**1. Required Basic System**

Note for the tenderer: Please adapt the text to the elevation width of the desired system. Please do not list anything that does not apply! The value mentioned below for the sharpness of the profiles can be evaluated negatively in tenders for schools/kindergartens, nursing homes, hospitals etc. due to the risk of injury and should not be listed!

The façade system offered must meet the following requirements:

* thermally separated, filigree mullion/transom system made of aluminium
* sharp-edged profiles with a maximum corner radius of rmax = 0.5 mm
* system associated extruded rectangular profiles, T-profiles and expansion profiles with 50 mm / 56 mm profile width, and 12 mm seal height in interior areas
* approved façade system, tested with all associated components
* Mullion/transom system with CE marking according to DIN EN 13830
* Glazing system belonging to the system including the corresponding sealing profiles
* System associated press and/or cover strips with 50 mm/ 56 mm face width
* with integrated drainage in the continuous inner seal in at least three levels

Note for the tenderer: Please specify the type of curtain walling, shape and dimensions of the profiles of the support system here, please do not list anything that does not apply!

The delivery programme of the system manufacturer includes profile dimensions for elevation widths with 50 mm/ 56 mm as rectangular profiles, T-profiles or expansion profiles.

For the supporting structure are:

* Rectangular hollow profiles made of aluminium, w x h = ....... mm x ......... mm
* with slide-in profile for static strengthening

or:

* T-hollow aluminium profiles, w x h = ....... mm x ......... mm, web width 15 mm
* with slide-in profile for static strengthening

or:

* Rectangular hollow profiles as aluminium expansion profiles, w x h = ....... mm x ......... mm
* with slide-in profile for static strengthening

to use.

It should be possible to connect the supporting profiles as a non-visible, screwed connection with system's own connectors according to static requirements.

Various connectors for mullion and transom profiles are available from the system manufacturer as rectangular and T-profiles. Connectors are optionally available for transoms at an angle of 35° - 90° as well as for subsequent transom installation from the outside and inside.

The profiles of the supporting structure must be dimensioned according to static requirements.

The static dimensioning of the load-bearing system, including the dimensioning of the anchoring to the shell of the building, is to be carried out by the contractor.

Note for the tenderer: Please describe the type of curtain walling with its special features here, the points listed represent only a selection! Please do not list anything that does not apply!

* The façade will be a vertical façade
* The facade is designed as a vertical, polygonal facade with angles ........° (1° to 45°)the inner face widths must remain unchanged
* the façade system offered must be compatible with other system widths(e.g.: 50 mm, 56 mm) can be combined

A continuous screw channel made of aluminium is integrated into the extruded aluminium profiles to ensure that the pressure bars can be fixed at any desired point.

The adaptation of the glazing system to the required frame thermal insulation values Uf is achieved solely by varying the insulation block in the glazing rebate area.

The exterior and interior views of the façade do not change.

The insulation block must be fixed securely and immovably with the external pressure strip in the glazing rebate space, so that permanent ventilation of the glass edge seal is ensured.

**2. technical requirements**

Note for the tenderer: The Uf value mentioned below must be adapted to the specific requirements of the property. The value stated here represents the best value achievable with this system. The value depends on the profiles used (profile widths), glass thicknesses and insulation blocks.

Thermal insulation value mullion/transom:

Uf = ............W/m²K

(best possible value: Uf >= 0.80 W/m²K, passive house suitability)

Air permeability:

Test method according to DIN EN 12153 Classification according to DIN EN 12152:

tested up to class AE

Driving rain resistance for façades

Testing according to DIN EN 12155, classification according to DIN EN 12154:

tested up to class RE 1650

Resistance to wind load

Testing according to DIN EN 12179, classification according to DIN EN 13116:

tested up to 1.875 kN/m²

Additional requirements optional:

Note for the tenderer: Please do not list if not applicable

Burglar resistance:

With regard to their construction and their attachment to the building shell, the facades must be designed according to the following resistance class:

Burglar resistance: class RC2-N/ RC2/ RC3

Installation of glass breakage detectors

The facades must be glazed with alarm glass. The routing of cables through the profiles must be planned in consultation with the system manufacturer, taking into account the available rebate spaces and the penetration of the facade construction.

Crash-resistant glazing:

In façade areas where the fall height is more than 1.0 m above the upper edge of the terrain / outdoor installation, the façade must be glazed to prevent falling, in accordance with TRAV.

Glazing with safety glass:

Floor level glazing in workplaces and floor level glazing in public traffic areas must be executed with laminated safety glass (LSG) on the sides facing the corresponding surfaces.

**3. Load Transfer of the Glass**

The load transfer is possible for glass fillings weighing up to 600 kg and must be carried out using the glass supports associated with the system. The glass supports are made of plastic or aluminium and must be selected according to the weight and glass thickness of the glass filling. The glass supports are to be fastened in the screw channel of the top construction with the appropriate fasteners (type and number according to manufacturer's specifications). This ensures that the seals of the façade system can pass through and do not have to be cut out in the area of the glass supports.

**4. Exterior View of the Façade**

Note for the tenderer: we offer various visibly screwed pressure strips, optionally in combination with clip-on cover strips, for the design of the external appearance of the façade. The listed possibilities represent only a selection. Not applicable variants are to be deleted, not listed combinations or special solutions are to be described accordingly or detailed by stating article numbers or drawings:

Press bar with cover strip

* aluminium press strip mounted on the outside of the glazing w x h = ......mm x ...... mm,
* optional pre-drilled / not pre-drilled
* screwed from outside, at intervals of 250 mm/ according to static requirements with screws belonging to the system
* in conjunction with system associated, clipped-on aluminium cover strip

for posts: w x h = ......mm x ...... mm,

for transoms: w x h = ......mm x ...... mm

* the cover strips are closed at the top and bottom by matching aluminium end caps

or:

Press bar only

* aluminium press strip mounted on the outside of the glazing w x h = ......mm x ...... mm,
* optional pre-drilled / not pre-drilled
* screwed visibly from the outside, at a distance of 250 mm/ according to static requirements with screws belonging to the system
* Screw connection with pan-head screws/ cylinder head screws with/ without sealing ring
* with/ without plastic cap to cover the screw head

**5. Glazing and Sealing System**

With the façade system offered, the condensate that accumulates in the rebate spaces must be collected through channels integrated in the sealing system and discharged to the outside in a controlled manner. The sealing profiles must be designed in such a way that the higher level overlaps and drains into the lower level. The façade system offered must have at least three drainage levels, depending on the installation position. The construction of sealing levels that exceed an offset of the supporting profiles of +/- 0.5 mm is not permitted. For the façade system, a pressure equalisation of the rebate space with the outside air must be made possible by means of the system's own ventilation. The location and number of pressure equalisation openings must be carried out in accordance with the processing guidelines of the system manufacturer.

The rebate space between two glass panes must never be sealed on the outside with additional films or sealing tapes!

All sealing profiles must be pre-formed and made of system-tested, weather-resistant, black EPDM material.

The inner, system-tested gaskets must be designed as completely overlapping slip-on gaskets ("hat profiles") without openings in the sealing level. For expansion posts, "semi gaskets" are available which belong to the system and are combined and covered with matching plastic insert profiles.

The internal gaskets used have a thickness of only 12 mm and must be the same for all mullions and transoms. Varying glass installation thicknesses are to be realised using compensating gaskets in accordance with the system manufacturer's specifications. The selection of the gaskets used must be made according to the installation situation (for the 1st, 2nd and 3rd drainage level) and in accordance with the system manufacturer's application instructions. A transom seal with a continuous flag can be used at the base point.

The connection of the inner gaskets at the intersections of mullion and transom must be notched with the appropriate tools for the system and sealed with appropriate sealing pieces and sealing compound.

For polygonal facades with an angle of up to 45°, the inner and outer seals must be carried out in accordance with the processing guidelines. The angle compensation between the pressure strip and the facade must be carried out by means of additional profiles that are invisibly attached to the pressure strips. The internal face width of the construction must remain unchanged.

**6. Surface Treatment / Surface Protection**

Note for the tenderer: the colour shades and surface treatments are to be specified in concrete terms; anything not applicable is not to be listed.

Supporting structure, pressure bars and cover strips made of aluminium:

The coating of the aluminium profiles can be anodised, powder-coated or wet-painted.

If the profiles are installed in salty air (near the sea or in a brine bath), pre-anodising against filiform corrosion or a piece coating is required. For the anodising or painting systems used, batch certificates/test reports according to standardised test procedures for the quality of the surfaces must be submitted and the coater performing the work must be named. Limit samples are to be determined for the colouring and quality of the decorative surfaces of aluminium profiles and sheets.

Anodising of the supporting structure, the press and cover strips of aluminium:

The coating of aluminium profiles and sheets is carried out by anodic oxidation and additional electrolytic colouring.

Surface treatment: E....... (E1 to E6)

Anodising colours: .................... (EV1 to EV 3 or C31 to C35 or special colour tone)

Colour coating of the supporting structure, the pressing and cover strips of aluminium:

The colour coating is applied as powder coating/wet paint coating. If the profiles have been pre-anodised, this must be observed for the colour coating.

Colour tone: ........................ (RAL colour tone, DB colour tone, Duraflon colour tone)

The coating quality (Standard/ Master/ Premium) according to the guidelines of the GSB (Gesellschaft für Stückbeschichtung) or Qualicoat should be achieved.

**7. Filling Elements (Transparent Fillings, Opaque Fillings)**

For the façade system offered, it must be possible to implement glass or panel infills with an installation thickness of up to 64 mm. The required panel thickness depends on the requirements of building physics (thermal and sound insulation) as well as on the requirements for burglar resistance (RC class) and requirements regarding fall protection (glazing according to TRAV).

Insert elements such as windows and doors are described separately.

**8. Execution of Building Connections**

All forces acting on the façade system must be safely transferred to the building shell.

Movements due to thermally induced length changes of the profiles must be absorbed by the construction. The façade construction must not take any additional loads from the building.

The building connections are shown schematically in the guide details of the architect or the facade planner with details of the execution. The contractor's work planning must be drawn up on the basis of these guide details and submitted to the architect or facade planner for approval.

The façade system is attached to the shell of the building by means of consoles belonging to the system, as a fixed or loose bearing, or as a mullion joint. Fastening to the carcass must be thermally separated, using pressure-resistant plastic blocks (e.g. Thermostop). Only approved fasteners (e.g. dowels) are permitted for fixing to the building shell.

For fixings in tension zones of reinforced concrete, the fixings must also be approved for fixing in this tension zone.

All building connection areas must be fully filled with insulation to avoid thermal bridges.

Sealing of the façade on the shell

All connections of the façade to the shell must be vapour diffusion-open to the outside and vapour diffusion-inhibiting to the inside. This means that films for external sealing must have a low sd-value and films for internal sealing must have a correspondingly high sd-value.

Sealing of the facade in the splash water area

The connecting foils to the building waterproofing must be neatly bonded to the building with special adhesive and secured against slipping off by means of clamping rails or a fixed/loose flange. Care must be taken to ensure that the sealing level is continuous, without any jumps. If necessary, foil deflectors must be planned and executed to support and guide the foils. The requirements of DIN 18195 "Waterproofing of buildings" must be observed.

Execution of structural connection joints

Building component connection joints must be made driving rain-proof towards the outside and vapour diffusion-resistant towards the inside. The materials used for the construction of structural element connection joints must be able to absorb the movements of the structural elements, must be resistant to ageing and weathering, as well as resistant to chemical influences, but also compatible with the adjacent materials.

Sprayable sealants or pre-compressed joint sealing tapes can be used to seal construction joints.

Sprayable sealants

If connection joints are made with sprayable, elastic sealants, the joints must be backed with closed-cell filling material. When selecting the sprayable sealants, the joint width in conjunction with the permissible total deformation of the sealant must be taken into account. The specifications and processing guidelines of the sealant manufacturer must be observed.

Pre-compressed sealing tapes

For pre-compressed sealing tapes, DIN 18542 applies, for their processing, the informative Appendix B also applies. With regard to their use, the sealing tapes must correspond to the corresponding stress group: BG 1 and BG 2 for exterior applications, BG 3 for sealing on the room side. The functionality of sealing tapes is based on their expansion in the joint, the adjacent components must permanently offer sufficient resistance to the pressure of the sealing tape to ensure a functional seal. For this reason, it is imperative that the information on the area of application of the sealing tape in relation to the joint widths is observed. It is also important to note that pre-compressed sealing tapes must be pushed into corners and not "pulled around", otherwise they cannot "unfold".

Further information and processing instructions, in addition to the relevant DIN regulations, can be found in the "Guidelines for Planning and Execution of the Installation of Windows and Entrance Doors" published by RAL-Gütegemeinschaft Fenster und Haustüren e.V.

**9. sun Protection Bracket, Scaffolding Anchor, Fixing Sword, Canopy Fixing**

Note for the tenderer: please do not list anything that does not apply!

Sun protection fastening

The façade system on offer must have the appropriate fixing options for sun protection systems. The loads from the sun protection system should be transferred to the façade via suitable screws and connection plates. Depending on the load, stainless steel sleeves must be available for different screw diameters. The fixing sleeves must fit all press and cover strips and seal themselves during installation using a suitable EPDM sealing sleeve. The dimensions of the aluminium connecting plates provided by the customer in accordance with the manufacturer's specifications are to be produced by the contractor on his own responsibility. It must be noted that the sleeves for sun protection fixing can only support vertical loads; forces transverse to the posts cannot be supported!

Scaffolding anchor

The façade system offered must have fastening possibilities for eyebolts as scaffolding anchors that belong to the system. The loads from the scaffolding should be transferred to the facade via suitable eyebolts and scaffolding brackets. The fastening sleeves must fit all cover strips. It should be noted that the scaffolding brackets together with the eyebolts can only carry vertical loads, forces transverse to the posts cannot be carried! For the exact specification of the forces that can be absorbed, the specifications of the system manufacturer must be observed.

Fixing sword

The offered façade system must have system swords for fastening large loads (e.g. balconies). The loads should be transferred directly to the aluminium profiles of the supporting structure via screwed-on aluminium fixing swords. The fixing swords must be suitable for all press and cover strips. The dimensioning of the complete connection, including the associated fastening means on the supporting structure, is part of the contractor's service. For the dimensioning of the connection, wind and other loads according to DIN 1055 must be considered in addition to the dead load to be transferred. In addition to vertical and horizontal loads, the fixing swords can also support diagonal pull. For the exact specification of the forces that can be absorbed, the specifications of the system manufacturer must be observed.

Canopy attachment

The façade system offered must have a possibility of attaching canopies that belongs to the system. The loads from the canopy construction should be transferred to the façade via suitable stainless steel bolts in connection with connection plates. The aluminium connection plates provided by the customer (dimensions approx. 50 mm x 150 mm x 10 mm) are to be manufactured by the contractor on his own responsibility according to the system manufacturer's specifications. The dimensioning of the complete connection, including the choice of the appropriate fixing materials, is part of the contractor's service. For the dimensioning of the connection, wind and other loads according to DIN 1055 must be taken into account in addition to the dead load to be borne. It should be noted that the bolts for canopy fixing can only support vertical loads, forces transverse to the posts cannot be supported!