

MAINTENANCE GUIDE



KOLBE
■ WINDOWS & DOORS ■

See the Difference Quality Makes®

Wood is a natural product and must be protected to ensure lasting results. With new guidelines for constructing homes and changing environmental conditions, it is important how wood windows and doors are constructed in the factory and cared for after installation. That is why Kolbe goes the extra mile to help preserve your new windows before they leave the factory. With proper maintenance and care, your windows and doors should retain their beauty for many years to come. Use these maintenance recommendations to guide you.

We appreciate you choosing Kolbe products for your project. Should you have any questions or need additional information please feel free to contact our service department at (715)842-5666, or you may also visit us online at www.kolbe-kolbe.com.

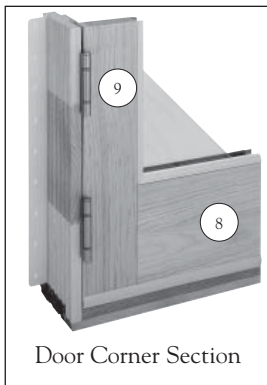
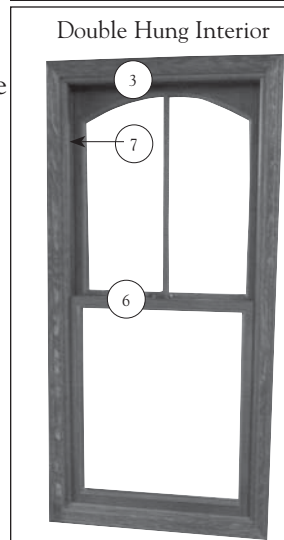


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ANATOMY OF A WINDOW AND DOOR

- 1. Frame** – The stationary part of a window or door system which encloses the sash or the glass. In the case of a direct set, a frame consists of a head jamb, sill, side jambs, extension jambs and blind stop.
- 2. Sill** – The bottom threshold of a window or door frame.
- 3. Head Jamb** – The top, horizontal piece of a frame.
- 4. Divided Lites/Grilles** – A grid that visually divides a window into panes.
- 5. Sash** – The part of a window that holds the glass. The sash may be operating or fixed. The sash consists of stiles, rails and a check rail on double hung units.
- 6. Checkrail** – The bottom rail of the top sash and the top rail of the bottom sash of a double hung window which meet horizontally in the center of the unit.
- 7. Side Jamb** – The vertical pieces of a window or door frame.
- 8. Rails** – The top and bottom horizontal pieces of a door panel or window sash.
- 9. Stiles** – The vertical pieces of a window or door sash.



OPERATION & MAINTENANCE PROCEDURES FOR KOLBE WINDOWS AND DOORS

It is important to maintain windows and doors after they arrive on site. Even with factory-applied finishes, maintenance still needs to be done to windows and doors to preserve their beauty.

Inspection and maintenance of Kolbe windows and doors should be done at least two to three times a year for damage or deterioration of exterior sealants and/or finishes. Check to see if the exterior sealants have any gaps, leaks, or signs of damage and deterioration. Cracks in the K-Kron II finish resulting from joint movement that may occur during the installation process or over the life of the product must be caulked with a high quality sealant immediately to maintain the seal integrity of this paint finish and the warranty. Seal integrity must be maintained in order to prevent the infiltration of water and air.

A yearly cleaning with a **mild unscented** soap and water is recommended for the sash and frames, then rinse.

NOTE: Do not excessively clean or scrub cladding. Refrain from using wire brushes, pressure washers, or cleaning tools which will mechanically harm the coating's surface. Always test cleaning agents on a small inconspicuous area.

Always consider safety when maintaining your Kolbe windows and doors. Make sure to always wear hand and eye protection and use extreme caution on ladders. When using chemicals, make sure to follow manufacturer's instructions for use and proper disposal.

Care of Your Glass – Do not use any harsh chemicals, metal or abrasive scrapers on glass. A good quality glass cleaner or mild unscented soap and water will clean the glass. If you have a spot on the glass that is difficult to remove, mineral spirits or denatured alcohol can be used to clean it off. These solvents can be purchased at most hardware stores. Be careful not to drip the cleaner or solvent on the wood or cladding.

Weatherstripping – Take care when using paints, stains and varnishes. These solvents can damage weatherstripping and may cause it to lose its flexible qualities and become brittle. If exterior weatherstripping becomes damaged, replace it to ensure proper seal from the outside elements. Contact your local Kolbe supplier for replacement weatherstripping.

Cleaning of Window Screens – To clean window screens, remove the screen from the window frame. Then place it in a tub or shower if indoors, (or if outdoors lay on the lawn). Gently spray with water, and brush lightly with a soft bristle brush until clean. Replace when dry. For lighter cleaning, use a vacuum cleaner with a soft brush attachment.

WARNING: Kolbe screens and StormGuard units are intended to act as a barrier against insects and weather related elements. They are not designed to restrain children. **Do not allow children to sit or play on window sills, or to push or fall against window screens.** This could result in a serious accident.

OPERATION & MAINTENANCE CASEMENT WINDOWS

OPERATION:

1. (CA-1) Kolbe casements feature a multi-point locking system. The lock handle is located on the bottom portion of the window frame. To open, lift up on the lock handle.
2. (CA-2) Using the operating handle located on the bottom interior of the sill frame, rotate it clockwise to open window.

Be sure to unlock the window before attempting to open, otherwise you may risk damaging the operating mechanism.

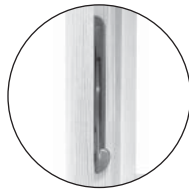
3. To close unit, simply reverse the steps. Be sure not to use excessive force while turning the handle to close the sash. Be sure to lock the unit whenever it is in the closed position.

CLEANING & MAINTENANCE:

In most cases, except casements with Euro hinges, follow these recommendations for cleaning.

1. Begin by removing the screen. (CA-3) On one side of the screen, pull the clear plungers on the frame of the screen towards the center of the screen. Pull the screen towards you. After the side clears the operator, pull the screen out.
2. (CA-1) Unlock unit. (CA-2) Using the operator handle, open the window to its maximum opening. On most casements you should now be able to easily reach between the frame of the window and the sash to wash the outer glass surface.

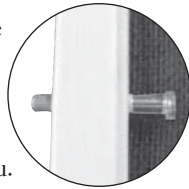
Casement Hardware – Be sure to keep the hardware hinges and slide tracks free from dirt and debris. Do not allow paint or varnish to drip into the tracks. A light silicone spray of Teflon® on the track area will make the sash operate easier. Do not use any oil base lubricant, as it will retain dust and dirt. Do not paint or varnish any vinyl parts or components, hardware or locks. Be sure when closing windows that excessive pressure is not applied to the operator handle



CA-1



CA-2



CA-3

OPERATION & MAINTENANCE AWNING WINDOWS

OPERATION:

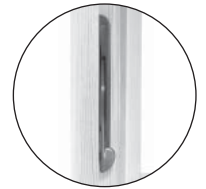
1. (AW-1) If unit has a multi-point locking system, unlock unit. The lock handle is located on the bottom side portion of the window frame. To open, lift up on the lock handle.
2. (AW-2) Using the operating handle located on the bottom interior of the sill frame, rotate it clockwise to open window.

Be sure to unlock the window before attempting to open, otherwise you may risk damaging the operating mechanism.

3. To close unit, simply reverse the steps. Be sure to lock the unit whenever it is in the closed position. Be sure not to use excessive force while turning the handle to close the sash.

CLEANING & MAINTENANCE:

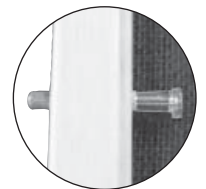
1. Begin by removing the screen. (AW-3) On one side of the screen pull the clear plungers on the frame of the screen towards the center of the screen. Pull the screen towards you. After the side clears the operator, pull the screen out.
2. (AW-1) Unlock unit. (AW-2) Using the operator handle, open the window to its maximum opening.
3. (AW-4) On the operator sash track locate the black clip at the end of the operator track. Pull back towards you. This will release the pivot slide from the operator track. Now push the window sash upward. On most awnings you should be able to easily reach between the frame of the window and the sash to wash the outer glass surface.
4. Re-attach to the operator track and close window.



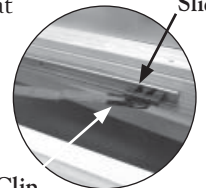
AW-1



AW-2



AW-3



AW-4



OPERATION & MAINTENANCE TRADITIONAL DOUBLE HUNG WINDOWS

CAUTION: When the window is not locked, the sash are not secured and can pivot or tilt under pressure.

OPERATION:

1. (DH-1) To open the unit, unlock the sash lock which is located on the top portion of the lower sash checkrail. Larger units may have more than one lock.
2. Once unlocked, lift the bottom sash to open the window. (DH-2) If you have a StormGuard unit on your window, open the glass panel by pushing the two latches located on the bottom of the sash of the StormGuard unit toward the center, then lift panel up. To close unit, reverse steps.

WARNING: Do not use the sash to support your body weight because it may pivot under pressure

CLEANING & MAINTENANCE:

1. (DH-1) Unlock the sash lock.
2. (DH-3) Raise the lower sash up approximately three inches.
3. (DH-4) Place both hands, one at each end, on the top of the sash. Using the sides of each hand, push sideways on the vinyl jambliner. While applying pressure to the liner, pull the top of the sash towards you.

CAUTION: Care should be taken not to pinch your fingers between the sash and jambliner.

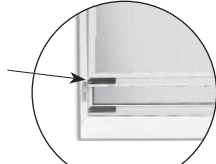
NOTE: Sash removal on an improperly installed unit or a smaller unit may pose some difficulty. A jamb spreader can be utilized to compress the jambliner allowing the sash to tilt freely. Contact your local Kolbe supplier for more information on a jamb spreader.

4. (DH-5) Tilt the sash down until it is at a 90° angle to the window frame.
5. (DH-6) Complete the sash removal by lifting one side of the sash upward. When the pivot pin, located on the side of the sash, has cleared the jambliner, swing the sash out. Repeat steps for upper sash (slide upper sash down to within a couple of inches of the sill, then remove).

Double Hung Jambliners – All vinyl jambliners should be kept clean. The edges of the sash that may come into contact with vinyl components should not be painted or varnished. A light coat of wax or furniture polish (Trewax®) on the sash edge will help seal the edge and make the sash slide easier. Do not paint or varnish any vinyl parts.



DH-1



DH-2



DH-3



DH-4



DH-5



DH-6

REINSTALLATION OF DOUBLE HUNG SASH:

1. (RDH-1) Holding the upper sash horizontally and with one side higher than the other, position the pivot pin of the lowered side above the balance clutch (RDH-2) inside the exterior jambliner track.
2. (RDH-3) Bring the opposite side of the sash down so that the pivot pin is positioned above the balance clutch and the sash is 90° to the window frame. Lift the top portion of the sash up towards the opening and push into the jambliners until it pops into position.

The jambliner may need to be compressed in order to allow the sash to swing into place.
3. To engage the sash into clutch, slide the sash down. You should hear two clicks - the clutches engaging. Move the sash to the top of the opening. Repeat for the lower sash placing the sash into the inner jambliner track.



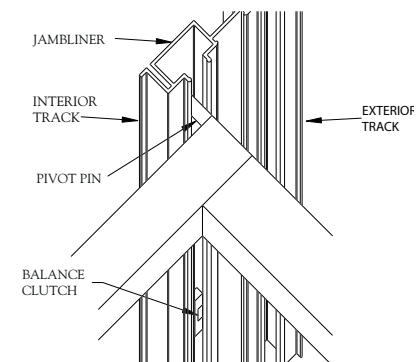
RDH-1



RDH-2



RDH-3



Double Hung Detailed Drawing



OPERATION & MAINTENANCE STERLING DOUBLE HUNG WINDOWS

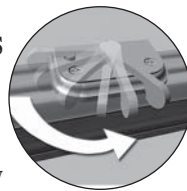
OPERATION:

- (STDH-1) To open, unlock the sash lock by moving the lock lever to the right, past center, until it automatically stops. The button in the left corner of the lock will automatically extend up. Now you may open the window.
- Once unlocked, lift the bottom sash to open the window. (STDH-2) If you have a StormGuard unit on your window, open the glass panel by pushing the two latches located on the bottom of the sash of the StormGuard unit toward the center, then lift panel up. To close unit, reverse steps.

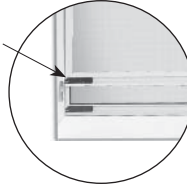
WARNING: Do not use the sash to support your body weight because it may pivot under pressure

CLEANING & MAINTENANCE:

- (STDH-1) Unlock the lower sash by moving the lock lever to the right, past center, until it automatically stops. The button in the left corner of the lock will automatically extend up.
- Slide the lower sash up about three inches. (STDH-3) Depress the lock button with one hand while moving the lock lever all the way to the right with the other hand. This retracts the latches, enabling you to tilt the lower sash in.
- (STDH-4) To completely remove the lower sash, tilt the sash down to a 90° angle to the window frame. (STDH-5) Lift one side of the sash upward. (STDH-6) You should see the pivot pin, located on the side of the sash. When the pivot pin has cleared the jambliner, swing the sash out.
- (STDH-7) To remove the upper sash, slide the sash down far enough to reach the tilt latches comfortably. On the top of the sash place both hands, one at each end, over the tilt latches. Slide each finger tab toward the center of the sash to unlock the sash. While holding the tilt latches in the open position, pull the top of the sash towards you. (STDH-4) Tilt the sash down to a 90° to the window frame. (STDH-5) Remove the sash by lifting one side of the sash upward. (STDH-6) When the pivot pin has cleared the jambliner, swing the sash out.



STDH-1



STDH-2



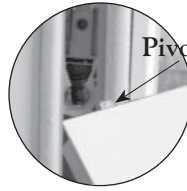
STDH-3



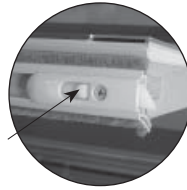
STDH-4



STDH-5



STDH-6



STDH-7

Tilt Latch

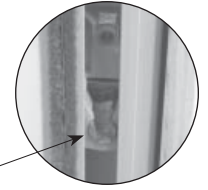
Pivot Pin

REINSTALLATION OF STERLING SASH:

- (RSTDH-1) Holding the upper sash horizontally and with one side higher than the other, position the pivot pin of the lowered side above the (RSTDH-2) cam inside the exterior jambliner track.
- (RSTDH-3) Bring the opposite side of the sash down so that the pivot pin is positioned into the other cam and the sash is 90° to the window frame. Snap the pivot pins down into the cams to engage the clutches. (If you're right-handed, it may be easiest to place the left pivot pin into the clutch/balance track first, then lower the right pivot pin down into position.) You can lightly tap with your fist on the back side of the sash to seat the pivot pins into the cams.



RSTDH-1

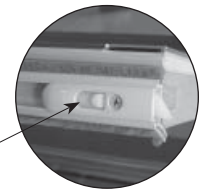


RSTDH-2

Cam

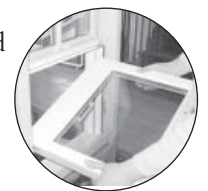


RSTDH-3



RSTDH-4

Tilt Latch



RSTDH-5

CAUTION: The pivot pins must be seated all the way down in the cams of the clutch housing to avoid damaging the cam.

- (RSTDH-4) To avoid marring the frame when tilting the sash back into place, you must retract the latches. On the upper sash, place a hand at each end, on top of the sash over the tilt latches. Slide both finger tabs toward the center to retract the latches. While retracting the tilt latches, rotate the top of the sash towards the exterior until it is in operating position on the jambliner. Release the finger tabs, allowing the latches to snap into place. Slide the sash to the top of the frame.
- (RSTDH-5) For the lower sash repeat the procedure listed in 2 through 4 except now place sash in track closest to the interior. To avoid marring the frame when tilting the sash back into place, retract the latches. On the lower sash, retract the latches by pressing and holding the lock button down and moving the lock lever all the way to the right. Continue to hold the lever in the full right position to keep the latches retracted and rotate the top of the sash towards the exterior until it is in operating position on the jambliner. Release the lock lever, allowing the latches to snap into place. Slide the sash down to the sill. Move the lock lever to the full left position to lock the sash. The lock button will automatically retract.

OPERATION & MAINTENANCE SLIDER WINDOWS

OPERATION:

1. (SL-1) Unlock the unit with the lock located on the check stile of the inner sash. Large units may have two locks.
2. Open the window by sliding the sash.
3. (SL-2) If you have a StormGuard unit on your window, open the glass panel by pushing the two latches located on the side of the sash of the StormGuard unit toward the center, then slide the panel over. To close unit, reverse steps.



SL-1

Latch



SL-2

CLEANING & MAINTENANCE:

1. (SL-3) Slide the inner sash open about two inches toward the center of the window opening.
2. (SL-4) With one hand on each side of the sash, near its base, lift upward.
3. (SL-5) When the base of the sash clears the sill track, pull the bottom of the sash outward. Repeat for the outer sash.



SL-3

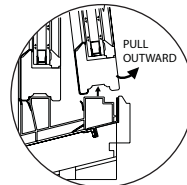
Slider Unit Jamblers – All vinyl jambliners should be kept clean. The edges of the sash that may come into contact with vinyl components should not be painted or varnished. A light coat of wax or furniture polish (Trewax®) on the sash edge will help seal the edge and make the sash slide easier. Do not paint or varnish any vinyl parts.



SL-4

REINSTALLATION OF SLIDER SASH:

1. (SL-6) Place the top of the outer sash up against the vinyl head track.
2. Lift the sash up against the head track enough to allow the base of the sash to fit into place on the sill track.
3. Place the top of the interior sash up against the interior vinyl head track.
4. Repeat step number 2.



SL-5

NOTE: The outer sash has a vinyl weatherstrip on the interior face of the meeting stile.



SL-6

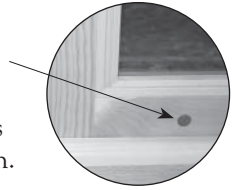
OPERATION & MAINTENANCE SLIDING PATIO DOORS

OPERATION:

If the door is locked, turn the thumb turn on the door handle escutcheon to unlock the door. Open the door by sliding the panel on the track. The door will only open as far as the bumper on the door will allow it. If the bumper is improperly installed, the door will open and mar the wood on the stationary panel and may damage the handle itself, should the handle on the active panel hit it.

CLEANING & MAINTENANCE:

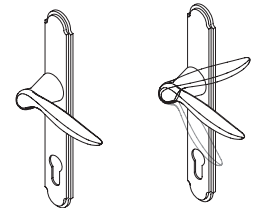
Sliding Patio Doors – The bottom sill track must be kept clean from debris in order for the operating panel to operate smoothly. The rollers on the bottom of the panels may, at times, need adjustment to ensure ease of operation. Rollers may be adjusted by turning the adjustable screws at the bottom of the sash panels of each door. Do not paint or varnish any vinyl parts.



OPERATION & MAINTENANCE SWINGING DOORS

OPERATION:

If your hinged Kolbe swing door is supplied with our multi-point locking system on the door hardware, follow these instruction for operation. Turn the thumb turn or use the key to unlock the door. To open the door, grasp the handle and push down on the handle lever, then open the door.



To close and lock, close the door, then lift up on the handle lever until you hear a click (tongue's engaging into door). Then turn thumb turn on the inside of the door or turn the key lock on the outside to lock.

For double doors make sure to lock both doors. If the thumb turn is not locked on the inactive panel, the panels may be opened at any time, regardless of the active panel being locked.

CLEANING & MAINTENANCE:

Hinged Door Units – On units with our aluminum weep sill, remove the sill covers and check for dirt or any debris that may dam up water and prevent it from getting out of the sill. Check to verify the door is making good contact with the weatherstripping around the perimeter of the door. Replace any worn or damaged pieces of weatherstripping. The door strike may be moved inward to correct a “loose” fit. Periodically clean door handle hardware with mild unscented dish soap and water to remove any environmental elements from the surface of the hardware.

INFORMATION AND CARE OF BRASS HARDWARE

A consumer usually chooses brass hardware because of the attractiveness and brilliant luster of the polished base metal. To maintain the beauty of the hardware, a certain amount of care is necessary. The following information will help you care for your brass hardware.

Most brass hardware items manufactured have a protective lacquer coating. Brass hardware, whether applied in exterior or interior applications, will eventually show signs of finish breakdown or tarnishing. Small dark spots appearing in high contact or wear areas are usually the first indication of deterioration of the protective lacquer coating. The rate at which tarnishing occurs will depend upon the surrounding environmental conditions. Areas with high levels of automotive and industrial pollutants, ultra violet rays, and coastal areas will see accelerated levels of tarnishing.

Brass hardware should not be installed on any surface that has been recently painted, varnished, or otherwise finished for at least two days after the final coat has been applied. This step will avoid any interaction of the curing process with the lacquer finish which can also cause tarnishing.

CARE OF TARNISHED HARDWARE

When tarnishing of the hardware reaches an undesirable level, the brass hardware components should be refinished. Use the following steps to guide you.

The hardware must be thoroughly cleaned – such as removal of all remaining lacquer and any other foreign materials. When cleaning the hardware, it should be first removed from the window or door to avoid any unnecessary damage to the unit during the refinishing process. It's recommended to use fine steel wool (No. 0000) soaked in a light oil or soapy water to keep metal abrasion to a minimum. For tough to clean hardware, try soaking the hardware in lacquer thinner or paint reducer overnight. Be sure not to get solvents on the window or door unit.

Once the hardware is thoroughly cleaned, you can restore the hardware's brilliant luster with any commercially available polish.

The refurbished brass surfaces must now be protected. It is impractical to re-apply a lacquer coating unless the proper tools and experience are available. Therefore, it's recommended to apply several coats of a quality automobile wax. The finish can then be prolonged with follow-up wax applications.

CARING FOR THE EXTERIOR FINISH ON WINDOWS & DOORS

When caring for your windows and doors, always make sure to wear adequate hand and eye protection.

1. **Industrial debris or mildew:** Use a soft sponge to apply a mild warm unscented soap/water solution to the surface. Flush thoroughly with water to avoid residue stains.
2. **Graffiti and paints on glass:** Use a mild solvent like alcohol or petroleum, following manufacturer's solvent instructions. Use solvent sparingly and avoid solvent drips running down the glass. Make sure to thoroughly clean unit with a tap water rinse afterwards.
3. **Touch up of K-Kron II surfaces that have small nicks or scratches:** Wash entire area with a soft bristle brush followed with a cotton rag to remove all water and contaminates. Your wash solution should be a mild **unscented** liquid soap solution in warm water. Add 5% of soap concentrate or 6.4 ounces for every gallon of warm water. All areas of repair must be clean and dry, no soap film or wet areas should remain.

For areas with severe damage due to dents and/or impressions requiring filling, wash entire area first. Scuff and sand all coated surfaces to complete dullness with 220 grit sandpaper or #1 steel wool. Wipe clean with dampened cloth using a good quality lacquer thinner, following manufacturers instructions and allowing to completely dry prior to topcoat application. This step is most important to insure final topcoat adhesion.

Finish with two coats of either Akzo Nobel WINflex 2K Topcoat or a good quality 100% acrylic water-based exterior topcoat in the selected color and gloss to match. Follow all manufacturers instructions.

Many fine sanding pads such as 3M will be adequate as long as they still have the ability to lightly scratch and de-gloss the area to be recoated. Smooth clean and spot spray the area to be repaired. Re-spray the entire section, always attempting to end/blend at a corner or transition area.

NOTE: Exact matches are not possible and gloss levels will vary. To obtain a uniform match, it is recommended that you take an actual color sample to your local paint shop for best results.

4. **Small scratches on fluoropolymer cladding or polyester cladding:** Touch up with Kolbe spray paint, which can be ordered through your distributor. To prepare the area, lightly sand with 240 grit sandpaper. Clean the area thoroughly with mineral spirits, let dry and paint. Scuffs, excess caulking and other minor blemishes usually can be removed by using denatured alcohol and a soft cloth.

We recommend cleaning your windows twice a year with a mild **unscented** soap and tap water solution for the sash and frames, then rinse. Do not excessively clean or scrub, and refrain from using wire brushes or cleaning tools which will physically harm the coating's surface.

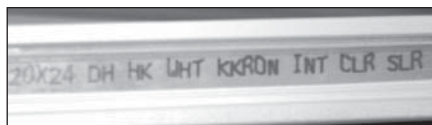
A coastal environment can be extremely harsh on all sorts of products. Any product used in a sea coast location will require more frequent inspections and maintenance, and will probably have a shorter life expectancy than if it were in a less harsh environment. If your home is in a sea salt environment contact your local Kolbe supplier for further recommendations on proper maintenance and care of exterior finishes.

PRODUCT ASSISTANCE:

Your local Kolbe supplier is your main source for ordering parts and for additional information and service needs. To find the nearest supplier visit Kolbe on the internet at www.kolbe-kolbe.com.

If service is required on your Kolbe product, look for an identification code on each unit.

- On double hungs and sliders, the code will be located in the groove on the sash stile.
- On casements, the code will be located on the bottom rail of the sash.
- On awnings, the code will be located on the side rail of the sash.



This code will identify the unit color, date made, and the exact size of the unit.

Casement & Awning Windows:

Q: *Why is the sash on my casement difficult to open?*

A: Check to see that the multi-point locking mechanism is completely disengaged. Check to see that the operator is clean from debris and dirt. If needed, you may apply a Teflon® spray to the operator. If the sash is dragging or protruding, check with your local Kolbe supplier for assistance.



Q: *Why is the operator handle on my casement loose?*

A: Check the set screw located on the bottom side of the handle, make sure it is tight.

Set Screw



Double Hung & Slider Windows:

Q: *Why does the sash on my double hung keep falling down?*

A: Check to ensure the sash are installed into the jamb liners above the clutches. If the pivot pins on the side of sash are below the clutches, remove the sash and re-install above the clutches. (See pages 8-12).



Check that the unit is installed properly, square, level, plumb and not racked. Reinstall if necessary.

Check for broken block and tackle assembly. If the block and tackle assembly is broken remove the sash. Remove the jamb liners. Replace the broken block and tackle. A new block and tackle can be ordered through your local Kolbe supplier. Reinstall the jambliner. Reinstall the sash, making sure the pivot pins on the side of the sash are above the block and tackle clutches.



Block and Tackle

Q: *Why is air coming in around the sash?*

A: Check to see that the unit is installed properly, square, level, plumb and not racked. Reinstall if necessary.

Check to see if the side jambs on double hungs or head jambs on sliders are bowed. If bowed, remove interior casing and shim straight. Replace casing.

Check parting stop for proper installation, damage, or proper length. If damaged or short, reinstall new parting stop. A new parting stop can be ordered from your local Kolbe supplier.



Parting Stop

Check the top end of the jambliner on double hungs for the foam pad. It may be missing or damaged. Replace with new foam pad. Jamb liners must be removed to replace. A new foam pad can be ordered through your local Kolbe supplier.



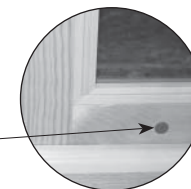
Foam Pad

Check that both the top rail weatherstripping, (located on top of the top sash), the bottom rail weatherstripping, (located on the bottom of the bottom sash), and the checkrail weatherstripping, is not damaged or missing. Replace with new weatherstripping if necessary. The weatherstripping pulls out of the rail. High bulb weatherstripping may be installed where needed. Weatherstripping can be ordered through your local Kolbe supplier.

Sliding Patio Doors:

Q: *Why doesn't my sliding patio door slide properly?*

A: The rollers on the active door panel may be adjusted improperly. To correct this, first take off the plastic caps on the bottom rail. Insert a screwdriver and adjust rollers to the proper height.



Q: Why is it difficult to close and/or lock my Garden-Aire sliding patio door with a 3-point locking system?

A: If your Garden-Aire does not close or lock properly, the strike plate may not be in the correct position. To correct this, remove the side parting stop. Close the door slowly while standing to the exterior of the door to determine proper positioning of the strike plate. Move the strike plate to a position in which the door will close completely and replace side parting stop. Door should operate correctly.

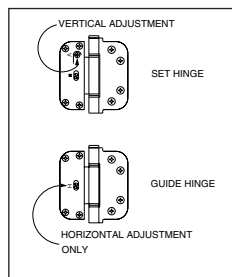
Swinging Patio Doors:

Q: How do I know if a swinging patio door with a multi-point lock is locked properly?

A: The door is properly locked when you have turned the lock knob 90° after the lock has been thrown. If the lock knob can only be turned half way, a few things could be the cause. It could either be caused by something that is in the way of the locking path which needs to be removed or cleaned, or the strikes are not coming out.

Q: How do I properly adjust the hinges on a swinging patio door?

A: It is very important to alter the height adjustments first and then alter the side adjustments. If side adjustments are made first, it disables you from making height adjustments and you will end up stripping the screws. **NEVER ADJUST WITH A POWER DRIVER, ONLY USE A HAND SCREWDRIVER.**



Sliding Screens:

Q: What can cause a sliding screen door to operate incorrectly?

A: Operation problems with a sliding screen door could be because the sill is bowed up or the head is bowed down. To ensure the sliding screen doors will work properly when installing or re-adjusting, follow these simple steps. First, activate the top rollers but do not adjust them. To do this, turn the adjustment screw 1/4 of a turn so the rollers pop up and have free operation. Next, slide the screen until it is 1/2" away from the side screen track. Adjust either the right or left bottom roller until the screen and the side screen track are completely parallel. Last, you may also have to adjust the locking strike on the door frame to make certain it locks. This can be done by loosening up the two screws and moving the strike up or down.

TIPS FOR COMBATING CONDENSATION

In the fall and early spring you may notice small beads of moisture on the glass of your windows and doors. In almost all instances these small beads known as condensation, are not a result of a defect in your window or door, but rather a natural occurrence that is a symptom of excessive humidity in your home. You will notice condensation on your windows and doors first, because the glass surface temperature is lower than other visible surfaces in your home such as walls and the attic.

CAUSES OF CONDENSATION

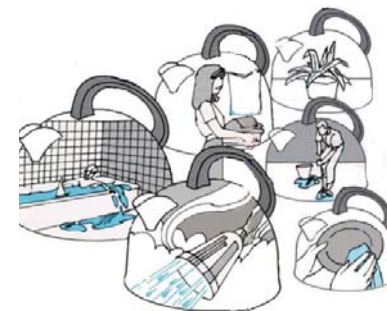
The level of condensation in your home is effected by a mixture of gases in the air. Almost all air holds a gas commonly known as water vapor. This vapor is referred to as humidity. Humidity is moisture in the air.

Relative humidity can be figured out by taking the amount of water vapor actually in the air divided by the amount of water vapor the air can hold. Warm air can hold more water vapor than cold air. If the air is 100% saturated when the temperature drops, the colder air will need to release water vapor. The vapor that is released and seen on your windows and doors is known as condensation.

Condensation on your windows and door occurs, because the outside temperature drops, and the glass on your windows and doors is cool enough to begin cooling the air indoors. Because cooler air cannot hold as much water vapor as warm air, the saturated air inside your home releases excess water vapor once it reaches the cold glass on your window or door. The colder the temperature is outside the lower your humidity level in the house must be to reduce the potential for condensation.

The following are humidity levels recommended by the National Window & Door Manufacturers Association for houses with double-glazed windows. At these levels, window and door condensation and discomfort to residents should be minimal.

Outside Air Temperature	Inside Relative Humidity for 70°F Indoor Air Temp.
+20°F	40% Maximum
+10°F	35% Maximum
0°F	30% Maximum
-10°F	25% Maximum
-20°F	20% Maximum
-20°F or Colder	15% Maximum







WHY SHOULD YOU CARE ABOUT CONDENSATION

Use your windows and doors as an early warning signal for potential condensation problems, because they're usually the coldest surface inside your house and usually the first place where damage occurs. Seeing condensation on the windows and doors will notify you of a problem with the humidity level in your house, before it becomes a more serious problem. If left unchecked, a condensation problem in your home may cause wood to rot, paint to peel, insulation to deteriorate, molds to grow – the floors may even buckle. Even if the moisture problem is not extensive, it can deteriorate the wood, as well as the interior finish. And, when water runs off a window or door, it can seep into, deteriorate and discolor drywall and carpeting.

IS CONDENSATION MORE PREVALENT TODAY?

In most older homes, the insulation, weatherstripping, and other house tightening factors allowed the house to breathe and exchange drier air with more humid air. Most newer homes are built for energy efficiency. They are sealed very well and have less ventilation than older homes. Thus drier air is not allowed to exchange with the humid air in your home, causing more humidity in your home.

WHERE DOES WATER VAPOR COME FROM?	
 One shower produces 1/2 pint of water vapor	Cooking and dishwashing produces 1 pint of water vapor per meal 
 One person's breathing produces 3 pints of water vapor per day.	One household plant produces 1 pint of water vapor per day. 

WHAT YOU CAN DO ABOUT CONDENSATION

Fortunately there are many possible solutions to the problem of condensation. If one solution doesn't eliminate the problem, try another – or a combination.

1. Check your window coverings. Heavy window coverings restrict the flow of warm air over the interior glass surface. Therefore, the glass remains cool and allows condensation to form.
2. If you use a humidifier in your house in the winter, keep an eye on the humidity level. When it gets higher than the recommendations noted on the previous page, turn the humidifier down or completely off.
3. Reduce indoor humidity by cracking open windows for short periods of time each day. Outdoor winter air is much drier than indoor air. Open windows to allow moist air to escape and dry air to enter – the indoor humidity level will be less.

4. Use bathroom, kitchen, and laundry room exhaust fans to vent humidity to the outdoors.
5. If there is condensation between a storm window and sash, humidity is being trapped. Simply loosen the storm window a bit to let moisture escape. (This will affect your heating cost very little.)
6. Vent all gas burners and clothes dryers to the outdoors, as water vapor is a by-product of gas combustion.
7. Raise glass surface temperatures by installing appropriate heating systems under windows and near the floor on exterior walls.
8. Install an air-to-air heat exchanger. This will exhaust stale air and bring in fresh air, while transferring heat from the stale air to the fresh air.
9. Install a wide overhang and/or rain gutters and downspouts to divert rain water away from the house foundation.
10. Replace single-pane windows with insulating glass windows or install storm windows, or both. Single pane windows are often inadequate – the glass becomes very cold in winter, allowing moisture, frost and ice to form.
11. Cover ducts and pipes with insulation that have a vapor barrier on the outside; seal joints between sections of insulation with barrier tape.
12. Insulate walls to keep their interior surfaces warm and prevent condensation. Check insulation periodically. If it settles, insulation should be added so the upper wall is protected.
13. Vent crawl spaces. Sealed crawl spaces force moisture to penetrate floors above and cause humidity problems as well as floor damage. Foundation vents in the crawl space, together with a ground cover such as polyethylene film, will prevent moisture from penetrating the floor above.
14. Insulate the ceiling. This will reduce heat loss as well as prevent condensation problems. Install the insulation at the exterior wall by extending it over the wall plate, then fastening it down. Otherwise, wind can blow under the insulation and chill the exterior part of the ceiling.
15. Vent the attic. Because condensation that forms in an attic can drip to the ceilings below, attics need proper ventilation. Check that attic louvers are not obstructed. Ventilation should be distributed uniformly along the roof, equally divided between the high ridge and low overhang. Attics need two vent openings: one to take outdoor air in and one to allow indoor air to escape. Call a heating or ventilating contractor for help in attaining the right amount of ventilation in your attic.
16. Vent exterior walls by installing miniature louvers known as *cold-side venting*. This will prevent moisture from condensing between exterior and interior walls. It is especially helpful if a home does not have an exterior vapor barrier, to ensure that water vapor that enters the wall space has a means to escape to the outdoors. One square inch of venting should be installed between each stud.

17. If building new or remodeling, consider installing a vapor barrier to the exterior wall surface. The membrane should be continuous and unbroken to prevent moisture seepage. All joints must overlap and the barrier must be fastened securely on studs, joists or bracing.
18. Grade the ground around the house for good drainage. This will help prevent moisture from entering the house.

REMEMBER: Make sure you keep windows and doors maintained and follow the suggestions listed in this guide to help prevent condensation from penetrating wood surfaces and causing costly damage to your windows and doors.

Should mildew that is caused from condensation on your windows and doors occur, you should remove it as soon as possible. Mildew can be removed using a solution of 10% to 20% bleach and remainder water. Scrub affected areas with a soft cloth to loosen mildew, then rinse thoroughly. Wear protective clothing, especially for eyes and hands. Wash and rinse body well after each mildew removal session.

EXTERIOR CONDENSATION

Condensation which is located on the exterior of your windows is nothing to worry about. Exterior condensation means the windows and doors are doing their job. The more energy-efficient your windows and doors are, the more likely they are to experience this exterior condensation. The only way to reduce exterior condensation is to increase the temperature of the outer glass surface above the dew point of the air. You can try increasing the temperature inside your home or opening the blinds, shades or drapes, but you may not be able to eliminate exterior condensation completely.

MOISTURE BETWEEN THE PANES OF GLASS

If moisture is present between the two panes of glass, there may be a problem with the seal on the unit. Contact your Kolbe supplier for information on having the unit checked for seal failure.

For more information on condensation check the following website:
www.nwwda.org

References

Understating Condensation-nwwda 1997

Excess Moisture in Homes-1994 & Windows Condensation-2003-University of Minn. Ext. Services

Winter Home Moisture Problems-University of Wisconsin Ext. Services 2003

For warranty information please visit our website at www.kolbe-kolbe.com or contact your local Kolbe supplier.



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5062530-3/08-5M-RG