



## PATENTED ROOF DRYING EXPLAINING:

### 2001 WIND UPLIFT TRANSFER DRYING TECHNIQUE

Wind Uplift negative vacuum pressure occurring at perimeter edges of a building, when transferred through a 2001 equalizer valve into a sealed roof assembly, will dry out a wet roof through the same low pressure vacuum venting method that makes a clothes dryer dry clothes.

A clothes dryer is a sealed box in which wet clothes are tumbled in a low-pressure vacuum. We do not need heat to dry clothes in a clothes dryer. Wet clothes can simply be tumbled in a vacuum and dried out. A clothes dryer, by design creates a low-pressure vacuum that will cause water to vaporize into water vapor. As a gas, the water vapor is vented from the clothes dryer.

Adding heat to a clothes dryer vacuum box increases drying because:

**First:** Heat increases the size of an air molecule and a larger air molecule can absorb more water vapor to increase drying.

**Second:** Hot air brings an increase in low pressure as the air is heated which increase the conversion of liquid water into water vapor, a gas, to be absorbed by air molecules. The 2001 patented roof assembly design dries an existing wet roof assembly with the same physics principles of low pressure drying on a roof as a clothes dryer does with wet clothes. Heat comes from inside the building or external from solar radiation.

Controlled air exchange is essential to the drying process. A clothes dryer leaks a small amount of air into the vacuum chamber. This is necessary because once an air molecule hits 100% relative humidity it can't absorb any more water vapor and drying ceases.

Therefore, less humid dry air molecules must be brought into the clothes dryer and high humidity air molecules drawn out.

2001 designed equalizer valves suck the air out of the roof assembly on the windward side of a building and leaks 3% air exchange into the roof of the leeward side.

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## How A 2001 Assembly Dries

**First:** The 2001 System is sealed like a Clothes dryer. When a new 2001 roof assembly is installed over an existing wet roof assembly, the 2001 assembly is hermetically air sealed at its perimeter and penetration edges, similar to the rubber gaskets on a clothes dryer door making a sealed box.

**Second:** Wind generated vacuums are transferred into the 2001 sealed (box) roof assembly

A vacuum is created in the 2001 roof assembly when wind blows across the roof making low- pressure vacuums at the perimeter edge of a building. These low-pressure vacuums are automatically transferred through a series of patented one way 2001 Equalizer Valves, strategically placed in wind vortex intensity zones on the perimeter edge of a building. The valves are installed through the 2001 roof assembly to a sealed substrate or deck.

**Third:** The total roof assembly components are subject to vacuum pressure.

Every time the wind blows, the total roof assembly is drawn down in a vacuum, just like a clothes dryer. The pulsating vacuum action of wind changing velocities across a building cause liquid water to vaporize into water vapor.

**Fourth:** Water Vapor is vented out of the roof. Once water is changed into a gas, the water vapor is drawn out of the sealed roof assembly through the 2001 Equalizer Valves, just like the exhaust hose on a clothes dryer.

**Fifth:** In Re-Roofing an existing wet roof or deck substrate also dries. An existing wet roof under a 2001-roof assembly is also subjected to vacuum pressure on its surface. Fastener holes and existing cracks and leak holes will allow the external vacuum of the new 2001 roof assembly to permeate into an old roof assembly. The wet areas in low pressure convert liquid water into water vapor that is drawn out of the old roof assembly, into the new 2001 reroof, and are exhausted out through the equalizer valves.

## Understanding The Science Of Low Pressure Drying

How does a clothes dryer and the 2001 Roof Assembly cause water to vaporize through low pressure? A clothes dryer is a sealed box drawn down into a vacuum. You do not need heat to dry clothes in a clothes dryer. Tumbling clothes around in low pressure causes water molecules to vaporize into water vapor. The water vapor is absorbed into the surrounding air molecules and vented out of the dryer box.

The same principle applies to a 2001 roof assembly. As wind generated vacuum pressures are transferred into a roof assembly, these low pressures migrate throughout the whole roof assembly,

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causing water molecules to turn into water vapor gas which is then exhausted out of the roof assembly through equalizer valves.

Add heat to a clothes dryer, you accelerate the drying process. Add heat to a 2001 roof assembly, from sunshine on a black roof surface, or internal building heat escape during the winter cycle, you accelerate roof drying.

Examples of liquids vaporizing by lowering pressure

1. A glass of ice water will boil when placed in a low-pressure vacuum chamber.
2. Hot water will not boil if kept under high pressure. Water in a car radiator is well above the boiling point 212°F or greater, but because it is kept under pressure, it does not boil. If you remove the car radiator pressure cap, the water immediately vaporizes. But as long as hot water is kept under sufficient pressure it will not vaporize.

**Boyle's Law** – All liquids are pressure sensitive to vaporization into a gas.

3. Liquid propane turns into a flammable gas when the pressure valve releases the pressure over the liquid propane. Low pressure causes the propane to boil – (vaporize), causing cooling frost on the propane tank.
4. Liquid oxygen that you have seen at the hospitals and businesses does the same thing. It goes from a liquid to a gas vapor when you release the pressure, causing the frost and ice to build up on the release coils. Any liquid changed to a gas vapor causes cooling which is the basis for refrigeration.
5. A refrigerator cools on liquid-to-gas pressure release. A refrigerator compresses Freon gas vapor into liquid Freon. The heat from this increased pressure is released through the exterior heat release coils and fins in the back of a refrigerator. Once the Freon gas is compressed from a gas into a liquid, it is pumped into the interior refrigerator coils and released into a gas causing cooling. This cycle of compressing into liquid and releasing into gas is repeated on cooling demands.
6. Common everyday soda pop, when you release the lid, and expose the liquid Carbonate soda to atmospheric pressure it vaporizes into an effervescent gas. The soda water literally boils in low pressure. You can see the effervescent bubbles in the soda as carbonic gas develops everywhere in the liquid. Leave the lid off the soda and the liquid carbonate will leave as a gas and you'll have only sugar, water and flavoring-flat soda.

Understanding Boyle's Law Through Clouds: If we had to boil water at 210°F to make water boil into a cloud we all would be dead every time it rained.

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## **WEATHER:**

High pressure = Clear Sunshine

Low pressure = Clouds Rain

7. A weatherman explains every day weather in terms of low atmospheric pressure, (clouds and rain) and high atmospheric pressure, (clear, sunny days), in different parts of the nation. From weather satellites we see clouds form in areas of the Earth subjected to low pressure because water at the Earth surface is vaporizing into water vapor and rising up forming clouds.

Low pressure is the basis for bad weather and rain. A barometric pressure drop of 2 gives us bad weather.

The worst hurricane is a low-pressure barometric drop of 4, which will cause water at the Earth's surface level over an ocean to vaporize rapidly creating turbulent cloud masses. We listen to a weather person every night. She or he speaks of weather in terms of high pressure and low pressure.

## **How Does system 2001™ Dry Wet Roofs?**

**FIRST; UNDERSTANDING THAT LOW PRESSURE CAUSES WATER TO VAPORIZE IS NECESSARY FOR THE UNDERSTANDING OF HOW 2001 TECHNOLOGY CAN CAUSE A WET ROOF TO DRY THROUGH LOW PRESSURE.**

With a 2001 wind vented roof assembly, the whole roof assembly is exposed to low pressure when wind uplift vacuum pressures are transferred into the roof assembly through Equalizer Valves placed in wind uplift intensity zones on the perimeter edges of a building. Water entrapped in the roof assembly, when exposed to low pressure, is vaporized and absorbed as water vapor into surrounding air molecules. This water vapor, laden air is pulled out of the roof assembly, through 2001 Company Equalizer Valves, on the windward edge of the roof.

## **Proven Track Record of Drying**

This drying phenomenon of the 2001 System has been experienced in every area of the United States. We have experienced a less than one year complete drying of water Saturated sprayed in place urethane foam that was perforated and overlaid with a loose laid EPDM membrane employing the 2001

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equalizer valve technology. We have also experienced a less than one-year drying of an existing built up roof installed on 1" fiberboard when re-roofed with 2001 vented technology.

Verification of existing wet roof assemblies drying out with 2001 technology used in reroofing has been experienced throughout the United States. Over 5,000 buildings have used this wind uplift low pressure transfer process in the last 15 years of reroof over existing wet roof assemblies. Ask your local 2001 Company representative for some completed 2001 Roof Assemblies in your area.

## Significant Buildings Using 2001 Technology

Some noted roofs are Miami Airport, New York Kennedy Airport, Malmstrom Air Force Base, Montana, North Carolina Raleigh-Durham Airport, Atlanta Airport, Reno Airport, and Norfolk Navy Base, Norfolk, Virginia, Otis Air Force Base, Cape Cod, Massachusetts.

Houston Hobby Airport, Texas as well as, well known companies and institutions such as Sears, Budweiser, Target, K-Mart, Penny's, Nabisco, US Navy, U.S. Army, US Air National Guard, US Post Office, Washington D.C., US Federal Courthouses, and the Department of Energy and many nuclear power facilities.

### HOW DOES WATER VAPOR GET OUT OF A ROOF ASSEMBLY IF THE ROOF ASSEMBLY IS EXTENSIVELY WET?

**First:** Vaporization under the 2001 re-roof insulation or separator. Water, once vaporized into a gas, is absorbed into the surrounding air molecules and can migrate through a roof assembly, especially in reroofing where a waffle-like space exists between the new roof assembly separator layer and the old gravel allowing water vapor to migrate to equalizer valves.

**Second:** Vapor migration under the 2001 re-roof membrane. If the roof assembly waterproofing membrane is laid loose, and slight fluttering takes place in the membrane with wind, air molecules can then be passed between the membrane and the top surface of the new separator layer over the old roof, allowing a free passage of moisture laden air to travel to the 2001 Equalizer Valves to be exhausted out of the roof assembly.

### HOW DOES WATER VAPOR GET OUT OF AN EXISTING ROOF ASSEMBLY THAT HAS BEEN RE-ROOFED OVER WITH A 2001 ASSEMBLY?

In the old roof assembly, in order for the water to enter into the roof assembly, there must have been a crack or hole in the old roofing membrane surface. Water vapor can go up through the same hole that liquid water entered originally into the new 2001 roof assembly.

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If the building is heated there is a natural propensity for hot air to migrate up into the roof assembly, from inside the building. These rising hot air molecules will pick up water vapor and egress through the holes and cracks in the existing roof membrane into the new 2001 re-roof assembly. This moisture laden air would then follow the path of least resistance to a 2001 Equalizer Valve and exit the roof assembly, thus drying out the existing wet roof assembly that was re-roofed over.

#### **PERMEATING AN EXISTING ROOF SURFACE TO DRY AN OLD ROOF**

On existing wet roof assemblies with a sealed deck or vapor barrier, half inch holes are drilled one every 2 sq. ft. through the existing waterproofing membrane in wet areas to increase the rate of water vapor migration out of the existing wet roof up into the new 2001 vacuum vented roof assembly.

Note: Do not drill through sealed deck or vapor barrier. This will disturb the sealed substrate necessary to hold low pressure.

#### **UNDERSTANDING WHY HOT AIR GOES UP**

An air molecule is elastic, think of it as a sponge – balloon. When you cool an air molecule it contracts and becomes denser and heavy. When you heat an air molecule, it expands and becomes lighter than the surrounding air, thus, having less gravitational pull, causing a hot air molecule to rise.

This is why a hot air balloon will actually fly, because heated air molecules inside the balloon skin area expanded and are lighter than the air surrounding the balloon, making all the hot air molecules contained in a balloon to go up like a bubble in water, lifting the balloon.

Hot air in a building goes up and tries to egress through the roof assembly, like a million mini hot air balloons. Hot air is also low pressure that will cause water molecules to vaporize. This hot air picks up water vapor, migrates up into a new 2001 roof assembly, and when exhausted from the roof assembly, will dry the assembly.

#### **THE SCIENCE OF ROOF ASSEMBLY DRYING**

Low Pressure – Air Exchange – Water Vapor Exhaust

**A.** Hot air takes place when a roof assembly is heated by solar radiation and from heat escaping into a roof assembly from the building interior. Hot air is expanded air molecules, which will absorb water vapor.

**B.** Low Pressure: Wind uplift transferred into a roof assembly through perimeter one-way equalizer valves causes low pressure to spread throughout the total roof assembly. These pulsating low pressures will cause liquid water molecules to vaporize into water vapor.

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**C.** Equalizer valves exhaust water vapor: Out of the roof assembly, when low-pressure wind pulsations occur around valves on a building perimeter. Humid air molecules to vaporize into water vapor.

**D.** Dry air exchange: Small amounts of dry air migrate into the roof assembly through the deck, roof substrate, and terminations. Plus equalizer valves not in wind low pressures allow a controlled back leakage of drier air back into the roof assembly to replace the exhausted humid air molecules.

### **CONTROLLED AIR EXCHANGE IS NECESSARY**

How Does Air Exchange Take Place in a 2001 Roof Assembly?

2001 Roof assemblies have minimal air bleeds into the roof assembly.

**1.** Internal air exchange: When the roof assembly is drawn down in a vacuum from wind uplift, existing cracks or holes in the roof deck and existing roof membrane, as well as screw holes from mechanically attached components in the 2001 roof assembly, will allow small amounts of air from inside the building to permeate into the roof assembly.

**2.** External air exchange: Closed 2001 Equalizer Valves, when not in wind vortex vacuums, will also allow small amounts of air to migrate into the roof assembly, also minute amounts of external air come from perimeter and penetration deficiencies in air seal terminations and mechanically attached fasteners. This air exchange from the interior or exterior has drier or less humid air molecules that will absorb water vapor in a wet roof assembly.

**3.** Water vapor exhaust: Removal of water vapor-loaded air molecules takes place when water vapor absorbed air molecules exit the roof through the 2001 equalizer valves when they are subjected to wind uplift generated vacuum. Water vapor is removed from the roof causing drying of the new 2001 roof assembly as well as any existing wet roofing or decking substrate that is under the 2001 system.

### **§ ECONOMIC BENEFITS OF SYSTEM 2001™ §**

IN REROOFING the economic savings of this system is that the existing roof does not have to be torn off thus eliminating the costs of tear off, debris removal, dumping fees and charges for replacement of insulation. Plus, a significant labor savings in the 2001 new roof application is experienced because the 001 roof can be laid like a loose laid and ballasted membrane, without the ballast.

**1)** Saving Insulation Costs: The ability to dry out the wet roof insulation in the existing roof assembly is a major energy savings for the nation in general and the building owner in particular; because perfectly good insulation materials need not be discarded in a land fill, simply because they become wet. We do not discard our shirt or pants when they become wet; we dry them and reuse them. The same drying and reusing principle can be used in wet roof assembly.

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**2) Environmental savings:** We need not discard roofing waste with its petrochemical acid and alkaline contaminants in landfills where it will leach into our water supplies causing future problems for our children's children.

**3) Continuous Drying:** System 2001™ roof components, if they become wet from future condensation or neglect causing leaks, can be dried out returning roof insulation R value to the bldg., once leak is stopped.

**4) Elimination of rust, dry rot, mildew, corrosion, and noxious odors:** Traditional roof systems without 2001 technology have water entrapment problems causing extensive rust and dry rot, structural deficiencies and corrosion in a roof deck. It takes many years to dry out a wet roof from internal air convection in conventional roof systems, allowing all kinds of well-known and documented roof problems on components of the roof assembly.

**5) Conventional roof systems components deteriorate from water vapor entrapment.** Roof assemblies subject to leaks, adhesives, fasteners, insulation and waterproofing membranes deteriorate when they get wet. Well documented common roof failures include fastener failure at deck entry; insulation face membrane disbanding; blisters; membrane seam delimitation; flashing breakdown; insulation R value loss; wetting of the new roof assembly from water vapor migration upward from the old roof to the new; condensation under the new membrane and a multiplicity of other recorded problems from roof water entrapment. This is because once water a conventional roof system it has no way of venting.

**6) Traditional wet roof deterioration problems can be minimized by the accelerated drying of SYSTEM 2001™ patented technology.**

## **TRADITIONAL ROOF PROBLEMS STOPPED BY 2001 TECHNOLOGY**

### **2001 REMEDIES FASTENER BACK-OUT DAMAGE**

**1) Fastener back up in a reroof assembly is another (a) common reason why reroofing over existing wet roofs has caused the premature failure of the new conventional reroof assembly.** In 2001 roof assemblies this problem is eliminated because fasteners are not required.

In conventional reroofing, if the separator layer or insulation layer is mechanically fastened through the existing roof assembly, because, as the existing wet roof assembly dries out, the substrate insulation loses its integrity and collapses.

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Insulation such as fiberglass, wood fiberboard, perlite or other commonly used roof insulation, collapses into the deck flutes, or compresses within itself when it dries out. As the insulation collapses the screws and fasteners holding the roof assembly together stay firmly fixed in the deck and rise up into the new roof waterproofing membrane from the underside causing screw heads to cut and puncture the top waterproofing membrane from the underside.

The 2001 Roof assembly can be loose-laid without fasteners in most reroof assemblies. A typical 2001 roof uses a layer of EPS, ISO or plastic insulation laid loose over the existing roof assembly, with a layer of 1/2" gypsum wallboard laid on top to hold it all in place. Should some collapsing of the existing roof occur as it dries, the fasteners from that existing roof assembly are absorbed into the recover insulation under the loose laid gypsum. Fastener backup does not disturb the new 2001 roof waterproofing membrane.

#### **TOTAL RIP OFF AND REMOVAL OF EXISTING ROOF ASSEMBLY**

**2)** With the 2001 reroof assembly: Only partial wet roof removal in structurally deteriorated deck areas is necessary because of corrosion in a metal deck or dry rot in a wood deck. With System 2001™ the total roof does not have to be torn off and good insulation thrown out. Only the deteriorated section must be removed, saving money in tear off and re-insulation costs.

#### **INTERIOR DAMAGE MINIMIZED**

**3)** With a complete tear off of the existing roof assembly the interior of the building is vulnerable to damage during reroofing process if the roofer is caught by inclement weather. With 2001 the existing roof is minimally disturbed maintain the old roof's present waterproofing capability.

#### **WATER VAPOR MIGRATION DESTROYS NEW ROOF**

**4)** In conventional reroofing, water vapor in an old wet roof assembly, during periods of exterior cold and interior warmth, permeates up into the new roof assembly, causing a premature failure of the new roof assembly. Hot air from the interior of the building migrating up into the old roof assembly will absorb water vapor. These hot moisture laden molecules will migrate upward into the new roof assembly through holes, cracks, and other deficiencies in the old roof membrane and into the new roof assembly.

This hot moist air is entrapped in the conventional sealed reroof assembly causing ISO insulation to expand, warp and bow and conventional insulation to become saturated with condensation and to organically deteriorate. 2001 vacuum venting of water vapor out of the new reroof assembly stops the deteriorating effects of moisture migration.

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## **CONDENSATION, CORROSION, BLISTERS, INSULATION SURFACE DELAMINATION, R VALUE LOSS**

**5)** Water vapor that migrates up into a new reroofing assembly that is not 2001 vacuum vented will condense on the underside of the coldest upper part of the membrane causing deterioration. The underside of the roof membrane is usually the coldest uppermost part causing the following problems.

First: The top surface of the insulation or substrate to which the roof waterproofing membrane is adhered will deteriorate by disbanding the membrane from the substrate.

Second: Water vapor migrates into the interior piles of a roof membrane condense in the cold and then when sunlight heats it, re-vaporizes rapidly causing blistering of conventional built up roof systems piles or delamination of seams in single ply applications.

Third: Condensation corrodes fasteners holding the roof assembly to the deck. Through repeated cycles of liquid wetting condensation to vapor, alkaline and acids in a roof assembly's components are transferred to fasteners, screws, roof deck puncture points and washer points in a roof causing accelerated corrosion of fasteners, washers and entry points.

Note: Screw through an old BUR Roof have an old battery effect for corrosion. A carbon mass built up roof, a grounded roof deck and wet roof components to form an acid or alkaline battery rapid deterioration of fasteners.

Fourth: Condensation becomes entrapped in the insulation, causing the insulation to lose its R-value, or insulating capability, because it becomes wetter and wetter.

Fifth: Wet insulations like isocyanurate, urethane and composite boards, expand, warp and bow. Others compress and organically deteriorate. This water vapor migration from old to new roof causing moisture entrapment problems with conventional roofs is eliminated with the 2001 patented technology because of the vacuum venting of water vapor out of the new and old roof assemblies through the Equalizer Valves.

2001 Company offers this venting technology with many waterproofing membranes: Build Up Roof, SBS modified asphalt, and coal tar pitch, as well as , single plies of EPDM, TPO, PVC, Hypalon and CPA.

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## UNDERSTANDING 2001 WIND VACUUM TECHNOLOGY

How does wind create vacuum pressure? Wind is fluid dynamics, the same as water. Think of wind as a big wave of water hitting a building. Imagine if the building was submerged in a stream of water. How would water flow up over and around it? When wind or water makes a wave action or curling around an edge, corner or other area of a building that interrupts the continuous flow of air, causing a vortex or mini tornado. It is in these areas where negative pressure from wind uplift occurs. We call these wind vortices. Wind can produce two pressures, positive and negative. Positive is compressed air molecules,. Negative is vacuum expanded air molecules.

1. Positive wind pressure: When you blow at a pin wheel positive air pressure occurs against the front blade and spills the compressed air in one direction because the blade is angled, causing the blade to move.
2. Negative wind pressure: When you blow at a pin wheel, negative pressure occurs at the back of the blade and spills the elongated air molecule in one direction, causing a vacuum on the back side of the blade because of the angle of the blade. These two pressures combine with push and pull in the same direction causing the blade to spin rapidly.

The combination of positive and negative pressure moves a pin wheel blade. The Bernoulli principle calculates Lift as {the velocity of wind squared = Lift}. This is because of the effect of these two pressures, {+} Positive and {-} Negative, on any object subject to wind flow.

## BERNOULLI PRINCIPLE APPLIED TO A BUILDING

As wind blows across the top of a building: Negative pressure occurs over the building and positive pressure occurs under the roof as underside air molecules expand in the presence of a vacuum.

Positive pressure occurs within the building because

**First:** Atmospheric air pressure within a building becomes positive when negative pressure occurs above the building, like putting a balloon in vacuum chamber.

**Second:** Air blowing into a building through windows, or truck bay doors, causes the building to fill up with positive pressure. (Think of blowing air into a paper bag.) man has learned to used wind to our advantage, with a windmill, on an airplane wing or on a sailboat sail.

With 2001 technology we can use wind uplift pressure to enhance the performance of our roof assemblies instead of destroying them by using these patented application techniques:

1. By transferring wind uplift pressure: through the roof membrane to the roof structure through perimeter Equalizer Valves.

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2. By sealing roof decks: against internal building positive air expansion into a roof assembly; through deck joint sealing and air barrier encapsulation.

3. By sealing perimeters and penetrations: of a roof assembly from air infiltration. Through separate Air sealing techniques out from perimeter and penetration edges.

Low-pressure wind vortex areas can be located on a building by using computer graphs of wind tunnel and aerodynamic studies of buildings to pinpoint wind vortex vacuum intensity zones.

2001 Company one way equalizer valves in which air and water vapor will flow one way out of a roof assembly are placed in these wind vortex negative low pressure anticipated areas of a building.

#### **BUILDING WIND ANALYSIS N, NE, E, SE, S, SW, W, NW**

Considerations of eight directions of wind have to be made for every building employing 2001 technology, because wind can come in any direction during a building's life cycle. High intensity wind vacuum areas are, in most cases, located along the perimeter edge and inside and outside corners of a building.

In these low pressure vacuum areas, at corners and perimeters of buildings the 2001 company one way Equalizer Valves are placed to allow the maximum wind uplift low pressure that occurs on the building to be transferred into the roof assembly.

As the roof assembly is brought down in a vacuum, low pressure migrates throughout the total roof assembly. This negative pressure migration throughout the roof assembly takes place because the 2001 Equalizer Valves have a one way flow control valve. They do not let air from the exterior into the roof assembly; thus the whole roof assembly is brought down into a low pressure. This vacuum causes the roof membrane and assembly to be sucked down to the roof deck enhancing its ability to resist wind change. This low-pressure vacuum causes water to vaporize into water vapor and be drawn out of the roof assembly thus drying out the wet roof assembly.

Additional benefits of vacuuming the roof assembly with wind uplift pressures are:

1. The vacuum in roof assembly increases its insulation's R-value just like thermo-pane windows that are vacuum-sealed.

2. High winds can be resisted by the roof assembly.

3. Ease of future leak detection. With a 2001 sealed roof assembly the following simple maintenance check can be done to see if there area any deficiencies in the roof surface membrane that would cause leaks.

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- a. The Equalizer Valves can be shut off by putting a garbage bag with a rubber band over the top of the valve.
  - b. A small blower inserted into the roof membrane to pump positive air pressure underneath the roof membrane.
  - c. This will positively pressurize the roof assembly to be checked for defects.
  - d. By spraying the surface of the membrane with soapy water in a bug sprayer or broadcasting the soapy water with a floor mop.
  - e. The flashings, seams and termination areas of the membrane to various appendages of the roof can be checked with soapy water just like a car tire. If water can go into a roof membrane, air surely can come out giving you the tell tale soapy, bubbly sign of a leak, similar to how tires are tested for punctures.
4. Perpetual drying: Should any leaks occur in the future through damage, vandalism, or workmanship, through waterproofing membrane, once the leak is detected and stopped with the 2001 Company technology the wet substrate can be dried out through this patented technology.
5. Zero maintenance for Equalizer Valves: With a 2001 Equalizer Valve there are no moving parts that have to be maintained, and very simply, the roof can be tested yearly or more often for any roof defects.

The 2001 application technique makes a perpetually drying and wind resistant roof assembly.



## **ABOUT THE INTERIOR AND SYSTEM 2001™**

Thomas L. Kelly, the inventor of the SYSTEM 2001™ roof drying technology has spent his lifetime studying wind uplift effects in commercial roofs. In 1978, he applied for the first of many patents that accomplish this technology. In 1980 he was issued a patent on one way Equalizer Valves, strategically placed on the perimeter of buildings, which automatically transfer wind uplift negative low pressure into roof assemblies to keep the roof assemblies from being sucked off buildings in high winds. Mr. Kelly now has 23 patents in the roofing and construction field, with several more pending.

He has produced many details for specific perimeter and penetration air sealing which are copyrighted for the exclusivity of licenses.

The inventor has personally reviewed almost every installation using this technology for the first 10 years of its existence. Every roof using this technology on a building was designed and monitored through his direction.

2001 Company has assembled a team of trained roof technicians and other roof manufacturing companies licensed to use the technology to spread this technological advancement in a controlled and monitored fashion.

Subsequent patents and pending patents dealing with roof application techniques of sealing of roof assemblies and decks, detailing perimeters and penetrations, and sealing structural roof decks make this technology practical and cost effective to install.

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