

Building
New Solutions

Business Division
Building Envelope

 **Lindner**



A Powerful Unity
out of Wood and Aluminium

Lindner ECO_N[®]

Lindner ECO_N®

A Hybrid Timber Aluminium Curtain Wall Façade

The ECO_N is the first hybrid façade among the Lindner element façades: The combination of timber modules and aluminium fuses economy with sustainability.

- **Sustainability**
Single-origin materials facilitates a continuous circular economy
- **Sleek Design**
Optimal synergy of aluminium profile and timber module due to an ideal fit
- **Flexibility related to Building Physics**
Compatibility with the Lindner ECO® aluminium system ensures wet room use with the same outfit
- **Preventive Fire Protection**
Non-combustible materials in ceiling termination areas
- **Design Flexibility**
Optional features such as LED modules or various joint designs
- **Innovational Strength**
Patented functional parts and force-locking technology
- **Durability**
Guaranteed constructive wood protection





Sustainability in Focus

CO₂-neutral Timber Module

The reference to sustainability and CO₂-neutrality naturally moves the material wood into the focus of façade assessment. The effect of upgrading the building through a good classification is obvious.

Wood, a very special material, demands a different approach to technical implementation compared with aluminium construction. Lindner offers a solution for this by combining a proven basic construction made of aluminium with a statically effective timber module. In addition to the patented components such as the spring clip mounting and the PA pressure strip, a new innovation is used: the dovetail connection of the

timber module with the aluminium profile. At the same time, extensive design opportunities also enrich the new building envelope. The prefabrication of the system elements in the factory enables the best quality assurance – the prerequisite for rapid, on-time installation at the construction site. Lindner relies on transparent and thus comprehensible documentation with regard to life cycle assessment and environmental management: The hybrid façade incorporates only single source materials with the highest recyclability. The guarantee of longevity, which in turn derives the sustainability of the product, ensures investors a long-term value retention of the property.

- Lindner ECO_N® consequently separates the timber module from the functional waterproofing level. The durability thus corresponds to that of a proven aluminium façade.
- The aluminium content within the façade element can be reduced with the help of the structural wood module, which provides an enormous ecological added value.
- The energy input used to heat and cool the building is significantly reduced due to the thermal insulation properties of the façade.



Material Recovery Cycle

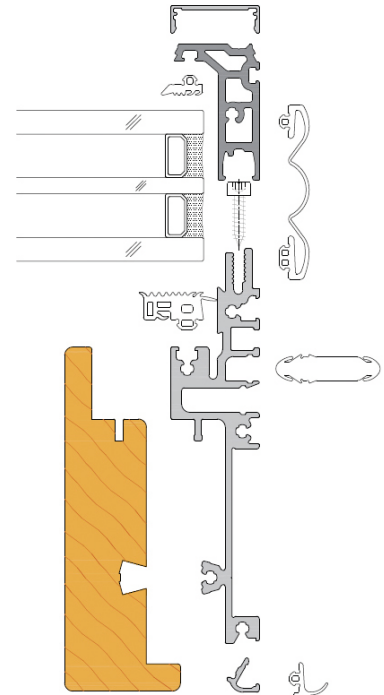
Separability, Reusability and Recyclability through Anticipatory and Forward thinking Product Design

Use of Single Source Materials

In the hybrid façade, single source materials with maximum recyclability are used. Lindner ECO_N® consists of environmentally classified materials. Furthermore, the joining process is purely mechanical.

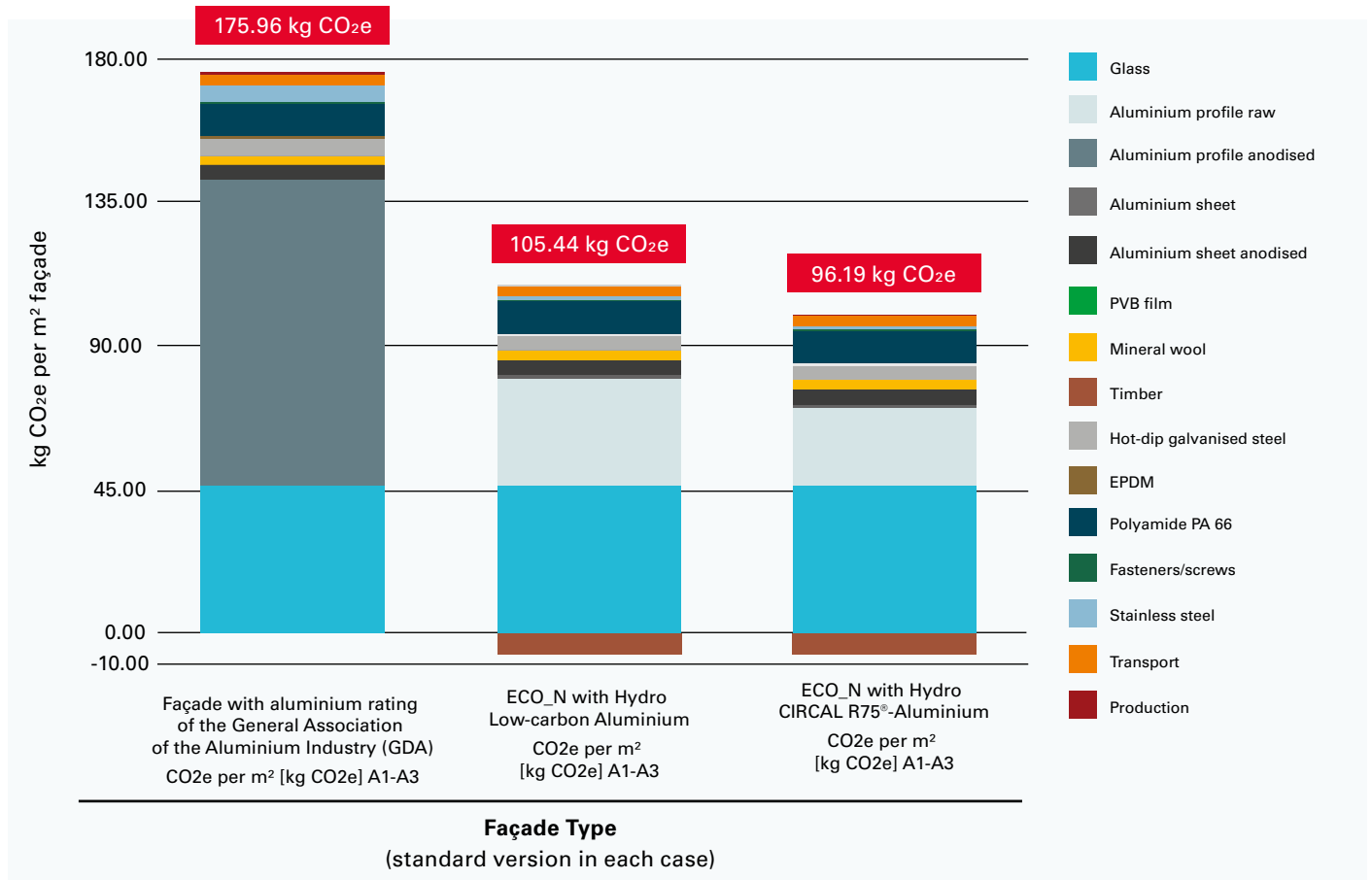
At the end of use, separation of the materials by type is possible without great effort.

Due to the selection of high-quality components with a long lifetime, individual components can be reused even after their actual life cycle.



Reduction of Carbon Dioxide

Saving CO₂-intensive Aluminium by Using Wood and Hydro Low-carbon Aluminium¹



¹ Hydro Low-carbon Aluminium is produced with renewable forms of energy.

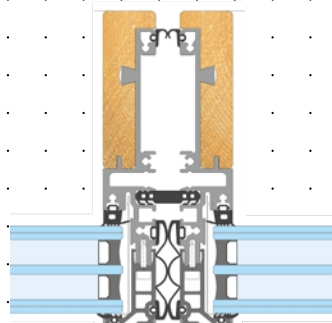
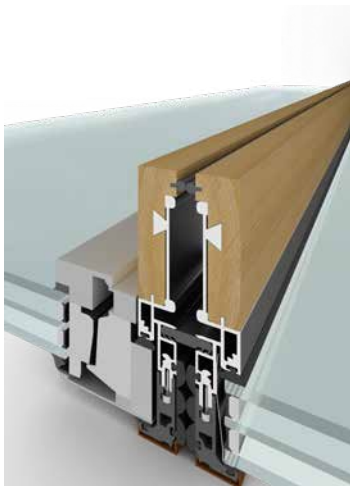
Product Variations

Lindner ECO_N® 80

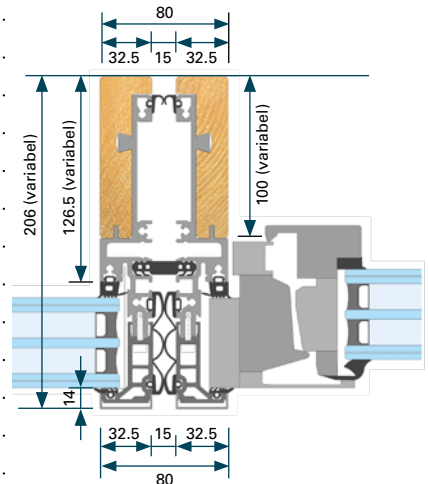
Combination of a coloured aluminium part with timber module

Visible width inside: 80 mm

Visible width outside: 80 mm (2 x 32.5 mm ceiling strip + 15 mm joint)



**Narrow sight line,
visible combination of
timber and aluminium**

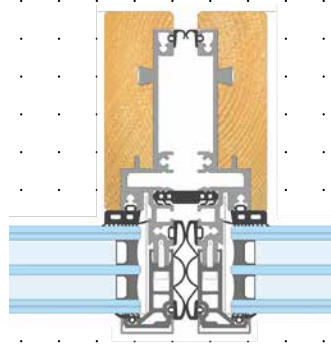
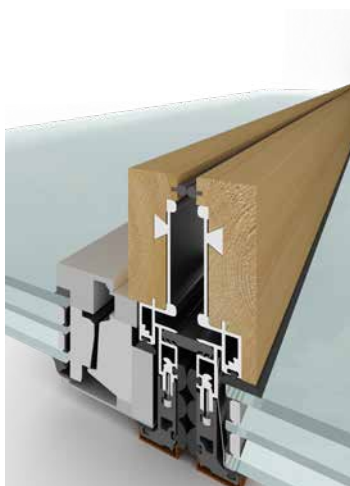


Lindner ECO_N® 100

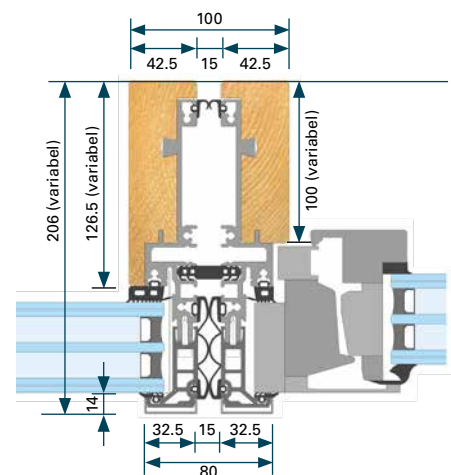
Full-timber sight

Visible width inside: 100 mm

Visible width outside: 80 mm (2 x 32.5 mm in ceiling strip + 15 mm joint)



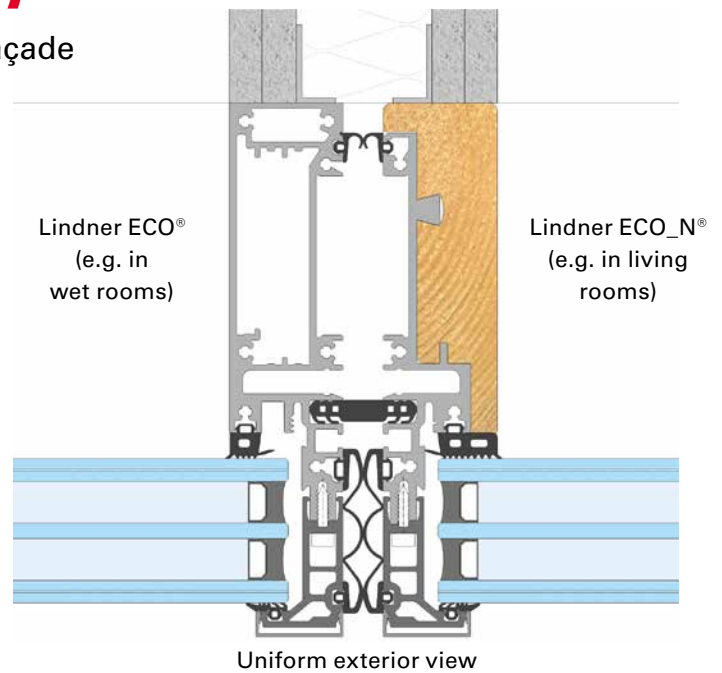
Timber look



System Compatibility

Combination of the Hybrid and Aluminium Façade

- Individual design freedom
- Various types of wood available in addition to coloured aluminium
- Individual response to the building physics requirements of different room environments
- Combination of hybrid and aluminium profiles within one element (e.g. transom in aluminium, mullion in wood look)
- Uniform exterior view (80 mm)
- Uniform profile geometry

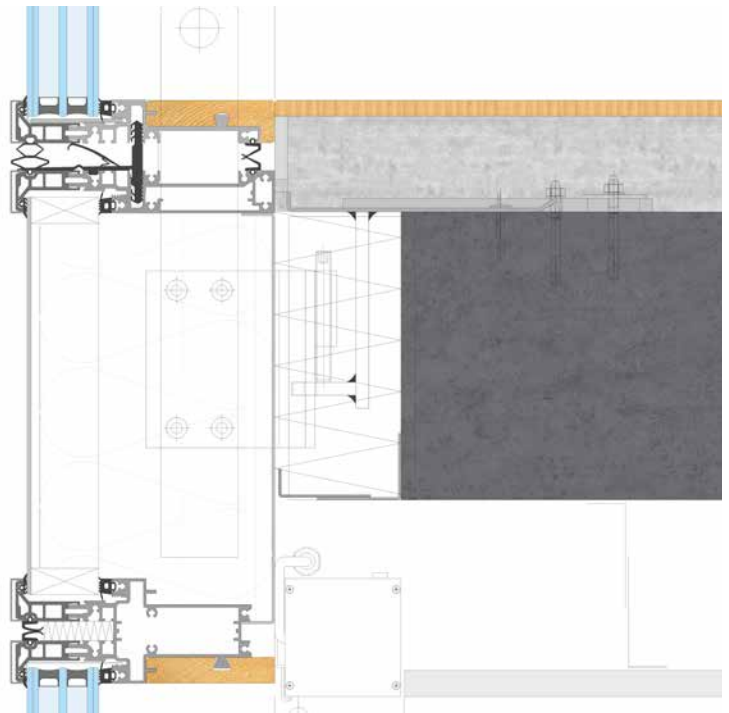


Preventive Fire Protection

A Construction-related Consequence

Only non-combustible materials are used in the ceiling termination and connection area to ensure maximum safety. The timber module can be statically compensated. The force connection of the façade elements to the building envelope takes place without a direct fire load, so that possible fire-promoting sources in this area are avoided.

The high stability of the hybrid system offers enormous advantages in terms of passive fire protection, which positively affects the fire protection concept of the building. The fire and smoke compartmentalisation from storey to storey takes place in the standard way as with conventional aluminium façade elements.



Durability

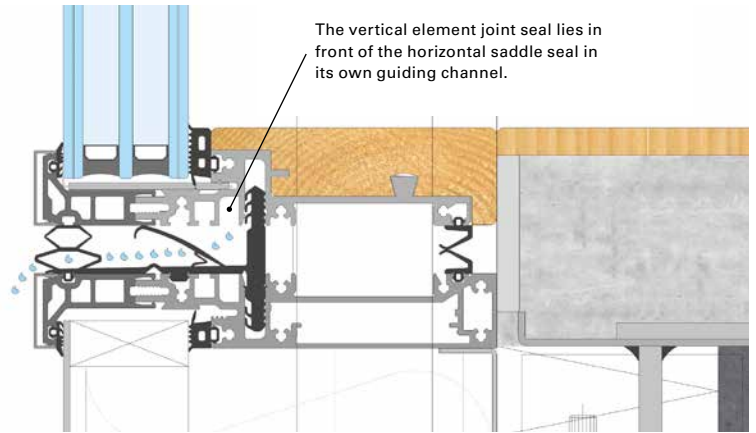
Economically and Ecologically Valuable

Proven sealing and drainage levels (cascade drainage system) ensure the functional efficiency of the curtain wall.

The aluminium profiles exposed to moisture are clearly separated from the dry area of the timber modules.

Due to the dovetail form closure on the aluminium profile, the specific swelling and shrinking properties of the wood are not affected.

The different materials find their best place in the system in terms of quality, so that the ECO_N convinces with excellent durability and longevity.



Performance Features

Wood Species (PEFC certified)

Softwood/coniferous wood	Spruce, fir, larch, douglas fir (solid glued timber, finger-jointed)
Hardwood/deciduous wood	Solid oak, oak composite (soft wood core inside, hardwood outside)

Surfaces (material ecologically tested)

Glazed, oiled, lacquered

Safety

Fall protection according to DIN EN 18008-4 Category A

Performance Test

Curtain wall according to DIN EN 13830:A4 | RE750. General building authority test certificate No. P-0300222-PFB

Statics

ECO_N 80 (standard version) $I_x = 190 \text{ cm}^4$ |
 Standard element 1.35 x 3.5 m (3 m wood module height) with 1,45 kN wind load capacity

ECO_N 100 (standard version) $I_x = 220 \text{ cm}^4$ |
 Standard element 1.35 x 3.5 m (3 m wood module height) with 1,7 kN wind load capacity

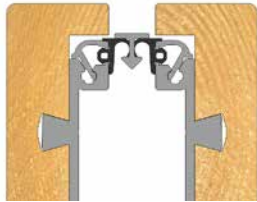
Aluminium: FNAW-6060 T66

Wood: Spruce S13/GL30

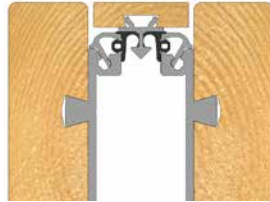
Basically: The system is flexible for the project-specific structural requirements.

ECO_N Variations

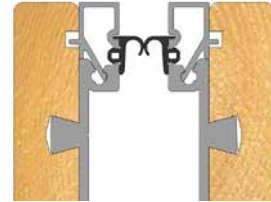
Material Change/Material Combination/Joint Design



Aluminium clip joint strip
Coloured alu profiles |
coloured silicone gaskets



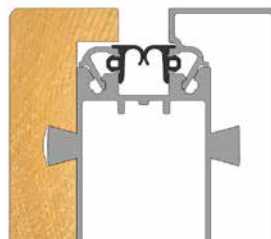
All-timber look
Wooden cover
of the butt joint



**Aluminium adapter profile
with gasket**
Timber embedded in
coloured aluminium

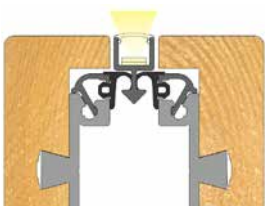


All-timber look
Wooden cover
of the butt joint

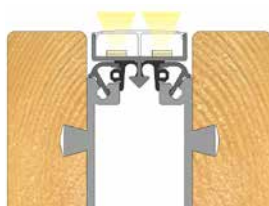


Timber-aluminium combination
with sealing joints

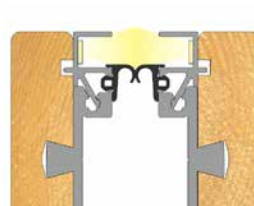
Interior Lighting/LED Modules



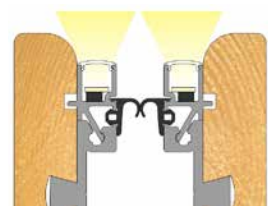
**Linear direct
LED lighting**
as joint design at
the element joint



**Linear direct two-fold
LED lighting**
as joint design
at the element joint



**Linear indirect
LED lighting**



**Linear direct
LED lighting**
Reversible, reversible;
uncomplicated integration
of the electrical supply lines

Wooden Innovation ECO_N

Sustainable Building Technology with „Green“ Exterior Façade

1 Lindner's new system innovation is based on the proven, statically highly effective dovetail connection, which allows the wood to naturally expand and contract.

2 The sealing of the element system occurs cascadelike within the aluminium area.

3 When fusing wood and aluminium profiles, the different properties of both materials are carefully coordinated and optimally utilised.

4 The CO₂ reduction through the use of wood promotes true sustainability by permanently protecting the wood from moisture.

5 Lindner ECO_N® impresses with a high-quality, modern appearance and meets the criteria for the "Quality Seal Sustainable Building". The façade with wooden modules creates an immediate connection to nature through their aesthetics.



Find out more about
Lindner ECO_N®



Rethinking Spaces

Add.Vantage

Over time, the Lindner Group has developed into a technically sound, solution-oriented and reliable partner with a rock-solid commercial footing. Our comprehensive product and service portfolio for building envelopes, interior fit-out and insulation technique in almost all fields of application is second to none. True to the motto "Rethinking Spaces" we develop perfectly customized and yet versatile solutions and concepts for your building project.

As a 100 % family-owned company we attach particular importance to our environment. With innovative concepts such as Cradle to Cradle Certified®, low-emission products and well thought-out room concepts we create Add.Vantage for people and their environment. As a service provider and employer we place people at the centre of our activities. Our customers notice this too: We enjoy our work, have conviction in what we do and are proud of what we are capable of achieving.

Stability and Growth

Our head office is located in Arnstorf in Lower Bavaria, where we have seen massive growth in recent decades since the company was founded in 1965 by Hans Lindner. We are proud to be the largest employer in the Rottal-Inn district with some 7,100 employees worldwide. We handle 2,500 projects on a daily basis, mostly revolving around our core business of construction. This is complemented by our foundation, the mk | hotels, microbreweries and – most recently – sustainable agriculture and forestry.



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