Component catalogue

A reference of value-driven façade components for layer 2 of the Value-Integrated Modular Façade System (VIMFS). Each component is grouped under one of four socio-technical clusters and described in terms of the resident value it materialises, the dimensions it occupies, and its mounting logic relative to the Layer 1 base platform

I

Cluster I

Ecological regenerator

Sustainability-Identity-(Comfort)

II

Cluster II

Social threshold

Comfort-Identity-Empowerment

III

Cluster III

Climate agency

Comfort-Empowerment

IV

Cluster IV

Neighbourhood face

Identity-(Fairness)

How to read this *catalogue*

This appendix is the bounded design vocabulary of Layer 2 of the Value Inegrated Modular Façade System (VIMFS) developed in Chapter 5. It supports the configuration logic of Chapter 6 and the case study of Chapter 7. Each component is grouped under one of four socio-technical clusters and described in terms of the resident values it materialises (Chapter 4), the average dimensions it occupies, its material and assembly logic, and a small set of manufacturer examples.

Organised by value.

Components are grouped by the socio-technical cluster they belong to. Each cluster corresponds to a recurring combination of the six resident values established in Chapter 4: *comfort, affordability, fairness, empowerment, sustainability, identity.* The cluster determines *what* the component is for and the design indicator determines *how* the component carries the value into the façade design.

Reading a component page.

01 **Header**: Component name and the cluster it belongs to, with a short line stating the value it materialises.

02 **At a glance**: Four cells: the value output, average dimensions and import information related to object

03 **Component image:** Reference photograph or drawing of the component in situ.

04 **Material options:**The dominant material families available across manufacturers.

05 **Technical specifications:** Compact note on dimensions, performance range and mounting type

06 **Assembly:** How the component sits within the Layer 2 grid and connects back to Layer 1.

07 **Manufacturer examples:**Concrete product images showing the range of variants.

Index of components

I Ecological regenerator

Values: **Sustainability+Identity+(Comfort)**

Indicators: Carbon storage-ecological repair-visible nature

II Social threshold

Values: **Comfort+Identity+Empowerment**

Indicators: Inhabitale edge-ease of interaction-personalisation

III Climate agency

Values: **Comfort+Empowerment**

Indicators: User control-daylight-thermal stability-fresh air

IV Neighbourhood face

Values: **Identity+(Fairness)**

Indicators: Articulation-material rhythm-dwelling expression

I

Cluster I-Layer 2

Ecological regenerator

The facade as an active contributor to the local ecosystem. A generitive skin that sequesters carbon through bio-based materials materials and restores biodiversity through integrated inhabital spaces.

Materialises:*Sustainability* as a proactive, visible force, not focussed on the reduction of waste, but the ecological improvement of residents immediate living environment.

Components in this cluster:

01 Bio-based cladding

02 Bio-diversity inserts

03 Vertical greening module

Bio-based cladding

A renewable, ventilated outer skin that gives the façade its visible ecological character.

Code: ER01

VALUE OUTPUT:	Width (W):	Length (L):	Thickness (T):
Visible carbon-storage surface	75-150 mm	1800-3000 mm	10-40 mm

REFERENCE IMAGES:

Bamboo X-treme facade

Cornwaste- sample examples

Cork- sample examples

Expanded cork facade-Amorim cork solutions

Nabasco facade-NPSP

MATERIAL OPTIONS:

- Wood-based-hydrothermally modified timber
- Wood-based-charred timber
- Bamboo-based- thermally modified timer
- Exterior cork
- Bio-composite — natural fibre (wood, flax, hemp, cellulose)
- Bio-composite — residual waste(corn/agriculture waste)
- Mineral bio-composite — Mycellium

TECHNICAL SPECIFICATIONS:

Mounted as a ventilated rainscreen panel to the outer rail or secondary support. Clip-fixed, concealed, or screw-fixed connections depending on panel type.

ASSEMBLY:

Applied as half-grid or full-grid of the secondary grid system. See manufacturer documentation for fire class, U-value contribution and durability data.

MANUFACTURE EXAMPLES:

Hydrothermally modified timber

Platowood
Frake/vuren/populier
18x 40 t/m 185- L up to 545 mm

Charred timber

Burned wood
Frake/vuren/populier
18x 40 t/m 185- L up to 545 mm

Thermally modified timber

MOSO bamboo X-treme

45 / 64 / 119 / 136 mm x L. 1 850 mm

Cork

Amorim cork solutions (MDFACADE)
1000 × 500 mm * t. 40 – 200 mm

Natural-fibre bio-composite

NPSP - Nabasco 8010 fire
600 × 600 mm * t. 6 – 25 mm

Cornwaste bio-composite

Cornwall
600 × 600 / 300 × 600 mm*t. 4 mm

Bio-diversity ineserts

Integrated nesting and habitat module that supports birds or insects within the façade surface.
Fitted into the cladding field, masonry, greening layer or an ecological carrier frame

Code: ER02

VALUE OUTPUT:	Width (W):	Length (L):	Thickness (T):
Habitat : birds, swifts, insects	150-440 mm	150-440mm	100-200mm

REFERENCE IMAGES:

Bee and insect hotel-University of Melbourne campus

Use of birdbox in facade-Stedenbouw.nl

MATERIAL OPTIONS:

- Habitat box -recycled timber
- Habitat box -bioreceptive material
- Nesting brick -concrete / stone
- Nesting brick -clay

TECHNICAL SPECIFICATIONS:

Fixed within the outer cladding field or onto a secondary carrier. Position in elevation determined by sun exposure and accessibility.

ASSEMBLY:

- integrated into a façade-panel zone
- inserted into masonry
- attached to a greening support layer
- built into a secondary ecological carrier frame

MANUFACTURE EXAMPLES:

Swift built-in nest box

Vivara Pro -NK GZ 15

420 × 180 × 161 mm

Facade nest box

Vivara Pro-NK GZ 14

300 × 160 × 190 / 381 × 155 × 173 mm

Built-in nest box

Schwegler -Brick Box 25A

320 × 180 × 150 mm

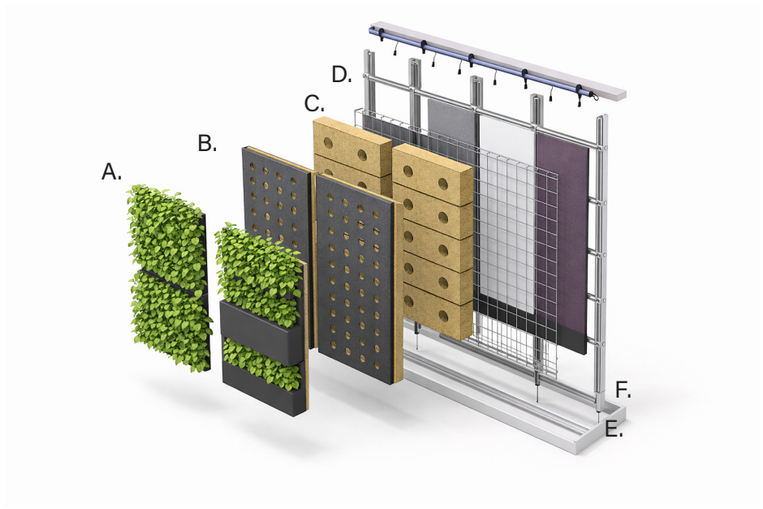
Vertical greening module

Modular living-wall system for cooling, filtration and visible ecological integration.

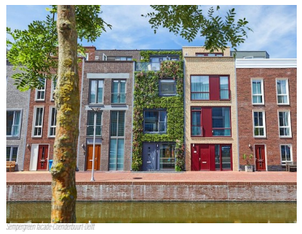
Code: ER03

VALUE OUTPUT:	Module:	Substrate:	Weight:
Living surface + cooling & air quality	~ 720 × 620 mm(avg.)	60 mm rockwool	45 – 50 kg / m^2

REFERENCE IMAGES:



Assembly vertical greening system (own work) A planted carrier ,B substrate ,C basket, D backing panels , E suspension , F irrigation+drip tray



Sempergreen facade-Utrecht

Impression BOTU appartmentbuilding Gysingstraat-Rotterdam

CORE COMPONENTS:

- A- planted carriers
- B - substrate modules + foil
- C - steel basket + drip line
- D- backing panels
- E- steel suspended support frame
- F- irrigation system + drip tray

SYSTEM MATERIALS:

Galvanised steel-wire basket- mesh carrier-rockwool substrate -magnelis-steel suspension structure.

ASSEMBLY:

Applied as a planted insert within a coordinated field, mounted on a secondary vertical suspension construction fixed back to the Layer 1 interface.

MANUFACTURE EXAMPLES:

Cloudgarden E-fix
Cloudgarden
200 × (1000 – 1500) × 300 mm
50 kg / m2

Sempergreen flexipanels
Sempergreen
720 × 620 mm
45 kg / m2

Integrated planters
Sempergreen- planters
w. 211 mm - h. 375 / 500 / 625 mm

PLANT SELECTION:

Philodendron Scandens Brasil | Epipremnum Aureum | Philondendron Scandens | Chlorophytum Comosum Variegatum | Epipremnum Marble Queen | Scindapsus Golden Pothos

II

Cluster II-Layer 2

Social Threshold

The façade as an inhabitable edge , a extra depth that residents can occupy, appropriate and personalise. A area off the where the building meets daily life and the street.

Materialises *Sociability* and *Identity* by offering small architectural opportunities to sit, store, look out and signal presence in the direct living environment, without adding internal floor area.

Components in this cluster:

01 Deep windowsill

02 Exterior storage unit

03 Juliet rail extension

04 Integrated facade seating

Deep windowsill

Enlarged sill or façade ledge that allows sitting, placing objects, or occupying the building edge.

Code: ST01

VALUE OUTPUT:	Depth:	Length (L):	Width (W):
Inhabitable edge — sit, place, lean	200 – 400 mm	opening-related	up to 500mm

REFERENCE IMAGES:

Hellopal prroduct information

MATERIAL OPTIONS:

- Marble composite
- Timber
- Natural stone

TECHNICAL SPECIFICATIONS:

Bracket- or frame-supported and coordinated to the aperture field rather than the full cassette.

ASSEMBLY:

Aligned to the opening width

MANUFACTURE EXAMPLES:

Marble composite

Hellopal

L. up to 3 600 mm *w. up to 800 mm *t. 17 mm

Timber-oak

Plintenfabriek

L. up to 5 000 mm*w. up to 800 mm *t. 18 – 40 mm

Natural stone

Dorpelshop

1000 × 160 × (60 / 30) mm

Exterior storage unit

Storage volume integrated into the façade depth , to improve functional comfort without taking internal floor space.

Code: ST02

VALUE OUTPUT:	Width (W):	Depth:	Heigth:
Reclaimed interior floor space	800 – 1 720 mm	460 – 830 mm	1 350 – 2 000 mm

REFERENCE IMAGES:

Biohort Vertical storage unit

Biohort box storage unit

MATERIAL OPTIONS:

- Composite
- Aluminium
- Timber

TECHNICAL SPECIFICATIONS:

Single-field cabinet or double-field cabinet

ASSEMBLY:

Bracket-mounted to the Layer 1 interface system.

MANUFACTURE EXAMPLES:

Single-field cabinet
Biohort / Lutrabox
930 × 830 × 1852 *800 × 820 × 1800 mm

Two-field cabinet
Biohort / Lutrabox
1720 × 840 × 1825 *1800 × 820 × 1800 mm

Box storage unit
Biohort / Lutrabox
1010 t/m 2010 mm wide *640 – 830 mm h.

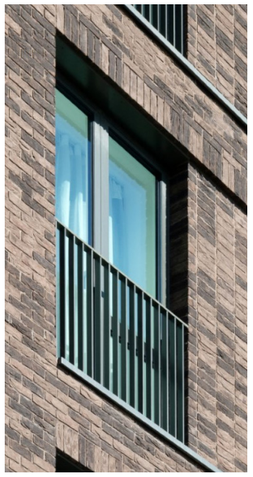
Juliet rail extension

Safety and threshold element that allows the façade opening to function as a stronger interior–exterior connection. Aligned to the opening width.

Code: ST03

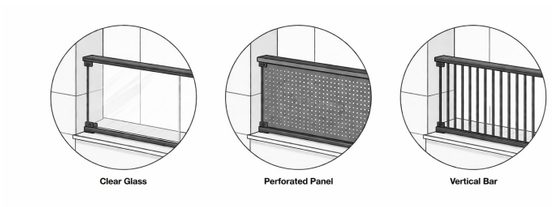
VALUE OUTPUT:	Guard heigth:	Suspended:	Width (W):
Safe interior–exterior continuity	900 – 1 100 mm	100 – 250 mm	800 – 1 800 mm

REFERENCE IMAGES:



Impression appartmentbuilding

Mounting variants juliet rail



Infill variants

MATERIAL OPTIONS:

- Aluminium rail systems
- Steel rail systems
- Infill - clear glass
- Infill -perforated steel
- Infill -vertical bar

TECHNICAL SPECIFICATIONS:

Bracket system: fixed in reveal , face mounted or bracket mounted.

ASSEMBLY:

Fixed to opening structure or window frame. Aligned to the opening width rather than the full modulewidth.

MANUFACTURE EXAMPLES:

Alluminium rail system

Vista Architectural
powder-coated
L. up to 3 600 mm *w. 800 – 4 200 mm *t. 17 mm

Integrated facade seating

Wall-mounted foldable bench or chair that gives a coordinated place to sit at the building edge.
Folds flush when not in use.

Code: ST04

VALUE OUTPUT:	Width (W):	Seat depth (open):	Folded depth:
A place to pause at the entrance and connect	860 – 1 000 mm	400 – 500 mm	80-120 mm

REFERENCE IMAGES:

MATERIAL OPTIONS:

- Timber seat
- Aluminium brackets

TECHNICAL SPECIFICATIONS:

Seat height 420 – 480 mm. 0.5 field 430 – 500 mm wide, 1.0 field 860 – 1 000 mm wide.

ASSEMBLY:

Bracket-mounted to façade. Aligned to the secondary grid system.

MANUFACTURE EXAMPLES:

Foldable bench — without backrest
MaximaVida
1000 × 450 × 220 mm

Foldable bench — withbackrest
MaximaVida
1000 × 650 × 500 mm

Chair system

Biohort/Lutrabox
w. 390 / 450 / 510 / 560 * h. 400 *d. 50 mm

III

Cluster III-Layer 2

Climate agency

The façade as an instrument residents can adjust how they like, opening, ventilating, shading, generating. Not a sealed performance envelope, but a adjustable interface.

Materialises *Comfort* and *Control:* the ability to influence one's own indoor climate through legible, operable façade elements integrated into Layer 1 fields or the secondary subframe.

Components in this cluster:

01 Operable window modules

02 Decentralised ventialation unit-climate

03 BIPV façade panel -energy

04 Solar control -textile screens

05 Solar control-outdoor blinds

06 Solar control-sliding louvers

Operable window modules

Wall-mounted foldable bench or chair that gives a coordinated place to sit at the building edge.
Folds flush when not in use.

Code: CA02

VALUE OUTPUT:	Width (W):	Seat depth (open):	Folded depth:
Resident-operable fresh air	860 – 1 000 mm	400 – 500 mm	80-120 mm

REFERENCE IMAGES:

Type of openings- interior impresssion-Schuco website

MATERIAL OPTIONS:

- Wood / aluminium / PVC / steel frame
- Triple insulated glazing (28 – 52 mm)

Example:

wood aluminium PVC steel

TECHNICAL SPECIFICATIONS:

Three opening typologies — tilt-before-turn, parallel, top-hung.
Add-on window ventilator with sound insulation 29 – 43 dB and U-value 2.26 W / m2 K.

Thermal performance:

Property	AWS 90.SI+	AWS 90.SI+ Green	AWS 60
Uw (window)	0.8 W/m2K (triple)	0.8 W/m2K (triple)	≈ 1.3–1.5 W/m2K (double)
Ug (glazing)	0.6 W/m2K	0.6 W/m2K	1.1 W/m2K
Uf (frame)	1.0 W/m2K	≤ 0.7 W/m2K	1.6–1.7 W/m2K
g-value (typical)	≈ 0.50–0.55	≈ 0.50–0.55	≈ 0.55–0.62

Ventilaltion add-on:

Add-on option 1

DucoTon 80 SR

U 2.26 W / m2K * 29 – 43 dB

Add-on option 2

Schuco VentoAir

125x27x11 mm* 29 – 43 dB

Operability

ASSEMBLY:

Bracket-mounted to façade. Aligned to the secondary grid system.

Opening typopologies:

Tilt before turn opening

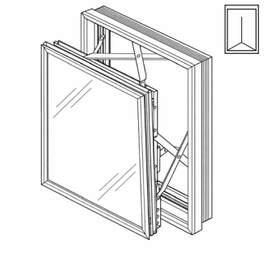
Schüco AWS 60 or 90 SI+ (green)
Schüco SimplySmart OpenSecure fitting

Basic depth: 60/90 mm
Face width: 51/117 mm

Top hung opening

Schüco AWS 60 or 90 SI+ (green)

Basic depth: 60/90 mm
Face width: 51/117 mm



Parallel opening

Schüco AWS 60 or 90 SI+ (green)

Basic depth: 60/90 mm
Face width: 51/117 mm

Decentralised ventilation unit

Decentralised mechanical ventilation with heat recovery for bathroom, kitchen, toilet and bedroom.
Service-ready insert in a prepared Layer 1 field, replaceable without altering the primary structure.

Code: CA02

VALUE OUTPUT:	Capacity:	Efficiency:	Mounting:
Decentralised, room-based comfort	30 – 200 m^3 / h	87 – 92 %	Service ready insert in layer 1 platform

REFERENCE IMAGES:

Brink Air 70- Brochure impression interior

SchucoVentoTherm twist- Brochure impression interior

FUNCTION:

- Decentralised mechanical ventilation for local air supply with integrated heat recovery (MVHR). Independent per dwelling through service-ready insert, accecible for maintenance and replacement without affecting neighbours and tenants

TECHNICAL SPECIFICATIONS:

Single-room or compact room-based MVHR. Yield 87 – 92 %. Capacity range 30 – 200 m3 / h at 100 Pa.
Duct: radius: 125 / 150 / 250 mm.

ASSEMBLY:

Mounted within prepared Layer 1 fields or fixed to the secondary subframe.
Service-ready insert : maintenance, replacement and technical upgrading without altering the primary façade structure.

MANUFACTURE EXAMPLES:

Schüco VentoTherm Twist

Schüco

1050 × 75 × 195 mm
Cap: 30 m3 / h

Brink Air 70

Brink — single-room MVHR

860 – 1400 × 250 – 500 × 150 – 320 mm
Eff:92 %
Cap:70 m3/ h

Trox FSL — parapet

Trox FSLBZAB / SEK

1085 × 630 × 320 mm + MVHR

Itho HRU ECO 200

Itho Daalderop

916 × 597 × 290 mm
Eff:87.3 %
Cap:200 m3 / h

BIPV- facade panel

Coloured (BIPV) building-integrated photovoltaic façade panel for custom façade applications.

Code: CA03

VALUE OUTPUT:	Yield:	Weigth:	Install depth:
Visible renewable energy generation	110 – 214 Wp / m^2	22.5 kg / m^2 · glass 19.5 kg / m^2	70 mm (incl. 9 mm glass)

REFERENCE IMAGES:

Solarix-impression panels

Ittaan,Den Haag-Project Kameleon solar

SUM projet- Kameleon solar-impression panels

SUPPORT SYSTEM:

Mounted on a secondary support structure: horizontal carrier profiles fixed to the rear substructure of Layer 1, with anoptional spacer / insulator layer for façade levelling and thermal-break separation.

PANEL FIXING COMPONENTS:

Rear-mounted vertical omega profiles (86 × 25 × L), adjustable top hooks, fixed bottom hooks and adjustment screws (+/-5mm).

ASSEMBLY:

Each panel is individually hung on the carrier rail and fixed on one side and free on the other to accommodate thermalmovement.

MANUFACTURE EXAMPLES:

BIPV panel

Solarix

Min 440 × 590 mm width
Standard 590 × 1190 / 890 × 1790 / 890 ×890 / 590 × 1790 mm
custom up to 4 200 × 2 300 mm

Design BIPV panel

Kameleon solar

Custum made

Textile screens

External solar-control element that limits overheating while maintaining transparency.
Sized to the opening field; fixed to opening structure or window frame.

Code: CA04

VALUE OUTPUT:	Width:	Heigth:	Box sizes:
Glare & heat control with view intact	up to 5 000 mm	up to 4000mm	85 / 95 / 105 / 125 mm

REFERENCE IMAGES:

Ritzscreen V550- Verano- home shertogenbosch-external application

Renson Fixscreen go- built-in application-brochure example

MATERIAL OPTIONS:

- Textile screen
- Aluminium guides and cassette

TECHNICAL SPECIFICATIONS:

Sized to the width and height of the opening field. Built-in (windclass 3) or external (windclass 4) application.

ASSEMBLY:

Fixed to opening structure or window frame.

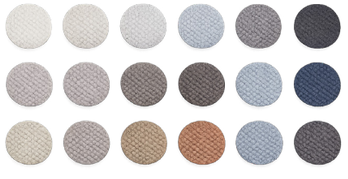
MANUFACTURE EXAMPLES:

Built-in application

RENSON FIXSCREEN GO 100 M4

w. 3 000 * max h. 2 600 mm
Box 85 / 95 mm
Wind class 3

TEXTILE COLOURS:



Exterior application

VERANO ZIPSCREEN V550

w. 1000 – 5000 * h. 1000 – 4000 mm
Box:85 – 125 mm
Windclass 4

FRAME COLOURS:

Outdoor blinds

Adjustable daylight, glare & privacy

Code: CA05

VALUE OUTPUT:	Width:	Max area:	Drive:
Visible renewable energy generation	450 – 5 000 mm	16 – 18 m^2	Manual · motorised · both

REFERENCE IMAGES:

Warema exterior blind brocuhure example

COLOUR OPTIONS:

MATERIAL OPTIONS:

- Aluminium slats
- PVC-coated polyester
- Polypropylene
- Vinyl

PANEL FIXING COMPONENTS:

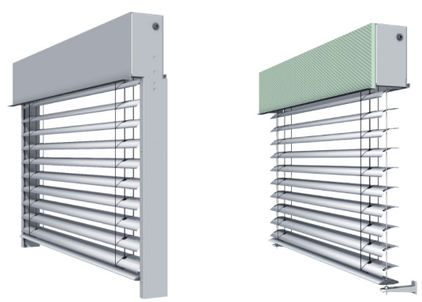
- Slat forms — S , Z , C , flat-C shape.
- Guide rail (self-supporting-A) or cable-guiding (extruded front-mounted-B) systems.

ASSEMBLY & CONTROL:

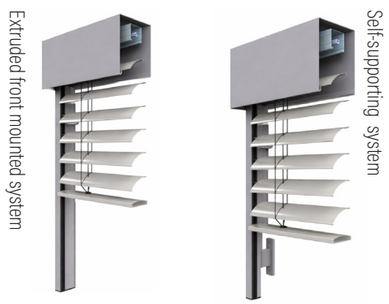
Front-mounted clip-on on flush-mounted guide rails; aligned to the secondary grid system. Drive: electric motor, manualcrank handle or both. Control: wired switch, radio, smart-home.

FORM SLATS:

MANUFACTURE EXAMPLES:



Motorised (cable or guide rail)
WAREMA (ALUMINIUM)
max w. 4 500 *max h. 5 000 mm
A=max A 16 m2



Motorised and manual
HELLA AF 80
w. 450 – 5 000 *max h. 5 200 mm A=max A 18 m2

Manual moveable louvers

Movable louver panels operated by the resident. A visible, tactile gesture of climate control, creating a unique and strong façade rhythm when shifted across the elevation

Code: CA06

VALUE OUTPUT:	Width:	Heigth:	Frame depth:
Tactile and sun control	860 – 1 420 mm	1 400 – 2 500 mm	75 – 175 mm

REFERENCE IMAGES:

Outdoor sun awning-Verano

Timber shutter vertical- veneta-interior impression

Aluminium louvers on social housing complex Paris - Dietmar Feichtinger Architectes- David Boureau

Operability sliding louvers by tenant - Dietmar Feichtinger Architectes- David Boureau

MATERIAL OPTIONS:

- Timber louver panels
- Aluminium louver panels

TECHNICAL SPECIFICATIONS:

Sized to width and height of the opening field. Manual sliding, creating a sense of resident climate control.

ASSEMBLY:

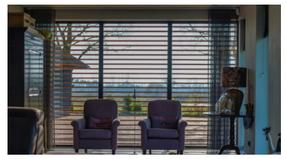
Fixed to support frame with screws via brackets and screws.

MANUFACTURE EXAMPLES:

Aluminium horizontal louvers (cantilever)

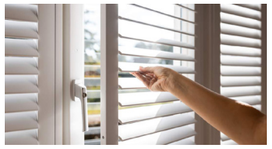
Prolouver

w. 100 – 600 * L. 1 000 – 7 000 *
t. 1 – 3mm



Timber Horizontal& Vertical louvers

Avino
Manual and sliding
w. 100 – 600 L. 500 – 4 000



Louver shutter

VENETA- CORDOVAN NW215
Aluminium-Timber

w. 63 / 76 / 89 / 114 mm* max h. 3657 mm* max A 16 m2

Sun awning

VERANO V225 PORTO
Manual/Electric

max w. 6 000 * dep. up to 3 000 mm
Angle: 50– 70°

IV

Cluster IV-Layer 2

Neighbourhood face

The façade as a face the neighbourhood sees it, including texture, rhythm, recognisability. The shared visual layer that connects the building to its surrounding street and block. Materialises *Recognition* and *Identity*: as a coordinated and adaptable outer skin that gives the renovation a legible, considered presence in the urban area.

Components in this cluster:

01 Cladding options

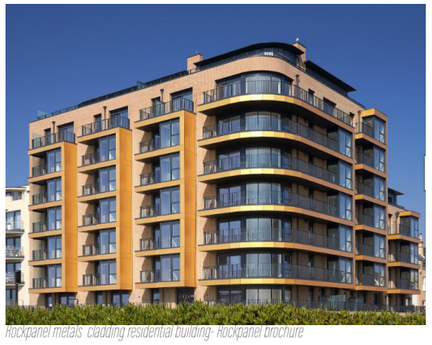
Cladding options

Outer-skin panel that gives the façade texture, rhythm and recognisability.

Code: NF01

VALUE OUTPUT:	Panel:	Thickness:	Weight:
Identity, texture & rhythm	1200 / 1250 × 2500 / 3050 mm	8-9 mm	11.25 kg / m^2

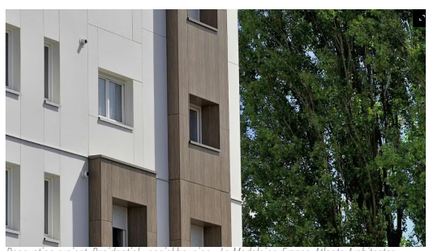
REFERENCE IMAGES:



Rockpanel metals- cladding residential building- Rockpanel brochure

Rockpanel stone facade cladding-archello

Van Lennepstraat Rotterdam-Rockpanel Woods Cherry, Merbau & Mahonie, Colours - dlve architecten



Renovation project :Residential - social housing- La Madeleine, France-Atlante Architectes- Rockpanel Woods cladding

Elements building Haarlem-Rockpanel woods facade cladding- Rockpanel

MATERIAL OPTIONS:

- Rockpanel A2 — stones
- Rockpanel A2 — woods
- Rockpanel A2 — metals
- Rockpanel A2 — colours

TECHNICAL SPECIFICATIONS:

Panel 1200 / 1250 × 2500 – 3050 mm- t. 8 – 9 mm -weigth: 11.25 kg / m2 - lambda=0.55 W / m*K.-
R-value (≈ 0.04 m2K/W)

ASSEMBLY:

Mounting rail system h.o.h. aligned to the secondary grid system

MANUFACTURE EXAMPLES:

Stones

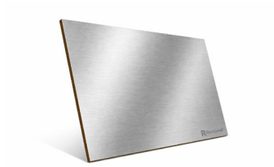
Rockpanel A2

1200 / 1250 × 2500 – 3050mm
Euroclass A2-s1,d0 (non-combustible)

Woods

Rockpanel A2

1200 / 1250 × 2500 – 3050mm
Euroclass A2-s1,d0 (non-combustible)



Metals

Rockpanel A2

1200 / 1250 × 2500 – 3050mm
Euroclass A2-s1,d0 (non-combustible)

Colour

Rockpanel A2

1200 / 1250 × 2500 – 3050mm
Euroclass A2-s1,d0 (non-combustible)