

# Greenscreen Acoustic Barrier

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## Technical Data Greenscreen Acoustic Barrier



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# Greenscreen Acoustic Barrier

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## General Information Greenscreen Acoustic Barrier

Greenscreen is a unique environmentally friendly acoustic screening solution. Differing specifications make it suitable for every conceivable situation from domestic gardens to highways. Fully recyclable and ethically sourced, the screens were designed using technology from the commercial growing industry, as a support system for climbing plants. Visually stunning, each screen comprises narrow ASB plastic tubes wrapped in coir fibres and held within a galvanised steel frame.

The Greenscreen Acoustic Barrier is constructed modularly which guarantees a quick assembly process. Prefab panels placed within a steel construction of galvanised RSJ columns allow for climbers to be planted on both sides of the barrier. The Greenscreen Acoustic Barrier's simple construction turns each job into a quick assembly project as well as an economical one.



The Greenscreen is a lightweight Acoustic Barrier. This barrier absorbs sound and insulates exceptionally well despite its limited panel mass of 25 kg/m<sup>2</sup>.

The panels were tested at the TNO institute at Delft ( Holland) and can be supplied in several sizes. The graphs (see pg.4) shows the sound absorption capacity of the Greenscreen Barrier: approximately 75% (7 dB) with sound frequencies of up to 100%. This assigns the barriers to Class 2, Absorption (A) category for Acoustic barriers.

### Construction System:

A sound insulating plate locked between two rows of sound absorbing coconut fibre sticks makes for a kind of "sandwich construction" that guarantees an insulation  $R_w$  of 29 dB. The regular Greenscreen Noise Barriers together with a sound insulating plate fall into **Sound Insulation Category 1**, NEN 1793 standard (The accredited Dutch equivalent to the BS System.)

A heavier sound insulating plate can be applied if a very high noise reduction - f.e., > 35 dB - is required.

The Greenscreen barrier is also available as a display barrier without the noise insulating properties. This barrier comes equipped with one row of tubes without an insulating plate and serves as a visual partition.

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## **Product Information**

- Design:** Greenscreen Acoustic Barrier can be supplied in "made to measure sections" up to 6 metres in height starting from ground level. In addition, there are several different finishes to choose from:
- Mesh panelling: panels are treated on one side with galvanised steel mesh
  - Greenscreen panels are either combined - or alternated - with acrylic plates
  - Powder-coated, steel construction and framework of panels
- Synthetic material:** The pipes are made of a tough synthetic material (recycled ABS) without PVC. In turn, this synthetic material can easily be recycled. The crush-resistant pipes are produced in-house at the Greenscreen manufacturing plant thereby maintaining a constant quality standard.
- Coir Fibre:** Coir fibres are a by-product of coconuts grown and harvested in Sri Lankan plantations. The quality of coir fibres can be compared with that of tropical hardwoods. This centuries old industry has traditionally used coir fibre from the Coco palm (*Cocos nucifera*) for highly durable products such as marine rope and matting.
- Decomposition:** Coir fibres absorb very little water during normal outdoor usage, which means that the fibres will not decompose. The fibres dry quickly, which protects the barrier from the onset of mould or moss.
- Covering:** Greenscreens are supplied with metal clips for initial securing of plants to the Acoustic Barrier. By means of these clips, the barrier can turn "green" instantly. For example, 2-metre high Hedera climbers cover 50% of the barrier, and will cover the barrier completely within a short period of time.
- Planting:** Hedera or other climbers require little upkeep as far as pruning is concerned. The Hedera first climbs vertically, after which it will turn back downwards without extra support. The Virginia creeper, Parthenocissus and the Passion-flower plant (*Passiflora*) are also excellent choices for this purpose.
- Fireproof:** The coir fibres are impregnated with Firestop, which is an ecologically sound, fireproof application. The coconut fibres therefore fall into flame spread category 1, NEN 6065 standard.
- Maintenance:** The Greenscreen Acoustic Barriers are basically maintenance free once covered in foliage. In time, the coconut fibres will turn lighter in colour due to sun exposure. However, the fibres will maintain their natural look and remain tough.
- Recycling:** Recycled ABS plastic (old mobile phone casings and yoghurt cups) is used for extruding the tubes onsite at the manufacturing plant.
- Installation:** Approved contractors implement the installation of the barriers.

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## Specifications of Parts & Materials

### *Dimensions and design- Greenscreen Acoustic Barrier:*

- Standard design: panel width: 2,460 or 2,960 mm (centre to centre 2.500mm or 3.000mm)
- Maximum design dimensions:= width: 5,000 mm
- Maximum height: = 6 metres starting from ground level
- For a Greenscreen Noise Barrier measuring higher than 2,20 metres (starting from the ground level) the height is divided into 2 or more stacked panels.

### *Steel Construction:*

- *Style of column:*  
Taking into account the barrier's height, RSJ 120 to 200- hot-dip galvanised with a slotted top plate, diameter 15-25 mm, DIN 17100 quality standard. Optional powder coating in any desired colour.

### *Panels:*

- Framework made of cold-rolled U-80-50-3, hot-dip galvanised (NEN 1275), quality standard DIN 17100.  
Sound insulation, single number descriptor reading - NEN-EN-ISO-717-1:  $R_w = 29\text{dB(a)}$  - NEN 1793-2, Category B3 (top category for sound insulation). Please see attachment TNO Sound Insulation reading.
- Reduction level by means of DL.. =  $7\text{dB(a)}$  - NEN 1793-1, category A2. Please see attachment TNO, sound absorption reading.
- Mass of panels:  $25 - 35 \text{ kg/m}^2$  depending on applied insulation plate:  $25-35 \text{ kg/m}^2$
- Dimensions panels:

Standard width panel	:	$W_{\text{panel, stand}}$	= 2,460 or 2,960mm
Maximum width panel:		$W_{\text{panel, max}}$	= 4,960 mm
Allowable placement tolerance:		$T_{\text{pl.panel}}$	= 40 mm (in relation to $w_{\text{pattern}}$ )
Maximum height panel:		$h_{\text{panel, max}}$	= 2,200 mm

### *Joint materials:*

- Top plate or bolster for each column:
  - 4 x M16 x 60 hexagon bolt "zinc plated" - DIN 933
  - 8 x Pin M16 - DIN 933
  - 4 x Bolt M16 "zinc plated" - DIN 934
- Attachment panels, per item:
  - 8 x self-drilling hexagon shoulder pin ST.6,3 x 38 mm - DIN 7405K

### *Synthetic material:*

- Recycled fire-retardant ABS, pipes diameter  $\varnothing 32$  mm, wrapped in coconut fibres.
- EPDM self-adhesive cellular rubber, 30 x 6 mm between stacked panels.

### *Coir Fibre:*

- Only the longest and most durable mattress-quality fibres are used.
- The coir fibres are checked continuously in order to guarantee an EC (saline) content of  $< 0,5\text{mS/cm}$ .
- Coir fibres serve as a bonding substrate for climbers' aerial roots.
- Treated with Magma Firestop. Fireproofed according to NEN 6065 Flame Spread Category 1.



# Greenscreen Acoustic Barrier

## Acoustic Data Greenscreen Noise Barrier

TNO-rapport

HAG PPT-000142

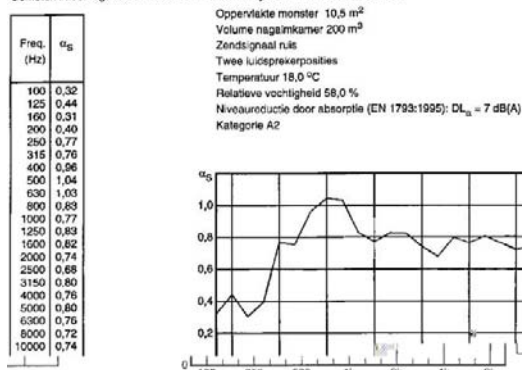
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### GELUIDABSORPTIEMETING volgens de NAGALMMETHODE

Oprachtgever : Syntens t.b.v. Comos  
 Projectnummer : 008.50047.01.01  
 Datum : 1999-04-22  
 Constructie : Kokowall dubbellaags



Gemeten in de nagalkamer van de Technisch Fysische Dienst TNO-TU Delft



Technisch Fysische Dienst TNO-TU Delft

COV0504

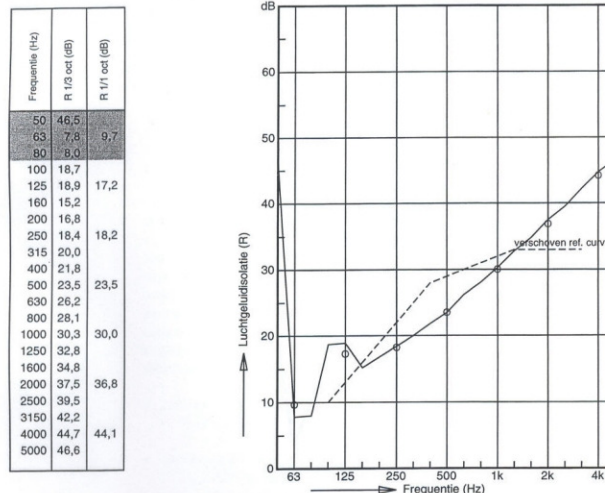
### LUCHTGELUIDISOLATIE WANDCONSTRUCTIE Laboratorium metingen volgens NEN-EN-ISO 140-3

Oprachtgever : Syntens Comos  
 Projectnummer : 008.02378/01.01  
 Gemeente door : Comos B.V.

Product : Isolatieplaat t.b.v. Kokowall  
 Testruimte : Meetruimte TPD kamer 1-2  
 Testdatum : 2000-10-18

Massa : 4,6 kg/m<sup>2</sup>  
 Oppervlakte : 1,88 m<sup>2</sup>  
 Volume zendruimte : 109 m<sup>3</sup>  
 Volume ontvangruimte : 99 m<sup>3</sup>

Isolatie-index voor luchtgeluid  $I_{a,lab}$ : -24 dB



Eéngetalsaanduiding volgens NEN-EN-ISO 717-1

$R_w (C; C_{tr}) = 29 (-1; -4)$  dB  
 $C_{50-3150} = -2$  dB  $C_{50-5000} = -1$  dB  $C_{100-5000} = 0$  dB  
 $C_{tr,50-3150} = -6$  dB  $C_{tr,50-5000} = -6$  dB  $C_{tr,100-5000} = -4$  dB

TNO Technisch Fysische Dienst TU Delft

COMOS03

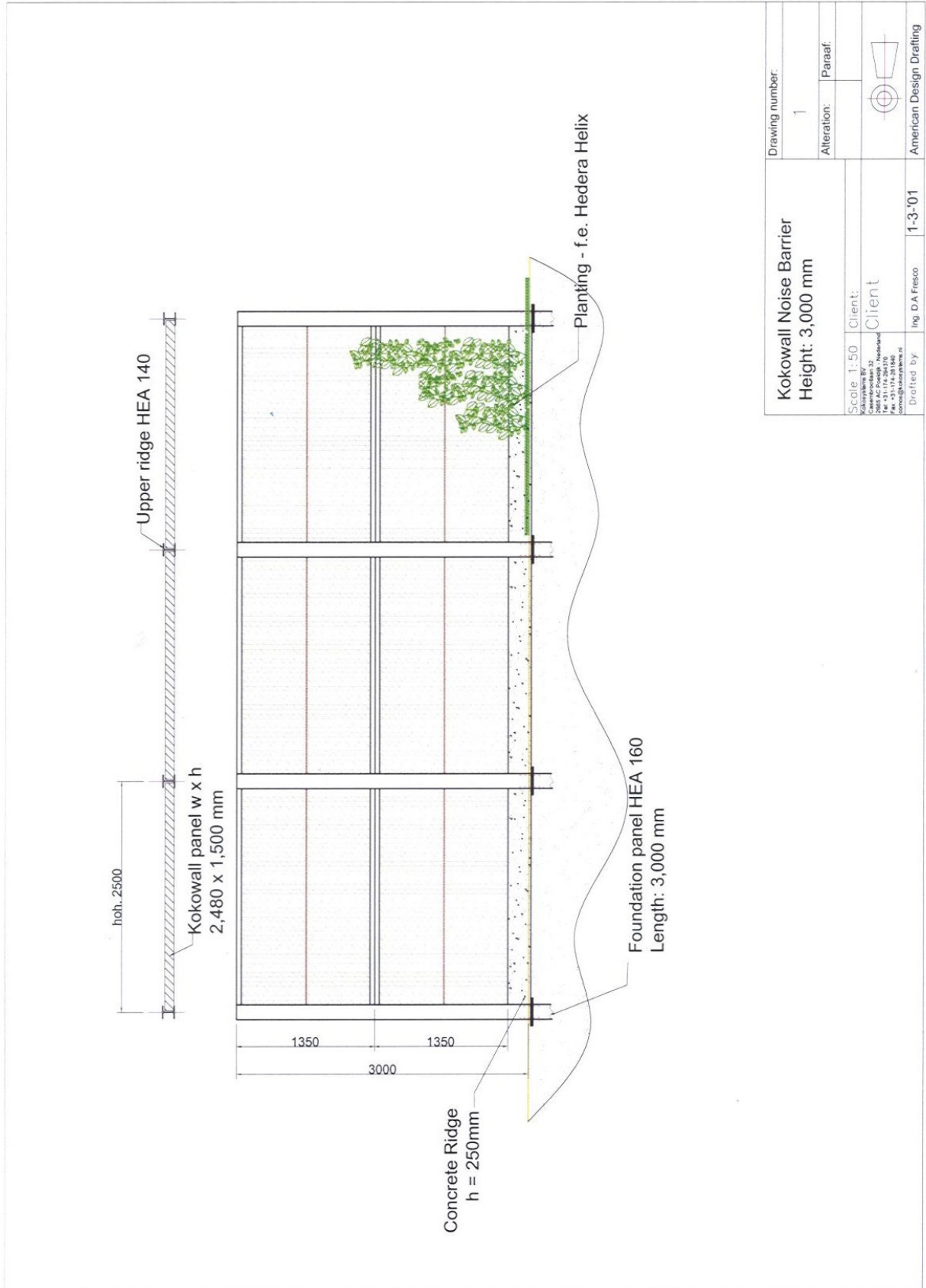
<b>Prefab Greenscreen panel</b>	<b>Sound Absorption <math>D_w</math> (in dB)</b>
Greenscreen with sound insulating plate	7dB



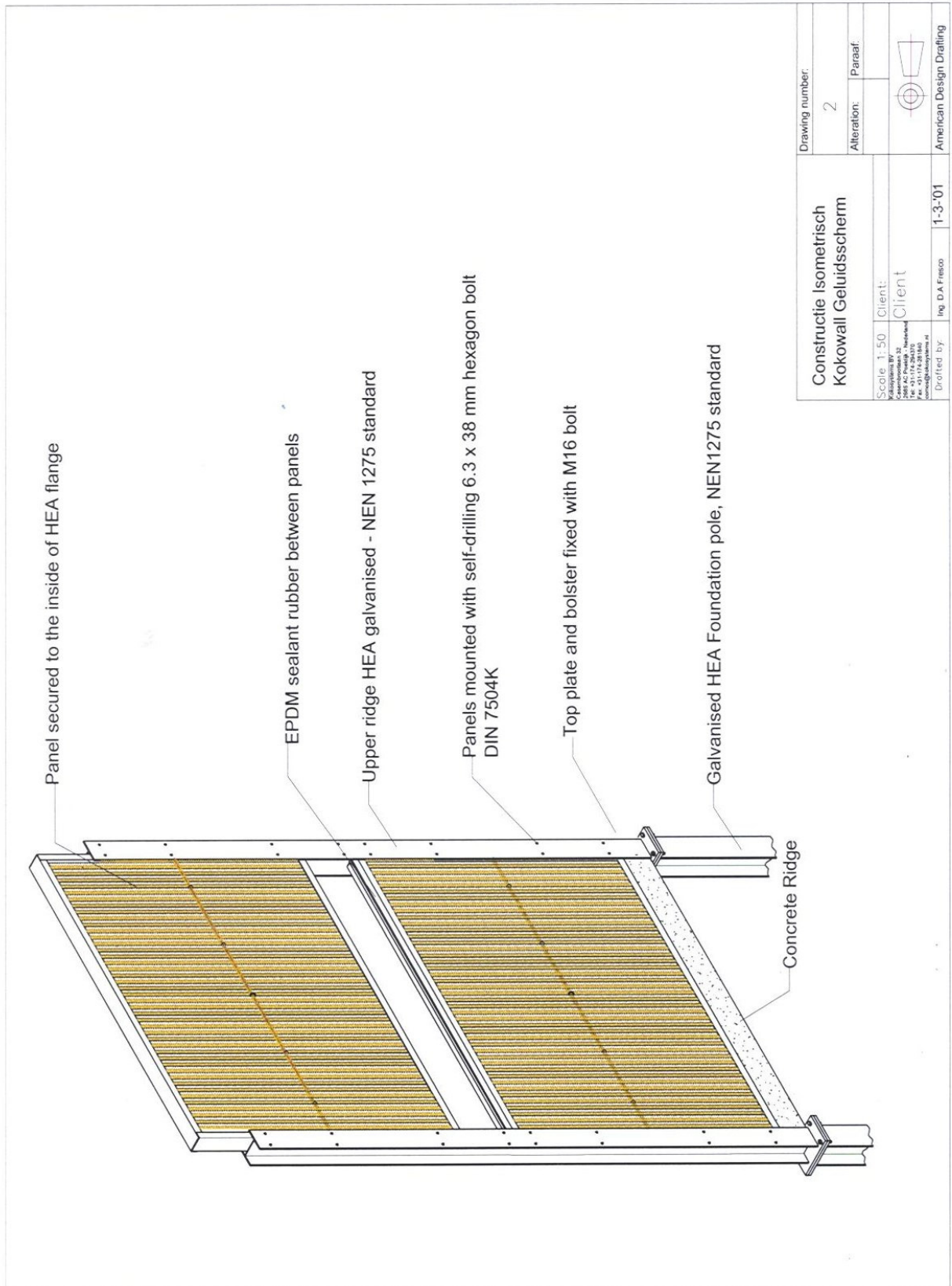
Table: Noise reduction  $R_w$

<b>Prefab Greenscreen panel</b>	<b>Noise reduction <math>R_w</math> (in dB)</b>
Greenscreen with sound insulating plate	29dB

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