A sliding window assembly. The present invention provides sliding window assembly (1) comprising a sliding element (5), a ventilation panel (6), a support frame (3) and a secondary frame (7). The sliding element (5) is slidable mounted in the support frame (3) such that it can translate between a first position and a second position, and any position there between. The ventilation panel (6) is configured to extend across an opening aperture defined by the support frame (3) and restrict access via the opening aperture, the opening aperture being formed as the sliding element (7) is translated from the first position to the second position so as to allow air flow through the opening aperture. The secondary frame (7) is pivotally mounted within the sliding window assembly (1) to rotate about a substantially horizontal axis such that it can pivot between a closed position and a fully open position and any position there between, whereby in the fully open position the secondary frame (7) is configured to allow access to an interior region of the window assembly (1) and/or the sliding element (5). The present invention also provides a method of obtaining access to a restricted area within a sliding window assembly (1) according to the invention.
Published:

— without international search report and to be republished upon receipt of that report (Rule 48.2(g))
A SLIDING WINDOW ASSEMBLY

The present invention relates to a sliding element assembly, particularly a sliding window assembly where access to an internal area of the assembly can be achieved.

A sliding window assembly comprises a sliding window panel that is configured to translate laterally between a closed position and a fully open position and any position there between. An opening aperture is formed as the sliding window panel slides from the closed position to an open position. The sliding window panel may be configured to slide in a substantially vertical direction or a substantially horizontal position.

A sliding window assembly suitable for providing ventilation in a secure environment typically comprises a sliding window panel and a securely mounted ventilation panel. The ventilation panel is configured to extend across the opening aperture that is formed as the sliding window panel moves to an open position. As a result, the ventilation panel will allow for ventilation (airflow) when the sliding window is moved to an open position but restrict or prevent access via the opening aperture.

By providing a ventilation panel to restrict or prevent access across the opening aperture, the sliding window assembly is suitable for use in a secure environment such as a secure hospital, detention centre or prison etc. However, the ventilation panel also restricts access to the interior region of the widow assembly and the sliding window panel. Hence, access to the interior region of the window assembly and the inner side of the sliding window panel can only be achieved by dismantling the sliding window assembly. Accordingly, any cleaning or maintenance of the interior
region of the window assembly and/or sliding window panel is difficult, expensive and time consuming.

The present invention seeks to overcome, obviate or mitigate the aforesaid disadvantages and provide for an improved sliding window assembly. The present invention seeks to provide a sliding window assembly that may be cleaned and maintained without having to remove any parts or dismantle the window assembly. More specifically, the present invention seeks to provide a sliding window assembly where the interior region of the window assembly and inner surface of the sliding window may be cleaned and maintained without having to dismantle the window assembly.

According to a first aspect of the invention, there is provided sliding window assembly comprising a sliding element, a ventilation panel, a support frame and a secondary frame wherein:

- the sliding element is slidably mounted in the support frame such that it can translate between a first position and a second position, and any position there between;

- the ventilation panel is configured to extend across an opening aperture defined by the support frame and restrict access via the opening aperture, the opening aperture being formed as the sliding element is translated from the first position to the second position so as to allow air flow through the opening aperture; and

- the secondary frame is pivotally mounted within the sliding window assembly to rotate about a substantially horizontal axis such that it can pivot between a closed position and a fully open position and any position there between, whereby in the fully open position the secondary frame is configured to allow access to an interior region of the window assembly and/or the sliding element.
Sliding window assemblies known in the art for use in secure environments typically comprise a sliding window panel, a fixed window panel and a securely mounted ventilation panel. The protective ventilation panel may be on the internal side of the sliding window assembly alongside the fixed window panel, with the sliding window panel moving between a first position, a second position and any position in between, on the exterior of the room.

The addition of the protective ventilation panel means that access to the internal face of the exterior sliding window panel is not possible unless the protective ventilation panel, fixed window panel or sliding window panel is removed from the assembly. As a result, the cleaning of the internal face of the sliding window panel is extremely difficult and a costly exercise, especially where the window assembly is being used in secure areas, where it is prone to accumulate excess or deliberate dirt, or a combination of both.

By means of the present invention, the interior region of a sliding window assembly for use in secure environments and/or the inner surface of a sliding window forming part of window assembly may be accessed for cleaning and/or maintenance by means of the secondary frame without having to dismantle the window assembly.

By pivotally mounting the secondary frame within the sliding window assembly, an operator may easily gain access to the interior region and/or sliding element by simply moving the secondary frame to the fully open position. Hence, the interior region and/or sliding element may be cleaned, maintained, repaired etc. more efficiently, simply and cheaply.
An opening aperture is formed as the sliding element moves from a closed position to a fully open position. It will be understood that the size and shape of the opening aperture varies continuously as the sliding element slides within the support frame. The opening aperture is deemed to have a maximum size and shape when the sliding element is arranged in a fully open position.

The interior region is the inner region of the window assembly as defined by the ventilation panel and the sliding element.

In a first exemplary embodiment of the sliding window assembly of the invention, the ventilation panel is securely mounted in the support frame, and the secondary frame is pivotally mounted in the sliding element such that it can pivot between a closed position and a fully open position and any position there between, whereby in the fully open position the secondary frame is configured to allow access to an interior region of the window assembly and/or the sliding element.

Optionally, the secondary frame is pivotally coupled to a side wall of the support frame so as to pivot about an axis that is parallel to an upper wall of the sliding element.

The window assembly may comprise pivoting means to pivotally couple the secondary frame and sliding element and thereby allow for the pivoting of the secondary frame between the closed position and the open position and any position there between.

Preferably, when arranged in the closed position, the secondary frame is adapted to form a sealing engagement with the sliding element so as to restrict or prevent any access via the opening aperture.
The secondary frame may be arranged in sealing engagement with the sliding element so as to prevent, minimise or restrict the attachment of a ligature.

In a second exemplary embodiment of the sliding window assembly of the invention, the ventilation panel is mounted within the secondary frame; whereby

when the secondary frame is in the closed position, the ventilation panel is configured to extend across the opening aperture that is formed as the sliding element translates to an open position so as to allow air flow but restrict access via the opening aperture, and

when the secondary frame is in the fully open position, the ventilation panel is configured to allow access to an interior region of the window assembly and/or the sliding element.

In such an arrangement, the secondary frame may be mounted within the support frame.

In a third exemplary embodiment of a sliding window assembly according to the invention, the sliding element is mounted to translate laterally within the support frame, relative to the secondary frame, between the first position and second position;

the secondary frame is mounted within the support frame in stepped relationship to the sliding element and to pivot with respect to the support frame between the closed position and the fully open position, and any position there between.

In embodiments of the invention wherein the secondary frame is mounted within the support frame, the secondary frame is preferably pivotally
coupled to a side wall of the support frame so as to pivot about an axis that is parallel to an upper wall of the support frame.

The assembly may conveniently comprise pivoting means to pivotally couple the secondary frame and support frame and thereby allow for the pivoting of the secondary frame between the closed position and the open position and any position there between.

In embodiments of the invention wherein the secondary frame is pivotally coupled to the support frame or sliding element, the pivoting means may comprise one or more hinges such as a slide stay friction hinge, a Butt hinge or a Continuous hinge.

In embodiments of the invention wherein the secondary frame is pivotally coupled to the support frame or sliding element, the pivoting means may be a manually operable pivoting means or electronically controlled pivoting means.

In embodiments of the invention wherein the secondary frame is pivotally coupled to the support frame or sliding element, the pivoting means are configured and/or located so as to restrict, limit or prevent the attachment of a ligature. For example, the pivoting means may be concealed within the support frame or secondary frame.

In embodiments of the invention, wherein the secondary frame is mounted within the support frame, preferably the secondary frame is arranged in the closed position, the secondary frame is adapted to form a sealing engagement with the support frame so as to restrict or prevent any access via the opening aperture.
In embodiments of the invention, wherein the secondary frame is mounted within the support frame, preferably the secondary frame is arranged in sealing engagement with the support frame so as to prevent, minimise or restrict the attachment of a ligature.

The sliding element is configured such that it can be driven to translate laterally within the support frame in any predetermined direction. For example, the sliding window panel may be configured to translate laterally in a substantially horizontal direction (i.e. from side to side) between a closed position and a fully open position. Alternatively, the sliding window panel may be configured to translate laterally in a substantially vertical direction (i.e. upwardly and downwardly) between a closed position and a fully open position.

The sliding element may be a panel-like structure with a peripheral edge defined by a lower edge, upper edge, and two side edges.

In embodiments of the invention, the sliding element is preferably a sliding window panel having an inner side and an outer side.

The sliding window panel may comprise a glazing unit. The glazing unit may comprise a single pane or multiple panes of glass. For example, the glazing unit may be in the form of a double glazed unit.

So as to prevent or minimise the breakage of or damage to the glazing unit, the glazing unit may comprise at least one pane of security glass. This is a type of glass that is designed to resist breakage upon impact and includes reinforced or toughened glass as well as laminates or composites of glass and plastics. For example, the pane of security glass may be a laminate of glass and polycarbonate bonded by a polyurethane resin. An
example of security glass is referred to in the trade as "anti-bandit attack" glass.

For the purposes of this document the term "sliding window panel" is intended to be any type of sliding panel comprising one or more glazing unit. For example, the sliding window panel may be a sliding window element or a sliding door panel comprising a window.

The support frame may be configured to receive and support at least a part of the peripheral edge of the sliding element.

The support frame is preferably a peripheral frame that extends substantially around the peripheral edge of the sliding element. This type of frame may have a substantially rectangular shaped structure comprising a lower wall, upper wall and sidewalls. The support frame has an inner side and an outer side. The sliding element is preferably slidably mounted within a rebate or channel of the support frame.

The support frame is preferably manufactured from a material that is designed to resist damage or breakage upon impact, e.g. steel or aluminium.

An inner side of the assembly is defined by the inner side of the sliding window panel and inner side of the support frame. An outer side of the assembly is defined by the outer side of the sliding window panel and outer side of the support frame.

So as to aid the lateral translation of the sliding element within the support frame, the sliding element may be slidably mounted on a sliding track or guide rail. The sliding element may be mounted on a sliding track or guide
rail via at least one rollable member (e.g. wheel). If the sliding element is required to slide in a substantially horizontal direction then the sliding track or guide rail is arranged to extend along at least a part of the lower wall and/or upper wall of the support frame. Depending on the configuration and type of sliding track or guide rail, the sliding track or guide rail may be arranged within a rebate of the lower wall and/or rebate of the upper wall. If the sliding element is required to slide in a substantially vertical direction then the sliding track or guide rail is arranged to extend along at least a part of one or both of the sidewalls of the support frame. The sliding track may be arranged in a rebate of one or both of the sidewalls.

The ventilation panel can be fitted in any arrangement within the sliding window assembly. For example, the ventilation panel may define an inner side of the assembly or an external side of the assembly, The ventilation panel can be used for a number of reasons, for example security, anti pest, anti contraband, etc reasons.

The ventilation panel is a panel-like structure comprising a ventilating region. The ventilation panel may optionally comprise a peripheral edge defined by a lower edge, upper edge and two side edges. The ventilation panel conveniently has an inner side and an outer side.

The specification of the ventilation panel will change depending on the requirements of the assembly, but will always allow sufficient natural light into the room and for ventilation to flow from one side of the opening to the other when the sliding element is in an open position.

The ventilating region of the ventilation panel may comprise a perforated element, a mesh or a grill comprising a plurality of apertures configured to allow for air flow. The perforations or apertures are configured to allow
airflow when the sliding element is open but restrict or inhibit the passage of contraband or unsuitable items. Thus, contraband etc may not be transferred through the window, even when the sliding element is arranged in an open position.

The ventilation panel is preferably manufactured from a material that is designed to resist damage or breakage upon impact, e.g. steel or aluminium.

The ventilation panel is mounted in the window assembly such that when the secondary frame is in the closed position it is configured to extend across at least the opening aperture formed when the sliding element moves to an open position. Critically, the ventilation panel may be configured to extend across at least the maximum opening aperture formed when the sliding element is in a fully open position.

The ventilation panel preferably forms a sealing engagement with the support frame so as to restrict or prevent any access via the opening aperture. The ventilation panel is also arranged in sealing engagement with the support frame so as to prevent, minimise or restrict the attachment of a ligature.

So as to extend across at least the opening aperture, the ventilation panel is configured such that it extend substantially parallel with respect to the sliding element when both the secondary frame and sliding element are arranged in their respective closed position. The ventilation panel is mounted in the window assembly in a parallel plane with respect to the sliding element. The ventilation panel may be configured with respect to the inner side or the outer side of the sliding element. The ventilation panel is configured so as to restrict or prevent access to the inner region of the
assembly (including the interior of the support frame) and/or the sliding element.

The assembly may comprise restricting means so as to restrict the pivoting movement of the secondary frame. For example, the assembly may comprise restricting means to define the closed position of the secondary frame. In this case, the restricting means are configured to abut the secondary frame when the secondary frame is arranged substantially flush and/or in sealing engagement with the support frame or sliding element.

The assembly may comprise a locking means to lock the secondary frame in the closed position.

In certain instances the ventilation panel is put in place for security reasons. For example, in order to prevent the room occupant escaping or to prevent the passage of contraband from inside to outside or vice versa. The provision of the locking means allows for the prevention of a room occupant in a room where the window assembly is installed from freely opening the secondary frame, especially where the ventilation panel is mounted within the secondary frame, in order to circumvent the restrictions imposed by the ventilation panel.

The lock means may comprise a key operated lock. The lock is preferably a tamper-proof lock. The locking means are provided so that only an authorised operator may open and close the secondary frame.

The sliding element may be actuated by manually pushing or pulling the sliding element in a given direction such that it slides between the close position and the fully open position.
So as to reduce the effort required to push or pull a sliding element, the assembly may comprise a driving mechanism to actuate the sliding element. The driving mechanism may be a manually operable or electronically controlled drive mechanism.

The manually operable drive mechanism may include a manually operable handle coupled to the sliding element via actuating means whereby the handle must be rotated/moved in one direction to activate the actuating means and thereby move the sliding element towards a first position and rotated/moved in the opposite direction to activate the actuating means and thereby move the sliding element towards a second position. The actuating means may comprise gear means to drive and essentially control the motion of the sliding element. The drive means comprises a rack and pinion system. With this type of drive mechanism the direction of the sliding motion is dependent on the direction of rotation/movement of the handle - the handle must be rotated/moved in different directions in order to move the sliding element in different directions. For example, a rotatable handle must be rotated in both a clockwise and anti-clockwise direction to move the sliding element in different directions. The extent of the sliding motion is dependent on the circumference of the pinion gear wheel and the length of the associated rack.

The assembly may alternatively comprise a reciprocating drive mechanism for actuating a sliding element comprising a rotatable handle and an actuating means whereby the rotatable handle is configured to drive the actuating means and the actuating means is configured to reciprocately drive a sliding element between a first position and a second position, and any position there between, as the handle is rotated.
The handle may be a manually rotatable handle. Alternatively, the handle may be an electronically controlled rotatable handle and the drive mechanism may comprise an electronic control means to remotely control the rotation of the handle.

Preferably the handle has a tamper-proof configuration so as to prevent, minimise or restrict the failure of the handle caused by deliberate or accidental damage. The handle may further or optionally have an anti-ligature configuration so as to prevent, minimise or restrict the attachment of a ligature.

The drive mechanism may further comprise a rotatable drive shaft coupled between the handle and the actuating means, whereby the handle drives the actuating means via the drive shaft.

The drive mechanism may comprise a housing means to restrict access to the drive mechanism, particularly the actuating means.

The drive mechanism is preferably configured as part of the window assembly such that the handle of the drive mechanism is arranged externally to the support frame and sliding element on a predetermined side of the window assembly. The handle is also preferably configured such that it is only visible and thereby accessible on a predetermined side of the window assembly. For example, the drive mechanism may be configured such that a manually rotatable handle is arranged on the inner side of the window assembly. Thus, when a window assembly is mounted in a wall of a room space, the rotatable handle is only visible and operable by a user within the room.
The arrangement of the rotatable handle on the inner side of the window assembly is dependent on the configuration of the actuating means. For example, the rotatable handle may be arranged in a lower right-hand corner region of the inner side of the support frame. Alternatively, the rotatable handle may be arranged in a different region of the inner side of the support frame (e.g. a lower central region).

The assembly may comprise a secondary panel mounted in the support frame. The secondary panel may have a panel-like structure with a peripheral edge defined by a lower edge, upper edge and two side edges. The secondary panel may have an inner side and an outer side.

The secondary panel may comprise a peripheral frame.

The secondary panel may be a secondary window panel comprising a glazing unit. The secondary window panel is provided to allow natural light to fall into the room space so as to aid an occupant's comfort.

The secondary panel is preferably mounted in the support frame such that it is in a parallel plane to the sliding element and substantially adjacent the ventilation panel in the same plane. Hence, the sliding element slides relative to the secondary panel and ventilation panel.

The secondary panel may be securely mounted in the support frame. Alternatively, the secondary panel may be pivotally mounted in the support frame such that it is able to pivot between a closed position and a fully open position, and any position there between. The secondary panel may be pivotally mounted so to help provide further access to the interior region of the assembly and/or the sliding element.
As with the secondary frame, the secondary panel may be pivotally mounted such that it pivots about a substantially horizontal axis. The secondary panel may be pivotally coupled to a side wall of the support frame so that it may pivot about an axis that is substantially parallel to the upper wall of the support frame. Alternatively, the secondary panel may be pivotally mounted such that it pivots about a substantially vertical axis. The secondary panel may be pivotally coupled to a side wall of the support frame so that it may pivot about an axis that is substantially parallel to the side wall of the support frame.

The secondary panel may be a window panel.

According to a second aspect of the invention, there is provided a method of obtaining access to a restricted area within a sliding window assembly, the sliding window assembly comprising a sliding element slidably mounted in a support frame such that it can translate between a first position and a second position, and any position there between;

a ventilation panel configured to extend across an opening aperture defined by the support frame and restrict access via the opening aperture, the opening aperture being formed as the sliding element is translated from the first position to the second position so as to allow air flow through the opening aperture; and a secondary frame pivotally mounted within the sliding window assembly to rotate about a substantially horizontal axis such that it can pivot between a closed position and a fully open position and any position there between.

comprising the step of moving the secondary frame from said closed position towards said fully open position to allow access to an interior region of the window assembly and/or sliding element.
Throughout the description and claims of this specification, the words "comprise" and "contain" and variations of the words, for example "comprising" and "comprises", means "including but not limited to", and is not intended to (and does not) exclude other components, integers or steps.

Throughout the description and claims of this specification, the singular encompasses the plural unless the context otherwise requires. In particular, where the indefinite article is used, the specification is to be understood as contemplating plurality as well as singularity, unless the context requires otherwise.

The invention will now be described by way of non-limiting example, with reference being made to the following drawings, in which:

Figures 1a and 1b depict an internal and external view of a first embodiment of a sliding window assembly according to the invention;

Figure 2 is a perspective view of the first embodiment of the present invention showing the secondary frame in transit between an open position and a closed the position;

Figure 3a is a sectional view of the embodiment of figure 1 through line B-B of figure 1;

Figure 3b is a sectional view of the embodiment of figure 1 through line C-C of figure 1;

Figure 4a is a sectional view similar to the view of figure 3a of a second embodiment of a sliding window assembly according to the invention;
Figure 4b is a sectional view similar to the view of figure 3b of the second embodiment of a sliding window assembly according to the invention;

Figure 5 is a partial a sectional view of a secondary frame structure forming part of a third embodiment of the invention;

Figure 6 is a perspective view of a sliding window assembly according to a fourth embodiment of the invention;

Figure 7 is a partial sectional view of the embodiment of figure 6 showing the locking means;

Figure 8 is a perspective view of the sliding window assembly of figure 6 with the secondary frame in an open position;

Figure 9 is a cross-sectional view of the sliding window assembly of figure 6;

Figure 10 is a perspective view of a sliding window assembly according to a fifth embodiment of the invention;

Figure 11 is a perspective view of the external side of the sliding window assembly of figure 10;

Figure 12 is a perspective view of the sliding window assembly of figure 10 showing the sliding element in transit between the first and second positions;
Figure 13 is a perspective view of a sliding window assembly according to a sixth embodiment of the invention;

Figure 14 is a perspective view of the external side of the sliding window assembly of figure 13 with the secondary frame in an open position; and

Figure 15 is a perspective view of the external side of the sliding window assembly of figure 14 showing the sliding element in transit between the first and second positions with the secondary frame in a closed position.

While the invention is susceptible to various modifications and alternative forms, specific embodiments thereof are shown by way of example in the drawings and will herein be described in detail. It should be understood that the drawings and detailed description thereof are not intended to limit the invention to the particular form disclosed, but on the contrary, the intention is to cover all modifications, equivalents and alternatives falling within the scope of the invention as defined by the appended claims.

Further, although the invention will be described in terms of specific embodiments, it will be understood that various elements of the specific embodiments of the invention will be applicable to all embodiments disclosed herein.

Features, integers, characteristics or groups described in conjunction with a particular aspect, embodiment or example of the invention are to be understood to be applicable to any other aspect, embodiment or example described herein unless incompatible therewith.

In the drawings, the same features are denoted by the same reference signs throughout.
Referring to figures 1 to 3, a first embodiment of a sliding window assembly (1) according to the invention is shown.

The sliding window assembly (1) comprises a sliding element (5), a ventilation panel (6), a support frame (3) and a secondary frame (2).

The sliding element (5) is slidably mounted in the support frame (3) such that it can translate between a first position and a second position, and any position there between.

The ventilation panel (6) is configured to extend across an opening aperture defined by the support frame (3) and restrict access via the opening aperture, the opening aperture being formed as the sliding element (5) is translated from the first position to the second position so as to allow air flow through the opening aperture.

The secondary frame (2) is pivotally mounted within the sliding window assembly (1) to rotate about a substantially horizontal axis such that it can rotate between a closed position and a fully open position and any position there between, whereby in the fully open position the secondary frame (2) is configured to allow access to an interior region of the window assembly (1) and/or the sliding element (5).

The embodiment shown is a particular type of sliding window assembly (1) in the form of a security window assembly. The security window assembly (1) is suitable for providing ventilation in a secure environment (e.g. room space) where the safe detention of an occupant is paramount. For
example, the security window assembly (1) is suitable for use in a secure hospital, detention centre or prison etc.

The security window assembly (1) may be mounted in a wall defining a room space. An inner side of the security window assembly (1) is preferably configured to face inwardly or internally towards the room space. An outer side of the security window assembly (1) is preferably configured to face outwardly or externally in the opposite direction away from the room space.

The support frame (3) is substantially rectangular in shape. In the embodiment depicted the support frame (3) comprises a lower wall (32), upper wall (33), central wall (34) extending between the lower wall (32) and upper wall (33), a first sidewall (35) and a second sidewall (36). The first portion (31a) of the support frame (3) is defined by a first part of the lower wall (32a), the central wall (34), the first sidewall (35) and a first part of the upper wall (33a). The second portion (31b) of the support frame (3) is defined by the lower wall (32), the first sidewall (35), the second sidewall (36) and the upper wall (33). The third portion (31c) of the support frame (3) is defined by a second part of the lower wall (32b), the central wall (34), the second sidewall (36) and a second part of the upper wall (33b).

The support frame (3) is configured such that an inner side (30a) faces inwardly towards an internal room space and an outer side (30b) faces outwardly away from a room space.

The first portion (31a) and third portion (31c) of the support frame (3) are preferably configured to be adjacent and in the same plane such that the fixed window panel (4) and ventilation panel (6) are flush when the secondary frame (7) is in the closed position. The second portion (31b) of
the support frame (3) is preferably configured to be in a parallel plane to the first portion (31 a) and third portion (31 c). Moreover, the first portion (31 a) and third portion (31 c) are configured towards the inner side (30a) of the support frame (3) and the second portion (31 b) is configured towards the outer side (30b) of the support frame (3) such that, depending on its position, the sliding window panel (5) appears to be behind the ventilation panel (6) and/or fixed window panel (4) when viewed by an operator located in the room space.

The support frame (3) is preferably manufactured from a material that is resistant to deformation and/or breakage upon impact. For example, the support frame is manufactured from steel or aluminium.

The security window assembly (1) further comprises a secondary panel (4) in the form of a fixed window panel.

The fixed window panel (4) is a type of fixed element. The fixed window panel (4) is provided to allow natural light fall into the room space so as to aid an occupant's comfort. The fixed window panel (4) also allows for the observation of an occupant retained in a room space.

While not shown in the first embodiment, it would be understood by a person skilled in the art that the security window assembly (1) may comprise one or more fixed window panels (4).

The fixed window panel (4) may comprise a single pane or multiple panes of glass. The fixed window panel (4) is preferably a sealed double-glazed unit.
So as to prevent or minimise the breakage of or damage to the fixed window panel (4), the fixed window panel (4) comprises at least one pane of security glass.

If the fixed window panel (4) comprises a multiple pane glazed unit then one or more of the panes of the glazed unit may comprise a pane of security glass. Preferably a pane of security glass is mounted on the inner side of the security window assembly (1) so as to minimise any damage caused by an occupant. Alternatively, the fixed window panel (4) may further comprise a pane of security glass mounted (within the support frame (3)) separately to the glazed unit on the inner side of the security window assembly (1) and/or a pane of security glass mounted (within the support frame (3)) separately to the glazed unit on the outer side of the security window assembly (1).

If the fixed window panel (4) comprises a single pane of glass then the pane of glass is preferably security glass.

The fixed window panel (4) is securely mounted in the support frame (3). The fixed window panel (4) is preferably securely mounted in the first portion (31a) of the support frame (3). The first portion (31a) of the support frame (3) has a first internal rebate to permit the fixed window panel (4) to be securely received in the support frame (3) during assembly.

The fixed window panel (4) has an inner side (40a), an outer side (40b) and a peripheral edge. The fixed window panel (4) is securely mounted in the support frame (3) such that when the assembly (1) is mounted in a wall defining a room space the inner side (40a) of the fixed window panel (4) faces inwardly towards an internal room space and the outer side (40b) of the fixed window panel (4) faces outwardly away from the room space.
The sliding element (5) is in the form of a sliding window panel. The sliding element (5) is configured such that is able to translate laterally in a horizontal direction between a first position and a second position and to any position there between - Of course, a security window assembly may be alternatively configured to allow for lateral translation of the sliding element in a substantially vertical direction.

The security window assembly (1) may comprise one or more sliding window panels (5).

The sliding window panel (5) may comprise a single pane or multiple panes of glass securely mounted in a peripheral sub-frame (25). The sliding window panel is preferably a sealed double-glazed unit surrounded by the peripheral sub-frame.

The sliding window panel (5) preferably comprises at least one pane of security glass. If the sliding window panel (5) comprises a multiple pane glazed unit then the glazed unit may comprise one or more panes of security glass. Alternatively, the sliding window panel (5) may further comprise a pane of security glass mounted (within the sub-frame (25)) separately to the glazed unit on the inner side of the security window assembly (1) and/or a pane of security glass mounted (within the sub-frame (25)) separately to the glazed unit on the outer side of the window assembly (1).

If the sliding window panel (5) comprises a single pane of glass then the pane of glass is preferably security glass.
The sliding window panel (5) is slidably mounted in the support frame (3), such that it can translate laterally (i.e. slide) between the first position which corresponds to a closed position and the second position which corresponds to a fully open position. The sliding window panel (5) is slidably mounted in the second portion (31 b) of the support frame (3). The second portion (31 b) of the support frame (3) preferably has a second internal rebate to permit the sliding window panel (5) to be received in the support frame (3) during assembly.

The sliding window panel (5) when in the closed position, i.e. the first position, sits behind the ventilation panel (6).

The translation of the sliding window panel (5) between the first and second position will regulate the ventilation through the window assembly (1). For example, no ventilation into the room through the window assembly (1) will occur when the sliding window panel (5) is in the first position i.e. the closed position. The passage of air through the ventilation panel (6) so as to provide ventilation into the room in which the sliding window assembly is fitted will occur once the sliding window panel (5) is translated from the first position towards the second position.

The sliding window panel (5) is mounted on a sliding track (14) via rollable members (15). The sliding track (14) is provided so as to help provide a smooth translation of the sliding window panel (5) between the first and second position. The sliding track (14) is preferably arranged within the support frame (3), for example within a rebate of the support frame (3). Where the sliding window panel (5) is configured to slide in a substantially horizontal direction, the sliding track (14) is arranged to extend along at least a part of the lower wall (32) of the support frame (3).
The sliding window panel (5) has an inner side (50a), an outer side (50a) and a peripheral edge defined by the peripheral sub-frame. The sliding window panel (5) is mounted in the support frame (3) such that, when the window assembly (1) is mounted in a wall defining an internal room space, the inner side (50a) of the sliding window panel (5) faces inwardly towards an internal room space and the outer side (50b) faces outwardly away from the room space.

The first portion and second portion of the support frame (3) are preferably configured such that when sliding window panel (5) is in a closed position, the fixed window panel (4) and sliding window panel (5) are arranged adjacent in a stepped configuration such that there is no opening aperture and the window assembly (1) is sealed. An opening aperture is created as the sliding window panel (5) slides from the closed position to the open position. The sliding element may be actuated by manually pushing or pulling the sliding element in a given direction such that it slides between the close position and the fully open position.

So as to reduce the effort required to push or pull a sliding element, the window assembly (1) may comprise a driving mechanism (13) to actuate the sliding element (5). The driving mechanism (13) may be a manually operable or electronically controlled drive mechanism.

The manually operable drive mechanism (13) may include a manually operable handle (21) coupled to the sliding element (5) via actuating means (27) whereby the handle (21) must be rotated/moved in one direction to activate the actuating means (27) and thereby move the sliding element (5) towards a first position and rotated/moved in the opposite direction to activate the actuating means (27) and thereby move the sliding element towards a second position. The actuating means may comprise
gear means to drive and essentially control the motion of the sliding element (5).

Alternatively, the drive mechanism may comprise an electronically controlled rotatable handle and an electronic control means to remotely control the rotation of the handle.

The handle (21) has a tamper-proof configuration so as to prevent, minimise or restrict the failure of the handle (21) caused by deliberate or accidental damage. The handle (21) may further or optionally have an anti-ligature configuration so as to prevent, minimise or restrict the attachment of a ligature.

The drive mechanism may further comprise a rotatable drive shaft coupled between the handle and the actuating means, whereby the handle drives the actuating means via the drive shaft.

The drive mechanism comprises a housing means to restrict access to the drive mechanism, particularly the actuating means.

The drive mechanism (13) is preferably configured as part of the window assembly (1) such that the handle (21) of the drive mechanism (13) is arranged externally to the support frame (3) and sliding element (5) on a predetermined side of the window assembly (1). The handle (21) is also preferably configured such that it is only visible and thereby accessible on a predetermined side of the window assembly (1). For example, the drive mechanism (13) may be configured such that a manually rotatable handle (21) is arranged on the inner side of the window assembly (1). Thus, when a window assembly (1) is mounted in a wall of a room space, the rotatable handle (21) is only visible and operable by a user within the room.
The arrangement of the rotatable handle (21) on the inner side of the window assembly (1) is dependent on the configuration of the actuating means. For example, the rotatable handle (21) may be arranged in a lower right-hand corner region of the inner side of the support frame (3). Alternatively, the rotatable handle (21) may be arranged in a different region of the inner side of the support frame (3) (e.g. a lower central region).

It can be seen in Figure 3b that the second portion (31b) of the support frame (3) is configured such that the sliding window panel (5) is preferably driven by a drive mechanism (13) to slide behind the fixed window panel (4) (i.e. across the outer side (40b) of the fixed window panel (4)) as it moves from a closed position to an open position.

The size and shape of the opening aperture varies continuously as the sliding window panel (5) slides behind the fixed window panel (4). The opening aperture is at a maximum size when the sliding window panel (5) is arranged in its fully open position.

The drive mechanism (13) is configured to drive the sliding window panel between a closed (first) position and a fully open (second) position and any position there between as an occupant of the room rotates the handle (21) in a given direction.

The ventilation panel (6) is a type of ventilation element and is provided to allow ventilation into the room when the sliding window panel (5) is open but prevent or restrict the escape of or access to the occupant.
The ventilation panel (6) comprises a perforated region, a mesh or a grill having a plurality of perforations or apertures. The perforations or apertures are configured to allow airflow when the sliding window panel (5) is open but restrict or inhibit the passage of contraband or unsuitable items to and from the occupant. Thus, contraband etc. may not be transferred to and from the occupant via the security window assembly (1), even when the sliding window panel (5) is arranged in an open position.

The ventilation panel (6) is preferably manufactured from a material that is designed to resist damage or breakage upon impact, e.g. steel or aluminium.

In the embodiment shown, the ventilation panel (6) has a panel-like structure with an inner side (60a) and an outer side (60b) and a peripheral edge. As discussed previously, the ventilation panel (6) may be substantially flexible or rigid.

The ventilation panel is mounted in the secondary frame (7) and as such the ventilation panel (6) is pivotally mounted in the support frame (3) via the secondary frame (7).

The ventilation panel (6) within the secondary frame (7) may be a perforated panel. The perforated panel (6) may be a sheet of perforated steel, where the cut out holes have a diameter small enough to prevent the passage of goods but big enough to allow the flow of air from the outer side of the ventilation panel to the inner side of the ventilation panel. For example, a sheet of steel perforated with holes of about 3mm diameter on a 4mm pitch.
The ventilation panel (6) may be folded into a tray like shape, creating a lip on all four sides. The tray like shape ventilation panel (6) may be of size so that it fits within the opening of the secondary frame (7).

Preferably there will be a spacer or retaining means (8) sat within the tray like shape ventilation panel (6) to aid in holding the ventilation panel (6) in place and increasing the attack force that the ventilation panel (6) has the ability to withstand. The additional frame (8) may be in the form of four lengths of box section.

In the embodiment shown, the ventilation panel (6) and spacer (8) are held in place within the secondary frame (7) via standard beading (9) and then fixings (not shown) along one or multiple sides of the secondary frame (7), for example at equal intervals down the horizontal members of the spacer (8), ventilation panel (6) and secondary frame (7), holding all components together as one unit. The fixings could be threaded if required, or alternatively security (anti-tamper) screws could be used.

If the sliding window assembly (1) is going in a location where ligature is of high concern, a trim would be coupled to the support frame (3) around the perimeter of the secondary frame (7) such that once the secondary frame (7) is in the fully closed position it will be tight with the trim, taking a potential ledge out of the view of the room occupant and removing possibilities of creating ligatures from the seal between the secondary frame (7) and the support frame (3).

For additional protection against self harm the touchable edges of the trim are curved thus negating the possibility of harm from sharp edges.
The secondary frame (7) is pivotally coupled to the side wall (36) and central wall (34) of the support frame (3) using a one or more hinges (11). In the embodiment shown, the hinges (11) are slide stay friction hinges positioned on each side of the secondary frame (7).

One arm of the slide stay friction hinge (11) is coupled to a vertical portion of the sidewall of the secondary frame and the adjacent arm of the slide stay friction hinge (11) is on the inner side of the side wall (36) and the central wall (34) of the support frame (3). The friction stays hinges are fitted to adjacent sides of the secondary frame (7). The gap between the vertical portions of the secondary frame (7) and the side wall (36) and central wall (34) of the support frame (3) are dictated by the spacing needed for the side stay friction hinges (11).

The slide stay friction hinges (11) will allow the ventilation panel (6) within the secondary frame (7) to swing out from a first position wherein the secondary frame (7) is in the fully closed position to a second position wherein the secondary frame (7) is in the fully open position, creating an opening through which access to the interior region of the window assembly (1) and/or secondary frame (7) can be reached, for example for cleaning etc of the internal face of the sliding window panel (5).

The slide stay friction hinge (11) may be a readily available one or a customised one. In the embodiment shown, each slide stay friction hinge (11) may comprise 5 link arms: a driving link arm (not shown), a stationary link arm (11b) and 3 driven link arms (11c, 11d & 11e). The first of the slide stay friction hinges (11) may be secured to the inner side of the central wall (34) of the support frame (3) where the opening is via the stationary link arm (11b). The second of the slide stay friction hinges (11) may be secured to the inner side of the second side wall of the support
frame (11) where the opening is via the stationary link arm (11b) of the second slide stay friction hinge (11). The driving link arm of both the slide stay friction hinges (11) may be secured to either side of the vertical sides of the secondary frame (7) on the exterior edge thereof.

The slide stay friction hinge (11) may be secured in place via multiple security fixings.

The slide stay friction hinges (11) are mounted within the window assembly (1) such that they are fully concealed when the secondary frame (7) is in its closed position.

In the closed position, the secondary frame (7) is arranged in sealing relationship with the support frame (3) so as to restrict or prevent access across the opening aperture.

In the open position, the secondary frame (7) is arranged so as to allow access to an inner region of the assembly (1) and/or the sliding window panel (5). It will be understood that, depending on the location of the sliding window panel (5), access may also be allowed across the opening aperture.

The secondary frame (7) is preferably pivotally mounted in the third portion (31c) of the support frame (3). The third portion (31c) of the support frame (3) preferably has a third internal rebate to permit the secondary frame (7) to be securely received in the support frame (3) during assembly. The ventilation panel (6) is mounted in the secondary frame (7) such that when the secondary frame (7) is mounted in the support frame (3), the inner side (60a) of the ventilation panel (6) faces inwardly towards an internal room.
space and the outer side (60b) of the ventilation panel (6) faces in an outwardly direction away from the room space.

When the secondary frame (7) is arranged in the closed position, the ventilation panel (6) is configured to extend substantially parallel with respect to the inner side (50a) of the sliding window panel (5) so as to prevent or restrict access from the inner side of the window assembly (1) to the interior of the support frame (3), the sliding window panel (5) and/or the drive mechanism (13). This advantageously prevents or restricts an occupant from accessing or damaging any internal component parts or component parts mounted on the outer side of the security window assembly (1). For example, when the secondary frame (7) is in the closed position the ventilation panel (6) prevents or restricts access to the rebate of the support frame (3) for the sliding window panel (5) and to the actuating means etc. of the drive mechanism (13). By restricting access, the ventilation panel (6) further prevents or restricts the mounting of a ligature on a projecting/protruding item of the security window assembly (1).

The window assembly (1) further comprises a locking means (not shown) to secure the secondary frame (7) to the support frame (3) to avoid ingress or egress to the interior of the window assembly and/or sliding window panel by unauthorised personnel.

The locking means may be a key operated dead lock fitted within the housing of the operating mechanism. With the ventilation panel (6) in the fully closed position, the dead lock can be 'locked off', with the levering means of the dead lock fitting into an opening in the secondary frame (7) in order to lock it in place. Alternatively the dead lock may be fitted to the
secondary frame (7) with the levering means of the dead lock fitting into the opening in the support frame (3).

While the locking means has been described in the form of dead lock mechanism, it would be understood that the locking means could be any suitable locking mechanism that will aid in the locking off of the secondary frame (7) while in its fully closed position.

To move the secondary frame (7) from the fully closed position to fully open position so access can be gained to the interior of the window assembly (1) from the inner side of the window assembly (1), the dead lock is first opened and the secondary frame (7) along with the ventilation panel (6) is moved from its closed position towards its fully open position by pulling the secondary frame (7) away from the support frame (3) towards its open position.

The slide stay friction hinges (11) will guide the secondary frame (7) down and out from a top pivot point. The movement of the secondary frame (7) will be mirrored by the driving arm of the slide stay friction hinge (11). This will result in the first portion of two of the driven arms (11c, 11e) being rotated around fixed pivot points on the driving arm and the first portion of the third driven arm (11d) being rotated around a fixed pivot point on the first driven arm (11c). The rotation of the driven arms (11c, 11d, 11e) will result in the second portion of the second and the third driven arms (11d, 11e) collectively sliding down the stationary arm (11b) and the second portion of the first driven arm (11c) rotating around a fixed pivot point on the stationary arm (11b). The slide stay friction hinge (11) will hold the secondary frame (7) in the position it is pulled to.
To take the secondary frame (7) from the fully open position (or any open position between the closed position and the fully opened position) to the closed position so the secondary frame (7) can be locked off and the window assembly (1) made a full secure unit, the secondary frame (7) is pushed towards the support frame (3) until it is in its closed position. Again the secondary frame (7) movement will be mirrored by the driving arm of the slide stay friction hinge (11), rotating the first portion of two of the driven arms (11c, 11e) in the opposite direction on fixed pivot points on the driving arm and the first portion of the third driven arm (11e) will be rotated around a fixed pivot point on the first driven arm (11c). This would result in the sliding of the second portion of the second and third driven arms (11d, 11e) on the stationary arm (11b) in the opposite direction and the second portion of the first driven arm (11c) rotating around a fixed pivot point on the stationary arm (11b). Once in the secondary frame (7) is in the closed position, the dead lock can be locked.

The combination of the dead lock and the two slide stay friction hinges (11) will hold the secondary frame (7) tight against the support frame (3).

Referring to figures 4a and 4b, a cross-sectional view of a second embodiment of a sliding window assembly (100) according to the invention is shown. The cross-sectional views are similar to those shown in figures 3a and 3b in relation to the first embodiment.

The second embodiment differs from the first embodiment in that the secondary frame (107) comprises an 'L'-shaped cross-sectional profile.

Referring to figure 5, a partial a sectional view of a secondary frame structure forming part of a third embodiment of a sliding window assembly (200) of the invention is shown.
The third embodiment differs from the first embodiment in that the overlap across the top of the secondary frame (7) onto the support frame (3) is extended so that the ledge created across the top where the two frames meet is reduced. In this arrangement, the creation of a potential ligature point where the two frames meet is reduced.

In the third embodiment, the slide stay friction hinges will be mounted on the two vertical edges of the secondary frame (7) from the top downwards, which will result in the secondary frame (7) moving down while out at the bottom and preventing damage to any surrounding area but still allowing access to the interior face (5a) of the sliding window panel (5).

Referring to figures 6 to 9, a fourth embodiment of a sliding window assembly (300) according to the invention is shown.

As in the previous embodiments, the sliding window assembly (300) comprises support frame (3), a fixed window panel (4), a sliding window panel (5) and a ventilation panel (6) mounted in the secondary frame (7) in an arrangement similar to that previously described in relation to the first embodiment.

The fourth embodiment (300) differs from the first embodiment in that window assembly further comprises reinforcement means (19) positioned within the secondary frame (7) at least along a section of the housing means of the drive mechanism (13).

The reinforcement means (19) will aid in preventing damage to the secondary frame when under attack by providing support at least behind the bottom horizontal member of the secondary frame (7). This will help...
prevent the flange of the secondary frame (7) being bent and the ventilation panel (6) receding into the sliding window assembly (300).

In the embodiment shown, the reinforcement means is in the form of a support angle (19) which extends about an internal surface of the secondary frame (7) along a section of the housing means of the drive mechanism to help secure the secondary frame (7) in place.

As can be seen in figure 7, where the window assembly (300) includes a locking means, the support angle (19) is configured to accommodate the locking means. In the embodiment shown, the locking means is in the form of a dead lock (12) and support angle (19) is comprises a recess for the levering means (12a) of the dead lock (12) to pass through.

The window assembly (300) may also comprise an additional lock (22) to further secure the secondary frame (7) in the closed position. This may be any suitable lock, for example, a budged lock as shown in figure 7.

Referring to figures 10 to 12, a fifth embodiment of a sliding window assembly (400) according to the invention is shown.

As in the previous embodiments, the sliding window assembly (400) comprises support frame (3), a fixed window panel (4), a sliding window panel (5) and a ventilation panel (6) mounted in the secondary frame (7).

The fifth embodiment differs from the first embodiment in that the sliding window panel (5) is located on the interior side of the room and the secondary frame (7) on the exterior side of the room.
In the embodiment shown, the window assembly (400) further comprises locking means (23) to lock the sliding window panel (5) in a closed position as shown in figure 10. The locking means (23) may be any suitable locking means known in the art, for example, may be a dead lock arrangement similar to that previously described in relation to the secondary frame (7).

The locking means (23) may be adapted to secure the sliding window panel (5) in any position between the closed and fully open position once the locking means (23) is activated.

Referring to figures 13 to 15, a sixth embodiment of a sliding window assembly (500) according to the invention is shown.

As in the previous embodiments, the sliding window assembly (500) comprises a support frame (3), a fixed window panel (4), a sliding element (505), a ventilation panel (506), and a secondary frame (507).

In this embodiment, the secondary frame (507) is mounted within the sliding element (505) rather than the support frame (3) as in the previous embodiments.

The secondary frame (507) is pivotally coupled to the sliding element (505) using a one or more hinges (11). In the embodiment shown, the hinges (11) are slide stay friction hinges positioned on each side of the secondary frame (507) in a similar manner to that described in relation to the mounting of the secondary frame to the support frame in the first embodiment.
The secondary frame (507) comprises one or more window planes such that the sliding element defines a sliding window panel. The configuration of the sliding window panel may be any form as previously described in relation to the first embodiment.

The ventilation panel (506) is mounted in the third portion (31 c) of support frame (3) in a flush relationship with the fixed window panel (4).

The locking means (19) is housed within the sliding element and access to the interior region of the window assembly (500) and/or sliding element (505) is via the secondary frame (507) mounted on the sliding element (505).

The window assemblies according to the invention may further comprise a blind arrangement associated with one or each of the glazing units of the window assembly.

The blinds may be manually or electronically operable between an open and closed position.

In embodiments of the window assembly where the blinds are electronically operable and the wiring to activate the blind cannot be taken directly from the glazed unit to the support frame for wiring, make or break connectors are utilized, one fitted to the frame of the sliding element and one fitted to the support frame. When the sliding element is in its fully closed position the connectors connect together completing the circuit, when the sliding element is in the fully open position or anywhere in between the connection between the connectors is broken, therefore breaking the circuit, cutting power to the blinds.
While embodiments of the invention have been described with reference to the fixed window panel (4) and the ventilation panel (6, 506) sitting on the interior side of the room and the sliding window panel (5, 505) sitting on the exterior side of the room, it would be understood that the fixed window panel (4) and the ventilation panel (6, 506) may alternatively sit on the exterior of the room with the sliding window panel (5, 505) sitting on the interior of the room.

The elements making up the sliding window assembly according to the invention may be of a metallic, non metallic or composite material.

All frames within the present invention may be secured in place by either a weld or mechanical joint.

While embodiments of the invention have been described with reference to only one fixed window panel (4), if preferred multiple fixed window panels (4) may make up the sliding window assembly. They can be all, or a combination of glazed or solid panels.

While embodiments of the invention have been described with reference to only one sliding element (5, 505), if preferred multiple sliding elements (5, 505) may make up the sliding window assembly. They can be all, or a combination of glazed or solid panels. Depending on the number of sliding elements (5, 505), the sliding window assembly may comprise of one or more protective ventilation panels (6, 606).

As an alternative to a tray like shape protective ventilation panel (6), all embodiments of the invention mentioned above may have a flat protective ventilation panel (6, 606) which may or may not be attached to the box section frame (8).
It would be understood that all the above embodiments of the sliding window assembly in accordance with the invention may comprise one or more additional locking means adapted to secure the sliding element in a fixed position.

While the invention has been described with particular reference to comprising a horizontal sliding element, it would be understood that the sliding element may be configured to translate laterally within the window assembly in a substantially vertical direction.

The sliding window assembly may also have one or multiple fixed window panels, sliding window panels and/or ventilation panels.

In addition, sliding window assembly in accordance with the invention may form part of a multi-part window assembly having one or more sliding window assemblies or fixed window assemblies in accordance with an embodiment the invention.

The descriptions above are intended to be illustrative and not limiting. It will be appreciated that modifications may be made to the invention as described and claimed below without departing from the scope of the invention.
CLAIMS

1. A sliding window assembly comprising a sliding element, a ventilation panel, a support frame and a secondary frame wherein:
   the sliding element is slidably mounted in the support frame such that it can translate between a first position and a second position, and any position there between;
   the ventilation panel is configured to extend across an opening aperture defined by the support frame and restrict access via the opening aperture, the opening aperture being formed as the sliding element is translated from the first position to the second position so as to allow air flow through the opening aperture; and
   the secondary frame is pivotally mounted within the sliding window assembly to rotate about a substantially horizontal axis such that it can pivot between a closed position and a fully open position and any position there between, whereby in the fully open position the secondary frame is configured to allow access to an interior region of the window assembly and/or the sliding element.

2. A sliding window assembly according to claim 1 wherein:
   the ventilation panel is securely mounted in the support frame, and the secondary frame is pivotally mounted in the sliding element such that it can pivot between a closed position and a fully open position and any position there between, whereby in the fully open position the secondary frame is configured to allow access to an interior region of the window assembly and/or the sliding element.

3. A sliding window assembly according to claim 2 wherein the secondary frame is pivotally coupled to a side wall of the support
frame so as to pivot about an axis that is parallel to an upper wall of the sliding element.

4. A sliding window assembly according to claim 2 or claim 3 wherein the assembly comprises pivoting means to pivotally couple the secondary frame and sliding element and thereby allow for the pivoting of the secondary frame between the closed position and the open position and any position there between.

5 5. A sliding window assembly according to any one of claims 2 to 4 wherein when arranged in the closed position, the secondary frame is adapted to form a sealing engagement with the sliding element so as to restrict or prevent any access via the opening aperture.

6. A sliding window assembly according to any one of claims 2 to 5 wherein the secondary frame is arranged in sealing engagement with the sliding element so as to prevent, minimise or restrict the attachment of a ligature.

7. A sliding window assembly according to claim 1, wherein:
   the ventilation panel is mounted within the secondary frame;
   whereby
   when the secondary frame is in the closed position, the ventilation panel is configured to extend across the opening aperture that is formed as the sliding element translates to an open position so as to allow air flow but restrict access via the opening aperture, and
   when the secondary frame is in the fully open position, the ventilation panel is configured to allow access to an interior region of the window assembly and/or the sliding element.

30
8. A sliding window assembly according to claim 7 wherein the secondary frame is mounted within the support frame.

9. A sliding window assembly comprising according to claim 1 wherein:
   the sliding element is mounted to translate laterally within the support frame, relative to the secondary frame, between the first position and second position;
   the secondary frame is mounted within the support frame in stepped relationship to the sliding element and to pivot with respect to the support frame between the closed position and the fully open position, and any position there between.

10. A sliding window assembly according to claim 8 or claim 9 wherein the secondary frame is pivotally coupled to a side wall of the support frame so as to pivot about an axis that is parallel to an upper wall of the support frame.

11. A sliding window assembly according to any one of claims 8 to 10 wherein the assembly comprises pivoting means to pivotally couple the secondary frame and support frame and thereby allow for the pivoting of the secondary frame between the closed position and the open position and any position there between.

12. A sliding window assembly according to claim 4, 10 or claim 11 wherein the pivoting means comprises one or more hinges such as a slide stay friction hinge, a Butt hinge or a Continuous hinge.

13. A sliding window assembly according to any one of claims 4, 10, 11 or 12 wherein the pivoting means is a manually operable pivoting means or electronically controlled pivoting means.
14. A sliding window assembly according to any one of claims 4, 10, 11, 12 or 13 wherein the pivoting means are configured and/or located so as to restrict, limit or prevent the attachment of a ligature.

15. A sliding window assembly according to any one of claims 7 to 14 wherein when arranged in the closed position, the secondary frame is adapted to form a sealing engagement with the support frame so as to restrict or prevent any access via the opening aperture.

16. A sliding window assembly according to any one of claims 7 to 15 wherein the secondary frame is arranged in sealing engagement with the support frame so as to prevent, minimise or restrict the attachment of a ligature.

17. A sliding window assembly according to any one of the preceding claims wherein the sliding element is configured such that it can be driven to translate laterally within the support frame in any predetermined direction.

18. A sliding window assembly according to claim 17 wherein the sliding element is configured to translate laterally in a substantially horizontal direction between a closed position and a fully open position.

19. A sliding window assembly according to claim 17 wherein the sliding element is configured to translate laterally in a substantially vertical direction between a closed position and a fully open position.

20. A sliding window assembly according to any one of the preceding claims wherein the sliding element is a sliding window panel.
21. A sliding window assembly according to claim 20 wherein the sliding window panel comprises a glazing unit.

22. A sliding window assembly according to claim 21 wherein the glazing unit comprises a single pane or multiple panes of glass.

23. A sliding window assembly according to claim 21 or 22 wherein the glazing unit comprises at least one pane of security glass.

24. A sliding window assembly according to any one of claims 20 to 23 wherein the sliding window panel is a sliding window element or a sliding door panel comprising a window.

25. A sliding window assembly according to any one of the preceding claims wherein the support frame is configured to receive and support at least a part of a peripheral edge of the sliding element.

26. A sliding window assembly according to any one of the preceding claims wherein the sliding element is slidably mounted within a rebate or channel of the support frame.

27. A sliding window assembly according to any one of the preceding claims wherein the support frame is manufactured from a material that is designed to resist damage or breakage upon impact.

28. A sliding window assembly according to claim 27 wherein the support frame is manufactured from steel or aluminium.
29. A sliding window assembly according to any one of the preceding claims wherein the sliding element is slidably mounted on a sliding track or guide rail.

30. A sliding window assembly according to claim 29 wherein the sliding element is mounted on a sliding track or guide rail via at least one rollable member.

31. A sliding window assembly according to claim 29 or 30 when dependent on claim 18 or any claim directly or indirectly dependent upon claim 18, wherein sliding track or guide rail is arranged to extend along at least a part of a lower wall and/or upper wall of the support frame.

32. A sliding window assembly according to claim 31 wherein the sliding track or guide rail is arranged within a rebate of the lower wall and/or rebate of the upper wall.

33. A sliding window assembly according to claim 29 or 30 when dependent on claim 19 or any claim directly or indirectly dependent upon claim 19, wherein the sliding track or guide rail is arranged to extend along at least a part of one or both of the sidewalls of the support frame.

34. A sliding window assembly according to claim 33 wherein the sliding track is arranged in a rebate of one or both of the sidewalls.

35. A sliding window assembly according to any one of the preceding claims wherein the ventilation panel is a panel-like structure comprising a ventilating region.
36. A sliding window assembly according to any one of the preceding claims wherein the ventilation panel is mounted in the window assembly such that when the secondary frame is in the closed position it is configured to extend across at least the opening aperture formed when the sliding element moves to an open position.

37. A sliding window assembly according to any one of the preceding claims wherein the ventilation panel is configured to extend across at least the maximum opening aperture formed when the sliding element is in a fully open position.

38. A sliding window assembly according to any one of the preceding claims wherein the ventilation panel is configured to restrict or prevent access to the inner region of the assembly and/or the sliding element.

39. A sliding window assembly according to any one of the preceding claims wherein the assembly comprises restricting means so as to restrict the pivoting movement of the secondary frame.

40. A sliding window assembly according to claim 39 wherein the restricting means are configured to abut the secondary frame when the secondary frame is arranged substantially flush and/or in sealing engagement with the support frame or sliding element.

41. A sliding window assembly according to any one of the preceding claims comprising a locking means to lock the secondary frame in the closed position.
42. A sliding window assembly according to claim 41 wherein the lock means comprises a key operated lock.

43. A sliding window assembly according to claim 41 or 42 wherein the lock is a tamper-proof lock.

44. A sliding window assembly according to any one of the preceding claims comprising a driving mechanism to actuate the sliding element between the closed position and the fully open position.

45. A sliding window assembly according to claim 44 wherein the driving mechanism is a manually operable or electronically controlled drive mechanism.

46. A sliding window assembly according to claim 45 wherein the manually operable drive mechanism includes a manually operable handle coupled to the sliding element via actuating means whereby the handle must be rotated/moved in one direction to activate the actuating means and thereby move the sliding element towards a first position and rotated/moved in the opposite direction to activate the actuating means and thereby move the sliding element towards a second position.

47. A sliding window assembly according to claim 46 wherein the actuating means comprises gear means to drive and essentially control the motion of the sliding element.

48. A sliding window assembly according to any one of claims 45 to 47 wherein the drive mechanism comprises a rack and pinion system.
49. A sliding window assembly according to any one of claims 46 to 48 wherein the handle comprises a tamper-proof configuration so as to prevent, minimise or restrict the failure of the handle caused by deliberate or accidental damage.

50. A sliding window assembly according to any one of claims 46 to 49 wherein the handle comprises an anti-ligature configuration so as to prevent, minimise or restrict the attachment of a ligature.

51. A sliding window assembly according to any one of claims 44 to 50 further comprising a housing means configured to restrict access to the drive mechanism.

52. A sliding window assembly according to any one of claims 46 to 52 wherein the drive mechanism is configured as part of the assembly such that the handle of the drive mechanism is arranged externally to the support frame and sliding element on a predetermined side of the assembly.

53. A sliding window assembly according to claim 52 wherein the handle is configured such that it is only visible and thereby accessible on the predetermined side of the assembly.

54. A sliding window assembly according to any one of the preceding claim further comprising a secondary panel mounted in the support frame.

55. A sliding window assembly according to claim 54 wherein the secondary panel comprises an inner side and an outer side.
56. A sliding window assembly according to any one of claims 54 to 55 wherein the secondary panel is mounted in the support frame such that it is in a parallel plane to the sliding element and substantially adjacent the ventilation panel in the same plane.

57. A sliding window assembly according to any one of claims 54 to 56 wherein the secondary panel is securely mounted in the support frame.

58. A sliding window assembly according to any one of claims 54 to 56 wherein the secondary panel is pivotally mounted in the support frame such that it is able to pivot between a closed position and a fully open position, and any position there between.

59. A sliding window assembly according to claim 58 wherein the secondary panel is pivotally mounted in the support frame such that it pivots about a substantially horizontal axis.

60. A sliding window assembly according to claim 59 wherein the secondary panel is pivotally coupled to a side wall of the support frame so that it may pivot about an axis that is substantially parallel to the upper wall of the support frame.

61. A sliding window assembly according to claim 60 wherein the secondary panel comprises a window panel.

62. A method of obtaining access to a restricted area within a sliding window assembly, the sliding window assembly comprising a sliding element slidably mounted in a support frame such that it can translate
between a first position and a second position, and any position there between;

a ventilation panel configured to extend across an opening aperture defined by the support frame and restrict access via the opening aperture, the opening aperture being formed as the sliding element is translated from the first position to the second position so as to allow air flow through the opening aperture; and a secondary frame pivotally mounted within the sliding window assembly to rotate about a substantially horizontal axis such that it can rotate between a closed position and a fully open position and any position there between.

comprising the step of moving the secondary frame from said closed position towards said fully open position to allow access to an interior region of the window assembly and/or sliding element.