Decision minutes of the

JURY SESSION for the COMPONENT AWARD 2015

held on 13.02.2015 at the InterCity Hotel Frankfurt Airport

Contents

Co-funded by the Intelligent Energy Europe Programme of the European Union

Introduction

Building on the success of the first ever COMPONENT AWARD relating to windows, which was presented at the 18th International Passive House Conference in Aachen last year, the Passive House Institute announced the next COMPONENT AWARD for 2015, which also concerned windows, this time in the context of step-by-step refurbishment of existing buildings. The Award will be presented within the framework of the 19. International Passive House Conference to be held in Leipzig (17 - 18 April 2015). The aim of this Award is to promote the manufacture and availability of Passive House components and to demonstrate practicable and innovative solutions.

The windows of an apartment block are to be replaced in the year 2015. Renewal of the building's plaster coat is planned for 2025 and thermal insulation is to be applied at the same time. For this building, the participants offered sample windows with opening casements including shading attachments (motor-driven with manual control) together with delivery and installation, at retail prices. Any necessary repositioning of the window or reworking of the final installation situation in the context of the façade renewal in 2025 was also included in the price. The quotations and thermally relevant parameters were entered by the participant into an Excel interface prepared by the Passive House Institute for this purpose. The submissions were evaluated on the basis of the information provided by the participants with reference to the costs for investment and energy. The aspects of practicability, innovation and aesthetics were also taken into account in the evaluation by the jurors.

Jurors

The following persons took part in the jury session:

- Reinhold Kober, chief editor of "Glas, Fenster, Fassade"
- Dr.-Ing. Benjamin Krick, Passive House Institute
- Daniel Mund, chief editor of "GLASWELT"
- Adrian Muskatewitz, Passive House Institute
- Dr. Francesco Nesi, physicist for ZEPHIR, EuroPHit
- Dipl.-HTL-Ing. Peter Schober, Wood Research Austria
- Jakob Schoof, Editor of "Detail"
- Dr. Burkard Schulze-Darup, architect
- Klaus Siegele, Editor of "Gebäude-Energieberater"
- Dr. Rainer Vallentin, architect

Evaluation

The aspects of practicability, innovation and aesthetics contributed 20 % each to the assessment by the jurors, and life cycle costs were taken into account with 40%.

For the evaluation of the costs, the respective minimum and maximum costs were required within the categories: wood, wood/aluminium, aluminium and PVC. The submission with the

lowest costs within a category was given the full number of points with 100 %, the submission with the highest costs received 0%.

For assessing the aspects of practicability, innovation and aesthetics, the jurors followed a two-step procedure. In the first round, all submissions were viewed and rated in agreement. The solutions scoring best were selected for the final round and discussed in depth again in order to reach the final assessment.

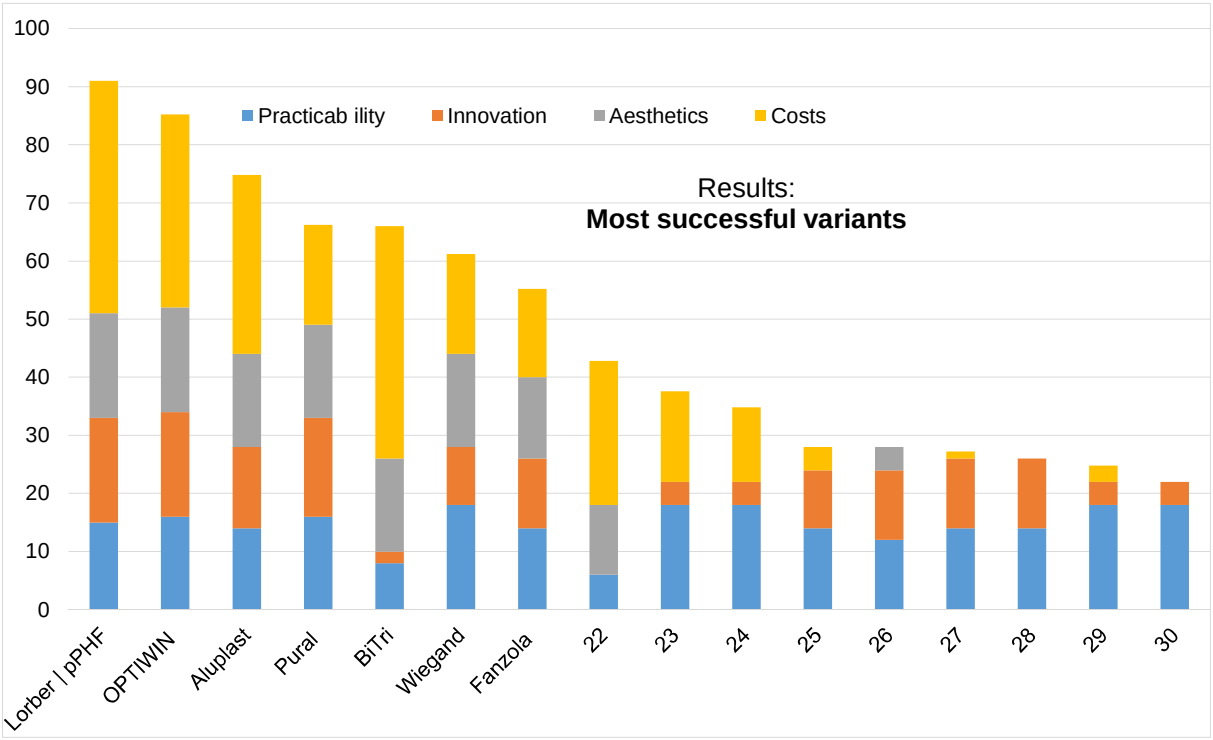
Summary and results

Two first prizes went to the companies Lorber | Pro Passivhausfenster and OPTIWIN.

Two third prizes went to the companies aluplast for their solution with their window *energeto 8000 view* and Pural with their window *eco 90*.

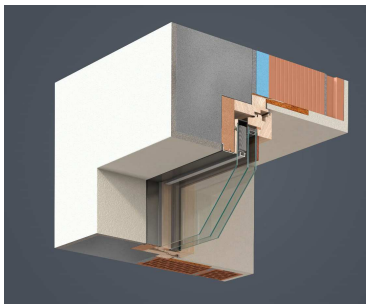
Two recognitions went to the companies Fanzola and Wiegand.

A large number of variants were submitted to some extent. The following graph shows the **most successful variants** of the winning companies.



Results in detail

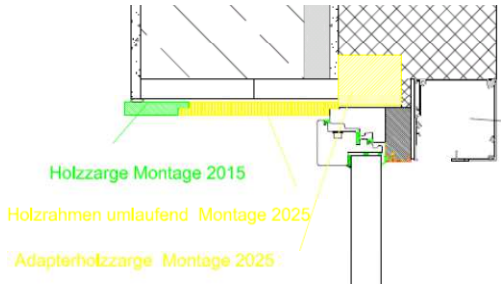
Lorber | Pro Passivhausfenster:



1. **Brief description:** the windows submitted were *smartwin compact s* variants with 3+1 and 2+1 glazing. Shading takes place in the intermediate air space; however, it is only openable in an optional variant, therefore this is not a classic compound window. In this connection, the deciding criterion is the user acceptance, rather than the costs, for the opening casement of the outer glazing. Two installation variants were submitted; in the first one the window is fitted slightly recessed but almost flush with the exterior wall and will also remain in this position in 2025. The second variant is installed in a sub-frame at the same level as the old window and is removed again in 2025. This frame is shifted outwards and installed again flush with the outer edge of the wall. In this way it becomes possible to position the window partly in the insulation layer in the final state.
2. **Appraisal:**
   a. Window frame supplemented with integrated sun protection system (venetian blinds in the air space between panes of the 2+1 or 3+1 glazing)
   b. The sub-frame as an assembly aid enables precise installation and a workable connection of the airtight and wind-proof layers.
   c. Both states are successfully solved in terms of design.
   d. Window sill connections are solved well, the idea of the "tapered segment" deserves particular praise.
   e. The concept provides good protection against driving rain.
   f. Solution in the reveal (advantageous in terms of practicability and durability).
3. **Suggestions:**
   a. Reduction of the extremely high installation thermal bridge of the upper connection in an uninsulated wall.
   b. The connection to the plaster with variant 2 (without recessing) in the state without exterior insulation is not protected against driving rain in the long term.
   c. The idea of the "tapered segment" can also be transferred to the reveal.
4. **Evaluation:** Inclusion in the final round.
5. **Final Rating:** 1st prize

Window	Practicability (20%)	Innovation (20%)	Aesthetics (20%)	Costs (40%)	Weighted value
smartwin compact s 2+1 without recessing	75	90	90	100	91
sw compact s 2+1	80	90	95	64	79
sw compact s 3+1	80	90	95	61	77

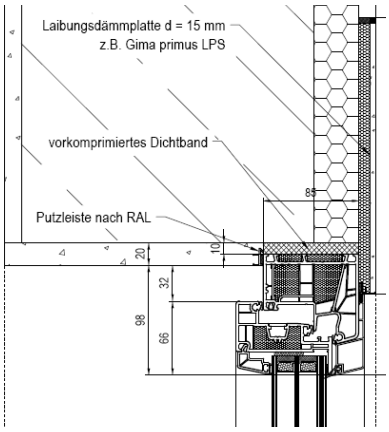
OPTIWIN System Connecta



1. **Brief description:** First a kind of frame is installed all around flush with the inside. The window is placed in front of this so that the roller shutter box is flush with the wall on the outside. In the second step, the window is extended towards the outside and an extension of the frame provided in the first step is fixed to the one already installed, and a CompacFoam frame is fitted on the outside. The window is refitted and the EIFS is applied. The roller shutter box is flush with the wall also in the new position. The *System Connecta* was developed as a universal adapter for all Optiwin window systems and is also suitable for other windows.
2. **Appraisal:**
    a. High level of practicability and functionality (installation, conversion, remaining work).
    b. Inner frame serves as a reference point for all states.
    c. CompacFoam mounting frame on the outside, supplementary frame on the inside.
    d. CompacFoam mounting frame improves sound protection
    e. This position is protected from weather in both cases, due to the overhang (masonry and/or EIFS).
    f. The screen is always protected.
    g. Similar design in the insulated/uninsulated state on account of the recessed frame.
    h. Universal solution approach for different types of windows.
3. **Suggestions**
    a. Intermediate storage of the frame insert appears to be critical in terms of logistics and with reference to variations in the surfaces over time.
4. **Evaluation:** Inclusion in the final round.
5. **Final Rating:** 1st prize.

Window	Practicability (20%)	Innovation (20%)	Aesthetics (20%)	Costs (40%)	Weighted value
Lignuma	80	90	90	85	85
Holz2Holz	80	80	80	85	85
Purista	80	90	90	50	72
Alphawin	80	90	90	49	72
Futura	80	90	90	47	71
Resista	80	90	90	44	70
Alu2Holz	80	80	80	88	68

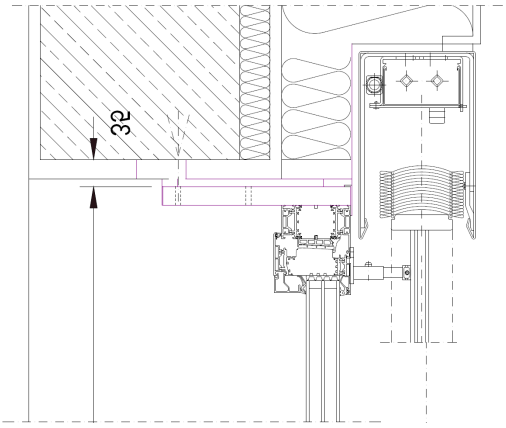
aluplast energeto 8000 view



1. **Brief description:** The PVC window *energeto 8000 view* was submitted in combination with different shading possibilities, including electrochromic glazing and with an additional solar panel. For the installation, ca. 25 cm of the plaster around the window opening is removed and an insulated plaster panel is applied. This creates a clean rabbet against which the window is installed. In 2025, the window will remain in this position.
2. **Appraisal:**
   a. Diverse shading possibilities, including electrochromic glazing.
   b. Installation is almost flush with the outside, with a good solution for protection against driving rain by means of a defined rabbet with an insulated plaster panel for the transition period.
   c. Heat loss is also reduced due to the plaster base panel and the temperature near the reveal is increased.
   d. At the lower end, the solution with the plaster base panel is made possible due to extension of the window sill according to the "Swiss model" in which the window sill is inserted into a groove in the frame.
3. **Suggestions:**
   a. Connecting joint between the plaster and plaster base panel remains an unsolved challenge.
   b. Scaffolding in necessary for installation in each case. Working from the inside and securing of the fitter by means of straps is regarded as unacceptable by the jurors.
   c. The solution with Venetian blinds in the insulated state needs optimisation.
4. **Evaluation:** Inclusion in the final round.
5. **Final Rating:** 3rd prize.

Window	Practicability (20%)	Innovation (20%)	Aesthetics (20%)	Costs (40%)	Weighted value
With Venetian blinds	70	70	80	77	75
Sliding shutters solar	70	80	80	70	74
Sliding shutters	70	70	80	71	72
Horizontal slats	70	70	80	65	70
Horizontal slats solar	70	80	80	45	64
Electrochromic	70	80	80	45	64

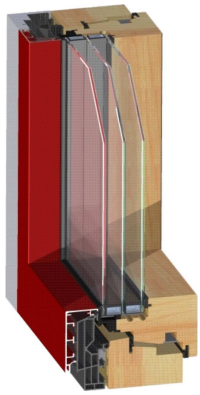
Pural eco 90



1. **Brief description:** The *eco 90* is a window with aluminium cover caps on the outside and inside, which are applied to a core consisting of extremely rigid polyurethane foam. It is mounted on an assembly frame of the same material, and installed in the window reveal flush with the masonry. In 2025 this construction will be disconnected from the reveal and shifted outwards. The first installation can take place without scaffolding
2. **Appraisal:**
    a. The frame in conjunction with frames made of extremely rigid polyurethane foam as a sliding element is excellent for step-by-step solutions.
    b. Low costs for an aluminium window.
    c. Good use of materials: aluminium used precisely where it makes sense and is necessary with reference to the finish.
3. **Suggestions:**
    a. Solution with the installation frame should be subjected to a structural stability examination.
    b. Protection of the connection joints against driving rain should be tested (installation flush with the outside without insulation: joints and lack of metal sheeting: sun protection at the top with insulation).
    c. Inside view of the window reveal/window ledge: less aesthetic due to the resulting edge. Better avoided edge for example by using further elements.
4. **Evaluation:** Inclusion in the final round.
5. **Final Rating:** 3rd prize.

Window	Practicability (20%)	Innovation (20%)	Aesthetics (20%)	Costs (40%)	Weighted value
Pural eco 90	80	85	80	43	66

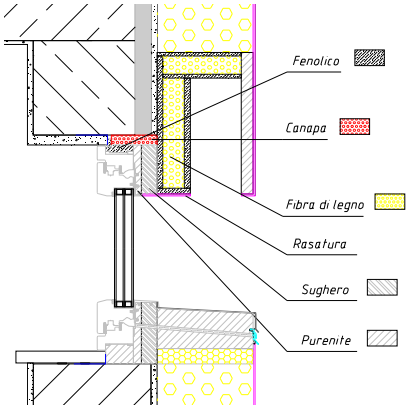
Wiegand:



1. **Brief description:** The submitted window was *DWplus Integral FI*. This window has a hollow chamber profile as insulation all around. The window is installed in the reveal in such a way that this hollow chamber profile extends outwards. It is covered with a Z-shaped angle made of aluminium which will be removed after the transitional period. The window itself will remain in its position. Shading is provided by means of Venetian blinds.
2. **Appraisal:**
    a. Well worked-out conventional solution.
    b. High level of practicability and execution reliability
    c. Thermally acceptable solution.
3. **Suggestions:**
    a. The lower connection and the guide rails at the sides for sun protection result in a less than satisfactory solution in terms of design.
4. **Evaluation:** Inclusion in the final round.
5. **Final Rating:** Special recognition: wide range of applications, high level of practicability.

Window	Practicability (20%)	Innovation (20%)	Aesthetics (20%)	Costs (40%)	Weighted value
DWplus Integral FI	90	50	80	43	61

Fanzola



1. **Brief description:** The wooden window with a mounting frame in front is installed flush with the outside of the exterior wall and remains in this position. In 2025 the mounting frame will be covered by the compound insulation system all around. This also applies for the lower connection. The glazing rebate is drained via tubes.
2. **Appraisal:**
    a. Interesting and very innovative approach with a high development potential.
    b. Sub-frame as an "insulation frame".
    c. Increased extended insulation of the lower end, drainage under the window sill via tubes.
3. **Suggestions:**
    a. The main construction and practice-related issues have only been solved in part or not at all, specifically these are:
        i. Practical implementation of the plaster joint to the mounting frame
        ii. The casing of the Venetian blinds above to the exterior plaster (sealing)
        iii. Long-term functioning of the rebate drainage via tubes is questionable (soiling, icing over).
    b. The casing of the Venetian blinds needs optimisation in terms of design and practical construction and with reference to its durability.
4. Evaluation: **Inclusion in the final round.**
5. Final Rating: Special recognition: mounting frame as an integrative element beyond the window.

Window	Practicability (20%)	Innovation (20%)	Aesthetics (20%)	Costs (40%)	Weighted value
Null-Fenster	70	60	70	38	55