

WindWill, an air current mixer that uses warm and cold air from air conditioners as its power source instead of electricity.

# WindWill®

The area near the air conditioner outlets is cold.

Your feet are cold.

Only your head is warm.

You end up spending more on air conditioning bills.

If you're having problems getting the ideal room environment,

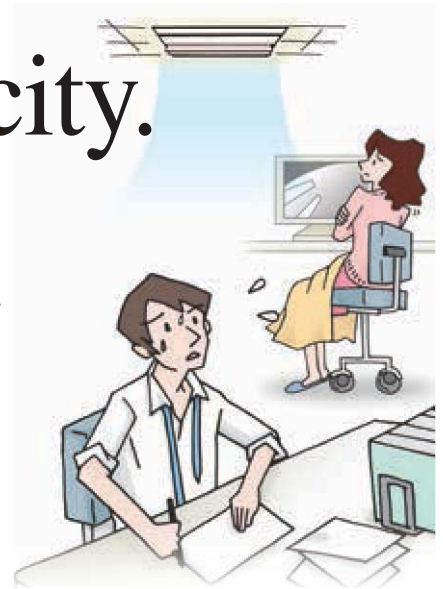
# WindWill® can help.

# Greater comfort through the power of wind, without using electricity.

Using an air conditioner only means...

In summer, it's cool where the cold breeze reaches, but everywhere else is still hot. In winter, using it to warm the room causes differences in temperature, leaving you with cold feet. This means that even within the same room there will be differences in comfort levels.

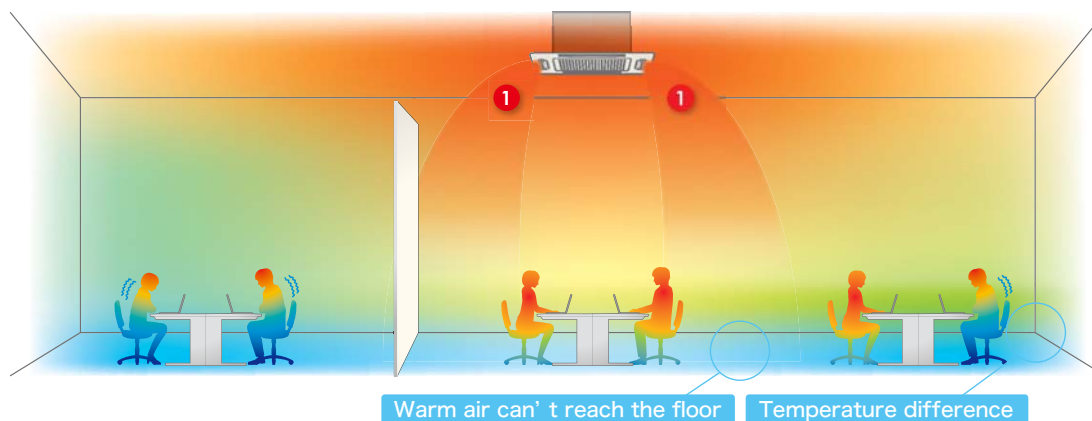
WindWill® reduces these differences in room temperature by using the power of the warm or cool breezes to produce convection against the air currents in the room, providing a more comfortable living environment.



## In winter

### A/C only

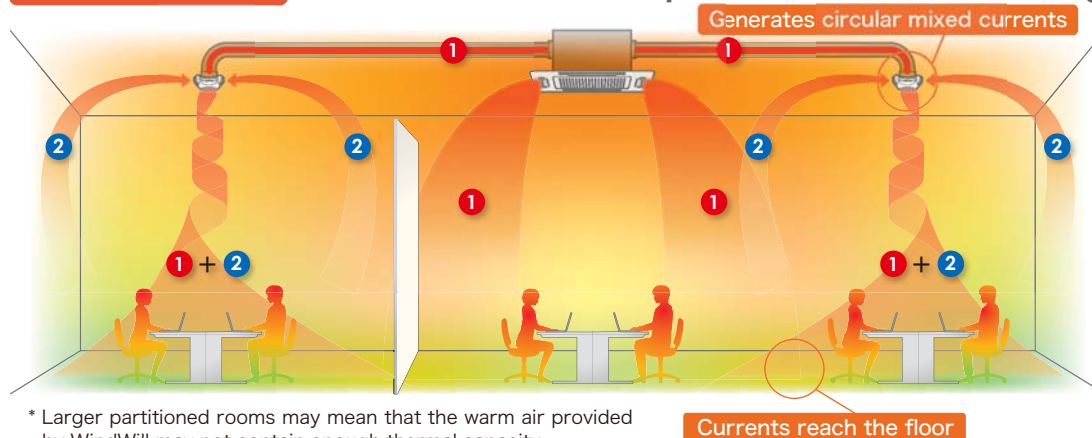
### Illustration of room temperature / currents (warming)



- ▶ Warm air pools at the top of the room, leaving your feet cold.
- ▶ Areas divided by partitions lack an a/c so no warm air reaches them.

### A/C + WindWill

### Illustration of room temperature / currents (warming)



- ▶ Air mixed by WindWill uses convection to reduce the temperature differences in the room.
- ▶ Even partitioned areas can have their temperatures improved by providing warm air from WindWill.

\* Larger partitioned rooms may mean that the warm air provided by WindWill may not contain enough thermal capacity.

1 Heated draft 2 Induced in-room air 1 + 2 Mixed draft

## ◆ Voices from Our Customers ◆

### Sendai Finland Wellbeing Center

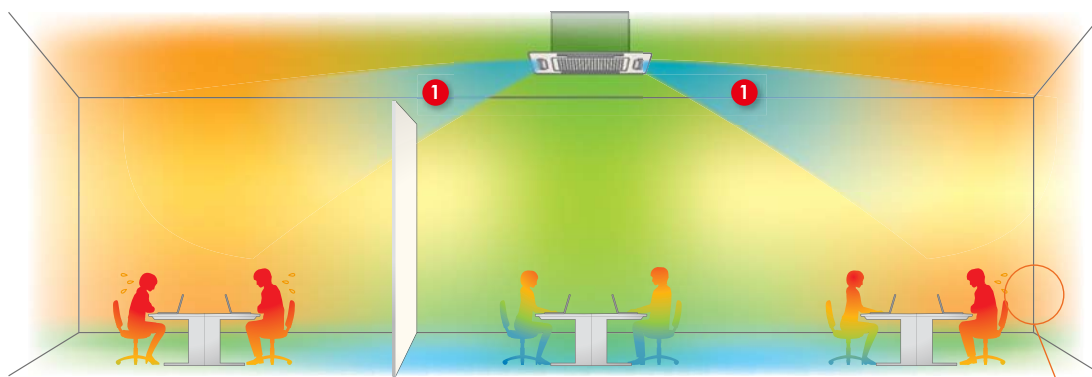
- My seat is in the corner of the room, so in winter my feet and back were always cold, but since we installed WindWill, I no longer feel cold. It's a small device, but has a big effect.
- The air conditioning in our building is completely shut off over the weekend, and in winter in particular, this means the office is freezing on Mondays. I'd turn the a/c on full blast to heat the place up fast, but since the outlet is up on the ceiling, the warm air wouldn't circulate down to the bottom, and we could never prevent our feet in particular from being chilled. But after we installed WindWill, its fans sent the warm air right to our feet, so we are now very comfortable. We also get ample warmth from the air conditioner even at lower settings, so our gas heating bill definitely looks lower. Thanks for making our environment much more comfortable.



#### In summer

##### A/C only

##### Illustration of room temperature / currents (cooling)

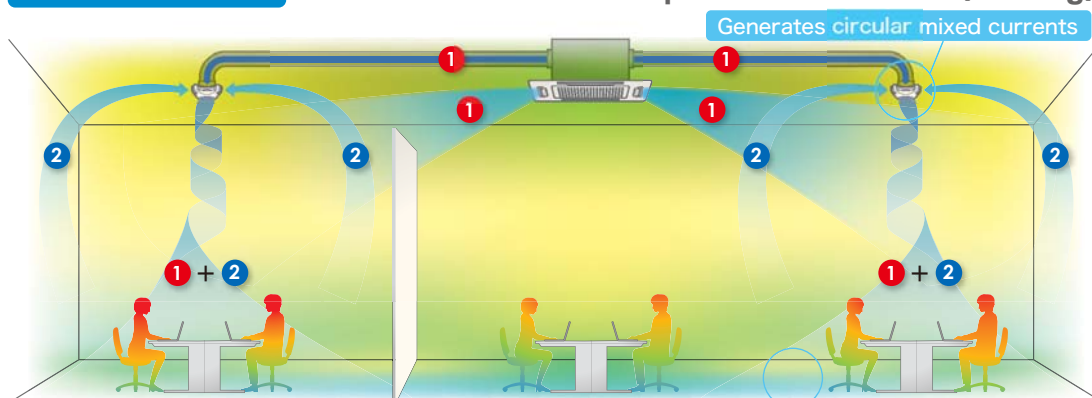


Temperature differences caused by radiant heat

- The area reached by the cold currents from the a/c is cool but outside it is still hot.
- Cold air accumulates on the floor.
- Areas divided by partitions lack an a/c so no cool air reaches them.

##### A/C + WindWill

##### Illustration of room temperature / currents (cooling)



- Air mixed by WindWill uses convection to reduce the temperature differences in the room and can also help with how cool it feels.
- Even partitioned areas can have their temperatures improved by providing cool air from WindWill.

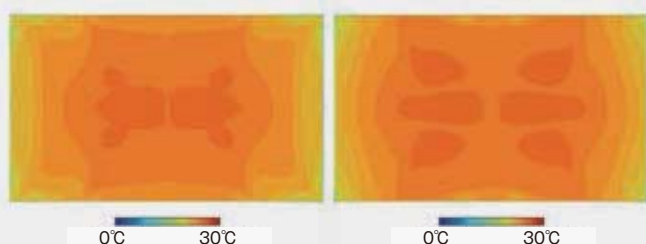
\* Larger partitioned rooms may mean that the cool air provided by WindWill may not contain enough thermal capacity.

1 Cool draft 2 Induced in-room air 1+2 Mixed draft

# Cut your power bills and CO<sub>2</sub> output by 36.8%!! More comfort, less running time.

A WindWill air current mixer in-room simulation conducted as part of the Process Analysis Engineering Course of Miura Laboratory, Chemical Engineering Division, Graduate School of Engineering, Tohoku University

## Two-dimensional temperature distribution (heating)

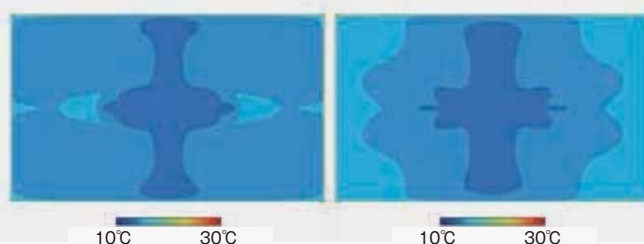


(a) with WindWill

(b) without WindWill

Diagram: Compared with heat distribution 0.1m above ground level.

## Two-dimensional temperature distribution (cooling)



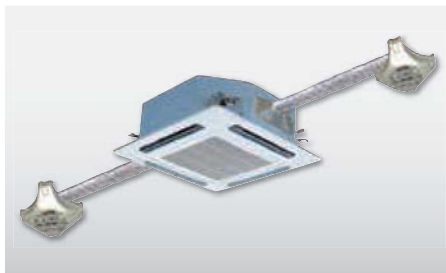
(a) with WindWill

(b) without WindWill

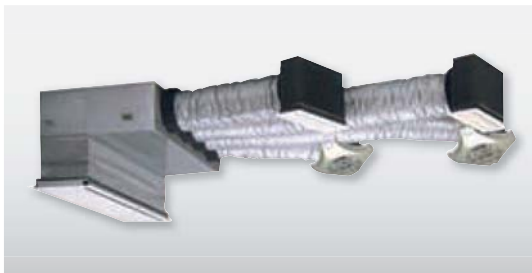
Diagram: Compared with heat distribution 1m above ground level.

### WindWill® connections illustration

\* WindWill® needs to be connected to the air conditioner and ducts behind the ceiling panels. The connection method differs depending on the air conditioner type.



■ Ceiling cassette type



■ Built-in type



■ Duct blower type

### About the development of this product

We were given guidance by Professors Hideyuki Aoki and Yohsuke Matsushita of the Graduate School of Engineering, Tohoku University; Professor Yasuo Utsumi, Department of Architecture, Miyagi National College of Technology; Dr. Kazuo Ogino, Adjunct Professor, College of Engineering, Chubu University; the Industrial Technology Institute, Miyagi Prefectural Government, the City of Sendai, and the Sendai City Industrial Promotion Organization.

We offer a video as well. Details at

<http://www.ace-cl.jp/product/windwill/index.html>



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