ALUFORM Goes Green: Invest and Build with a Sense of Responsibility for the Future

Sustainability, credibility and honesty at companies affect people and the natural world, more than ever now. So protecting the environment is part of our corporate philosophy. We can only maintain a world where life is worth living for the generations of tomorrow if we act responsibly now. ALUFORM is committed to this long-term perspective.

Green thinking and a pro-active approach – ALUFORM invests in the future

1. ALUFORM manufactures its products by paying the greatest possible attention to the environment and is constantly working on improving its manufacturing technologies.
2. The facade covering for a new production facility at the Bernsdorf business site consists of aluminium sandwich elements and meets all the requirements laid down in the German Energy Conservation Regulations for Buildings 2009.
3. The use of standing seam profiles with unformed silicon thin-layer laminates on a roof measuring 3,200 m² means that solar energy is used efficiently.
4. The installed AluSolar solar panel roof system feeds energy into the grid and saves the company 100,000 kWh per annum.
5. Approx. 85 % of the heat required by the factory is produced by a newly constructed biogas combined heat and power plant. This enables ALUFORM to reduce its CO₂ emissions by 500 tonnes per annum.
6. ALUFORM products are environmentally-friendly and are 100% recyclable at the end of their useful life.
7. Approx. 95 % of energy is saved by recycling aluminium.
8. ALUFORM products and their long serviceable life support sustainable building for industry, offices and residential property.
9. ALUFORM products, like roof-integrated solar power solutions, are an ingenious combination for building in an environmentally-friendly way and saving resources.
10. As a responsible partner for architects, planners and installation companies, ALUFORM represents forward-looking building.

„Building for the future“ – creatively and sustainably with ALUFORM products

Sustainable thinking in architecture and the building industry is a milestone towards acting in a responsible manner. ALUFORM products provide architects and planners with creative space for modern architecture design and environmentally-friendly energy solutions.
ALUTHERM sandwich elements for roofs and walls have first-class insulation properties, are very energy-efficient and meet the stipulations of the German Energy Conservation Regulations for Buildings 2009. By using these products, it is possible to make an effective and sustainable contribution to protecting our climate.

Aluform sandwich elements are not only suitable for ecologically sound new buildings, but also for redeveloping existing constructions.

Architects and building planners are going to have to assume a much greater responsibility for all future building and redevelopment projects than in the past.

ALUFORM guarantees that the German Energy Conservation Regulations for Buildings 2009 are followed with its sandwich elements and ensures that the best possible levels of sustainability can be achieved for building projects if its products are used.

The value of buildings can be maintained in the long term as a result of the high fire-proof levels and the environment is protected through these products, which provide heat insulation and have a long serviceable life.

Benefits
If you use the aluminium shaped panels, this means:
- low weight
- resistance to the elements and corrosion
- a high degree of heat reflection potential
- no maintenance and an unrestricted serviceable life – i.e. cost-effectiveness

ALUTHERM sandwich elements can be fitted on complete roofs or facade walls and provide heat insulation in one working cycle because of the high degree of prefabrication that is used – and this can normally take place whatever the weather conditions. Once they have been fitted, Alutherm roofs and walls require hardly any maintenance.
Cost-effectiveness
Ecological and economic issues are becoming increasingly important in the building sector. You can make a contribution towards cost-effective planning and design work by using ALUTHERM Aluform sandwich elements. This product combines the outstanding anti-corrosion properties and the low weight of aluminium, the high load-bearing capacity of the trapeze profile and the excellent heat insulation properties of the polyurethane rigid foam in an ideal way.

Surfaces
Aluminium shaped panels can be supplied with a mill finish smooth, mill finish stucco embossed design or paint-coated surface and the sandwich elements with various standard colours. Colour systems or colours that deviate from normal standards can also be supplied if the order exceeds 500 m². The standard colour system can be accessed at www.aluform.de.

The ALUTHERM sandwich elements with polyurethane rigid foam have been generally tested and authorised by the German Institute for Building Technology in Berlin with certificate no. Z-10.49-514 for building supervision and building legislation purposes.

Service
Experienced engineers in application engineering advise building owners, planners and installation companies with regard to:
- the special features of building with aluminium and sandwich designs
- professional design solutions for details
- issues of corrosion, fire and lightning protection
- construction physics
- transport
- storage
- installation
**Thermal insulation**
The continual production of the elements provides an even thermal insulation layer, which guarantees the best possible heat protection in conjunction with the diffusion-resistant covering layers made of aluminium.

Tests carried out by the Research Institute for Thermal Insulation in Munich have confirmed the strength of the heat conduction according to DIN EN 13165 $\lambda_R = 0,025 \text{ W/mK}$.

**Low Dead weight**
The use of aluminium panels as the outer and inner covering means that the dead weight is comparatively low. Considerable savings can be made in installing the elements, because they are so easy to handle.

**Weather-resistant and corrosion-proof**
ALUTHERM means coverings made of aluminium - i.e. a serviceable life that lasts decades, even if the atmosphere contains aggressive industrial chemicals. The oxide layer that forms immediately on the aluminium provides permanent protection against corrosion, even on the trimmed edges and attachment holes needed for installing the elements at the site, or at any possible damage points. The risk of any corrosion creep at the trimmed edges of the coatings is eliminated.

**Fire protection**
The elements have been classified at building material class B1 according to DIN 4102-1 or B-s3-d0 according to DIN EN 13501-1 in terms of fire protection. The roof elements resist flying sparks and radiated heat according to DIN 4102-7 (hard roofs) or resist any exposure to fire from outside ($B_{\text{ROOF}}$ according to DIN EN 13501-5). The elements do not have any intrinsic fire resistance.

**Quality**
ALUTHERM is a quality product from Aluform System GmbH & Co. KG. The quality of the elements is constantly being monitored. Independent institutes confirm that the required quality levels are met at regular intervals.

**Transport and unloading**
Suitable equipment (belts, cross beams) need to be made available in good time to unload the parts without any problems. Please comply with the following instructions:
- The elements may not project freely more than 2 m.
- The distance between the belts may not be more than 4 m.
- Chains must not be used, only belts.
- The belts must be tight/forced apart to prevent any damage to the edges of the ALUTHERM elements.
- A cross beam must be used if an element is at least 8 m long.

Any damage to the packaging or the ALUTHERM elements must be recorded on the delivery note and be confirmed by the freight carrier.

**Storage at the building site**
The packaged ALUTHERM elements can be laid down and stored on an even and dry base in the state that they are delivered without the need for any other protective measures. They have to be secured against wind or storm damage. A covered storage area should be used if the elements are being stored for a fairly long time. The elements removed from their original packaging must not be stored directly on the ground and must be installed as soon as possible.

**General information**
The specifications listed in the enclosed brochure match the latest standards of technology and our production capabilities at the time of printing. We reserve the right to make changes of a technical nature.
## Summary of Aluform ALUTHERM®
### Roof Element Products · Thickness 900 mm

| Exterior metal thickness of all roof elements (mm) | 0.7 |
| Interior metal thickness of all roof elements (mm) | 0.5 |

### Aluform ALUTHERM roof element AL-DT 900/40/85
- **Dead weight (kg/m²):** 6.49
- **Dead weight (kg/m):** 5.84
- **Heat transmission coefficient U (W/m²K):** 0.538

### Aluform ALUTHERM roof element AL-DT 900/55/100
- **Dead weight (kg/m²):** 7.06
- **Dead weight (kg/m):** 6.35
- **Heat transmission coefficient U (W/m²K):** 0.411

### Aluform ALUTHERM roof element AL-DT 900/80/125
- **Dead weight (kg/m²):** 8.10
- **Dead weight (kg/m):** 7.29
- **Heat transmission coefficient U (W/m²K):** 0.295

### Connecting elements for roofs
- Screws for substructures: Steel: JZ 3 6.3 x L – E 16
- Wood: JA 3 6.5 x L – E 16
- + saddle washer
The substructure should have a minimum support width of:
- if steel \( b \geq 40 \text{ mm} \),
- if wood \( b \geq 65 \text{ mm} \),

a minimum thickness of:
- if ST 37 Steel \( t \geq 1.5 \text{ mm} \),
- if aluminium \( t \geq 2.5 \text{ mm} \),
- if wood (class II quality) \( t \geq 60 \text{ mm} \).

### Summary of Aluform ALUTHERM® Roof Sandwich Element Products · Thickness 1000 mm

<table>
<thead>
<tr>
<th>Aluform ALUTHERM roof element AL-DT 1000/43/85</th>
<th>Dead weight (kg/m(^2)) = (kg/m)</th>
<th>Heat transmission coefficient U (W/m(^2)K)</th>
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<th>Dead weight (kg/m(^2)) = (kg/m)</th>
<th>Heat transmission coefficient U (W/m(^2)K)</th>
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<th>Aluform ALUTHERM roof element AL-DT 1000/83/125</th>
<th>Dead weight (kg/m(^2)) = (kg/m)</th>
<th>Heat transmission coefficient U (W/m(^2)K)</th>
</tr>
</thead>
<tbody>
<tr>
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<td>7.66</td>
<td>0.301</td>
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</table>
Basic roof diagram
Gable roof or butterfly roof

Example for a connecting diagram valid in Germany:

**Connecting diagram for Alutherm DT 900**
- German Wind zone
- 1 + 2 inland, building height up to 18 m
- 3rd purlin on each 2nd top section, but on each element joint
- 2nd purlin on each top section, even if this is in the area marked H
- Eaves purlin on each top section

**Connecting diagram for Alutherm DT 1000**
- German Wind zone
- 1 + 2 inland, building height up to 10 m
- 3rd purlin 3/m, but on each element joint
- 2nd purlin on each top section, even if this is in the area marked H
- Eaves purlin on each top section

The connecting diagrams shown here are only recommendations. Precise static checks should be made in each case to determine pressing and lifting forces. The tables for widths between supports required for this can be downloaded from the Internet from www.aluform.de or found in the “Alutherm - Aluform; Planning, Using” document.
Summary of Aluform ALUTHERM®
WS Wall Sandwich Element Products

Aluform ALUTHERM wall element AL-WS 50

- Exterior metal thickness of all roof elements (mm): 0.65
- Interior metal thickness of all roof elements (mm): 0.65
- Dead weight (kg/m²) = (kg/m): 6.06
- Heat transmission coefficient U (W/m²K): 0.480

Aluform ALUTHERM wall element AL-WS 60

- Exterior metal thickness of all roof elements (mm): 0.65
- Interior metal thickness of all roof elements (mm): 0.65
- Dead weight (kg/m²) = (kg/m): 6.45
- Heat transmission coefficient U (W/m²K): 0.405

Aluform ALUTHERM wall element AL-WS 80

- Exterior metal thickness of all roof elements (mm): 0.65
- Interior metal thickness of all roof elements (mm): 0.65
- Dead weight (kg/m²) = (kg/m): 7.24
- Heat transmission coefficient U (W/m²K): 0.309

Aluform ALUTHERM wall element AL-WS 100

- Exterior metal thickness of all roof elements (mm): 0.65
- Interior metal thickness of all roof elements (mm): 0.65
- Dead weight (kg/m²) = (kg/m): 8.08
- Heat transmission coefficient U (W/m²K): 0.248

Wall element
screws
JZ 3 6,3 x L - E 19
for steel design
JA 3 6,5 x L - E 19
for wood design
Summary of Aluform ALUTHERM®
WV Wall Sandwich Element Products

Aluform ALUTHERM wall element AL-WV 50

| Dead weight (kg/m²) = (kg/m) | 6.19 |
| Heat transmission coefficient U (W/m²K) | 0.566 |

Aluform ALUTHERM wall element AL-WV 80

| Dead weight (kg/m²) = (kg/m) | 7.37 |
| Heat transmission coefficient U (W/m²K) | 0.323 |

Lengths up to 8 m (lengths greater than 8 m available on request)

Attachment material and profiled sheeting can be supplied, if required. The selection can be found in the catalogue.

Precise static calculation have to be made for the elements in each case to determine pressing and lifting forces. The corresponding span tables can be downloaded from the Internet from www.aluform.de or found in the "Alutherm - Aluform; Planning, Using" document.

Wall element
screws
in conjunction with a special pressure plate
JZ 3 6,3 x L
for steel designs
JA 3 6,5 x L
for wood designs
Sandwich Elements ALUTHERM®
Fitting the Ridge

Ridge

- Sealing strip
- Profiled sealing strip P
- Compressible insulation
- Toothing
- Bent up
- Sealing tape
- Compressible insulation
- Toothing
- Sealing strip
- max. 280
Sandwich Elements ALUTHERM®
Fitting the Eave

Eave
Sandwich Elements ALUTHERM®
Example of a Verge and Wall Connection

Verge construction

Wall connection
Corners

Connection to the wall substructure

Connection to the roof substructure

Connection to the wall substructure

Please take note of the approval document for ALUTHERM connecting elements Z 14.1 - 4 and certificate Z 10.49 - 514!
Sandwich Elements ALUTHERM®
Examples for Base

Base

Sealing strip

Have the angle adapter available on site

Sealing strip