



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

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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



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Switzerland



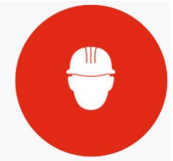
TECHNICAL STUDIES:

Engineering and technical design development for façade customized projects.



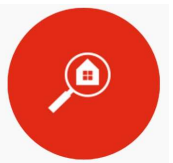
BUILDING PHYSICS:

Studies and analyses of existing buildings for establishing tailored sanitation solutions



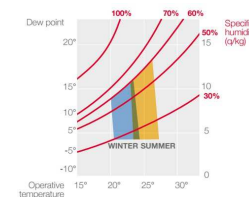
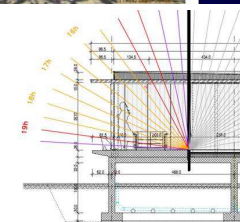
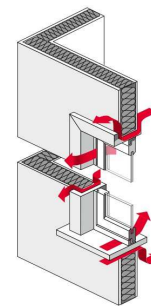
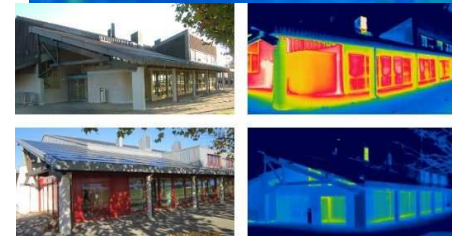
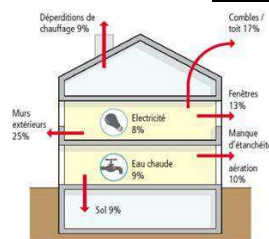
WORKS SUPERVISION:

Management of façade projects and prototypes respecting deadlines and budgets.



EXPERTISE

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



Fully Glazed Façade Conception of Villa with special and Big Size Glass Panels



Architect's model

Façade cladding, façade concept development

Building description

- Façade of luxury villa of about 1000 sqm.

Different type elements and envelope areas

- Opaque façade cladding
- Transparent double skin windows
- Transparent frameless sliding windows with glass barriers
- Large size fixed windows
- Barriers and balcony cladding
- Opaque ceiling cladding

Cladding façade concept

Fully Glazed Façade Conception of Villa with special and Big Size Glass Panels

Architect's design intent

Continuous façade

- Necessity of panels minimum 2000mm wide x 7000mm high.

Color & texture

- After firsts meetings selection of white color.
- No guidance about texture.

Translucently

- Required for incorporating retro lightning

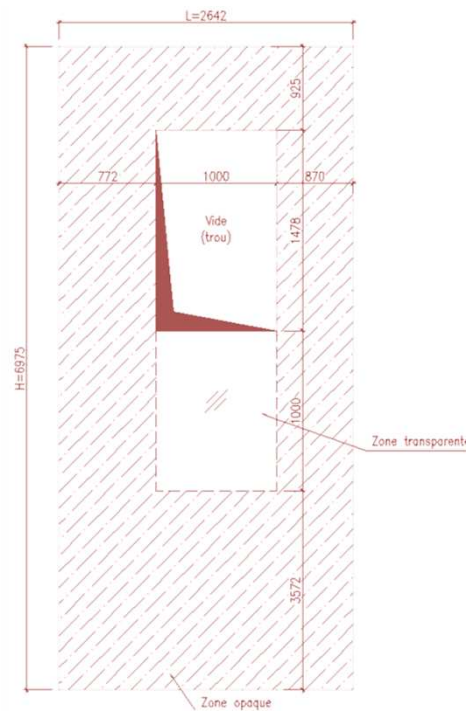
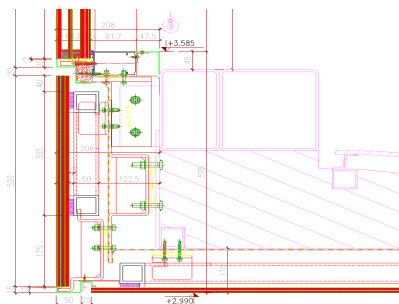
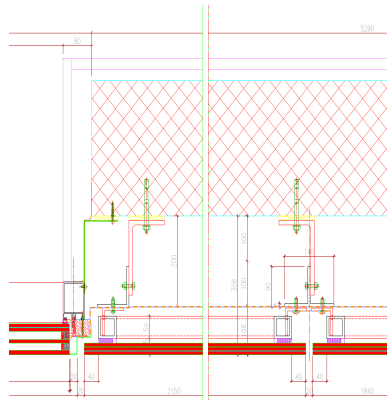
Glass component



Material references

- Marble and glass laminated façade: 1500mm x 6000mm & intermediate joints.
- Laminated glass with fabric interlayer: 2000mm x 4700mm & moisture issue
- Ceramic fritted glass: OK dimensions but no texture.
- Digital printed glass: OK dimensions and texture.
- PVB colored glass: OK dimensions but issue zones opaque/transparent.

Fully Glazed Façade Conception of Villa with special and Big Size Glass Panels



Technical aspects

Sub-structure

- Mineral wool insulation and aluminium or stainless steel sub-structure.
- Design for minimise visual impact

Frame

- Structural silicon EOTA
- Horizontal cladding, ceilings
- Important thermal expansion

Glass composition

- Laminated low iron heat strengthened glass,
- RAL 9010 fritting

Glass calculations

- Different areas & different LCs

Movements

- 12m span carbon fiber beam

Glass pockets

- Transparent areas in the middle of the pane

Other technical issues

- Architects design intent

Fully Glazed Façade Conception of Villa with special and Big Size Glass Panels

Commercial issues / Market

Research of existing products

Specific market & project conditions

Project adaptation, possible façade companies

- Project Size
- Bespoke system
- Suppliers

Prototype



Execution phase

Small façade company

- Support for all execution engineering
- Preference for local suppliers
- Proposal of new products

PROTOTYPE

- Different glass compositions, proposal of White PVB
- Evaluation of real colour and transparency
- Approval of client for the whitest aspect with the PVB
- Necessity of working with triple laminated
- Reengineering

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PROTOTYPE



Fully Glazed Façade Conception of Villa with special and Big Size Glass Panels

SITE INSTALATION



Conclusions

Communication

- Client
- Architect
- Project constrains



Concept development

- Research appropriate materials
- Engineering of façade concept
- Market constrains



Execution phase

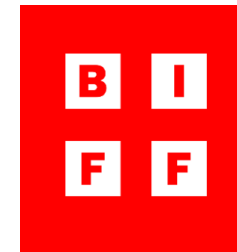
- Adaptation to façade company
- Necessity of prototype
- All worked as engineered and expected



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Thank you !

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