**A Assemblies (Formal Regulations)**

Window and façade assemblies shall be undertaken in conformity with the following descriptions. In the description of items, only the respective short form of the description of the connection is given. The building-related effects of the room climate and the outside climate must be taken into account. Assemblies to the building must meet the requirements of heat, sound, and moisture protection. Requirements for connecting joints must be in conformity with DIN 4108-7, DIN 4109, and DIN 18355. For more detailed information the “Guidelines on Installation of Windows and House Doors” of the RAL Institute for Quality Assurance, Frankfurt am Main are recommended. For requirements in respect of heat protection and moisture protection and the avoidance of mildew, we refer you to the VFF notice ES.03, “Thermal Requirements for Building Connections for Windows”. This notice contains examples of connections with data on fRsi temperature factors and length-related heat transfer coefficients.

Constructions shall be designed such as to allow for moisture compensation to the outside. Moisture compensation can be ensured if on the room side sealing materials with higher diffusion resistance are used than those outside and/or if on the outside weather-protected openings are planned. External influences such as movements in the building parts must not impair the function of the seals. In the case of window openings with a greater span width, projecting building structures etc., greater building part movements can be expected in the area of the connections. The connecting joint seal between building and the element to the cold exterior and to the warm interior must conform to the requirements for proof of heat protection as set forth in the Energy Saving Regulations (EnEV) 2007 for building assemblies, and can be carried out with sealing foils. The foils are to be attached prior to the erection of the outer shell. Material thickness: min. 0.6 mm. Foil width: ca. 250 mm, or according to the situation at the place of assembly. The technical information for the sealing foil must be observed.

The joints between the element edge and building part shall be filled in completely with mineral wool. In order to avoid mildew formation, the factor for the room-side heat transfer resistance is fRsi >/= 0.70. Further, for the work on connections the sections "Installation of Elements" and "Seals to the Building Part" (ATCC for wood-metal and glazing works) must be taken into account.

Anchoring of windows and doors must conform to DIN 18056. Fixing the blind frame to the building part is carried out with suitable dowel plugs for the respective installation. Distance apart of anchoring points must not exceed 80 cm. Each side must be anchored to the building part at least at two points. All building parts for anchoring must be designed such that they can take up the forces exerted on them and transfer these to the support structures.

When anchoring glass-wood-aluminium insulated façades, façade posts must be anchored by means of consoles in aluminium or steel which provide tolerance compensation as part of the system. These consoles are arranged respectively at the head and/or at the foot points or at the intermediate ceilings of the façade. Depending on requirements, these are either loose or fixed-point suspension. The construction of the consoles is such that they allow tension-free dilatation of the façade. Similarly, the form changes in the building such as ceiling deflections must also be equalized. Fixing the consoles to the building part shall be by means of screws made of stainless steel (M10) together with technically approved dowels. All building parts for fixing to the façade must be designed to take up forces on the façade and to there transfer to the support structure.

**AS 1** Side Connection (Door/Window)

Assembly of the elements is carried out before the façade cladding with rear ventilation is mounted. The elements are to be arranged within the insulation level of the building. Inside, the connection joint seal is provided with a sealing foil. In addition a wall connection profile is attached inside. Outside, the connection joint seal is provided by a sealing foil which is adhered to the building part and to the elements. The relevant requirements or the technical information on the sealing foils must be observed and taken from the previous texts.

**AO 1** Top Connection (Window/Door)

Assembly of the elements is carried out before the façade cladding with rear ventilation is mounted. The elements are to be arranged within the insulation level of the building. In part are blind profile extensions of approx. 200-350 mm for fixing the sun protection (stated in the specifications). Otherwise the work is described in text "AS1 side connection".

**AU 1** Bottom Connection (Window, Base Point)

The building part here shall be assembled as described in text "AS1 side connection". In the foot point of the window construction a broadened part shall be attached as base profile. Further, both inside and outside, a sealing foil shall be adhered to the base construction. The interspace below the base and the building part is to be filled in on all sides with heat insulation. On the room side, the base construction for the connection of an inside window sill to be fitted on the part of the building site is to be installed. An aluminium window sill is attached to the outside, see separate item description.

**AU 2** Bottom Connection (Window Floor-Bound)

The window element here joins the unfinished floor, height of floor structure ca. 100 mm. A broadening piece is to be arranged in the foot point of the window construction as basis profile. In addition, both inside and outside, a sealing foil must be attached to the base construction and taken over the splice. The foil is adhered to the building structure. The interspace below the base and the building structure is filled on all sides with heat insulation. On the room side, the base construction must be prepared for the connection of a floor construction to be provided on site and an aluminium bracket supplied which serves as the floor edge finish. The interspace below the base and the unfinished floor is filled on all sides with heat insulation. The plinth heights must correspond to the assembly of the adjoining base points. An aluminium window sill is to be attached on the outside, see separate item description.

**AU 2** Bottom Connection (Doors, Threshold)

The height of the floor structure is approx. 100 mm. The bottom connection in the door area is to be fitted with a threshold belonging to the system and a separating bar. Sealing with sealing foil is undertaken inside and outside. On the room side, the base construction must be prepared for the connection of a floor construction to be provided on site and a bracket supplied which serves as the floor edge finish. A frame construction shall be attached below the door threshold in order to support the door unit. The interspace below the base and the unfinished floor is filled on all sides with heat insulation. In addition, the heat insulation is to be covered with aluminium flashing (2.0 mm) with concealed fixing. The plinth heights must correspond to the assembly of the adjoining base points.

**FA1** Façade Connection Top (Roof Connection Attic)

Anchoring is by means of steel consoles (in accordance with static requirements) in the underlying concrete attic. The distance apart between the mullion profile rear edge and concrete edge beams is ca. 20 mm. anchoring the façade mullion is undertaken as described in section: “Anchoring Glass-Wood-Aluminium insulating façade”. The area between the building structure and the transom-mullion shall be completely filled in with mineral wool WLG 035 to the full depth of the profiles. The sealing foil forms the upper finish. Sealing foil must clad the entire upper connection area and on the back, is integrated into the roof connection (The Contractor shall agree on requirements for roofing works). The appropriate requirements or technical information for sealing foils must be observed as per given texts.

**FA2** Façade Connection Top (Insulated Façade)

Anchoring is by means of steel consoles (in accordance with static requirements) in the underlying concrete attic. The distance apart between the mullion profile rear edge and concrete edge beams is ca. 20 mm. Anchoring the façade mullions is undertaken as described in section: “Anchoring Glass-Wood-Aluminium insulating façade”. The area between the building structure and the transom-mullion shall be completely filled in with mineral wool WLG 035 to the full depth of the profiles. The sealing foil forms the upper finish. Sealing foil must clad the entire upper connection area and on the back, is integrated into the roof connection (The Contractor shall agree on requirements for roofing works). Between the upper transoms, a 2 mm aluminium sheet is dual-fold, ca. 20 cm, RAL at the choice of the Contractor and fixed professionally to the transom bars. The appropriate requirements or technical information for sealing foils must be observed as per given texts.

**FA3** Façade Connection Bottom (Insulated Façade)

At the bottom the façade adjoins the 150 mm lower lying unfinished floor/concrete upstand. Anchoring is by means of steel consoles (in accordance with statics requirements) to the reinforced concrete upstand. Elements are to be installed within the support building structure and its insulation level. Anchoring of the façade mullions is described in detail in the section "Anchoring glass-wood-aluminium insulated façades". Sealing the connection is carried out behind the water drainage level of the façade construction with sealing foil attached in trough form and in accordance with drainage and ventilation technology. The remaining space between the lower transom profile and the building structure shall be closed off with an insulating element. The appropriate requirements or technical information for sealing foils must be observed as per given texts.

**FA4** Façade Connection Top (Insulated Façade / Storey Ceiling)

The façade mullions are anchored to the concrete roof or reinforced concrete beams behind them. The distance apart between the mullion profiles and building structure is ca. 20 mm. Consoles must belong to the system and suitable for statics requirements as described in section: “Anchoring Glass-Wood-Aluminium insulating façade”. The area between the building structure and the transom-mullion shall be completely filled in with mineral wool WLG 035 to the full depth of the profiles. The sealing foil forms the upper finish.

 **FA5** Side Connection (Insulation Façade)

Assembly of the elements is carried out before the outer façade cladding is mounted. Installation of the elements in the reinforced concrete outer wall is without impact. The side connection to the building structure shall be via a 20-30 cm wide wall connection panel, heat insulated, (Up=0.5 W/ m²K) suitable for the system. After mounting the cold façade, this is then no longer visible. The area between the building structure and transom-mullion must be fully insulated. The sealing foil forms the side finish connection. The appropriate requirements or technical information for sealing foils must be observed as per given texts.