Low-E Glass Applicable to Existing Window Panes on the site

Features

“ATTOCH” is a window renovation product which enables achievement of energy-saving performance equivalent to that of the Low-E Pairglass units with attachment to existing window panes of office buildings and stores. It is effective in heat shielding and insulation, energy saving and prevention of dew condensation and realizes a comfortable indoor space.

Energy conservation and improvement of the indoor environment with renovation of openings of office buildings and stores which has been considered difficult

- A measure against summer heat
  - A measure for power saving and against the heat in summer
  - Excellent heat insulation in winter
- A measure against winter cold
  - Environment-friendly and energy-saving throughout the year
- No need for scaffolding for the installation
  - A short installation period and low cost with the indoor installation
  - No need for regular replacement of membrane
- Easy maintenance
  - Simple maintenance of a glass product
- Easy to clean
  - Easy maintenance
- Reduction in dew condensation
  - Significant reduction in dew condensation
- Basic specifications
  - Glass type and thickness: Low-E; 4, 5, 6 and 8 mm
  - Color variations*: Classic, Clear and Cool
  - Thickness of the air layer: 12 mm
  - Standard weight: 80 kg/sheet or less

*The color of the glass

ATTOCH offers five-year warranty against internal condensation (condensation between the existing glass and ATTOCH glass).
If you wish to remove ATTOCH, it can be removed with fees.
ATTOCH cannot be attached to a window pane of wired glass.

Basic Concept or Summary

On-site conversion of existing window glass to Low-E Pairglass

What is Low-E glass?

Low-E glass is glass coated with a special metal film which prevents heat radiation. It passes the light but reflects far-infrared radiation from solar radiation and heating and, thus, improves indoor thermal insulation.

ATTOCH enables achievement of the performance equivalent to double glazed windows by attaching a pane of Low-E glass to the existing window pane from inside.

ATTOCH may have to be designed for a specific shape of the existing window. In such a case, we will ask confirmation of a client on the design.

*Please be aware that the basic specifications and design may be changed for improvement without prior notice.

Source: JASE-W Japanese Smart Energy Products & Technologies
https://www.jase-w.eccj.or.jp/technologies/index.html
### Comparison of energy conservation performance

<table>
<thead>
<tr>
<th>Energy reduction ratio (in Tokyo)</th>
<th>Ordinary film</th>
<th>6 mm-thick glass + 5 mm-thick ATTOCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy reduction ratio in the summer</td>
<td>24.4%</td>
<td>30.1%</td>
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<td>▲11.2%</td>
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<td>2.7%</td>
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* In this simulation, the reduction in the air-conditioning cost at the time of the renovation with ATTOCH is estimated. This simulation is for a simple mathematic evaluation and its result does not guarantee the energy saving effect of the window renovation.

* The reduction ratios mentioned above were obtained in the simulation with Classic color ATTOCH.

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### Installation in Practice or Schedule

#### Domestic

- **The Head Office of AGC Inc. in Shin-Marunouchi Building**

#### Offices

- Nakanoshima Mitsui Building
- A hotel
- Toyota Automobile Museum
- Nishinomiya Branch of Honda Cars Hyogo Co., Ltd.

#### Overseas

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### Contact:

AGC Inc. Building & Industrial Glass Company
Manufactured and retailed by ATTOCH Head Office, AGC Inc.
Tel: +81-3-5875-9580
URL: http://www.asahiglassplaza.net/gp-pro/attoch/

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### Specifications of a building used in the simulation

- Width and depth of the building: 15 m, Number of stories: six
- Standard floor area on each floor: 225 m², total glass area on the building: 432 m²
- Floor height of the standard floor: 3.6 m
- The side of the building with the largest glass area: south

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### Effects or Remarks

**Comparison of energy conservation performance**

- **Energy reduction ratio in the summer**
  - Ordinary film: 24.4%
  - 6 mm-thick glass + 5 mm-thick ATTOCH: 30.1%
- **Energy reduction ratio in the winter**
  - Ordinary film: ▲11.2%
  - 6 mm-thick glass + 5 mm-thick ATTOCH: 33.9%
- **Energy reduction ratio in a year**
  - Ordinary film: 2.7%
  - 6 mm-thick glass + 5 mm-thick ATTOCH: 32.4%