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FENESTRATION UNIT WITH TWO-PART FRAME

Abstract

A fenestration unit includes a sash configured to receive a glazing unit, and a frame. The frame includes a plurality of walls configured to support the sash. A first wall of the plurality of walls includes a cover coupling portion having a first cantilevered coupling wall spaced apart from a second cantilevered coupling wall. The frame includes an access cover defining at least one tab configured to releasably engage with at least one of the first cantilevered coupling wall and the second cantilevered coupling wall.

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Background/Summary

CROSS-REFERENCE TO RELATED APPLICATION [0001] The following is a divisional application of U.S. patent application Ser. No. 17/811,768, filed Jul. 11, 2022, the entire disclosure of which is incorporated by reference.

TECHNICAL FIELD
[0002] The present disclosure generally relates to fenestration units, and more particularly relates to a fenestration unit, such as a casement window, having a two-part frame.
BACKGROUND
[0003] A fenestration unit, such as a window, may include a frame that supports one or more other components of the unit. For example, the fenestration unit may include a frame that includes a sash that supports a glazing unit. In certain instances, the fenestration unit may include one or more mechanical components, which are coupled to the frame to enable relative movement between components of the fenestration unit (for example, a movement of the sash and the glazing unit relative to the frame). During the life of the fenestration unit, it is desirable to access the mechanical components to service the mechanical components, for example. Generally, in order to access to the mechanical components, the sash and the glazing unit may be removed from the frame. The removal of the sash and the glazing unit, however, is time consuming, and in certain instances, may require the use of scaffolding, ladders, etc. to access an exterior side of the fenestration unit.
[0004] Accordingly, it is desirable to provide a fenestration unit with a two-part frame, which provides access to the mechanical components associated with the fenestration unit without requiring removal of the sash or glazing unit. Further, it is desirable to provide a fenestration unit with a two-part frame that provides access to the mechanical components associated with the fenestration unit from an interior side of the fenestration unit. Furthermore, other desirable features and characteristics of the present invention will become apparent from the subsequent detailed description and the appended claims, taken in conjunction with the accompanying drawings and the foregoing technical field and background.
SUMMARY
[0005] According to various embodiments, provided is a fenestration unit. The fenestration unit includes a sash configured to receive a glazing unit, and a frame. The frame includes a plurality of walls configured to support the sash. A first wall of the plurality of walls includes a cover coupling portion having a first cantilevered coupling wall spaced apart from a second cantilevered coupling wall. The frame includes an access cover defining at least one tab configured to releasably engage with at least one of the first cantilevered coupling wall and the second cantilevered coupling wall.
[0006] The at least one tab of the access cover comprises a first tab opposite a second tab, the first tab configured to releasably engage with the first cantilevered coupling wall and the second tab configured to releasably engage with the second cantilevered coupling wall. The first cantilevered coupling wall includes a keyed rail at an end, which is configured to engaged with a notch defined on the access cover proximate the first tab. The second cantilevered coupling wall includes a rail at an end, which is configured to engaged with a groove defined on the access cover proximate the second tab. The first cantilevered coupling wall includes a projection, and the at least one tab of the

access cover is configured to be retained by the projection. The access cover defines at least one channel configured to receive a screen assembly associated with the fenestration unit. The sash defines a channel configured to receive the glazing unit, with a first stop coupled to a first side of the channel and a second stop coupled to a second side of the channel, and the second stop is removable. The access cover further comprises a seal positioned between the second stop and the access cover. The second stop is coupled to the sash to be proximate the access cover. The fenestration unit is a casement window. The cover coupling portion extends along a first axis and the at least one tab extends along a second axis, which is oblique to the first axis. The access cover cooperates with the first wall to define a chamber configured to receive a mechanical system associated with the fenestration unit.

[0007] Further provided is a fenestration unit. The fenestration unit includes a sash configured to receive a glazing unit, and a frame. The frame includes a plurality of walls configured to support the sash. A first wall of the plurality of walls includes a cover coupling portion that extends along a first axis. The cover coupling portion has a first cantilevered coupling wall spaced apart from a second cantilevered coupling wall. The frame includes an access cover defining at least one tab configured to releasably engage with at least one of the first cantilevered coupling wall and the second cantilevered coupling wall, and the at least one tab extends along a second axis that is oblique to the first axis.

[0008] The at least one tab of the access cover comprises a first tab opposite a second tab, the first tab extends along the second axis, the first tab configured to releasably engage with the first cantilevered coupling wall and the second tab configured to releasably engage with the second cantilevered coupling wall. The first cantilevered coupling wall includes a keyed rail at an end, which is configured to engaged with a notch defined on the access cover proximate the first tab. The second cantilevered coupling wall includes a rail at an end, which is configured to engaged with a groove defined on the access cover proximate the second tab. The second tab extends along a third axis, the third axis different than the second axis, and the third axis is oblique to the first axis. The access cover defines at least one channel configured to receive a screen assembly associated with the fenestration unit. The sash defines a channel configured to receive the glazing unit, with a first stop coupled to a first side of the channel and a second stop coupled to a second side of the channel to be proximate the access cover, the second stop removable from the sash, and the access cover further comprises a seal positioned between the second stop and the access cover. The access cover cooperates with the first wall to define a chamber configured to receive a mechanical system associated with the fenestration unit.

Description

DESCRIPTION OF THE DRAWINGS

[0009] The exemplary embodiments will hereinafter be described in conjunction with the following drawing figures, wherein like numerals denote like elements, and wherein:

[0010] FIG. **1** is a schematic perspective illustration of a fenestration unit, such as a casement window, which includes an exemplary two-part frame in accordance with the various teachings of the present disclosure;

[0011] FIG. **2** is a perspective back or interior view of the fenestration unit or casement window of FIG. **1**, which includes the exemplary two-part frame in accordance with various embodiments;

[0012] FIG. **3** is a front partially exploded view of the fenestration unit;

[0013] FIG. **4**A is a cross-sectional view of the fenestration unit, taken along line **4**-**4** of FIG. **2**, which illustrates an access cover or operator access cover coupled to a sill wall that jointly form the two-part frame;

[0014] FIG. **4**B is a detail cross-sectional view taken at **4**B of FIG. **4**A;

[0015] FIG. **5** is an exploded view of a portion of the two-part frame, which illustrates the operator access cover removed from the sill wall;
[0016] FIG. **6**A is a cross-sectional view of the fenestration unit, taken along line **4-4** of FIG. **2**, which illustrates the operator access cover coupled to the sill wall, and in which a mechanical system, a glazing unit and a sash associated with the fenestration unit are removed for clarity;
[0017] FIG. **6**B is a cross-sectional view of the fenestration unit, taken from the perspective of line **4-4** of FIG. **2**, which illustrates the operator access cover uncoupled from the sill wall, and in which the mechanical system, the glazing unit and the sash associated with the fenestration unit are removed for clarity;
[0018] FIG. **7** is a cross-sectional view of another exemplary operator access cover and sill wall for the two-part frame of the fenestration unit, taken from the perspective of line **4-4** in FIG. **2**; and
[0019] FIG. **8** is a cross-sectional view of another exemplary operator access cover and sill wall for a two-part frame of a fenestration unit, taken from the perspective of line **4-4** in FIG. **2**.

DETAILED DESCRIPTION

[0020] The following detailed description is merely exemplary in nature and is not intended to limit the application and uses. Furthermore, there is no intention to be bound by any expressed or implied theory presented in the preceding technical field, background, brief summary or the following detailed description. In addition, those skilled in the art will appreciate that embodiments of the present disclosure may be practiced in conjunction with any type of fenestration unit that would benefit from a two-part frame and the use of the two-part frame in a casement window described herein is merely one exemplary embodiment according to the present disclosure. In addition, while the two-part frame is described herein as being formed as an extrusion, the various teachings of the present disclosure can be used with frames formed through other manufacturing techniques. Further, it should be noted that many alternative or additional functional relationships or physical connections may be present in an embodiment of the present disclosure. In addition, while the figures shown herein depict an example with certain arrangements of elements, additional intervening elements, devices, features, or components may be present in an actual embodiment. It should also be understood that the drawings are merely illustrative and may not be drawn to scale.
[0021] As used herein, the term “axial” refers to a direction that is generally parallel to or coincident with an axis of rotation, axis of symmetry, or centerline of a component or components. For example, in a cylinder or disc with a centerline and generally circular ends or opposing faces, the “axial” direction may refer to the direction that generally extends in parallel to the centerline between the opposite ends or faces. In certain instances, the term “axial” may be utilized with respect to components that are not cylindrical (or otherwise radially symmetric). For example, the “axial” direction for a rectangular housing containing a rotating shaft may be viewed as a direction that is generally parallel to or coincident with the rotational axis of the shaft. Furthermore, the term “radially” as used herein may refer to a direction or a relationship of components with respect to a line extending outward from a shared centerline, axis, or similar reference, for example in a plane of a cylinder or disc that is perpendicular to the centerline or axis. In certain instances, components may be viewed as “radially” aligned even though one or both of the components may not be cylindrical (or otherwise radially symmetric). Furthermore, the terms “axial” and “radial” (and any derivatives) may encompass directional relationships that are other than precisely aligned with (e.g., oblique to) the true axial and radial dimensions, provided the relationship is predominantly in the respective nominal axial or radial direction. Also, as used herein, the term “about” denotes within 10% to account for manufacturing tolerances.
[0022] With reference to FIG. **1**, a fenestration system or fenestration unit **10** including a two-part frame or frame **12** is shown. In this example, the fenestration unit **10** is a window, such as a casement window. It should be noted, however, that the teachings discussed herein may be applicable to other types of fenestration units, including, but not limited to hung windows, awnings, horizontal sliding windows, horizontal sliding doors, etc. As will be discussed, a glazing

unit **14** of the fenestration unit **10** is supported by a sash **16**, and the sash **16** is movable or pivotable relative to the frame **12** to enable the ingress and/or egress of fluids, such as air, through the fenestration unit **10**. Generally, the sash **16** is movable or pivotable relative to the frame **12** from a closed position (FIG. **2**) to various opened positions in which the glazing unit **14** is spaced apart from the frame **12**. The sash **16** is shown in the opened position in FIG. **1**. In this example, the fenestration unit **10** also includes a screen **18**, which assists in inhibiting insects, etc. from entering into the fenestration unit **10** when in the opened position. The fenestration unit **10** has a first, exterior side **20** and an opposite second, interior side **22**. When the fenestration unit **10** is coupled to a structure, such as a building **24**, the exterior side **20** is disposed on an exterior **24***a* of the building **24**, while the interior side **22** is disposed in an interior **24***b* of the building **24** (see also FIG. **2**). As will be discussed, with reference to FIG. **2**, the frame **12** enables an operator to access a portion of a mechanical system **26** associated with the frame **12** from the interior **24***b* of the building **24**, which provides for ease of access.

[0023] With reference to FIG. **3**, an exploded view of the fenestration unit **10** is shown. In this example, the fenestration unit **10** includes the sash **16**, the glazing unit **14**, a first seal **30**, the frame **12**, a screen frame **32** and the screen **18**. The screen frame **32** and the screen **18** cooperate to form a screen assembly. The glazing unit **14** comprises any suitable glazing unit for a casement window, including, but not limited to a single pane of glass, an insulated double-pane glazing unit, tri-pane glazing unit, or any suitable multi-pane glazing unit. The fenestration unit **10** generally extends along a longitudinal axis L (FIG. **2**). The sash **16** is on the exterior side **20** of the fenestration unit **10**. In one example, the sash **16** is rectangular and includes a first sash wall **34** opposite a second sash wall **36**, and a third sash wall **38** opposite a fourth sash wall **40**. Each of the first sash wall **34**, the second sash wall **36**, the third sash wall **38** and the fourth sash wall **40** are composed of a polymer-based material, including, but not limited to polyvinyl chloride. In this example, each of the first sash wall **34**, the second sash wall **36**, the third sash wall **38** and the fourth sash wall **40** are extruded, and are coupled together, via suitable mechanical fasteners, such as screws, bolts, etc. and/or adhesives to form the rectangular sash **16**.

[0024] With reference to FIGS. **4**A and **4**B, a cross-section taken through the second sash wall **36** of the fenestration unit **10** is shown. Each of the first sash wall **34**, the second sash wall **36**, the third sash wall **38** and the fourth sash wall **40** includes an integrally formed first stop **42**. The first stop **42** extends outwardly from the respective one of the first sash wall **34**, the second sash wall **36**, the third sash wall **38** and the fourth sash wall **40**, and cooperates with a second stop **44** to define a glazing unit channel **46**. The first stop **42** is integrally formed with a first side of the glazing unit channel **46**, and the second stop **44** is coupled to a second side of the glazing unit channel **46**. The glazing unit channel **46** is configured to receive the glazing unit **14** and to retain the glazing unit **14** within the sash **16**. In one example, a first glazing unit sealing member **48** is coupled to the first stop **42**, and assists in inhibiting fluids, such as water, etc., from entering into the glazing unit channel **46**.

[0025] Generally, each of the first sash wall **34**, the second sash wall **36**, the third sash wall **38** and the fourth sash wall **40** includes a respective one of the second stop **44**. In one example, the second stop **44** is composed of a polymeric material, including, but not limited to polyvinyl chloride, and is extruded. A respective second stop **44** is removably coupled to each of the first sash wall **34**, the second sash wall **36**, the third sash wall **38** and the fourth sash wall **40** to enable the glazing unit **14** to be removed for repair, for example, without removing the entirety of the fenestration unit **10**. Each second stop **44** includes a body portion **50** and an interlocking stop tab **52**. The body portion **50** is generally elongate and hollow, and is integrally formed with the interlocking stop tab **52**. The interlocking stop tab **52** is cantilevered or extends outwardly from the body portion **50**, and is received within a sash tab groove **54** of the sash **16**. The interlocking stop tab **52** includes a first contact surface **56**, a ramp surface **58** and a second contact surface or projection **60**. The first contact surface **56** is defined on the interlocking stop tab **52** proximate the body portion **50**, and is

coupled to or in contact with a lip **62** of the sash tab groove **54**. The ramp surface **58** extends from the first contact surface **56** to the projection **60**. The ramp surface **58** extends along an axis oblique to the longitudinal axis L, and biases the interlocking stop tab **52** within the sash tab groove **54**. The projection **60** engages with a corresponding slot **64** of the sash tab groove **54** to couple the second stop **44** to the sash **16**. Generally, in order to remove the second stop **44** to access the glazing unit **14**, the body portion **50** of the second stop **44** is moved counterclockwise toward the glazing unit **14** to release the ramp surface **58** and thereby disengage the projection **60** with the slot **64**, and the first contact surface **56** with the lip **62**.

[0026] In one example, a second glazing unit sealing member **66** is coupled to the body portion **50** of the second stop **44** and is positioned between the second stop **44** and the glazing unit **14** when the second stop **44** is coupled to the sash **16**. The second glazing unit sealing member **66** assists in inhibiting fluids, such as water, etc., from entering into the glazing unit channel **46**. The first glazing unit sealing member **48** and the second glazing unit sealing member **66** may be composed of a polymeric material, such an elastomeric material, rubber, etc., and may be formed by extruding, molding, etc.

[0027] The sash **16** is movable or pivotable relative to the frame **12** to move the glazing unit **14** relative to the frame **12**. The sash **16** may include any suitable components to enable the pivotal movement of the sash **16** relative to the frame **12**, including, but not limited to linkage arms, pivot pins, etc. For example, the second sash wall **36** may include a linkage assembly **68**, which is coupled to the second sash wall **36** so as to be opposite the glazing unit channel **46**. Generally, the linkage assembly **68** includes a first link **70** coupled to the second sash wall **36**, and a second link **72** coupled to the frame **12**. A link pin **74** couples the first link **70** to the second link **72**. The linkage assembly **68** serves to guide the motion of the sash **16** as it moves relative to the frame **12**. The first sash wall **34** may include a pivot pin or the like to further support the sash **16** for pivotable movement relative to the frame **12**. The sash **16** may also include one or more locking tabs to secure the sash **16** to the frame **12** when the sash **16** is in the closed position. The mechanical system **26** cooperates with the sash **16** to move the sash **16** between the closed position (FIG. **3**) and the various open positions (FIG. **1**). In addition, each of the first sash wall **34** (FIG. **3**), the second sash wall **36**, the third sash wall **38** (FIG. **3**) and the fourth sash wall **40** (FIG. **3**) include a seal slot **76** defined on the respective one of the first sash wall **34**, the second sash wall **36**, the third sash wall **38** and the fourth sash wall **40** between the respective one of the first sash wall **34**, the second sash wall **36**, the third sash wall **38** and the fourth sash wall **40** and the frame **12**. As shown in FIGS. **4**A and **4**B, the seal slot **76** defines a substantially T-shaped opening, which receives a portion of the first seal **30**.

[0028] The first seal **30** is disposed about the sash **16** to inhibit fluids, debris, etc. from entering between the sash **16** and the frame **12** and may comprise a brush seal. In one example, with reference back to FIG. **3**, the first seal **30** is composed of a plurality of first seal portions **80***a*-**80***d*, which may be coupled together, via adhesives, thermal welding, etc., to form a substantially rectangular shape. Each of the first seal portions **80***a*-**80***d* are received within the seal slot **76** of a respective one of the first sash wall **34**, the second sash wall **36**, the third sash wall **38** and the fourth sash wall **40**. With reference to FIGS. **4**A and **4**B, each of the first seal portions **80***a*-**80***d* is substantially wedge-shaped, and include a first seal end **82** opposite a second seal end **84**. The first seal end **82** is substantially T-shaped, and is sized to be received within the respective seal slot **76**. Generally, the first seal end **82** is slidably received within the respective seal slot **76**. The second seal end **84** has a width that is different and greater than a width of the first seal end **82**.

[0029] The frame **12** is coupled to the building **24** (FIG. **1**), and supports the sash **16** and the glazing unit **14**. The frame **12** includes a first frame member or sill **90** and a second frame member, access cover or operator access cover **92**. Thus, the frame **12** is generally a two-part frame. The frame **12** also includes the mechanical system **26**, which controls the movement of the sash **16** relative to the frame **12**. In one example, with reference back to FIG. **3**, the sill **90** is rectangular

and includes a first sill wall **94** opposite a second sill wall **96**, and a third sill wall **98** opposite a fourth sill wall **100**. Each of the first sill wall **94**, the second sill wall **96**, the third sill wall **98** and the fourth sill wall **100** are composed of a polymer-based material, including, but not limited to polyvinyl chloride. In this example, each of the first sill wall **94**, the second sill wall **96**, the third sill wall **98** and the fourth sill wall **100** are extruded, and are coupled together, via suitable mechanical fasteners, such as screws, bolts, etc. and/or adhesives to form the rectangular sill **90** or first frame member. The first sill wall **94**, the third sill wall **98** and the fourth sill wall **100** are each substantially the same, and cooperate to support the sash **16** and glazing unit **14**. The second sill wall **96** cooperates with the operator access cover **92** to enable access to the mechanical system **26** and/or glazing unit **14**.

[0030] With reference to FIGS. **4**A and **4**B, the second sill wall **96** includes a first sill wall end **102** opposite a second sill wall end **104**. The first sill wall end **102** is disposed at the exterior side **20** of the building **24**, and the second sill wall **96** is disposed at the interior side **22** of the building **24**. The second sill wall **96** includes a first, inside surface **106** and an opposite second, outside surface **108**. The second surface **108** is coupled to the building **24** (FIG. **2**), and includes a flange **110** and a coupling channel **112**. The flange **110** extends outwardly from the second surface **108**, and contacts the exterior side **20** of the building **24** (FIG. **2**) when the fenestration unit **10** is coupled to the building **24**. The coupling channel **112** defines a pair of recesses **114** that are separated by a projection **116**. Each of the pair of recesses **114** may receive a sealant, adhesive, etc. to couple the frame **12** to the building **24**. In one example, each of the first sill wall **94**, the second sill wall **96**, the third sill wall **98** and the fourth sill wall **100** include the coupling channel **112** to assist in coupling the frame **12** to the building **24** (FIG. **2**). The projection **116** is defined between the pair of recesses **114** and is substantially flush with the second surface **108**.

[0031] The first surface **106** is spaced apart from and proximate the sash **16**. The first surface **106** defines a seal stop **120**, a linkage assembly interface **122**, a mechanical system interface **124** and a cover coupling portion **126**. A second seal **128** is also coupled to the first surface **106**. Generally, the second seal **128** is coupled to the first surface **106** proximate the linkage assembly interface **122** to seal against a portion of the sash **16** when the sash **16** is in the closed position. In one example, the second seal **128** is coupled to a ramp surface **127** defined between the linkage assembly interface **122** and the mechanical system interface **124**. A wall **129** extends upwardly from the first surface **106** and provides a contact surface for the second seal **128** on the frame **12**. The second seal **128** may be composed of a polymeric material, including, but not limited to an elastomer. The second seal **128** may comprise a bulb seal, which is coupled to a slot **128***a* defined in the first surface **106**. The second seal **128** assists in inhibiting the ingress of fluids, such as water, into the frame **12**.

[0032] The seal stop **120** is defined proximate the first sill wall end **102**. In one example, the seal stop **120** is a ledge, which extends along the second sill wall **96** from the third sill wall **98** to the fourth sill wall **100**. The seal stop **120** is configured to contact the first seal **30** and to cooperate with the first seal **30** to form a seal between the sash **16** and the frame **12**. The linkage assembly interface **122** is defined on the first surface **106** between the seal stop **120** and the mechanical system interface **124**. The linkage assembly interface **122** includes a second ledge **130** and at least one or a plurality of bores **132**. The second ledge **130** is defined to extend axially along the second sill wall **96** and abuts the linkage assembly **68** when the linkage assembly **68** is coupled to the frame **12**. The second ledge **130** also provides error proofing as the second ledge **130** provides a stop for the positioning linkage assembly **68** on the frame **12**. The bores **132** are defined through the first surface **106**. The bores **132** communicate with the hollow interior of the second sill wall **96** to enable at least one or a plurality of mechanical fasteners **134**, such as screws, to be received into the second sill wall **96** to couple the linkage assembly **68** to the frame **12**.

[0033] The mechanical system interface **124** is defined between the wall **129** and the cover coupling portion **126**. The mechanical system interface **124** is substantially planar. In one example,

the mechanical system interface **124** includes at least one or a plurality of bores **136**. The bores **136** are defined through the first surface **106** and are in communication with the hollow interior of the second sill wall **96** to enable at least one or a plurality of mechanical fasteners **138**, such as bolts, to be received into the second sill wall **96** to couple the mechanical system **26** to the frame **12**. Generally, the mechanical system interface **124** is enclosed by the operator access cover **92**, and a mechanical chamber **140** is defined between the mechanical system interface **124** and the operator access cover **92** to enable a portion or a majority of the mechanical system **26** to be positioned within and enclosed by the frame **12**.

[0034] The cover coupling portion **126** extends upward from the first surface **106** along a first axis A substantially parallel to the longitudinal axis L. With reference to FIG. **5**, the cover coupling portion **126** extends over a length of the second sill wall **96** from the third sill wall **98** to the fourth sill wall **100**. The cover coupling portion **126** includes a first coupling end **144** integrally formed with the first surface **106** and an opposite second coupling end **146** to be coupled to the operator access cover **92**. In this example, the cover coupling portion **126** is defined by a first coupling wall **148** and a second coupling wall **150** that is spaced apart from the first coupling wall **148**. The second coupling wall **150** is coupled to the first coupling wall **148** via a strut **152**. The first coupling wall **148** is interior of the second coupling wall **150** and extends upwardly from the first surface **106** proximate the mechanical system interface **124**. The first coupling wall **148** is cantilevered from the strut **152**, and is flexible to enable the operator access cover **92** to removably engage with the second sill wall **96**. In one example, the first coupling wall **148** includes a slot **154** proximate the second coupling end **146**, which is sized and shaped to receive a first tab **156** of the operator access cover **92**. The first coupling wall **148** also includes a keyed rail **158** at the second coupling end **146**. In one example, the keyed rail **158** includes a first ramp surface **160** and a second ramp surface **162**. The first ramp surface **160** extends along an axis A**1**, and the second surface extends along an axis A**2**, which is different than the axis A**1**. In one example, the axis A**1** is substantially transverse to the first axis A, and the axis A**2** is substantially perpendicular to the first axis A. The keyed rail **158** is sized and shaped to be received in a corresponding notch **164** of the operator access cover **92**.

[0035] The second coupling wall **150** is cantilevered from the strut **152**, and is also flexible to enable the operator access cover **92** to removably engage with the second sill wall **96**. The second coupling wall **150** includes a groove **166**. The groove **166** is sized and shaped to receive a second tab **168** of the operator access cover **92**. The second coupling wall **150** also includes a rail **170** at the second coupling end **146**. In one example, the rail **170** is a projection, which extends inward, toward the first coupling wall **148**. In one example, the rail **170** includes a planar surface **170***a* (FIGS. **6**A and **6**B) that cooperates with the second tab **168**. The rail **170** is sized and shaped to engage with a groove **172** of the operator access cover **92**. The groove **172** is generally C-shaped.

[0036] The operator access cover **92** is coupled to the second sill wall **96** via the cover coupling portion **126**. The operator access cover **92** is composed of a polymeric material, including, but not limited to polyvinyl chloride, and is extruded. The operator access cover **92** is suspended over the mechanical chamber **140** by the cover coupling portion **126**. The operator access cover **92** and the second sill wall **96** are coupled together so as to withstand at least 10 pound force per inch applied in the direction of the first axis A and force applied in a direction perpendicular to the first axis A. This ensures that the operator access cover **92** remains coupled to the second sill wall **96** in the event of a user resting on the operator access cover **92** to look through the glazing unit **14**, for example. The operator access cover **92** includes a first cover end **180** and an opposite second cover end **182**. The operator access cover **92** also includes a first cover surface **184** opposite a second cover surface **186**. The first cover end **180** is disposed proximate the second stop **44**. The first cover end **180** includes a third seal **188**. The third seal **188** may be composed of a polymeric material, including, but not limited to an elastomer. The third seal **188** may comprise a bulb seal, which is coupled to a slot **188***a* defined in the first cover end **180**. The third seal **188** assists in inhibiting the

ingress of fluids, such as water, into the mechanical chamber **140**. The second cover end **182** is aligned with the second sill wall end **104**. The second cover end **182** includes a screen receiving channel **190** defined in the first cover surface **184**. The screen receiving channel **190** is substantially rectangular, and is sized to receive the screen frame **32**. The screen receiving channel **190** also includes a screen lip **192**, which projects into the screen receiving channel **190** to assist in retaining the screen frame **32** within the screen receiving channel **190** and to provide a smooth surface for ease of cleaning.

[0037] The second cover end **182** also includes a frame coupling portion **194** defined on the second cover surface **186**. The frame coupling portion **194** extends outwardly from the second cover surface **186** at the second cover end **182**. The frame coupling portion **194** includes the first tab **156** and the notch **164** on a first, interior cover side **196**. The first tab **156** extends along a third axis A**3**, which is oblique to the first axis A. In one example, the third axis A**3** extends at an angle of about 40 degrees to about 45 degrees that is measured between the third axis A**3** and the second axis A**2**. The notch **164** is defined proximate the first tab **156**. The frame coupling portion **194** also includes the second tab **168** and the groove **172** defined on a second, exterior cover side **198**, which is opposite the first cover side **196**. The second tab **168** extends along a fourth axis A**4**, which is different than the third axis A**3**. The fourth axis A**4** is oblique to the third axis A**3** and the first axis A. In one example, the fourth axis A**4** extends at an angle of about 17 degrees to about 22 degrees that is measured between the fourth axis A**4** and the second axis A**2**. The groove **172** is defined proximate the second tab **168**.

[0038] The mechanical system **26** is operable by a user to move the sash **16**, and thus, the glazing unit **14**, between the closed position (FIG. **2**) and the various opened positions (FIG. **1**). In one example, the mechanical system **26** includes a crank arm **200**, which is rotatable by the user to move the sash **16**. In this example, the crank arm **200** is rotatably coupled a lever **202**, via engaging teeth for example, which is coupled to the sash **16**. A rotation of the crank arm **200** drives the lever **202**, which pivots the sash **16** relative to the frame **12**.

[0039] With reference back to FIG. **3**, the screen frame **32** is substantially rectangular, and cooperates to enclose and support the screen **18**. In one example, the screen frame **32** is composed of a polymeric material, including, but not limited to polyvinyl chloride, and is extruded. The screen frame **32** is removably received within the screen receiving channel **190** of the frame **12** (FIGS. **4**A and **4**B) to couple the screen frame **32** and the screen **18** to the frame **12**. The screen **18** is generally composed of a metal or metal alloy, and is coupled to the screen frame **32**.

[0040] In one example, with reference to FIGS. **3**, **4**A and **4**B, in order to assemble the fenestration unit **10**, the screen **18** is coupled to the screen frame **32**. With the sash walls **34-40** formed, the sash walls **34-40** are assembled to form the sash **16**. The first seal **30** is coupled to the sash walls **36-40** by sliding onto the seal slot **76**. The linkage assembly **68** is coupled to the second sash wall **36**. With the sill walls **94-100** formed, the sill walls **94-100** are assembled to form the frame **12**. The mechanical system **26** is coupled to the mechanical chamber **140**, and the lever **202** is coupled to the sash **16**. The sash **16** is coupled to the frame **12**, via the pivot pins, for example. With the sash **16** coupled to the frame **12**, the glazing unit **14** is coupled to the sash **16** by positioning the glazing unit **14** in the glazing unit channel **46**. The second stop **44** is coupled to the sash **16** to secure the glazing unit **14** within the sash **16**. Generally, the second stop **44** is pushed into the sash tab groove **54** until the projection **60** of the second stop **44** engages with the slot **64**. With the operator access cover **92** formed, the operator access cover **92** is coupled to the frame **12**. Generally, the operator access cover **92** is coupled to the second sill wall **96** by applying a force along the longitudinal axis L to press the frame coupling portion **194** into engagement with the cover coupling portion **126**. Generally, the application of the force biases the first coupling wall **148** and the second coupling wall **150** outward or in a direction substantially transverse or oblique to the longitudinal axis L, which enables the slot **154** to receive the first tab **156** and the groove **166** to receive the second tab **168**. The keyed rail **158** is received within the notch **164**, and the rail **170** engages with the groove

172 to further couple the operator access cover **92** to the frame **12**. The third seal **188** seals against the second stop **44**. With the screen **18** coupled to the screen frame **32**, the screen frame **32** is positioned within the screen receiving channel **190** to couple the screen **18** to the frame **12**. The fenestration unit **10** may then be coupled to or installed on the building **24** (FIG. **2**).

[0041] With the operator access cover **92** coupled to the frame **12**, the operator access cover **92** is removable to enable service of the mechanical system **26** and/or the glazing unit **14** from the interior side **22** of the fenestration unit **10**, which eliminates the need for ladders, scaffolding, etc. to service the glazing unit **14** from the exterior side **20**. In order to service the glazing unit **14** and/or the mechanical system **26** with the fenestration unit **10** installed on the building **24**, the screen frame **32**, including the screen **18**, is removed from the screen receiving channel **190**.

[0042] With reference to FIG. **6**A, a service technician may apply a torque Fs to the operator access cover **92** clockwise toward the interior side **22** to the screen lip **192** of the screen receiving channel **190** to rotate the operator access cover **92** relative to the second sill wall **96**. In FIG. **6**A, the mechanical system **26**, the sash **16** and the glazing unit **14** are removed for clarity. The rotation of the operator access cover **92** causes the disengagement of the rail **170** with the groove **172** and the disengagement of the second tab **168** with the groove **166**. In this regard, when a load is applied by the service technician to the second cover end **182** of the operator access cover **92**, a rotation is created at a pivot point P**1**. As the operator access cover **92** rotates at pivot point P**1**, the first coupling wall **148** flexes and releases the keyed rail **158** with the notch **164** and the first tab **156** from the slot **154**, thereby releasing the operator access cover **92** from the frame **12**, as shown in FIG. **6**B. In one example, the torque Fs to remove the operator access cover **92** is equivalent to the application of a force F**2** of about 3.5 pound force per inch to the second cover surface **186** of the operator access cover **92** at the first cover end **180**. With the operator access cover **92** removed, as shown in FIG. **6**B, the service technician may service the mechanical system **26**. In FIG. **6**B, the mechanical system **26**, the sash **16** and the glazing unit **14** are removed for clarity. Further, with brief reference to FIGS. **4**A and **4**B, with the operator access cover **92** removed, the service technician may rotate the second stop **44** counterclockwise or toward the glazing unit **14** to disengage the second stop **44** from the sash **16**, thereby enabling the service technician to service the glazing unit **14**.

[0043] In addition, with reference back to FIG. **6**A, in the event of a load Lo being applied to the first cover surface **184** of the operator access cover **92** by an operator resting on the operator access cover **93**, for example, a rotation is created at a pivot point P**2**. As the second tab **168** has a planar surface **168***a* that is in contact with the planar surface **170***a* of the rail **170** when the operator access cover **92** is coupled to the frame **12**, the second tab **168** and the rail **170** inhibit or prevent the operator access cover **92** from uncoupling or disengaging from the frame **12**. In one example, the operator access cover **92** remains coupled to the frame **12** during the application of the load Lo up to at least about 10 pound force per inch.

[0044] It should be noted that in other embodiments, the second sill wall **96** and the operator access cover **92** may be configured differently for use with the frame **12** to enable access to the glazing unit **14** and/or mechanical system **26** of the fenestration unit **10**. For example, with reference to FIG. **7**, a second sill wall **300** and an access cover or operator access cover **302** is shown. As the second sill wall **300** and an operator access cover **302** include components that are the same or similar to components of the second sill wall **96** and the operator access cover **92** discussed with regard to FIGS. **1**-**6**B, the same reference numerals will be used to denote the same or similar components. FIG. **7** is a cross-sectional view through the second sill wall **300** and the operator access cover **302** taken from the perspective of line **4**-**4** of FIG. **2**. In this example, the second stop **44′** is wider to accommodate a thinner glazing unit **14′**.

[0045] The second sill wall **300** includes the first sill wall end **102** opposite the second sill wall end **104**. The second sill wall **300** includes a first, inside surface **306** and an opposite second, outside surface **308**. The second surface **308** is coupled to the building **24** (FIG. **2**), and includes a coupling

channel **312**. The coupling channel **312** defines a recess **314**. Each recess **314** may receive a sealant, adhesive, etc. to couple the frame **12** to the building **24** (FIG. **2**). The first surface **306** is spaced apart from and proximate the sash **16**. The first surface **306** defines the seal stop **120**, the linkage assembly interface **322**, the mechanical system interface **124** and a cover coupling portion **326**. The first surface **306** may also include reinforcement rib **325** coupled between the mechanical system interface **124** and the cover coupling portion **326**. A second seal **328** is also coupled to the first surface **306**. Generally, the second seal **328** is coupled to the first surface **306** proximate the linkage assembly interface **122** to seal against a portion of the sash **16** when the sash **16** is in the closed position. In one example, the second seal **328** is coupled to a ramp surface **327** defined between the linkage assembly interface **122** and the mechanical system interface **124**. A wall **329** extends upwardly from the first surface **306** and provides a contact surface for the second seal **128** on the frame **12**. The second seal **328** may be composed of a polymeric material, including, but not limited to an elastomer. The second seal **328** assists in inhibiting the ingress of fluids, such as water, into the frame **12**.

[0046] The mechanical system interface **124** is enclosed by the operator access cover **302**, and the mechanical chamber **140** is defined between the mechanical system interface **124** and the operator access cover **302** to enable a portion or a majority of the mechanical system **26** to be positioned within and enclosed by the frame **12**. The cover coupling portion **326** extends upward from the first surface **306** along the first axis A substantially parallel to the longitudinal axis L. The cover coupling portion **326** includes a first coupling end **344** integrally formed with the first surface **306** and an opposite second coupling end **346** to be coupled to the operator access cover **302**. In this example, the cover coupling portion **326** is defined by a first coupling wall **348** and a second coupling wall **350** that is spaced apart from the first coupling wall **348**. The second coupling wall **350** is coupled to the first coupling wall **348** via a strut **352**. The first coupling wall **348** is interior of the second coupling wall **350** and extends upwardly from the first surface **306** proximate the mechanical system interface **124**. The first coupling wall **348** is cantilevered from the strut **352**, and is flexible to enable the operator access cover **302** to removably engage with the second sill wall **300**. In one example, the first coupling wall **348** includes a projection **354** at the second coupling end **346**, which extends from the first coupling wall **348** in a direction toward the second coupling wall **350**. The projection **354** is sized and shaped to enable a tab **356** of the operator access cover **302** to be positioned beneath and retained by the projection **354** to secure the operator access cover **302** to the frame **12**. The projection **354** may include a ramp surface **354***a* to assist in the disengagement of the tab **356** with the projection **354**. The second coupling wall **350** is cantilevered from the strut **352**, and is also flexible to enable the operator access cover **302** to removably engage with the second sill wall **300**. The second coupling wall **350** includes a lip **366**. The lip **366** projects inwardly from the second coupling wall **150** at the second coupling end **346**, and is sized and shaped to contact a surface **368** of the operator access cover **302**.

[0047] The operator access cover **302** is coupled to the second sill wall **300** via the cover coupling portion **326**. The operator access cover **302** is composed of a polymeric material, including, but not limited to polyvinyl chloride, and is extruded. The operator access cover **302** is suspended over the mechanical chamber **140** by the cover coupling portion **326**. The operator access cover **302** includes the first cover end **180** and the opposite second cover end **182**. The operator access cover **302** also includes the first cover surface **184** opposite a second cover surface **386**. The first cover end **180** is disposed proximate the second stop **44**′. The second cover end **182** also includes a frame coupling portion **394** defined on the second cover surface **386**. The frame coupling portion **394** extends outwardly from the second cover surface **386** at the second cover end **382**. The frame coupling portion **394** includes the tab **356** on a first, interior cover side **396**. The frame coupling portion **394** also includes the surface **368** defined on a second, exterior cover side **398**, which is opposite the first cover side **396**.

[0048] Generally, in order to couple the operator access cover **302** to the second sill wall **300**, in

one example, the operator access cover **302** is rotated clockwise to engage the tab **356** with the projection **354**. Once the projection **354** is engaged with the tab **356**, the operator access cover **302** is rotated counterclockwise to enclose the mechanical chamber **140** and engage the surface **368** with the lip **366**. With the operator access cover **302** coupled to the frame **12**, the operator access cover **302** is removable to enable service of the mechanical system **26** and/or the glazing unit **14′** from the interior side **22** of the fenestration unit **10**, which eliminates the need for ladders, scaffolding, etc. to service the glazing unit **14′** from the exterior side **20**. In order to service the glazing unit **14′** and/or the mechanical system **26**, a service technician may apply a force counterclockwise to the screen lip **192** of the screen receiving channel **190** to rotate the operator access cover **302** relative to the second sill wall **300**. The rotation of the operator access cover **92** causes the disengagement of the tab **356** with the projection **354** and the disengagement of the surface **368** with the lip **366**, thereby releasing the operator access cover **302** from the second sill wall **300**. With the operator access cover **302** removed, the service technician may rotate the second stop **44′** counterclockwise or toward the glazing unit **14′** to disengage the second stop **44′** from the sash **16**, thereby enabling the service technician to service the glazing unit **14′**.

[0049] It should be noted that in other embodiments, the operator access cover **92** may be configured differently for use with second sill wall **96** to enable access to the glazing unit **14** and/or mechanical system **26** of the fenestration unit **10**. For example, with reference to FIG. **8**, an access cover or operator access cover **400** for use a fenestration unit **402** is shown. As the fenestration unit **402** includes components that are the same or similar to components of the fenestration unit **10** discussed with regard to FIGS. **1-6**B, the same reference numerals will be used to denote the same or similar components. FIG. **8** is a cross-sectional view through a second sill wall **404** and the operator access cover **400** taken from the perspective of line **4-4** of FIG. **2**. In this example, the fenestration unit **402** includes the sash **16**, the glazing unit **14**, the first seal **30** and a frame **408**.

[0050] In one example, the first stop **42** of the sash **16** cooperates with the operator access cover **400** to define a glazing unit channel **410**. The first stop **42** is integrally formed with a first side of the glazing unit channel **410**, and the operator access cover **400** is coupled to the sash **406** to form a second stop for the glazing unit **14**. The glazing unit channel **410** is configured to receive the glazing unit **14** and to retain the glazing unit **14** within the sash **16**.

[0051] Generally, the operator access cover **400** is coupled to the sash **16** to enable the glazing unit **14** to be removed, for repair, for example, without removing the entirety of the fenestration unit **402**. The operator access cover **400** is composed of a polymeric material, including, but not limited to polyvinyl chloride, and is extruded. The operator access cover **400** includes a body portion **420** and the interlocking stop tab **52**. The body portion **420** is generally elongate and hollow, and is integrally formed with the interlocking stop tab **52**. The interlocking stop tab **52** is cantilevered or extends outwardly from the body portion **420**, and is received within the sash tab groove **54** of the sash **16**. The interlocking stop tab **52** includes the first contact surface **56**, the ramp surface **58** and the second contact surface or projection **60**. The first contact surface **56** is defined on the interlocking stop tab **52** proximate the body portion **50**, and is coupled to or in contact with the lip **62** of the sash tab groove **54**. The ramp surface **58** extends from the first contact surface **56** to the projection **60**. The ramp surface **58** extends along an axis oblique to a longitudinal axis L**4** of the fenestration unit **402**, and biases the interlocking stop tab **52** within the sash tab groove **54**. The projection **60** engages with the slot **64** of the sash tab groove **54** to couple the operator access cover **400** to the sash **16**. Generally, in order to remove the operator access cover **400** to access the glazing unit **14**, the operator access cover **400** is moved counterclockwise toward the glazing unit **14** to release the ramp surface **58** and thereby disengage the projection **60** with the slot **64**, and the first contact surface **56** with the lip **62**.

[0052] In one example, the second glazing unit sealing member **66** is coupled to the body portion **420** of the operator access cover **400** and contacts the glazing unit **14** when the operator access cover **400** is coupled to the sash **16**. The second glazing unit sealing member **66** assists in inhibiting

fluids, such as water, etc., from entering into the glazing unit channel **410**.

[0053] The frame **408** supports the sash **16** and the glazing unit **14**. The frame **408** includes a first frame member or sill **430** and a second frame member, access cover or operator access cover **400**. Thus, the frame **408** is generally a two-part frame. The frame **408** also includes the mechanical system **26**, which controls the movement of the sash **16** relative to the frame **408**. In one example, the sill **430** is rectangular and includes the first sill wall **94** opposite a second sill wall **404**, and the third sill wall **98** opposite the fourth sill wall **100** (FIG. **3**). The second sill wall **404** is composed of a polymer-based material, including, but not limited to polyvinyl chloride. The second sill wall **404** is extruded, and is coupled with the first sill wall **94**, the third sill wall **98** and the fourth sill wall **100** via suitable mechanical fasteners, such as screws, bolts, etc. and/or adhesives to form the rectangular sill **430** or first frame member. The second sill wall **404** cooperates with the operator access cover **400** to enable access to the mechanical system **26** and/or glazing unit **14**.

[0054] In this example, the second sill wall **96** includes the first sill wall end **102** opposite the second sill wall end **104**. The second sill wall **96** includes a first, inside surface **440** and the opposite second, outside surface **108**. The first surface **440** is spaced apart from and proximate the sash **16**. The first surface **440** defines the seal stop **120**, the linkage assembly interface **122**, the mechanical system interface **124** and a cover coupling portion **450**. The cover coupling portion **450** extends upward from the first surface **440** along the first axis A substantially parallel to the longitudinal axis L**4**. The cover coupling portion **450** includes the first coupling end **144** integrally formed with the first surface **440** and an opposite second coupling end **452** to be coupled or positioned adjacent to the operator access cover **400**. In this example, the cover coupling portion **126** is defined by a first coupling wall **454** and a second coupling wall **456** that is spaced apart from the first coupling wall **454**. The second coupling wall **456** is coupled to the first coupling wall **454** via the strut **152**. The first coupling wall **454** is interior of the second coupling wall **456** and extends upwardly from the first surface **440** proximate the mechanical system interface **124**. The cover coupling portion **450** is generally configured to support the operator access cover **400** so as to enclose a portion of the mechanical system **26**.

[0055] Generally, in order to couple the operator access cover **400** to the sash **16**, in one example, the interlocking stop tab **52** defined on the body portion **420** of the operator access cover **400** is pushed into the sash tab groove **54** until the projection **60** of the second stop **44** engages with the slot **64**. With the operator access cover **400** coupled to the sash **16**, the operator access cover **400** is removable to enable service of the mechanical system **26** and/or the glazing unit **14** from the interior side **22** of the fenestration unit **402**, which eliminates the need for ladders, scaffolding, etc. to service the glazing unit **14** from the exterior side **20**. In order to service the glazing unit **14** and/or the mechanical system **26** with the fenestration unit **402** installed on the building **24**, the operator access cover **400** is rotated counterclockwise, toward the glazing unit **14**, to disengage the interlocking stop tab **52** from the sash **16**, thereby enabling the service technician to service the glazing unit **14**.

[0056] Thus, the second sill wall **96**, **300**, **404** and the operator access cover **92**, **302**, **400** enable access to the mechanical system **26** and/or the glazing unit **14**, **14′** from the interior side **22**, without requiring the use of ladders, scaffolding, etc. to access the glazing unit **14**, **14′** from the exterior side **20**, which reduces service cost and time. Moreover, by enabling access to the mechanical system **26** and/or glazing unit **14**, **14′** from the interior side **22**, the second sill wall **96**, **300**, **404** and the operator access cover **92**, **302**, **400** or the two-part frame **12**, **408** enables the mechanical system **26** and/or the glazing unit **14**, **14′** to be repaired without requiring removal of the sash **16**. Further, the second sill wall **96**, **300**, **404** and the operator access cover **92**, **302**, **400** of the two-part frame **12**, **408** enable the mechanical system **26** to be serviced without removing the glazing unit **14**, **14′**. Thus, the two-part frame **12**, **408**, which includes the second sill wall **96**, **300**, **404** and the operator access cover **92**, **302**, **400**, reduces service complexity, and provides for ease of servicing of the mechanical system **26** and/or the glazing unit **14**, **14′** when the fenestration unit **10**, **402** is installed

on the building **24** (FIG. **2**). In addition, it should be noted that the second sill wall **96**, **300**, **404** and the operator access cover **92**, **302**, **400** cooperate to provide the two-part frame **12**, **408** with a profile height H of about 57 millimeters (mm) to about 62 millimeters (mm), which is an about 25% reduction in profile height H when compared to a two-part frame of a fenestration unit having a profile height of about 77 millimeters (mm) to about 85 millimeters (mm). The low profile height H of the two-part frame **12**, **408** enables the glazing unit **14**, **14′** to have a larger surface area, which enables the fenestration unit **10**, **402** to have a 0.14 British Thermal Unit (BTU) factor when the glazing unit **14**, **14′** is a tri-pane glazing unit. Thus, the second sill wall **96**, **300**, **404** and the operator access cover **92**, **302**, **400** of the two-part frame **12**, **408** also enable the fenestration unit **10**, **402** to have a higher energy performance rating.

[0057] In this document, relational terms such as first and second, and the like may be used solely to distinguish one entity or action from another entity or action without necessarily requiring or implying any actual such relationship or order between such entities or actions. Numerical ordinals such as “first,” “second,” “third,” etc. simply denote different singles of a plurality and do not imply any order or sequence unless specifically defined by the claim language. The sequence of the text in any of the claims does not imply that process steps must be performed in a temporal or logical order according to such sequence unless it is specifically defined by the language of the claim. The process steps may be interchanged in any order without departing from the scope of the invention as long as such an interchange does not contradict the claim language and is not logically nonsensical.

[0058] While at least one exemplary embodiment has been presented in the foregoing detailed description, it should be appreciated that a vast number of variations exist. It should also be appreciated that the exemplary embodiment or exemplary embodiments are only examples, and are not intended to limit the scope, applicability, or configuration of the disclosure in any way. Rather, the foregoing detailed description will provide those skilled in the art with a convenient road map for implementing the exemplary embodiment or exemplary embodiments. It should be understood that various changes can be made in the function and arrangement of elements without departing from the scope of the disclosure as set forth in the appended claims and the legal equivalents thereof.

Claims

1. A fenestration unit, comprising: a sash configured to receive a glazing unit; a frame including: a plurality of walls configured to support the sash, a first wall of the plurality of walls including a cover coupling portion that extends along a first axis, the cover coupling portion having a first cantilevered coupling wall spaced apart from a second cantilevered coupling wall; and an access cover defining at least one tab configured to releasably engage with at least one of the first cantilevered coupling wall and the second cantilevered coupling wall and the at least one tab extends along a second axis that is oblique to the first axis.

2. The fenestration unit of claim 1, wherein the at least one tab of the access cover comprises a first tab opposite a second tab, the first tab extends along the second axis, the first tab configured to releasably engage with the first cantilevered coupling wall and the second tab configured to releasably engage with the second cantilevered coupling wall.

3. The fenestration unit of claim 2, wherein the first cantilevered coupling wall further comprises a keyed rail at an end, which is configured to engaged with a notch defined on the access cover proximate the first tab.

4. The fenestration unit of claim 2, wherein the second cantilevered coupling wall further comprises a rail at an end, which is configured to engaged with a groove defined on the access cover proximate the second tab.

5. The fenestration unit of claim 2, wherein the second tab extends along a third axis, the third axis

different than the second axis, and the third axis is oblique to the first axis.

6. The fenestration unit of claim 1, wherein the access cover defines at least one channel configured to receive a screen assembly associated with the fenestration unit.

7. The fenestration unit of claim 1, wherein the sash defines a channel configured to receive the glazing unit, with a first stop coupled to a first side of the channel and a second stop coupled to a second side of the channel to be proximate the access cover, the second stop removable from the sash, and the access cover further comprises a seal positioned between the second stop and the access cover.

8. The fenestration unit of claim 1, wherein the access cover cooperates with the first wall to define a chamber configured to receive a mechanical system associated with the fenestration unit.