

FINEO: ULTIMATE SLIM DESIGN FOR A MAXIMUM INDOOR COMFORT



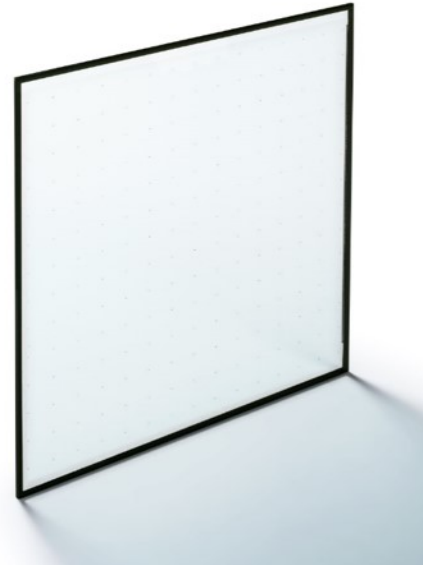
Sustainable Retrofitting of Buildings in Urban Areas

May 27, 2019 – Cap Construction

What is Fineo ?



- AGC and Panasonic have developed a Vacuum IG technology with breakthrough properties compared to regular IG and suitable for:
 - Residential Housing
 - Commercial Building Project
 - Food Display
- Composition
 - Two panes of glass separated by vacuum ($\sim 0.1\text{mm}$) and micro-pillars
- Glass options
 - Low-e or Solar Control coating (2nd phase)
 - (Tempered glass)
 - EVA Laminated safety glass



Fineo : Ultimate Slim Design for Maximum Indoor Comfort



Better Energy Performance

4 to 5 times thinner

At least 33% lighter

Higher Light Transmission

Better Sound Insulation

Superior Aesthetics

Lead Free, 100% Recyclable



Highest natural light transmission



- More light transmission compared to triple glazing
- Since only using one (1) low-e coating

Item	[unit]	TGU	FINEO
composition		4 -15- 4 -15- 4	4()4
# coating	[#]	2	1
LT	[%]	73	81

coating iplus



8 % points
+ 11 %

Outstanding thermal insulation



- $U_g = 0,7 \text{ W/m}^2.\text{K}$ (at start of commercialization)
= $0,4 \text{ W/m}^2.\text{K}$ (in later stage)
- Solution to tomorrow's criteria on insulation of the building envelop

Item	[unit]	TGU	FINEO
composition		4 -15- 4 -15- 4	4()4
U_{glass}	$[\text{W/m}^2.\text{K}]$	0,7	0,7

U_{glass} independent of inclination



- Since spacer filled with no thermal gas
 - no influence of convection in inclined position
 - sloped glazing, roof glazing
- Solution to tomorrow's criteria on insulation of the building envelope

Item	[unit]	DGU	TGU	FINEO
compo	[W/m ² .K]	6 -12- 6	4 -15- 4 -15- 4	4()4 or 6()6
U_{glass}	90° = vert.	1,0	0,7	0,7
	60°	1,4	0,8	0,7
	45°	1,5	0,9	0,7
	10°	1,6	0,9	0,7
	0° = horiz.	1,6	1,0	0,7



Insulating Glazing Unit mostly chosen for inclined glass parts

Increased Solar Heat Gain



- Reducing energy cost during heating season
- Harnessing more free solar heat

Item	[unit]	TGU	FINEO
composition		4 -12- 4 -12- 4	4()4
g	[-]	50	67

coating iplus




17 % points
+ 34 %

Improved Acoustic Comfort




- Increased well-being for indoor comfort
- Specific for traffic noise
 - In spectrum of 'low frequencies' [dB (Rw + Ctr)]



Type	Composition	Rw (C;Ctr) [dB]	Traffic Noise Perf. [dB]	Thick [mm]
Vacuum IG	4()4	35 (-2;-5)	30	8
Double glazing	4 – 16 - 4	31 (-1;-4)	27	24

Table 3a



Type	Composition	Rw (C;Ctr) [dB]	Traffic Noise Perf. [dB]	Thick [mm]
Vacuum IG	6()6	37 (-2;-3)	34	12
Single glass	12	35 (-2;-3)	32	12
Laminated glass	66.2	36 (-1;-3)	33	12
Double glazing	6 – 12 - 6	32 (-1;-3)	29	24
Triple glazing	4 – 16 – 4 – 16 - 4	33 (-2;-6)	27	44
Triple glazing + Lam	4 – 16 – 4 – 16 - 44.2	36 (-1;-6)	30	49

Table 3b

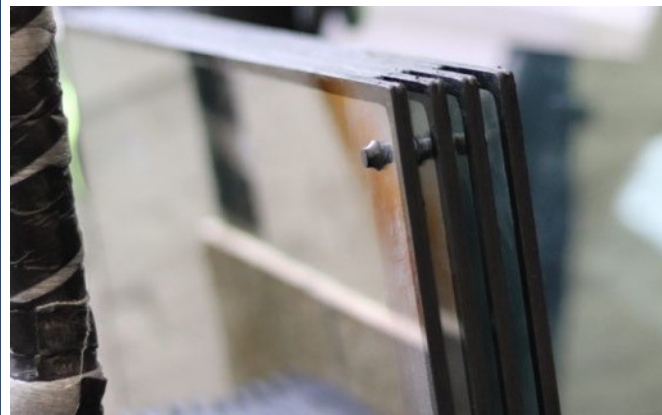
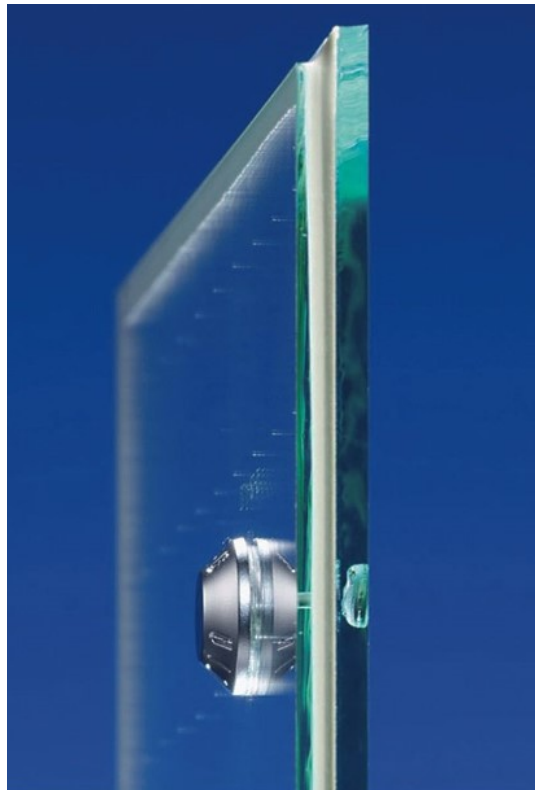


- Thickness
 - Slimmest: 3 (vac) 3 (mainly Historic Buildings & specific Retrofit)
 - Default: 4 (vac) 4 and 6 (vac) 4
 - Thickest: 6 (vac) 6
- Size
 - Maximum :1,60 m x 2,50 m
- Edge finishing
 - Seemed edges
- Shapes
 - Square & Rectangles
 - Other shapes from 1st semester 2020

Fineo and its competition



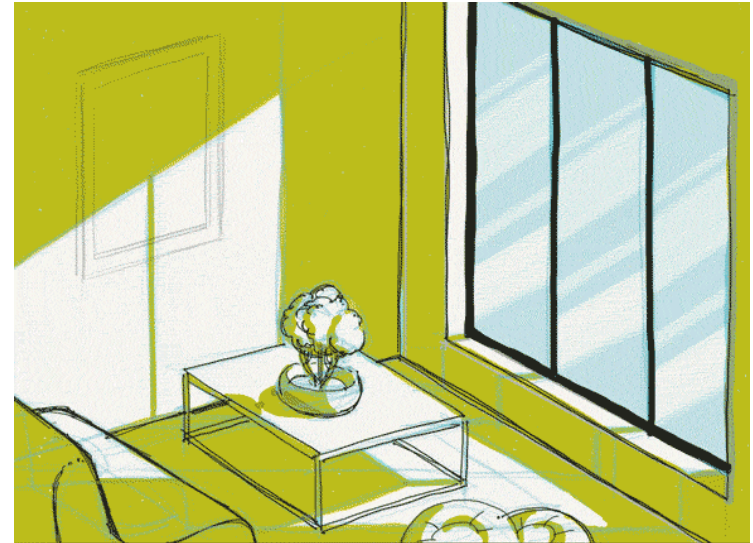
- Fineo has far better aesthetics than any of its existing or new competitors (NSG, LandVac, Guardian)
- Fineo manufacturing process has better potential for cost reduction



- Complementary concept to the complete replacement of the window. Tested by AGC over the last two years in tertiary buildings:

Improve windows by replacing glazing and preserving existing frames if their condition allows it

- **Main Benefits:**
 - **Simplicity and Speed** with a minimum of hassle for occupants
 - Reduced Costs
 - Professional and adapted service
 - Environmental approach, zero waste



The image features a large, light blue sky with scattered white clouds. At the bottom, a thin line of the sea horizon is visible. In the center, there is a square graphic with a black border. Inside this square is a light blue background with a fine grid of small dots. A single, large, white, fluffy cloud is positioned in the upper right quadrant of the square. Below the cloud, the words "THANK YOU !" are written in a bold, white, sans-serif font.

THANK YOU !