



IMPROVEMENTS TO LOUVRE WINDOWS

This invention relates to improvements to louvre windows and particularly
5 relates improvements to louvre windows to reduce or eliminate splashing of water
behind the louvre blades.

Louvre blade assemblies are well known and consist of an array of louvre
blades one above the other which are all pivotally attached either directly to a
surround frame or via an intermediate arrangement to a surround frame. The
10 louvre blades can pivot between open and closed positions, and some form of
actuating mechanism is provided to achieve this.

The louvres are generally rectangular when viewed in plan and have an
upper and lower longitudinal side edge, and two opposed end edges. When in the
closed position, these louvre blades have an outer face which faces the outside
15 (and which is the face exposed to the weather), and an inner face which faces the
inside.

When the louvre assembly is closed, there is a slight overlap between
adjacent blades by which is meant that the lower longitudinal side edge of an upper
louvre blade overlaps the upper longitudinal side edge of a lower blade.

20 In practice, the louvre blades are closed fairly tightly against each other to
minimise water passing between the overlapped louvre blades. However, an
absolute seal is not possible as the louvre blades are usually formed from fairly thin
glass and cannot be pressed too tightly against each other because of fear of
breakage, and the glass blades may not be uniformly flat and gaps between the
25 adjacent louvre blades may occur. Also, for louvre blades formed from materials
other than glass (for instance, wood or metal), denting can occur which can create
gaps between adjacent blades when the blades are closed, and through which
water can still pass.

While it is not desirable for water to pass through a closed louvre blade
30 assembly, provisions have been made to accommodate and to drain any water
which does pass through. Thus, it is known to provide a surround frame which has
a bottom portion (usually a metal channel) which is formed with drainage apertures.
The lowermost louvre blade extends into the channel. As conventional louvre



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blades are square edged, water passing between adjacent louvre blades passes along the back of the louvre blades but when the water droplets hit the upper side edge of the lower louvre blades, the water drops can splatter or spray into the inside of the room. Figure 5 shows the known prior art arrangement with the dotted lines showing passage of water droplets along the inner face of the louvres and where a water droplet can fly off an upper edge of a louvre blade and thus not be captured by the lower drainage channel.

The present invention is directed to a louvre blade and to an assembly of such louvre blades which can overcome at least some of the abovementioned disadvantages by reducing the splashing of water drops passing along the inner face of the blades which therefore do not flow into the drainage channel on the bottom of the surround frame.

This has been achieved by profiling the upper longitudinal side edge of affected louvre blades in such a manner that water droplets have a reduced tendency to splash and a greater tendency to flow down the lower blades and into the collection channel without splashing.

In one form, the invention resides in a louvre blade which is generally rectangular when viewed in plan and which, like known louvre blades, has an upper and a lower longitudinal side edge, two end edges, an outer face which, when the louvre blade is closed faces the outside, and an inner face which faces the inside, the improvement being that the upper longitudinal side edge is ramped with the ramp extending substantially across the edge.

In another form, the invention resides in a louvre blade assembly comprising a plurality of louvre blades pivotally attached relative to a surround frame to allow the blades to open and close in the usual manner, the frame having a bottom portion containing drainage means to allow water in the bottom portion to flow out of the frame, the louvre blades which overlap each other when closed being generally rectangular when viewed in plan and which, like known louvre blades, have an upper and a lower longitudinal side edge, two end edges, an outer face which, when the louvre blade is closed faces the outside, and an inner face which faces the inside, the upper longitudinal side edge being ramped towards the inner face such that water which does pass between adjacent closed louvre flows across

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and down the ramp of each lower louvre and into the bottom portion.

The louvre blades can be of conventional manufacture and are typically formed from glass, although blades formed from metal, wood or plastics are also known and can form part of the invention. The size of the louvre blade can vary to
5 suit such that the louvre blades can be long, short, tall, and of various thicknesses to suit the installation and use requirements. The louvre blades can be fitted within a surround frame and known forms of blade actuators can be fitted or used, these being all well known and available to a person skilled in the art.

It is preferred that the side edges of the louvre blades are conventional which
10 allows the blades which form part of the invention to be fitted to known and conventional clips, actuators, frames, and the like.

The outer face of the louvre blade is the face which faces the outside of the building and is subject to weather effects when the blades are closed. The inner face is meant to include the other face of the louvre blade which is inside the
15 building when the blades are closed. Of course, when the louvres are opened, the inner face also becomes exposed to the weather.

The upper longitudinal side edge of the louvre blade is the edge which is uppermost when the blades are closed and the lowermost side edge is the bottom of the blade when the blades are closed. The uppermost side edge is formed with
20 a incline or ramp, which is illustrated in Figures 1 and 2, and the function of the ramp is illustrated in Figure 6 which shows that the ramp reduces the possibility of splashing of water drops and facilitates smooth passage of water drops along the inner face of each louvre blade and ultimately to the lower collection channel where the water can pass through the drainage outlets. To achieve this, it is considered
25 that the ramp needs to extend substantially across the edge, clearly illustrated in Figure 2. Figure 3 shows a known louvre edge and illustrates that the edges are never perfectly square but are slightly beveled at the top edges to take away rough cuts and extremely sharp corners which could cause serious injury. However, the slight bevels do not extend substantially across the edge and this configuration still
30 creates splashing (illustrated in Figure 5).

In order to avoid a knife-like edge on the ramp, it is preferred that that ramp terminates inwardly to provide a small flat land portion which will prevent a knife

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edge from forming. Figure 2 illustrates such a preferred arrangement.

The angle of the ramp can vary to suit. For thin glass louvres, the angle of the ramp will necessarily be quite sharp, while for thicker louvres, the angle of the ramp can be less while still providing a sufficiently ramped surface to prevent
5 splashing of the water drops. The width of ramp can also vary, it being appreciated that the ramp does reduce the wall thickness of the upper portion of the louvre blade and the wall thickness should not be so low to cause easy breaking of the upper part of the louvre blade. This, of course, will vary depending on the type of material used (for instance, glass, metal, wood or plastic), and it is considered that
10 a person skilled in the art would be able to determine an appropriate size and angle of the ramp.

The lower longitudinal side edge of the louvre blade can be square (usually with the slight bevels as illustrated in Figure 3), but the lower edge could have other profiles if considered desirable.

15 An embodiment of the invention will be described with reference to the following drawings in which

Figure 1 is an end view of a louvre blade according to an embodiment of the invention;

Figure 2 is a close-up view of the ramped edge;

20 Figure 3 shows the prior art louvre blade having an arrised edge;

Figure 4 shows a louvre blade assembly;

Figure 5 shows a prior art louvre blade assembly arrangement showing how water can splash from the inside of the louvre blades;

25 Figure 6 shows a louvre blade assembly according to the invention where the profile of the blades minimises splashing of water.

Referring to the drawings, there is shown a louvre blade 10 which in the embodiment is formed from standard 6mm thick annealed glass with a standard arrised lower edge 11. The arrised lower edge means that the sharp right-angles have been removed by slight grinding to form slightly beveled edges 12, this being
30 illustrated in Figure 3, and this being well known and used in the louvre glass industry. Although the embodiment describes the louvre as being formed from glass, other materials can also be used.

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The louvre blade has an upper and a lower longitudinal side edge 13, 14 and two end edges 15, 16. The end edges 15, 16 and the lower longitudinal side edge 14 are formed in the conventional manner.

Upper longitudinal side edge 13 is moulded or ground to form a ramp 17. Ramp 17 extends substantially across the upper longitudinal side edge 13, but in order to prevent an extremely sharp knife edge from forming, a flattened portion 18 (see Figure 2) is provided and which is usually approximately 2mm thick. In the embodiment, the louvre is 6mm thick, the ramped portion 17 is 8mm wide and extends entirely along the upper longitudinal side edge, and the flattened portion 18 is 2mm thick. It should be appreciated however that other sizes can be used depending on the thickness of the blade and the material of the blade.

A louvre blade assembly can be formed using a plurality of louvre blades 10. Figure 4 shows a typical louvre blade assembly formed from a number of louvre blades 10 having their end edges attached to clips and the like with the louvre blades being within a surround frame 20. The surround frame is usually formed from metal and particularly aluminium section and has a lower or bottom portion 21 which is channel-like (see Figure 6) and which has a number of drainage apertures 22 through which water can drain. This arrangement is well known in the art.

Figure 5 shows the problem with conventional louvre blade assemblies. In Figure 5, the louvre blades 23a, 23b, and 23c have squared-off upper edges. During windy and rainy conditions, rain water can hit the louvre blades on their outer faces 24 at such force that some of the water drops pass between adjacent louvre blades and towards the inner face 25 of the louvres. Water passing onto the inner face will flow along the inner face through surface adhesion, but the increased volume and velocity of water running down the inside of the glass blades is such that when the water strikes a top square edge of the next lowermost blade, the water can splash beyond the surround frame such that the lower channel 21 does not collect the water.

Referring to Figure 6, if water passes between adjacent louvres (see, for instance, arrow 27), the water will run down the inner face of the louvres through surface adhesion and the increased volume and velocity of the water will not cause splashing as the water can run smoothly across the various ramps 17 and into

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channel 21 and through drainage apertures 22.

It is found that the particular blade profile greatly reduces the splashing effects and allows the water to be contained in the lower channel section.

It should be appreciated that various other changes and modifications can
5 be made to the embodiment described without departing from the spirit and scope
of the invention as claimed.

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THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A window louvre blade which is generally rectangular when viewed in plan
5 and which, like known louvre blades, has an upper and a lower longitudinal side edge, two end edges, an outer face which, when the louvre blade is closed faces the outside, and an inner face which faces the inside, the improvement being that the upper longitudinal side edge is ramped upwardly from the inner face to the outer face with the ramp being planar and extending substantially across the edge
10 of the louvre from the inner face to the outer face.
2. The blade of claim 1 which is formed of glass.
3. The blade of claim 1 or claim 2, wherein the ramp extends from the inner face and terminates inwardly from the outer face edge to provide a small flat land portion which will prevent a knife edge from forming.
- 15 4. The blade of any one of the preceding claims wherein the lower longitudinal side edge of the louvre blade is square.
5. The blade of any one of the preceding claims, wherein the louvre is about 6mm thick, the ramp is about 8mm across, and a flattened portion of about 2mm is provided between the upper end of the ramp and the outer face.
- 20 6. A louvre blade assembly comprising a plurality of louvre blades of any one of the preceding claims which are pivotally attached relative to a surround frame to allow the blades to open and close in the usual manner, the frame having a bottom portion containing drainage means to allow water in the bottom portion to flow out of the frame.
- 25 7. The louvre blade of any one of the preceding claims, wherein the outer face and the inner face are both planar.
8. The louvre blade of any one of the preceding claims and substantially as hereinbefore described and with reference to Figures 1, 2, 4 and 6.