

7.0 Installation Method.

Sub Frame Bracket System

4. Confirm alignment, vertically and horizontally of outer frame and request for Main Contractor's inspection.
5. Apply silicone sealant to outside of window frame perimeter before skin coating to wall.

Apply paintable P.U. sealant to inside perimeter after Main Contractor formed up the groove line for sealant.

7.0 Installation Method.

Sub Frame Bracket System



Check level with spirit level of the installed bottom frame.



Apply sealant at bottom edge.



Fixing of frame.



HPS anchor fixing.

7.0 Installation Method.

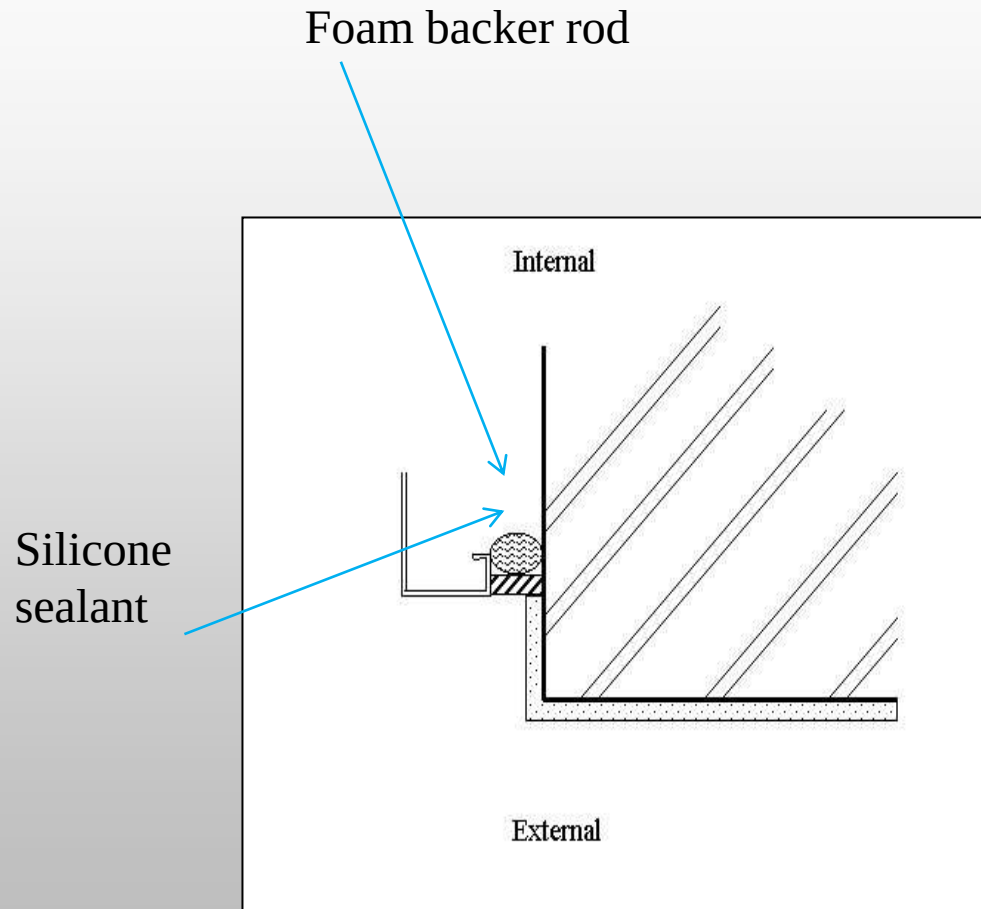
Sub Frame Bracket System



Install bottom frame
and seal the gap



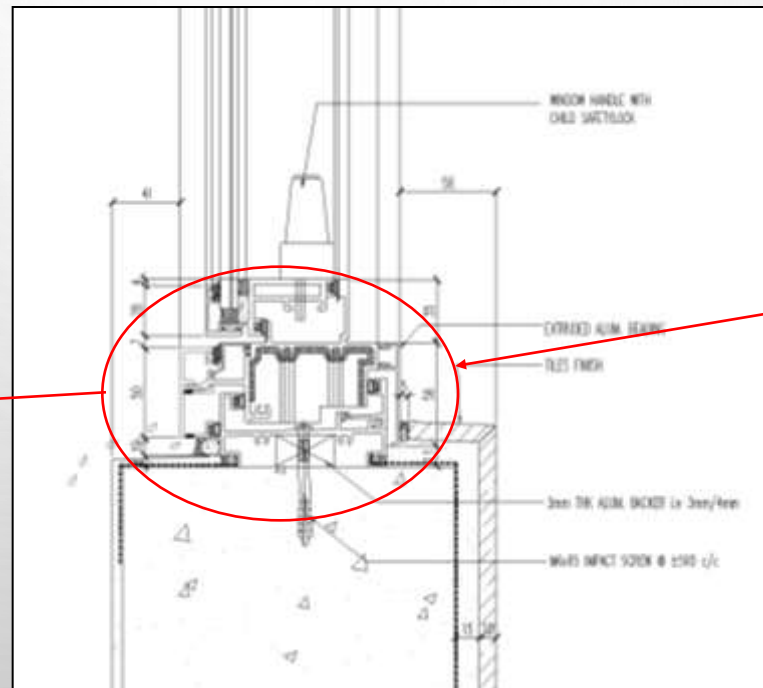
Protection with
masking tape



7.0 Installation Method.

Full Sub-Frame System

The installation method for this framing system is basically a combination of the lug system (during installation of full sub-frame) and sub-frame bracket system (for installation of sub-frame bracket and main-frame).



Extruded aluminium sub frame – installed with HPS anchor

Full sub frame system.

7.0 Installation Method.

Installation Of Inner Frame And Glass

Remove protection tape coverings partly on outer frame and install inner frame with glass after external painting completed but prior to dismantle of staging.

Prior to installation of inner frame, to ensure the following:

- a. All hardware, ironmongeries and rubber gasket are in good condition,
- b. Weep holes are cleared from blockage,
- c. No damage of frame.

7.0 Installation Method.

Installation of Glass.

Prior to installation of glass, to ensure the following:

- a. Check glass type, DGU, laminated, thickness
- b. Ensure glass edges are not chipped
- c. Place setting block at correct position, $\frac{1}{4}$ in from edge of glass.
- d. Glass provided with adequate bite
- e. Correct type of gaskets
- g. Shim corner of glass to prevent sagging

Ensure glass surfaces are both provided with adhesive protection tape and shall remained intact upon ready for touch up works via handling over.

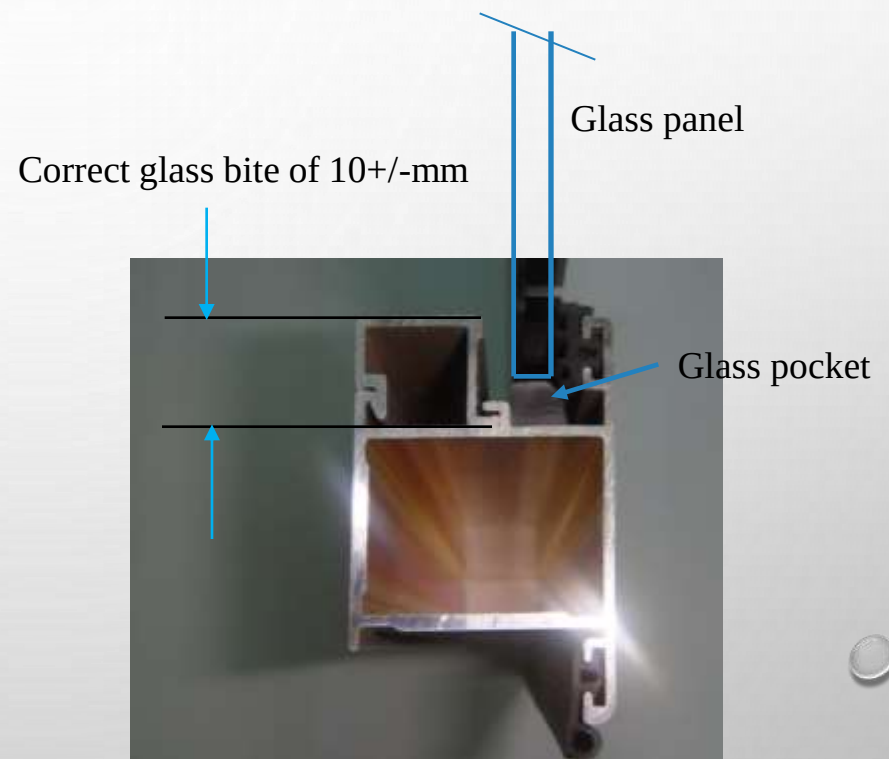
To ensure all windows are operating properly by checking on friction stay alignment, locking device.

7.0 Installation Method.

Installation of Glass.



Laser gauge meter to measure glass thickness.



Adequate glass bite & correct positioning of setting block.

7.0 Installation Method.

Installation of Glass.

1. Remove of protection tape.
2. Remove glazing beads.
3. Clean / vacuum glass pockets are free from rubbish, dirt. etc.
4. Cut setting block to required size – 40mm length x depth 10mm height (subject to design)
5. Insert setting block from edge of frame, left $\frac{1}{4}$ and right $\frac{1}{4}$ from length of frame.
6. Slight glass into the pocket and snap glazing beads.
7. Insert gasket to secure tightly.



Inserting glass panel



Secure of beading



Secure of horizontal beading



Insert block to secure glass

7.0 Installation Method.

Glazing works on site.



Application of silicone sealant to glass.



Use custom made tool to achieve consistent / desire surface finish.



Preparation of gasket insert.



Gasket to be inserted and tool to tightness.

7.0 Installation Method.

Assembly of sliding window inner panel.



Step 1 – Insert gasket to glass.



Step 2 - Gasket is inserted progressively.



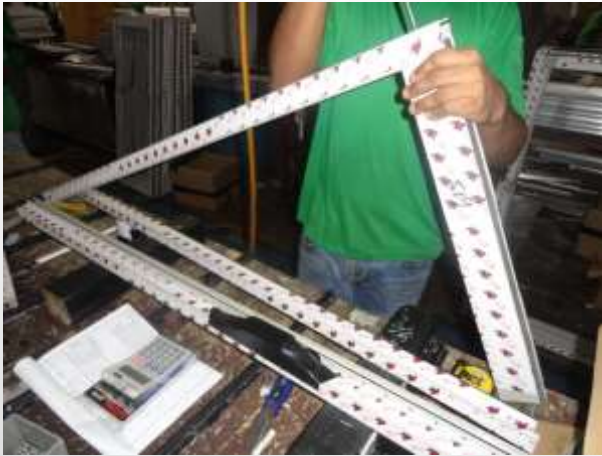
Step 3 – Assemble of outer frame.



Step 4 – Full insertion of gasket to glass.

7.0 Installation Method.

Assembly of sliding window inner panel.



7.0 Installation Method.

Installation Of Inner Frame (Casement Window).

Inner frame is fixed to main-frame using friction stay. The friction stay is fixed to the frame using stainless steel screw.

It is not a good practice to fix the outer frame separately from inner frame.



1st fix – install the outer frame and grouted to cure.

2nd fix – install the inner frame by securing the stainless-steel friction stay to the top and bottom frame with self tapping screws.

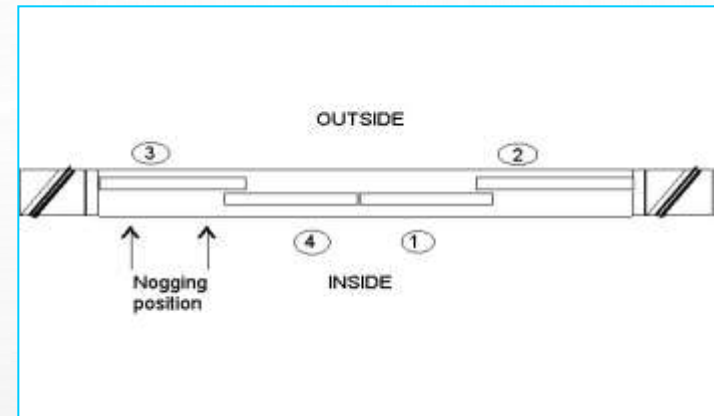
Concrete drill bit through the holes provision.

Hole diameter will be enlarged.

Fixing will be loose after periodic functions and potential water seepage issues.

7.0 Installation Method.

Sliding window panels - Install inner frames.



Sequencing of installation
of inner sliding panels.



Insert sliding
inner



Bottom sliding track



Top sliding
inner

7.0 Installation Method.

Installation of Hardware and Accessories.

Safety screw & safety devices are then installed to prevent dislodgment of the panel.



Safety HPS anchor bolts - HDB.

Despite that the window frame is being Secured to the wall with fixing lugs, it is HDB project requirement to further secured to HPS anchor bolt.



Safety device to prevent jumping track.

This safety device is required under SS212. The purpose is to prevent fabrication error, shoddy site installation that will the inner frame being dislodged due to alignment issue.

7.0 Installation Method.

Installation of Hardware and Accessories



Window stopper to prevent jump track and Fall off.



Wind block install on top track to reduce sound transmission, noise, particular windows that are facing MRT tracks and highway.

7.0 Installation Method.

Installation of Hardware and Accessories.

It is a local practice to install locking devices to window after majority of the works are deemed to be ready hand over / water test to avoid damages, abortive costs plus long-time delivery.



Installation of casement handle.



Installation of latch lock to window frame.

7.0 Installation Method.

Field Water Tightness Test.

Minimum sampling - 1000m² (GFA) – min. 20 samples and max. is 100 samples.(conducted by BCA)

Self field test – 25% min samples (declared by Qualified Person)

Conquas 21 Standard – Test Parameter

- 1) Water intensity : 300mm / hr
- 2) Wind Pressure : 240 Pa
- 3) Nozzle inclination: 90 degree to window
- 4) 1 sample = 2m length of joint
- 5) Distance from : 200mm
nozzle to wall
- 6) Spray duration : 10 minutes
- 7) No sign of leakage using BCA's window water tightness test method.

AAMA 501.2 Field Water Test – Test Parameter

- 1) Nozzle diameter : 1 brass nozzle 18mm dia.
- 2) Water pressure : 30 to 35 psi
- 3) Nozzle inclination: 90 degree
- 4) 1 Sample : 6 reference units to be tested
& allowance is make for 2 further tests
- 5) Distance from : 300mm
nozzle to wall
- 6) Spray duration : 5 minutes
- 7) No sign of leakage as view from internal.

7.0 Installation Method.

Field Water Tightness Test.



BCA Construction Quality Assessment System

CONQUAS® 2022

AMERICAN ARCHITECTURAL

AAMA 501.2-09
(editorially revised)

Quality Assurance and
Diagnostic Water Leakage
Field Check of Installed
Storefronts, Curtain Walls
and Sloped Glazing
Systems



MANUFACTURERS ASSOCIATION

7.0 Installation Method.

Field water test – Test Equipment.



Water pressure gauge.



Electric water pump.



Heavy duty water hose.



Water flow meter.

7.0 Installation Method.

Field water test – Test Equipment.



Electric pump – Filter
from water tank



Custom made extension
of nozzle

AAMA – Water test kit



The **AAMA KIT** Water test kit includes:

- (1) B-25 6.030 W/1/2" FNPT
- (1) 3/4" Globe valve
- (1) 3/4" Garden hose adaptor
- (1) 0-60 PSI Pressure gauge
- (1) Case Fully assembled and ready to use!

Approved water test kit

7.0 Installation Method.

Field water test – In accordance to ASTM 501.2 Test Method.

1. The heavy-duty hose will be connected to the water supply tape.
2. Turn on the lever to allow water supply and pressure is maintain between 31 to 35 psi.
3. Place the nozzle at the horizontal joint and move gradually from left to right for 5 mins.
4. Repeat item 3 for vertical joint.



Water supply to hose – using AAMA 501.2 standard.



Horizontal spray – using AAMA 501.2 standard.



Vertical spray – AAMA 501.2 standard.

7.0 Installation Method.

Conducting field water test.

5. If there is no sign of water penetration for each test, it is considered as pass.
6. If leakage is found, stop the test immediately and investigate the source.
7. Rectify before conducting a re-test.



ASTM 501.2 Field water test –
nozzle position at groove joint.

Source of failure.

- a. Due to alignment of inner frame.
- b. Due to alignment of stainless steel stay.
- c. Compression of gasket.
- d. Joints between members.



Water seepage is observed to
overflow from the sash / transom.

7.0 Installation Method.

Conducting field water test.

Custom made test equipment – Stimulate Conquas standard of test.



Custom made test Equipment.



Self test in factory.



Actual test on Window.



Actual test on Window.

7.0 Installation Method.

Field water test - ASTM 501.2 Method of Test.

Custom made test equipment – Stimulate Conquas standard of test.



Conducting field water test in 501.2 method of test.



Compressor Pump.



Water collection tank for recycle.

7.0 Installation Method.

Field water test - Conquas Standard.

Need to engage a third- party accredited laboratory to conduct the field test.



Field water test - Conquas Standard.

Building and Construction Authority

We transform the Built Environment Sector and shape a liveable and smart Built Environment for Singapore

The assessment is based on the sampling guidelines table as set out below:

Sampling Guidelines Table					
	Items	GFA per Sample	Min Sample	Max Sample	Remarks
1	Internal Finishes	500 m ²	50	150	For Non-Residential Project & Public Mixed Development Project with Non-Residential GFA exceeding 50%
1a	Internal Finishes	70 m ²	90	800	For all Private Residential Project & Mixed Development Project with Residential component. For Public Mixed Development Project with Residential GFA exceeding 50%
1a(i)	Internal Finishes (Tier 2a)	-	90	1,440	50% Sampling (50% coverage for all units): Max Principal samples: 640 Max Service samples: 640 Max Circulation samples: 160
1a(ii)	Internal Finishes (Tier 2b)	-	90	2,160	100% Sampling (100% coverage for all units): Max Principal samples: 1000 Max Service samples: 1000 Max Circulation samples: 160
1b	Internal Finishes	70 m ²	90	600	For Public Residential Project
2	External Wall	-	100%	-	100% of the blocks or units
3	External Work	-	1	-	1 for each type of external work
4	Roof	-	50%	-	Minimum 50% of the blocks or units
5a	Field Window Water-tightness Test (WTT)	-	20	100	Conducted by BCA. A sample is defined as 2m length of joint. 5% of total number of window panels or 5% of total curtain wall area, whichever is applicable For PPVC project, maximum 30% of the test samples will be from factory

7.0 Installation Method.

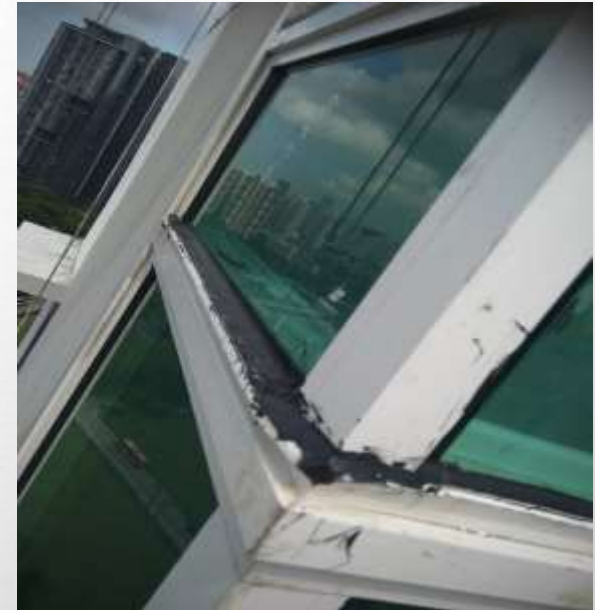
Results of field water test



Water seep through bottom sill after 3 minutes, gasket loose, no compression, cam handle is also loose.



Water over flow through bottom sill, gasket is not tight, no compression.



Sealed with silicone sealant to stop seepage

7.0 Installation Method.

Results of water seepage during field water test



Sign of water seepage through the bottom sill and mullion during site field water test.



Major seepage through full height window during field water test.

7.0 Installation Method.

Result of water seepage during field water test.

1. Self check must be conducted on the overall window system.
2. Ensure that alignment is in order, both inner and outer.
3. Ensure inner frame is able to open and close and tight fill when the lock is activated.
4. Gasket is in good contact condition.
5. Ensure stainless friction stay is align and securely fixed.
6. Once the above is in order, conduct a simple paper (A4 70 grams paper) and insert in between the inner and outer frames. Engage the lock and try to pull the paper out. If is very tight, then try 3 other locations and is ready for test.

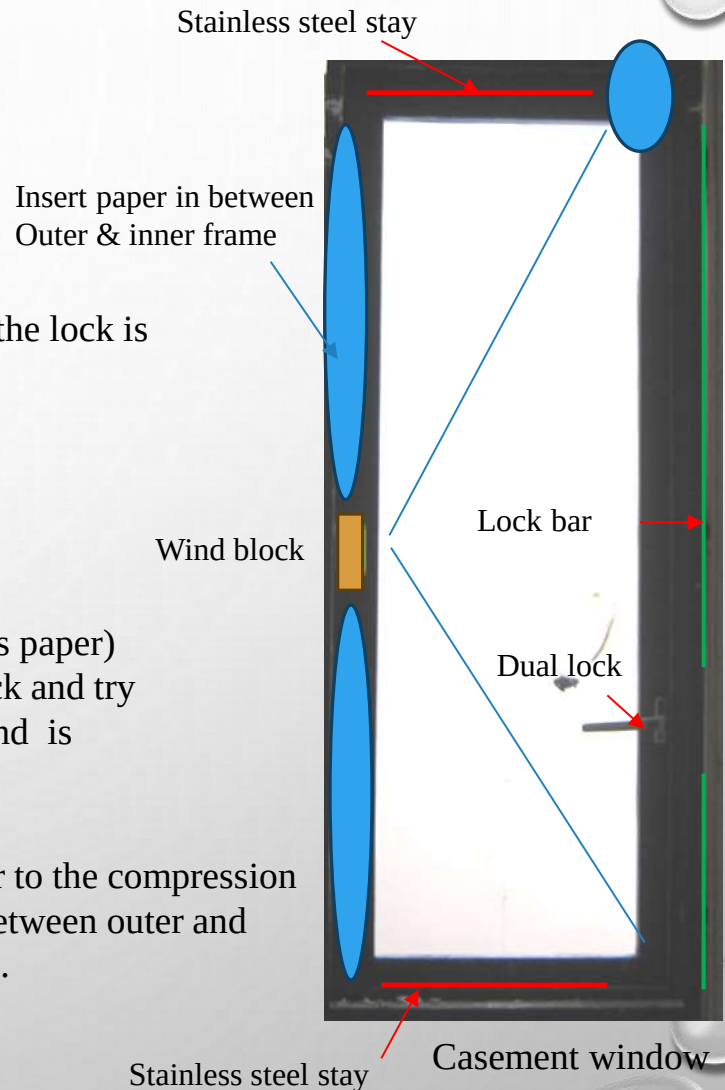


Open window insert paper



Close window

Insert paper to the compression of gasket between outer and inner frame.





Aluminium Window - Good Industry Practices

8.0 COMMON DEFECTS AND REMEDIES.



8.0 Common Defects and Remedies.

8.1 Defects in windows are usually caused by:

- a. Poor Design;
- b. Use of inferior/non-compatible material;
- c. Poor workmanship – fabrication, installation & mishandling, non compliance against shop drawings.
- d. Lack of control and supervision on site
- e. Employ unskilled installation workers.
- f. Sequencing and planning of works.

8.0 Common Defects and Remedies.

Functionality

Water Seepage through window frame –joints etc.

A. Possible Causes

- a. Poor workmanship – due to fabrication and installation.
- b. Weather seal gasket is not compressed.
- c. Adjustment to accessories and frame alignment.



8.0 Common Defects and Remedies.

B. Possible Causes of Seepage.

- d. Due to poor grouting works that lead to hollowness in frames.
- e. Corner / abutting joints not seal fully.



Water seep through grouting.



Water seep through poor corner joints.

8.0 Common Defects and Remedies.

C. Possible Causes of seepage.

d. Poor construction joints / method.

e. Non compatible materials used for plastering etc.



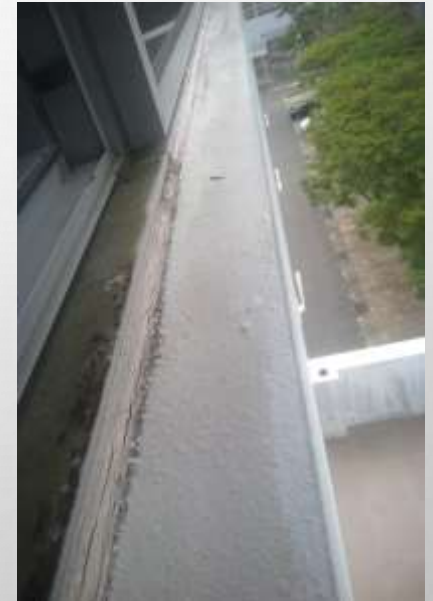
Poor treatment between
alum frame and
plastering.



Same as photo on the
left.



Poor joint details.



Non compatible
materials – weather seal.

8.0 Common Defects and Remedies.

Recommendations

Pre-Installation.

- a. Ensure installations are carried in accordance to the requirements.
- b. Ensure grouting works are carried as per the specifications.

After Installation prior Water Test.

- a. Ensure cam handle / dual lock system is tight when in close position.
- b. Ensure friction stay is in alignment , if not need to adjust +/- 2mm .
- c. Ensure gasket are fully compressed when in close position, corner joints are sealed with silicone sealant.
- d. Check all connection / abutting joints are fully seal, no visible gaps.
- e. Visible check on the external perimeter of window frame for possible holes.
- f. To carry out field water tightness test.

8.0 Common Defects and Remedies.

Water seepage through joints between window frame and wall

D. Possible Causes

- a. Poor tolerances of wall openings.
- b. Poor workmanship during grouting/sealing of gaps.
- c. Improper provision of reinforced concrete kerb.



8.0 Common Defects and Remedies.

Water seepage being caused by poor joints / grouts.



Water seepage through hollow block joints.



Poor infill of grout on kerb – result in water seepage.

8.0 Common Defects and Remedies.

Water seepage being caused by poor control of structure opening on site.



Over provision of grouting gap between window frame and wall.

8.0 Common Defects and Remedies.

Water seepage being caused by poor control of structure opening on site.



Incorrect concrete kerb construction – lead to potential seepage via damage internal parquet.



Dampness in the internal of wall – due to seepage thru window and

8.0 Common Defects and Remedies.

Poor sealing of joints on site.

Poor sealing
before
assembly
of frame



Joints between mullion is not sealed properly, grout is also not compact.

8.0 Common Defects & Remedies.

Recommendations

- a. Ensure interlocking member is applied with weather seal silicone sealant before joining together.
- c. To ensure correct mixture of grout (cement-based waterproof).
- e. To ensure proper application and compacting of “grout”.
- f. To apply cementitious waterproof system around perimeter of frame, between masonry and grout, 100mm wide.
- g. To ensure functionality of window before conducting field water test.



8.0 Common Defects & Remedies.

Difficulty in opening and closing of glass panel (for casement window).

E. Possible Causes

- a. Misalignment of frames.
- b. Alignment of stainless steel stay.
- c. Improper protection resulting in debris ingress to friction stay track.

Recommendations

- a. To verify the alignment and plumb of the outer frames and inner panels.
- b. To check the physical conditions of friction stays.
- c. To lubricate the stainless steel stay.
- d. To clear bottom track off all debris.

8.0 Common Defects and Remedies.

Non alignment of window frame.

- a. The vertical jamb of the adjoining Sliding Window is found to be warp after installation.
- b. Due to expansion and contraction.
- c. Non compliance – calculation.



Damaged aluminium surface.

- a. Aluminium surface was damaged.



8.0 Common Defects and Remedies.

Difficulty in sliding of inner panels (for sliding window)

F. Possible Causes

- a. Improper alignment of outer frames and inner panels.
- b. Damages to rollers / wear and tear.
- c. Sliding track is damaged.



Recommendations

- a. Verify the alignment of the outer frames and inner panels.
- b. Adequate protection to the sliding tracks during installation.
- c. Debris must be cleared prior to installation of inner panels.
- d. Adjust the roller by adjusting the screw if it is within 5mm.



8.0 Common Defects and Remedies.

Evenness of outer framings.

Joints between members are even.

G. Possible Causes

- a. Quality / tolerance of extrusions
- b. Poor workmanship / installation
- c. Improper alignment and plumb of window frame during installation



Recommendations

- a. To check that the setting out of wall opening conform to specifications
- b. To verify the alignment and plumb of window frame during installation

8.0 Common Defects and Remedies.

Joints & Gaps

Untidy joints between window frame & wall.

H. Possible Causes

- a. Poor workmanship during installation
- b. No protection during painting job

Recommendations

- a. To protect the frame with suitable tapes during application of sealant or during painting.



8.0 Common Defects and Remedies.

Gaps at window frame corner.

I. Possible Causes

- a. Poor workmanship during fabrication & install.
- b. Quality / tolerance of extrusions.

Recommendations

- a. Use advance / high technology cutting machine.
- b. Quality of mould, press machine is of adequate tonnage, quality of ingots.



8.0 Common Defects and Remedies.

Materials & Damages to Installed Glass.

Glazing with paint, cement etc / shattered glass / cracked glass.

J. Possible Causes

- a. Inadequate protection during delivery, storage and installation.
- b. Sequencing of works.

Recommendations

- a. To protect the glazing adequately. Protection should remain intact until all works are completed.

8.0 Common Defects and Remedies.

Stained / damaged to glazing works upon installed.

Protection tapes on glass and frames were only removed when all wet works have been completed.



No protection during spray texture coating on external wall.



Glass broken by cleaning contractor.

8.0 Common Defects and Remedies.

Stained / damaged to glazing works upon installed.

Glass shattered – can be caused by the below example.



Thermal break on glass



Shattered due to presence of impurities



Impact load on glass

8.0 Common Defects and Remedies.

Stained / Damaged to glazing works upon installed.

Breakage pattern of glass.



Point load on laminated / float glass.



Heat Strengthened Glass
- Breakage pattern.

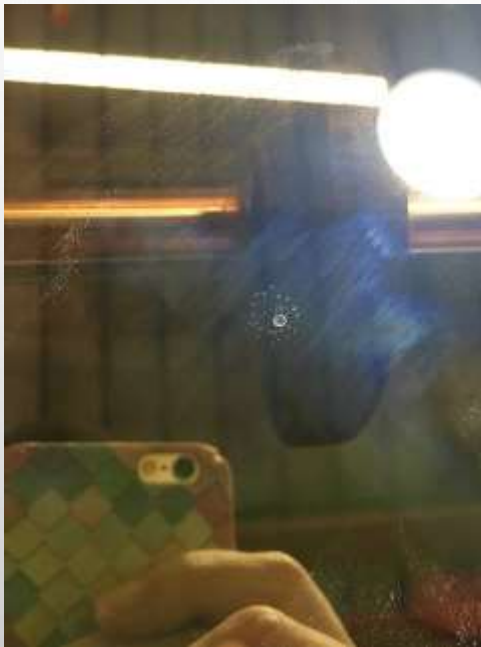


Breakage pattern –
Tempered Glass.

8.0 Common Defects and Remedies.

Glass Defects & Breakage Pattern.

Pin holes are common defect in glass – due to manufacturer's defect.



Pin holes on glass surface under light inspection.



Breakage pattern – Float glass.

8.0 Common Defects and Remedies.

Glass Defects.

GENERAL PROTECTION, CLEANING & INSPECTION GUIDE

FOR PYROLITIC COATED GLASS



GENERAL INSPECTION GUIDELINES

VISION IN GENERAL

At a distance of 3 meters, against a uniform light source AGC's solar control coated glass may show slight variations of color, both in transmission and reflection. These are considered normal and acceptable.

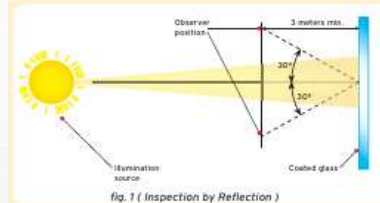


fig. 1 (Inspection by Reflection)

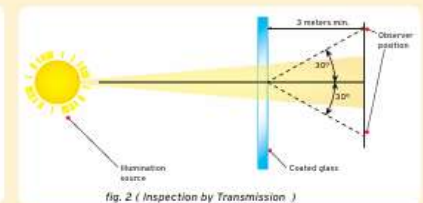


fig. 2 (Inspection by Transmission)

SPANDRELS IN GENERAL

Spandrel areas are to be viewed in reflection at a distance of 4.5 meters with a uniform background and with natural lighting conditions. Color and reflectance may vary slightly within this distance. Pinholes and scratches that are not readily apparent when observed in reflection are acceptable.

PINHOLES IN VISION GLAZING

Pinholes visible from 3 meters and measuring up to 3mm in diameter shall be acceptable. Pinholes with the diameter above 3mm are not acceptable.

SCRATCHES IN VISION GLAZING

Scratches visible from 3 meters and measuring up to 75mm in length shall be acceptable. Scratches over 75mm are generally not acceptable.

GENERAL WARRANTY

Generally, all pyrolitic-coated glass is guaranteed for 10 years from shipment date against peeling, discoloration, color fading and damage from normal weather conditions.

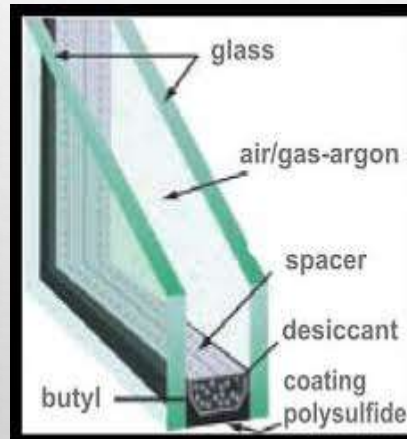
We make no other guarantee or warranty expressed or implied. This guarantee is effective only if the installation of the glass is made in accordance with the standards or code of good practice in force in the market.

This guarantee shall not apply to scratches or abrasions, which may be caused by abrasive cleansers. Any pyrolitic glass unit failing to comply with the terms of this guarantee will be replaced. This guarantee is limited to replacement of the glass and does not include the cost of removal or installation.

(Conditions apply)

8.0 Common Defects and Remedies.

Glass Defects & Damaged Seals - DGU.



Internal surface of the DGU glass is found to be foggy – Coating on glass were damaged.

8.0 Common Defects and Remedies.

Defects – Laminated Glass - De-Lamination/Edge Effect.

Edge delamination typically results from damage or attack originating at the edge of laminated glass where the interlayer is exposed. Edge delamination affects the aesthetics of laminated glass and may be described as a material characteristic known as edge stability.



De-lamination observed on edge of glass.



Non protection of glass edges.

8.0 Common Defects and Remedies.

Defects – Glass found be scratched.



The polishing of glass surface is subject to the following:

1. If it is a very light scratch, tiny pin hole etc
2. Deep scratches – not recommended to polish
3. Chips on surface – cannot be polished
4. Rainbow effect – not recommended to polish
5. Solar control or Low-E glass – not able to polish.

8.0 Common Defects and Remedies.

Poor rectification works.

K. Possible Causes

- a. Poor workmanship during fabrication.
- b. No check – QA/QC before delivery.
- c. Poor rectification applications.

Recommendations

- a. To inspect the quality of end product prior delivery.
- b. Any rectification works should be carried out with proper supervision.



8.0 Common Defects and Remedies

Uneven joints.



Poor design leads to multiple joints and unevenness between members.



Gaps between adjoining members – Need to touch up before inspection.

8.0 Common Defects and Remedies.

Mortar dropping and over painting on frame.



Sequence of work.



No protection during wall painting.

L. Possible Causes

- a. Non provision of protection to frames before painting.

Recommendations

- a. To provide adequate protection and remain intact upon all other wet works are completed.
- a. Painting contractor to provide taping.

8.0 Common defects and Remedies.

Physical damages and scratches on frame.

M. Possible Causes

- a. Inadequate protection to frame.
- b. Damage by others after removal of tapping.



External profile dented.

Replace with new glazing beading.



Outer frame dented, knock to the desire shape and polish surface.

8.0 Common Defects and Remedies.

Physical damaged to aluminium frames

Possible caused: Due to negligence and in consideration of others.



Damaged bottom frame, is beyond repair and need new member to be replaced.



Gasket – hardened and cracked.

Is good for a 10 years, should not be wear and tear within the 1st 5 years.

Deteriorated over years.

8.0 Common Defects and Remedies.

Recommendations

- a. To inspect the component before delivery and prior to installation.
- b. To provide proper storage space.
- c. To minimize unnecessary handling during delivery, storage and installation.
- d. To provide adequate protection to frames and glazing. Protection should be kept in tact until all works are completed
- e. Highlight to Main Contractor when works were carried out without protection against your frames.
- f. Schedule, co-ordination and sequencing of works are the most important factors to be adhered, to minimize abortive works.

8.0 Common Defects and Remedies.

Accessories Defects

Short gasket, shrinkage due to material use.



N. Possible Causes

- a. Gasket is incompatible with profile / loose.
- b. Gasket inserted is short.
- c. Poor workmanship during installation.
- d. Quality of gaskets – pvc materials!



8.0 Common Defects and Remedies.

Improper corner joint of gasket.

- a. To check that gasket size and profile are compatible to the frame.
- b. To ensure that sufficient length of gasket is inserted to the groove.
- c. To ensure proper workmanship during installation, especially at the corners



Will allow water seepage and penetration of noise.



Poor corner joint.
Untidy silicone sealant joint

8.0 Common Defects and Remedies.

Common Defects – Sliding Window

- a. Fabrication of inner frame is too short than required.
- b. Sagging of outer frame during installation / alignment.



Inner frame will drop off during to misalignment / sagging of top frame.

8.15a. Recommendation

- a. Adjust the roller.
- b. Replace the vertical sash.
- c. Alignment outer frame $\pm 2\text{mm}$



Fallen window frame

8.0 Common Defects and Remedies.

Common Defects – Sliding Window

The debris, cement left over will damaged the powder coating on frames.



Before installation – dirt and debris must be cleaned.



Sliding window bottom track stained with cement.



Dented bottom outer frame.



In proper removal of protection tape, result in not able to hand over.

8.0 Common Defects and Remedies.

Improper used of materials.



Caulking width and depth are wide and shallow. Incorrect type of weather silicone sealant.



Polyurethane foam used to eliminate water seepage were left unattended.

8.0 Common Defects and Remedies.

Improper used of materials and application.



Inject polyurethane foam to seal hollowness / gaps.



Inject polyurethane foam until excessive foams are flow out before cleaning with a clean cloth.

8.0 Common Defects and Remedies.

Physical damages

O. Possible Causes

- a) Normal circumstances – in proper use by workers.

Recommendations

- a) To install just before QA/QC inspection.



Broken Cam handle



Scratched Cam handle

8.0 Common Defects and Remedies

Damage / dent to aluminium frames

These are normally damaged by others, due to negligence and inconsiderate workers on site.

Non serious dents are patch up with putty, sand down and spray over with paint and leave dry.



Dented surface were patched with putty, sand down to the desire smooth finish before applying spray paint over.

8.0 Common Defects and Remedies.

Colour fading – Discolouration – Chalking.



Colour fading on powder coating finishes.



Wash with mild detergent and polish.

8.0 Common Defects and Remedies.

Materials used for patch up works.



G 280 fine sand paper



Putty



Putty hardener



Spray paint



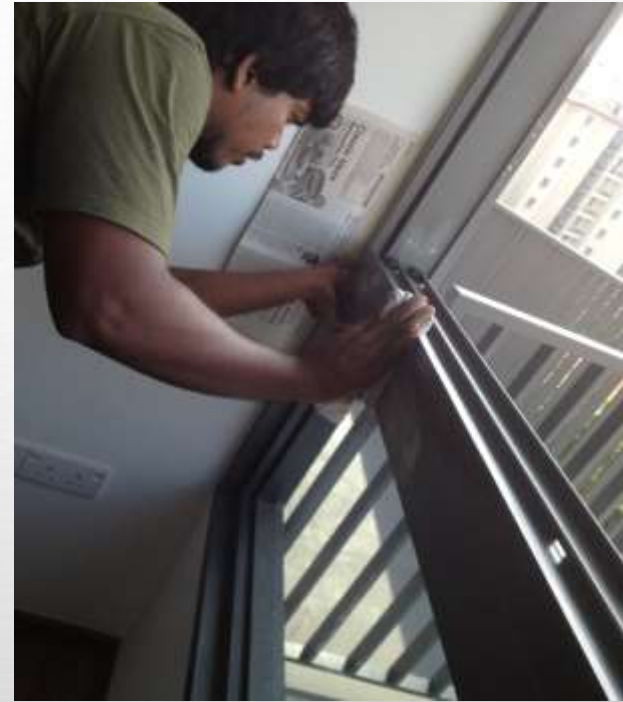
19mm Masking tape

8.0 Common Defects and Remedies.

Repair to damage / dent to aluminium frame.



Putty to dented frame, cure and sand down with water, keep dry before application of paint.



Using fine sand paper to sand down until the surface is smooth.

8.0 Common Defects and Remedies.

Spray paint over putty surface to achieve the closest finish.



Touch up works – manual hand spray over powder coat surface.



Comparison between a powder coated surface versus a spray over surface.

Aluminium Window - Good Industry Practices

9.0 CLEANING.

9.0 Cleaning.

General cleaning guide to glass.

Surface Treatment.

- a. Remove all visible surface contaminants with clean dry cloth and brush.
- b. Check for scratches and defects.

Use safety scrapper to remove contaminants on surface.

Soaping.

- a. Use pad strip washer to soap area with non acidic diluted cleaning chemical solution, only alkaline based chemicals will be used to prevent damage to existing coating, sealant, gasket and glass.

Cleaning.

- a. Use FacadeKleen to wet, penetrate and clean the glass surface.
- b. FacadeKleen is applied with a Pad Strip Washer.
- c. Utilize squeegee with rubber blade to clean off soapy base and repeat with water.
- d. Use cotton cloth to wipe off excess water on the edges and surrounding aluminium substrates. Heavy rinsing is not required.

(Cleaning Product – Approved to be used – PSB)

9.0 Cleaning.

General cleaning guide to glass.

Protections to window frames and glass panels are removed once wet trades are completed.

Ensure cleaning contractors is using proper tools and equipment in carrying out the cleaning works.



Cleaning of sliding bottom track.



Cleaning of window, both external and internally .

9.0 Cleaning.

Gasket damaged / dissolved due to cleaning.



Partially melted gasket due to improper use of cleaning agent.

Solution is to remove and apply “snap” on new gaskets, respray paint finishes externally.



Damaged gasket & finishes due to the use of unsuitable cleaning agent.

9.0 Cleaning.

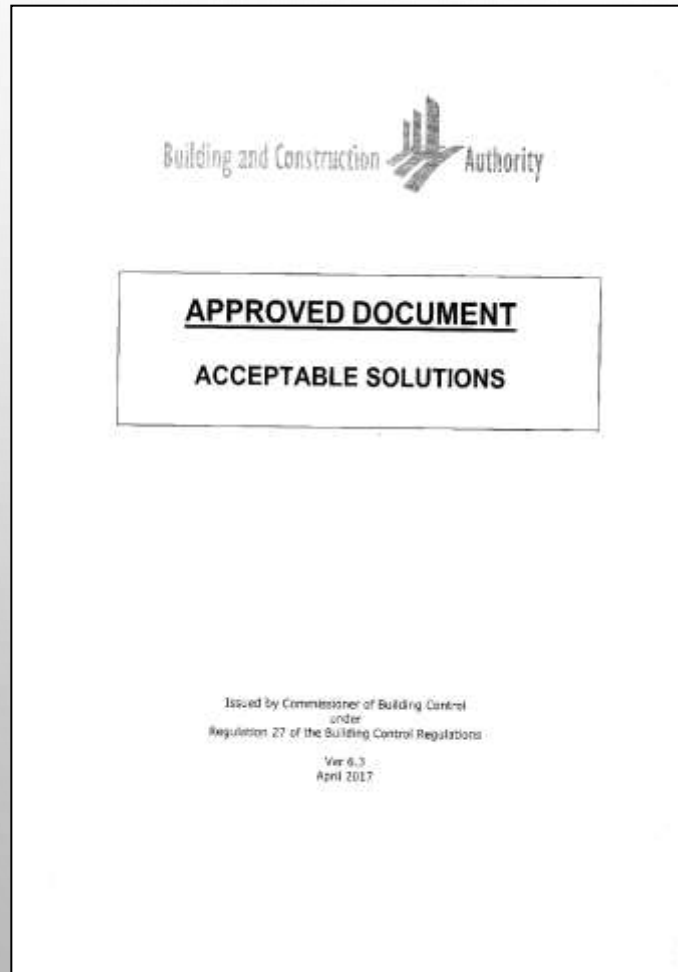
Damaged to glazing works.



Gondola to be provided with front rubber rollers to prevent scratching on glass surface during cleaning process.

10.0 Handling Over.

Prior to TOP Inspection, the Aluminium specialist contractor is to issue a “Letter of certification”, to certify that the window designed, supplied and installed are in compliance to SS212Standard – Approved Document.



10.0 Handling Over.

**DNT****TECHNICAL DATA SHEET**

Date :30.08.2021

SUBJECT : External daylight reflectance on aluminum panel

DESCRIPTION : DNT DYUFNAR #100L M17765 CLASSIC GOLD

TEST METHOD : Total diffuse and specular reflectance measurement – using a spectrophotometer with a 150 mm diameter integrating sphere-ASTM E903

TEST RESULT :

Sample Reference	M17765 CLASSIC GOLD
Total Reflectance (%)	51.43
Diffuse Reflectance (%)	45.82
Specular Reflectance (%)	5.61

Coco Lee Hsien Jing
Senior Chemist

Prior to TOP inspection,
Aluminium specialist contractor
is to issue a “Report on the
External Daylight Reflectance Value”
to QP – submission to BCA

Aluminium Window - Good Industry Practices

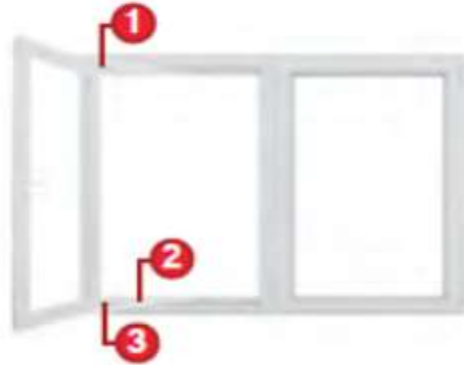
Taking Care of Your Windows

Keep your windows in tip-top condition with these 3 easy steps!



Aluminium Window - Good Industry Practices

Casement Windows



CHECK
that fasteners
are not rusty
or loose



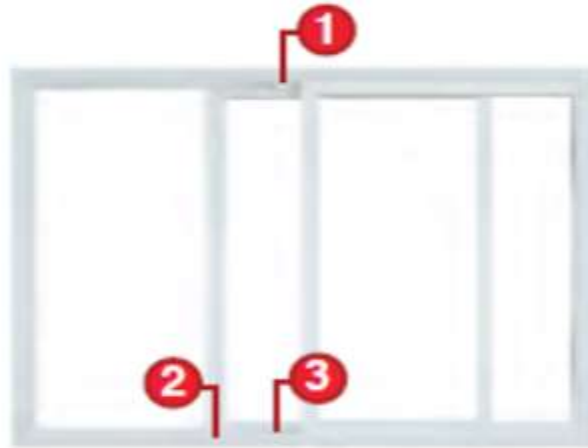
CLEAN
and oil joints or
moving parts



CHANGE
all rivets from
aluminium to
stainless steel by
engaging an
approved window
contractor

Aluminium Window - Good Industry Practices

Sliding Windows



CHECK
that safety
stoppers and
angle strips are
in their proper
places



CLEAN
the tracks and
ensure window
panels can
slide smoothly



CHANGE
worn-out safety
stoppers and angle
strips by engaging
an approved
window contractor

“THE END – THANK YOU”