

# Energy Matters

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## Do-It-Yourself Double Glazing

*..A window in England.. slowly filled up with water....*

This has intrigued me for a while now. It must be possible for an average handy man to fit double glazing to an existing window. After all, it is just adding an additional layer of glass!

The main problem relates to condensation or fogging of the window. For professional double glazing, the unit is sealed and a desiccant (little water absorbing crystals) added to remove any moisture. The desiccant means that if there is a minor leak, any vapour will be absorbed. One problem with double glazing is that after 15 years the seals can break down, the desiccant becomes saturated and fogging occurs. The normal solution is replacement.

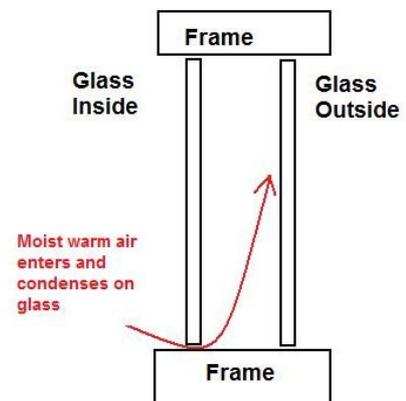
So, first some theory on condensation. As moist air is cooled, it reaches the Dew Point, the temperature at which the air is no longer able to hold the moisture and it condenses. This is what causes the dew overnight and the rain. It also causes condensation on the inside of your windows, since they are quite cold at night and air inside the house is normally quite humid.

When you double glaze your window, condensation on the internal pane of glass normally stops, because the glass is not exposed to the outside temperature and remains warmer.

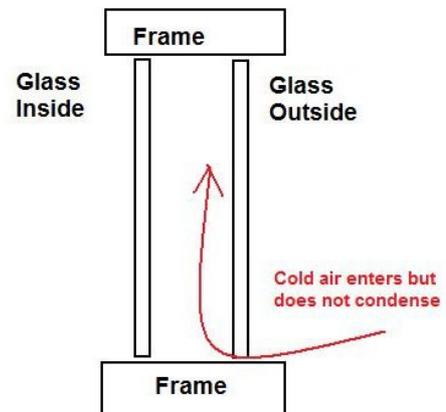
The problem is on the inside of the outside pane. There are three ways condensation forms on this pane and all relate to having a non perfect seal.

If the seal fails and warm moist air from inside the house enters the gap, it strikes the cooler outside pane and condenses. This can be catastrophic since it only clears when the outside

pane gets warmer than the Dew Point for inside the house. One article on the internet spoke of a window in England that failed this way and slowly filled up with water!



The second case is when the seal fails and cold air from outside enters. This is not a problem, since it warms up on entering and so does not condense. It is for this reason I have decided to add my second pane of glass to the outside.



The third problem is when the moisture enters through the frame. When the frame heats up, the water evaporates, moves up through

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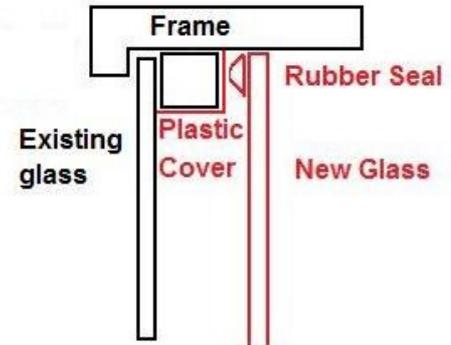
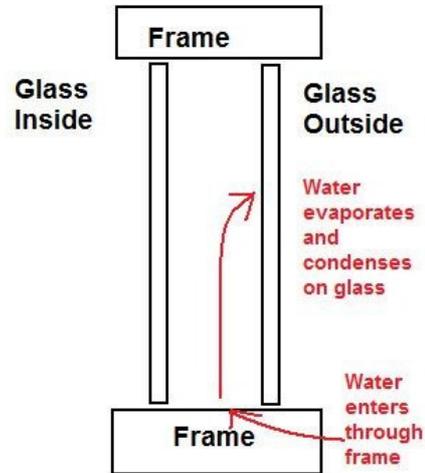
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### Disclaimer

The views in this newsletter are those of the author and not necessarily those of the Green Loans program

## Do-It-Yourself Double Glazing (from page 1)

the pane and then condenses on the colder glass. This will remain until the weather warms up and the water evaporates of the glass.



*.. On prolonged wet weather, fogging starts to occur and remains for 24 hours afterwards..*

This is the problem I have found. On prolonged wet weather (over 24 hours) fogging starts to occur and remains for 24 hours after the weather improves. I think the solution is to reduce water migrating through the frame. Additional paint may help.

My project for the next month is to insert a plastic cover over the wooden frame and seal it with a sealant. The problem is that you want the seal to keep out moisture, but allow some air to escape to remove moisture

### Condensation in Homes

I found this link <http://www.diydata.com/problem/condensation/condensation.php>

It is very informative and talks about the following main sources of humidity in the home per day:

- people (1 KG/person)
- cooking (3Kg)
- showering (1 Kg)
- washing clothes (5 Kg)

So the best way to reduce it is:-

- use kitchen/bathroom exhaust fans
- Dry clothes outside
- Air the house in the afternoon

*..it costs nothing to enter and you may win a free set of panels....*

### Win a 1.5 KW PV System

The Bayside Climate Change Action Group is running a contest to encourage people to reduce electricity usage. It costs nothing to enter and you may win a free set of panels.

It also encourages you to track your power usage and (hopefully) reduce it.

You need to go to <http://bccag.org.au/footprint/challenge> and register. You will need to enter information about your usage in the May-August 2009 period, and send a photo of your meter. You then send an updated report

each month and for every period that is 10% below the value for last year, you get a free ticket to the draw. Also, say that you were challenged by [alan@sysprosoft.com](mailto:alan@sysprosoft.com)

So, it doesn't cost anything, and if you have implemented all the changes suggested in the Green Loans program, you will do it easily!

And, if you "challenge others" you can get additional tickets.