



# Wood Construction

Intelligent Solutions



\* Increasingly, more and more architects, builders and traders are being convinced by the AGEPAN® time-saving building system. The system's energy-efficient and water vapour open products guarantee highest possible functionality. Why still use outmoded PVC jackets or oil skins when state-of-the-art "high performance membranes" are readily available?



# AGEPAN® - service and design

Advantage your customers



Direct plastering of the AGEPAN® THD T+G 230 at the facade.



The time and cost saving alternative!  
AGEPAN® THD STD 190 as a service layer for all the electric cables and sanitary pipes.



Easy handling because of the perfect T+G.



# AGEPAN® – eco and cost efficient

## The time-saving building system

### Nature is our inspiration

Our commitment is to enable people to live and work in an ecologically beneficial atmosphere with natural materials.

Wood based products particularly when used in timber frame housing will have a positive effect on global warming by improved energy efficiency. The AGEPAN® products as part of the AGEPAN® building system can be used as a substitute for traditional timber frame constructions as well as for brick buildings manufactured using high energy processes.

AGEPAN®'s thermal insulation properties reduce energy emissions from housing, thus helping to minimise individual house energy usage and reducing emissions into the atmosphere.

### Technical Advice On-Side

For all issues that can only be dealt by a one-on-one meeting, we also offer problem-orientated consulting, on request on-site. Our wood construction specialists will help you with practical expertise in every aspect of AGEPAN® system solutions: from planning to optimum use. We make a point of always supporting you directly and comprehensively.

### Innovation

Our special sound- and heat insulation as well as being moisture resistant and having fire resistant properties provide customers with a clear ecological advantage. In addition financial savings due to reduced building time will advantage your customers. Participate in our program – we are looking for partners to build a model house (highest eco-standard and energy saving potential) everywhere, which will display the benefits of our AGEPAN® building products:

- AGEPAN® THD
- AGEPAN® DWD protect
- AGEPAN® TEP
- AGEPAN® UDP
- AGEPAN® OSB

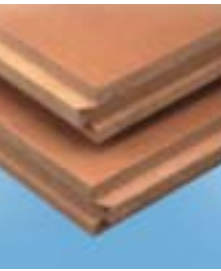
Living and working, feeling at home in harmony with nature – AGEPAN® means building by design.



# AGEPAN® THD T+G 230

## Highlights

- \* Vapour permeable and thermally insulating yet strong
- \* Excellent thermal insulation keeps properties warm in the winter and the heat storage capacity ensures they are cool in the summer
- \* Permits homogeneous insulation by minimising cold bridges (rafters, slabs)
- \* High compression strength
- \* When dry boards in thicknesses 60 mm and 80 mm can be safely walked on up to a mean load of 100 kg with rafters up to 1,0 m apart
- \* Manufactured using environmentally friendly dry process
- \* Easy to cut, work and shape
- \* Sound surface allows a variety of fixings to be used, from clamps to screws
- \* Ideal for improving existing roofs on the exterior (for greater energy efficiency)
- \* As second water-shedding layer in roofs
- \* Draughtproof and water repellent
- \* In conjunction with certification Z-23.15-1508



## Technical Data | Delivery Programme

| Properties   | Test standard       |   |
|--|---------------------|---|
| Nominal thicknesses (mm)                                 | DIN EN 823          | 40 – 60 – 80                            |
| Raw density (kg/m³)                                      | DIN EN 1602         | 230                                     |
| Nominal thermal conductivity (W/(m*K))                   | DIN EN 13171        | 0,047                                   |
| Rated thermal conductivity (W/(m*K))                     | DIN 4108-4          | 0,050                                   |
| Water vapor diffusion resistance factor (μ)              | EN 12086            | 3                                       |
| Heat storage capacity (J/kgK)                            | DIN 4108-4          | 2100                                    |
| Significant properties                                   | DIN EN 13171        | T3-CS(10Y)100-TR5-WS1,0                 |
| Hydrophobation group                                     | DIN EN 1609         | WS 1,0                                  |
| Euro class   | DIN EN 13501-1      | E                                       |
| Material class   | DIN 4102-1          | B2: normal flammability                 |
| Safe to walk on*<br>(dry, u ≤ 18 %, w/o floating joints) |                     | up to a = 1,0 m, 100 kg mean load       |
| Bonding  |                     | Bonded w/o formaldehyde with PUR resins |
| Applications (examples)                                  | DIN 4108- 10 Tab.11 | DAD/WAB/WAP                             |

\* Only boards 60 and 80 mm thick can be safely walked on.



| Available sizes                          | Unit  | Thickness (mm)   |       |       |
|--|-------|------------------|-------|-------|
|  |       | 40               | 60    | 80    |
| Size (full size)                         | mm    | 1890 x 640 (T+G) |       |       |
| Format<br>(net, w/o tongues and grooves) | mm    | 1875 x 625 (T+G) |       |       |
| Coverage per board                       | m²    | 1,17             |       |       |
| Coverage per pack                        | m²    | 18,75            | 12,89 | 9,38  |
| Approx. weight per m²                    | kg/m² | 9,2              | 13,8  | 18,4  |
| Approx. weight per board                 | kg    | 10,8             | 16,2  | 21,6  |
| Approx. weight per pack                  | kg    | 173,5            | 178,9 | 173,5 |
| Boards per pack                          |       | 16               | 11    | 8     |

# AGEPAN® THD STD 190

## Highlights

- \* Efficient service layer to save time and money
- \* Vapour permeable and thermally insulating yet strong
- \* Excellent thermal insulation keeps properties warm in the winter and the heat storage capacity ensures they are cool in the summer
- \* High compression strength due to dense surface layer
- \* Easy to cut, work and shape
- \* Manufactured using environmentally friendly dry process
- \* Effective noise reduction due to absorbent fibre structure
- \* Water repellent
- \* In conjunction with certification Z-23.15-1508



## Technical Data | Delivery Programme

| Properties                                  | Test standard       |   |
|---|---------------------|---|
| Nominal thicknesses (mm)                    | DIN EN 823          | 40 – 60 – 80                            |
| Raw density (kg/m³)                         | DIN EN 1602         | 190                                     |
| Nominal thermal conductivity (W/(m*K))      | DIN EN 13171        | 0,044                                   |
| Rated thermal conductivity (W/(m*K))        | DIN 4108-4          | 0,047                                   |
| Water vapor diffusion resistance factor (μ) | EN 12086            | 3                                       |
| Heat storage capacity (J/kgK)               | DIN 4108-4          | 2100                                    |
| Significant properties                      | DIN EN 13171        | T3-CS(10Y)100-TR2,5-WS1,0               |
| Hydrophobation group                        | DIN EN 1609         | WS 1,0                                  |
| Euro class                                  | DIN EN 13501-1      | E                                       |
| Material class                              | DIN 4102-1          | B2: normal flammability                 |
| Bonding                                     |                     | Bonded w/o formaldehyde with PUR resins |
| Applications (examples)                     | DIN 4108-10 Tab. 11 | DEO/WAB/WH                              |

| Available sizes          | Unit  | Thickness (mm) |       |       |
|--------------------------|-------|----------------|-------|-------|
|                          |       | 40             | 60    | 80    |
| Size                     | mm    | 2650 x 600     |       |       |
| Coverage per board       | m²    | 1,59           |       |       |
| Coverage per pack        | m²    | 50,8           | 34,9  | 25,4  |
| Approx. weight per m²    | kg/m² | 7,6            | 11,4  | 15,2  |
| Approx. weight per board | kg    | 12,1           | 18,1  | 24,2  |
| Approx. weight per pack  | kg    | 464,0          | 476,1 | 464,0 |
| Boards per pack          |       | 32             | 22    | 16    |



# AGEPAN® DWD pro»tect

## Highlights

- \* Optimized, easy-to-use tongue-and-groove edges
- \* As second water-shedding layer in roofs
- \* Safe for walking on when dry up to a mean load of 100 kg (without floating joints) if rafters are spaced 1,0 m or less apart
- \* Approved by the German building authorities (Approval Z-9.1-382)
- \* Highly favourable building biology
- \* Water-vapour-permeable and wind-sealing



## Technical Data | Delivery Programme

| Properties   | Test standard |  |
|--|---------------|--|
| Nominal thicknesses (mm)                           |               | 16 mm  |
| Raw density (kg/m <sup>3</sup> )                   | DIN EN 323    | 540–590  |
| Calculated conductivity coefficient $\lambda_R$    | DIN 4108 T 2  | 0,09 W/mK  |
| Steam diffusion resistance factor $\mu$            | DIN 52 615    | ≈ 11   |
| Diffusion-equivalent air layer thickness $s_d$ (m) |               | 0,18   |
| Material class                                     | DIN 4102 T 1  | B2: normal flammability  |
| Safe for walking on                                |               | When dry up to a mean load of 100 kg (without floating joints) if rafters are spaced 1 m or less apart |
| Recommended spacing of supports (mm)               |               | 500, 625, 833, 1000  |
| Bonding  |               | Formaldehyde-free with PUR resins  |
| Moisture content                                   | EN 322        | 9 ± 4 %  |
| 24-hour swell after soaking in water               | EN 317        | ≤ 8,5 %  |
| Thickness tolerance (mm)                           |               | ± 0,8  |
| Length/width tolerance (mm)                        |               | ± 3  |
| Squareness   |               | 2 mm on 1000 mm length   |
| Linear deformation (length/width)                  |               | 0,30 % with a change in humidity   |



Heidrich, Warnemünde

The AGEPAN® DWD protect used as a structural board in the roof.



The AGEPAN® DWD protect used as a structural board in the wall.



**Permissible Stresses According to Approval Z-9.1-382**

Use of AGEPAN® DWD protect within the scope of

Wood-based product class 20

Wood-based product class 100

16 (mm)

16 (mm)

Curvature ( $\sigma_{Bxz}$  parallel to the sheet)

2,50

1,25

Tensile force ( $\sigma_{Zx}$  parallel to the sheet)

1,70

0,85

Compression ( $\sigma_{Dx}$  parallel to the sheet)

2,10

1,05

Shear ( $\tau_{xy}$  at right angles to the sheet)

1,00

0,50

**Permissible Modulus of Elasticity and Shear According to Approval Z-9.1-382**

Use of AGEPAN® DWD protect within the scope of

Wood-based product class 20

Wood-based product class 100

16 (mm)

16 (mm)

Curvature ( $\sigma_{Bxz}$  parallel to the sheet)

1700

850

Tensile force ( $\sigma_{Zx}$  parallel to the sheet)

1700

850

Compression ( $\sigma_{Dx}$  parallel to the sheet)

1700

850

Shear ( $\tau_{xy}$  at right angles to the sheet)

800

400

**Available sizes**

Format (mm)

Thickness (mm)  
16

AGEPAN® DWD protect, tongue-and-groove on 4 sides

2500 x 1000

•

AGEPAN® DWD protect, tongue-and-groove on 4 sides

2500 x 625

•

AGEPAN® DWD protect, straight-edged

2500 x 1247

•



# AGEPAN® UDP

## Highlights

- \* As second water-shedding layer in roofs
- \* Easy to use and handle
- \* Low risk of damaging tongue and groove profiles during use
- \* Highly favourable building biology
- \* No unpleasant odours caused by bitumen
- \* Easy to install thanks to tongue and groove edges and low weight
- \* Stackable without problem
- \* Noise reducing
- \* Robust
- \* Draughtproof
- \* In conjunction with certification Z-23.15-1508



## Technical Data | Delivery Programme

| Properties  | Test standard                           |                         |
|---|---|-------------------------|
| Nominal Thickness (mm)                                  | EN 823                                  | 22 – 25 – 32            |
| Thickness tolerance (mm)                                | EN 823                                  | +1/-1                   |
| Raw density (kg/m <sup>3</sup> )                        | EN 1602                                 | 270                     |
| Raw density tolerance (kg/m <sup>3</sup> )              | EN 1602                                 | ± 30                    |
| Nominal thermal conductivity (W/(m*K))                  | EN 13171                                | 0,051                   |
| Water vapor diffusion resistance factor (μ)             | EN 12086                                | 5                       |
| Heat storage capacity (J/kgK)                           | DIN 4108-4                              | 2100                    |
| Hydrophobation group                                    | EN 1609                                 | WS 1,0                  |
| Euroclass   | EN 13501-1                              | E                       |
| Material class  | DIN 4102-4                              | B2: normal flammability |
| Bonding   | Bonded w/o formaldehyde with PUR resins |                         |
| Length and width tolerance (mm/m)                       | EN 822                                  | ± 2                     |
| Squareness (mm/m)                                       | EN 824                                  | ± 2                     |
| Tear and tensile strength perpendicular to boards (kPa) | EN 1607                                 | 20                      |
| Compression strength group                              | EN 826                                  | P 300                   |

| Available sizes                       | Unit              | Thickness (mm)   |       |       |
|---------------------------------------|-------------------|------------------|-------|-------|
|                                       |                   | 22               | 25    | 32    |
| Size (full size)                      | mm                | 2520 x 610 (T+G) |       |       |
| Format (net, w/o tongues and grooves) | mm                | 2500 x 590 (T+G) |       |       |
| Net coverage per board                | m <sup>2</sup>    | 1,725            |       |       |
| Net coverage per pack                 | m <sup>2</sup>    | 41,3             | 36,87 | 29,5  |
| Approx. weight per m <sup>2</sup>     | kg/m <sup>2</sup> | 5,94             | 6,75  | 8,64  |
| Approx. weight per board              | kg                | 8,95             | 10,16 | 13,01 |
| Approx. weight per pack               | kg                | 250,6            | 254,0 | 260,2 |
| Boards per pack                       |                   | 28               | 25    | 20    |





# AGEPAN® TEP

## Highlights

- \* Saves materials and time: no additional load bearing boards required
- \* Thermally insulating and sound reducing
- \* Compression resistant and vapour permeable
- \* Can be walked on immediately after laying
- \* Floating parquet and laminate can be laid directly over the boards
- \* Easy to cut and shape (e.g. for recesses)
- \* Easy to compensate for slight unevenness
- \* In conjunction with certification Z-23.15-1508



## Technical Data | Delivery Programme

| Properties                                  | Test standard       |   |
|---|---------------------|---|
| Nominal Thickness (mm)                      | DIN EN 823          | 40 – 60 – 80                            |
| Raw density (kg/m <sup>3</sup> )            | DIN EN 1602         | 190                                     |
| Nominal thermal conductivity (W/(m*K))      | DIN EN 13171        | 0,044                                   |
| Rated thermal conductivity (W/(m*K))        | DIN 4108-4          | 0,047                                   |
| Water vapor diffusion resistance factor (μ) | EN 12086            | 3                                       |
| Hydrophobation group                        | DIN EN 1609         | WS 1,0                                  |
| Heat storage capacity (J/kgK)               |                     | 2100                                    |
| Euroclass                                   | EN 13501-1          | E                                       |
| Material class                              | DIN 4102-1          | B2: normal flammability                 |
| Bonding                                     |                     | Bonded w/o formaldehyde with PUR resins |
| Stress at 10 % compression (kPa)            |                     | 150                                     |
| Heat resistance (short-term) (°C)           |                     | max. 250                                |
| Applications (examples)                     | DIN 4108-10 Tab. 11 | DEO                                     |

| Available sizes                   | Unit              | Thickness (mm) |       |       |
|-----------------------------------|-------------------|----------------|-------|-------|
|                                   |                   | 40             | 60    | 80    |
| Size                              | mm                | 1320 x 600     |       |       |
| Coverage per board                | m <sup>2</sup>    | 0,792          |       |       |
| Coverage per pack                 | m <sup>2</sup>    | 25,3           | 17,4  | 12,7  |
| Approx. weight per m <sup>2</sup> | kg/m <sup>2</sup> | 7,6            | 11,4  | 15,2  |
| Approx. weight per board          | kg                | 6,0            | 9,0   | 12,0  |
| Approx. weight per pack           | kg                | 192,6          | 198,6 | 192,6 |
| Boards per pack                   |                   | 32             | 22    | 16    |



# AGEPAN® OSB/3

## Highlights

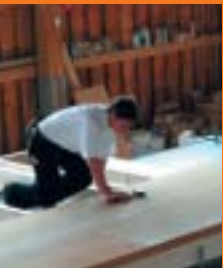
- \* High bending strength, extremely stable and moisture-resistant
- \* Officially approved
- \* Quality continually monitored
- \* Lightweight and easy to use
- \* Made with about 95 % wood, unobjectionable from the standpoint of building biology
- \* Attractive with natural wood look
- \* First-class mechanical properties and easy to use
- \* Can be nailed, stapled, sawn and screwed just like solid wood
- \* Nails and screws hold firmly, also near edges
- \* Scrap can be burned for heat (in compliance with Pollution Control Act) or disposed of without problem



## Technical Data

| Properties  | Test standard   |  |         |         |         |
|---|---|--|---------|---------|---------|
| Formaldehyde content                              | DIN EN 120  | in conformity with E1                              |         |         |         |
| Material class                                    | DIN 4102-1  | B2 - normal flammability                           |         |         |         |
| Raw density (kg/m <sup>3</sup> )                  | DIN 52 361  | 600  |         |         |         |
| Moisture content                                  | EN 322  | 9 ± 4 %  |         |         |         |
| Swelling in thickness (mean value)                | DIN 52 364  | ≤ 10,0 %   |         |         |         |
| Thickness tolerance                               | DIN EN 300  | ± 0,8 mm unsanded surface; ± 0,3 mm sanded surface |         |         |         |
| Tolerance of length and width                     | EN 300  | ± 3 mm   |         |         |         |
| Squareness  | EN 300  | 2 mm for each 1000 mm in length                    |         |         |         |
| Rated thermal conductivity (W/(m <sup>2</sup> K)) | DIN 4108-2  | 0,13 W / mK  |         |         |         |
| Dimensional change length/width                   | 0,30 % change of relative humidity from 30 to 85 % at 20° C |  |         |         |         |
| Vapour diffusion resistance factor                | DIN 52615   | 12 mm  | 15 mm   | 18 mm   | 22 mm   |
| $\mu$ -factor                                     |   | 200/250  |         |         |         |
| $s_d$ -value (m)                                  |   | 2,4/3,0  | 3,0/3,8 | 3,6/4,5 | 4,4/5,5 |

| Permissible stresses (MN/m <sup>2</sup> )<br>according to approval Z-9.1-424 | Main axes II        |                | Minor axes $\perp$ |                |
|--|---------------------|----------------|--------------------|----------------|
|  | 12 bis < 18 mm      | 18 bis ≤ 25 mm | 12 bis < 18 mm     | 18 bis ≤ 25 mm |
| Curvature ( $\sigma_{Bxy}$ at right angles to the sheet)                     | 4,6                 | 4,4            | 2,4                | 2,2            |
| Curvature ( $\sigma_{Bxy}$ parallel to the sheet)                            | 3,2                 | 3,2            | 1,8                | 1,8            |
| Tensile force ( $\sigma_{zx}$ parallel to the sheet)                         | $\alpha = 0^\circ$  | 1,6            | 2,2                | 1,1            |
|  | $\alpha = 30^\circ$ | 1,2            | 1,5                | 1,1            |
|  | $\alpha = 45^\circ$ | 1,0            | 1,3                | 1,1            |
|  | $\alpha = 60^\circ$ | 0,8            | 1,2                | 1,1            |
| Compression ( $\sigma_{Bxy}$ parallel to the sheet)                          | 2,2                 | 2,9            | 2,2                | 2,3            |
| Shear ( $\tau_{zx}$ parallel to the sheet)                                   | 0,3                 | 0,2            | 0,3                | 0,2            |
| Shear ( $\tau_{zx}$ at right angles to the sheet)                            | 1,1                 | 1,1            | 1,1                | 1,1            |
| Bearing resistance ( $\sigma$ )  | 3,8                 | 4,8            | 3,8                | 4,8            |



| Permissible Modules of Elasticity and Shear (MN/m <sup>2</sup> ) according to approval Z-9.1-424 | Main axes II   |                | Minor axes ⊥   |                |      |
|--|----------------|----------------|----------------|----------------|------|
|  | 12 bis < 18 mm | 18 bis ≤ 25 mm | 12 bis < 18 mm | 18 bis ≤ 25 mm |      |
| Static moduls of elasticity (E <sub>Bxy</sub> at right angles to the sheet)                      | 4400           | 4400           | 1700           | 1700           |      |
| Static moduls of elasticity (E <sub>Bxy</sub> parallel to the sheet)                             | 3300           | 3300           | 1700           | 1700           |      |
| Static moduls of tensile (E <sub>Bxy</sub> parallel to the sheet)                                | α = 0°         | 3500           | 3300           | 1800           | 1800 |
|  | α = 30°        | 2400           | 2500           | 1800           | 1800 |
|  | α = 45°        | 2100           | 2300           | 1800           | 1800 |
|  | α = 60°        | 2000           | 2300           | 1800           | 1800 |
| Static moduls of pression (E <sub>Dx</sub> parallel to the sheet)                                | 2500           | 2500           | 2000           | 2000           |      |
| Static moduls of shear (G <sub>Zx</sub> parallel to the sheet)                                   | 70             | 110            | 70             | 160            |      |
| Static moduls of shear (G <sub>xy</sub> at right angles to the sheet)                            | 700            | 600            | 700            | 600            |      |

## Delivery Programme

| Type  | Format      | Certification         | Thickness (in mm) |   |   |    |    |    |    |    |    |    |    |   |   |   |
|---|-------------|-----------------------|-------------------|---|---|----|----|----|----|----|----|----|----|---|---|---|
|   |             |                       | 6                 | 8 | 9 | 10 | 11 | 12 | 15 | 18 | 20 | 22 | 25 |   |   |   |
| Standard board –<br>contiface                       | 2500 x 1250 | according to approval |                   |   |   |    |    |    |    | •  | •  | •  |    |   | • |   |
|   | 2440 x 1220 | EN 300                |                   |   |   |    |    |    |    |    |    |    |    |   |   |   |
|   | 2500 x 1250 | EN 300                | •                 | • | • | •  |    |    | •  | •  | •  | •  | •  |   |   |   |
|   | 2650 x 1250 | according to approval |                   |   |   |    |    |    |    | ○  | •  | ○  |    |   |   |   |
|   | 2800 x 1250 | according to approval |                   |   |   |    |    |    |    | ○  | •  | ○  |    |   |   |   |
|   | 5000 x 2500 | according to approval |                   |   |   |    |    |    |    |    |    | •  | •  |   | • | • |
|   | 5000 x 1250 | according to approval |                   |   |   |    |    |    |    |    |    | •  | •  |   | • |   |
| Laying board –<br>T+G on 4 sides,<br>contiface      | 2500 x 1250 | according to approval |                   |   |   |    |    |    |    |    |    | •  | •  |   | • | • |
|   | 2500 x 625  | EN 300                |                   |   |   |    |    |    |    |    |    | •  | •  |   | • | • |
|   | 2500 x 625  | according to approval |                   |   |   |    |    |    |    |    |    | •  | •  |   | • |   |
| Laying board –<br>T+G on 4 sides,<br>sanded surface | 2500 x 625  | according to approval |                   |   |   |    |    |    |    |    | •  | •  | •  |   | • | • |
|   | 2500 x 625  | EN 300                |                   |   |   |    |    |    |    |    |    | •  | •  |   | • | • |
| Roofing board –<br>T+G on 4 sides,<br>contiface     | 2440 x 1220 | EN 300                |                   |   |   |    |    |    |    |    |    |    |    | ○ |   |   |

• Stockes article      ○ On request





## AGEPAN® Applications

### AGEPAN® THD T+G 230

|               |  |
|---------------|--|
| Applications: | Wall and roof constructions  |
| Properties:   | Vapour permeable, water shedding, wind sealing, thermally insulating, sound reducing |
| Functions:    | As second water shedding layer, as substrate for plaster                             |

### AGEPAN® THD STD 190

|               |   |
|---------------|---|
| Applications: | Wall and roof constructions                     |
| Properties:   | Vapour permeable, internal thermally insulating |
| Functions:    | Insulation, service layer                       |

### AGEPAN® UDP

|               |  |
|---------------|--|
| Applications: | Wall and roof constructions  |
| Properties:   | Vapour permeable, water shedding, wind sealing, thermally insulating |
| Functions:    | As second water shedding layer                                       |

### AGEPAN® DWD protect

|               |   |
|---------------|---|
| Applications: | Wall and roof constructions   |
| Properties:   | Vapour permeable, water shedding, wind sealing, outer panelling as additional load bearing element, structural board for external use |
| Functions:    | As second water shedding layer  |

### AGEPAN® TEP

|               |  |
|---------------|--|
| Applications: | Floor constructions                                    |
| Properties:   | Vapour permeable, thermally insulating, sound reducing |
| Functions:    | Universal board for floors                             |

### AGEPAN® OSB

|               |  |
|---------------|--|
| Applications: | Wall, roof and floor constructions                                     |
| Properties:   | Extremely stiff board, shape retentive, moisture resistant             |
| Functions:    | As a load bearing panel material, vapour barrier and air sealing layer |

### Your AGEPAN® Partner