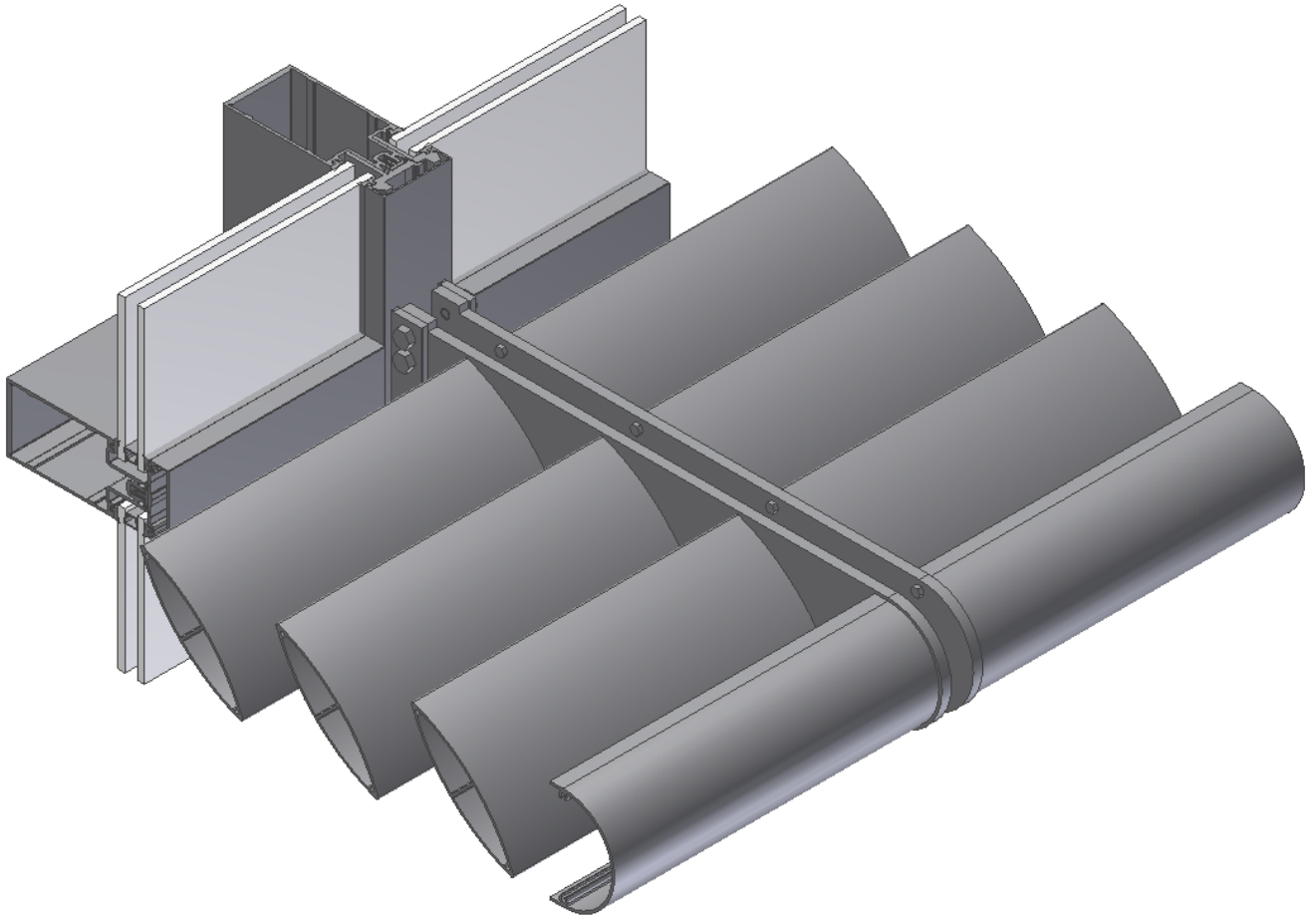


Installation Instructions

TUBELITE®
DEPENDABLE
LEADERS IN ECO-EFFICIENT STOREFRONT,
CURTAINWALL AND ENTRANCE SYSTEMS



3056 WALKER RIDGE DR. NW, SUITE G WALKER, MI 49544
800-866-2227 dependable@tubeliteinc.com

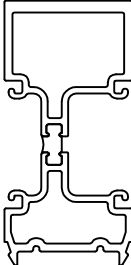
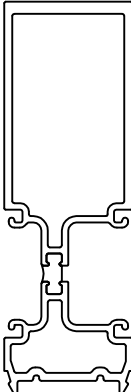
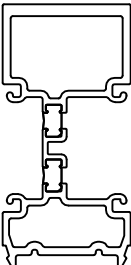
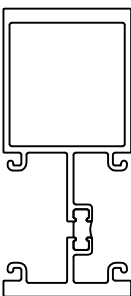
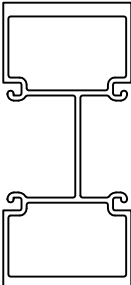
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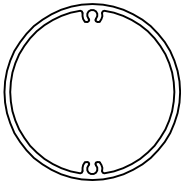
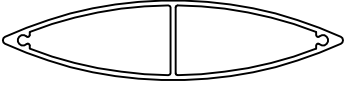
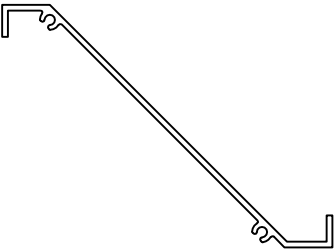
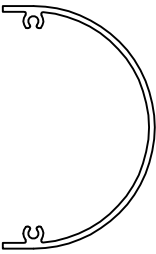
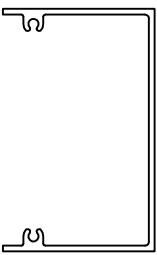
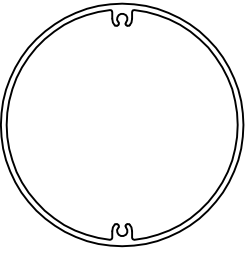


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GENERAL CONSTRUCTION NOTES

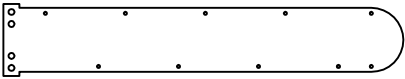




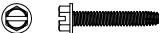

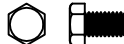

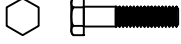




1. These instructions cover typical product application, fabrication, installation and standard conditions and are general in nature. They provide useful guidelines, but the final drawings may include additional details specific to this project. Any conflict or discrepancies must be clarified prior to execution.
2. Materials stored at the job site must be kept in a safe place protected from possible damage by other trades. Stack with adequate separation so materials will not rub together, and store off the ground. Cardboard or paper wrapped materials must be kept dry. Check arriving materials for quantity and keep record of where various materials are stored.
3. All field welding must be done in accordance with AISC guidelines. All aluminum and glass should be shielded from field welding to avoid damage from weld splatter. Results will be unsightly and may be structurally unsound. Advise general contractor and other trades accordingly.
4. Coordinate protection of installed work with general contractor and/or other trades.
5. Coordinate sequence of other trades which affect framing installation with the general contractor (e.g. fire proofing, back up walls, partitions, ceilings, mechanical ducts, HVAC, etc.).
6. General contractor should furnish and guarantee bench marks, offset lines and opening dimensions. These items should be checked for accuracy before proceeding with erection. Make certain that all adjacent substrate construction is in accordance with the contract documents and/or approved shop drawings. If not, notify the general contractor in writing before proceeding with installation because this could constitute acceptance of adjacent substrate construction by others.
7. Isolate all aluminum to be placed directly in contact with masonry or other incompatible materials with a heavy coat of zinc chromate or bituminous paint.
8. Sealant selection is the responsibility of the erector, installer and/or glazing contractor and must be approved by the sealant manufacturer with regard to application and compatibility for its intended use. All sealants must be used in strict accordance with the manufacturer's instructions and applied only by trained personnel to surfaces that have been properly prepared.
9. Sealant must be compatible with all materials with which they have contact, including other sealant surfaces. Consult sealant manufacturer for recommendations relative to shelf life, compatibility, cleaning of substrate, priming, tooling adhesion, etc.
10. All materials are to be installed plumb, level and true with regard to established bench marks and column center lines established by the general contractor and checked by the erector, installer and/or glazing contractor.
11. Cleaning of exposed aluminum surfaces should be done per AAMA recommendations.
12. Check tubeliteinc.com for any updates on installation instructions.

EXTRUSIONS

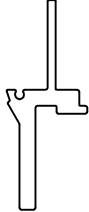

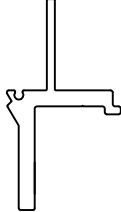
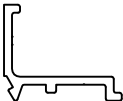
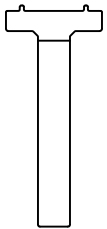
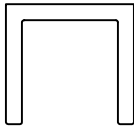
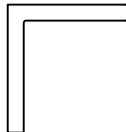
Shape	Description	Part No.
	14000 series sunshade vertical	T14249
	14650 series sunshade vertical	T14649
	24000 series sunshade vertical	TU24249
	14000 I/O heavy duty vertical for sunshade attachment	T14366
	14000 heavy duty vertical for sunshade attachment	T1430

Shape	Description	Part No.
	Circular blade	E3904
	Airfoil blade	E3902
	Z blade	E3903
	Bullnose fascia	E3901
	Square fascia	E3905
	Round fascia	E3906
	2 1/2" x 3/4" snap cover	E4TB64
	2" x 3/4" snap cover	E0992

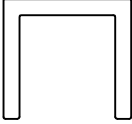
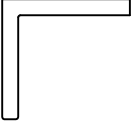

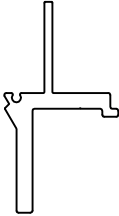
ACCESSORIES

Shape	Description	Part No.
	Outrigger for airfoil sunshades	P3901A: 20" P3901B: 25" P3901C: 30" P3901D: 35"
	Tubular outrigger	P3904A: 20" P3904B: 25" P3904C: 30" P3904D: 35"
	Sunshade outrigger -- square end	P3903A: 20" P3903B: 25" P3903C: 30" P3903D: 35"
	Curtainwall screw reinforcement	P3919
	Storefront/SSG curtainwall screw reinforcement	P3918
	#14 x 1 1/2" hex washer head, type F	S359
	1/4-14 x 1 1/2" hex head, self drilling	S363
	3/8-16 x 5/8" hex head, machine screw	S365
	1/4-20 x 1" Phillips flat head, machine screw	S166
	5/16-18 x 1 1/2" hex head	S367
	1/4-20 x 1/2" 6 lobe (Torx T27) flat head, machine screw	S374
	10-24 x 1" indented hex washer head type 23, self tapping	S269
	5/16-18 hex nylon insert lock nut	S368
	#10-16 x 1 1/2" hex washer TEK, self-drilling, BSD with #3 point	S424

ACCESSORIES

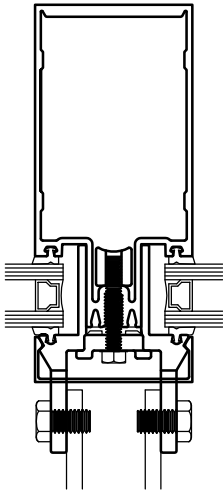
Shape	Description	Part No.
	Attachment bracket for 200 curtainwall	P3908
	Jamb attachment bracket for 200 curtainwall	P3906
	Attachment bracket for 400 curtainwall	P3900
	Jamb attachment bracket for 400 curtainwall	P3902
	Attachment bracket for 400 SSG curtainwall and 14000/14650/24000 storefront	P3916
	Attachment bracket for 14000 I/O and 14000 storefront	P3948
	Attachment bracket at jamb for 14000 I/O and 14000 storefront	P3949

ACCESSORIES

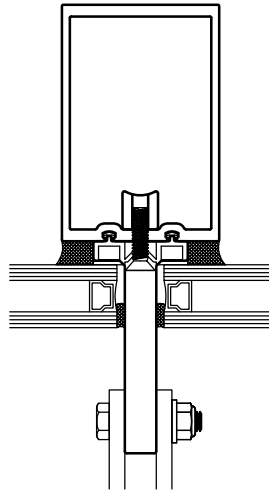
Shape	Description	Part No.
	Top mount bracket for 14000 I/O and 14000 storefront series	P3950
	Top mount bracket at jamb for 14000 I/O and 14000 storefront series	P3951R: Right hand P3951L: Left hand
	Mounting bracket drill fixture for 14000 I/O and 14000	P3952
	Top mount bracket for 400 curtainwall	P3933R: Right hand P3933L: Left hand

ELEVATION DETAILS

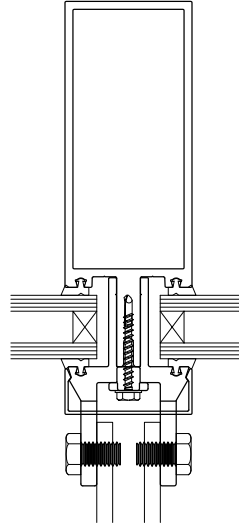
400 curtainwall



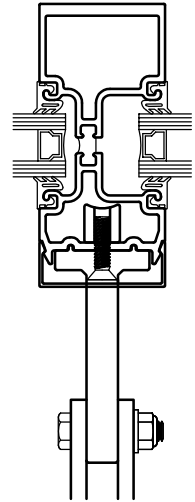
400 SSG curtainwall



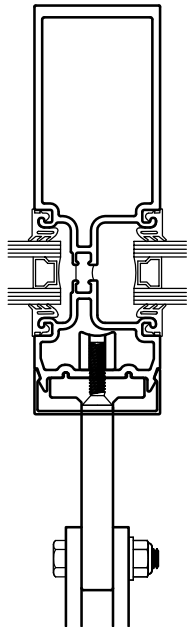
200 curtainwall



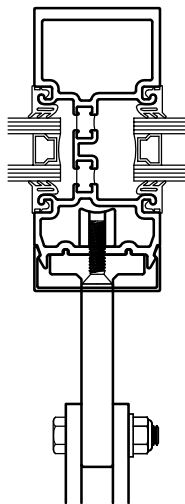
14000 storefront



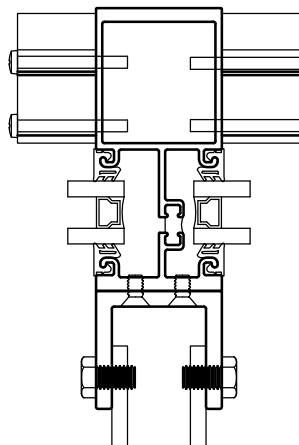
14650 storefront



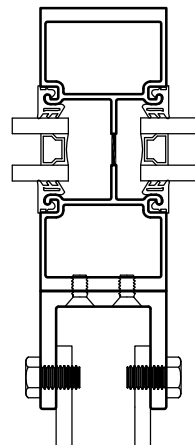
24000 storefront



14000 I/O storefront



14000 storefront



Step 1: Build Framing Systems

- Install the framing, but do not install vertical pressure plates or face covers for curtainwall applications.

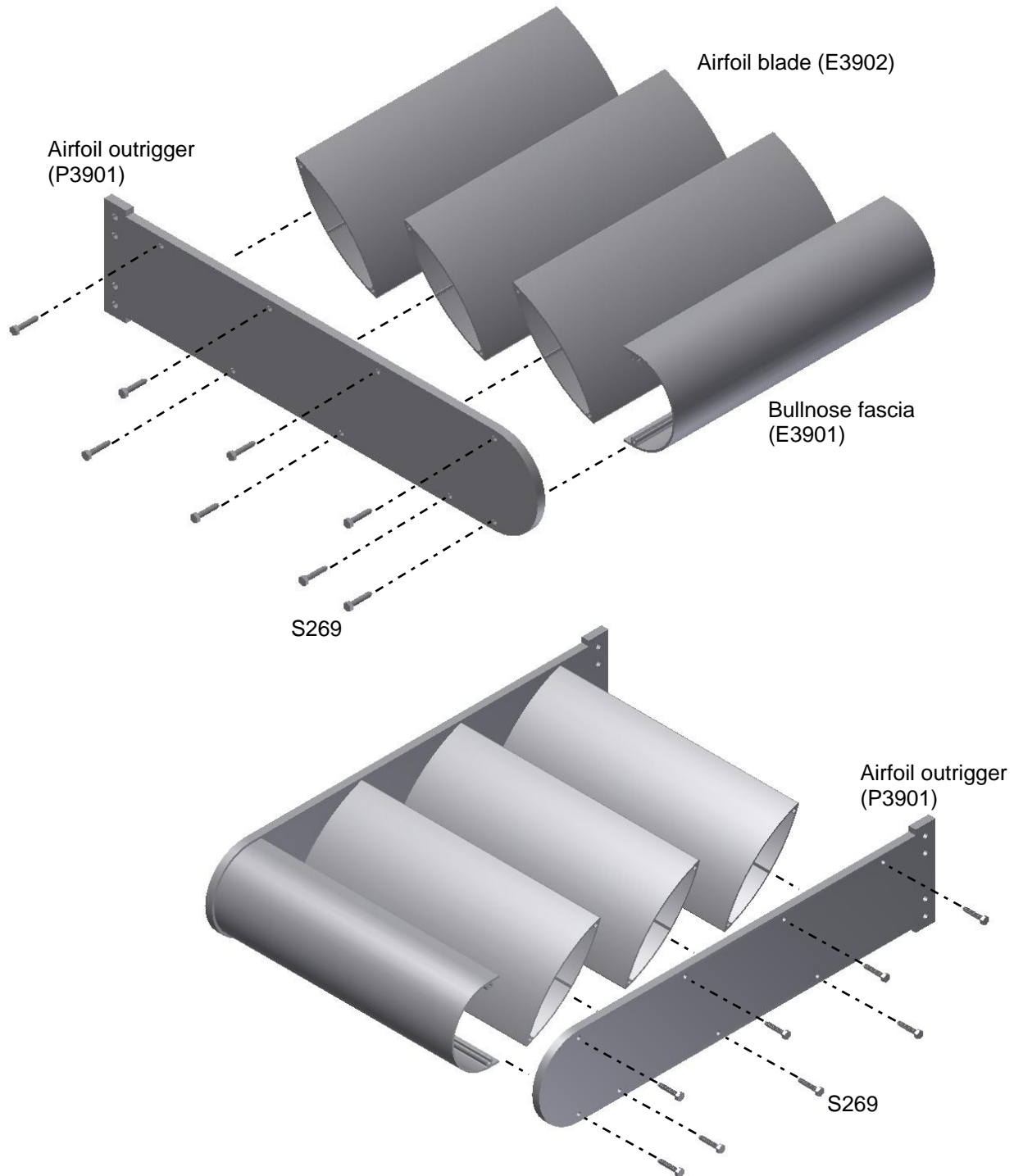
Step 2: Cut Blades and Fascia to Length

- Cut blades and fascia equal to the size indicated in the table below.
- For the outriggers, 20" will have three blades, 25" will have four, 30" will have five and 35" will have six blades.

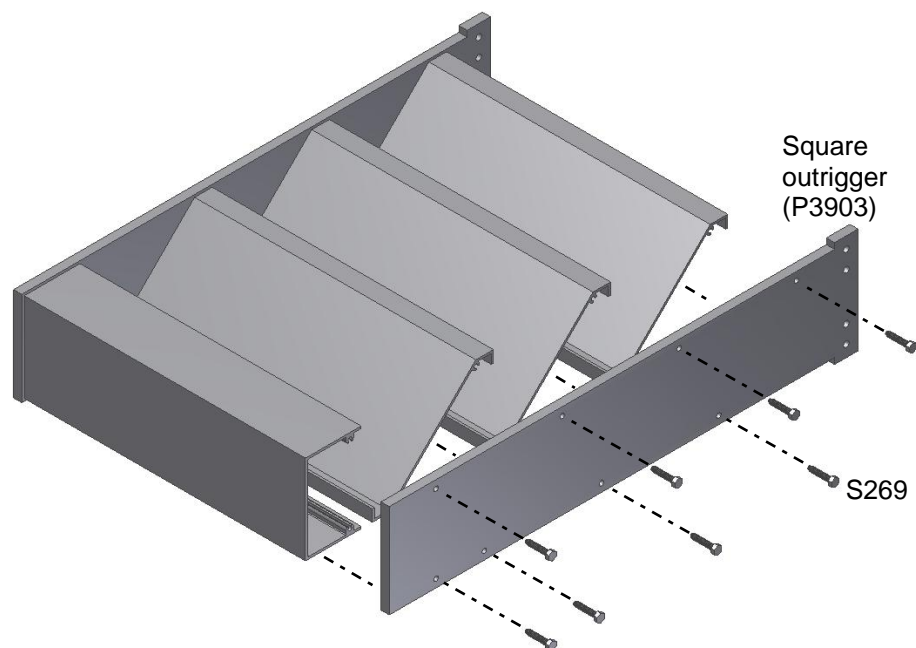
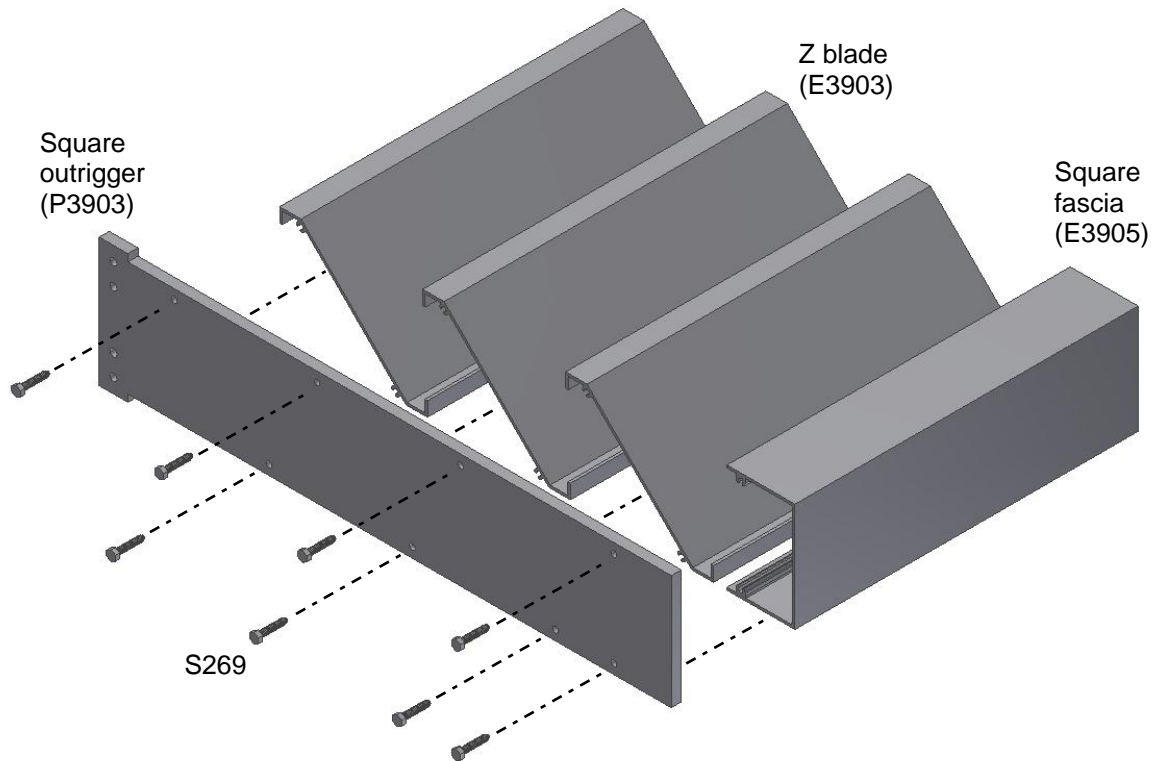
System	Blade/fascia size formula
200 curtainwall	Daylight opening + 1"
400 curtainwall	Daylight opening + 1"
400 SSG curtainwall	Daylight opening + 1 1/2"
400 screw spline curtainwall	Daylight opening + 1"
14000 storefront	Daylight opening + 1"
14000 storefront (alternate)	Daylight opening + 1/2"
14650 storefront	Daylight opening + 1"
14000 I/O storefront	Daylight opening + 1/2"
24000 storefront	Daylight opening + 1"

Step 3: Fasten Blades and Fascia to Outriggers

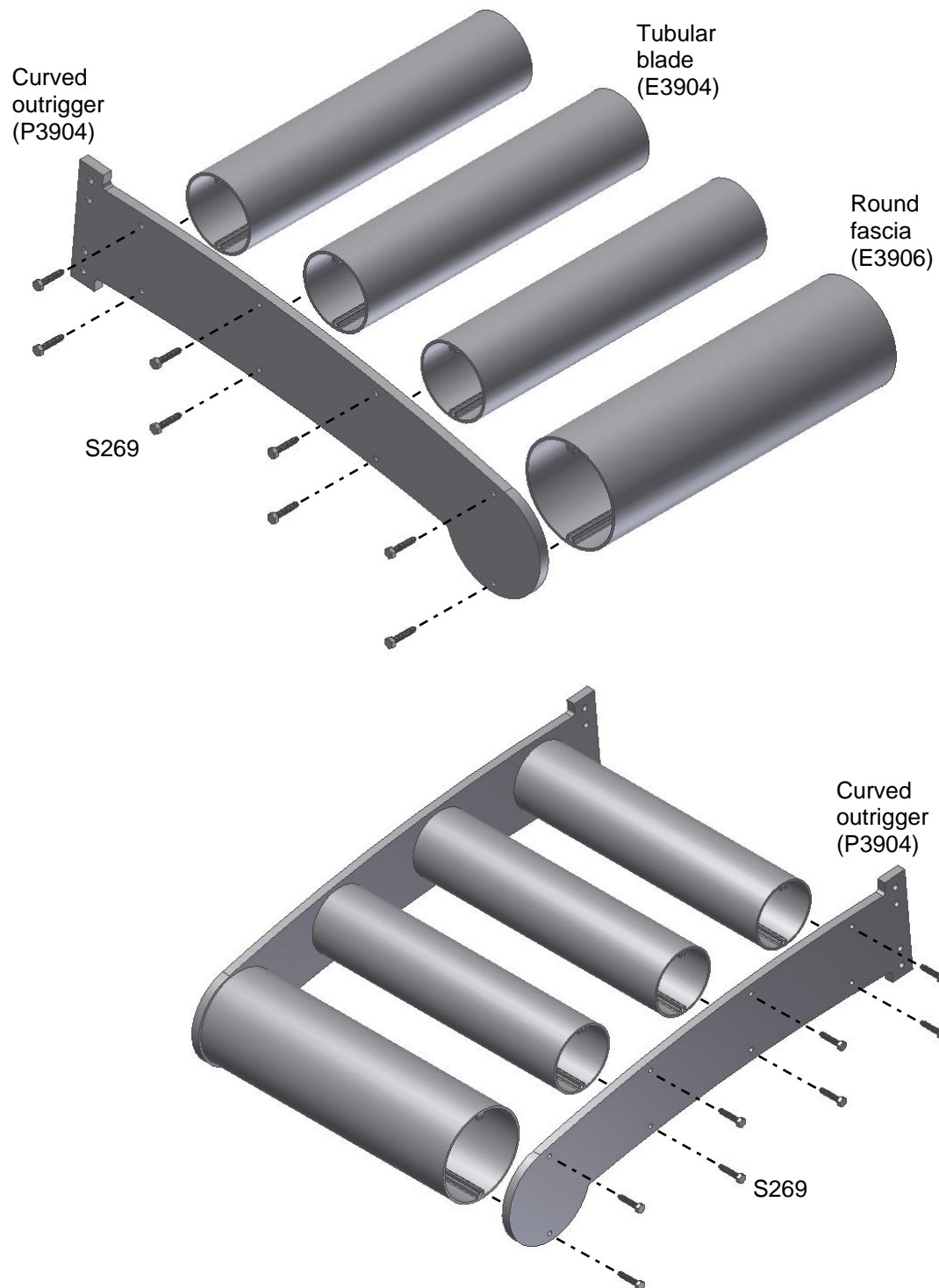
- Using S269 fasteners, fasten the blades and fascia to one outrigger as shown below. To properly align with second outrigger, do not fully tighten the fasteners.
- Attach second outrigger in the same manner. Tighten fasteners on both sides.
- When installing to a system, ensure blades are oriented as shown or according to shop drawings. See following examples of airfoil (below), Z blade (page 12) and tubular blade (page 13) for assembly and reference.



Z Blade

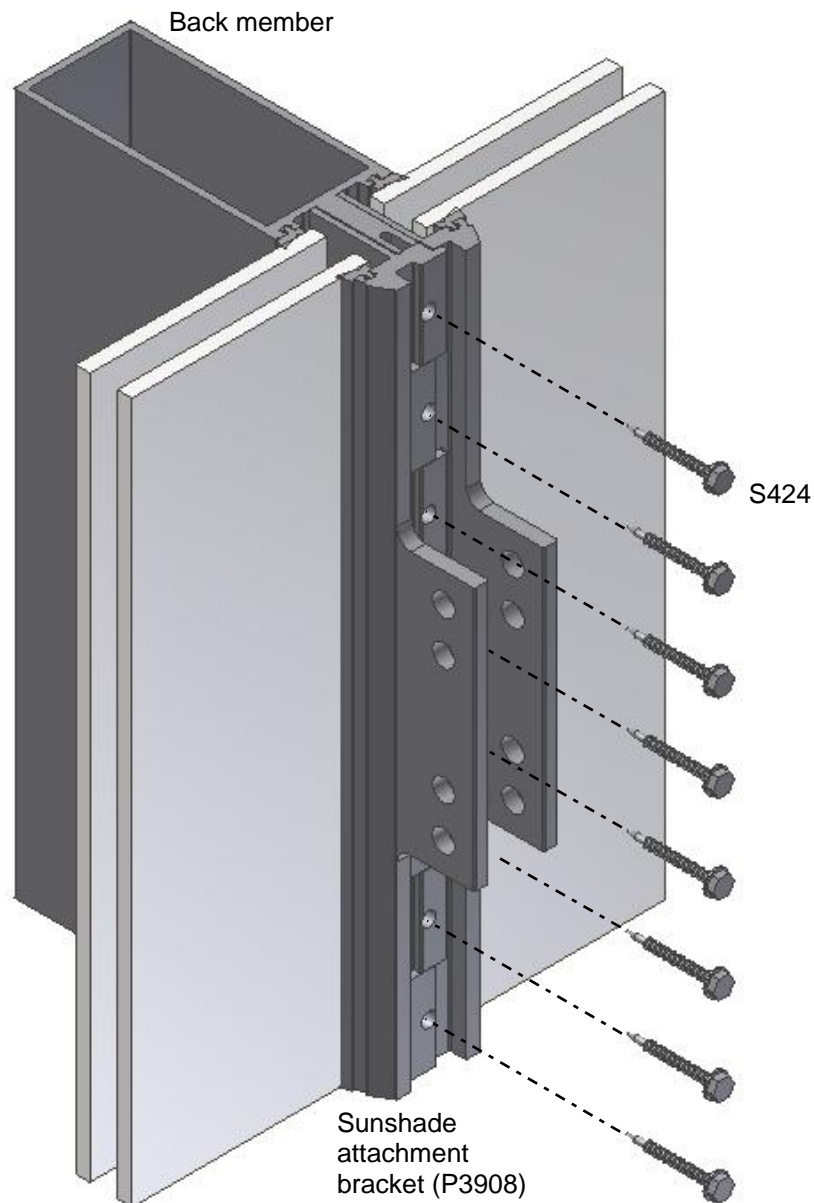


Tubular Blade



SUNSHADE ATTACHMENT

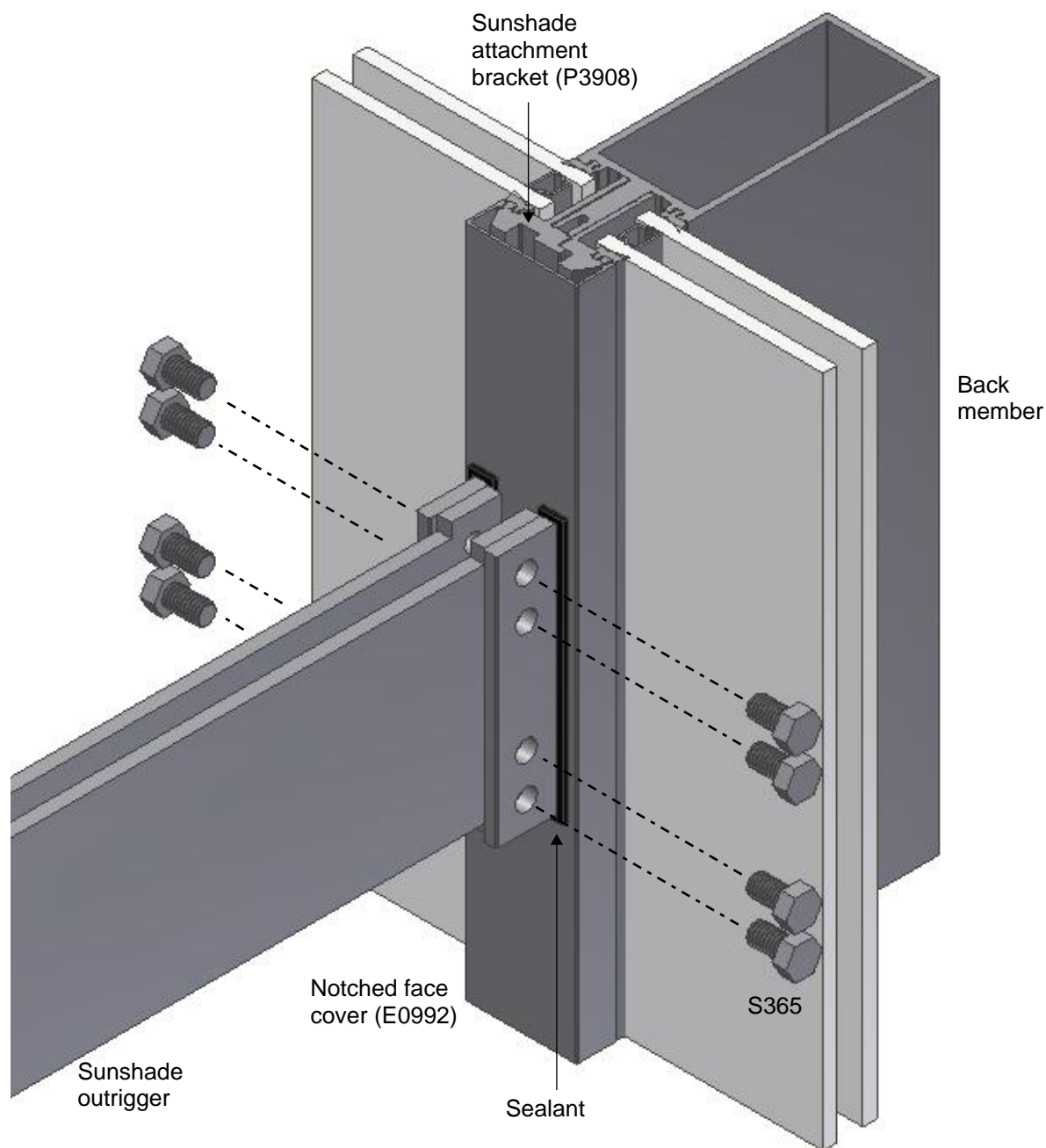
200 Curtainwall



Assembly

- Pre-drill holes at least 3/4" deep into the tongue of the back member where the S424 fasteners will go.
- Attach sunshade attachment brackets (P3908) to vertical mullion using eight S424 fasteners.

200 Curtainwall

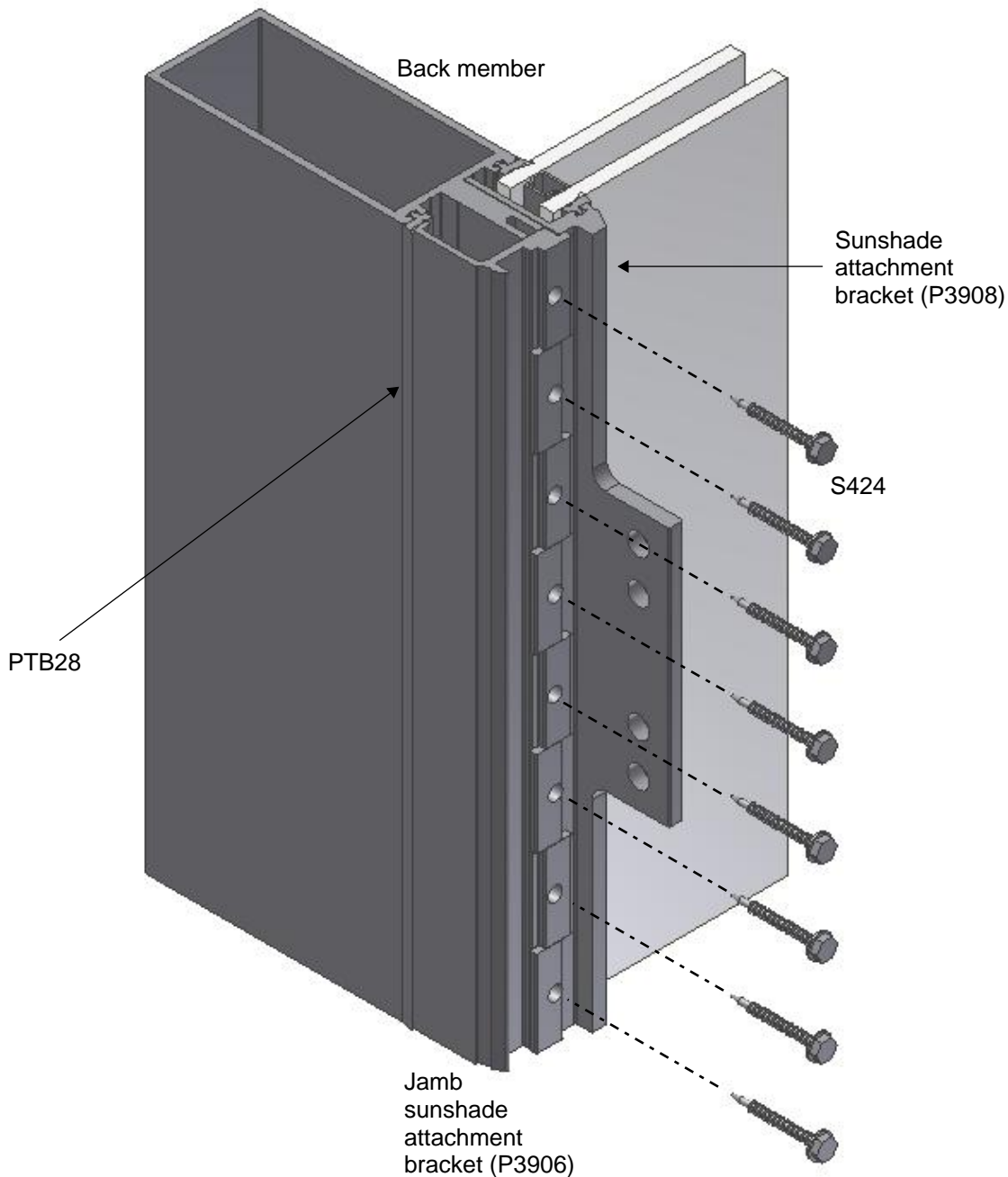


Assembly

- Notch a face cover (E0992) to fit around the sunshade attachment brackets, then install the face cover to the vertical. Seal perimeter of notch when face cover is installed.
- Using eight S365 fasteners, attach the sunshade outrigger to the sunshade attachment brackets.

SUNSHADE ATTACHMENT

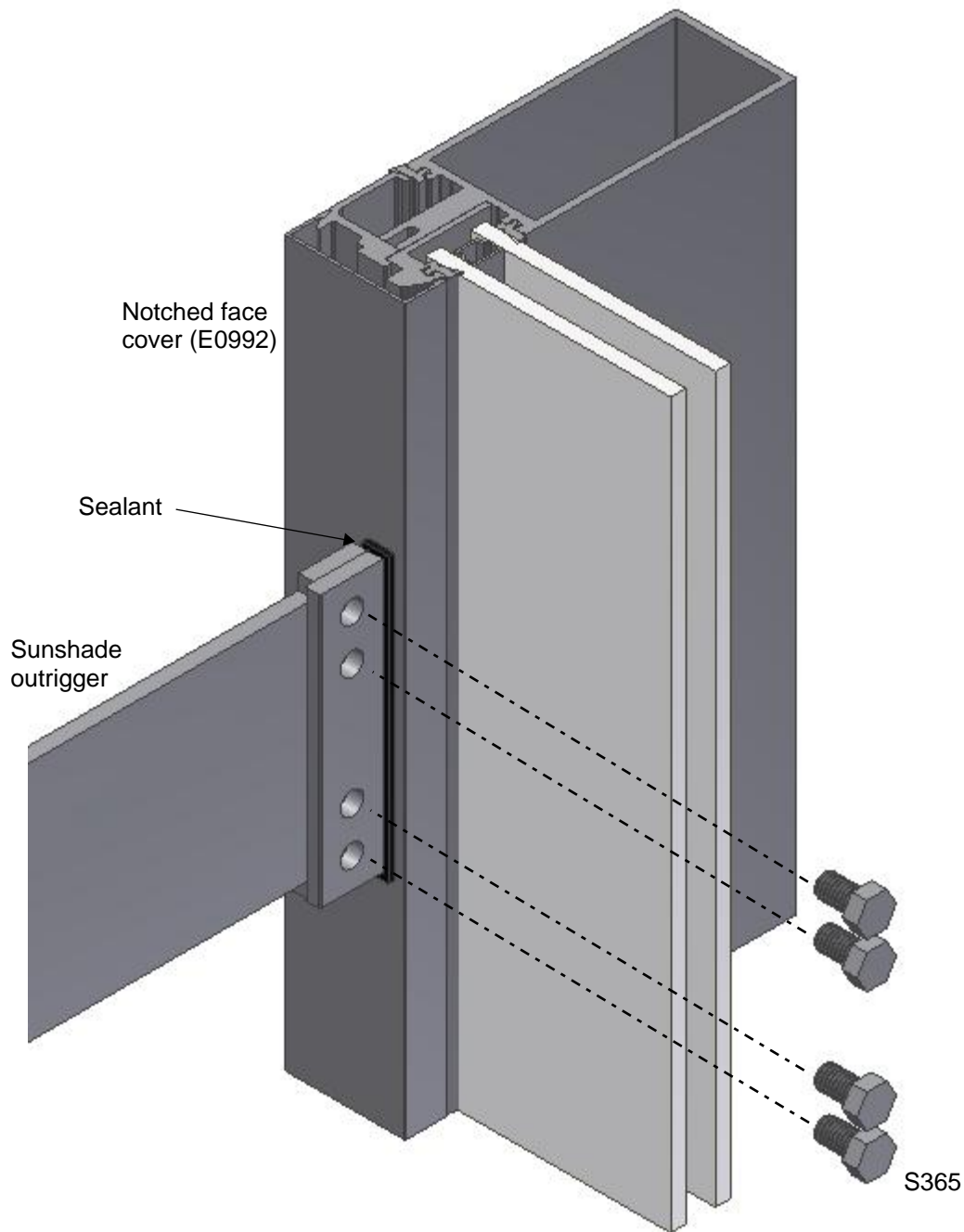
200 Curtainwall at Jamb



Assembly

- Pre-drill holes at least 3/4" deep into the tongue of the back member where the S424 fasteners will go.
- Line up and attach sunshade attachment brackets (P3906 and P3908) to vertical mullion using eight S424 fasteners.

200 Curtainwall at Jamb

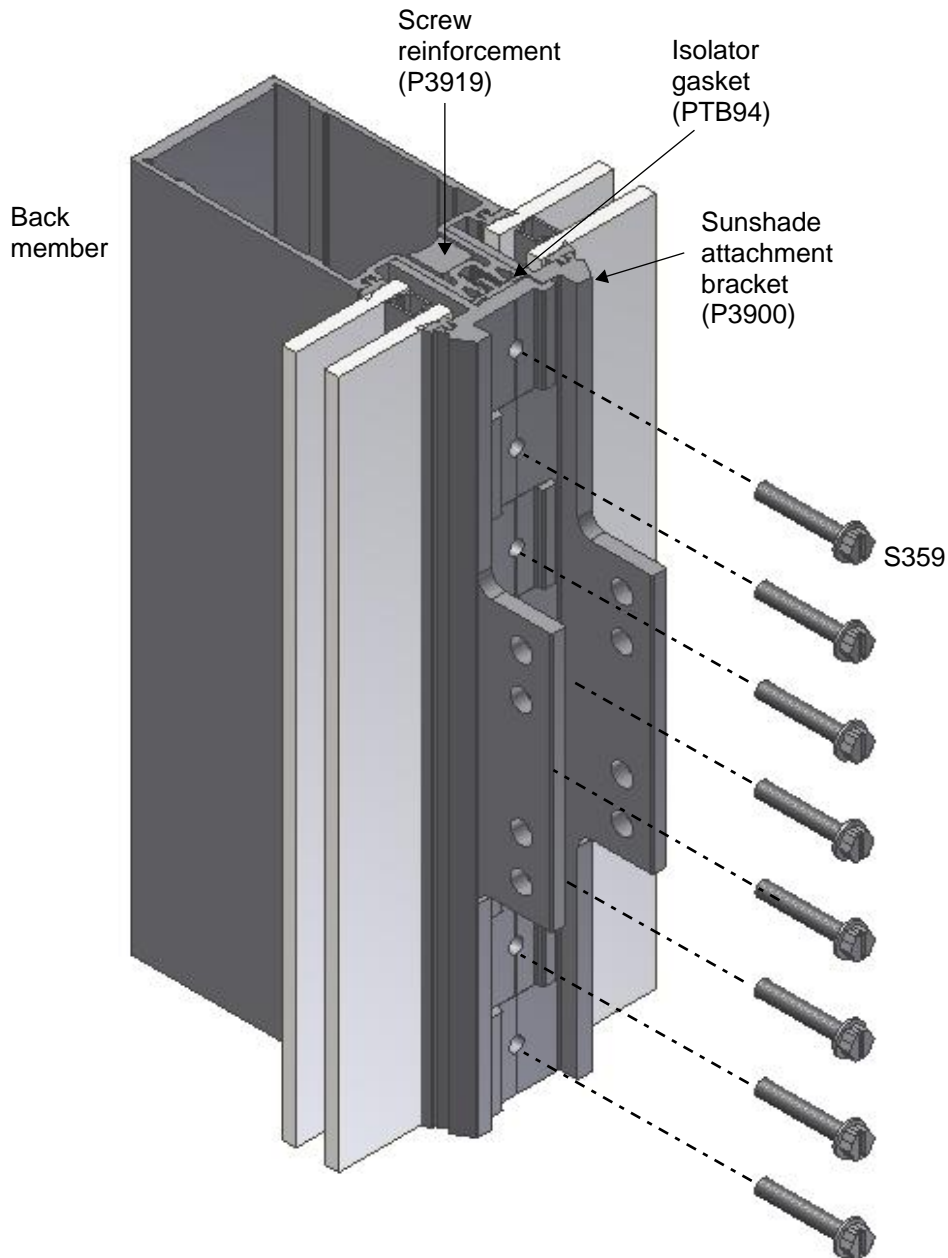


Assembly

- Notch a face cover (E0992) to fit around the sunshade attachment bracket, then install the face cover to the vertical. Seal perimeter of notch when face cover is installed.
- Using four S365 fasteners, attach the sunshade outrigger to the sunshade attachment bracket.

SUNSHADE ATTACHMENT

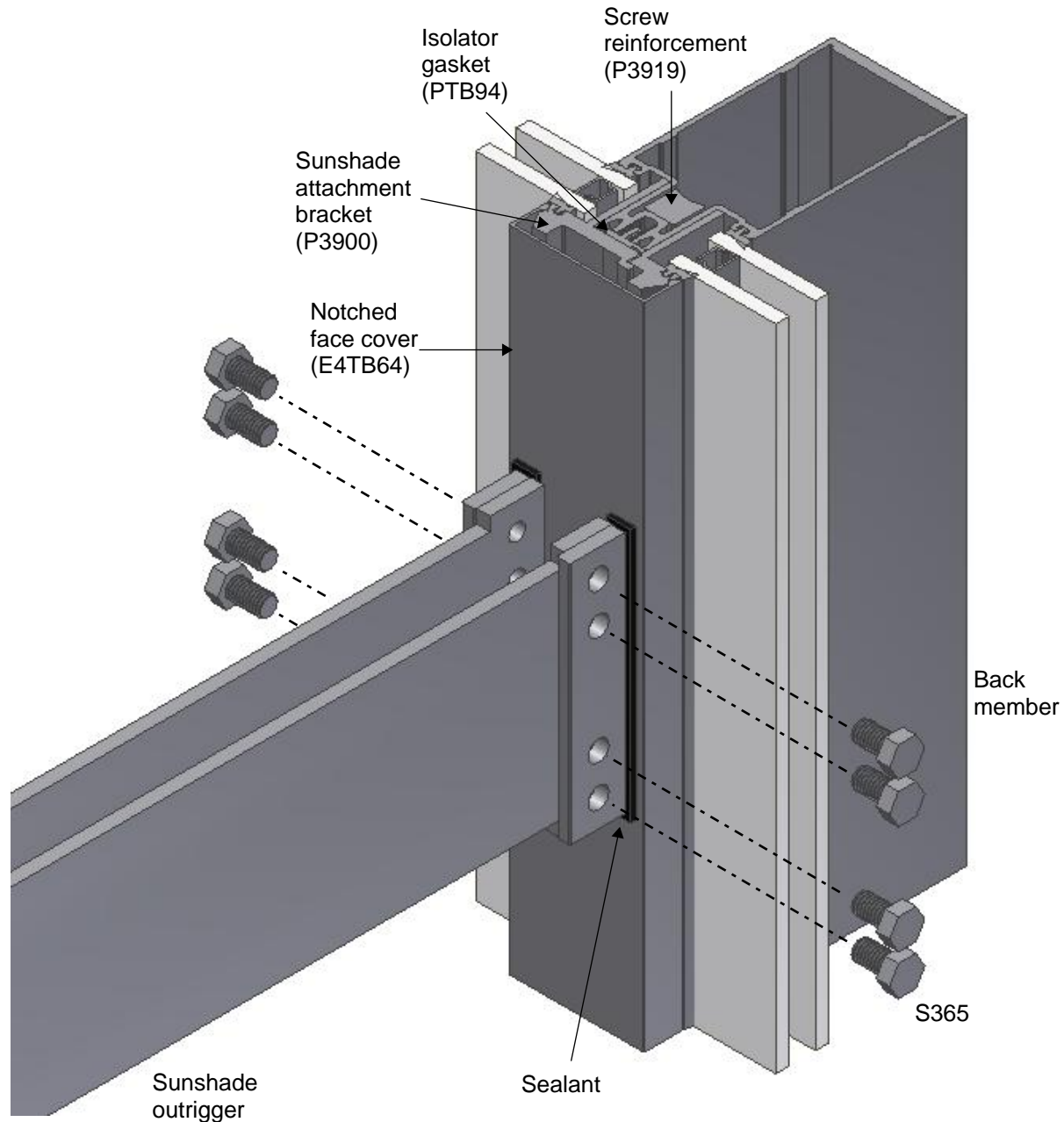
400 Curtainwall



Assembly

- Install gaskets and glass prior to attaching sunshade brackets.
- If necessary, install P3919 screw reinforcement.
- Line up and attach sunshade attachment brackets (P3900) to vertical mullion using eight S359 fasteners and an isolator gasket (PTB94). S363 fasteners should be used when a P3919 screw reinforcement is not required.

400 Curtainwall

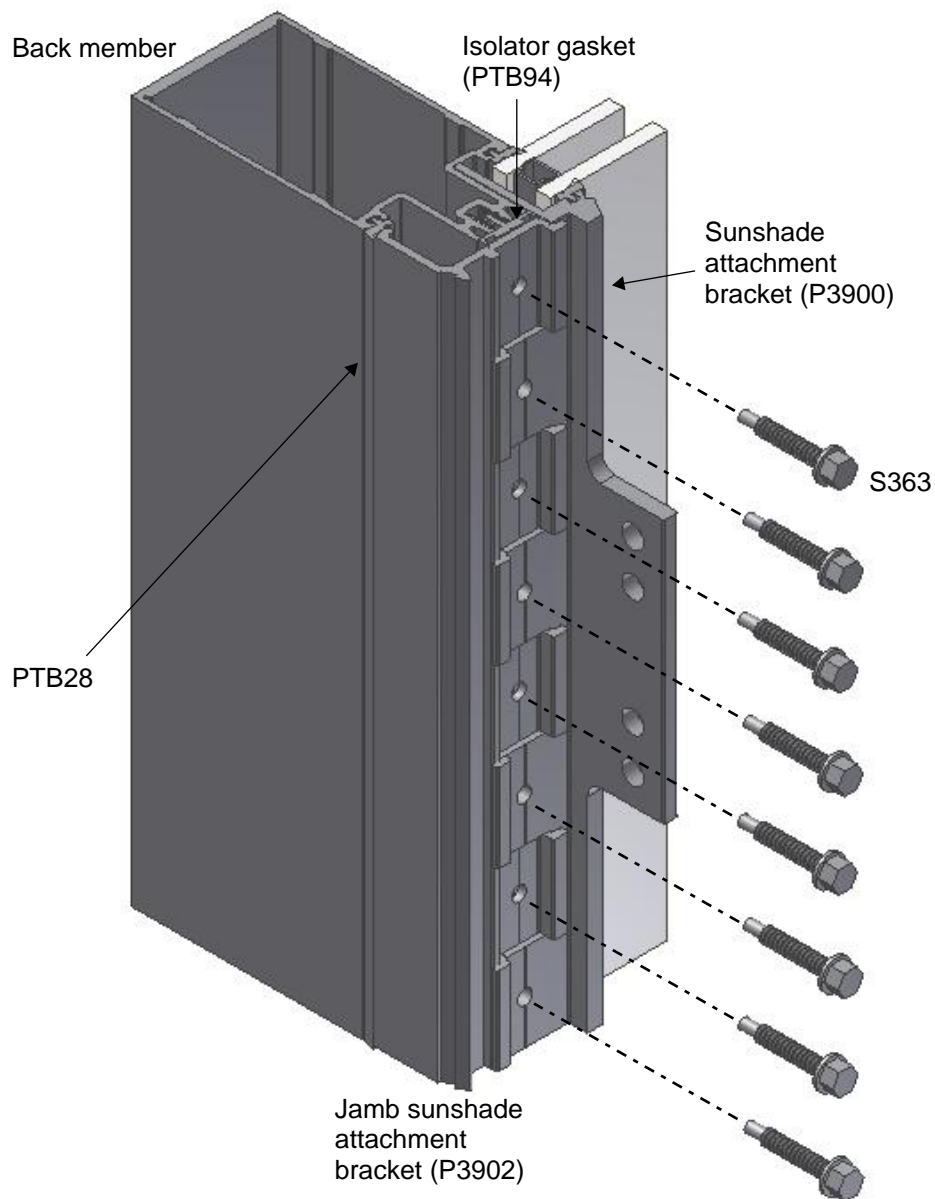


Assembly

- Notch a face cover to fit around the sunshade attachment brackets, then install the face cover to the vertical. Seal perimeter of notch when face cover is installed.
- Using eight S365 fasteners, attach the sunshade outrigger to the sunshade attachment brackets.

SUNSHADE ATTACHMENT

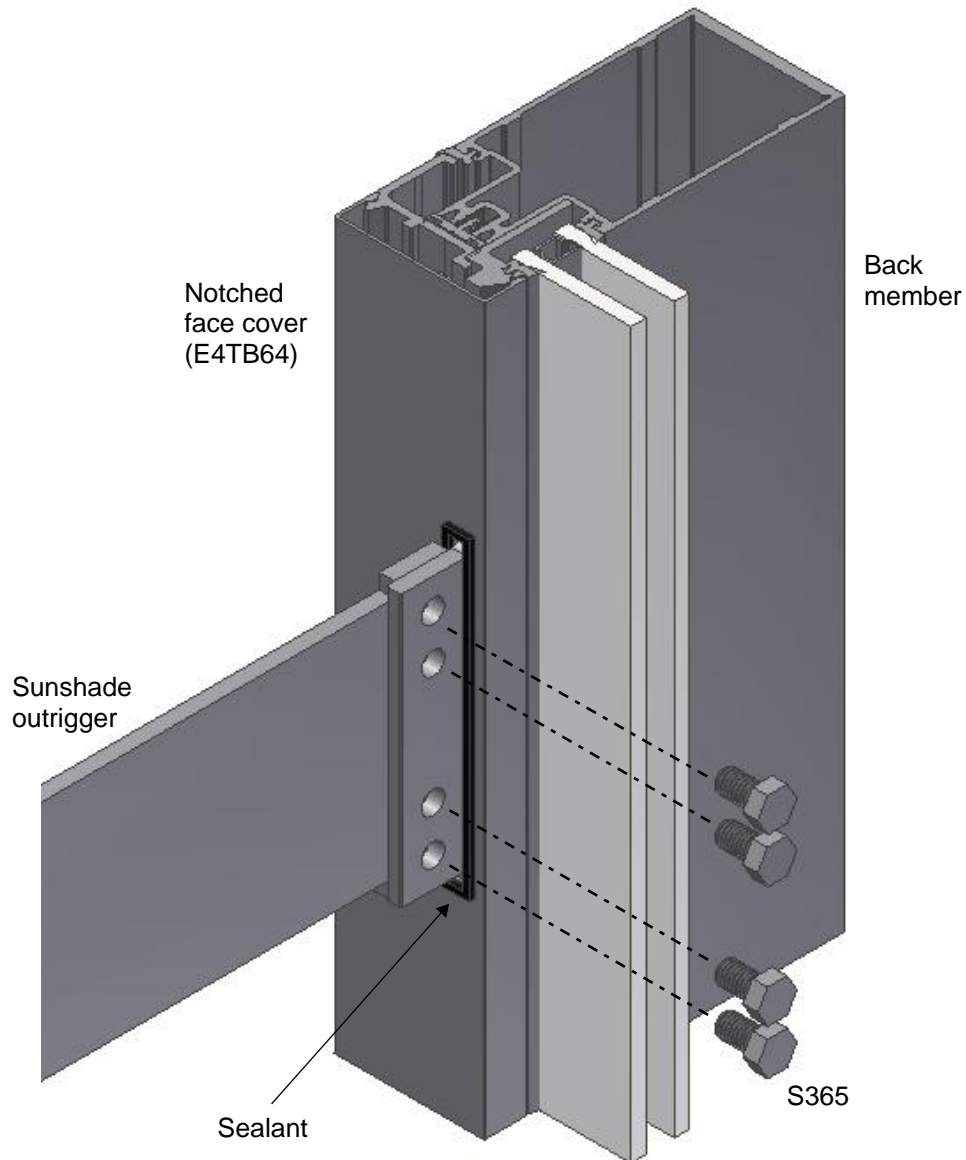
400 Curtainwall at Jamb



Assembly

- Install gaskets and glass prior to attaching sunshade brackets.
- If necessary, install P3919 screw reinforcement.
- Line up and attach sunshade attachment brackets (P3900 and P3902) to vertical mullion using eight S359 fasteners and an isolator gasket (PTB94). S363 fasteners should be used when a P3919 screw reinforcement is not required.

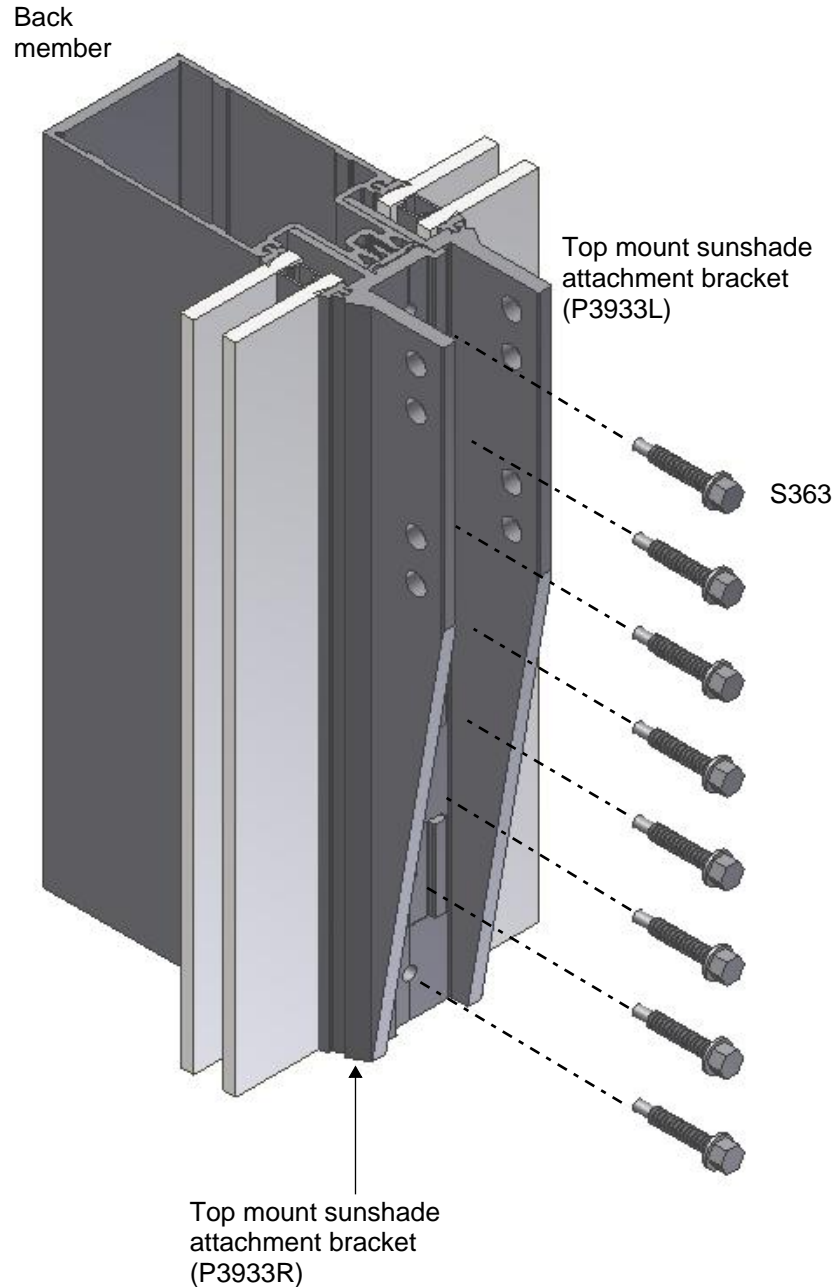
400 Curtainwall at Jamb



Assembly

- Notch a face cover to fit around the sunshade attachment bracket, then install the face cover to the vertical. Seal perimeter of notch when face cover is installed.
- Using four S365 fasteners, attach the sunshade outrigger to the sunshade attachment bracket.

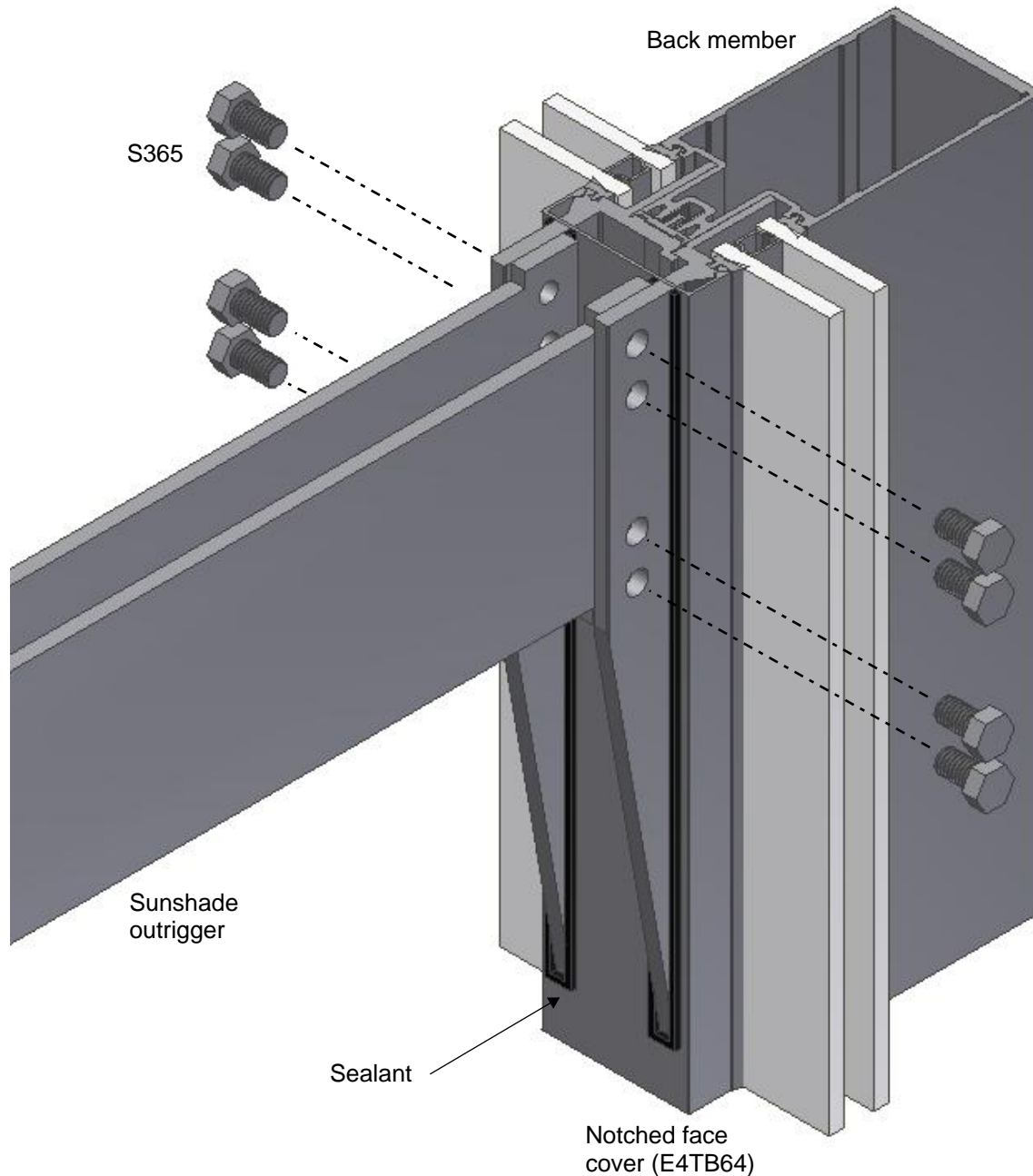
400 Curtainwall (top mounted)



Assembly

- Install gaskets and glass prior to attaching sunshade brackets.
- If necessary, install P3919 screw reinforcement.
- Line up and attach sunshade attachment brackets (P3933L and P3933R) to vertical mullion using eight S359 fasteners and an isolator gasket (PTB94). S363 fasteners should be used when a P3919 screw reinforcement is not required.

400 Curtainwall (top mounted)

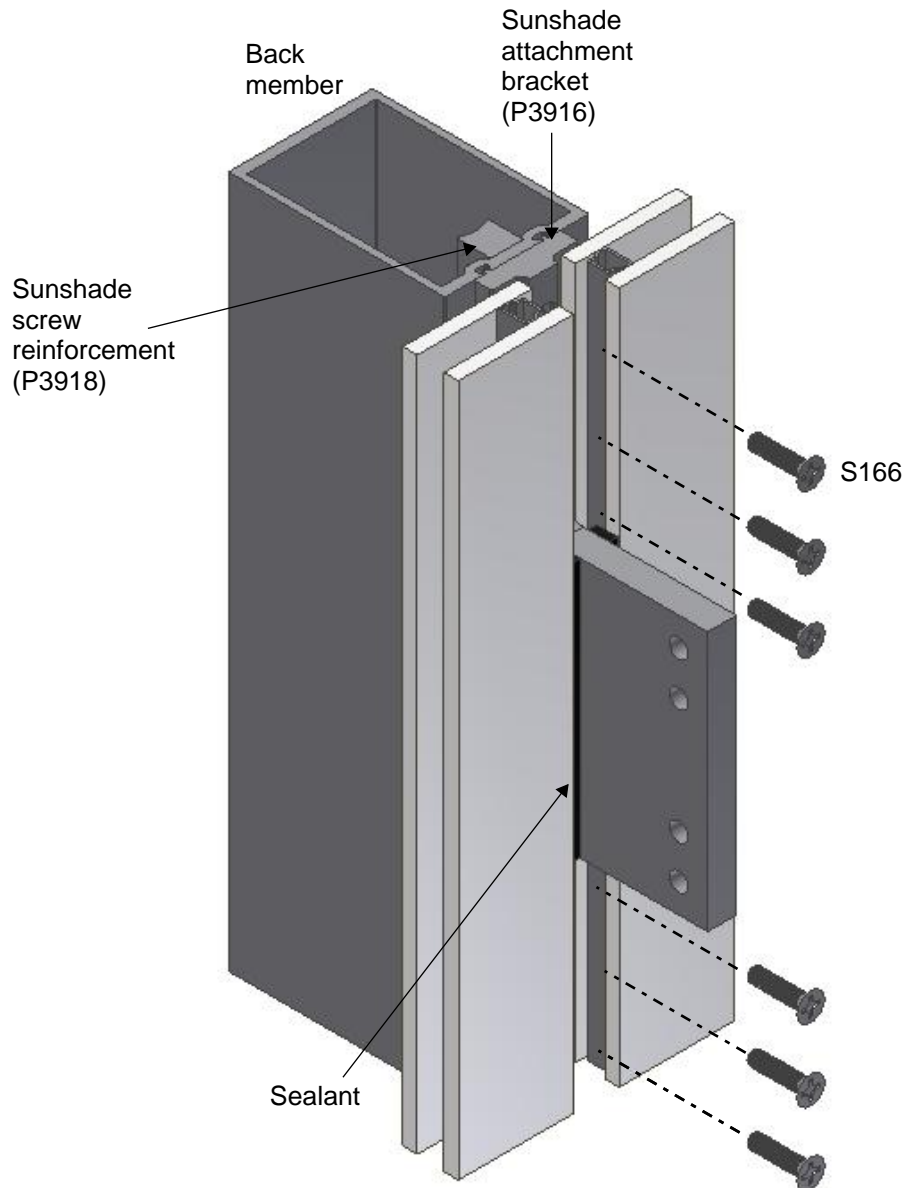


Assembly

- Notch a face cover to fit around the sunshade attachment brackets, then install the face cover to the vertical. Seal perimeter of notch when face cover is installed.
- Using eight S365 fasteners, attach the sunshade outrigger to the sunshade attachment brackets.

SUNSHADE ATTACHMENT

400 SSG Curtainwall

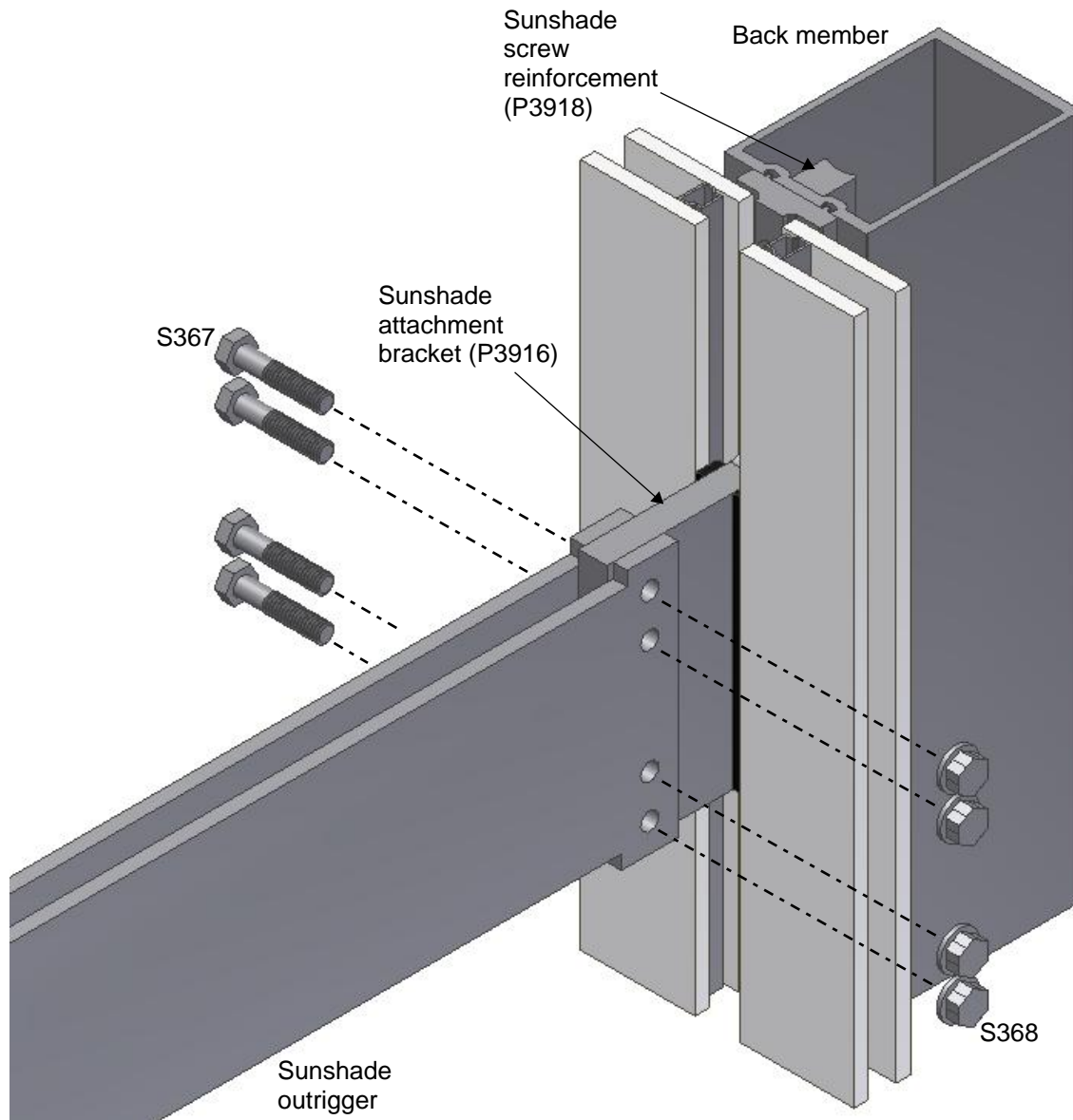


Assembly

NOTE: Use of P3916 bracket requires the typical 400 SSG curtainwall glass width to be reduced 3/8".

- Install gaskets. PTB75 (modified) cut in half & slid in from end prior to frame installation.
- Attach sunshade attachment bracket (P3916) to SSG back member using six S166 fasteners. If necessary, install P3918 screw reinforcement.
- Install glass.

400 SSG Curtainwall



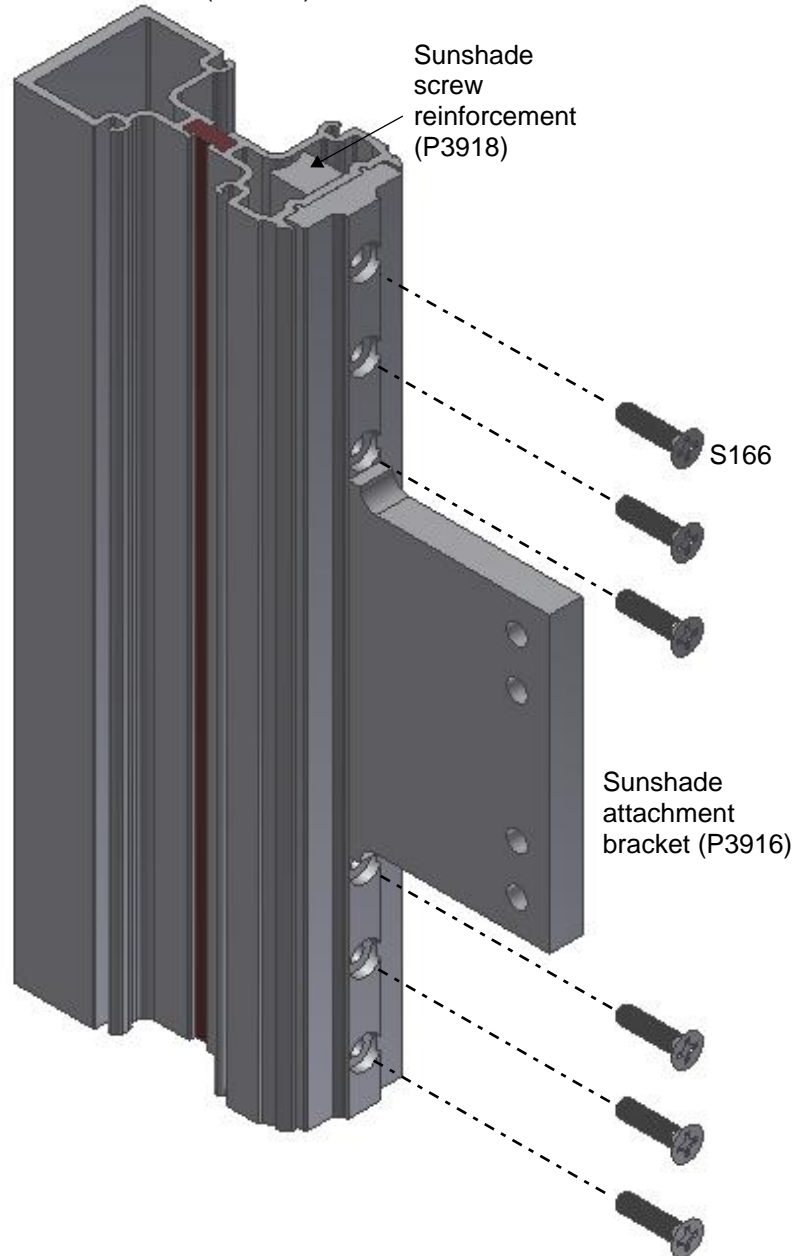
Assembly

- Using four S367 fasteners and four S368 hex nuts, attach the sunshade outrigger to the sunshade attachment bracket.
- **NOTE:** Glass will be sealed to bracket after installation.

SUNSHADE ATTACHMENT

14000 Storefront

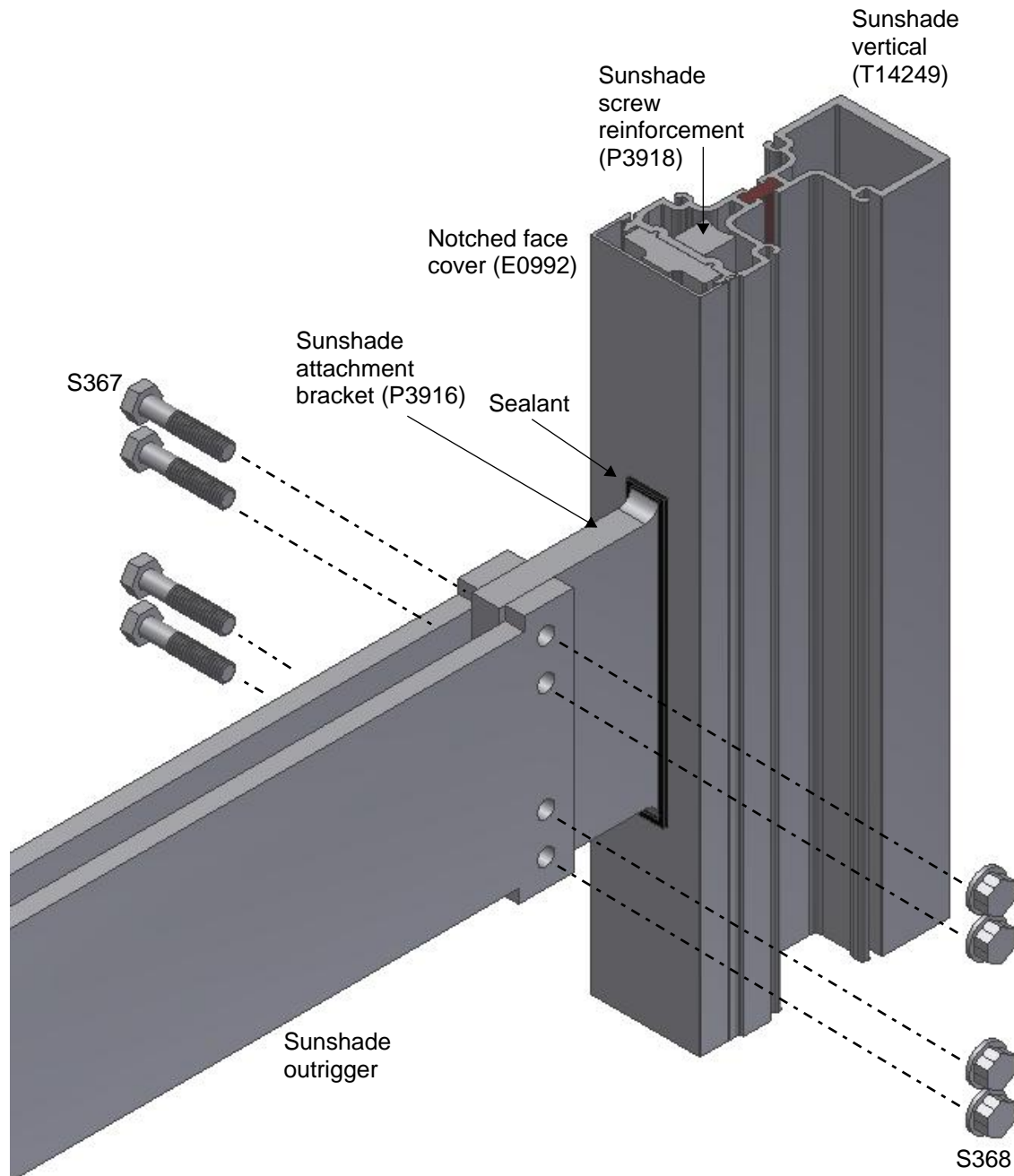
Sunshade vertical (T14249)



Assembly

- Attach sunshade attachment bracket (P3916) to sunshade vertical (T14249) using six S166 fasteners and a sunshade screw reinforcement (P3918).

14000 Storefront

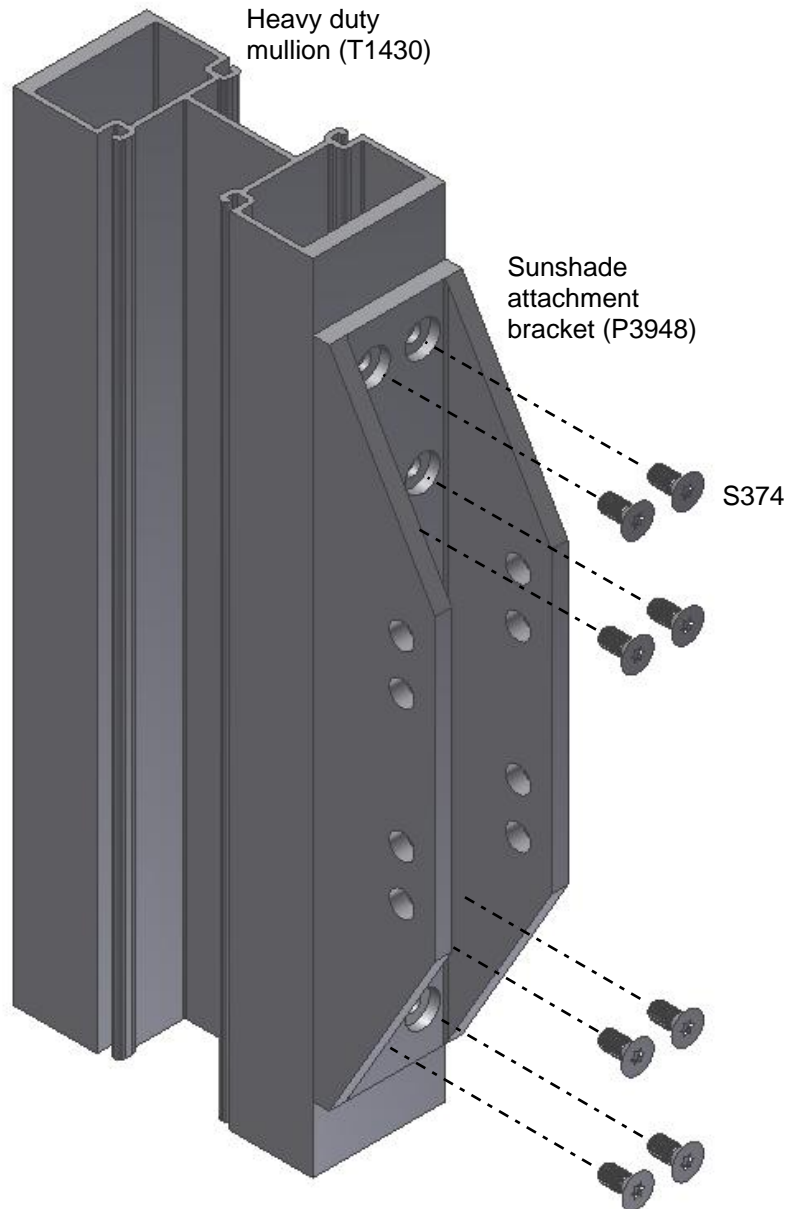


Assembly

- Notch a face cover (E0992) to fit around the sunshade attachment bracket, then install the face cover to the sunshade vertical. Seal perimeter of notch when face cover is installed.
- Using four S367 fasteners and four S368 hex nuts, attach the sunshade outrigger to the sunshade attachment bracket.
- For the jamb condition, all steps remain the same except a pocket filler (E1411 or P4563) replaces the glass in the pocket facing the jamb and the outrigger is only on the jamb side of the bracket.

SUNSHADE ATTACHMENT

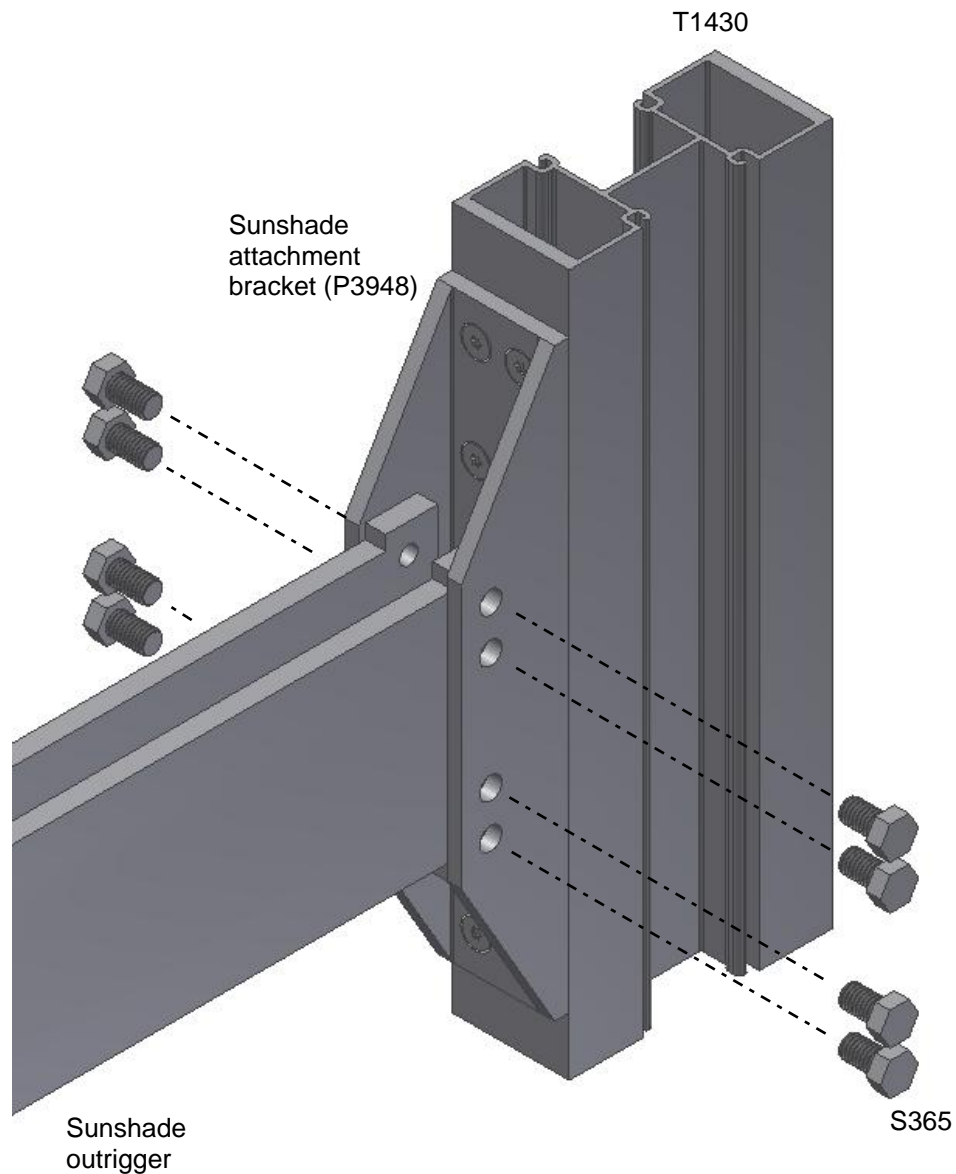
14000 Storefront (alternate option)



Assembly

- Attach sunshade attachment bracket (P3948) to heavy duty vertical (T1430) using eight S374 fasteners.

14000 Storefront (alternate option)

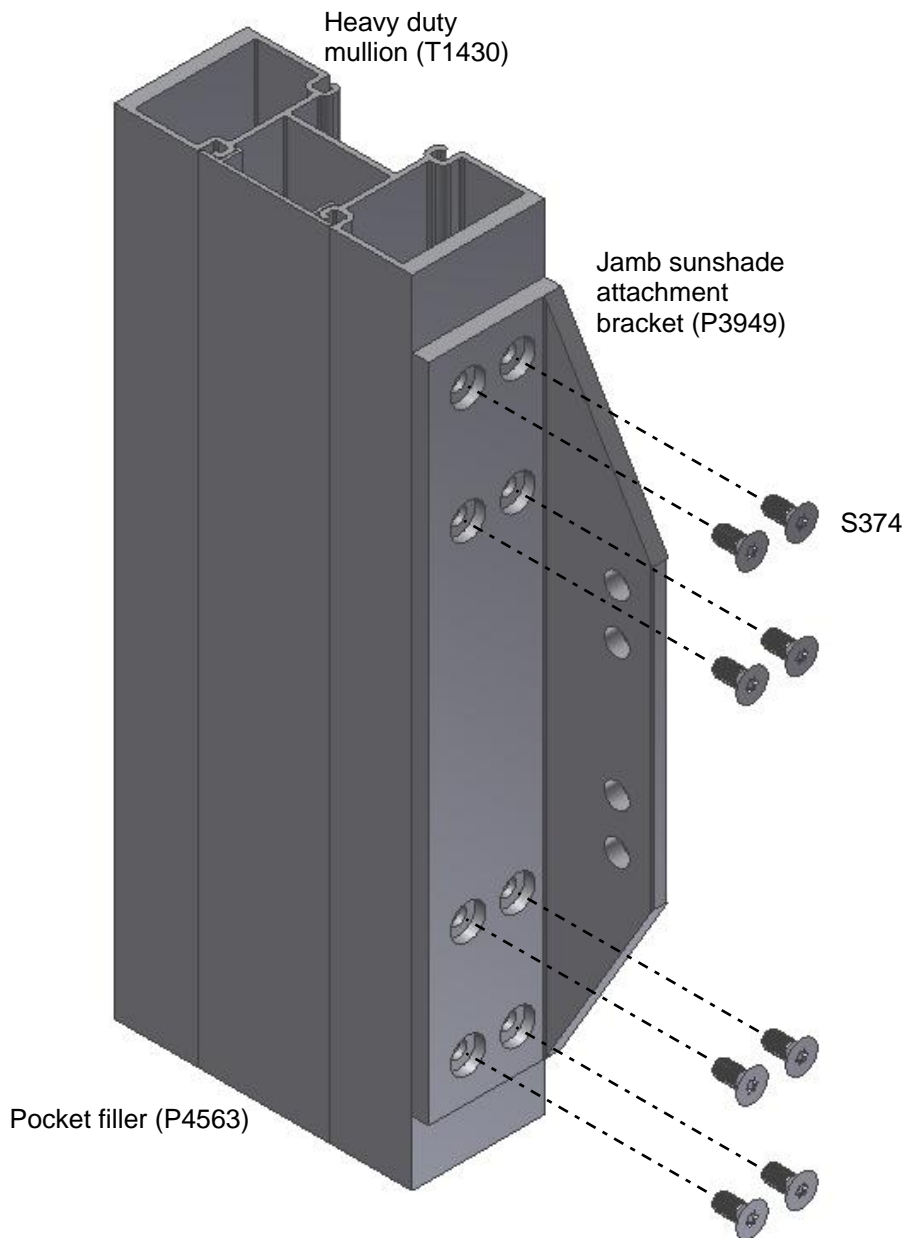


Assembly

- Using eight S365 fasteners, attach the sunshade outrigger to the sunshade attachment bracket.

SUNSHADE ATTACHMENT

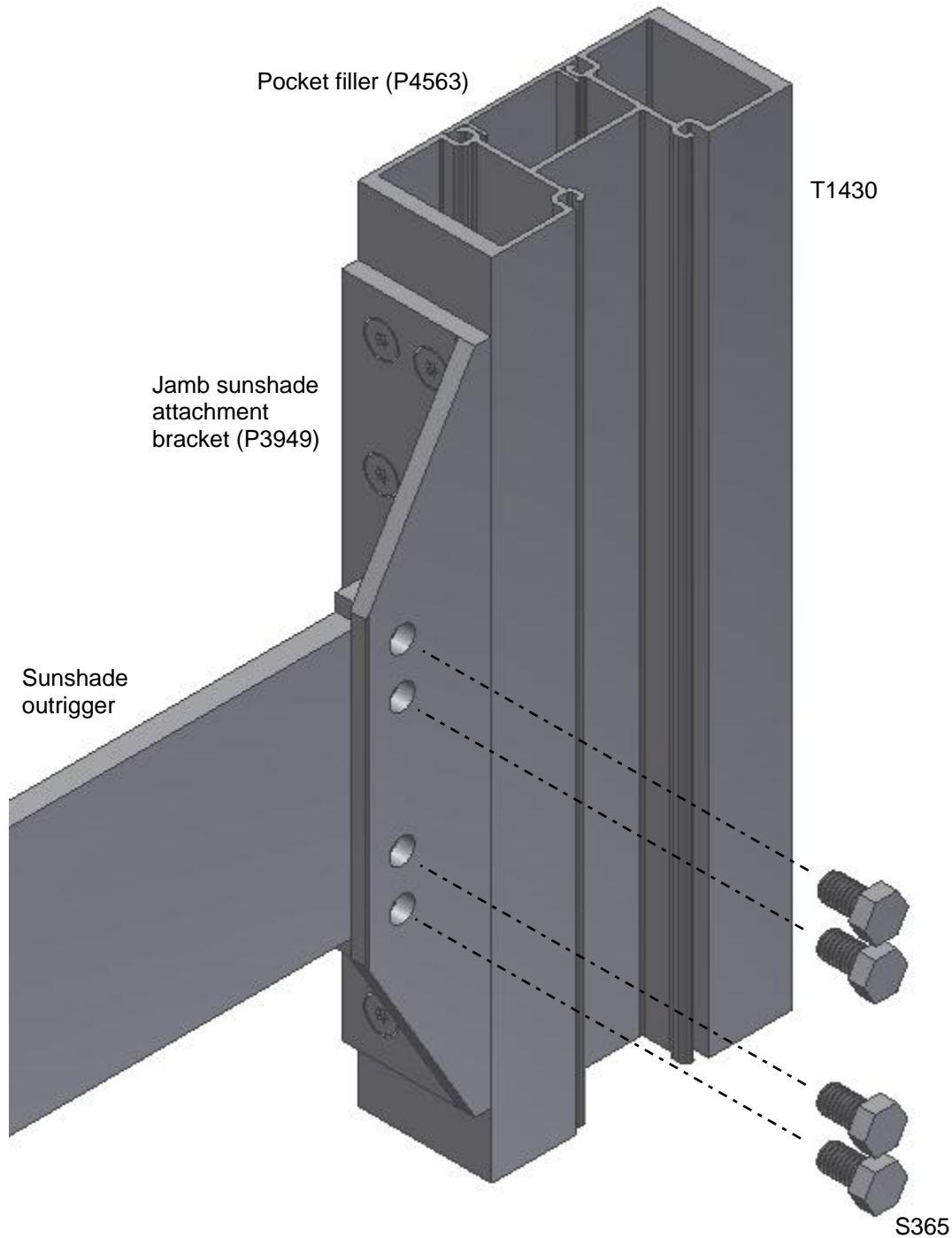
14000 Storefront at Jamb (alternate option)



Assembly

- A drill fixture is available (P3952) to locate holes on the jamb sunshade attachment bracket (P3949).
- Attach jamb sunshade attachment bracket (P3949) to heavy duty vertical (T1430) using eight S374 fasteners.

14000 Storefront at Jamb (alternate option)

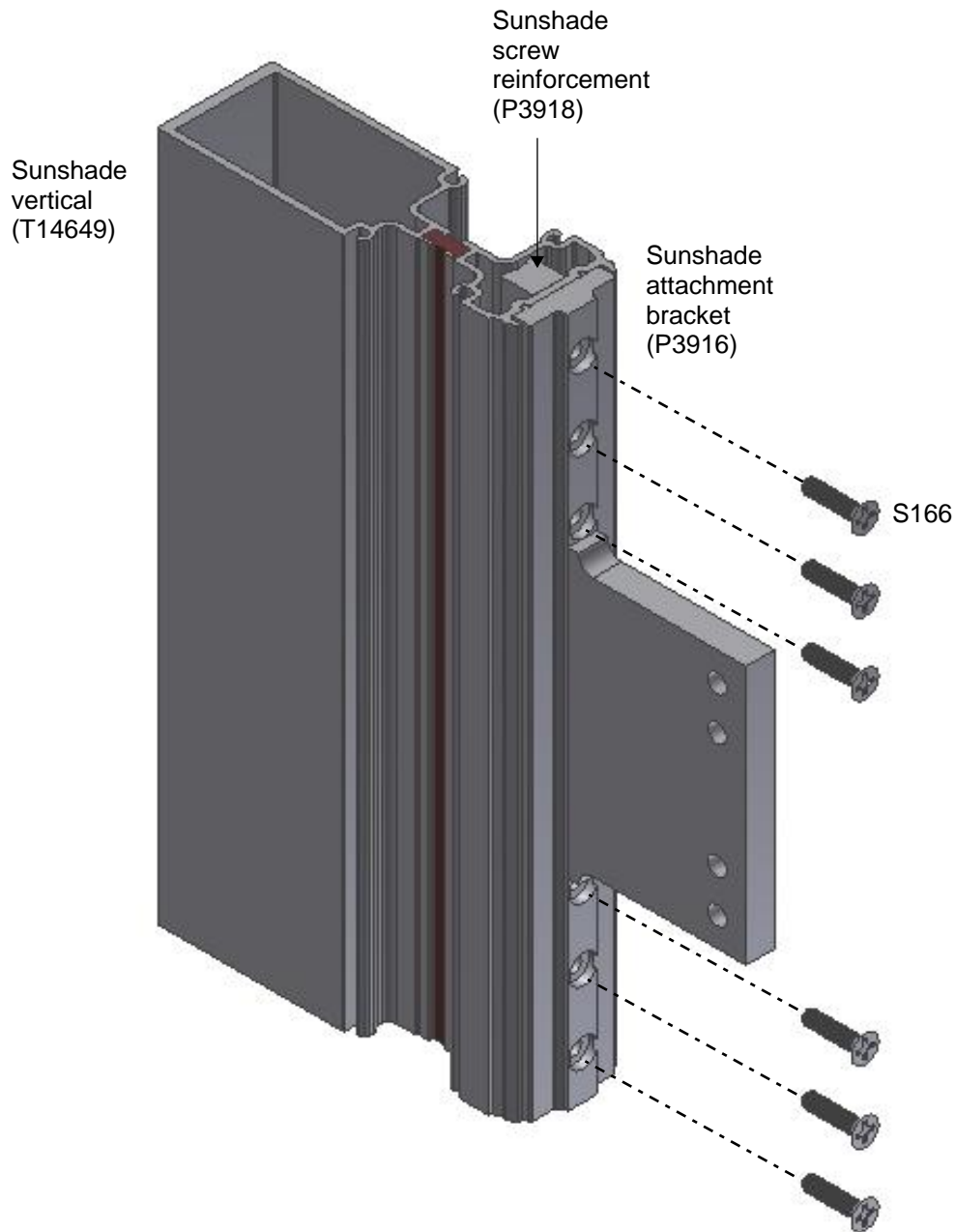


Assembly

- Using four S365 fasteners, attach the sunshade outrigger to the jamb sunshade attachment bracket (P3949).

SUNSHADE ATTACHMENT

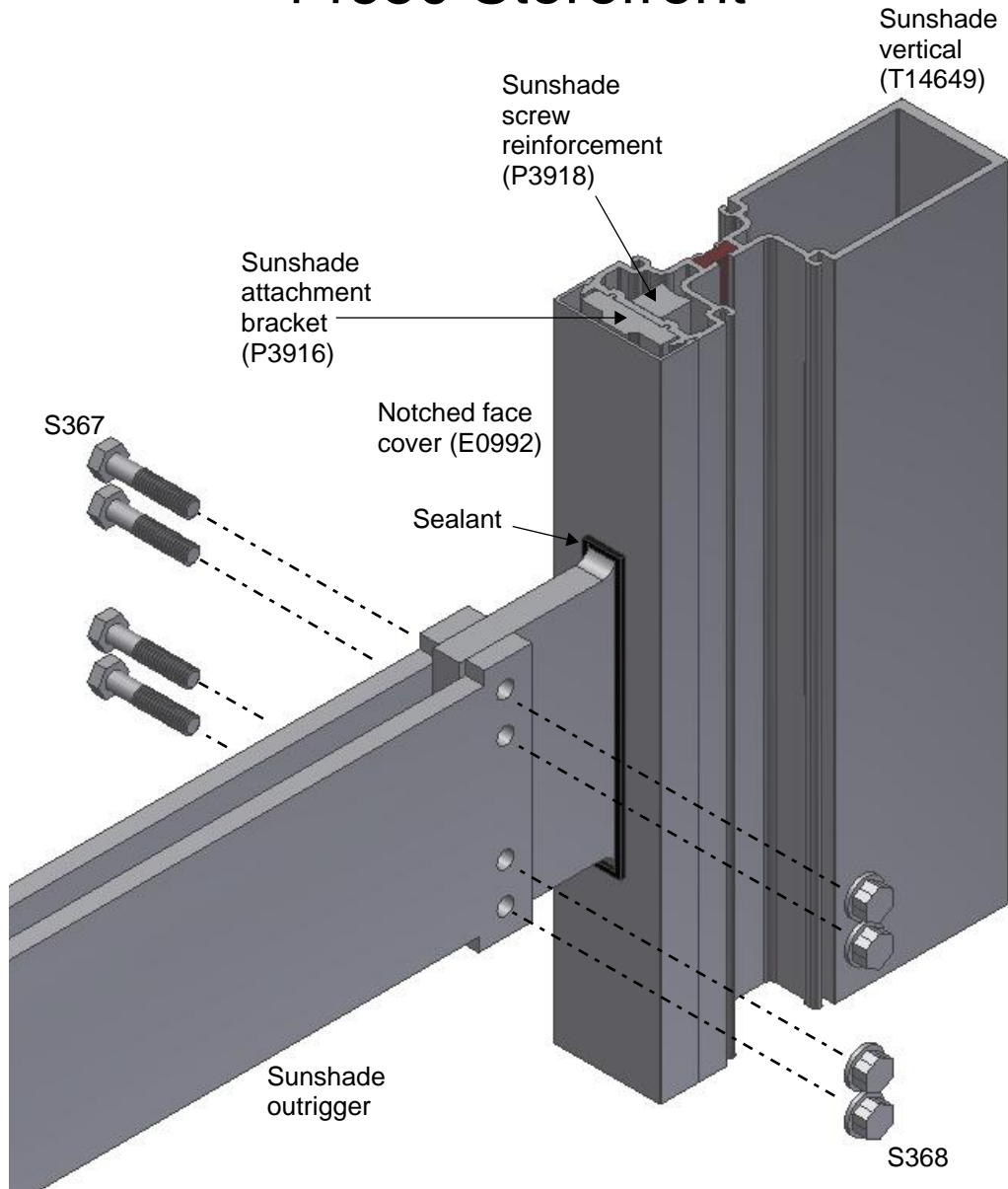
14650 Storefront



Assembly

- Attach sunshade attachment bracket (P3916) to sunshade vertical (T14649) using six S166 fasteners and a sunshade screw reinforcement (P3918).

14650 Storefront

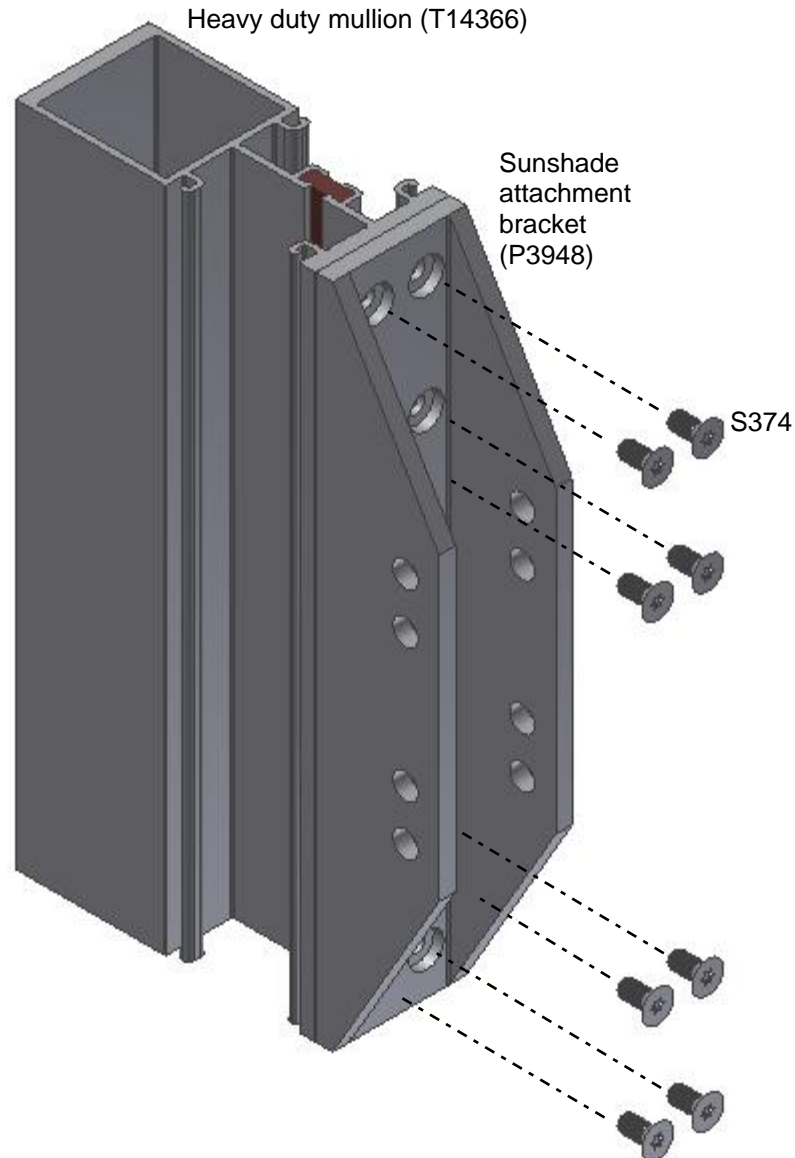


Assembly

- Notch a face cover (E0992) to fit around the sunshade attachment bracket, then install the face cover to the sunshade vertical. Seal perimeter of notch when face cover is installed.
- Using four S367 fasteners and four S368 hex nuts, attach the sunshade outrigger to the sunshade attachment bracket.
- For the jamb condition, all steps remain the same except a pocket filler (E1411 or P4563) replaces the glass in the pocket facing the jamb and the outrigger is only on the jamb side of the bracket.

SUNSHADE ATTACHMENT

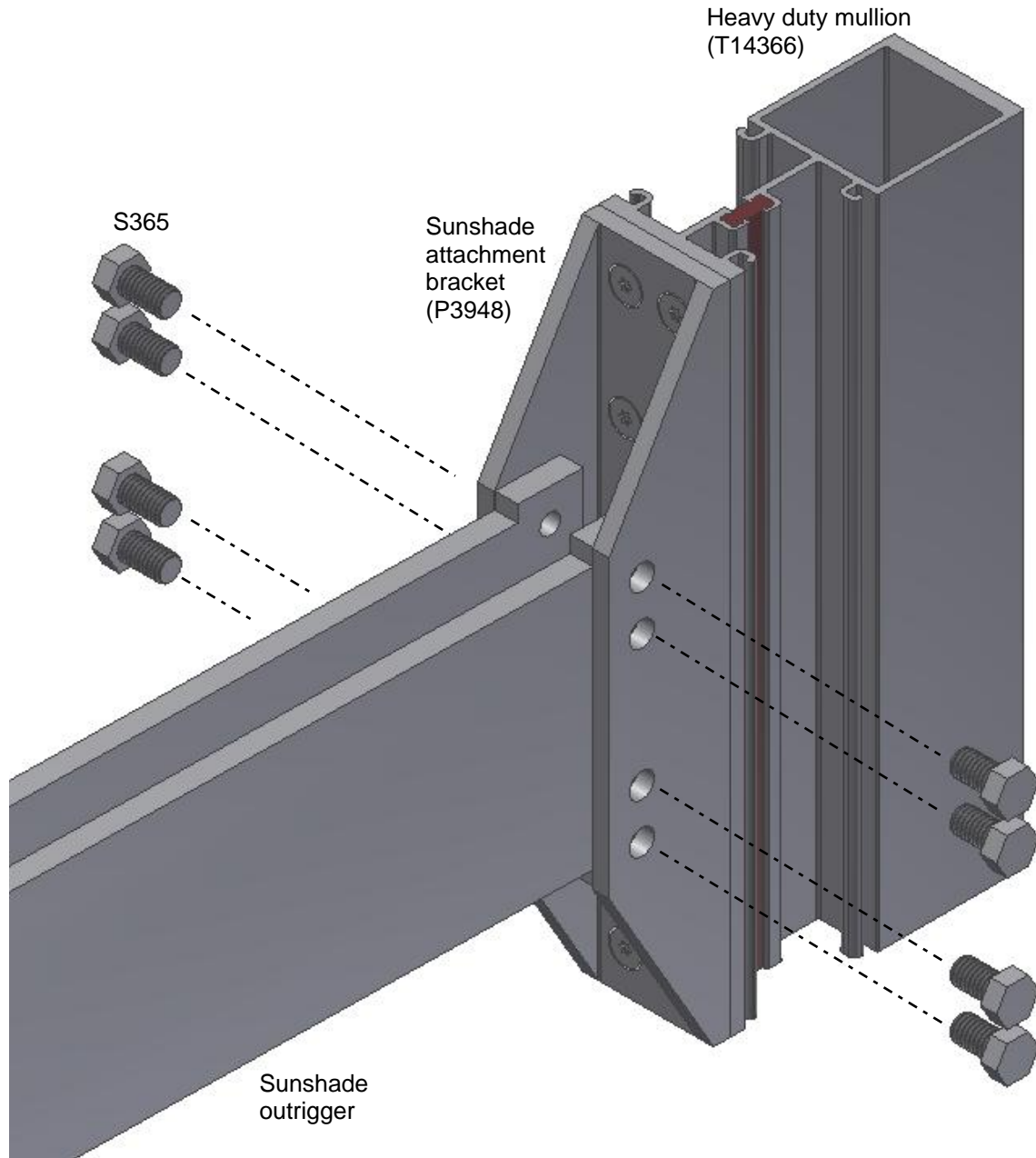
14000 I/O Storefront



Assembly

- A drill fixture is available (P3952) to locate holes on the sunshade attachment bracket (P3948).
- Attach sunshade attachment bracket (P3948) to heavy duty vertical (T14366) using eight S374 fasteners.

14000 I/O Storefront

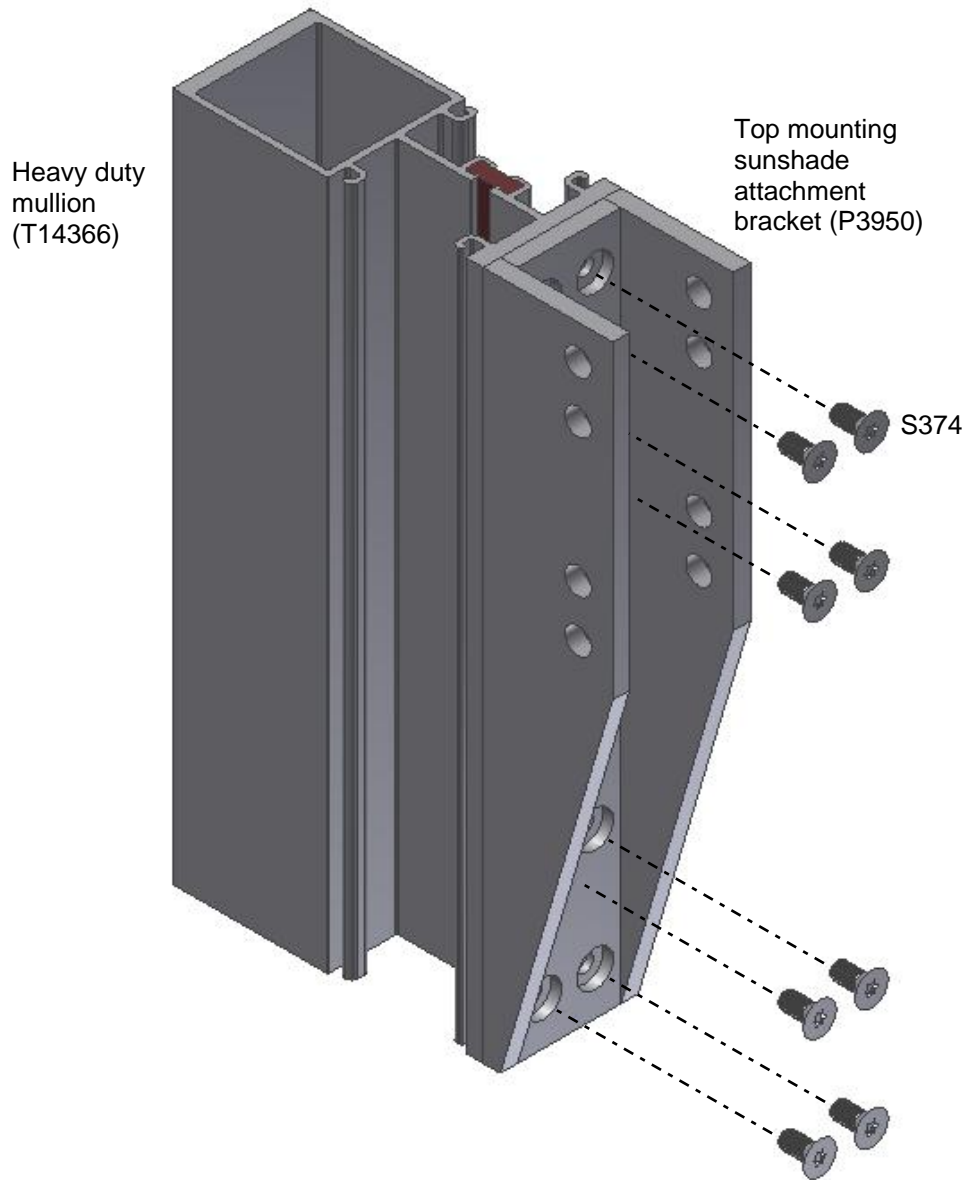


Assembly

- Using eight S365 fasteners, attach the sunshade outrigger to the sunshade attachment bracket.

SUNSHADE ATTACHMENT

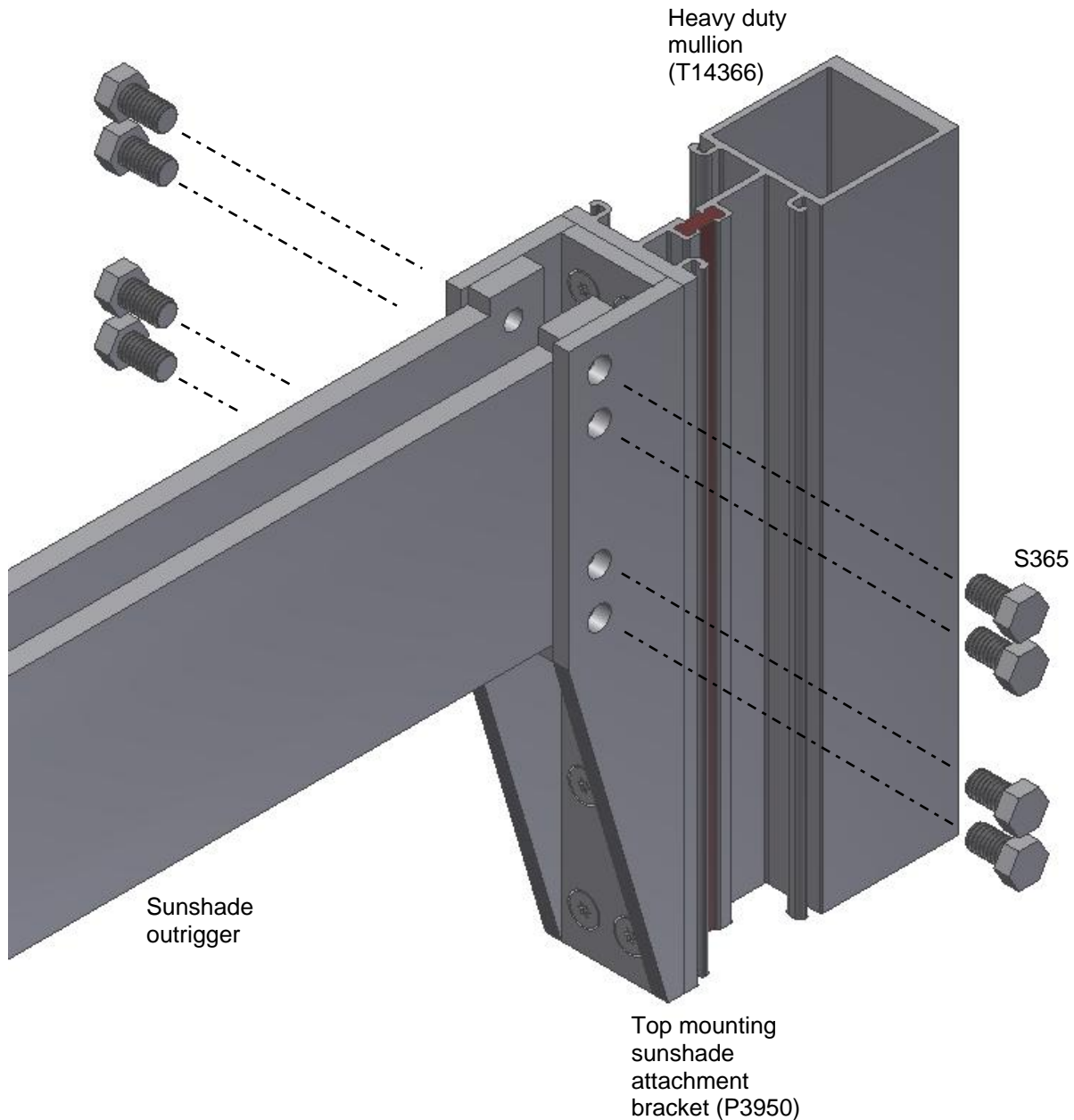
14000 I/O Storefront (top mounted)



Assembly

- A drill fixture is available (P3952) to locate holes on the top mounting sunshade attachment bracket (P3950).
- Attach top mounting sunshade attachment bracket (P3950) to heavy duty vertical (T14366) using eight S374 fasteners.

14000 I/O Storefront (top mounted)

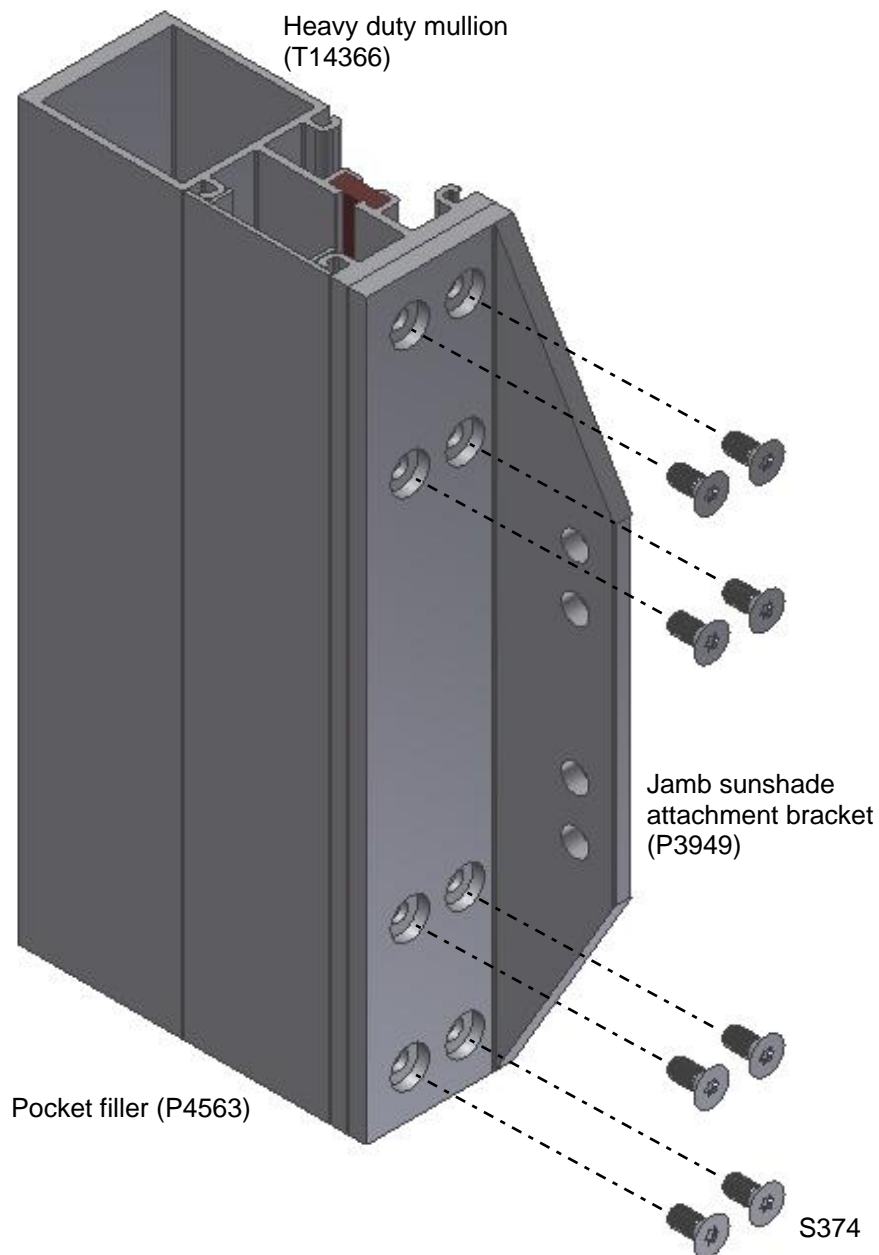


Assembly

- Using eight S365 fasteners, attach the sunshade outrigger to the top mounting sunshade attachment bracket.

SUNSHADE ATTACHMENT

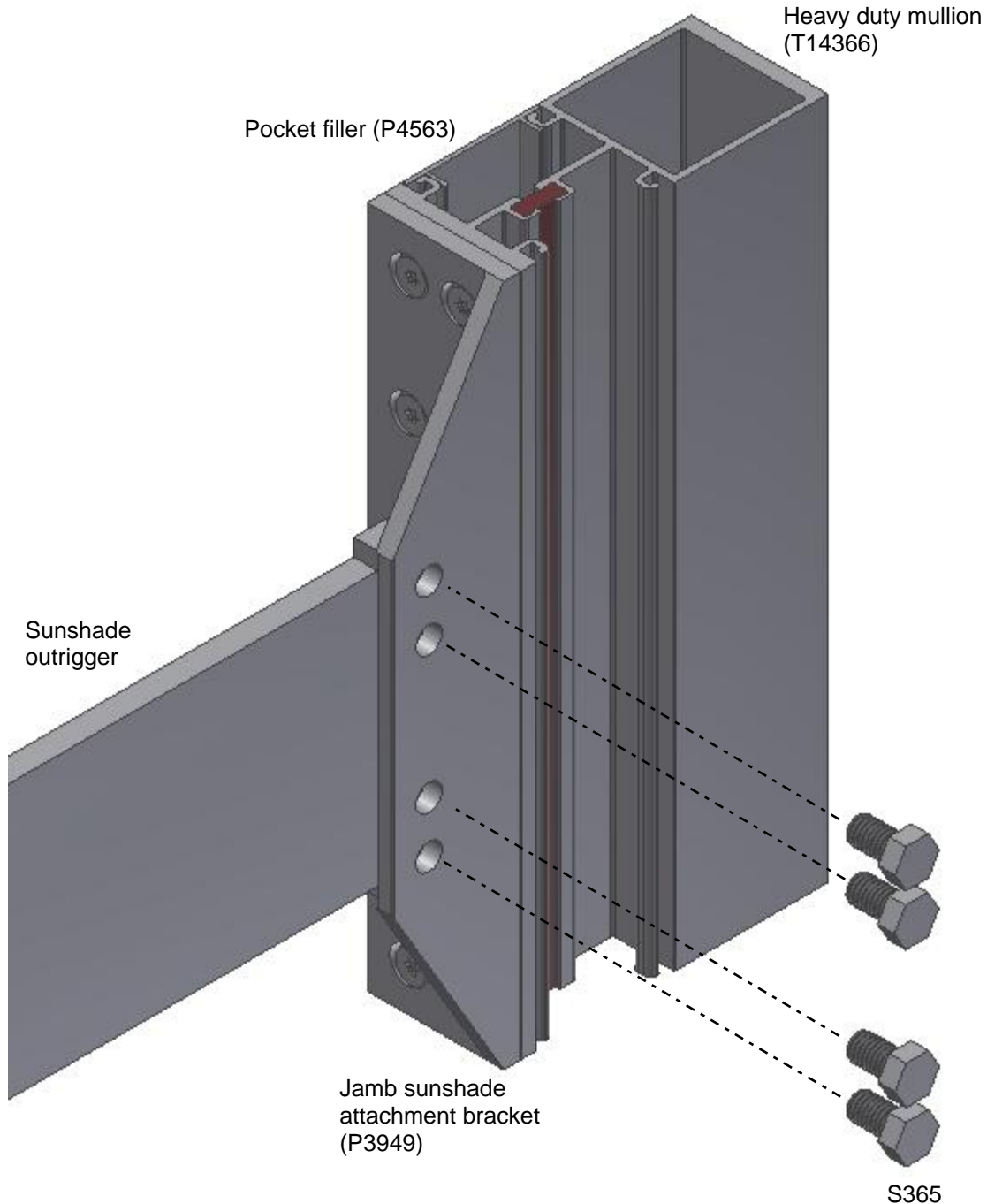
14000 I/O Storefront at Jamb



Assembly

- A drill fixture is available (P3952) to locate holes on the jamb sunshade attachment bracket (P3949).
- Attach jamb sunshade attachment bracket (P3949) to heavy duty vertical (T14366) using eight S374 fasteners.

14000 I/O Storefront at Jamb

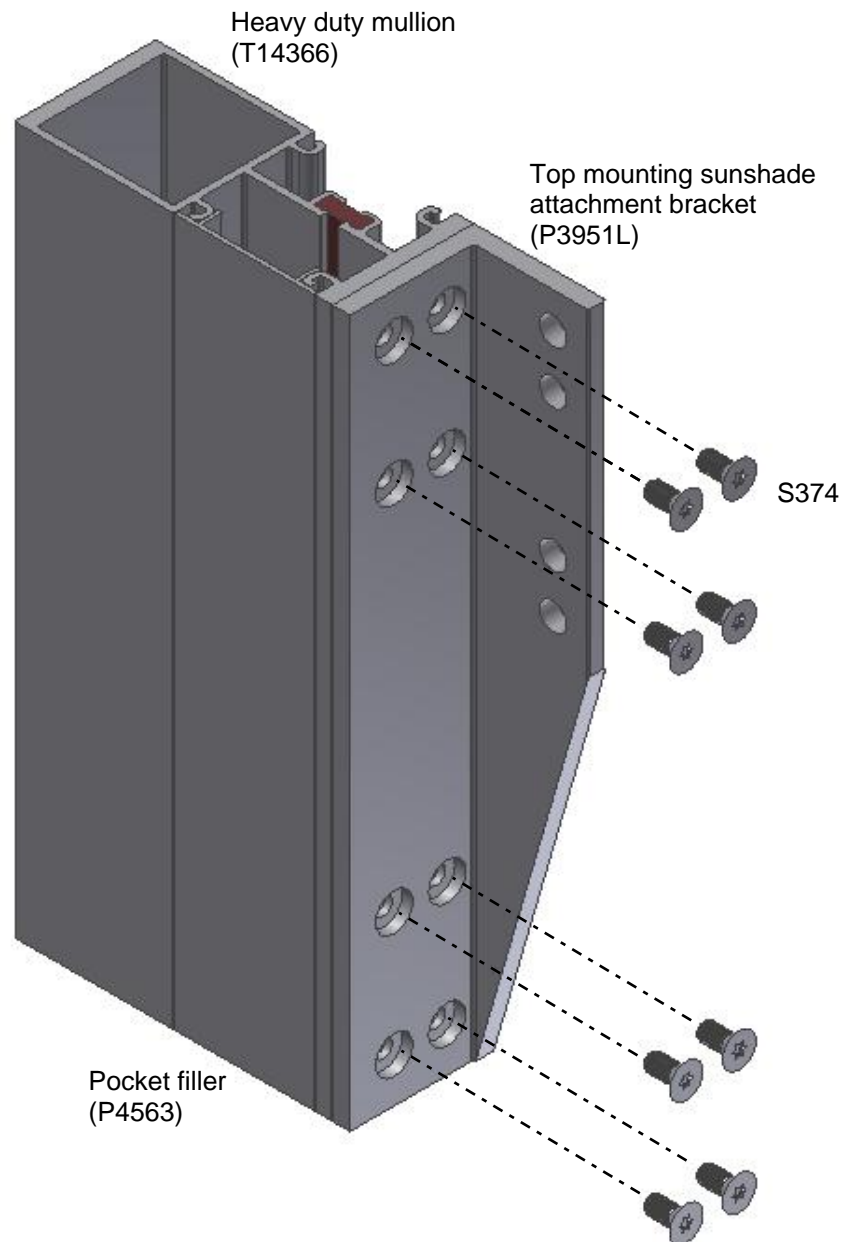


Assembly

- Using four S365 fasteners, attach the sunshade outrigger to the jamb sunshade attachment bracket (P3949).

SUNSHADE ATTACHMENT

14000 I/O Storefront at Jamb (top mounted)

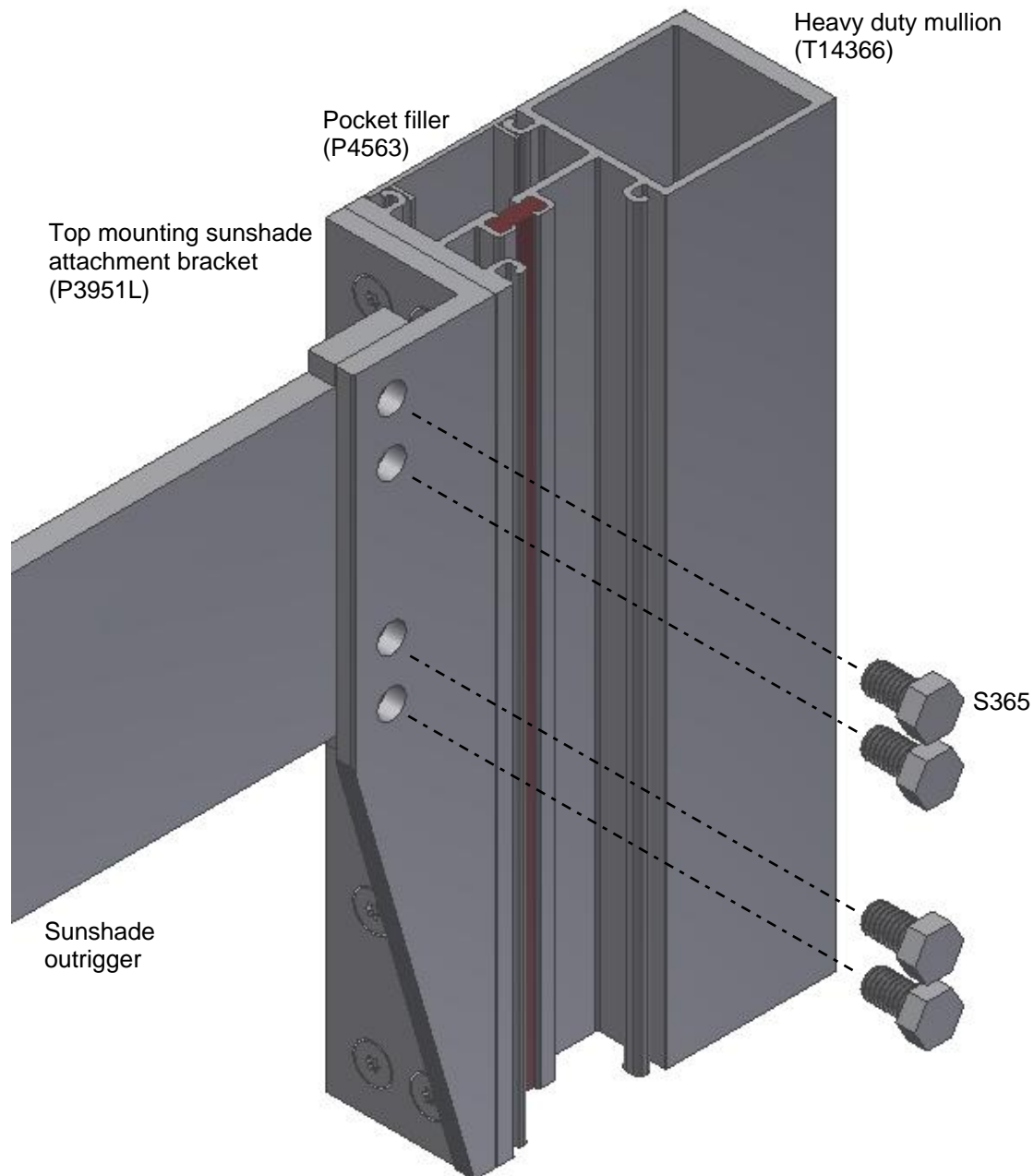


Assembly

NOTE: You must specify left or right hand for the sunshade bracket at the jamb.

- A drill fixture is available (P3952) to locate holes on the top mounting sunshade attachment bracket (P3951L/R).
- Attach a top mounting sunshade attachment bracket (P3951L/R) to heavy duty vertical (T14366) using eight S374 fasteners.

14000 I/O Storefront at Jamb (top mounted)

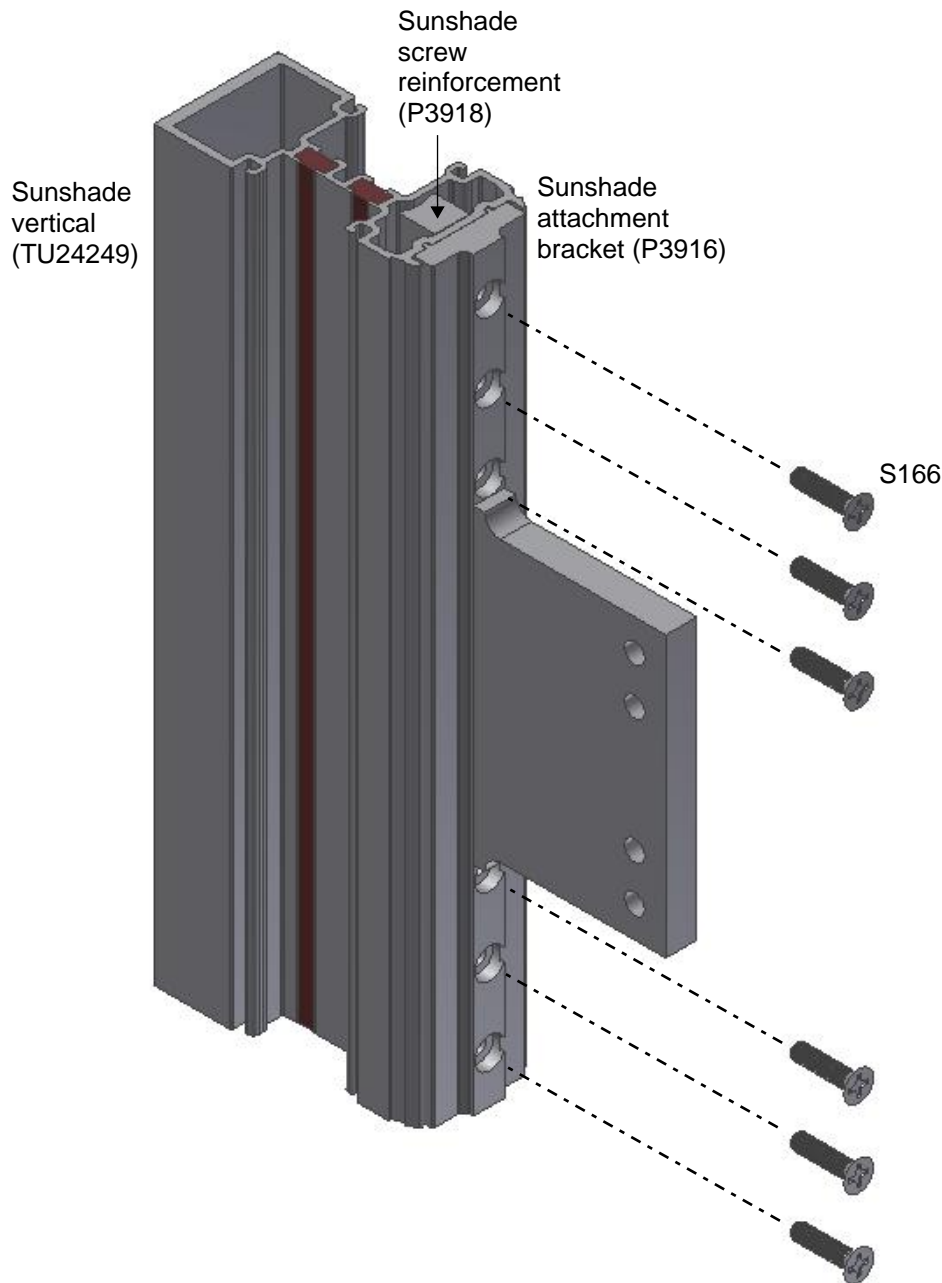


Assembly

- Using four S365 fasteners, attach the sunshade outrigger to the sunshade attachment bracket (P3951L/R).

SUNSHADE ATTACHMENT

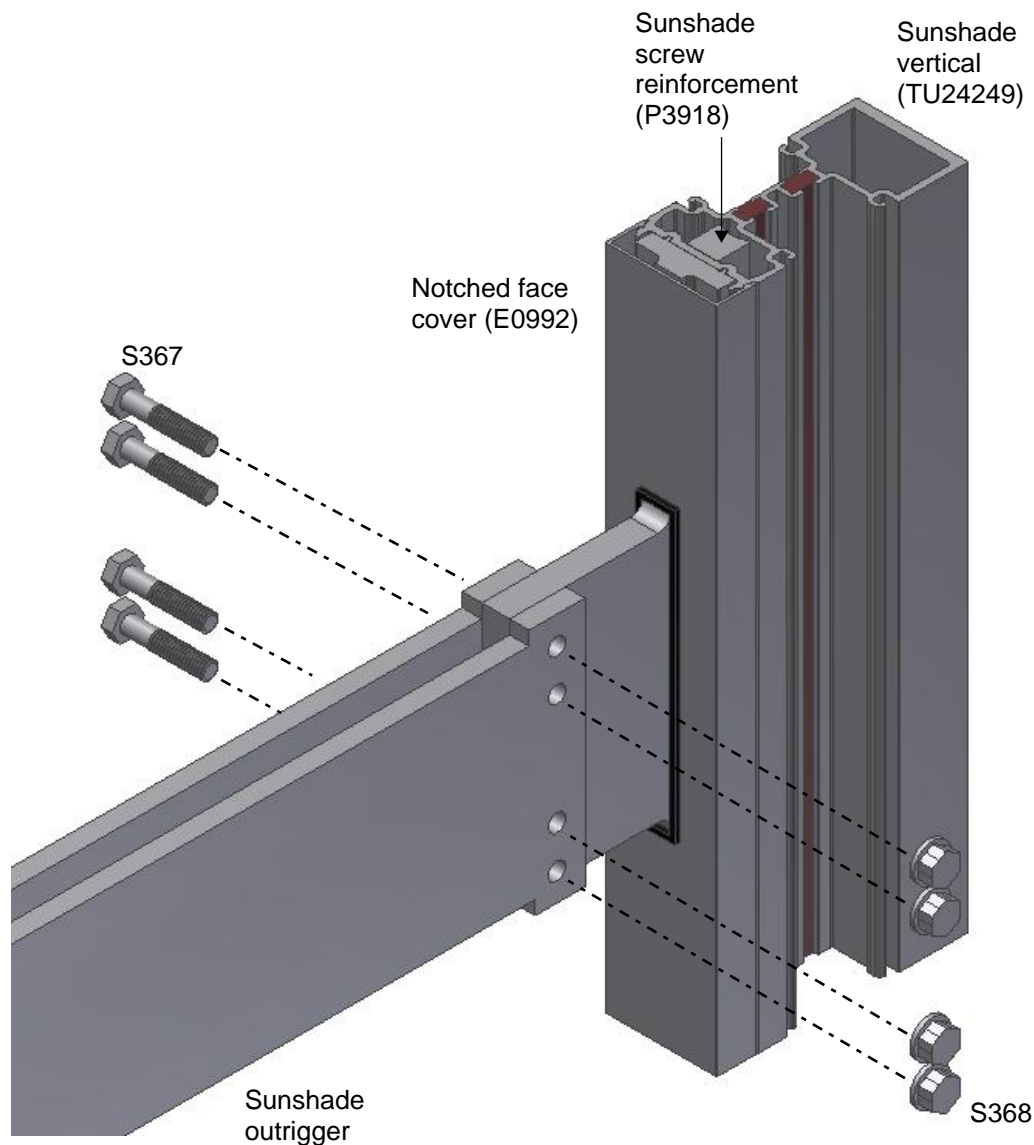
24000 Storefront



Assembly

- Attach sunshade attachment bracket (P3916) to sunshade vertical (TU24249) using six S166 screws and a sunshade screw reinforcement (P3918).

TU24000 Storefront



Assembly

- Notch a face cover (E0992) to fit around the sunshade attachment bracket, then install the face cover to the sunshade vertical. Seal perimeter of notch when face cover is installed.
- Using four S367 fasteners and four S368 hex nuts, attach the sunshade outrigger to the sunshade attachment bracket.
- For the jamb condition, all steps remain the same except a pocket filler (P4563) replaces the glass in the pocket facing the jamb and the outrigger is only on the jamb side of the bracket.