

# KOMO®

## Product certificate with attestation

### K101942-2



Issued 2025-07-15 Replaces K101942/01  
Valid until Indefinite Dated 2020-05-15  
Page 1 of 14

Plakfort and Colorplus fibre-cement corrugated sheets

## EDILFIBRO S.p.a.

### STATEMENT BY KIWA

This product certificate with attestation is based on Guideline 1103 "profiled fibre cement panels for roofing and façade cladding" dated January 1<sup>st</sup> 2024, issued according to the Kiwa-Regulation for Certification.

The quality system and the product characteristics are checked periodically. The performance of Plakfort and Colorplus corrugated sheets in roofs and façades as roofing and façade cladding is assessed is checked in relation to the Structures (Living Environment) Decree and the principles of the check are re-checked periodically. Based on this, **Kiwa declares that** there is legitimate confidence that:

- Upon delivery, the products meet the requirements:
  - Of the technical specifications laid down in this product certificate with attestation;
  - The product requirements laid down in the Guideling, provided the product/packaging are accompanied by the KOMO® quality mark in a manner set out in this product certificate with attestation.
- The roofs and façades composed with Plakfort and Colorplus corrugated sheets, perform as specified in this product certificate with attestation.
- With due observance of the above Plakfort and Colorplus corrugated sheets in roofs and façades and/or as roofing and façade cladding comply with the requirements of the Structures (Living Environment) Decree specified in this product certificate with attestation, provided:
  - The technical specification and the conditions of application laid down in this product certificate with attestation are fulfilled;
  - The manufacture of the roofs and façades takes place in accordance with the regulations and/or processing methods laid down in this product certificate with attestation.

The essential characteristics, as laid down in the applicable harmonised European product standard, and the corresponding checks on the quality system of these characteristics do not form part of this declaration.

Ron Scheepers  
Kiwa

*This product certificate with attestation is also included on the KOMO foundation websites: [www.komo.nl](http://www.komo.nl) and [www.komo-online.nl](http://www.komo-online.nl).*

*Users of this product certificate with attestation is advised to check whether it is still valid. For this purpose consult the website of Kiwa: [www.kiwa.nl](http://www.kiwa.nl).*

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## Structures (living environment) decree

Assessed is:

- Quality system
- Product
- Performance in the application

Periodic control

## Plakfort and Colorplus fibre-cement corrugated sheets

### CONTENT

|            |                                                                                                    |           |
|------------|----------------------------------------------------------------------------------------------------|-----------|
| <b>1.</b>  | <b>TECHNICAL SPECIFICATION .....</b>                                                               | <b>3</b>  |
| 1.1.1      | Form and composition .....                                                                         | 3         |
| 1.1.2      | Surface treatment .....                                                                            | 3         |
| <b>2.</b>  | <b>QUALITY MARK AND INDICATIONS PLACED ON THE PRODUCTS / PACKAGING .....</b>                       | <b>3</b>  |
| <b>3.</b>  | <b>PERFORMANCE IN THE APPLICATION .....</b>                                                        | <b>4</b>  |
| 3.1        | PERFORMANCE BASED ON THE STRUCTURES (LIVING ENVIRONMENT) DECREE .....                              | 4         |
| 3.1.1      | Safety .....                                                                                       | 6         |
| 3.1.1.1    | Structural safety, SD paragraph 3.2.1, 4.2.1 and chapter 5 .....                                   | 6         |
| 3.1.1.2    | Limiting the possibility of a fire hazard situation, SD paragraph 3.2.6, 4.2.6 and chapter 5 ..... | 9         |
| 3.1.1.3    | Limiting the development of fire and smoke, SD paragraph 3.2.7, 4.2.7 and chapter 5 .....          | 9         |
| 3.1.1.4    | Limiting the spread of a fire, SD paragraph 3.2.8, 4.2.8 and chapter 5 .....                       | 9         |
| 3.1.1.5    | Further limitation of fire spread, SD paragraph 3.2.9, 4.2.9 and chapter 5 .....                   | 9         |
| 3.1.2      | Health .....                                                                                       | 10        |
| 3.1.2.1    | Protection against external noise, SD paragraph 4.3.1 and chapter 5 .....                          | 10        |
| 3.1.2.2    | Resistance to moisture, SD paragraph 3.3.1, 4.3.5 and chapter 5 .....                              | 10        |
| 3.1.2.3    | Exhaust of smoke and supply of combustion air, SD paragraph 3.3.4, 4.3.8 and chapter 5 .....       | 10        |
| 3.1.2.4    | Protection against rats and mice, SD paragraph 3.3.5, 4.3.9 and chapter 5 .....                    | 10        |
| 3.1.3      | Sustainability .....                                                                               | 10        |
| 3.1.3.1    | Energy efficiency, Bbl section 3.4, section 4.4.1 and H5 .....                                     | 10        |
| 3.1.3.2    | Environmental performance Bbl section 4.4.2 .....                                                  | 10        |
| 3.1.4      | Usability .....                                                                                    | 10        |
| 3.1.4.1    | Outdoor storage, Bbl paragraph 4.5 and H5 .....                                                    | 10        |
| <b>4.</b>  | <b>PRODUCT CHARACTERISTICS.....</b>                                                                | <b>10</b> |
| <b>5.</b>  | <b>PROCESSING INSTRUCTIONS.....</b>                                                                | <b>11</b> |
| 5.1        | TRANSPORT AND STORAGE.....                                                                         | 11        |
| 5.2        | ASSEMBLY .....                                                                                     | 11        |
| 5.3        | ATTACHMENT .....                                                                                   | 11        |
| <b>6.</b>  | <b>APPLICATION AND USAGE CONDITIONS .....</b>                                                      | <b>11</b> |
| 6.1        | ROOFS .....                                                                                        | 11        |
| 6.1.1      | Form and composition .....                                                                         | 11        |
| 6.1.2      | Connections .....                                                                                  | 11        |
| 6.1.3      | Attachment .....                                                                                   | 12        |
| 6.1.4      | Fastening materials .....                                                                          | 12        |
| 6.2        | FAÇADES .....                                                                                      | 12        |
| 6.2.1      | Form and composition .....                                                                         | 12        |
| 6.2.2      | Connections .....                                                                                  | 12        |
| 6.2.3      | Attachment .....                                                                                   | 12        |
| 6.2.4      | Fastening materials .....                                                                          | 12        |
| <b>7.</b>  | <b>MAINTENANCE INSTRUCTIONS .....</b>                                                              | <b>12</b> |
| <b>8.</b>  | <b>TIPS FOR THE USER.....</b>                                                                      | <b>12</b> |
| <b>9.</b>  | <b>DOCUMENT LIST .....</b>                                                                         | <b>12</b> |
| <b>10.</b> | <b>DETAILED DRAWINGS.....</b>                                                                      | <b>13</b> |

## Plakfort and Colorplus fibre-cement corrugated sheets

### 1. TECHNICAL SPECIFICATION

This product certificate with attestation relates to:

- The product characteristics of corrugated sheets that can be used as roofing for pitched roofs with a roof pitch of 10° to 75° and/or facade cladding. The roofing/facade cladding can be part of a roofing, facade cladding system or a roofing/facade construction.
- The performance of the system, composed with the product for use as roofing and/or facade cladding.
- Due to the environmental hygienic properties of the corrugated sheets supplied by the certificate holder, they can be used in buildings that may come into contact with rainwater, groundwater and/or surface waters.

The certificate relates to the following scopes of the BRLs as indicated on the cover page:

- roofing,
- facade cladding.

The following products are covered by this attest-with-product certificate:

- Plakfort en Colorplus corrugated fibre-cement sheets and accessories.

#### 1.1.1 Form and composition

Plakfort and Colorplus fibre-cement corrugated sheets can be supplied in different dimensions and colours. These 6 waves corrugated sheets present cross section formed by sinus shaped corrugations descending and raised on the side. Products are made of Portland cement, water with mineral admixtures, natural and synthetic fibres. This building material is produced by means of advanced process technologies to guarantee a standard quality.

#### 1.1.2 Surface treatment

The Plakfort and Colorplus fibre-cement corrugated sheets can be delivered in uncoated natural grey or painted. Color is applied by a surface pigmentation to the top of the sheet. Furthermore the Colorplus sheet is achieved by application of acrylic paint onto cured material.

### 2. QUALITY MARK AND INDICATIONS PLACED ON THE PRODUCTS / PACKAGING

On the documents related to the certified products the indication KOMO® or the KOMO® quality mark followed by the certificate number shall be given.

Plakfort and Colorplus fibre-cement corrugated sheets are marked with the KOMO® word mark of logo

The execution of this brand is as follows: KOMO

Word mark



The execution of this mark is in relief. Place of the mark: on each sheet.

Mandatory indications:

- certificate number **K101942**;
- factory name and/or mark;
- production location (coding);
- production date;
- category and strength classes;
- NT.

The mark and the production date are placed on the product and/or packaging and/or delivery documents.

Plakfort and Colorplus fibre-cement corrugated sheets

3. PERFORMANCE IN THE APPLICATION

3.1 PERFORMANCE BASED ON THE STRUCTURES (LIVING ENVIRONMENT) DECREE

| Structures (Living Environment) Decree – EXISTING CONSTRUCTION |                                      |                                |                                                           |                                       |                                                                                                                                                    |                                                                                                                                                                                                                                   |
|----------------------------------------------------------------|--------------------------------------|--------------------------------|-----------------------------------------------------------|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Paragraph of Structures (Living Environment) Decree            | Article                              | Paragraphs                     | Description                                               | Determination method                  | Limit value                                                                                                                                        | Performance                                                                                                                                                                                                                       |
| 3.2.1                                                          | 3.8<br>3.9<br>3.10                   | 1, 2<br>1, 2                   | Structural safety                                         | NEN 8700,<br>NEN 6707,<br>NEN-EN 1990 | No collapse                                                                                                                                        | To be determined per project whereby the maximum span distances must be observed. See tables 1 to 5.                                                                                                                              |
| 3.2.6 <sup>9)</sup>                                            | 3.27<br>3.28<br>3.29                 | 1, 2<br>1, 2<br>1, 2           | Limiting the possibility of a fire hazard situation       | NEN 6064 or<br>NEN-EN 13501-1         | Not fire hazardous or fire class $\geq$ A1                                                                                                         | Fire class $\geq$ A1.                                                                                                                                                                                                             |
| 3.2.7                                                          | 3.30<br>3.31<br>3.32<br>3.34<br>3.35 | 1, 2<br>1 to 4<br>1, 3<br>1, 2 | Limiting the development of fire and smoke                | NEN 6065,<br>NEN 6066                 | <b>Daken en gevels</b><br>Fire class $\geq$ 4 or $\geq$ 2 (protected route).<br>Smoke density $\leq 10^{-1}$ or $\leq 5,4^{-1}$ (protected route). | Corrugated sheets and fittings comply at least with fire class A1 on both the upper and lower side.                                                                                                                               |
| 3.2.8 <sup>9)</sup>                                            | 3.36<br>3.40<br>3.41                 | 1, 2<br>1, 2<br>1              | Limiting the spread of a fire                             | NEN 6068                              | WBDBO $\geq$ 20 minutes                                                                                                                            | To be determined by or on behalf of the user per project on the basis of the required fire resistance of the construction.                                                                                                        |
| 3.2.9 <sup>9)</sup>                                            | 3.42<br>3.46<br>3.47                 | 1                              | Further limiting the spread of a fire and spread of smoke | NEN 6075<br>NEN 6068                  | WBDBO $\geq$ 20 minutes<br>Resistance to smoke passage $\geq$ 20 minutes                                                                           | To be determined by or on behalf of the user per project on the basis of the required fire resistance of the construction.                                                                                                        |
| 3.3.1 <sup>9)</sup>                                            | 3.63<br>3.64                         | 1, 2<br>1, 2                   | Moisture resistance                                       | NEN 2778                              | Watertight                                                                                                                                         | Not specified. When using the profiled fibre cement sheets as an external partition construction of an occupied space, toilet space, or bathroom space, the water tightness must be guaranteed by a water-resistant substructure. |
| 3.3.4                                                          | 3.78                                 |                                | Exhaust of smoke and supply of combustion air             | NEN 8757                              | Permeability $\leq 0,006 \times 10^{-3} \text{ m}^3/\text{s/m}^2$                                                                                  | Not specified.                                                                                                                                                                                                                    |
| 3.3.5                                                          | 3.79<br>3.8                          | 1, 2<br>1, 2                   | Protection against rats and mice                          |                                       | No openings $> 0,01 \text{ m}$                                                                                                                     | Not specified.<br>No non-closable openings may be located in the external partition construction which are wider than 0.01 m.                                                                                                     |

| Structures (Living Environment) Decree – NEW CONSTRUCTION |                                      |                                                   |                                                     |                            |                                                                                                                                                                          |                                                                                                                                                                                        |
|-----------------------------------------------------------|--------------------------------------|---------------------------------------------------|-----------------------------------------------------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Paragraph of Structures (Living Environment) Decree       | Article                              | Paragraphs                                        | Description                                         | Determination method       | Limit value                                                                                                                                                              | Performance                                                                                                                                                                            |
| 4.2.1                                                     | 4.11<br>4.12<br>4.13<br>4.14         | 1, 2<br>2<br>1,2                                  | Structural safety                                   | NEN-EN 1990                | No collapse                                                                                                                                                              | To be determined per project whereby the maximum span distances must be observed. See tables 1 to 5.                                                                                   |
| 4.2.6                                                     | 4.37<br>4.38<br>4.39<br>4.40         | 1, 2<br>1, 2                                      | Limiting the possibility of a fire hazard situation | NEN-EN 13501-1             | Not fire hazardous or fire class $\geq$ A1                                                                                                                               | Fire class $\geq$ A1.                                                                                                                                                                  |
| 4.2.7                                                     | 4.42<br>4.43<br>4.44<br>4.46<br>4.47 | 1, 2<br>1 to 7, 9, 10<br>1 to 4<br>1 to 3<br>1, 2 | Limiting the development of fire and smoke          | NEN-EN 13501-1<br>NEN 6063 | Fire class $\geq$ D<br>Smoke class $\geq$ s2 (interior surface)                                                                                                          | Corrugated sheets and fittings comply at least with fire class A1 on both the upper and lower side.                                                                                    |
|                                                           |                                      |                                                   |                                                     | NEN 6063                   | <b>Roofs</b><br>A roof composed of profiled fibre cement sheets and fittings is not a fire risk. Uncoated and coated fibre cement sheets and fittings are non-flammable. | A roof composed of profiled fibre cement panels and accessories is not fire hazardous. Uncoated fibre cement panels and fittings are incombustible, coated ones are not incombustible. |
| 4.2.8                                                     | 4.49<br>4.53<br>4.54                 | 1, 2<br>1 to 7, 9, 10<br>1                        | Limiting the spread of a fire                       | NEN 6068                   | WBDBO $\geq$ 30 minutes                                                                                                                                                  | To be determined by or on behalf of the user per project on the basis of the required fire resistance of the construction.                                                             |

## Plakfort and Colorplus fibre-cement corrugated sheets

| Structures (Living Environment) Decree – NEW CONSTRUCTION |                                                      |                                  |                                                           |                                                                                               |                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                  |
|-----------------------------------------------------------|------------------------------------------------------|----------------------------------|-----------------------------------------------------------|-----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Paragraph of Structures (Living Environment) Decree       | Article                                              | Paragraphs                       | Description                                               | Determination method                                                                          | Limit value                                                                                                                                                                                                                                                                                                                                                              | Performance                                                                                                                                                                                                                                                                                      |
| 4.2.9                                                     | 4.56<br>4.60<br>4.61<br>4.62                         | 1, 2<br>1, 2<br>1 to 4<br>1 to 4 | Further limiting the spread of a fire and spread of smoke | NEN 6075<br>NEN 6068                                                                          | WBDBO ≥ 30 minutes<br>Smoke resistance $S_a$ of $S_{200}$ (protected route)                                                                                                                                                                                                                                                                                              | To be determined by or on behalf of the user per project on the basis of the required fire resistance of the construction.                                                                                                                                                                       |
| 4.3.1                                                     | 4.101<br>4.102<br>4.103<br>4.103b<br>4.103c<br>4.104 | 1, 2<br>1 to 3<br>1, 2<br>1 to 3 | Protection against outside noise                          | NEN 5077                                                                                      | Sound insulation ≥ 20 dB                                                                                                                                                                                                                                                                                                                                                 | Not specified.<br>When using profiled fibre cement panels, sound insulation must be ensured by the substructure.                                                                                                                                                                                 |
| 4.3.5                                                     | 4.117<br>4.118<br>4.119                              | 1, 2<br>1                        | Moisture resistance                                       | NEN 2778                                                                                      | Watertight<br>Factor of the temperature ≥ 0,5                                                                                                                                                                                                                                                                                                                            | Not specified.<br>When using profiled fibre cement panels, sound insulation must be ensured by the substructure.                                                                                                                                                                                 |
| 4.3.8                                                     | 4.143<br>4.141                                       |                                  | Exhaust of smoke and supply of combustion air             | NEN 2757                                                                                      | <b>Roofs</b><br>Permeability<br>≤ 0,006 x 10 <sup>-3</sup> m <sup>3</sup> /s/m <sup>2</sup> or<br>≤ 3x 10 <sup>-3</sup> m <sup>3</sup> /s/m <sup>2</sup> of                                                                                                                                                                                                              | Not determined.                                                                                                                                                                                                                                                                                  |
|                                                           | 4.143<br>4.144<br>4.155                              | 1, 2<br>1 to 3<br>1 to 3         | Protection against rats and mice                          |                                                                                               | No openings > 0,01 m                                                                                                                                                                                                                                                                                                                                                     | Not determined.<br>No non-closable openings may be located in the external partition construction which are wider than 0.01 m.                                                                                                                                                                   |
| 4.4.1                                                     | 4.148<br>4.152<br>4.154<br>4.155                     | 1, 2<br>1 to 9<br>1, 2<br>1, 2   | Energy efficiency                                         | NTA 8800,<br>NEN 2686                                                                         | <b>Roofs</b><br>Heat resistance<br>≥ 6.3 m <sup>2</sup> K/W.<br>Air volume flow of the total of occupied areas, toilet and bathroom spaces does not exceed 0.2 m <sup>3</sup> /s.<br><b>Façades</b><br>Heat resistance<br>≥ 4.7 m <sup>2</sup> K/W.<br>Air volume flow of the total of occupied areas, toilet and bathroom spaces does not exceed 0.2 m <sup>3</sup> /s. | When using the profiled fibre cement sheets as an external partition construction of occupied space, toilet space, or bathroom space, the heat resistance must be guaranteed by an insulating substructure and the air permeability guaranteed by a substructure which is sufficiently airtight. |
| 4.4.2                                                     | 4.158<br>4.159                                       | 1, 2<br>1 to 4                   | Environmental performance                                 | Method for determining the environmental performance of buildings and civil engineering works | Milieuprestatie ≤ 1                                                                                                                                                                                                                                                                                                                                                      | Not specified.                                                                                                                                                                                                                                                                                   |
| 4.5.5                                                     | 4.171<br>4.173                                       | 1, 2                             | Outdoor storage                                           | NEN 2778                                                                                      | Rain-resistant                                                                                                                                                                                                                                                                                                                                                           | Not specified.<br>When using profiled fibre cement sheets, rain resistance must be ensured by a rain-resistant substructure.                                                                                                                                                                     |

<sup>f)</sup> = Optional

| Structures (Living Environment) Decree – RENOVATION, RELOCATION OF BUILDING, CHANGE OF USE |         |            |                                                     |                                      |                                       |                                                                                                      |
|--------------------------------------------------------------------------------------------|---------|------------|-----------------------------------------------------|--------------------------------------|---------------------------------------|------------------------------------------------------------------------------------------------------|
| Paragraph of Structures (Living Environment) Decree                                        | Article | Paragraphs | Description                                         | Determination method                 | Limit value                           | Performance                                                                                          |
|                                                                                            | 5.4     | 1 to 4     | Renovation                                          | See chapter 4, clause 4.4.2 excepted | Meets legally obtained level          |                                                                                                      |
|                                                                                            | 5.5     | 1 to 3     | Quality level                                       | See chapter 3                        | Voldoet aan eisen H3                  |                                                                                                      |
|                                                                                            | 5.6     | 1          | Relocation                                          | See chapter 3                        | Voldoet aan eisen H3                  |                                                                                                      |
|                                                                                            | 5.7     | 1 to 3     | Change of use                                       | See chapter 3                        | Voldoet aan eisen H3                  |                                                                                                      |
|                                                                                            | 5.9     | 1, 2       | Structural safety                                   | NEN 8700                             | No collapse                           | To be determined per project whereby the maximum span distances must be observed. See tables 1 to 5. |
|                                                                                            | 5.11    |            | Limiting the possibility of a fire hazard situation | NEN-EN 13501-1                       | Not fire hazardous or fire class ≥ A1 | Fire class ≥ A1.                                                                                     |

Plakfort and Colorplus fibre-cement corrugated sheets

| Structures (Living Environment) Decree – RENOVATION, RELOCATION OF BUILDING, CHANGE OF USE |         |            |                                                   |                            |                                                                                                                                                               |                                                                                                                                                                                                                                                                                                  |
|--------------------------------------------------------------------------------------------|---------|------------|---------------------------------------------------|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Paragraph of Structures (Living Environment) Decree                                        | Article | Paragraphs | Description                                       | Determination method       | Limit value                                                                                                                                                   | Performance                                                                                                                                                                                                                                                                                      |
|                                                                                            | 5.12    |            | Limiting the development of fire and smoke        | NEN-EN 13501-1<br>NEN 6063 | Fire class B                                                                                                                                                  | Corrugated sheets and fittings comply at least with fire class A1 on both the upper and lower side.                                                                                                                                                                                              |
|                                                                                            | 5.13    |            | Limiting the spread of a fire                     | NEN 6068                   | WBDBO ≥ 30 minutes                                                                                                                                            | To be determined by or on behalf of the user per project on the basis of the required fire resistance of the construction.                                                                                                                                                                       |
|                                                                                            | 5.16    |            | Exhaust of smoke and supply of combustion air     | NEN 2757                   | <b>Roofs</b><br>Doorlatendheid<br>≤ 0,006 x 10 <sup>-3</sup> m <sup>3</sup> /s/m <sup>2</sup> of<br>≤ 3x 10 <sup>-3</sup> m <sup>3</sup> /s/m <sup>2</sup> of | Not specified                                                                                                                                                                                                                                                                                    |
|                                                                                            | 5.20    | 1 to 4     | Energy efficiency                                 | NTA 8800                   | Heat resistance<br>≥ 1.4 m <sup>2</sup> K/W or legally obtained level                                                                                         | When using the profiled fibre cement sheets as an external partition construction of occupied space, toilet space, or bathroom space, the heat resistance must be guaranteed by an insulating substructure and the air permeability guaranteed by a substructure which is sufficiently airtight. |
|                                                                                            | 5.23    |            | Protection against road, rail or industrial noise | NEN 5077                   | Sound insulation ≥ 20 dB                                                                                                                                      | Not specified.<br>No non-closable openings may be located in the external partition construction which are wider than 0.01 m.                                                                                                                                                                    |

### 3.1.1 Safety

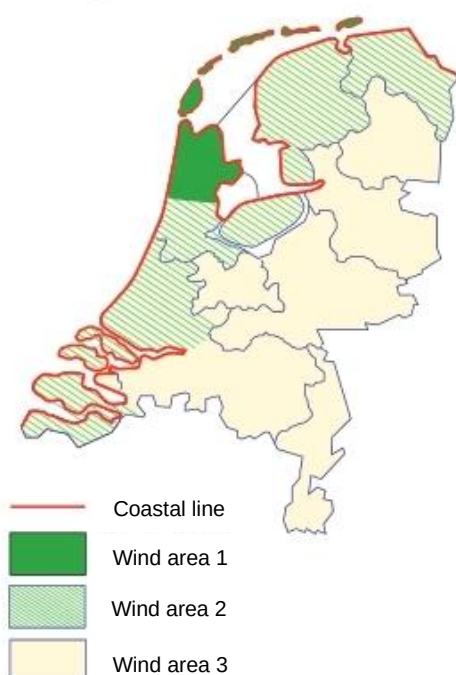
#### 3.1.1.1 Structural safety, SD paragraph 3.2.1, 4.2.1 and chapter 5

The support distances referred to below are based on the sheet length and overlap of the corrugated fibre cement sheets and are determined in accordance with the equivalent determination method of BRL 1103.

The values presented in the tables 1 to 5 are applicable in the following situations:

- The sheets comply with the characteristics as mentioned in tables 1 and 2 of this product certificate with attestation.
- The sheets are used in the Netherlands, all wind areas, unbuilt category. Maximum span of the fibre cement sheets in the coastal line is mentioned separately. For wind areas and coastal line, see figure 1.
- The sheets used for vertical façades.
- The maximum height of the building is 40 metre.
- The building must have a rectangular shape.
- The sheets are subjected only to wind loads (horizontal) and dead load (vertical).
- The height of the building must be smaller than 4x the width or depth of the building. Or the building must not be higher than 15 metre.
- Rain water accumulation on a flat roof is no more than 100 mm.

Figure 1: Wind areas and coastal line



## Plakfort and Colorplus fibre-cement corrugated sheets

Table 1: Maximum span L [m] for fibre-cement sheets used as roof covers for flat roof

| Height<br>[m] | Span, L [m] |      |
|---------------|-------------|------|
|               | A           | B    |
| 40            | 1,31        | 1,14 |
| 35            | 1,33        | 1,16 |
| 30            | 1,36        | 1,17 |
| 25            | 1,40        | 1,19 |
| 20            | 1,44        | 1,22 |
| 15            | 1,54        | 1,25 |
| 10            | 1,61        | 1,30 |
| 8             | 1,67        | 1,33 |
| 5             | 1,83        | 1,39 |
| 3             | 1,91        | 1,47 |

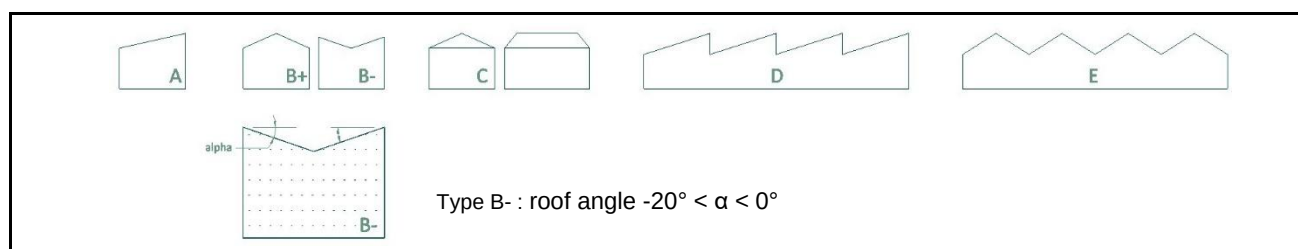
A) Maximum span of the fibre cement sheets in The Netherlands  
B) Maximum span of the fibre cement sheets in the coastal line of The Netherlands

Table 2: Maximum span L [m] for fibre-cement sheets used as roof covers for regular sloped roof, type A to E, excluding type B-.

| Height<br>[m] | Span, L [m] |      |
|---------------|-------------|------|
|               | A           | B    |
| 40            | 1,34        | 1,17 |
| 35            | 1,36        | 1,18 |
| 30            | 1,39        | 1,20 |
| 25            | 1,43        | 1,22 |
| 20            | 1,48        | 1,25 |
| 15            | 1,57        | 1,28 |
| 10            | 1,64        | 1,33 |
| 8             | 1,71        | 1,36 |
| 5             | 1,87        | 1,42 |
| 3             | 1,96        | 1,51 |

A) Maximum span of the fibre cement sheets in The Netherlands  
B) Maximum span of the fibre cement sheets in the coastal line of The Netherlands

Figure 2: Type of sloped roofs for the use of the fibre-cement sheets



## Plakfort and Colorplus fibre-cement corrugated sheets

Table 3: Maximum span L [m] for fibre-cement sheets used as roof covers type B-.

| Height<br>[m] | Span, L [m] |      |
|---------------|-------------|------|
|               | A           | B    |
| 40            | 1,14        | 0,99 |
| 35            | 1,16        | 1,00 |
| 30            | 1,18        | 1,02 |
| 25            | 1,21        | 1,03 |
| 20            | 1,25        | 1,06 |
| 15            | 1,34        | 1,08 |
| 10            | 1,40        | 1,13 |
| 8             | 1,45        | 1,15 |
| 5             | 1,59        | 1,21 |
| 3             | 1,66        | 1,28 |

**Roof sloped type B- span L [m]**

Legend: A) The Netherlands, B) Coastal line

A) Maximum span of the fibre cement sheets in The Netherlands  
 B) Maximum span of the fibre cement sheets in the coastal line of The Netherlands

Table 4: Maximum span L [m] for fibre-cement sheets used as façade cladding

| Height<br>[m] | Overspanning,<br>L [m] |      |
|---------------|------------------------|------|
|               | A                      | B    |
| 40            | 1,47                   | 1,28 |
| 35            | 1,49                   | 1,29 |
| 30            | 1,53                   | 1,31 |
| 25            | 1,57                   | 1,34 |
| 20            | 1,62                   | 1,36 |
| 15            | 1,73                   | 1,40 |
| 10            | 1,81                   | 1,46 |
| 8             | 1,89                   | 1,49 |
| 5             | 2,07                   | 1,56 |
| 3             | 2,17                   | 1,66 |

**Façade span L [m]**

Legend: A) The Netherlands, B) Coastal line

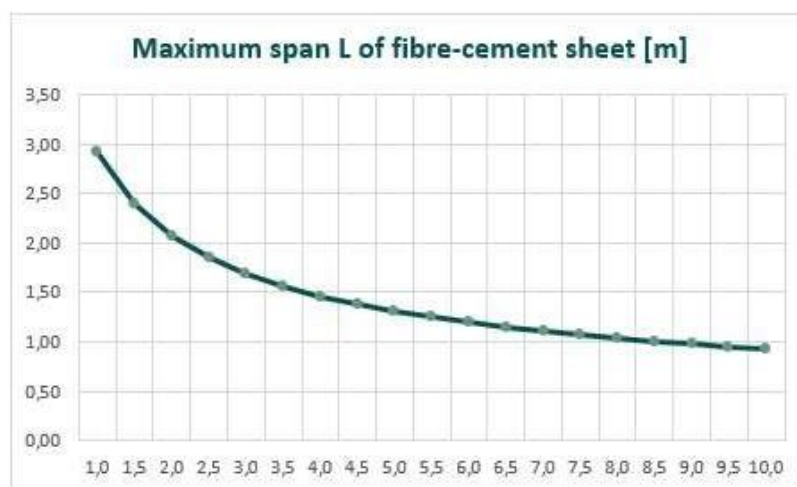
A) Maximum span of the fibre cement sheets in The Netherlands  
 B) Maximum span of the fibre cement sheets in the coastal line of The Netherlands

The information from table 5 can be used by a structural engineer for determining the maximum span of the fibre- cement sheets by determining the design load on the sheets (horizontal axis graph) and looking for the corresponding maximum span L (vertical axis graph).

## Plakfort and Colorplus fibre-cement corrugated sheets

Table 5: Maximum span L [m] for fibre-cement sheets depending on the design load

| Load $q_d$<br>[kN/m <sup>2</sup> ] | Span, L, [m] |
|------------------------------------|--------------|
| 1,0                                | 2,92         |
| 1,5                                | 2,39         |
| 2,0                                | 2,07         |
| 2,5                                | 1,85         |
| 3,0                                | 1,69         |
| 3,5                                | 1,56         |
| 4,0                                | 1,46         |
| 4,5                                | 1,38         |
| 5,0                                | 1,31         |
| 5,5                                | 1,25         |
| 6,0                                | 1,19         |
| 6,5                                | 1,15         |
| 7,0                                | 1,10         |
| 7,5                                | 1,07         |
| 8,0                                | 1,03         |
| 8,5                                | 1,00         |
| 9,0                                | 0,97         |
| 9,5                                | 0,95         |
| 10,0                               | 0,92         |

**3.1.1.2 Limiting the possibility of a fire hazard situation, SD paragraph 3.2.6, 4.2.6 and chapter 5**

The flame spread index of the uncoated profiled fibre cement corrugated sheets complies on both sides with at least class A1, determined in accordance with NEN-EN 13501-1.

A roof composed of profiled fibre cement corrugated sheets is not a fire risk, determined in accordance with NEN 6063.

**3.1.1.3 Limiting the development of fire and smoke, SD paragraph 3.2.7, 4.2.7 and chapter 5****General**

The fire class of the uncoated profiled fibre cement corrugated sheets as specified in this product certificate with attestation complies on both sides with at least class A1 and at least class A2-s1, d0 for coated sheets, determined in accordance with NEN-EN 13501-1.

**Explanation**

Instead of fire class 4, determined according to NEN 6065, fire class D can be used, determined according to NEN-EN 13501-1.

Instead of smoke density  $\leq 10 \text{ m}^{-1}$  or  $5.4 \text{ m}^{-1}$ , determined according to NEN 6066, smoke class s2 can be used, determined according to NEN-EN 13501-1.

**Roofs**

A roof composed of profiled fibre cement corrugated sheets is not a fire risk, determined in accordance with NEN 6063.

**Façades**

The coated and uncoated profiled fibre cement corrugated sheets and accessories can be used where the following requirements apply:

- A façade of a building must consist, on the outside up to a height of 13 m, of building material combinations which at least comply with class D of the flame spread index, on the understanding that the side facing the escape route must belong to at least class C.
- The outside of a façade of residential buildings of more than two stories must consist, up to 2.5 m above the adjoining land, of building material combinations which at least comply with class B of the flame spread index.
- The outside of a building façade which is not intended for residential purposes must consist, as from a height of 13 m above the adjoining land, of building material combinations which at least comply with class B of the flame spread index.
- Material (combinations) of parapet lower than 1.5 m from the floor area must belong at least to class C of the flame spread index.
- If the wall cladding is in contact with the indoor air (for example, an atrium or screened off gallery), smoke class s2 is required.
- Wherever requirements are imposed in terms of incombustibility, such as near hearths and flues, uncoated and/or coated profiled fibre cement sheets may not be used as such.
- The fire safety of (wooden) base constructions and any insulation material must be assessed on a case-by-case basis.

**3.1.1.4 Limiting the spread of a fire, SD paragraph 3.2.8, 4.2.8 and chapter 5**

The resistance to fire penetration and fire spread has not been determined. Whether the entire construction meets the requirement must be determined in accordance with NEN 6068.

**3.1.1.5 Further limitation of fire spread, SD paragraph 3.2.9, 4.2.9 and chapter 5**

When using profiled fibre cement corrugated sheets, the entire construction must meet the stated requirement. The resistance to fire penetration and fire spread has not been determined.

## Plakfort and Colorplus fibre-cement corrugated sheets

### 3.1.2 Health

#### 3.1.2.1 Protection against external noise, SD paragraph 4.3.1 and chapter 5

When using profiled fibre cement corrugated sheets, the underlying structure must meet the requirement. The contribution of profiled fibre cement sheets has not been determined.

#### 3.1.2.2 Resistance to moisture, SD paragraph 3.3.1, 4.3.5 and chapter 5

The profiled fibre cement corrugated sheets are at least water-resistant. When using roofs and facades with profiled fibre cement corrugated sheets as an external separating structure of a living area, a toilet or bathroom, a waterproof substructure must therefore be used.

For roofs and facades other than those described above, the requirement regarding resistance to moisture from outside does not apply.

#### 3.1.2.3 Exhaust of smoke and supply of combustion air, SD paragraph 3.3.4, 4.3.8 and chapter 5

A chassis sheets with rectangular cover Mod. PC 20 can be used as a feed-through for ventilation, gas exhaust or flue gas exhaust pipes through roofs, whereby the location of the feed-through in the plate can be determined after installation of the roof covering. The feed-through piece shall be attached to the sheet with a high-quality adhesive.

#### 3.1.2.4 Protection against rats and mice, SD paragraph 3.3.5, 4.3.9 and chapter 5

When using profiled fibre cement corrugated sheets, the underlying structure may not contain any non-closable openings openings wider than 0.01 m.

### 3.1.3 Sustainability

#### 3.1.3.1 Energy efficiency, Bbl section 3.4, section 4.4.1 and H5

When using profiled fibre cement corrugated sheets in an external partition structure of a living area, a toilet or bathroom, a substructure must be used that provides the thermal resistance and that is sufficiently airtight.

For roofs and facades other than those described above, the requirements regarding the limitation of heat loss and the limitation of air permeability do not apply.

#### 3.1.3.2 Environmental performance Bbl section 4.4.2

The contribution of profiled fibre cement panels to the environmental performance has not been assessed.

### 3.1.4 Usability

#### 3.1.4.1 Outdoor storage, Bbl paragraph 4.5 and H5

When using profiled fibre cement corrugated sheets, the underlying structure must meet the stated requirement. The profiled fibre cement panels and accessories themselves are waterproof.

## 4. PRODUCT CHARACTERISTICS

Table 6 lists the product characteristics that form part of this product certificate with attestation. These meet the requirements specified in the table and, if stated, the stated performances.

Table 6: Product characteristics

| Characteristic                                      | Determination method  | Requirement BRL / Attest                                                           | Performance                                                |
|-----------------------------------------------------|-----------------------|------------------------------------------------------------------------------------|------------------------------------------------------------|
| Nominal dimensions of sheets:                       |                       |                                                                                    |                                                            |
| – length                                            | NEN-EN 494, § 7.2.1.2 | Nominal + 10 / - 10 mm                                                             | 1250, 1525 , 1585, 1830, 2135, 2440, 2750 and 3050 ± 10 mm |
| – width                                             | NEN-EN 494, § 7.2.1.2 | Nominal + 10 / - 5 mm                                                              | 1095 +10 / - 5 mm                                          |
| – thickness                                         | NEN-EN 494, § 7.2.1.3 | Nominal + 10 / - 10 % of the average thickness<br>≤ ± 0,6 mm the nominal thickness | 6,5 mm ± 0,6 mm                                            |
| – squareness                                        | NEN-EN 494, § 7.2.1.4 | ≤ 6,0 mm/m <sup>1</sup>                                                            | Meets requirements                                         |
| – height of the sides                               | NEN-EN 494, § 7.2.1.5 | Must meet requirements                                                             | Meets requirements                                         |
| Nominal dimensions fittings:                        |                       |                                                                                    |                                                            |
| – length                                            | NEN-EN 494, § 7.2.2.2 | Nominal + 10 / - 10 mm                                                             | Meets requirements                                         |
| – width                                             | NEN-EN 494, § 7.2.2.2 | Nominal + 10 / - 10 mm                                                             | Meets requirements                                         |
| – thickness                                         | NEN-EN 494, § 7.2.2.3 | Nominal + 1 / - 1 mm                                                               | Meets requirements                                         |
| Corrugations:                                       |                       |                                                                                    |                                                            |
| – number of (complete) corrugations                 |                       | As per specifications                                                              | 6                                                          |
| – pitch of corrugation (nominal)                    | NEN-EN 494, § 7.2.1.1 | ± 2,0 mm                                                                           | 177 ± 2 mm                                                 |
| – ridge of corrugation                              | NEN-EN 494, § 7.2.1.1 | ± 3,0 mm                                                                           | 51 ± 3 mm                                                  |
| – height of descending corrugation, h <sub>od</sub> | NEN-EN 494, § 7.2.1.5 | As per specifications                                                              | h <sub>od</sub> 42 - 49 mm                                 |
| – height of ascending corrugation, h <sub>om</sub>  | NEN-EN 494, § 7.2.1.5 | As per specifications                                                              | Hom 8 - 15 mm                                              |
| Apparent density:                                   |                       |                                                                                    |                                                            |
| – sheets                                            |                       | As per specifications                                                              | ≥ 1350 g/cm <sup>3</sup>                                   |
| – fittings                                          |                       | As per specifications                                                              | ≥ 1350 g/cm <sup>3</sup>                                   |

## Plakfort and Colorplus fibre-cement corrugated sheets

| Characteristic                                        | Determination method       | Requirement BRL / Attest                     | Performance                                |
|-------------------------------------------------------|----------------------------|----------------------------------------------|--------------------------------------------|
| Fire classification                                   | NEN-EN 494, § 7.5.1, 7.5.2 | As per specifications                        | Not fire hazardous or $\geq$ fire class A1 |
| Mechanical properties:                                |                            |                                              |                                            |
| – breaking load                                       | NEN-EN 494, § 7.3.2.1      | $\geq$ Class 1                               | Meets requirements                         |
| – bending moment at rupture                           | NEN-EN 494, § 7.3.2.2      | $\geq$ Class X                               | Meets requirements                         |
| Resistance to impact<br>(not applicable to fittings ) | NEN-EN 15057               | Must meet requirements                       | Meets requirements                         |
| Water impermeability                                  | NEN-EN 494, § 7.3.3        | No water drops or damp spots allowed         | Watertight, vapour permeable               |
| Durability (sheets):                                  |                            |                                              |                                            |
| – resistance to warm water                            | NEN-EN 494, § 7.3.4        | $R_L \geq 0,70$                              | Meets requirements                         |
| – resistance to soak-dry                              | NEN-EN 494, § 7.3.5        | $R_L \geq 0,70$                              | Meets requirements                         |
| – resistance to freeze-thaw                           | NEN-EN 494, § 7.4.1        | $R_L \geq 0,70$                              | Meets requirements                         |
| – resistance to heat-rain                             | NEN-EN 494, § 7.4.2        | No decline in water tightness due to defects | Meets requirements                         |

For this product NEN- EN 494 is applicable. The product characteristics for which no performance is given in the table above the European “Construction Product Regulation” (CPR) applies. Of the relevant product characteristics it is determined that the relevant product characteristic as mentioned comply to the given limit values.

## 5. PROCESSING INSTRUCTIONS

### 5.1 TRANSPORT AND STORAGE

The fibre-cement corrugated sheets must be stored in a dry space on a flat and stable surface. A maximum of 2 pallets can be stacked on each other. In order to prevent damage and contamination it is advisable only to remove the packaging just before processing. During transport and storage sheets and fittings may not be slid over each other.

### 5.2 ASSEMBLY

The fibre-cement corrugated sheets overlap each other both lengthways and widthways. Longest sides have raised or descending corrugation on the side and must be installed with overlap of  $\frac{1}{2}$  corrugation.

To avoid four thickness of sheeting at the junctions of side and end laps, it is necessary for two sheets at each junction to be mitred at the corners so that they lie in the same plane.

Corrugated sheets can be delivered with mitred corners for direction of lay left to right or right to left.

### 5.3 ATTACHMENT

The fibre-cement corrugated sheets must be fastened with at least two screws or hooks per sheet, per perlin in accordance with figure 5 on the drawing sheets of this approval-with-product certificate. The sheets on the edges of the roof must be fixed using three bolts in accordance with figure 6 on the drawing sheets of this approval with a product certificate. In relation to sheets with a length as from 1830 mm, additional hook bolts or cylindrical screws must be installed on the intervening purlin in accordance with figure 7 on the drawing sheets of this technical approval-with-product certificate. In relation to roof applications, the fasteners are always installed on the top of the wave. In relation to wall applications, in the valley.

The fixing holes must be predrilled 3 mm bigger than the diameter of the screw. The screws or nuts may only be tightened until the sealing cap seals the drilled hole sufficiently. Tightening too much may lead to cracks. A special drill / screwdriver must be used to install the self-locking fasteners.

When using other fasteners and not the self-drilling fasteners, the holes in the sheets must be predrilled 3 mm wider than the shank diameter of the used fastener. One must also ensure that the corrugated sheets are installed free of tension.

## 6. APPLICATION AND USAGE CONDITIONS

### 6.1 ROOFS

#### 6.1.1 Form and composition

The roof construction can be built up of a bearing construction of wood or steel purlins to which the sheets are attached. The sheets overlap each other both lengthways and widthways. A thermal/acoustic insulation system can be fitted under the sheets.

#### 6.1.2 Connections

See also the diagram pages in this product certificate with attestation. When used as roof covering the overlap lengths referred to in table 7 apply as a function of the roof incline and the use of a sealant (sealant roll):

Table 7: Length of horizontal overlap

| Roof incline                              | With sealant | Without sealant |
|-------------------------------------------|--------------|-----------------|
| $\geq 5^\circ$ and $< 10^\circ$ (roof)    | 250 mm*      | Not allowed     |
| $\geq 10^\circ$ and $< 20^\circ$ (roof)   | 200 mm       | Not allowed     |
| $\geq 20^\circ$ and $< 90^\circ$ (façade) | 150 mm       | Allowed         |

\* Overlapping is not possible with standard mitred corners.

## Plakfort and Colorplus fibre-cement corrugated sheets

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The vertical overlap of Plakfort en Colorplus corrugated sheets is half a ridge (45 mm). The working width of the Plakfort en Colorplus corrugated sheets is 1050 mm in this case.

For roof inclines < 20° sealant roll must be used on both the horizontal and vertical overlaps and at places where the risk of rainwater ingress has to be avoided.

One should remember that wherever sealant roll is used, natural ventilation will be limited. It is then advisable to fit extra ventilation provisions.

### 6.1.3 Attachment

Fibre-cement corrugated sheets must be fixed on the top of the corrugations:

- on the top of 1st and 4th wave in case of roof thermal insulation,
- on the top of 2nd and 5th wave without roof insulation.

### 6.1.4 Fastening materials

This product certificate with attestation does not include the fasteners and fittings supplied.

The fibre-cement corrugated sheets can be attached using self-drilling fasteners. This bolt can be used to drill and drill out the drill hole and to tighten the fastener in a single action. The type of fastener to be used depends on the substructure.

## 6.2 FAÇADES

### 6.2.1 Form and composition

In addition to using Plakfort and Colorplus fibre-cement sheets as roof covering, the sheets can also be used as wall cladding. The structure of the underlying substructure is, in principle, the same as that of a roof. This underlying substructure must comply with the applicable NEN standards.

The façade construction can be built up of a bearing construction of wood or steel beams to which the sheets are attached. The sheets overlap each other both lengthways and widthways.

### 6.2.2 Connections

The standard lateral overlap is ½ pitch. The horizontal overlap is at least 100 mm.

### 6.2.3 Attachment

The fasteners are placed either in the corrugation valley, or in the corrugation top using a support anchor.

### 6.2.4 Fastening materials

This product certificate with attestation does not include the fasteners and fittings supplied.

The fibre-cement corrugated sheets can be attached using self-drilling fasteners. This bolt can be used to drill and drill out the drill hole and to tighten the fastener in a single action. The type of fastener to be used depends on the substructure.

## 7. MAINTENANCE INSTRUCTIONS

Periodic cleaning of the roof in order to remove possible foreign bodies that forbid the regular runoff of rainwater. Periodic control and when necessary, revision of the fastening system.

## 8. TIPS FOR THE USER

Check on delivery of the products listed under the “technical specification” whether:

- The product(s) and material(s) ordered are delivered in accordance with the agreement you made.
- The brand and the method of marking is correct
- No defects or damage is visible (for example, resulting from the transportation).

In the context of this product certificate with attestation, no checks take place on the accuracy of the performance of the essential characteristics.

The statements in this product certificate with attestation may not be used to replace the CE marking and/or the corresponding mandatory Declaration of Performance.

If on the basis of the foregoing you decide to proceed to rejection, please contact:

- EDILFIBRO S.p.A.
- And if necessary,
- Kiwa Nederland B.V.

Carry out the storage, transport and processing in accordance with the provisions included in this product certificate with attestation and/or documents of the certificate holder.

Follow the application conditions and processing instructions included in this product certificate with attestation and belonging attestation and/or documents of the certificate holder.

Check whether this product certificate with attestation is still valid, consult the website [www.kiwa.nl](http://www.kiwa.nl).

## 9. DOCUMENT LIST

Besluit bouwwerken leefomgeving:2018

Stbl. 2018, 291, laatst gewijzigd stbl, 2022-360.

Plakfort and Colorplus fibre-cement corrugated sheets

|                 |                                                                                                                                                       |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| NEN 1068        | Thermal insulation of buildings - Calculation methods                                                                                                 |
| NEN 2686        | Air permeability of buildings - Measurement method                                                                                                    |
| NEN 2778        | Moisture resistance in buildings                                                                                                                      |
| NEN 6063        | Determination of the fire behaviour of roofs                                                                                                          |
| NEN 6068        | Determination of resistance to fire movement between spaces                                                                                           |
| NEN-EN 494      | Fibre-cement profiled sheets and fittings - Product specification and test methods                                                                    |
| NEN-EN 1990     | Eurocode: Basis of structural design, including national annex NB:2011                                                                                |
| NEN-EN 1991-1-1 | Eurocode 1: Actions on structures - Part 1-1: General actions - Densities, self-weight, imposed loads for buildings, including national annex NB:2011 |
| NEN-EN 1991-1-3 | Eurocode 1: Actions on structures – Part 1-3: General actions - Snow loads, including national annex NB:2011                                          |
| NEN-EN 1991-1-4 | Eurocode 1: Actions on structures – Part 1-4: General actions - Wind actions, including national annex NB:2011                                        |
| NEN-EN 1991-1-5 | Eurocode 1: Actions on structures – Part 1-5: General actions - Thermal actions, including national annex NB:2011                                     |
| NEN-EN 13501-1  | Fire classification of construction products and building elements – Part 1: Classification using data from reaction to fire tests                    |

\* For the correct version of the documents mentioned, please refer to the latest version/amendment sheet of BRL 1103.

10. DETAILED DRAWINGS

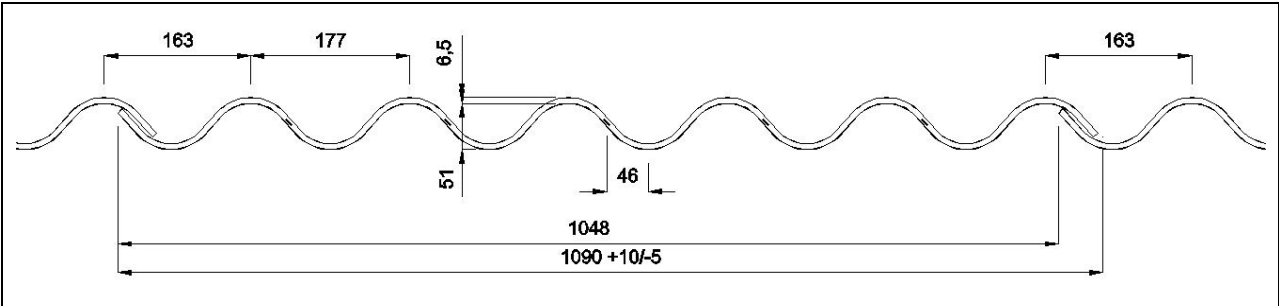


Figure 3: Profile with straps, here for installation from the right to the left (dimensions in mm)

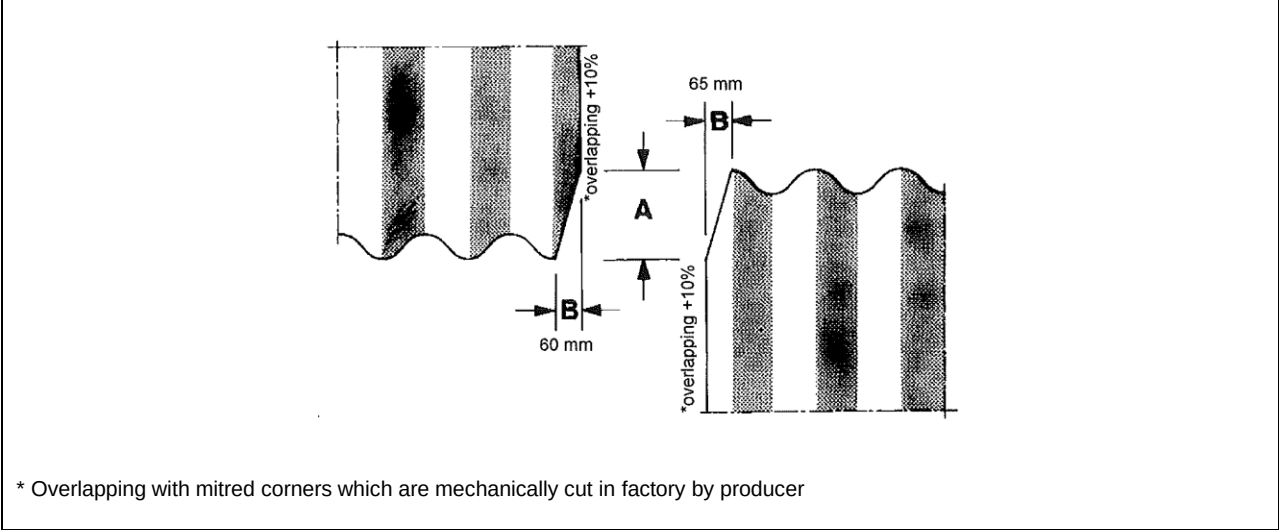


Figure 4: Dimensions of the corner bevelling

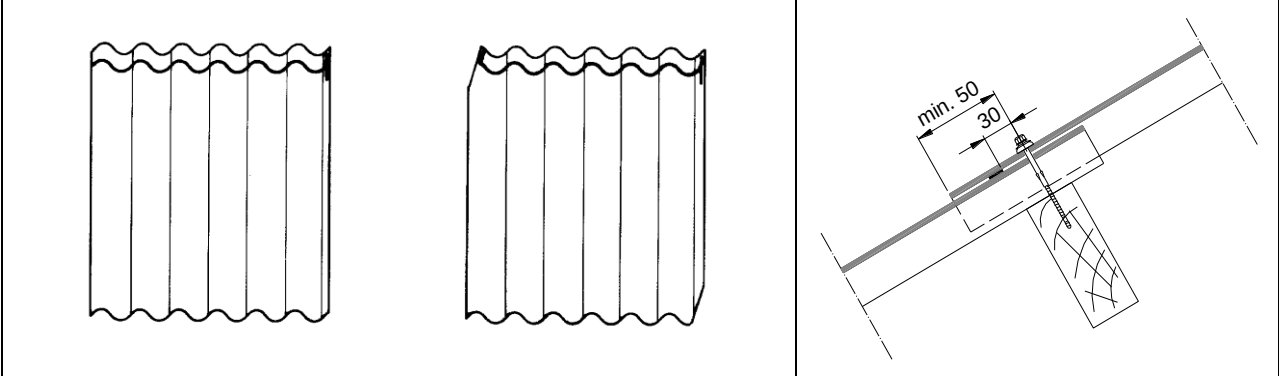


Figure 5: Sealant between the length overlap

Plakfort and Colorplus fibre-cement corrugated sheets

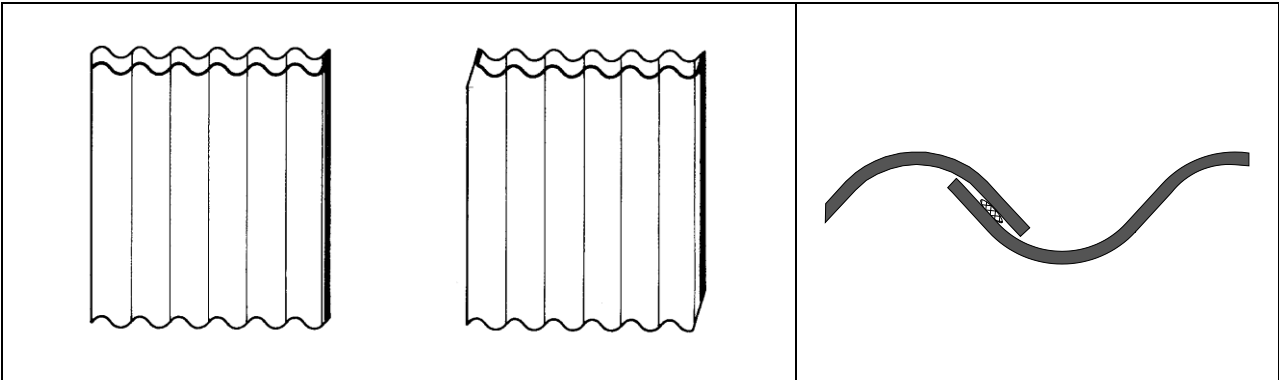


Figure 6: Sealant between length and width overlaps

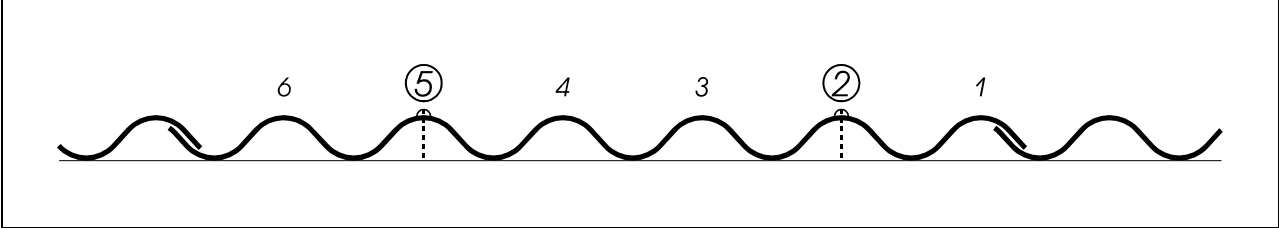


Figure 7: Hook bolts or cylindrical screws in the roof surface

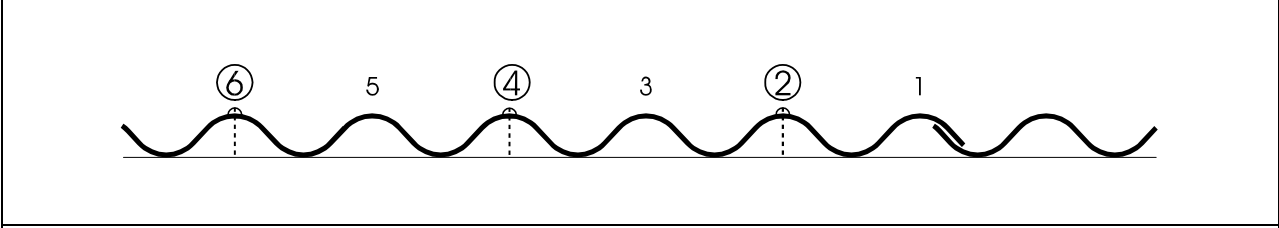


Figure 8: Hook bolts or cylindrical screws at the edges of the roof

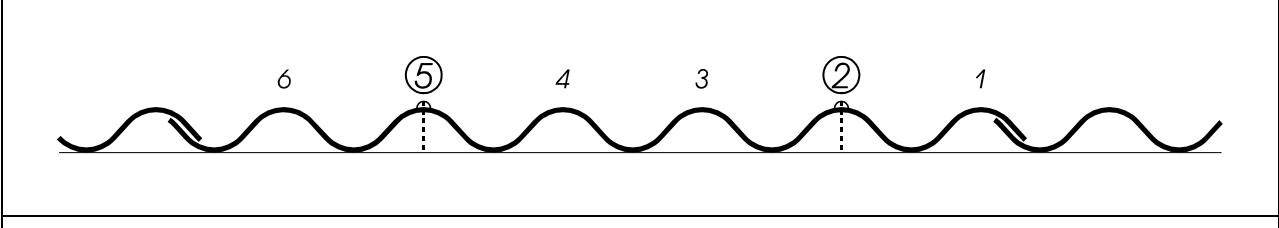


Figure 9: Hook bolts or cylindrical screws at the intermediate purlins