

Care & Maintenance Guide

Windows And Doors

Caring for and maintaining your Western Window Systems window and door products will help ensure that all of the products within your home operate at the highest performance level possible. By properly caring for each of your products you can save time and money, as well as protect against nullifying your product warranties. Regular inspections and maintenance are the most effective way to ensure your windows and doors stay in proper working condition.

INTRODUCTION

This Care & Maintenance Guide provides detailed information that will help keep your window and door systems operating smoothly for a long time. To protect your investment in these products it is imperative that you take time periodically to both clean and inspect your windows and doors at the intervals identified in this guide.

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If you have any questions as you review this guide, please refer to our Product Information, Terms & Conditions, and Frequently Asked Questions available at www.westernwindowssystems.com.

This Care & Maintenance Guide is intended only as a general handbook and does not contain all information relating to proper care and maintenance of Western Window Systems' products or every conceivable care or maintenance issue. For additional or more detailed service procedures, installation instructions, product information, or to find a maintenance or service professional in your area, contact your Registered Dealer.

The information contained herein is believed to be accurate and reliable. However, Western Window Systems assumes no responsibility for errors, omissions, or misinterpretations and therefore, reliance on the information provided herein is done so at the risk of the party so relying.

The information in this Care & Maintenance Guide may change periodically without notification. The most up-to-date version of this Care & Maintenance Guide is available at the above website.

CARE DURING INSTALLATION

Protect Finished Products

All of Western Window Systems products are classified as “finished products” and thus must be protected and handled with extreme care. Although all our finishes possess exceptional resistance to corrosion, fading, discoloration and wear, the product can be damaged by harsh chemicals, harsh elements, neglect and abuse. In an effort to protect the finished product and in particular their finished surface, extreme care must be taken to install the product properly, to protect it during construction, and to clean and maintain all windows and doors with the appropriate materials, as detailed below, for the life of the product. Failure to properly maintain products can void Western Window Systems’ express limited warranties.

Follow Installation Instructions

It is imperative that all of Western Window Systems window and door products be installed by an experienced installation professional. If you need assistance in locating an installer, please contact your Registered Dealer. All of Western Window Systems products must be installed in strict compliance with American Architectural Manufacturers Association (“AAMA”) requirements, applicable codes and regulations, and our written installation instructions for each product type. For help finding a Registered Dealer or to download installation instructions please visit: www.westernwindowssystems.com/professionals/dealer.

Keep Your Windows and Doors Clean During Construction

Upon completion of installation of your Western Window Systems windows and doors it is critical that your product is cleaned thoroughly. You can do this yourself (following the instructions described below), or contact your Registered Dealer who may recommend an experienced cleaning professional to provide a deep clean of your products.

Take Steps to Avoid Corrosion During Installation

In addition to following installation instructions, the following steps should be taken to avoid corrosion during installation and ensure proper performance of your windows and doors:

1. Avoid galvanic corrosion by making sure that dissimilar metals are not placed in contact or close proximity to each other. Evidence of this type of corrosion exists when you see a white, chalky substance on your threshold or frame material. This white substance is typically formed as a result of these differing metals touching and reacting via some outside agent (typically water). To avoid galvanic corrosion, you can:
 - Separate any metals in the vicinity of our product with some form of static, non-moving material that protects against chemical reactions.
 - When cleaning your windows and doors, make sure to dry the product thoroughly and ensure that sitting water is not left on product materials or any other metals in the vicinity.

2. Avoid caustic corrosion by protecting your windows and doors from chemicals that can damage the finish, hardware, or glass. In particular, you should seek to avoid any stucco or concrete splashing on the frame of your Western Window Systems products. If these spills are not removed immediately, the caustic agents in these materials can permanently damage your doors and windows. Aluminum frames are extremely susceptible to corrosion caused by various chemicals on a construction site. It is imperative that all products are cleaned very carefully after installation is complete. In addition, Western Window Systems recommends protecting door thresholds and window sills with protective tape or box frames to keep caustic agents from damaging the aluminum in these particularly vulnerable areas.

Label Removal

All of your Western Window Systems doors will come with a product label attached to the glass. Prior to completing your project, you will need to remove these labels. Please follow these steps for removal:

1. Slowly peel the label away from one corner.
2. If label tears or sticks, moisten with soapy water and gently scrape with plastic putty knife.
3. Stubborn labels can be soaked with soapy water and covered overnight with plastic wrap, and then removed the following day with a plastic putty knife.

Additional glass cleaning information may be available directly from the glass manufacturer. Contact your Registered Dealer for details.

CLEANING PRECAUTIONS AND RECOMMENDATIONS

1. Never mix cleaners or solvents. Certain combinations can be dangerous and reduce effectiveness.
2. Do not lean on windows, doors or door screens. They are not strong enough to protect against falling through.
3. Read and follow the safety information provided on p. 16.
4. Always use help when working with a large window or door to avoid injury.
5. Use extra caution when cleaning and exterior side of windows and doors above the ground level.
6. Carefully follow directions for all commercial cleaning products, including all warnings, cautions, disposal instructions, ventilation, safety gear, etc.
7. Never use a power washer or garden hose to spray at your windows and doors. The pressure from these water sources can cause seal failure and allow water to penetrate through your windows or doors.
8. Avoid using metal tools, razor blades, or abrasive cleaners unless absolutely necessary. These methods can damage frames and scratch your glass.
9. Never allow aggressive cleaners to spill onto vinyl, aluminum, or wood frames. Rinse and dry off immediately.
10. Do not allow cleaners to puddle or collect on the edges of your glass or glazing materials.
11. Avoid cleaning when temperatures are too hot or too cold. Annual maintenance should be performed in temperate weather conditions.
12. Avoid excessive rubbing or scouring, which can scratch glass or damage materials.
13. Clean and rinse one window or door at a time, to avoid cleaning agents sitting too long on materials.
14. After market tints or films are not recommended, as they can cause damage to the glass or the sealant used to secure the glass to the frame thus voiding your warranty.
15. The cleaning described in this Care & Maintenance Guide should be performed a minimum of once per year and should be performed once per month if the units are installed within two (2) miles of salt water ("Coastal Applications") or other areas exposed to extreme weather, including heavy rain, snow, hail, wind, sandstorms, or flooding.

CLEANING MATERIALS

The following are essential tools and cleaning materials that will be needed to properly clean and maintain your Western Window Systems window and door products.

- Soft bristle brush
- Spray bottle
- Vacuum cleaner
- Sponge
- Spray silicone
- Denatured alcohol Sol-vent
- Baby shampoo, mild soap and water and vinegar and water (except on hardware)
- Several clean, soft, non-abrasive, absorbent chamois or dry cloths
- Commercial glass cleaning products or solvents (use only for difficult to remove stains)
- Plastic putty knives (for paint or putty removal)
- Plastic wrap (for label removal)

CLEANING GLASS

Below you will find directions for cleaning the glass surfaces of your windows and doors. You may find it easier to clean your glass by first adjusting your window sash and or door panel for easier access. Some window sashes can be removed (horizontal sliding windows), while others can be opened (casements, awnings, hoppers). If you would like further instructions on how to remove your sash before cleaning please contact your Registered Dealer.

General Cleaning

Western Window Systems recommends that you do a general cleaning of all your glass surfaces a minimum of once per year and once per month in Coastal Applications or other areas exposed to extreme weather. Please follow these steps for general cleaning:

1. Prepare cleaning solution (1 tsp baby shampoo to one gallon of water).
2. Rinse surface with clean water from top to bottom (do not use a high pressure hose).
3. Clean with mild soap and water and sponge or soft brush with uniform pressure horizontally, then vertically.
 - Be sure to quickly rinse and dry any run-down. Do not allow cleaning solutions to collect or puddle on surfaces of your windows and doors.
4. Promptly rinse thoroughly with clean water (often sponging while rinsing can be effective). Do not allow the cleaning solution to dry on the surface.
5. Wipe dry the window frame and sill with dry cloth or chamois (do not use same cloth used on glass).
6. If necessary, repeat steps above until clean.

Stubborn Stain Removal

For more stubborn stains on your glass surfaces, a commercial glass cleaning product may be necessary. Please follow these steps for stubborn stain removal:

1. Apply a small amount of commercial glass cleaner directly to the stain. Avoid spilling or dripping down the glass.
2. Some persistent stains may need higher strength cleaning solutions that contain active ingredient chemicals such as toluene, xylene, mineral spirits, or naphtha. Take special care to follow instructions carefully when using these types of cleaners.
3. For oil and grease stains, try using baking soda and water or washing soda and water.
4. Rinse thoroughly with clean water and dry.

Paint Removal

Removing paint from glass can also be difficult. Please follow these steps for removal:

1. Soak dried latex paint drips with warm water and baby shampoo solution.
2. Wipe with a damp cloth or sponge.
3. If needed, scrape gently with a plastic putty knife. Repeat soak and scrape.
4. If necessary, repeat steps above until clean.

CLEANING ALUMINUM

Below you will find information on cleaning the aluminum surfaces on your Western Window Systems windows and doors. Your products will either have a painted finish or an anodized finish. Western Window Systems recommends that you inspect and clean these aluminum surfaces a minimum of once per year and once per month in Coastal Applications or other areas exposed to extreme weather. Please follow these instructions for inspection and cleaning:

1. Inspect all aluminum surfaces for scratches or cracks in the finish.
2. Pay close attention to bare aluminum (edges and weep holes) and areas of no finish.
3. Bare aluminum will oxidize over time (oxidation is a natural occurrence that produces a coating that wipes off as a dark, metallic-looking residue). Always address oxidation:
 - Use a fine scratch pad or steel wool to gently remove oxidation. **DO NOT** scratch finished surfaces.
 - Dust or vacuum residue and wipe clean with damp cloth.
 - For optimum protection against oxidation, apply a coat of high quality car wax over the enamel or anodized finish.
4. To clean the painted finish or anodized aluminum surfaces:
 - Wipe with sponge and water.
 - Dry with a soft cloth.
5. If soil still adheres, try these additional steps:
 - Sponge or lightly brush with mild soapy water.
 - Rinse and wipe dry with soft cloth.
6. If stubborn soil is still an issue, try these additional steps:
 - Wipe with mild solvent (mineral spirits) and a clean soft cloth or non-abrasive nylon cleaning pad to remove grease, sealant, or caulking compounds.
 - Dry with a separate clean cloth.
 - Clean residue with sponge, mild soap and water, rinse, and let dry.

When working to clean aluminum surfaces it is very important to remember that you are cleaning a "finished product". Be very careful to not do further damage to your finish by cleaning too aggressively. Be certain to not use any chemicals or other similar substances that can remove the color or gloss of the paint. Warning labels will identify them as such, and be sure to avoid use of these materials.

CLEANING VINYL

Debris, contaminants such as bird droppings, or sand from a coastal environment should be removed immediately. First, remove any large particles by applying a light spray of water and wipe with a soft bristle brush. Then wash the surface using warm water, a mild detergent and a soft absorbent cloth. Never use a dry cloth as hard particles can abrade (scratch) the finish. Never use abrasive or acidic cleaners - they will cause permanent damage to the frame finish. Periodic or seasonal cleaning using these steps will maintain your vinyl finish for years to come.

WOOD CARE

Timeliness in painting and finishing of wood is very important. After a unit is installed and has been exposed to the weather and/or interior humidity, it can be difficult to dry the wood sufficiently to allow for finish adhesion and damage may already have taken place. Unfinished wood surfaces will discolor, deteriorate, swell, or may bow and split. Exposed interior or exterior wood must be finish-coated immediately after receipt to control moisture gain and movement and avoid warping and other damage.

Moisture is the enemy of wood. The primary purpose of finishing, in addition to aesthetics, is to protect the wood from moisture. During installation of the products, there may be a penetration of the wood by nails or other fasteners. It is very important to seal these, or any other penetrations, to reduce moisture invasion. This protection must also be continued as a maintenance item.

All pieces of wood are unique. Some pieces of wood will have more pronounced grain patterns than others. These are not defects in the wood or the finish. Stain color inconsistencies due to natural wood properties are not wood defects and can be controlled with proper finishing.

Be sure to follow the finish manufacturer's instructions, safety information, and warnings provided on the container before applying finish to your door. When caring for your doors, always make sure to use adequate hand, eye and ventilation protection.

Veneered parts

Many interior surfaces are not solid wood, but covered with veneer, or a thin piece of wood. Veneered parts are engineered for enhanced strength, warp-resistance and surface consistency when applying paint or stain. Many times, it will not be obvious if a part is veneered or not. Due to the delicate nature of veneer, all wooden parts should be treated as though they are veneered. Finishing veneered products is the same as finishing solid wood except it is possible to sand through the veneer. Components receive a factory finish and should not require further sanding. If light sanding is necessary, use closed grit 240 or finer.

CLEANING HARDWARE

Cleaning your hardware helps to maintain and restore smooth operation to moveable parts of your Western Window Systems windows and doors, as well as corrosion protection. Western Window Systems recommends that you inspect and clean your hardware anytime windows are not opening or closing properly or a minimum of twice per year and once per month in Coastal Applications or other areas exposed to extreme weather.

When cleaning and maintaining your window and door hardware, always do the following:

1. Clean any dirt/debris
2. Tighten any loose screws
3. Replace damaged hardware
 - Contact your Registered Dealer for repair or replacement. Please note that hardware replacement and related costs (including the cost of labor, installation, sales tax, finishing, and other associated costs) may not be covered by Western Window Systems' express limited warranties.

The following substances may damage protective hardware finishes. Do not use:

1. Vinegar-based cleaners
2. Citrus-based cleaners (lemon, etc.)
3. Paint removers
4. Window cleaners
5. Brick/siding washes
6. Any other industrial or abrasive cleaners
7. Use caution with silicone-based sprays
 - Apply only in small amounts and do not overspray. Wipe off excess lubricant to avoid staining and/or damage to other window or door parts. Silicone may cause some hard-plastic parts to become brittle.
 - Some lubricants such as WD-40 or other equivalents should not be used because they attract dirt and inhibit performance.

Cleaning

As stated previously, Western Window Systems recommends that you clean your hardware a minimum of twice per year and once per month in Coastal Applications or other areas exposed to extreme weather. Please follow these general steps for cleaning your hardware on your Western Window Systems windows and doors.

1. Remove hardware for easier cleaning.
2. Use mild soap and water on a soft cloth or sponge; rinse and wipe dry. For stubborn dirt, use a soft bristle brush to gently scrub.
3. Apply several coats of high quality, non-abrasive car wax.
4. Re-install hardware.

LUBRICATING HARDWARE

Lubricating your hardware helps to maintain and restore smooth operation to moveable parts of your Western Window Systems windows and doors. Western Window Systems recommends that you inspect and lubricate your hardware anytime windows are not opening or closing properly or a minimum of once per year and once per month in Coastal Applications and other areas exposed to extreme weather.

Always thoroughly clean all hardware before lubricating

Lubricant Types

Different hardware requires different types of lubricants. The instructions below will identify the suggested lubricants as well as specifics on which types to use and how to apply them to individual Western Window Systems products.

1. White or Lithium Grease
 - Protects metal surfaces against corrosion, reduces friction and wear on moving parts, and is an excellent multi-purpose lubricant.
2. Light Oil (such as 3-In-One)
 - Use for sliding or rotating joints.
3. Graphite (spray black carbon powder)
 - Use for door lock key ways and hinges. Apply carefully to avoid possible staining of parts.
4. Spray Silicone
 - Use for slider tracks, jamb liners, and weatherstrip. Do not spray directly onto hardware surfaces. Always spray onto a cloth and then apply.

Plastic Hardware

Most hard-plastic hardware parts (i.e. sash retainer latches) require periodic cleaning for smooth operation. Please follow the general cleaning method described above. Plastic hardware DOES NOT require lubrication.

Hinges

Western Window Systems utilizes butt hinges on our casement windows and a continuous hinge on our 900 Series Door panels. Lubricate all hinges with light oil (3-In-One oil or equivalent).

Horizontal Sliders or Single Hung Windows

Please follow these steps for cleaning/lubricating sliders and single hungs from Western Window Systems:

Horizontal sliders - The operable sash is removable by opening half way, lift sash and tilt bottom in towards the interior until it clears the sill. It will then release from the head track. Remove any buildup of dirt or hair from the rollers and lubricate with 3 in 1 oil.

Using a damp cloth, wipe any dirt or debris from the operating sash track. Using spray silicone, spray the entire track and wipe excess off with a dry cloth.

Reinstall the operable sash and fully operate the panel open and closed 4 or 5 times.

Single hung windows

Using a damp cloth, wipe any dirt or debris from the operating sash track. Using spray silicone, spray the entire track and wipe excess off with a dry cloth.

Casement, Awning, or Hopper Hardware

Please follow these steps for cleaning/lubricating casements, awnings, and hopper windows from Western Window Systems:

1. Remove set screw on crank handle with small screwdriver or Allen wrench; remove handle. Gently remove plastic cover.
2. Apply lithium grease to operator gear mechanisms.
3. Apply light oil to rotating joints such as hinge pivots.

Sliding Door Tracks And Jamb Liners

Sliding door tracks and jamb liners can become dirty and difficult to operate. Please follow these steps for cleaning/lubricating sliding door tracks from Western Window Systems:

1. Carefully remove panels on sliding doors (hire a professional if this is too difficult).
2. Vacuum track or wipe with a soft cloth.
3. Apply spray silicone to dry, soft cloth. Wipe onto track, jamb liner, and/or weatherstrip. Do not apply silicone to pile (fuzzy) weatherstrip.
4. Re-install panels and slide back and forth to check for improved operation.

Sliding Door Rollers & Multi-Point Locks

It is important to clean/lubricate your sliding door rollers and all of your multipoint locking hardware for sliding doors and hinged doors.

1. Carefully remove door panels on sliding doors (hire a professional if this is too difficult).
2. Tip the door panel for better access to the rollers on the bottom.
3. Lubricate the rollers where the shaft goes through the middle of the wheels with light oil.
4. Lightly oil the multi-point lock at each latch point.
5. Spray the keyway (of all keyed cylinders) with graphite lubricant.
 - Contact your Registered Dealer for assistance with lubricating, repairing, or replacing your hardware. Please note that hardware replacement and related costs (including the cost of labor, installation, sales tax, finishing, and other associated costs) may not be covered by Western Window Systems express limited warranties.

INSPECTIONS AND MAINTENANCE

Below you will find directions for basic inspections and cleaning techniques for your sash or panels, weatherstrip, and weep systems.

Window Sash and Door Panels

Western Window Systems recommends that you inspect and clean door panels, as described below, a minimum of once per year and once per month in Coastal Applications or other areas exposed to extreme weather.

1. Inspect stiles and rails for any visible damage.
2. Check glass for any cracks.
3. For insulating glass units, look for moisture or fogging between the glass panes. Generally, this type of fogging is most visible on cold mornings.
4. Check the sealant at the lower corners of the frame to ensure that it is still intact. Repair as necessary with 100% silicone sealant.
5. Replace or repair damaged or failed glass.
 - Contact your Registered Dealer for repair or replacement. Please note that product replacement and related costs (including the cost of labor, installation, sales tax, finishing, and other associated costs) may not be covered by Western Window Systems express limited warranties.

Bug Screens

Western Window Systems recommends that you inspect and clean your screens a minimum of once per year. Please follow these instructions:

1. Inspect your screens for cuts, scratches, holes, or looseness.
2. Replace or repair damaged screens.
 - Contact your Registered Dealer for repair or replacement. Please note that product replacement and related costs (including the cost of labor, installation, sales tax, finishing, and other associated costs) may not be covered by Western Window Systems express limited warranties.
3. Remove the screen and place into a tub or show (if indoors) or place on your lawn or hard surface (if outdoors).
4. Gently spray with water and lightly brush with a soft bristle brush until clean.
 - For dirt that is more difficult to remove, gently scrub with a soft bristle brush and with mild soap and water.
 - Rinse the screen material with a gentle spray.
5. Reinstall the screen when dry.

Weatherstrip

Western Window Systems recommends that you inspect and clean your weatherstrip on windows and doors a minimum of once per year and once a month in Coastal Applications or other areas exposed to extreme weather. Damaged weatherstrip can allow water to penetrate into your house and also causes energy loss due to air infiltration. It is imperative that you replace weatherstrip that is missing, torn, cracked, brittle, discolored, gummy, or that no longer “bounces back” when pressed down on. To inspect, clean, and repair please follow these instructions:

1. Avoid the use of sharp items near any weather stripping.
2. For light cleaning:
 - Clean with a damp cloth or mild soap and water.
 - Rinse and dry thoroughly. Repeat if necessary.
3. For non-water soluble cleaning:
 - Test a small area with your lacquer thinner first to avoid product damage.
 - Avoid contact with vinyl components as this may result in discoloration or warping of the frame members and possibly void Western Window Systems limited express warranties.
 - Clean with a small amount of lacquer thinner on a soft cloth. Repeat if necessary.
 - Clean with mild soap and water, then rinse. If unsuccessful, consider replacing weatherstripping.
4. For repair or replacement:
 - Carefully remove loose or damaged weatherstrip.
 - Apply thin bead of silicone sealant into kerf.
 - Reinstall weatherstrip.
 - Hold in place with tape for 24 hours.
 - Carefully remove the tape.
 - Contact your Registered Dealer for repair or replacement. Please note that the weatherstrip replacement and related costs (including the cost of labor, installation, sales tax, finishing, and other associated costs) may not be covered by Western Window Systems express limited warranties.

Weep Systems

Western Window Systems recommends that you inspect and clean your weep systems on windows and doors a minimum of once per year in Coastal Applications or other areas exposed to extreme weather to ensure proper water drainage. Failure of water to quickly drain from the sill through the weep system may result in damage to the surrounding window structure. To inspect and check the weep holes for blockage please follow these instructions:

1. Routinely clean the sill track with a vacuum or wipe thoroughly with a damp cloth.
2. Pour a small amount of water (approximately 1 cup) into interior sill track. If water drains out through the exterior weep holes the system is clean and clear. If not, continue to Step 3.
3. Insert a thin wire into the exterior weep hole in the frame or track. Be careful to not push the wire further than necessary to remove the blockage to avoid risk of damaging the glass (if applicable).
4. Repeat step one until water runs clear to the exterior.
 - Contact your Registered Dealer for repair or replacement. Please note that the weep system replacement and related costs (including the cost of labor, installation, sales tax, finishing, and other associated costs) may not be covered by Western Window Systems express limited warranties.

SAFETY INFORMATION & WARNINGS

Fire Safety & Security

WARNING: In the event of an emergency, the inability to open and operate windows or doors can lead to serious injury or death.

1. Ensure all windows and doors can be opened in the event of an emergency:
 - Repair any broken hardware, including locks, sashes, balances, and other operating components as quickly as possible.
 - Do not nail or use paint or weatherstrip to permanently shut windows.
2. Make an emergency escape plan that includes at least two possible paths from each room.
3. Install smoke detectors and test monthly.
4. Close and lock windows and doors to discourage intruders.

Safety

WARNING: Falling through a window, door or screen can cause serious bodily injury or death.

1. Exercise extreme care when maintaining or cleaning doors and windows, especially when using a ladder or scaffolding, or when children are present.
2. Do not lean on windows, doors or door screens. They are not strong enough to prevent adults or children from falling through.
3. Do not allow unattended children to play near open windows and doors.
4. Position children's beds and furniture away from windows

WARNING: Mishandling glass can cause serious bodily injury or death.

1. Follow all installation instructions when unpacking, installing, or repairing glass.
2. Wear gloves when handling broken glass.
3. Ensure old products are safely removed and properly disposed of or recycled. Visit www.epa.gov/recycle for more information regarding recycling glass products.

WARNING: Optional Product Accessories may block escape and can cause serious bodily injury or death.

1. Follow all installation instructions and manufacturer safety information when using Optional Product Accessories, including but not limited to window opening control devices and other panic hardware.
2. Optional Product Accessories may block escape in the event of a fire or other emergency and can cause serious bodily injury or death. Ensure all household members know how to operate and release any such accessories.
3. Never apply padlocks or other aftermarket devices to any fenestration unit or component that require a key or tool to unlock them.

For additional safety information, visit the Window Safety Task Force of the National Safety Council at www.nsc.org and consult AAMA regulations and safety information, local building codes and rules, and local fire and police department safety information.

-  **WARNING:** This product can expose you to chemicals including Thorium Dioxide, which is known to the State of California to cause cancer and Ethylene glycol which is known to the State of California to cause birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.
-  **WARNING:** Drilling, sawing, sanding or machining wood products can expose you to wood dust, a substance known to the State of California to cause cancer. Avoid inhaling wood dust or use a dust mask or other safeguards for personal protection. For more information, go to www.P65Warnings.ca.gov/wood.

Glass Handling and Removal

Ensure any old fenestration products are safely removed and properly disposed. You may be able to recycle or donate removed glass and frames. For more information, check with your local recycling agency, the American Architectural Manufacturers Association (AAMA), the US Environmental Protection Agency (at www.epa.gov/recycle) or the Building Materials Reuse Association website to locate a nearby company or organization that accepts used windows and doors. To donate removed products, contact local nonprofits in need of building supplies, such as Habitat for Humanity.

Please note: homes and condominiums built before 1978 may have lead-based paint which can pose serious health hazards during removal. Information and instruction regarding proper management of lead paint is available at www.epa.gov/lead.

NATURAL WEATHER CONDITIONS

CONDENSATION

1. What is Condensation?

Condensation is a natural phenomenon that occurs when moisture changes from gas or vapor in the air into liquid that can appear on surfaces. Condensation is similar to the water buildup or dew that you might find on grass in the morning and can appear in many forms including a foggy mirror after a hot shower, a glass of iced tea “sweating” in the summer, your breath visible on a cold day, or water that accumulates on the interior or exterior of the glass in your home.

2. What Causes Condensation?

Condensation may occur on glass surfaces whenever there is a significant temperature differential between inside and outside air. This is because warm air can hold more moisture than cold air. For example, during cold winter months when warm, moist, interior air meets glass window and door surfaces, it is exposed to surface temperatures that may be significantly cooler due to colder outside temperatures. If the outside temperatures are cold enough to make the glass surface temperature lower than the dew point (the temperature at which air becomes saturated), the moisture can no longer be held in vapor form. The excess moisture condenses and is released in liquid form that may be visible on the glass exterior.

This same natural phenomenon can also cause condensation, and even ice, to form on glass interiors. Interior condensation results from high humidity levels inside the home. This is because warm, humid air is holding a lot of water vapor. If humid air comes into contact with cooler air that is at or equal to the dew point (the saturation limit), the moisture can no longer be held in vapor form and condensation may occur. Condensation generally appears on windows first because they are the coldest part of the house, generally in the form of water droplets or frost on the interior side of your glass. Interior condensation may also be visible on other cold surfaces like granite countertops.

The location, frequency, and extent of condensation is dependent on a variety of internal and external factors, discussed in detail below.

3. When Does Condensation Occur?

Condensation is most common during cold winter months but can occur whenever there are significant differences between inside and outside air conditions.

Other temporary conditions may also exacerbate the appearance of condensation. For example, new building materials (i.e. wood, plaster, and cement) used in new construction or remodels contain a great deal of moisture that may cause more humidity during the first few heating seasons. Drastic temperature shifts, such as sharp and quick temperature changes may also create temporary condensation.

4. Is Condensation Normal?

Exterior condensation during cold outside weather is not only normal, it demonstrates how energy-efficient the products are by reducing the flow of heat to the outdoors. However, interior condensation is an indication of excessive humidity inside the home which can cause unintended conditions.

5. Does Condensation Indicate a Glass Performance Issue?

Neither exterior nor interior condensation is caused by the glass surfaces of windows and doors and does not indicate a product performance defect or flaw. The glass simply provides a surface on which the naturally occurring liquid moisture can condense.

Condensation can even occur on some windows and not others because the location, frequency, and extent of condensation is dependent on several interrelated interior and outside conditions in addition to temperature differentials, such as internal air circulation and ventilation, room temperatures, air register location, window size, glass type, the existence and type of window coverings and screens, proximity of the window to water sources, such as plants, open fish tanks, indoor pools, hot tubs, or fountains, the direction the windows are facing, the elevation of the windows, wind direction, and sun exposure.

In fact, the only type of condensation that may indicate a glass performance issue is condensation between the two pieces of insulating glass. If you observe this condition, contact your Registered Dealer or a WWS sales representative.

6. Steps You Can Take to Reduce the Appearance of Condensation.

Although condensation is not ordinarily indicative of any glass performance issue, it should be addressed to avoid unintended consequences throughout the home. For example, if excessive humidity is causing condensation it may also be causing other conditions including a musty interior smell, water saturation, staining, or discoloration on interior surfaces, furnishings, insulation, and other building materials (including fenestration sashes and frames), blistering or peeling paint, damp spots on the ceiling or even health hazards such as mold or mildew.

To reduce the appearance of external condensation, you can take the following steps:

- raise inside temperatures;
- direct warm-air ducts toward the windows to heat the air around the glass surface, enabling it to hold more moisture;
- increase ventilation and circulation inside the home (i.e. running kitchen and bathroom exhaust fans longer and more frequently, opening the windows for a short time each day (especially after activities that cause significant steam like showering, laundry, and cooking), open interior doors, and making sure blinds, drapes, and screens are open so that the flow of warm air to the glass isn't restricted);
- remove or trim trees and shrubbery outside the home to promote air circulation;
- reduce air infiltration into the home (i.e. replace drafty windows and doors, seal cracks and replace/repair an older roof or siding).

If you are observing interior condensation, interior humidity levels should be lowered by reducing moisture sources, including:

- turning off or lowering humidifiers;
- not air-drying clothes indoors;
- properly vent appliances to the outside;
- using exhaust fans;
- closing doors and windows to high moisture areas, such as greenhouses, large aquariums, or indoor pools or hot tubs;

- using vapor barriers to prevent moisture in the soil from rising into the home;
- fixing plumbing leaks or drainage issues;
- maintaining the furnace/ensure it is working properly;
- installing an air-to-air exchanger to vent moist air outside;
- channeling water away from the home's foundation;
- ensuring the attic/crawl space are properly ventilated;
- monitoring humidity levels and run a dehumidifier as appropriate;
- storing firewood outside; and
- if you have a forced-air furnace, making sure your home is well ventilated by installing a fresh air intake.

THERMAL EXPANSION

1. What is Thermal Expansion?

Thermal expansion is a natural and temporary condition that may occur in aluminum doors when drastic temperature differentials between inside and outside air cause the aluminum to swell or shrink.

2. When Does Thermal Expansion Occur?

Thermal expansion can occur whenever ambient temperature differs greatly from one side of the door to the other. For example, where direct rays of the morning sun hit the door's surface after a cool evening or where air conditioning creates a significant difference in temperature to hot outside air.

The degree to which you'll notice thermal expansion can depend on a variety of factors including construction, length of exposure to the sun, the differential between indoor and outdoor temperatures and whether the product is thermally broken. The thermal break involves an insulating strip placed within the frame. This thermal break helps aluminum windows and doors improve thermal performance and energy efficiency because it provides a barrier between the exterior aluminum that is exposed to weather and interior aluminum that is exposed to climate controlled air. If there is a significant difference between inside and outside air, it can cause one side of the door to grow or shrink, creating the appearance of a slight bow.

3. Does Thermal Expansion Indicate a Product Performance Issue?

Temporary thermal expansion does not indicate a performance defect or flaw. Thermal expansion is a natural condition that occurs industry wide and is acknowledged and referenced in ANSI/SDI A250.8, Appendix B.

4. Steps You Can Take to Reduce the Appearance of Thermal Expansion

The appearance of thermal expansion can be reduced by:

- Sheltering a door from direct sunlight by adding a porch, awning, canopy, or trees
- Selecting lighter finishes which are least susceptible to thermal expansion
- Where appropriate, selecting non-thermally broken doors and components.

WARRANTY NOTE

It is imperative that all customers follow the specific care and maintenance instructions identified in this guide. Implementing and following these procedures will ensure your Western Window Systems products will provide you with great customer satisfaction and optimal performance. It is important to note that failure to follow these instructions will void Western Window Systems' express limited warranties.

For a copy of our express limited warranties please visit our website at:
www.westernwindowssystems.com/faq/warranty.