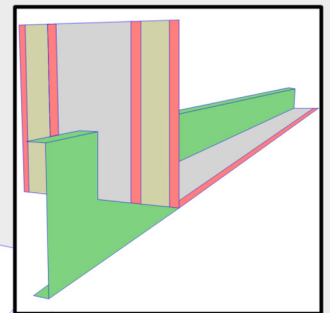
ACF
metal sheet



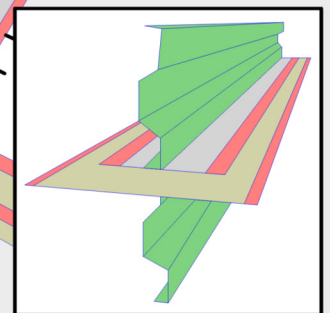
FBK
edge form (kicker)



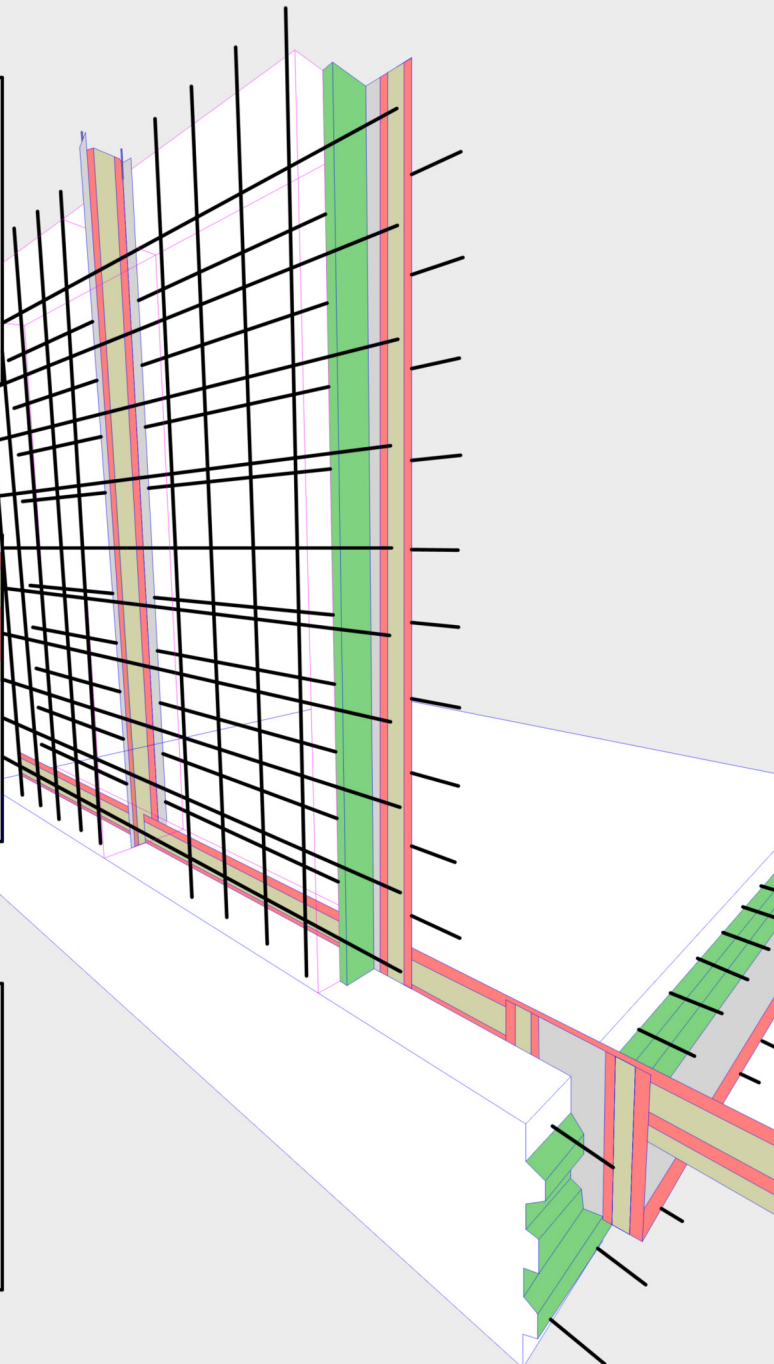
F/AS
shuttering unit (wall)



F/AS
changing element



F/AS key profiled
shuttering unit (plate)



Bau-Haus Kft.

H-1015 Budapest, Csalogány u. 6

Premises: H-2045 Törökbálint, Kinizsi u. 16

info@bau-haus.hu

www.bau-haus.hu

(+36)23 332-118, 332-119



F/AS indented, or coarse waterproofing shuttering units (to form construction joints between base slabs, or floors)

The **AQUAFLEXACTIV F/AS** units are structures developed especially for forming and waterproofing the construction joints of base slabs in one step. Perfect sealing of the construction joint is ensured in addition to the zinc-coated joint sheet (passive protection) by a further sodium bentonite coating (active protection). The system includes the so called F/AS – SL (left) and the F/AS-SR (right) plane changing elements, the dimensions of which are to be specified accurately when the order is placed. These special plane changing elements ensure that the F/AS construction joint structures can be turned from the horizontal to the vertical plane.

Installation:

It is to be installed between the lower and upper reinforcement meshes of the base slab, with a stabile longitudinal or perpendicular support to take up the pressure exerted by the concrete. These are slide-in elements. To ensure adequate overlapping and appropriate stability the horizontal joint sheets are 10 cm shorter at one end and 10 cm longer at the other end. Make sure that the elements are standing vertically and steadily and avoid deformation of the joint sheet welded-in horizontally, and make sure that it is not inclined from the horizontal plane when the concrete is being poured!

The geometry of the structure must not be changed! (Avoid arched, convex - concave shapes and deformation!)

A plastic or fibre concrete distance tube line is to ensure the clearance under the lower mesh for the proper concrete cover. The clearances for the upper concrete cover are to be closed by means of indented wooden boards, planks or in the line of the element by expanded metal form elements. When pouring the concrete take all efforts that the liquid concrete from among the upper reinforcement bars cannot flow through to the opposite side of the F/AS elements. To prevent flow-through from among the upper reinforcement bars the use of poly-foam or closed-cell plastic foam stripes is recommended. In the lack of this the teeth and the joint sheet can be contaminated by the concrete. The wooden closure over the F/AS elements is recommended to be fixed approx. 15 cm forward from the F/AS element to prevent flowing through of the concrete. Zoning and appropriate scheduling of concrete pouring are essential and require careful work!

On-site Storing:

Store the elements with sufficient protection from environmental impacts (rain, sunshine). While building-in these elements, make sure that the bentonite coatings are not damaged.

Concrete pouring into the installed elements must be carried out within 3 to 5 days. After installation, the elements must be concreted in from both sides within 1 week at the latest. If the concrete is not poured in within the set period, make sure that the **AQUAFLEXACTIV F/AS** elements are properly protected by covering.

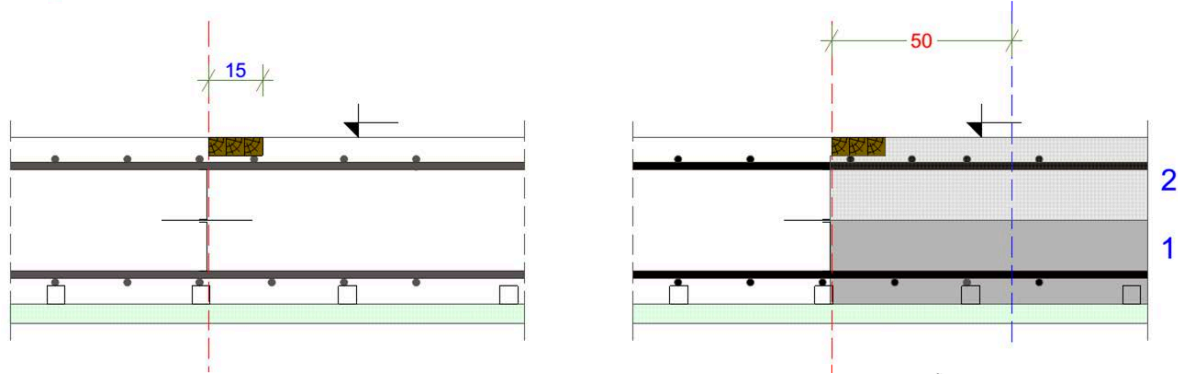
If this is not feasible, the elements must be protected from heavy rain and sunshine. If necessary, the damaged bentonite coating must be substituted or replaced on-site.

Guide for Concrete Placement:

Concrete casting must not be started directly at corners, at the nodes of junctions or next to the construction joints! From the concrete pump discharge the thin, watery concrete of inadequate quality outside the formworks. Start the concrete pouring with the concrete of appropriate consistence in a distance of 1.0 to 1.5 m from the construction joint. Do not let the high pressure concrete pour from the pump directly onto the shuttering unit!

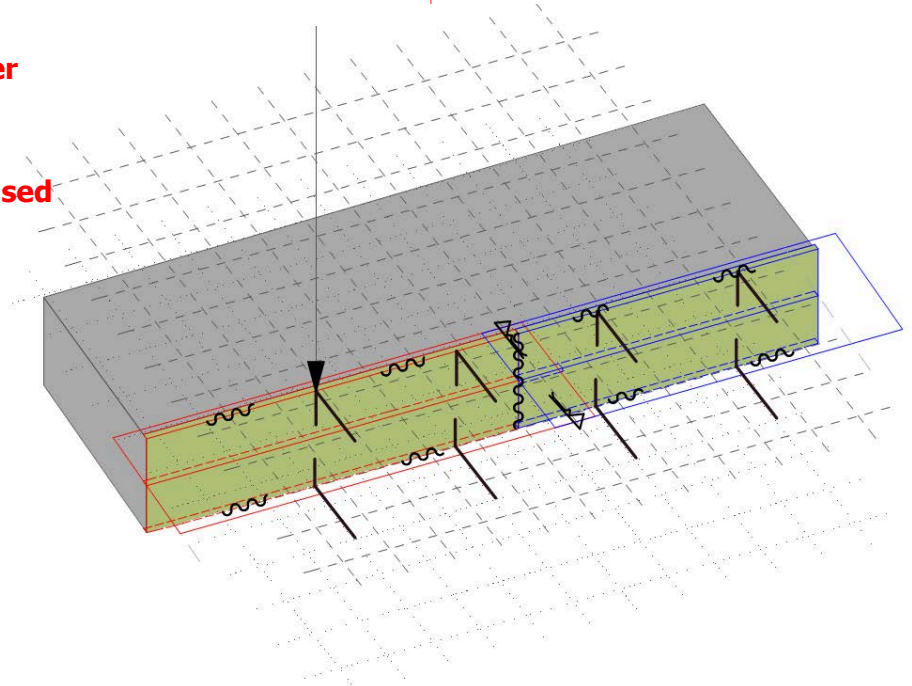
Vibrate the concrete properly next to the shuttering unit too, but be careful not to damage the construction joint closing. Keep the recommended distance of 50 cm. The vibrator must not touch the joint sheet!

If water is used for the aftercare of concrete surfaces, the bentonite coating of the units must not contact with a large amount of water, because it might induce the premature swelling of the active layer.

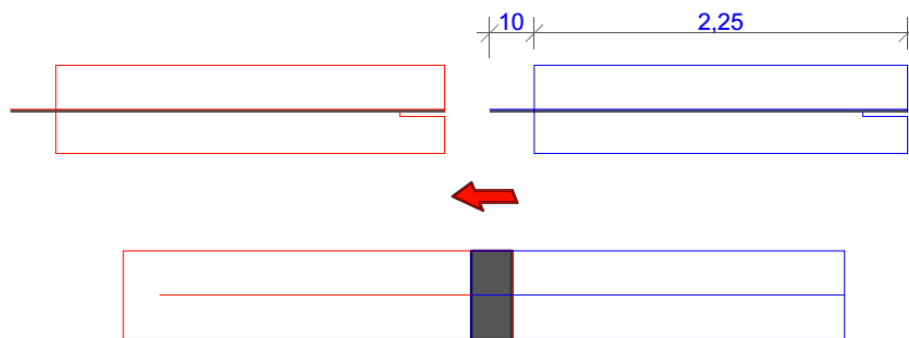


Installation of the support for upper and lower reinforcing mesh.

After concrete casting it can be reused in the next work phase

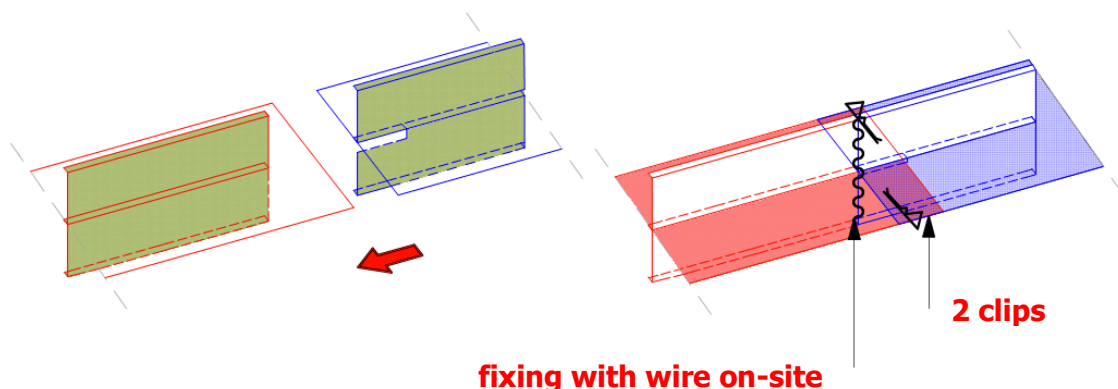


Connecting the affixing:



Expanded metal form

Bentonite overlapping



fixing with wire on-site



Bau-Haus Kft.

H-1015 Budapest, Csalogány u. 6

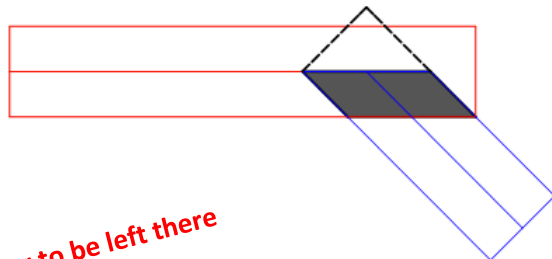
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info@bau-haus.hu

www.bau-haus.hu

(+36)23 332-118, 332-119

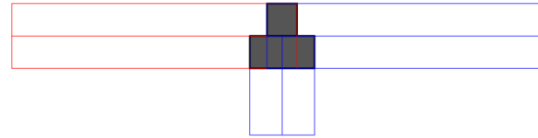
Corner connection under angle:



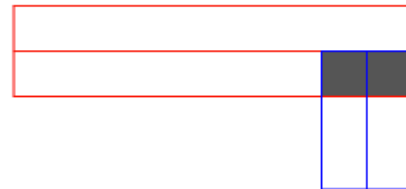
to be cut off or to be left there
hanging over

to be cut off

"T" connection:



Right angle connection:



fixing with wire on-site

2 clips

fixing with wire on site

2 clips



FBK edge forming joint element

(to form a construction joint between a base slab and a wall, or a floor slab and a wall)

AQUAFLEXACTIV FBK edge forming joint sheet, with active swelling bentonite coating.

Installation:

The FBK elements are made of 20 cm high zinc-coated joint sheets welded vertically into the cage form bent to a U-shaped profile. Installed on the upper mesh of the base slab, an edge is formed which is working together with the base slab and prolongs the route of water. The active bentonite coating (jointing) band on the joint sheet further improves the waterproofing characteristic of the FBK+ elements.

Splicing is ensured by active bentonite overlapping junctions and securing of the entire element is done by tying it to the upper mesh. For the period of concrete pouring the edge forms are tied together with wires at the overlapping and also over the joint sheet at approx. every 40 cm, to avoid being pushed apart by the fresh concrete, and to keep the vertical walls of the edge form in plane.

For arched shaping (e.g. tanks with arched walls) the cages are to be cut up to the vertical joint sheet at one or two positions, depending on the radius of the arch to be shaped. The cage must be cut in a "V" shape on the inner side of the arch to let it close, but this is unnecessary on the external arch. Every joint splitting apart must be filled with the extra piece cut from the edge form outside! At the overlapping no clearance is allowed! If the forming of the arch is at the overlapping, it is recommended to run the two plates together as a straight edge section.

As in the case of every element or structure protruding from the plane, no damages are allowed (e.g. treading over, puncture, cut, etc.). Soundness, vertical positioning, and undamaged active coating of the joint sheet are essential for waterproofing.

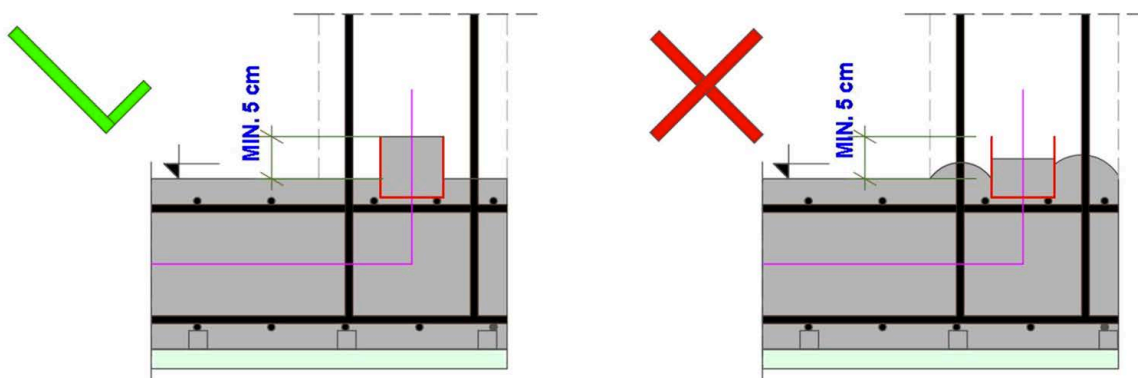
On-site Storing:

The elements are to be stored in a place protected from environmental influences. When installing the elements utmost care must be taken to avoid damaging of the bentonite coating! If necessary the damaged bentonite coating must be substituted or replaced on-site.

Guide for Concrete Placement:

Make sure that well compacted concrete is placed up to the complete height of the edge form. No cavities are allowed in the concrete. The FBK elements concreted-in must project to at least 5 cm from the final concreted plane. By this you can ensure that the kicker fulfils its intended function, the prolongation of the route of water. The concrete must not flow out between the starter bar of the wall and the FBK element. When concrete is placed the final plane must be formed. Therefore it is not advisable to let the concrete into the FBK elements with high pressure directly from the concrete pump. Correct kicker can be formed by a concreting worker shoveling the fresh concrete into the FBK edge form before the base slab is smoothed down. By this you can ensure that the FBK element remains undamaged and the kicker is filled up with concrete to the specified height.

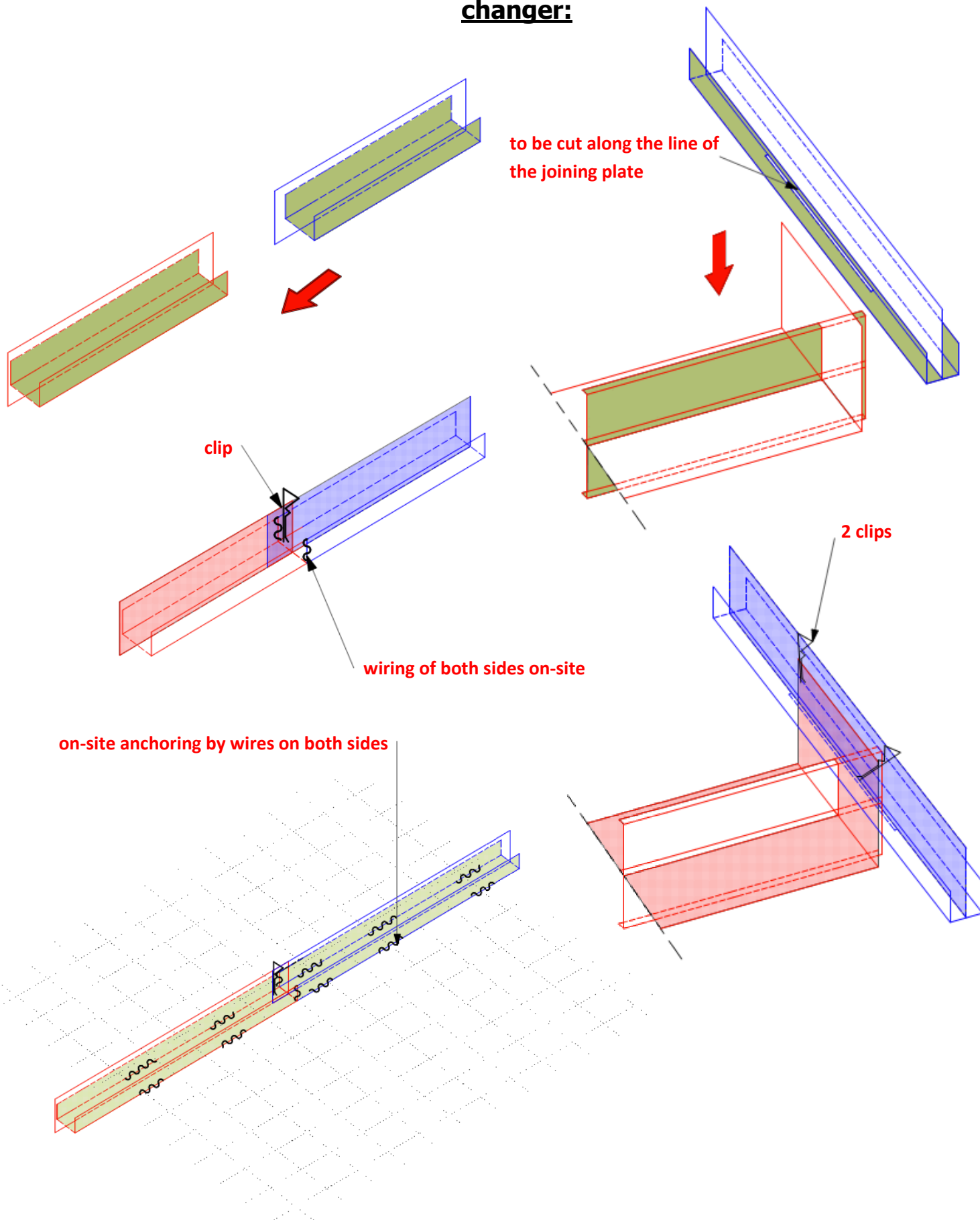
The concrete splashing on the bentonite coated sheet and the slurry must always be removed immediately during the concrete placement works!





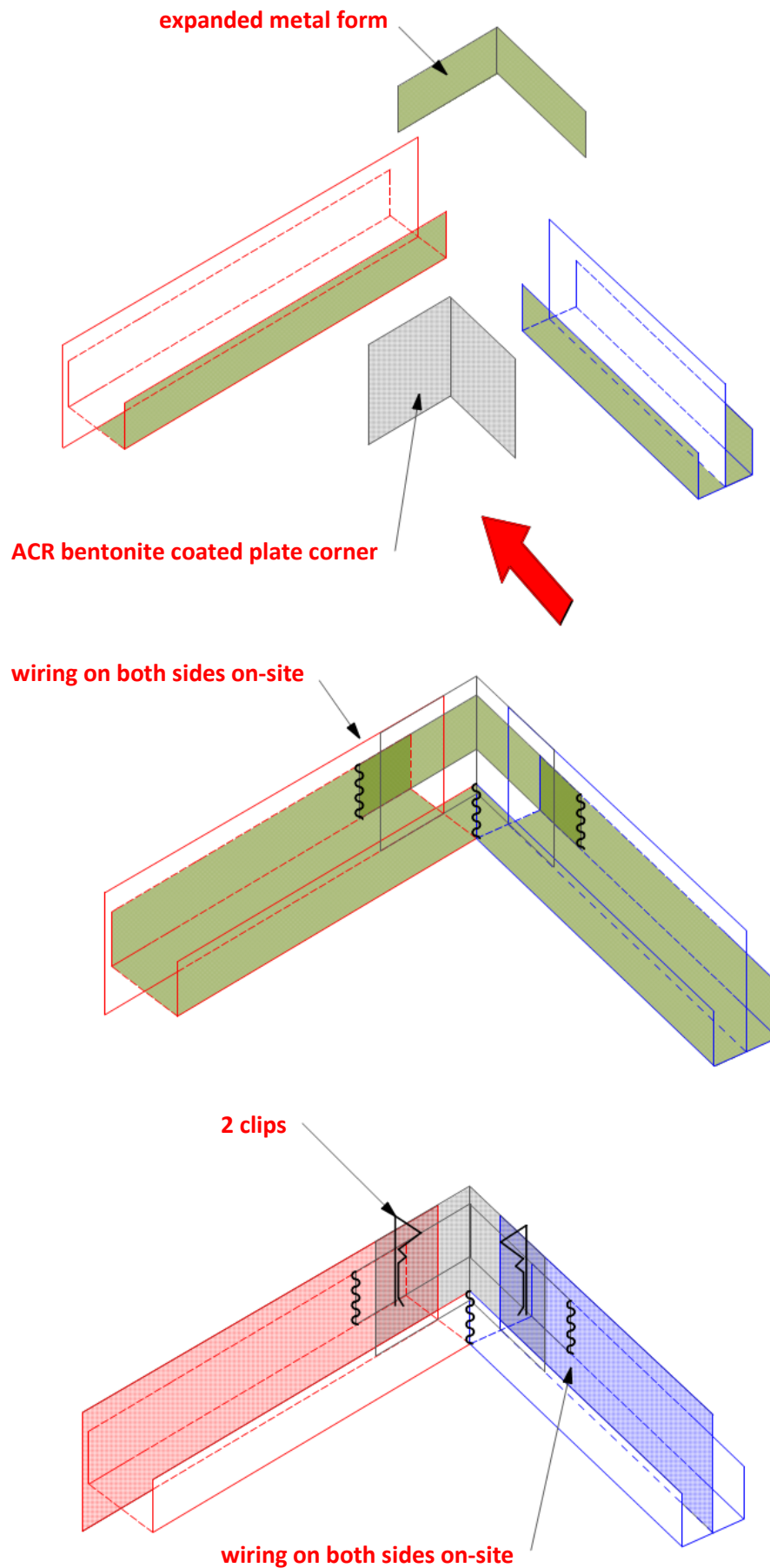
Connecting the **affixing**:

Connecting the **FBK kicker** and **F/AS plane changer**:



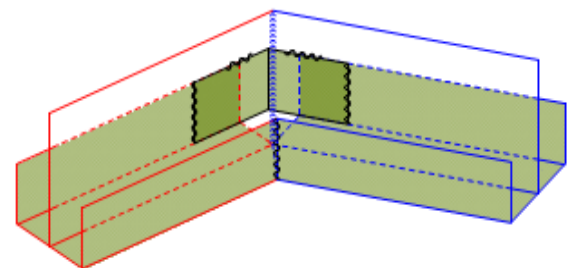
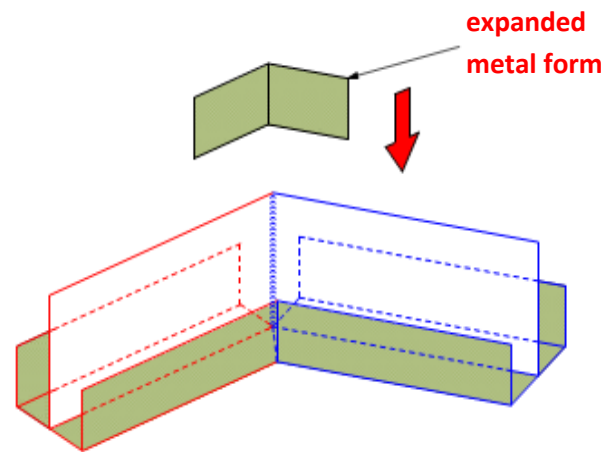
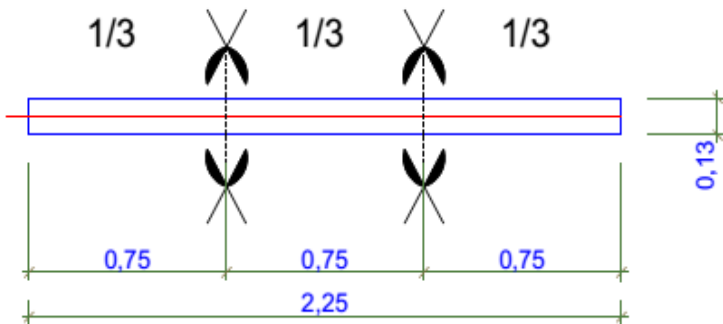


Corner forming:

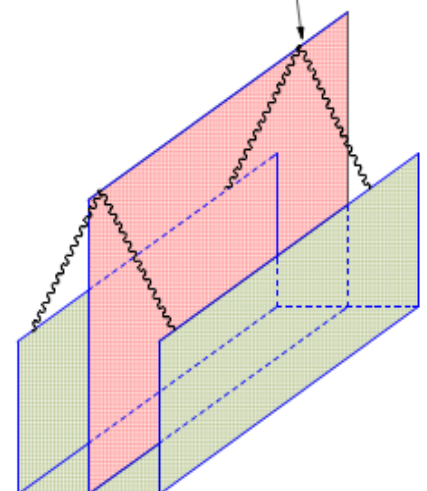
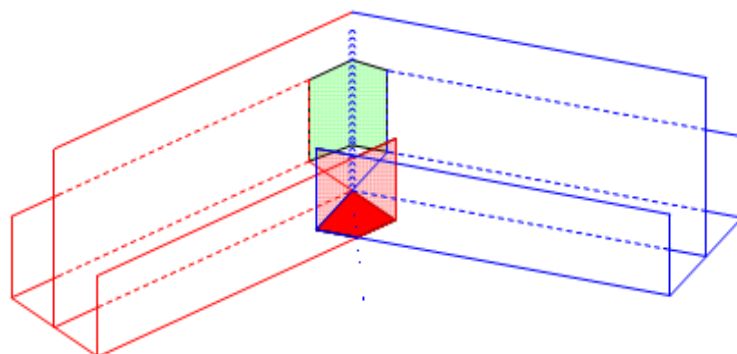
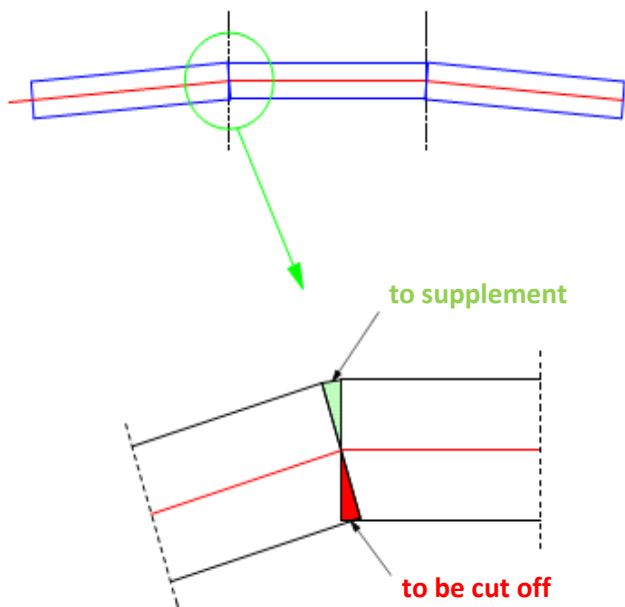




Arch forming:



fixing with wires on-site at every 40-50 cm,
when concrete casting is made, to prevent
pushing-apart of the sides by the concrete





ACF joint sheet

(To form construction joints between a base slab and a wall, or the floor slab and a wall)

The **AQUAFLEXACTIV ACF** joint sheet is used to fit the waterproofing construction joint forming element between the joining of base slab and wall (passive and active protection).

Dimensions: 125 and 165 mm high, 2.25 m long, 0.8 mm thick zinc-coated joint sheet, with 2.0 mm thick swelling bentonite coating. The ACF sheets are bentonite coated over the entire surface on one side – on the side exposed to water or liquids.

Installation:

Installation takes place by leading the ACF joint sheets between the starter bars of the wall before the concrete is poured into the base slab. They are placed over the upper reinforcement mesh of the base slab in a line. The 2.25 m long elements are joined by clips, with 12 to 15 cm overlapping parts. The feet of the ACF joint sheets have foldable mounting ears. The feet of the element lean over the upper reinforcement bars with their short stem. The fixing feet can be folded down from this surface, which can be bent over the cross-directional bars. Make sure that the mounting legs are folded over the reinforcement rods densely enough to ensure proper stability for the joint sheets and they cannot move from their position when concrete placement is performed. The bentonite layer must be on the side exposed to water or other liquid medium!

In case of arched structures the ACF joint sheets can be installed appropriately to form an arch with a radius of 4 m or more, using the 2.25 m long elements by bending moderately to the desired angle and even the overlapping can be ensured. At corners, edges and smaller arches, the lower bent edges of the ACF joint sheets can be split in the desired positions and thus they can be bent to form arches.

On-site storing:

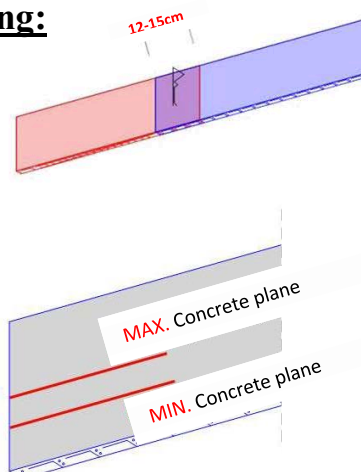
The elements are to be stored in a place protected from environmental influences. When installing the elements utmost care must be taken to avoid damaging of the bentonite coating! If necessary, the damaged bentonite coating must be substituted or replaced on-site.

Guide for Concrete Placement:

The joint sheets can be safely installed with 3 to 5 cm concrete cover (the min-max. marking on the side of the coating shows the tolerances relevant to concrete casting). Strive for the upper plane of the base slab to be between the limits of the tolerance. If the ACF joint sheet is submerged too deeply into the base slab, only some 3 to 5 cm from the 12.5 cm high joint sheet will be mounted into the reinforced concrete, if improperly installed. In case of appropriate installation and concrete placement, an at least 7 to 9 cm section of the joint sheet should get into the wall!

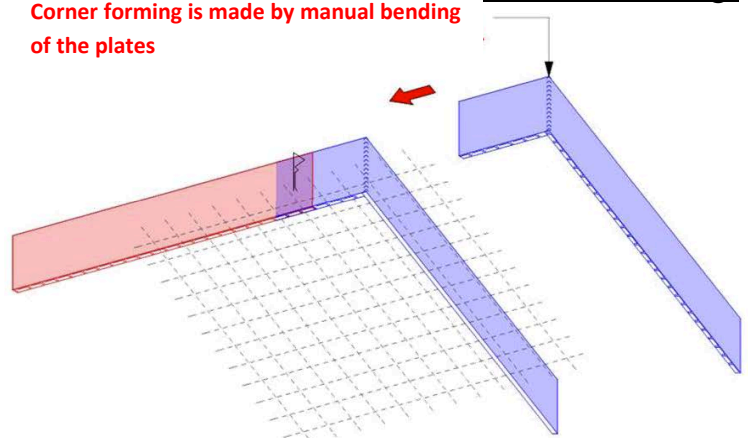
When pouring concrete make sure that the concrete injected from the pump with a certain pressure will not move the ACF joint sheets out of their secured positions. Another essential aspect is that water should not stand on the base slab forming a pool like configuration with the ACF joint sheets, because the bentonite coating might get damaged and start swelling prematurely. Strive to to complete concreting in the joint units as soon as possible from the directions of every connecting structure.

Affixing:



Corner forming is made by manual bending of the plates

Corner forming:





ACR joint sheet

(to form a construction joint between walls)

Installation:

The **AQUAFLEXACTIV ACR** coated joint sheet is installed in the construction joints of waterproofing walls in a way that the shuttering is interrupted and the joint sheet is led across the shuttering, while the formwork will be developed from two parts. The ACR joint sheet should hang equally in the concreted area and the area where concrete placement is to be done, in a rate of 50% respectively in order to execute concrete placement in both wall sections to an appropriate extent. This elements are normally secured in the installation position with the use of vertical wooden shuttering and wall closing elements.

Dimensions: 125, 165, 200 mm high, 10.00 m long, 0.6 mm thick zinc-coated joint sheet with 2.0 mm thick swelling bentonite coating. On one side the ACR joint sheets are bentonite coated on the entire surface – exposed to water or other liquid medium. The bentonite coating must be on the side exposed to water or other liquids.

The ACR joint sheets are available in reels and can be cut to size as desired. Two elements are joined tightly by overlapping and by fitting the clips.

The rate of overlapping should be 15 cm. It is not recommended to form an overlapping exceeding 15 - 20 cm because the sheets may get parted. Vertically, the joint sheets are held and secured by the shuttering. The ACR joint sheet must be supported from the side not concreted by means of “U” shaped steel bars at every 30 or 40 cm, because it might be pushed aside by the concrete even if fixed securely.

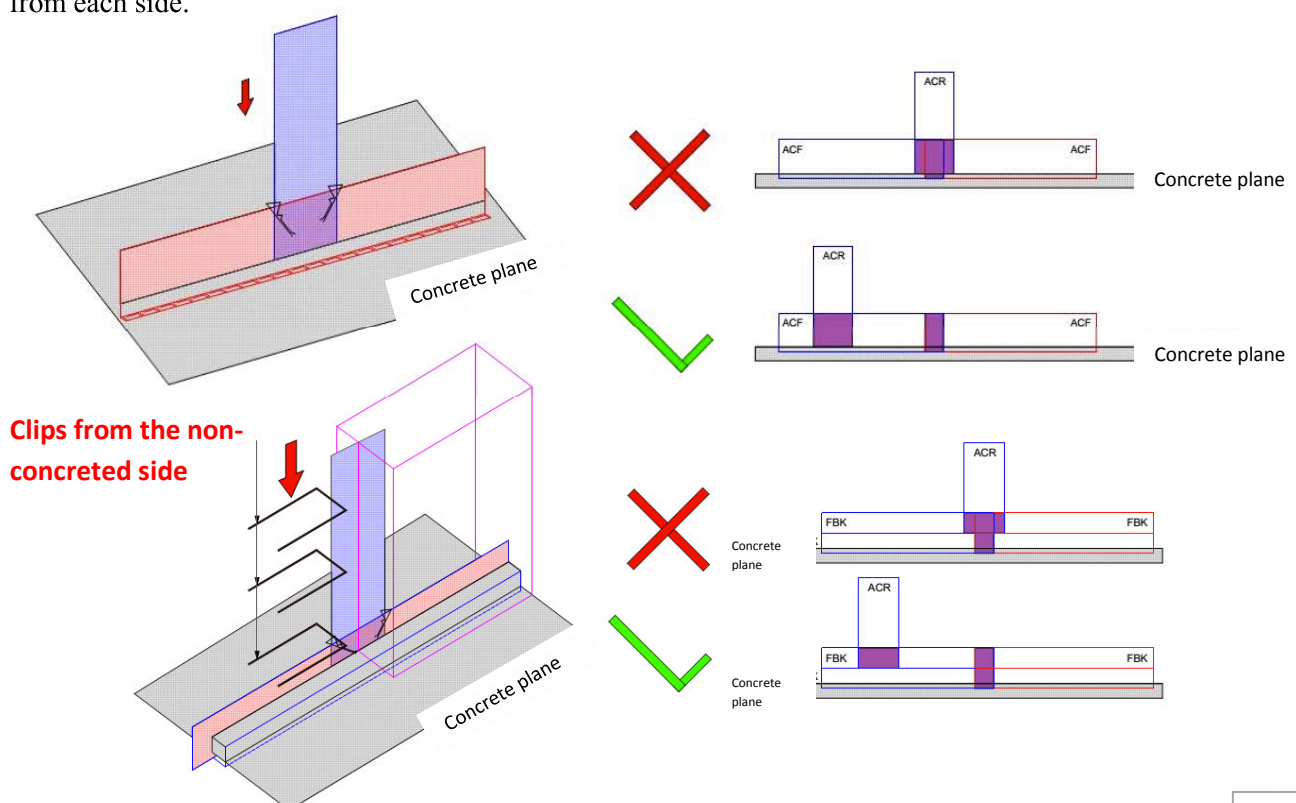
On-site storing:

The elements are to be stored in a place protected from environmental influences. When installing the elements utmost care must be taken to avoid damaging of the bentonite coating! If necessary the damaged bentonite coating must be substituted or replaced on-site.

Guide for Concrete Placement:

When pouring concrete make sure that the concrete injected from the pump with a certain pressure will not move the ACR joint sheets out of their secured positions. Strive to complete concreting in the joint units as soon as possible from the directions of every connecting structure.

The vibrator must not be used directly next to the ACR joint sheets. Always keep a distance of 50 cm from the sheet when using the vibrator, but the concrete must be properly compacted without cavities at the joint sheets from each side.





ACB type expansion joint piece with clamp rim

(at the junction of the Besaflex PVC expansion joint band and ACF joint sheet)

Installation:

The AQUAFLEXAKTIV **ACB** type elements are used to connect the PVC joint sheets or the PVC inner expansion bands at the middle of walls to the ACF, FBK or ACR type construction joint forming units. The ACB units join to the PVC expansion joint band with a bentonite coated clamp.

The ACB profile must be clamped on both halves of the PVC expansion joint band. The PVC expansion joint band is to be pierced and the clamping bolts are to be tightened. On the inner side of the clamping profile a highly adhesive bentonite coating ensures the waterproof connection between the PVC band and the joint sheet. This clamping piece ensures waterproofing in the entire width of the ACF coated joint sheet. Make sure that the specified rate of concrete cover is kept at this connection, too.

The ACB type expansion joint pieces are installed most often at internal PVC expansion joints running vertically. ACF, FBK or ACR type joint units are connected from both sides to the expansion joint bands placed between the bar setting of the reinforced concrete wall that is to create this connection, one ACB type expansion joint piece with clamp is to be installed from the right and the left sides respectively.

When installing and before concrete placement utmost care is needed to ensure careful implementation, as well as to avoid damaging and displacement of the unit. Concrete placement may take place only after the foregoing is carefully checked. The ACB clamping units are connected to the expansion joint bands in a way that their specified mobility is not affected.

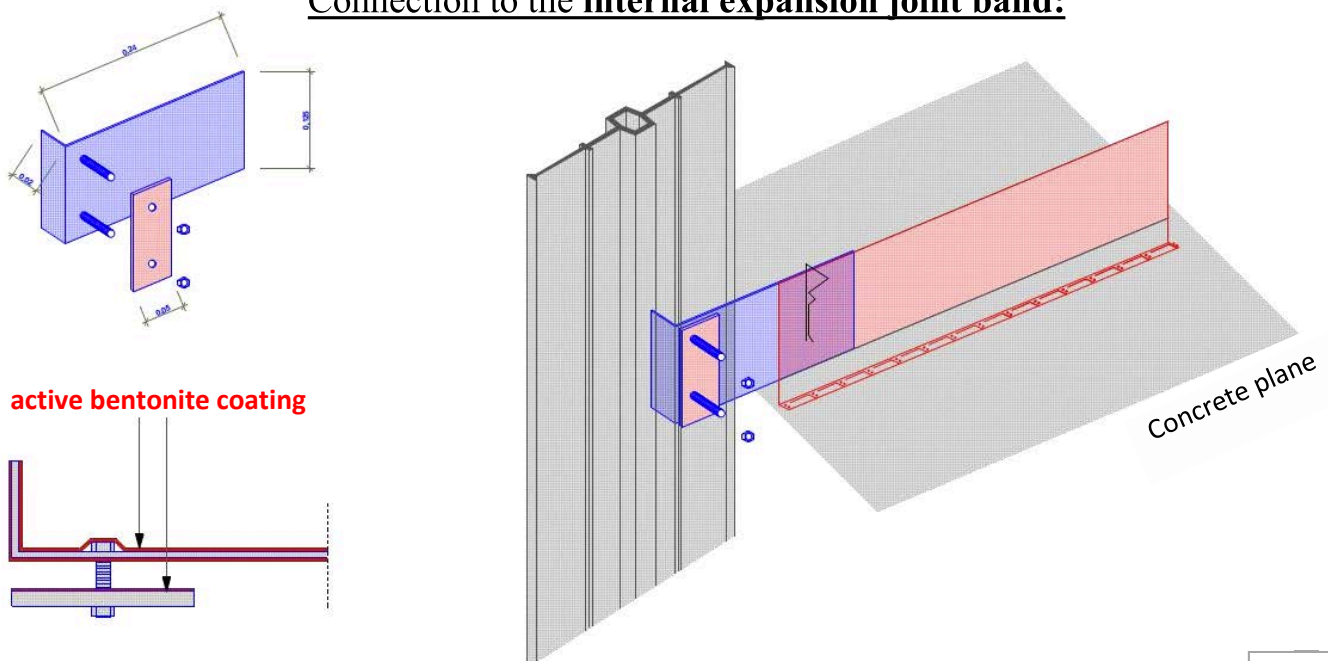
On-site storing:

The elements are to be stored in a place protected from environmental effects. When installing the elements utmost care must be taken to avoid damaging of the bentonite coating! If necessary the damaged bentonite coating must be substituted or replaced on-site.

Guide for Concrete Placement:

When concrete placement is done make sure that the concrete injected under certain pressure from the pump will not damage the ACB connecting units and the junction points. Therefore be extremely careful when carrying out the concrete placement and the compacting of the concrete in the junctions. When casting the concrete make sure that the expansion joint bands and the connecting pieces stay in their specified positions, avoid deformation of the junctions caused by the concrete pressure, and make sure that none of the components gets displaced from its installation position. The vibrator must not be used next to junctions within a distance of 50 cm. When casting the concrete, make sure that each element of the structure is stable and concreted-in from all sides and the concrete is appropriately compacted without cavities.

Connection to the internal expansion joint band:





MSA cracking profile

The AQUAFLEXAKTIV **MSA** cracking profile is a designed waterproofing structure construction element. It is intended to regulate and determine the place and tracing of the structural cracks in reinforced concrete structures, primarily in walls. Thus, the cracks will occur in the structures in a regulated manner.

Installation:

The profile interrupts the reinforced concrete structures at the desired positions between the double-layer bar settings and ensures waterproofing by surface ribs and the bentonite bands placed on both sides. The MSA cracking profiles are to be inserted between the double-layer bar settings. The width of the elements and the distance of their installation can be calculated depending on the thickness, height, and the expected rate of cracking of the reinforced concrete walls. The structural engineers are responsible for specifying the installation distance of the cracking profiles. Otherwise the elements in general are installed in a distance of 5.0 to 8.0 m from each other. At the installation of the elements make sure that the elements are appropriately supported by the clips from both sides in vertical plane. The MSA profiles are installed when the bar setting is made. The lower edge of the elements starts from the upper plane of the reinforced concrete panel.

The width dimensions of the MSA elements are to be chosen from the type sizes with considering that they amount to 50% - 60 % of the wall thickness. Type sizes are: 100, 150 and 200 mm in width. A 150 mm wide MSA element is suitable for regulating the cracks in an approx. 25 to 30 cm thick reinforced concrete wall.

The 1.5 m long elements can be affixed and cut to the desired length. The regulated crack remains in the zone between the plastic trapezoid profiles nailed on the shutters on the external and internal side of reinforced concrete walls in one plane with the MSA profiles. The plastic trapezoid profiles are to be mounted carefully and accurately onto the shutters in the same line as the MSA profiles. The trapezoid profiles are to be fixed by nail onto the shutter board prior to the installation of the formwork.

If installed appropriately the MSA cracking profile weakens the cross-section of the concrete structure properly, while the active bilateral bentonite coating ensures waterproofing of the cracking.

On-site storing:

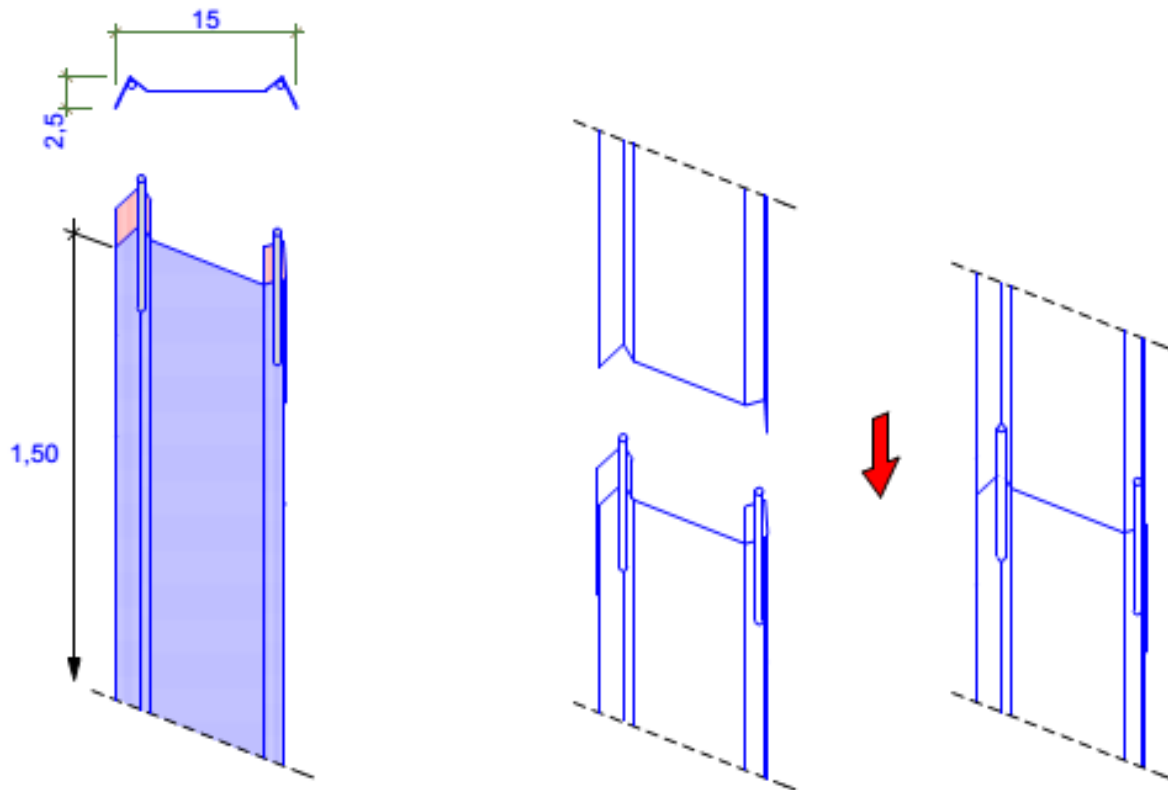
The elements are to be stored in a place protected from environmental influences. When installing the elements utmost care must be taken to avoid damaging of the bentonite coating! If necessary, the damaged bentonite coating must be substituted or replaced on-site.

Guide for Concrete Placement:

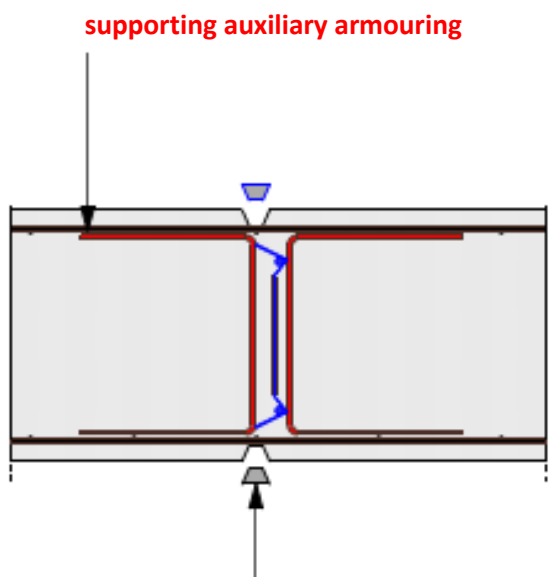
When concrete placement is done, make sure that the concrete injected under certain pressure from the pump will not damage the MSA cracking profile and the junction points. Therefore be extremely careful when carrying out the concrete placement and the compacting of the concrete at the sections concerned. When casting the concrete, make sure that the profiles stay in their specified positions, avoid deformation of the profiles caused by the concrete pressure, and make sure that none of the components of the MSA profile can get displaced from its vertical position. The vibrator must not be used next to MSA profiles within a distance of 50 cm. When casting the concrete, make sure that each element of the structure is stable and concreted-in from all sides and the concrete is appropriately compacted without cavities.



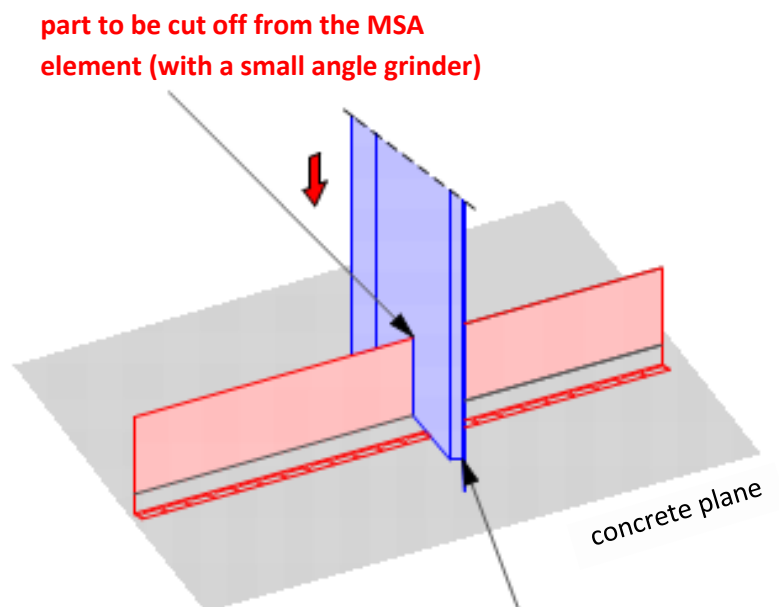
Vertical affixing:



ACF- MSA connection:



plastic trapezoid profile assisting the regulated cracking (fixed by nail onto the shutter board)



starting from the upper plane of the base slab



Bau-Haus Kft.

H-1015 Budapest, Csalogány u. 6

Telephely: H-2045 Törökbálint, Kinizsi u. 16

info@bau-haus.hu

www.bau-haus.hu

(+36)23 332-118, 332-119

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Bau-Haus Kft.

H-1015 Budapest, Csalogány u. 6

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Notes