RECOMMENDED FIXINGS MANUAL

for the

deceuninck®

2500 chamfered

suite of profiles

created in association with

Rapier Star®

Recommended Fixings Manual

The Correct Fastener

RapierStar, the market-leading supplier of screws to the PVC-U window industry with unrivalled technical expertise, has worked together with your systems company to produce this recommended fixings manual. The following pages contain advice on the correct fastener for each application.

Your orders are despatched direct from our purpose-built premises at Bosley, near Macclesfield in Cheshire.

Star Performance

Rapier Star PVCU window screws conform to all relevant industry standards, guidelines and recommendations. This provides the fabricator with the most comprehensive range available, including full stainless steel options.

- All Rapier Star PVCU screws exceed the requirements of BS7412.
- Fast starting screws for non-reinforced applications
- High specification drill points for fast insertion without breakage for reinforced applications

Surpassing Standards

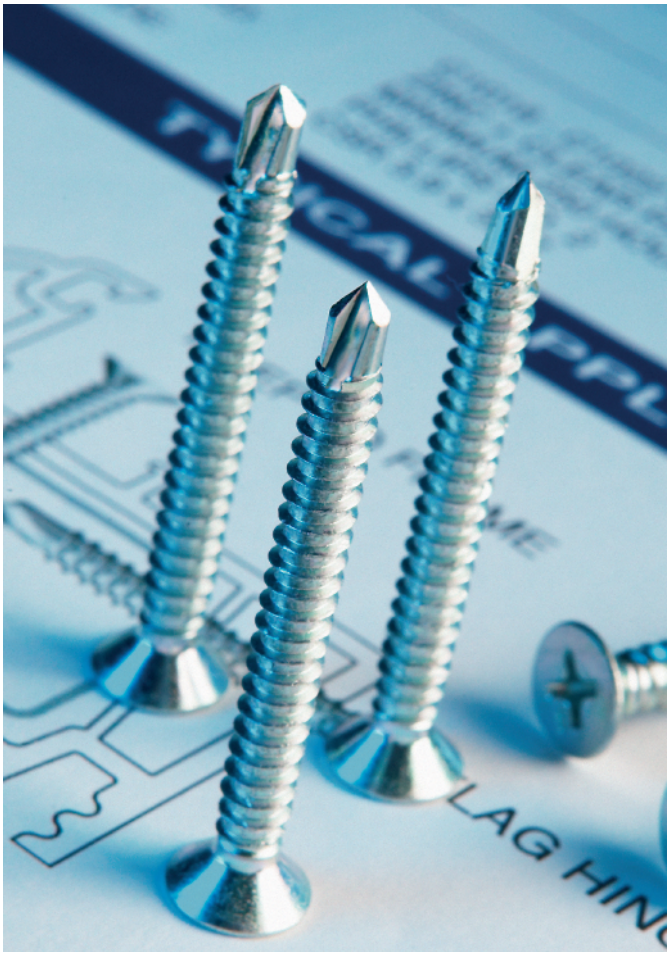
Windows and doors fabricated with Rapier Star screws have surpassed the following British Standards:

BS 6375 PtII, all clauses, but particular attention is drawn to our screws exceeding clause 6.5 - resistance to accidental loading.

BS 7950, formerly known as PAS 011 covering enhanced security for windows when manufactured to BS7412. Correct screw choice and installation is vital for attainment of this standard as forces used within the test are extremely severe - 1000 Newtons (100 Kilos) of force applied in one direction and 3000 Newtons (300 Kilos) applied at 90° to all 'locking points' - i.e. friction stays, keeps, dog bolts etc. Windows, both fully reinforced and unreinforced, fabricated with Rapier Star screws, have exceeded the requirements of BS 7950.

PAS 023 and PAS 024, covering enhanced security for doors. Again correct screw choice is important.Doors fabricated with screws supplied by Rapier Star have exceeded the requirements of PAS 023 and PAS 024.

BS EN ISO 9002, covering traceability but very often thought of as a standard relating purely to quality. However, because of the high cost involved in achieving accreditation, any company operating to this standard must be regarded as quality conscious. Rapier Star is an ISO 9001:2000 registered company and all our window screws are manufactured by BS EN ISO 9002 companies. *Full* traceability is maintained so long as the screws remain in the box in which they were supplied.



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General Hints:

For air driven tools, check that the correct air pressure is maintained.

Check airlines, couplings and tools for leakage.

Clearly mark or label separate driving tools that have been set at different torque settings to ensure that the correct torque is used in each application.

Label bench mounted fastener containers with both fastener type and applications. Keep fastener containers well separated to avoid confusion.

Check for wear of screwdriver bits and replace when worn or damaged.

You may find it useful to have a series of screw charts available at the various work stations to illustrate which fasteners must be used for specific applications. If you would like to provide your fabricators with bench charts, contact Rapier Star - we will be happy to help.

Clear Product Information

Branded, easy to read labels give clear product information, preventing identification errors.

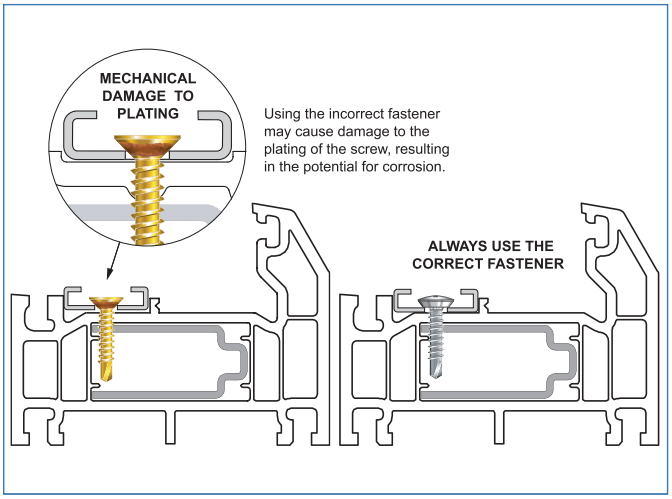
Screw Tips - Best Practice

Perpendicular Insertion: Ensure that any fastener is applied at 90° to the material at all times.

Mechanical Damage: It is important to use the correct torque setting and screwdriver bit for each application. If the screwdriver bit does not engage fully into the recess,or if the torque setting on the screwdriver is too high, damage to any corrosion protection layer of the screw may occur with the resulting likelyhood of corrosion.

Torque Setting: The use of excessive torque may lead to stripping and failure of the fastener. The torque setting on the screwdriver should be the minimum required to effect a complete fastening. At initial set-up, this should be established through trial and error on scrap material, gradually building up to the required torque level.

Screwdriver Speed: It is recommended by the Glass & Glazing Federation and the British Plastics Federation that driver speeds of between 1500 rpm and 2000 rpm are employed. For applications into PVCU only, a lower speed might be preferable. Also, the same piece of hardware may be used in both reinforced and unreinforced applications. In such cases it may be convenient to have two air screwdrivers set at the appropriate torque and speed.



Avoid Corrosive Elements

Several factors can cause screws to rust, each of which can be accelerated depending on the situation of the application.

Silicone sealants - avoid acetic acid cured high and low modulus sealants. The vapour alone is sufficient to cause corrosion. Therefore a neutral curing sealant is recommended.

Acrylic fillers - contact with any carbon steel component will cause corrosion.

Cleaners - aggressive cleaning substances, especially those containing ammonia, chlorine etc. which are commonly used by the householder, can have a very severe effect and should not be used where screws are situated.

New-build - screws should not come into contact with wet plaster or cement, as the lime content will cause corrosion. Also, the acid wash that is often used to clean brickwork is highly corrosive and should be avoided completely. **Where any of the above conditions are likely to exist, the use of stainless steel is recommended.**

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100% Stainless
100% Solution

For coastal or heavily polluted regions of the country, when attaching stainless steel hardware, or where prolonged guarantees are being offered, we recommend that stainless steel screws should be used.

Enhanced Martensitic – Grade 410
100% stainless steel
Ideal for steel reinforcement:
Screws manufactured from enhanced 410 grade stainless steel, widely used in the U.K. for over fifteen years, are designed and manufactured specifically for drilling and tapping through galvanised steel reinforcement.
Enhanced Martensitic stainless steel screws are magnetisable, allowing for easier and more accurate use in the factory. On-site confirmation that stainless steel screws have been used is achieved by way of an identification mark stamped onto the head.
Enhanced Martensitic stainless steel screws provide a high performance corrosion resistant solution from a single length of 100% stainless steel wire.

Austenitic – Grade 302 – 100% stainless steel
Ideal for PVC-U only applications:
By specifying austenitic fasteners for PVC-U only applications, you ensure a high performance, corrosion resistant screw capable of out-living the window and many of it's components.
Not ideal for steel reinforcement:
Austenitic stainless steel is intrinsically soft. Although ideal for PVC-U only applications, and acceptable into thin aluminium, it will not reliably self-drill or self-tap through galvanised steel reinforcement. Therefore, some austenitic screws are either treated or manufactured in such a way as to overcome this problem.

Bi-Metallic
These screws have an austenitic head and 'top' portion of thread with carbon steel drill point and partial thread. Often accepted by Councils and Housing Associations for use in the manufacture of windows and doors.
Austenitic stainless steel is non-magnetic, therefore on-site confirmation is achieved by use of a magnet. Please contact Rapier Star for details if Bi-Metallic screws are required for 'fully austenitic' contracts.

Identification of Stainless Window screws

Unique head design eliminates confusion between the grades of stainless steel used in the fabrication of of PVC-U windows. Clear marking on the head of our window screws allows immediate identification of the grade of stainless steel from which the screws are manufactured. This ensures that specifications are adhered to.

Austenitic Stainless Steel - 302
Because 302 grade Austenitic stainless steel is intrinsically soft, it is unsuitable for self-drilling applications. However, it is ideal for use in PVC-U only applications, giving excellent corrosion resistance.

Enhanced Martensitic Stainless Steel - 410
410 grade Martensitic stainless steel is a harder grade which is capable of self-drilling and tapping into steel reinforcement. Screws are independently tested at a UKAS accredited test house to beyond 3000 hours salt spray test in accordance with BS:7479.

Bi-Metallic
Austenitic stainless steel fastener with a carbon steel drill tip. Suitable for reinforced applications. Combination recess with square drive, gives effective 'stick-fit' onto the driver bit for ease of insertion during fabrication and common Phillips no2 recess for on-site adjustment.

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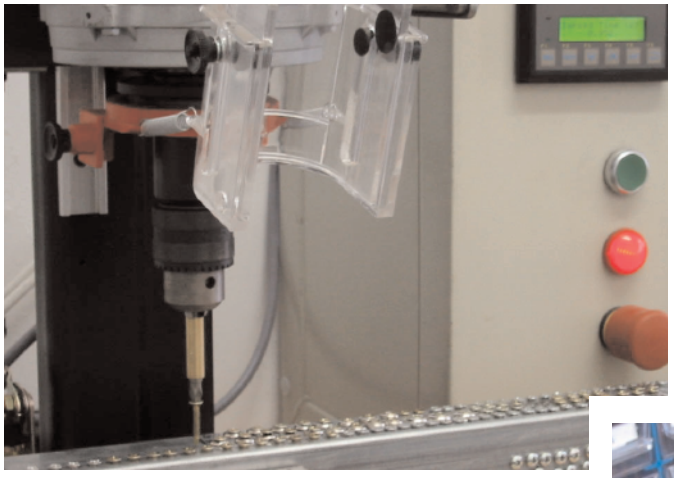
Tested for Safety - Tested for Quality

Durable

Screws are tested for plating depth and corrosion resistance using internationally accepted test equipment. Salt spray testing is in accordance with BS7479 and to UKAS requirements. Carbon steel screws are routinely tested to 240 hours and our enhanced martensitic stainless steel carries independent certification to beyond 3000 hours salt spray test.



Fast

Using custom designed and built equipment, window screws are tested for speed of insertion, ensuring that self-drilling screws provide fast and efficient fastenings into steel reinforcement and that screws for fastening into PVC-U self-start easily and safely.

Secure

Screws are tested for 'torque-to-start', 'torque-to-insert' and 'torque-to-spin', ensuring that screws will not shear in the correct application. Screws are also tested for hydrogen embrittlement to prevent failure after insertion.

Safe

All aspects of our screws are tested and their dimensions checked to ensure that our high specifications are met. This includes depth of recess and 'wobble', using a certified Phillips No.2 driver bit. The internationally accepted standard is plus-or-minus 6°. **We specify plus-or-minus 3° to make insertion safer and easier.**

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Best Value

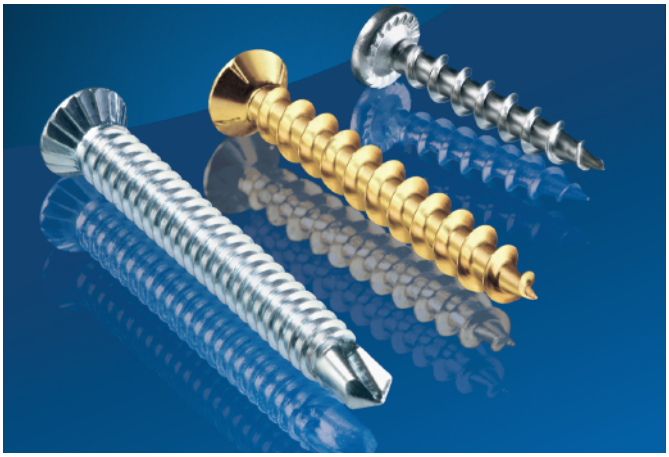
Now that Best Value has replaced Compulsory Competitive Tendering, the public sector is no longer restricted to selecting the lowest priced tender. This more business-like approach to management and accounting aims to improve the performance, quality and value for money of work on the housing stock, reducing whole life costs.

Best Value principles in action:

Selecting a market leading fastener supplier can be essential in Achieving Best Value Performance Targets. Rapier Star offers quality assured products with a proven history, as well as knowledgeable technical support.

Conclusion:

Whole sections of specifications, often originated many years ago, may not reflect material improvements and advancements in product design. Best Value now requires a regular examination of the facts of available product performance to ensure 'more efficient investment' of taxpayers money.



Continuity of Supply

Massive stockholding of the PVC-U window industry's most comprehensive range ensures that we are able to provide a reliable same-day despatch service.

Investors In People

RapierStar is committed to the Investors In People standard. Continuous improvement and training within our company enables our staff to provide you with a high level of service. Our specialist teams of application engineers are available to advise window fabricators on correct fastener selection. Profile system specific fastener guides are maintained for all leading system companies.

INVESTOR IN PEOPLE

Healthy Lifestyle

In order to guarantee trouble-free installation of screws and fasteners, consideration of some general fabrication criteria should be undertaken - such checks as

- Securely fitting reinforcement
- Fixing operation at 90° angle
- Location of screw into flat plane of steel
- Driver speed at between 1500 and 2000 rpm
- Correct air pressure and compressor regulation
- No excessive play in power driver collar
- Suitable driver bits, regularly changed
- Unnecessary pre-drilling for stainless steel screws.

These are all potential causes of problems and are among the many areas of vital fastener performance which we would consider during your personal 'Health Check'

To satisfy the Glass & Glazing Federation and the British Plastics Federation guidelines and gain 'peace of mind', arrange for our experienced specialists to produce free of charge, your own 'quick reference' quality management system for window screws with your individual requirements highlighted on wall charts using clear line drawings. To give your windows a 'Health Check' -

Telephone: 0870 300 3313
or
Fax: 0870 300 3314

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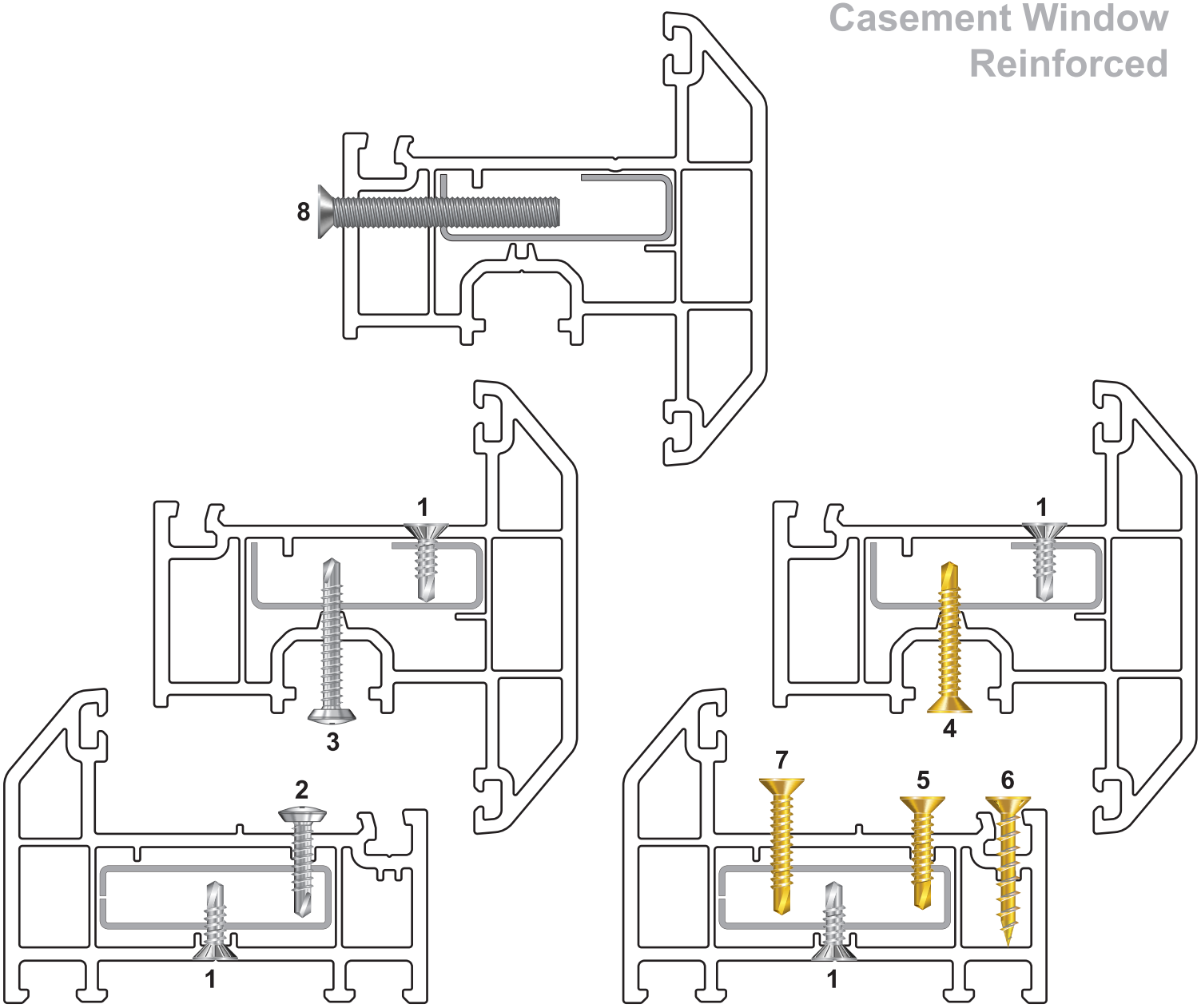
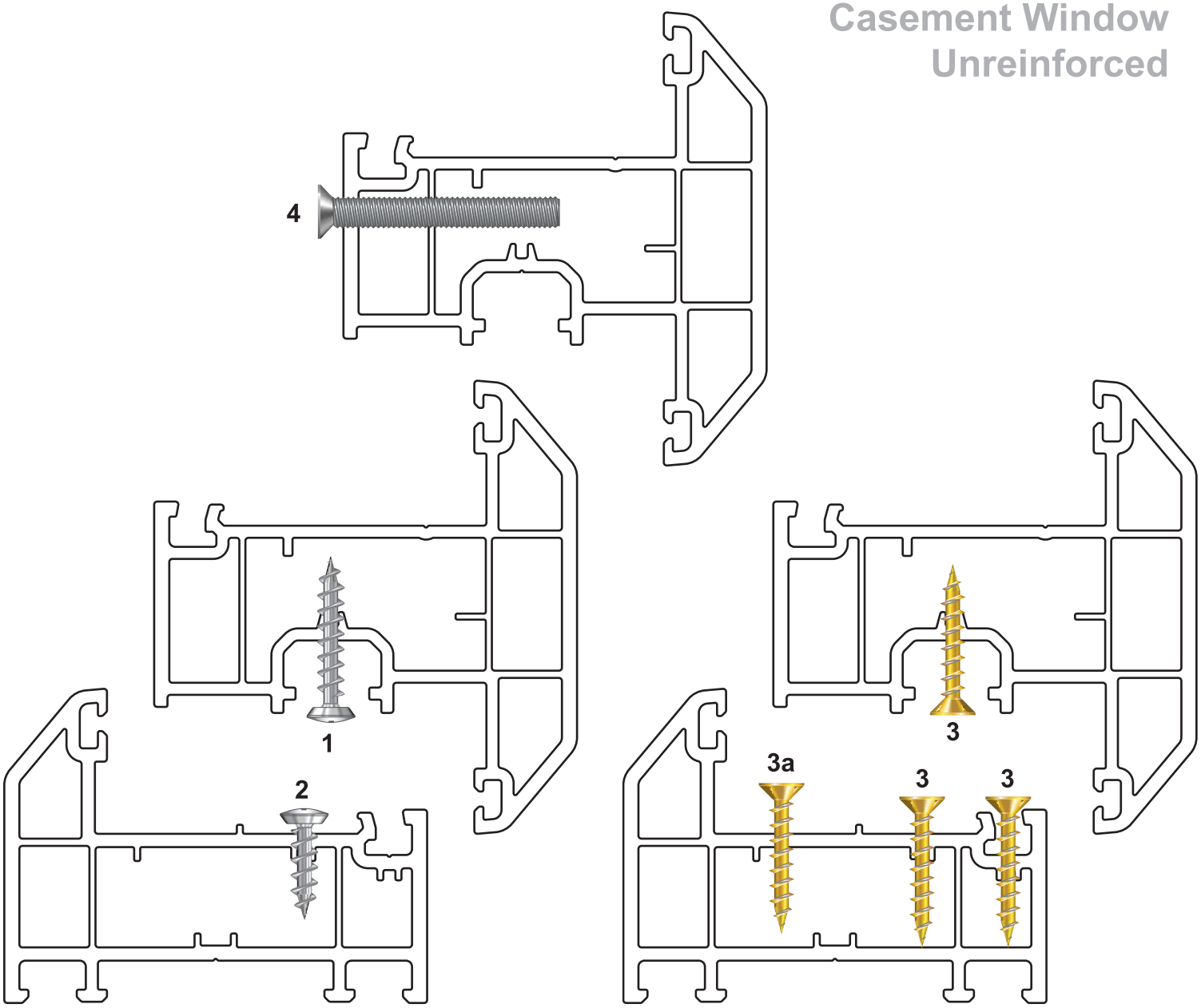
Casement Window Reinforced

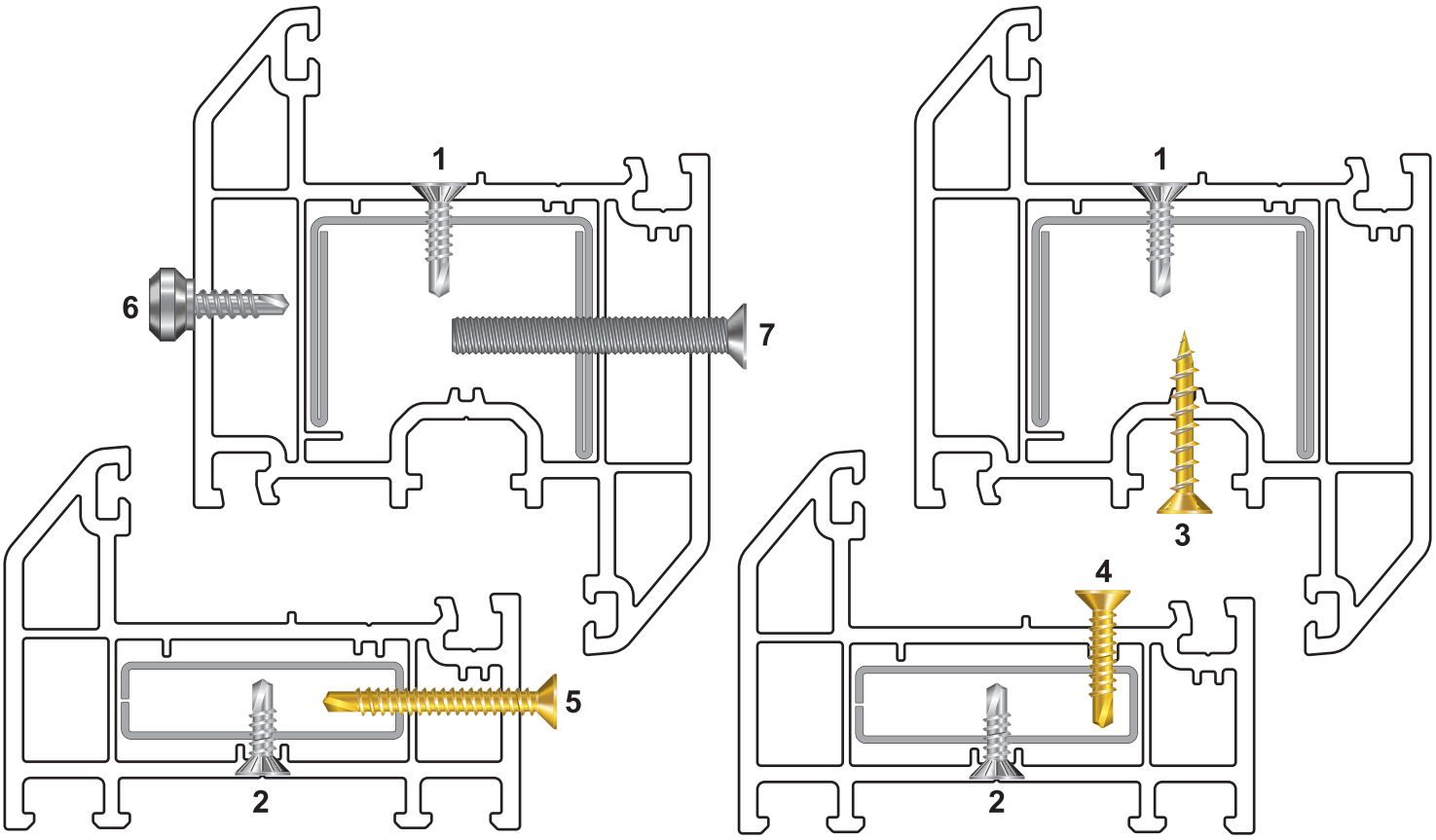


1	RSR 3.9 x 16 Z	Reinforcement retention
2	SSR 3.9 x 16 Z	Friction stay to frame
3	SSR 3.9 x 25 Z	Friction stay to sash
4	CSR 3.9 x 25 Y	Gearing to sash
5	CSR 3.9 x 19 Y	Keep to reinforced section of frame
6	CFG 4.3 x 25 Y	Keep to unreinforced section of frame
7	CSR 3.9 x 22 Y	Run-up block to frame
8	MS M5 x 40 Z	Handle retention

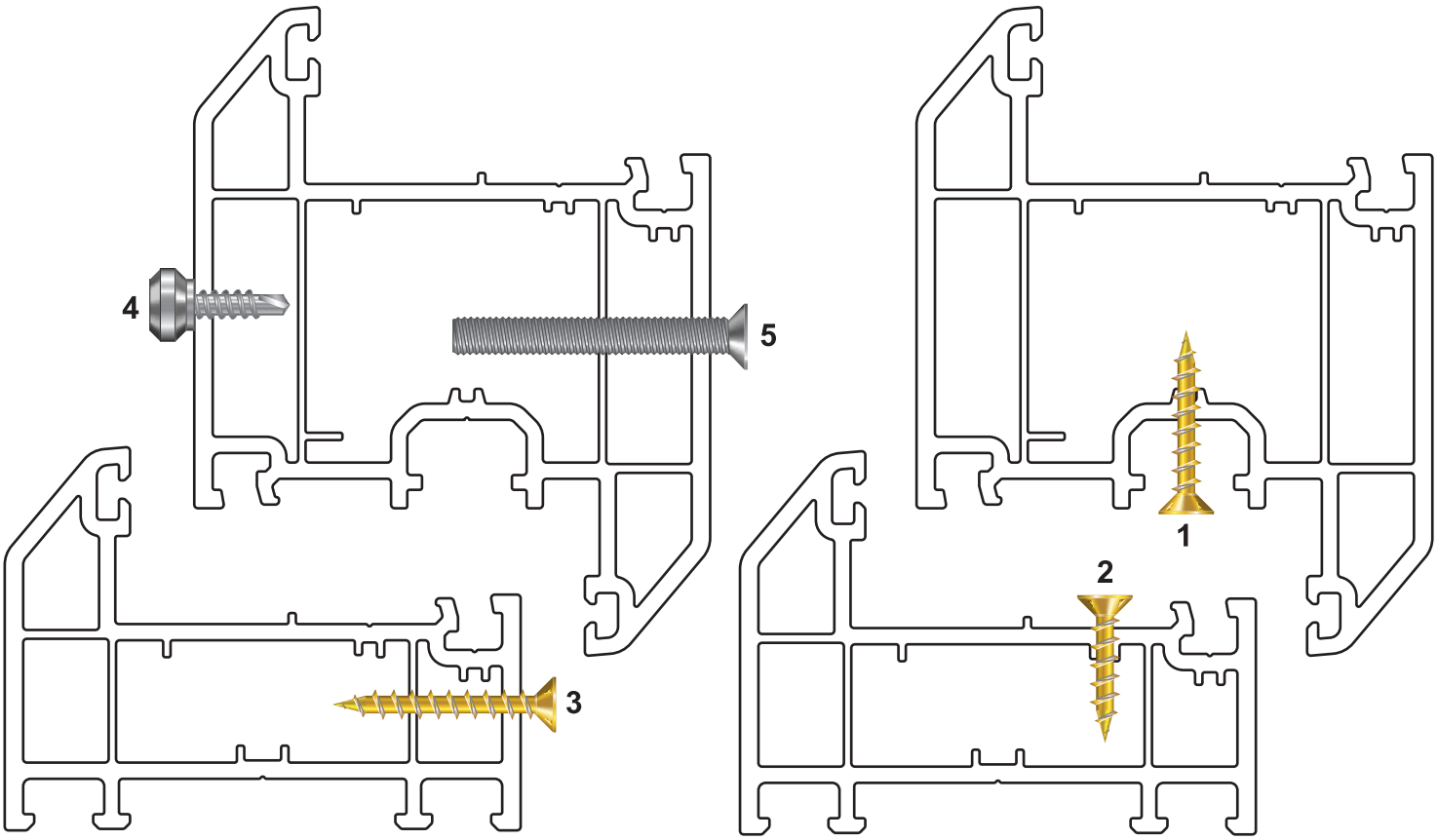
Casement Window Unreinforced



1	SFG 4.3 x 25 Z	Friction stay to sash
2	SFG 4.3 x 16 Z	Friction stay to frame
3	CFG 4.3 x 25 Y	Gearing to sash, Keep to frame
3a	CFG 4.3 x 25 Y	Run-up block to frame
4	MS M5 x 40 Z	Handle retention



1	RSR 3.9 x 16 Z	Reinforcement retention to sash
2	RSR 3.9 x 13 Z	Reinforcement retention to frame
3	CFG 4.3 x 25 Y	Gearing
4	CSR 3.9 x 19 Y	Keep
5	CSR 3.9 x 32 Y	Hinge to frame
6	NSR 4.0 x 13 Z	Weatherbar retention
7	MS M5 x 40 Z	Handle retention

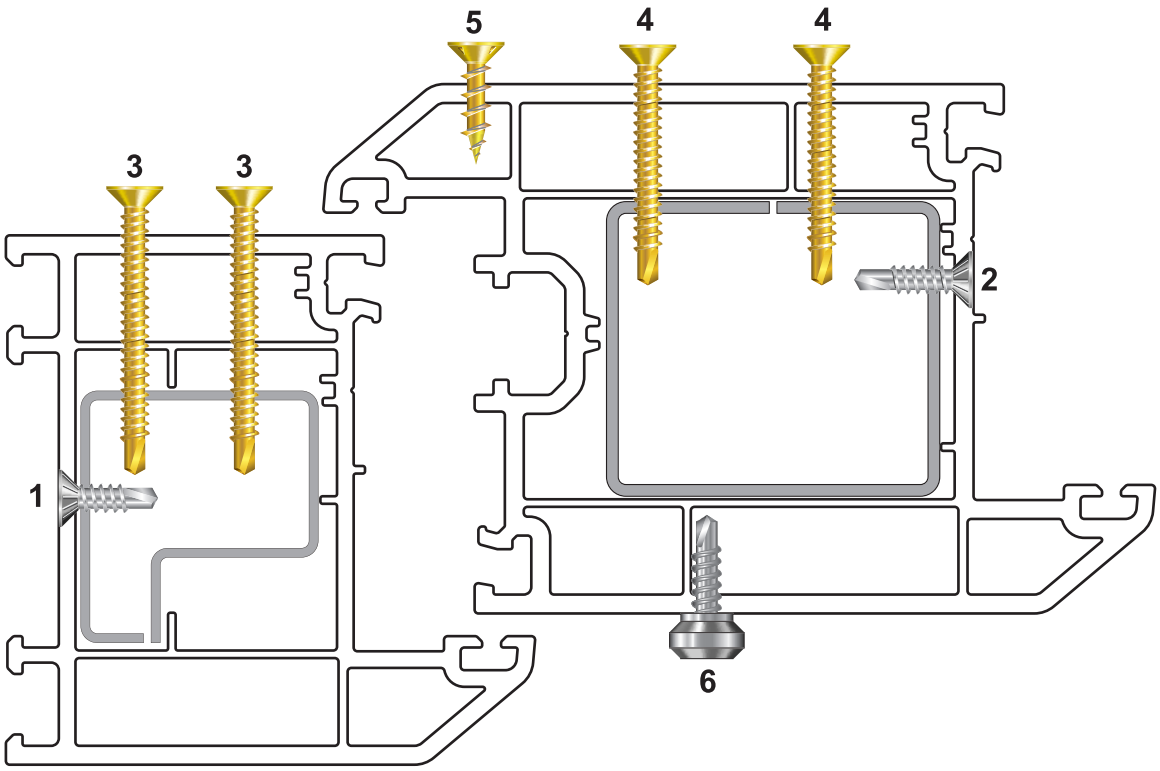


1	CFG 4.3 x 25 Y	Gearing
2	CFG 4.3 x 20 Y	Keep
3	CFG 4.3 x 30 Y	Hinge to frame
4	NSR 4.0 x 13 Z	Weatherbar retention
5	MS M5 x 40 Z	Handle retention

Open-in Door
Hinge Side - Flag Hinges

P2530 Sash
P2859 Reinforcement

P2533 Outer Frame
P2887 Reinforcement

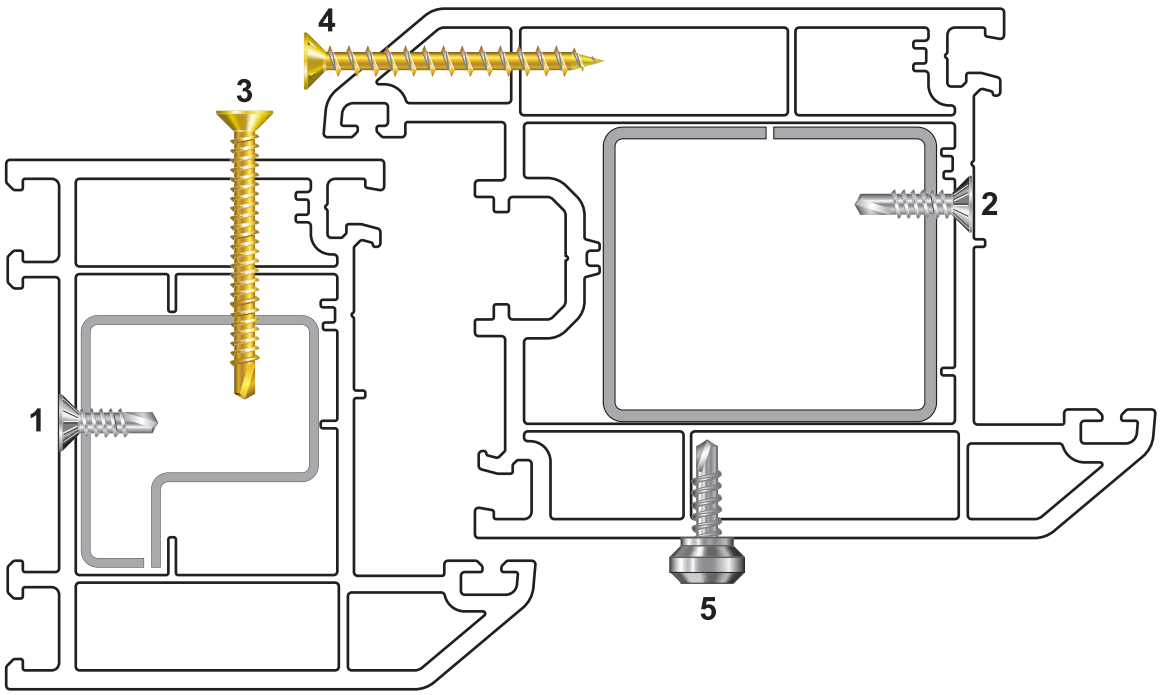


1	RSR 3.9 x 13 Z	Reinforcement retention to frame
2	RSR 3.9 x 16 Z	Reinforcement retention to sash
3	CSR 3.9 x 38 Y	Hinge to frame
4	CSR 3.9 x 32 Y	Hinge to reinforced section of sash
5	CFG 4.3 x 16 Y	Hinge to unreinforced section of sash
6	NSR 4.0 x 13 Z	Weatherbar retention

Open-in Door
Hinge Side - Butt Hinges

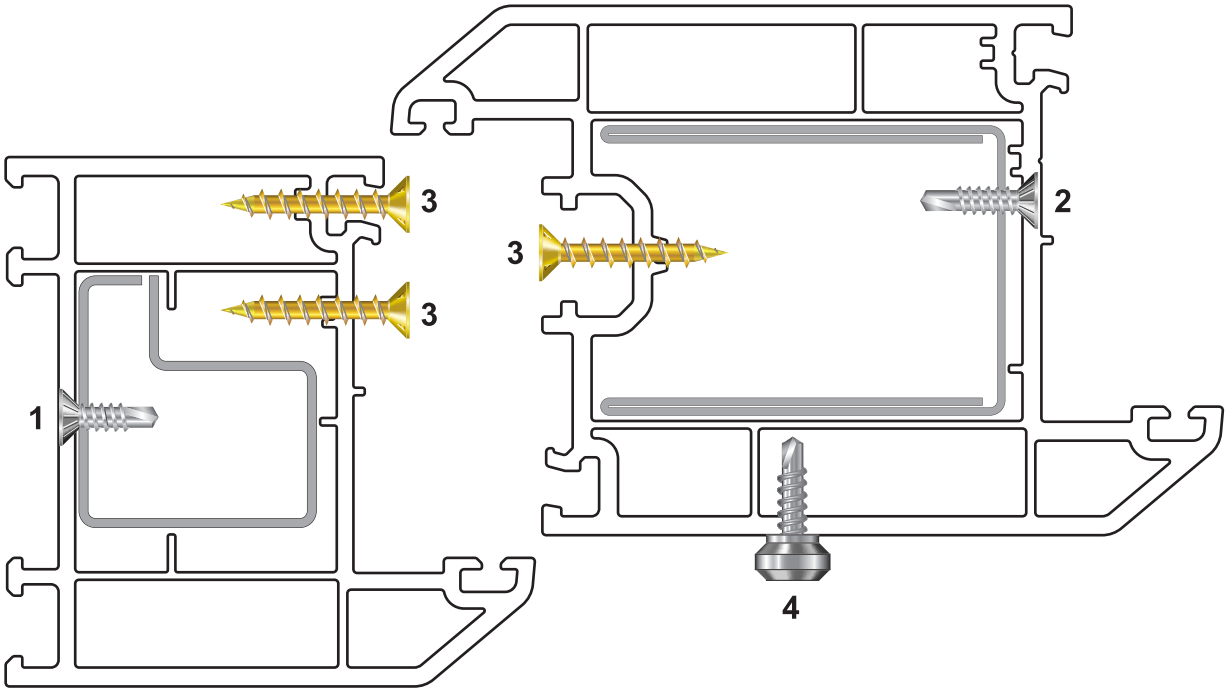
P2530 Sash
P2859 Reinforcement

P2533 Outer Frame
P2887 Reinforcement



1	RSR 3.9 x 13 Z	Reinforcement retention to frame
2	RSR 3.9 x 16 Z	Reinforcement retention to sash
3	CSR 3.9 x 38 Y	Hinge to frame
4	CFG 4.3 x 40 Y	Hinge to sash
5	NSR 4.0 x 13 Z	Weatherbar retention

Open-in Door Lock Side



1	RSR 3.9 x 13 Z	Reinforcement retention to frame
2	RSR 3.9 x 16 Z	Reinforcement retention to sash
3	CFG 4.3 x 25 Y	Gearing to sash, Keep to frame
4	NSR 4.0 x 14 Z	Weatherbar retention

Notes

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