



**BUREAU D'INGÉNIEURS  
FENÊTRES & FAÇADES SA**  
ETUDES TECHNIQUES | DIRECTION DE TRAVAUX  
PHYSIQUE DU BÂTIMENT | EXPERTISES

Rue du Petit-Chêne 38  
1003 Lausanne  
T +41 21 601 83 23  
F +41 21 601 83 24

Rue de Monthoux 64  
1201 Genève  
T +41 22 786 89 20  
F +41 22 786 56 81

info@biffsa.ch  
www.biffsa.ch



# BIFF FACADE CONSULTANT

Swiss global specialist for the Building Enveloppe

**New construction & refurbishment  
Complex projects.**

Principal clients:

- Architects
- Main contractors
- Facility Managers
- Institutions, assurances, lawyers, etc.

Tools

- Digital modelling
- Digital calculations



TECHNICAL  
STUDIES



WORKS  
SUPERVISION



BUILDING  
PHYSICS



EXPERTISE

# BIFF FACADE CONSULTANT

## Switzerland



### TECHNICAL STUDIES:

Engineering and technical design development for façade customized projects.



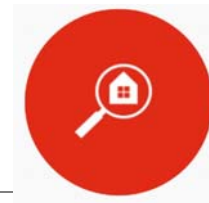
### BUILDING PHYSICS:

Studies and analyses of existing buildings for establishing tailored sanitation solutions



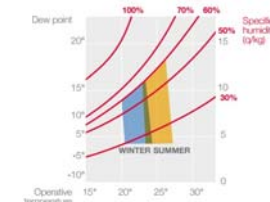
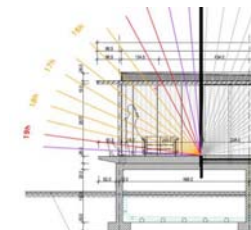
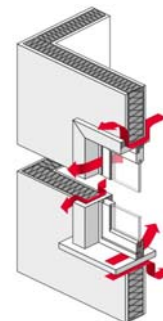
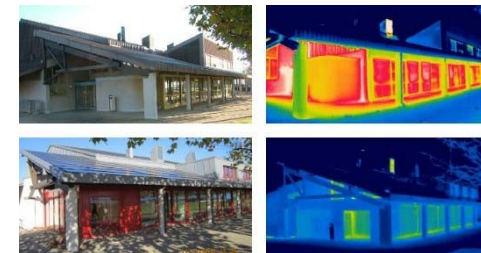
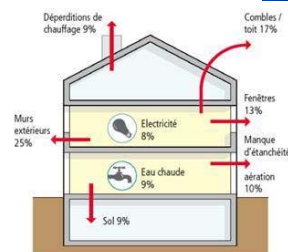
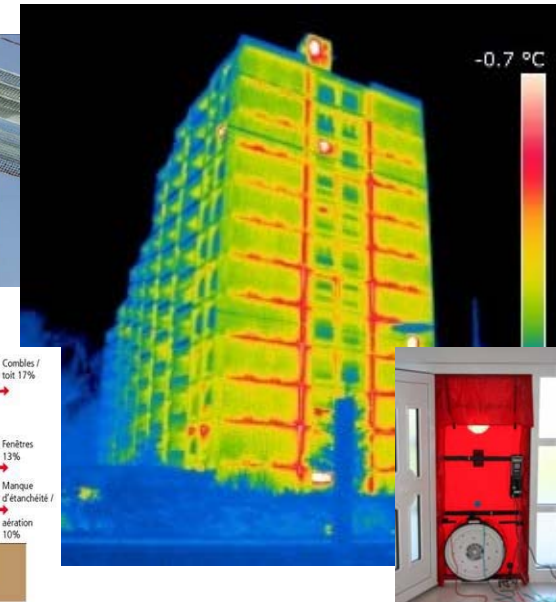
### WORKS SUPERVISION:

Management of façade projects and prototypes respecting deadlines and budgets.



### EXPERTISE

Determinate disorders, seek out their cause, suggest remedies and cost repair. Address responsibility.



# SWISSAIR-IATA CENTER - GENEVA AIRPORT

Roof expertise



## Mandate

- Explain water infiltrations
- Propose solutions & budgets
- Drive the work

## Problems identified on

- Access towers
- Roof angles
- Cradle area
- Skylights



# Double skin skylight above open space offices

## IATA's Facility Manager issues



IATA's skylight before renovation

### Double skin skylight above open space offices

#### Technical issues

- Maintenance intensive blinds
- Water leaks
- Internal double glazing units with condensation
- External protection films deteriorated.

#### Consequences

- Thermal comfort complains
- No proper daylight regulation
- Very bad aesthetics

#### Renovation concept's constrains

- Noise from airport
- Open spaces occupied

# Skylights renovations options



## Option 1

Standard isolating glazing unit  
with reflective films

### Strengths:

- Average costs
- Simple & classical solution

### Weaknesses:

- Reflective films airport authorizations
- Exposed to weather conditions
- Foreseen maintenance every 10 years
- Increased heat and cool loss
- No adaptive system ( comfort decreasing)
- Sun protection still required



## Option 2

Electronically tintable glass  
SageGlass

### Strengths:

- Average costs
- Excellent energy efficiency. Refund of 25% of investment compared to option 1
- Adaptive system with daylight control.
- No classical sun protection required
- No maintenance

### Weaknesses:

- Cables to fit into the frames
- Economic investment sensibly higher
- New solution in Switzerland

# A new solution

## Dealing with new technologies

### My Customer, Facility Manager QUESTIONS & DOUBTS



- Warranty - **10 years**
- Life expectancy - **+50 years**
- Background – **Saint-Gobain (351 years)**
- Users feeling – **Sites visits**
- Replacement constrains - **Easy**
- Price – **Competitive**
- Maintenance – **No mechanical parts**
- Performance – **Best performing solar shading on the market**

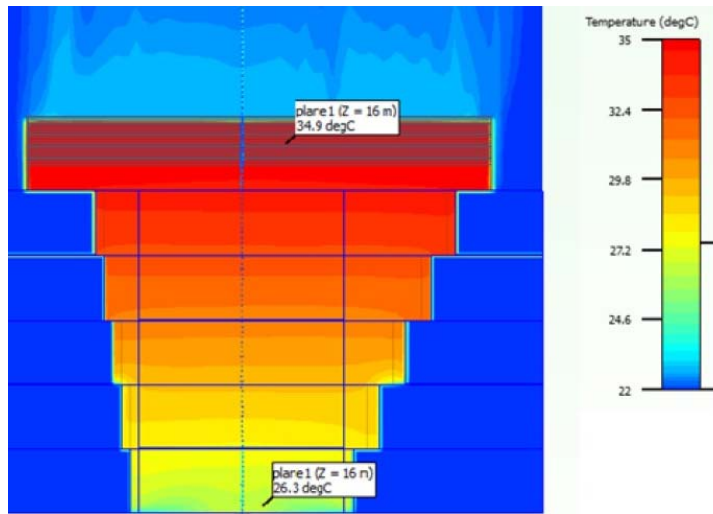


# Computer modeling

- Renovation "standard"**
- new glazing,
  - new sun protection films
  - new movable blinds

Floors

6th  
5th  
4th  
3rd  
2nd  
1st

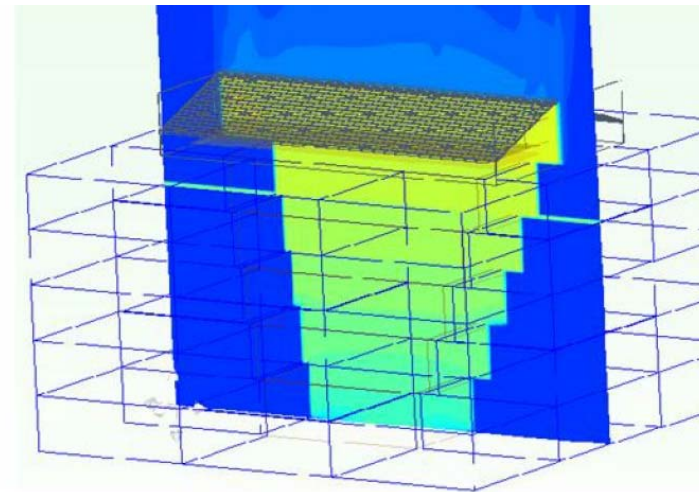


Temperature	35°C
Energy loss	1
Comfort	Ok
Light control	On/Off
Thermal insulation Ug	0,6 W/m2k
Solar factor g	0,20
Next Maintenance	10 years

**Renovation**



- Renovation SageGlass**
- Dynamic triple glazing
  - Automatic control
  - No mechanical parts



<b>SageGlass</b>	<b>29°C</b>
	<b>-60% cooling</b>
	<b>Ok plus</b>
	<b>Dimming</b>
	0,6W/m2k
	<b>0,03</b>
	<b>30 years</b>

Parler KW/h  
Gaines énerg



## Project current status

### Tender process:

- Applications by several companies
- No main concerns for the use of new products.



### Contractual documentations standard:

- No special issues concerning warranties or replacements.



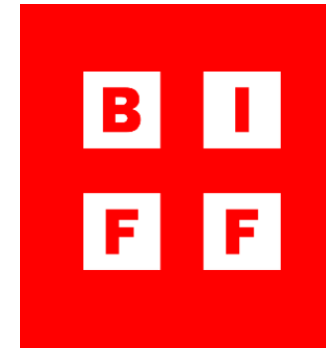
### Current situation:

- Dynamic glass orders placed.
- Quick lead time expected
- Work on the isolation of the roof



### Next:

- Installation of SageGlass glazings and control systems
- Commissioning with IATA



# Thank you !

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