

# 9. Common Defects And Remedies


Designers and site supervisors should understand the common complaints and defects related to window installation and how to prevent them.

The occurrence of defects in windows is usually caused by poor design, use of inferior or non-compatible


materials, poor workmanship during fabrication and installation or mishandling.

The following are some common defects in aluminium frame window installation:

Table 9.1 Common Defects

Common Defects	Possible Causes	Recommendations
(A) Functionality		
<p>1. Water seepage through window frame</p> 	<ul style="list-style-type: none"> <li>• Poor workmanship during fabrications and installation of frames and gaskets</li> <li>• Poor detailing of top frame</li> </ul>	<ul style="list-style-type: none"> <li>• To review the design to ensure suitable drainage paths exist with sufficient ventilation and internal air seals in the window frames</li> <li>• To shield the window from direct rainfall through better design</li> <li>• To fabricate and assemble as many components as possible in factory</li> <li>• To use mechanical tools to achieve the required fabrication tolerances</li> <li>• To ensure the use of gaskets with compatible profile</li> <li>• To ensure no physical damages to the frames and gaskets</li> <li>• To carry out field watertightness test</li> </ul>

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Common Defects	Possible Causes	Recommendations
(A) Functionality		
<p>2. Water seepage through joints between window frame and wall</p>	<ul style="list-style-type: none"> <li>Poor tolerances of wall openings</li> <li>Poor workmanship during grouting/ sealing of gaps</li> </ul> 	<ul style="list-style-type: none"> <li>To shield the window from direct rainfall through better design</li> <li>To use precast walls for better dimensional tolerances and finishing</li> <li>To ensure the size of the gap between wall and the frame conform to the specified tolerances</li> <li>To ensure correct usage of grout and sealant to seal the gaps, depending on the gap sizes</li> <li>To ensure proper application and compacting of grout or sealant</li> <li>To carry out field watertightness test</li> </ul>
<p>3. Difficulty in opening and closing of glass panel (for casement window)</p>	<ul style="list-style-type: none"> <li>Misalignment of frames and glass panels</li> <li>Improper installation of friction stays and pivot hinges</li> <li>Improper protection resulting in debris ingress to friction stay track</li> </ul>	<ul style="list-style-type: none"> <li>To verify the alignment and plumb of the outer frames and inner panels</li> <li>To check the physical conditions of friction stays</li> <li>To lubricate the pivot hinges</li> <li>To clear track off all debris</li> </ul>
<p>4. Difficulty in sliding of inner panel (for sliding window)</p>	<ul style="list-style-type: none"> <li>Improper alignment of frames and inner panels</li> <li>Damages to rollers and sliding tracks</li> </ul>	<ul style="list-style-type: none"> <li>To verify the alignment of the outer frames and inner panels</li> <li>To protect the sliding tracks during installation. Dirt or debris must be cleared prior to installation of inner panels</li> <li>To restrict the usage of the sliding windows prior to handing over</li> </ul>



Common Defects	Possible Causes	Recommendations
<b>(B) Alignment &amp; Evenness</b>		
1. Misalignment 	<ul style="list-style-type: none"> <li>Improper setting out of wall openings</li> <li>Improper alignment and plumb of window frame during installation</li> </ul>	<ul style="list-style-type: none"> <li>To check that the setting out of wall opening conform to specifications</li> <li>To verify the alignment and plumb of window frame during installation</li> </ul>
<b>(C) Joints &amp; Gaps</b>		
1. Untidy joints between window frame and wall 	<ul style="list-style-type: none"> <li>Poor workmanship during installation</li> </ul>	<ul style="list-style-type: none"> <li>To protect the frame with suitable tapes during application of sealant or during painting</li> </ul>
2. Gaps at window frame corner 	<ul style="list-style-type: none"> <li>Poor workmanship during fabrication and installation</li> <li>Mishandling during delivery and storage</li> </ul>	<ul style="list-style-type: none"> <li>To carry out cutting and assembly of frames using mechanical tools</li> <li>To protect the frames during delivery and storage</li> </ul>
<b>(D) Materials &amp; Damages</b>		
1. Stained glazing 	<ul style="list-style-type: none"> <li>Inadequate protection during delivery, storage and installation</li> </ul>	<ul style="list-style-type: none"> <li>To protect the glazing properly. Protection should remain intact until all works are completed</li> </ul>

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Common Defects	Possible Causes	Recommendations
(E) Accessories Defects		
<p>1. Loose or improperly installed gaskets</p>  	<ul style="list-style-type: none"> <li>• Use of gaskets with incompatible profile</li> <li>• Use of gaskets with inadequate length</li> <li>• Poor workmanship during installation</li> </ul>	<ul style="list-style-type: none"> <li>• To check that gasket size and profile are compatible to the frame</li> <li>• To ensure that sufficient length of gasket is used</li> <li>• To ensure proper workmanship during installation, especially at the corners</li> </ul>
<p>2. Physical damages</p> 	<ul style="list-style-type: none"> <li>• Inadequate protection during fabrication, delivery, storage and installation</li> </ul>	<ul style="list-style-type: none"> <li>• To provide adequate protection for all accessories. Protection should be kept in tact until all works are completed</li> </ul>

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