

Fixed glazing

The invention is directed to a fixed glazing for a building, comprising a glass pane, for example, a triple glazing.

Glass panes are typically framed in a frame – for example, made of plastic, wood, or metal – and inserted together with the frame into the relevant building structure, anchored, sealed, and finally plastered in. This procedure is not only very complex; in addition, the frame can represent a type of thermal bridge in relation to a high-quality glazing.

The problem which initiates the invention results from the described disadvantages of the previously known prior art, of refining a fixed glazing of the type in question such that thermal bridges are avoided as much as possible and/or so that the installation is to be implemented with the least possible expenditure.

This problem is solved in that the glass pane is directly inserted into the adjacent building structure, without interposing a frame that consists of rigid material, and/or it is inserted into the laterally adjacent installation of the building structure.

By avoiding a frame, the risk of forming a thermal bridge is reduced. A further reduction is possible in that the glass pane is directly adjacent to the lateral insulation, i.e., is not displaced away from it into the building shell. The latter is made possible in particular in that a loadbearing insulation is used in any case in the region of the surroundings of the relevant fixed glazing, in particular extruded polystyrene (XPS, frequently also used as so-called perimeter insulation). This insulation is fixedly anchored on the building shell, for example, by gluing. A channel is preferably incorporated into this loadbearing insulation along the visible inner edge, the depth of which approximately corresponds to the thickness of the relevant glass pane. After the glass pane has been inserted into this channel, it is fixed therein, for example, by casting a liquid, curing plastic, for example, a casting resin, or a curing, mineral substance, for example, soluble glass, in the remaining gap.

In that the glass pane is inserted into a circumferential channel of the adjacent building structure, in particular thermal insulation, it can be at least partially enclosed and guided in a supporting manner thereby.

The glass pane is to consist of two or preferably three layers, of which the outermost one is somewhat smaller than the other(s), so that the inner layer(s) extend(s) into a channel of the adjoining building structure, in particular thermal insulation, but the outermost layer, in contrast, can slide on the inner edge of the part having the channel.

The invention suggests that the glass pane have a circumferential tape be stuck onto its edge. In this case, this is a protection for the particularly endangered edge region of a pane, on the one hand, from which cracks very frequently originate; on the other hand, the enclosing structure can optimally be adjacent to a tape having a comparatively rough surface composition, so that the formation of cracks along the joint between glass pane and building structure is reduced.

The invention may be refined in that the glass pane is sealed or fixed on the enclosing building structure, for example, by a curing artificial resin, in particular casting resin, or by a curing mineral substance, in particular soluble glass. The occurrence of leaks and therefore the penetration of water or the like is thus counteracted.

Finally, it corresponds to the teaching of the invention that a flexible film material, for example, made of ethylene-propylene-diene rubber (EPDM) is preferably drawn over the glass pane on the outer side and glued thereon. In particular in the roof region, a flexible film roof material, for example, ethylene-propylene-diene rubber (EPDM) can be drawn over the edge of the glass pane and glued thereon.

Further features, details, advantages, and effects on the basis of the invention result from the following description of several preferred embodiments of the invention and on the basis of the drawing. In the figures:

Figure 1 shows a section transversely through a fixed glazing according to the invention, which is also suitable in particular for vertical glazings on walls or the like; and

Figure 2 shows a section transversely through a fixed glazing according to the invention, which is particularly suitable for horizontal glazings on roofs or the like.

In both figures, one glass pane 1; 1' having three layers 2; 2' is used in each case. Two layers 2 thereof are each of equal size; the third, outermost layer is somewhat smaller, so that a circumferential channel 3; 3' results, having approximately one-third the depth of the entire glass pane 1. The glass pane 1; 1' can have a circumferential tape stuck onto its edge, which protects the glass pane 1; 1' itself during the installation and additionally provides an optimum surface composition for an attachment to an enclosing building structure 4; 4'.

In the installation variant 1 according to Figure 1, such a glass pane 1 is inserted abutting into a corresponding recess, in particular in the region of a thermal insulation 5, for example, made of XPS plates. A film 6 can be inserted in between, for example, an EPDM film, for example, having a tab which engages in the channel of the glass pane in the region of its outermost layer. These EPDM film 6 can be glued to the glass pane 1. This installation method is particularly suitable for vertical glazings in walls, because the glass pane 1 is then seated with its lower edge on the reveal of the relevant wall or insulation recess and the weight force of the glass pane 1 is thus completely absorbed.

In the installation variant 2 according to Figure 2, a channel 8, which corresponds approximately to the thickness of the glass pane 1', and which extends along the edge facing toward the recess 7, is incorporated in the insulation 5', which preferably consists of XPS or a comparable stable material. The glass pane 1' is inserted therein.

This is preferably a roof glazing, so that the planar lower side 9 of the channel 8 engages below the glass pane 1' along its edge and the weight of the glass pane 1' is thus absorbed.

A film 10, which forms the actual roof cladding, for example, made of EPDM, is preferably first folded and/or bent into the channel 8, so that it is located in the region of the channel 8 between the glass pane 1' and the thermal insulation 5' and ensures a first seal therein.

A possibly remaining gap between the circumference of the glass pane 1' and the channel 8 in the reveal of the recess 7 in the region of the thermal insulation 5', can have, for example, a liquid plastic or another sealant or grouting material 11, which is preferably suitable for the outside, cast therein. An elastic material is preferable in this case, which is capable of, for example, compensating for thermally-related relative expansions between glass pane 1' and reveal and/or thermal insulation 5'.

Finally, an EPDM film 6' or the like can be spread over the edge of the glass pane 1, in particular such that it plunges into the channel 3' of the glass pane 1' adjacent to the outermost layer 2' thereof. An optimum seal can thus be achieved, in particular if the EPDM film 6' is fixed by means of adhesive along the edge of the glass pane 1'.

List of reference numerals

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| 1 | glass pane |
| 2 | layer |
| 3 | channel |
| 4 | building structure |
| 5 | thermal insulation |
| 6 | film |
| 7 | recess |
| 8 | channel |
| 9 | lower side |
| 10 | film |
| 11 | grouting material |
| 12 | edge |

Patent Claims

1. Building construction, comprising a building structure (4; 4') with a building shell and a thermal insulation (5; 5') fixedly anchored on the building shell, and with a fixed glazing for the building, comprising at least one glass pane (1; 1'), **characterized in that** the glass pane (1; 1') is directly inserted into a laterally adjacent thermal insulation (5; 5') of the building structure (4; 4'), without interposing a frame that consists of a rigid material.
2. Building construction as claimed in claim 1, characterized in that the at least one glass pane (1; 1') is located flush and/or in a shared plane with the laterally adjacent thermal insulation (5; 5') of the building structure (4; 4').
3. Building construction as claimed in any one of claims 1 to 2, characterized in that the glass pane (1; 1') is inserted into a circumferential channel (8) of the adjacent thermal insulation (5; 5').
4. Building construction as claimed in any one of the preceding claims, characterized in that the glass pane (1; 1') consists of two or three layers (2; 2'), of which the outermost one is somewhat smaller than the other(s), so that the inner layer(s) (2) extend(s) into a channel (8) of the adjacent thermal insulation (5; 5'), but in contrast the outermost layer (2) can slide through on the inner edge (12) of a part (5; 5') having the channel (8).
5. Building construction as claimed in any one of the preceding claims, characterized in that the glass pane (1; 1') has a circumferential tape stuck onto its edge.

6. Building construction as claimed in any one of the preceding claims, characterized in that the glass pane (1; 1') is sealed or fixed on the surrounding building structure (4, 5; 4', 5'), or is sealed or fixed on the surrounding building structure (4, 5; 4', 5') by a curing artificial resin (11), or by a casting resin, or by a curing mineral substance, or by a soluble glass.
7. Building construction as claimed in any one of the preceding claims, characterized in that a flexible film material (6; 6'), or a flexible film material (6; 6') made of ethylene-propylene-diene rubber (EPDM), is drawn on the exterior over the glass pane (1; 1') and glued thereon.