ACCOR Hospitality

Bedroom Window Technical Guide

Objectives of this guide

Edition 2 - September 2014

For new buildings and refurbishments:

- it specifies the essential technical requirements to be taken into account right from the start of the project
- it contains the checklist to be used to check the quality of fixing and the compliance of each window

For existing hotels:

- for existing windows that are damaged (leaks, difficulty in opening or closing, etc.), it describes the inspections to be made and the possible solutions to be adopted
- it defines the main preventive maintenance operations, their frequency and the routine maintenance operations

Note : The present handbook was conceived as an internal quality insurance guide to control usual risk points on bedroom windows . It shall not modify or reduce the responsibilities of project designers and building contractors who must check and possibly adapt it prior to any use .

Technical requirements	How to specify acoustic performance of windows?	**Bedroom windows: Technical requirements**
	Types of windows to be favoured or not to be used?	
	Particular specifications for PVC windows	
	Specifications applicable to all windows	
	Content of working drawings	Annexe 1
Window inspection and diagnosis	How to find the causes of failure	**Window inspection & diagnosis**
	What are the possible causes of failure ?	
	What corrective actions to take?	
	Who can make such corrective actions ?	Annexe 2
Preventive and routine maintenance; Cleaning operations	Required planned and reactive maintenance and cleaning operations	**Preventive and routine maintenance Cleaning operations**
	What frequency for these operations ?	
	Who should carry them out ?	Annexe 7
Checking the weatherproofing and the operation of a window	How is the checklist to be used ?	**Instructions for use of the weather-proofing checklist**
		Annexe 8
	Checklist **to be printed** after values of 3 measurements have been filled-in	**Bedroom window control sheet: weather-proofing + operability**
	1 sheet per bedroom	**Print Checklist**

Annexe 1 - Bedroom window technical requirements (1/2)

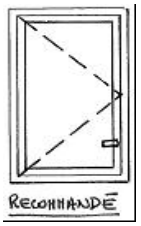
A - How to specify acoustic performance of windows ?

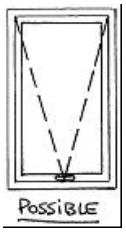
. The acoustic performance of windows should allow the noise levels achieved within the bedroom not to exceed those specified in ACCOR acoustic requirements DA0040.

. The levels of acoustic performance shall be specified on the basis of the actual noise outside the hotel and taking into account a balance between interior and external noises ; a measurement of external noise levels (emergent noise level criteria L10 and L01) shall be taken at 10 minute intervals over a 24-hour period and the noisiest measurement night-time period (10 p.m. to 7 a.m.) and day-time period shall be extracted and used as a basis for the specification of the acoustic performance of the external wall that will achieve the required noise levels inside the hotel; an acoustic consultant shall be appointed to carry out this design .

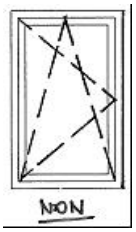
B - Types of windows to be favoured or not to be used?

. **Favour inward-opening side-hung windows**, in which the casement only opens in a single direction: side-hung or, possibly, top hung





. **Do not use** windows opening in two directions type "tilt-and-turn": numerous failures with this opening system have been encountered in the ACCOR network (risk of the casement releasing itself and falling down) .



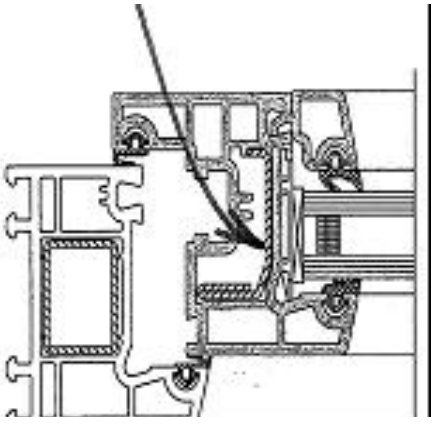
. The width of each casement shall be limited to **1100 mm** in order to prevent it from deforming over time, due to the weight of the glass ; in excess of this width, one (or more) fixed casements and/or several opening leaves shall be provided to make up the overall size or several opening leaves.

. **Do not use** sliding windows, because of their poor acoustic performance, low air and water tightness & low resistance to wind weatherproofing over time.

. **Avoid** sliding French windows, because of their low levels of acoustic performance and their loss of weatherproofing over time; favour the solution: side-hung casement door + fixed side windows).

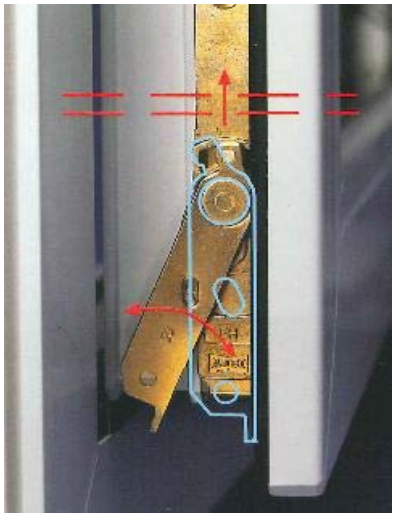
C - Particular specification for PVC profiles

. Whatever the size of the window, PVC profiles used for the casement should be strengthened with metal reinforcement as shown on the sketch opposite.



Annexe 1 - Bedroom window technical requirements (2/2)

D - Specifications applicable to all opening casements (PVC, timber, aluminium)



. Whatever the profile (PVC, timber, aluminium) and the nature of the glazing, in any casement more than **700 mm wide**, a "lifting" system shall be installed, as shown in the photograph opposite; this system shall allow the casement to be centred in its frame as it closes, especially if the casement is slightly warped.

E - System to restrict opening of the casement

. ACCOR has selected a system to restrict the angle of opening of the windows; this system is fixed to the stiles (casement and frame) next to the handle and can only be unlocked with a key by authorised hotel staff.

. This window opening restrictor shall be fixed (to the casement and its frame) with rivets or screws depending on nature of material, in order to guarantee the fixings over the long term.

. Contact to place an order: enquiries@fenster.uk.com and **www.fenster.uk.com**

F - Content of working drawings

Working drawings should specify in detail:
- Type of packing & fixings of the frame onto the structural opening and positions of fixings around the frame
- All packing and sealing elements between the frame and the structural opening
- Internal and external architraves and cover strips
- Position of the opening restrictor on the casement and the frame + fixing details
- Ironmongery items, including the lifting system (see §D)
- Dimensions + references of components + tolerances + functional gaps

Annexe 2 - Window inspection & diagnosis (side-hung windows) (1/2)

Problems identified	How to find the causes of failure	Possible causes	What corrections should be made?	Who can make such corrections?
. Noisy bedroom due to external noise: road traffic, audible and intrusive conversations in the street. Window difficult to open and close: the casement rubs against the bottom rail of the frame, handle difficult to operate	Check that the casement is centred in the frame and by how much it overlaps it by tracing in pencil on the frame the exact perimeter of the casement: once the window is open, the overlap of the casement can be seen on the frame and can be measured (see attached photographs showing the marking and the measurement + sketch showing the overlap A): the overlap (A) should be 4 mm or more; if it is less than that, weatherproofing cannot be ensured	Deformation of the casement, which is out of square due to defective wedging of the glass into its rebate	Wedge the glass into its rebate so that the corners of the casement are at right angles + replace any deformed weather-stripping	Window joinery specialist ; if the weather-stripping is deformed, the joiner must be capable of replacing it with an identical equipment
	. **Annexe 3**: Illustration of the measurement of the overlap A and the centring B: Checking weather-stripping and centring of the casement	Deformation of the frame, which is out of square due to defective wedging of the window into the structural opening	Take the window out and replace its fixings into the structural opening so that it is the right shape (flat and square) **or** adjust the wedging of the glazing so that the casement is the same shape as its frame (caution: this operation is very complex, even for a specialist)	Window joinery specialist
	. **Annexe 4**: Sketch showing the overlap A and compression B: Window Functional Gaps			

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Annexe 2 - Window inspection & diagnosis (side-hung windows) 2/2

Problems identified	How to find the causes of failure	Possible causes	What corrections should be made?	Who can make such corrections?
. Noisy bedroom due to external noise: road traffic, audible and intrusive conversations in the street . Window difficult to open and close: the casement rubs against the bottom rail of the frame, handle difficult to operate	Check compression of the weather-stripping between the casement and its frame (see measurement **B** to determine the compression of the weather-stripping on sketch in annexe 4): measure the distance between the bearing surface of the weather-stripping seal on the frame and the front face of the casement or try to slide a sheet of paper between the seal on the casement and the frame (around the full perimeter of the casement): if the paper sheet passes between the seal and the frame there is no, or inadequate, compression and the window is not, therefore, weather tight.	Incorrect adjustment of the latches or latching mechanism over time, with the consequence of no, or inadequate, compression of the weather-stripping seals	Adjust the excentric rollers to increase the compression of the seal **Annexe 5**: Illustration of excentric roller Photo of excentric **Annexe 6**: Sketch showing the adjustment of the excentric rollers Adjusting of ironmongery	The hotel's Maintenance personnel
		Deformation of the frame which is not flat due to defective wedging of the window into the structural opening	Remove and replace the fixings of the frame , re adjust and wedge it into the structural opening so that it takes a correct shape : flat and square (this operation is very complex, even for a specialist)	Windows joinery specialist

Annexe 3 - Checking weather-stripping and centring of the casement

Checking the centring of the casement to the frame: measurement A

On the frame of the window, trace the perimeter of the casement in pencil, so as to be able to measure by how much it overlaps on the frame

Open the window and, using a ruler or calipers, etc., measure the overlap "A" and compare it with the minimum overlap specified by the manufacturer of the profile; in no case shall this measurement be less than 4 mm

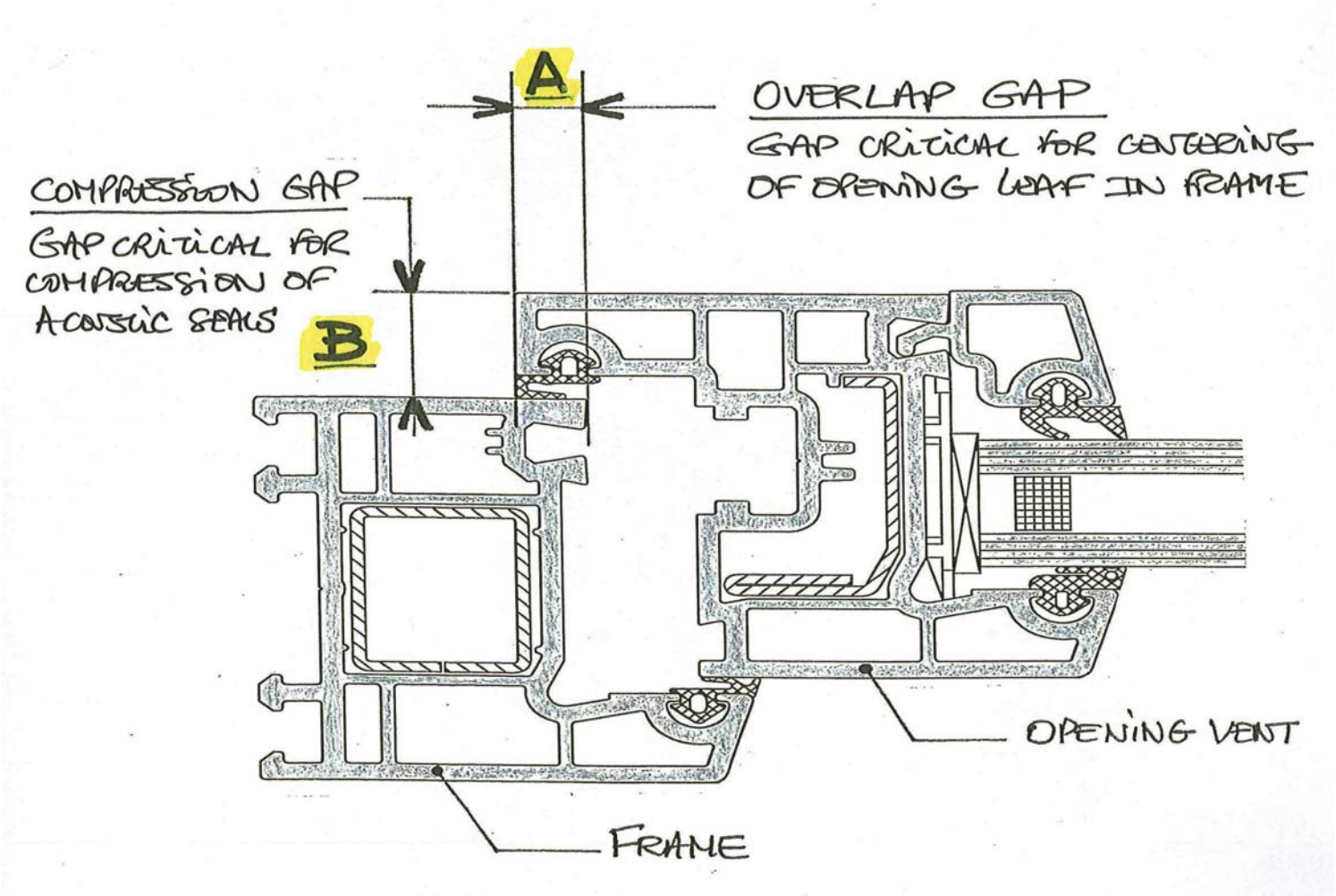
Checking compression of the weather-stripping seal: measurement B

In the case of a new window: measure the thickness B (the thickness of the profile + that of the weather-stripping) at 8 places around the perimeter of the casement using a ruler or a depth gauge, etc. and compare it with the maximum thickness B, specified by the manufacturer of the profile

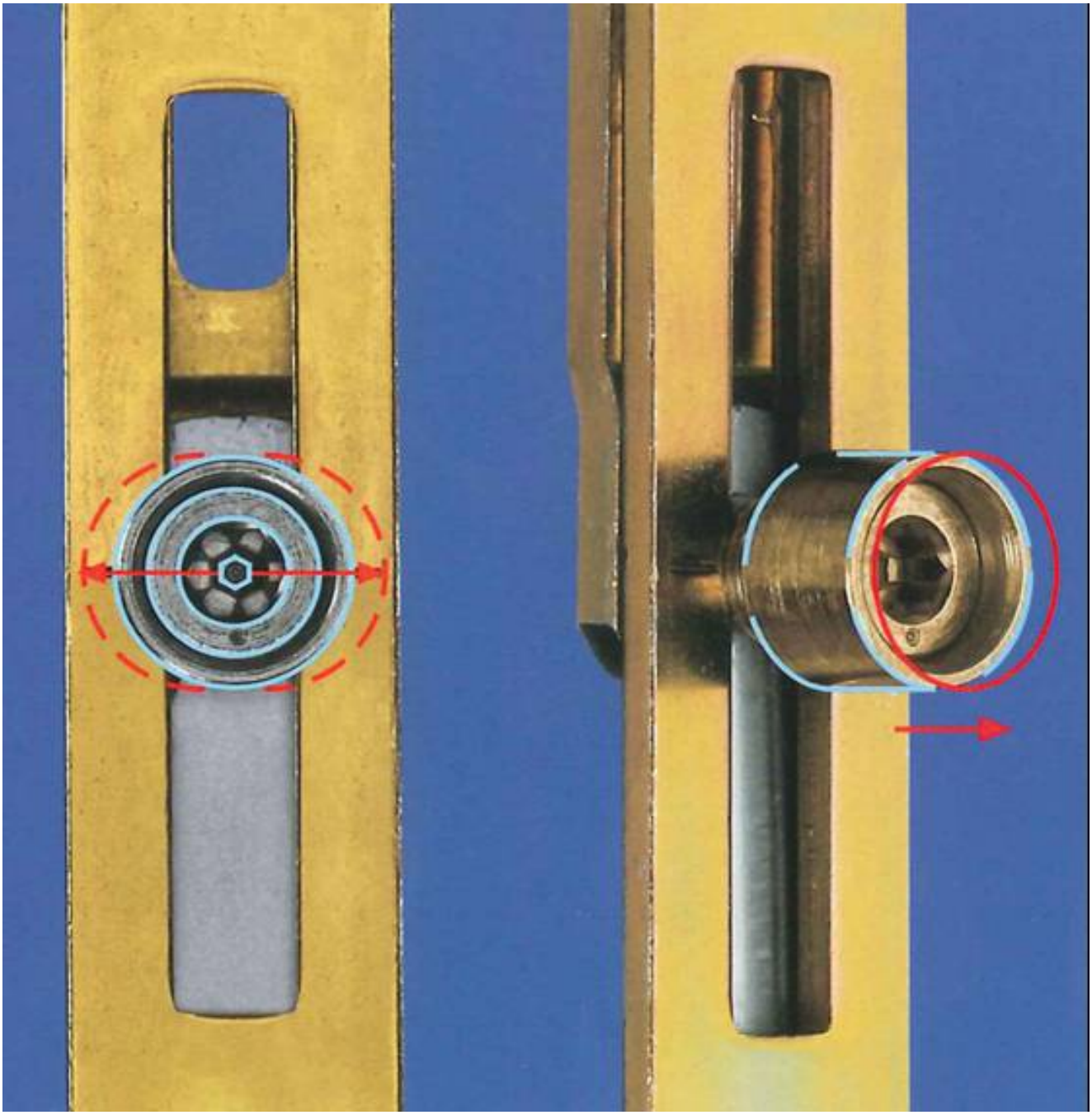
In the case of an existing window: check the compression of the weather-stripping seal between the casement and its frame around the full perimeter of the window (including on the hinge side) using a business card (or similar); if the card can be inserted under the weather-stripping, it is not being sufficiently compressed

BACK TO CONTENTS

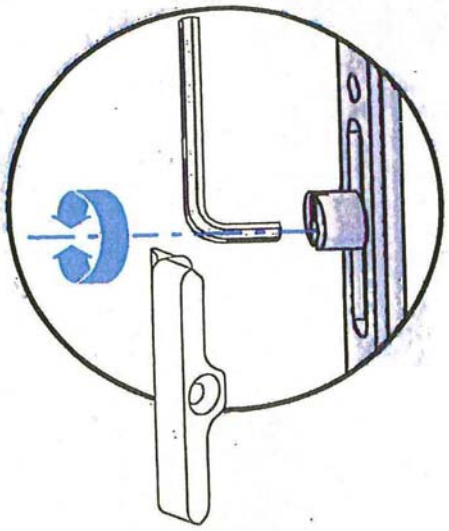
Annexe 4 -
Sketch of overlap and centring of the casement in its frame



Annexe 5 -
Window latching mechanism: adjustment of excentric rollers

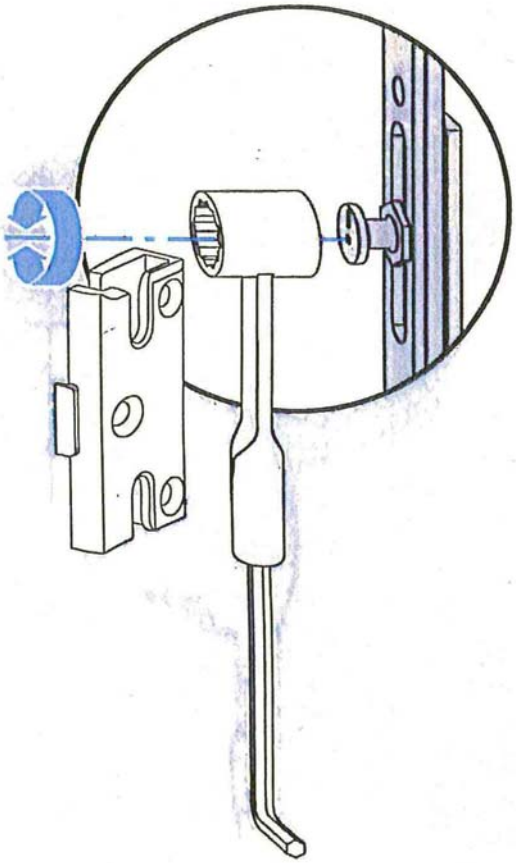


Annexe 6 - Adjusting compression of weather seals between opening leaf & fixed frame



- THE 2 MOST FREQUENTLY USED TYPES OF EXCENTRIC ROLLERS.

- ROTATING THE ROLLER ALLOWS ADJUSTMENT OF THE SEAL COMPRESSION; THIS ADJUSTMENT SHOULD BE CARRIED OUT KEEPING IN MIND NOT TO MAKE THE OPERATION OF THE OPENING WINDOW HANDLE TOO STIFF.



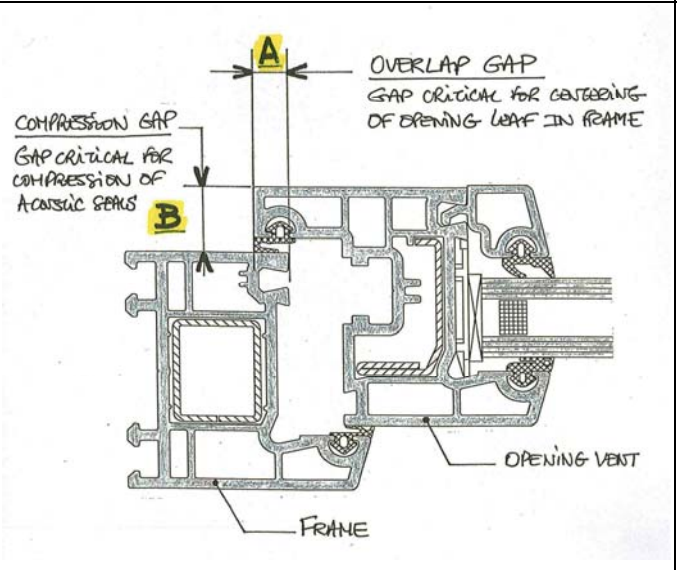
Annexe 7 - Preventive and routine maintenance and cleaning operations

Assembly or element concerned	What operation?	What minimum frequency?	By whom?
Preventive maintenance All of the pieces of ironmongery: all moving parts and all parts subjected to friction (excentric rollers, latches, casement bolt, hinges, etc.)	Greasing or oiling of all moving parts and all parts subjected to friction; the oil or the grease used shall be resin- and acid-free, the lubricant shall be water-repellant, the recommended reference is WD40.	For regular exposure (except marine climate): **Once a year** For exposure to marine climate**: Once every three months**	Hotel's maintenance department or contractor appointed by the hotel
	Tightening of the fixings of the opening handle: this operation will prevent damage to the operating system, as a loose handle will damage the mechanical system that converts the rotation of the handle to the vertical movement of the casement bolt	**Once a year**	Hotel's maintenance department or contractor appointed by the hotel
All flexible rubber weather-stripping seals	Oiling with a silicone lubricant to maintain the flexibility of the weather-stripping seals	**Every 3 to 5 years** depending on exposure (pollution, rain, marine climate, etc.)	Hotel's maintenance department or contractor appointed by the hotel
All drainage holes on the outer face of the bottom rail of the frame	Unblocking the holes through the frame profile (bottom rail) in order to allow water to drain away	**Once a year**	Hotel's maintenance department or contractor appointed by the hotel
Routine maintenance - cleaning: the objective is to prevent deterioration (timber) or tarnishing (PVC and aluminium) of the casement and frame	**PVC** and **Aluminium**: cleaning with soapy water to prevent tarnishing	For regular exposure (except marine climate): **Once a year** For exposure to marine climate**: Once every three months**	Hotel staff or contractor appointed by the hotel
	Timber: rubbing down and painting with 2 coats of stain or micro-porous paint; the stain shall not be colourless but shall be tinted, in order to protect the timber from UV	**Every 3 to 5 years** depending on exposure (pollution, rain, marine climate, etc.)	Hotel's maintenance department or contractor appointed by the hotel

Annexe 8 - Instructions for use of the weatherproofing and operability control sheet

Window: Main parameters to be ensured

Weatherproofing, operability and acoustic performance depend on:

1	. proper packing of the gap between the frame and the structural opening
2	. proper centring of the casement in relation to the frame: see measurement **A** of the overlap in the sketch below
3	. proper compression of the seals between casement and frame: see measurement **B** in the sketch opposite 
4	. Compliance of the glazing with the specified type

Parameters to be checked: which? who will specify them?

There are 5 parameters on the checklist:

1	. **blocking up of gap between frame and structural opening**: the type of material shall be as specified on the working drawings, the blocking up shall fill the whole of the gap between the frame and the structural opening; the check shall be carried out before the cover strips are put in place "closing sign off" will only be given if the check is OK
2	. **centring of the casement in relation to the frame**: the width of overlap to be between the minimum and maximum values specified by the manufacturer of the window profile (the minimum width, in all cases, shall be **4 mm**) + both these values shall be recorded in the checklist
3	. **compression of the weather-stripping seals** : the measurement not to be exceeded shall be as specified by the manufacturer of the profile + this measurement shall be recorded in the checklist
4	. **continuity and absence of deformation of the weather-stripping seal**: there shall be no interruption in the seal around the casement and the frame + the weather-stripping seal shall have no deformation
5	. **compliance of the glazing**: the type(s) of glazing specified (following the acoustic survey) are often different from one elevation to another, the thickness of the glass shall be identified by a label on the window and there shall be a plan specifying for each elevation: which glass type for each location? The label indicating the type of glass shall be checked

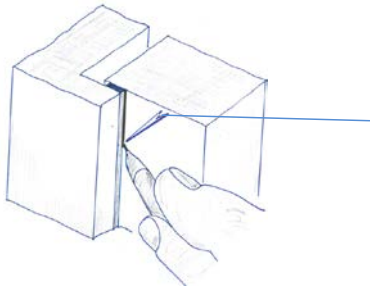
Checking Principles

. 1 checklist for each bedroom, attached to the window when installed

. systematic check of the 5 parameters

Recommended by ACCOR

Bedroom window : Control check list

	Room Nr:	Checker and date:	Non compliant X	Compliant X
1	**Glazing compliance** (*if several kinds of glazing specified according to the hotel facades*) Checking of glazing types by reading the label stuck on window pane			
2	**Full caulking between the 4 sides of the window frame and the facade wall** Visual checking before fixing of the cover strips			
3	**Centering opening leaf vs frame** Minimum overlapping of opening leaf on frame: **4mm** Marking with a pencil the perimeter of the opening leaf (when closed) on the frame + Checking of the overlapping margin (opening leaf open)   The pencil line **must follow exactly the periphery** of the seal			
4	**Compression of gasket between opening leaf and frame** Checking with a business card or sheet of laminated paper: card or paper sliding must be difficult between gasket & window frame, if slip is easy or if the card or paper falls: compression is non compliant + the sound energy heard must not vary when compression applied to the opening leaf. 			
5	**Operating force on window handle** The efforts to open and close the opening vent must be moderated			