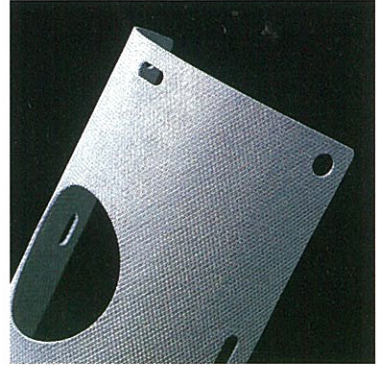
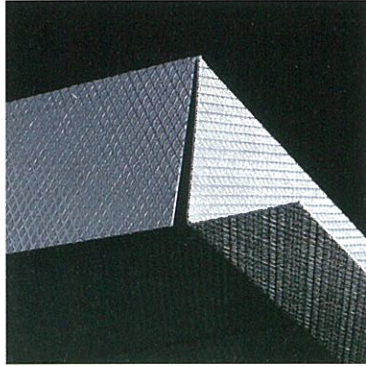
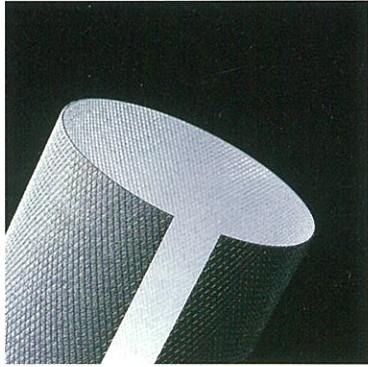


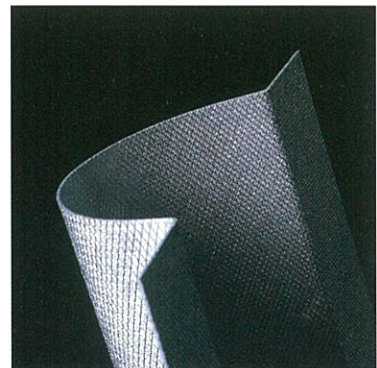
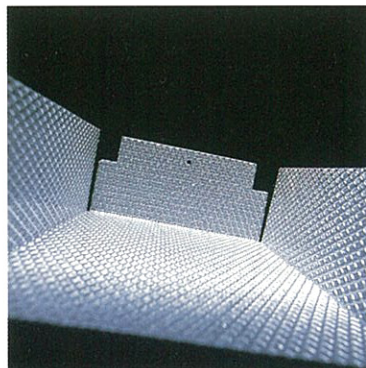
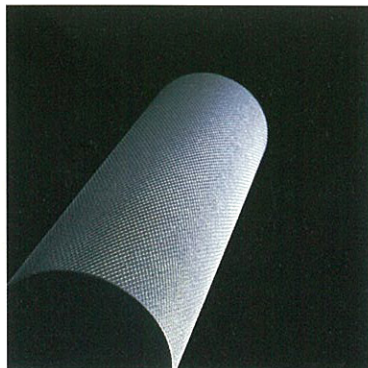
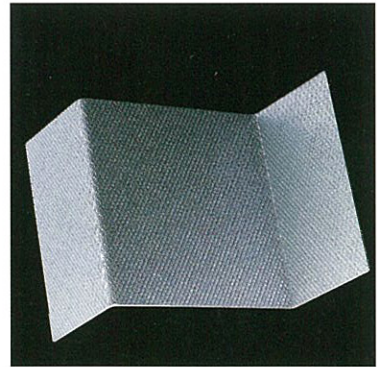
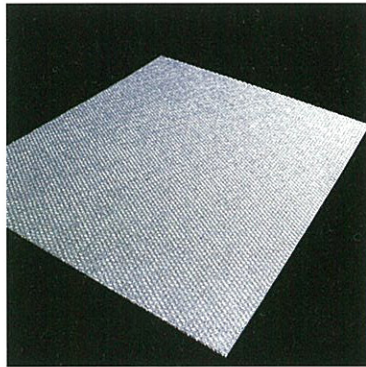
# POAL

P o r o u s A l u m i n i u m S h e e t

PATENTS  
Japan, USA, Canada, Australia, England



UNIX





# In all-metal sound absorbing material for the next generation.

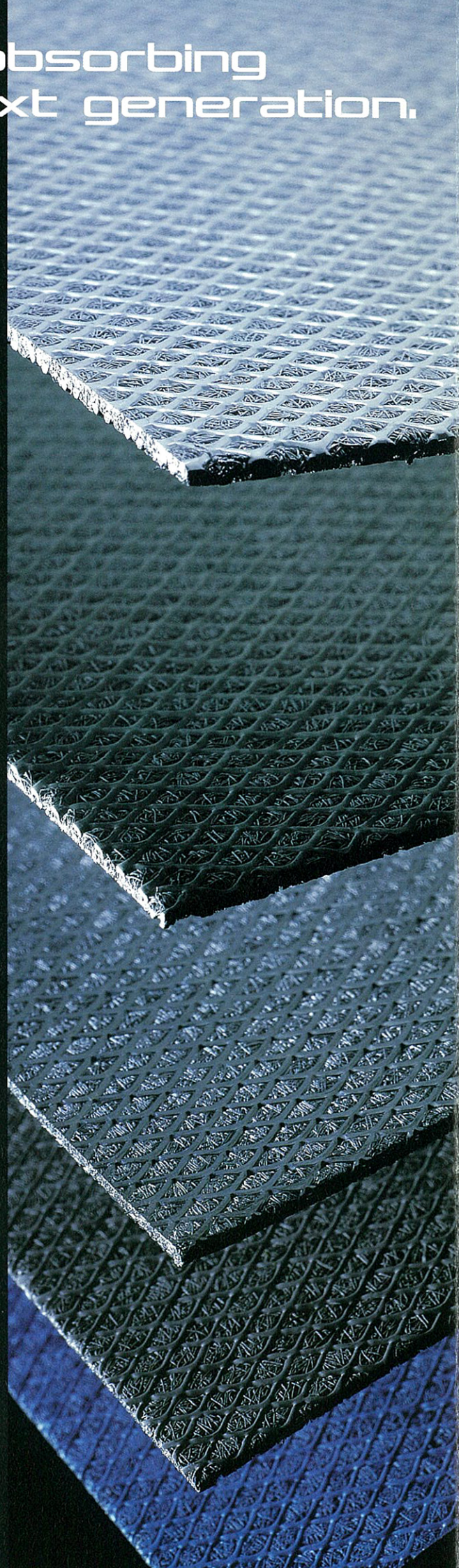
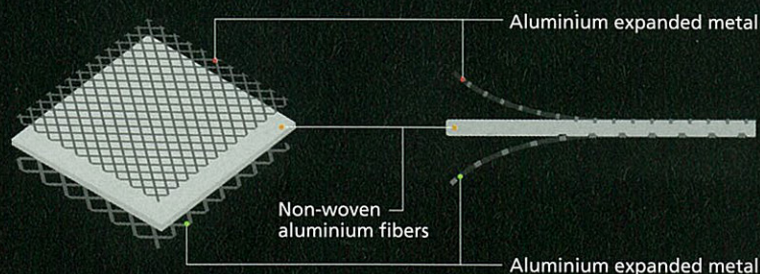
In Japan and in other nations, fiber-glass and rock-wool have been typical sound absorbents in the past. UNIX Poal is a completely new type of sound absorber compounded with non-woven aluminium fibers and aluminium expanded metals, which offers a variety of excellent properties.

## Outstanding Features

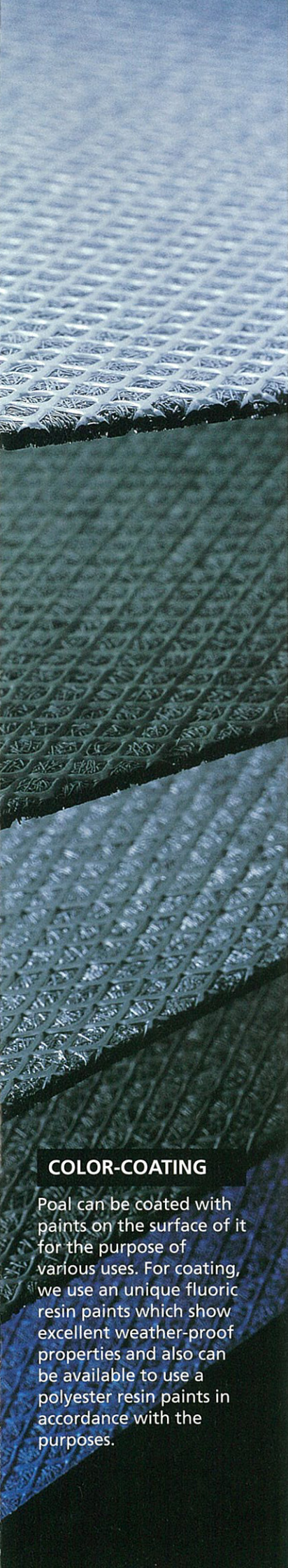
- 1 Excellent sound absorptive properties**  
Poal is a completely new type of sound absorber compounded with non-woven aluminum fiber and expanded metals and it shows superior broad-banded sound absorption.
- 2 Lighter than aluminum yet sturdy**  
Porosity of Poal is about 40%, so the specific gravity of it is about 2/3 of aluminum plate. As the material is solid metal like plate and has strong resistance to wind pressure, there is no need to provide front cover, such as perforated metal.
- 3 Good weather resistance and non-flammability**  
Weatherproof and fireproof tests show that Poal has a long life and non-flammability.
- 4 Recycling capability**  
Poal is made from pure aluminum, so it can be melted again for other aluminum products.
- 5 Good drainage and free from deterioration**  
Poal drains water well, thus unlike fiberglass, no lowering in sound absorption efficiency due to water.
- 6 Excellent workability and easiness of handling**  
Poal can be formed into a curved board and cylinder. Drilling, nailing, bolting and other mounting works are easy to do. Unlike fiberglass, Poal is not dispersed in the form of tiny fibers. Thus no problem of pollution arises and handling is easy.
- 7 A variety of applications**  
Poal can be used for a variety of applications such as the sound absorber for reverberation control in a room, noise barrier and noise reducer for prevention of noise pollution. The ornamental uses are also available after color coating.
- 8 Poal contains no organic binder**  
Poal is a porous aluminum board by rolling non-woven aluminum fibers with expanded metals. It is not susceptible to loss of strength over time because it contains no organic binders.

## STRUCTURE OF POAL

Poal stands for POROUS ALUMINIUM. Poal is composed of non-woven aluminium fibers sandwiched between aluminium expanded metals and rolled into a rigid board.



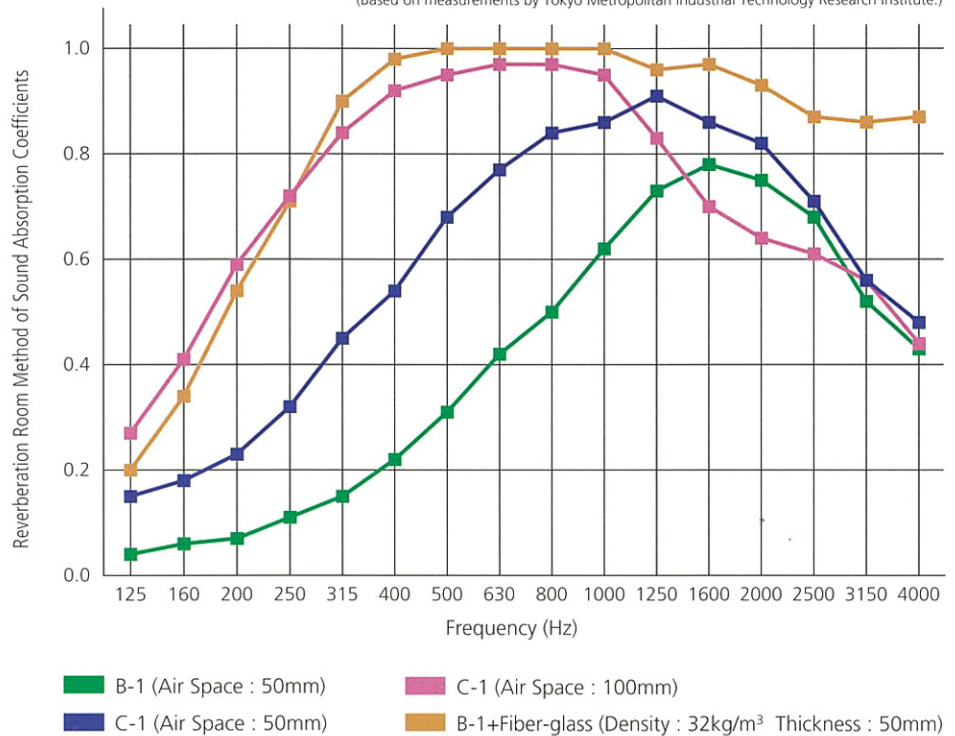




## SOUND ABSORPTION PROPERTY

- Poal C-1 is used as the standard Poal and can be used independently by getting airspace of over 80mm or so.
- Poal B-1 can be used with fiber-glass and shows good sound absorptive property.

(Based on measurements by Tokyo Metropolitan Industrial Technology Research Institute.)



## PROPERTIES

Test Item	Test Method	Results
Weatherproof test	2,000Hr (Equivalent to 10 years)	No abnormality observed.
Waterproof test	500 hrs in running water	
Boiling test	After boiling for 4 hrs, dried for 20 hrs at 100 centigrade. (The process repeated twice) * JAS Class 1	
Cold-heat test	After maintaining for 2 hrs at 80 centigrade, dried for 2 hrs at -20 centigrade. (The process repeated twice) * JAS Class 1	
Fireproof test	5cc of oil dropped on 10 sq. cm of the material and the material is ignited.	Because of the high heat transfer rate and contact with air, the oil burns quickly, and no melting nor deformation occurs.
Water holding property	Water permeability	When water is poured on the material with a hose, almost all water flows down through pores of the panel and does not penetrate into the back of the panel. Almost no water remains in the panel.
	Water drainage	Water material dries by 80% in 2 hrs at 20 centigrade.

## TYPES and DIMENSIONS

Types	Thickness (mm)	Weight (kg/m <sup>2</sup> )	Width x Length (mm)	
			Standard	Maximum
B-1	1.3	2.0	500 x 1000	1000 x 2000
B-1TH	1.5	2.6		
C-1	1.6	2.6		
C-1TH	1.8	3.2		

\* "TH" means Thickness and the rigidity is risen by using thicker expanded metals. Sound absorptive properties of TH are equivalent to those of no TH. TH is used on the place where the rigidity is needed.

## COLOR-COATING

Poal can be coated with paints on the surface of it for the purpose of various uses. For coating, we use a unique fluoroc resin paints which show excellent weather-proof properties and also can be available to use a polyester resin paints in accordance with the purposes.



# EXAMPLES OF INDOOR USE

Porous aluminium sheet, Poal, has been approved as a non-flammable material by the Ministry of construction of Japan and can be coated with unique painting method on the surface of it without lowering the sound absorptive property. Therefore, Poal is used widely as the sound absorptive material for ornamental use.

## Office

Office for designing the layout of newspaper's insert. Poal cylinders hanging from the ceiling are used in the office room in order to reduce the noise generated from office automation apparatuses effectively and also useful as the partition. Poal cylinders are made out of Poal boards which are formed into cylindrical shape.



PLACE: In the room  
PURPOSES: Noise reduction/Partition



**SUPER COMPUTER ROOM**  
PLACE: Ceiling/Wall  
PURPOSES: Decrease of noise generated from fans to cool computer.

## Indoor Swimming Pool

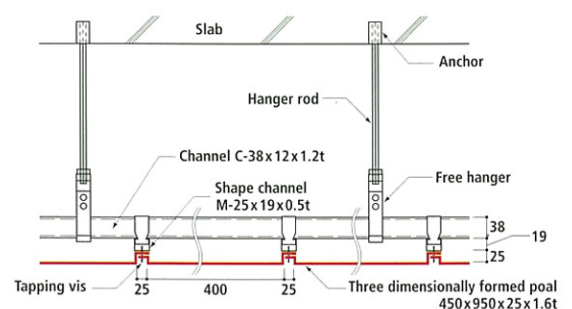


PLACE: Ceiling  
PURPOSES: Reduction of reverberation

Surface protected Poal is ideally suited on the ceiling and wall of indoor swimming pools that contain much moisture and chloric gas. Poal's excellent properties on anti-corrosion, drainage and good prevention from dew condensation on the surface of it are strengthened more by color coating.



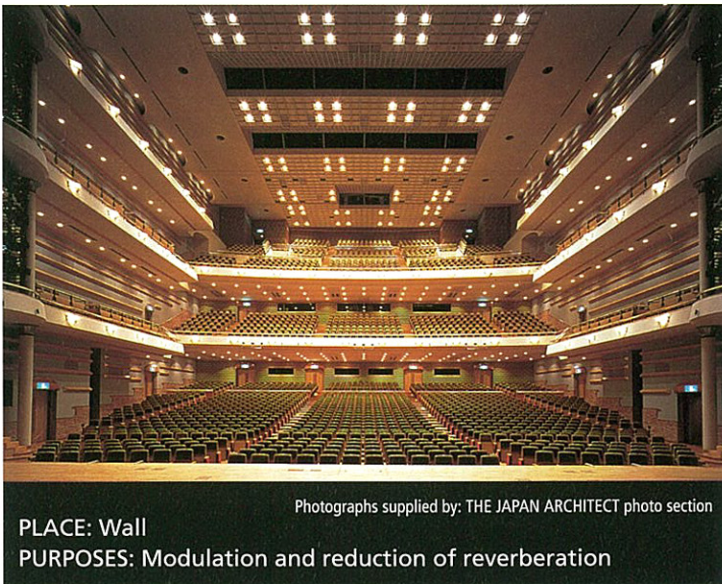
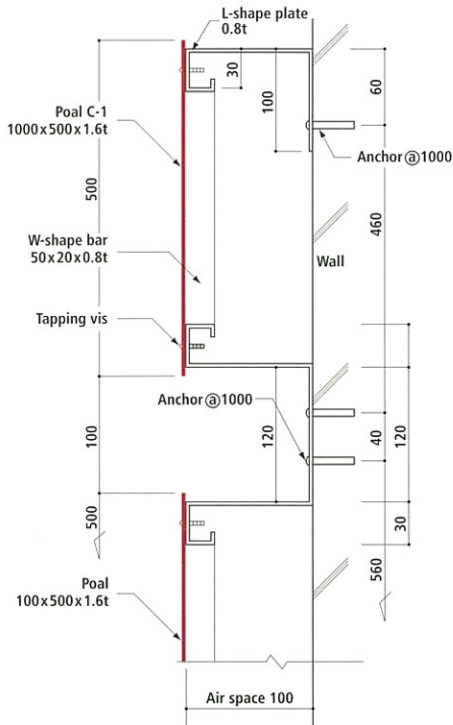
PLACE: Wall  
PURPOSES: Reduction of reverberation





# Exhibition Hall / Concert Hall

Poal is suited for use of a large indoor space such as an exhibition hall and a concert hall because of its easiness of color coating, no dispersion of airborne fibers like fiberglass and excellent workability.



## Use of The Others

- PURPOSES: Decrease/Adjusting of reverberation
  - Lobbies of airport (ceiling)
  - Restaurants (ceiling)
  - Entrance halls (ceiling/wall)
  - Skating rinks (ceiling/wall)
  - Pinball parlors (on the pinball machine)
  - Audio visual rooms (ceiling/wall)
  - Studios for radio/TV broadcasting (ceiling/wall) and so forth.
- PURPOSES: Noise reduction
  - Various factories
  - Laboratories for an automobile engine
  - Laboratories for a wind-tunnel test
  - Telephone booths
  - Clean rooms and so forth.

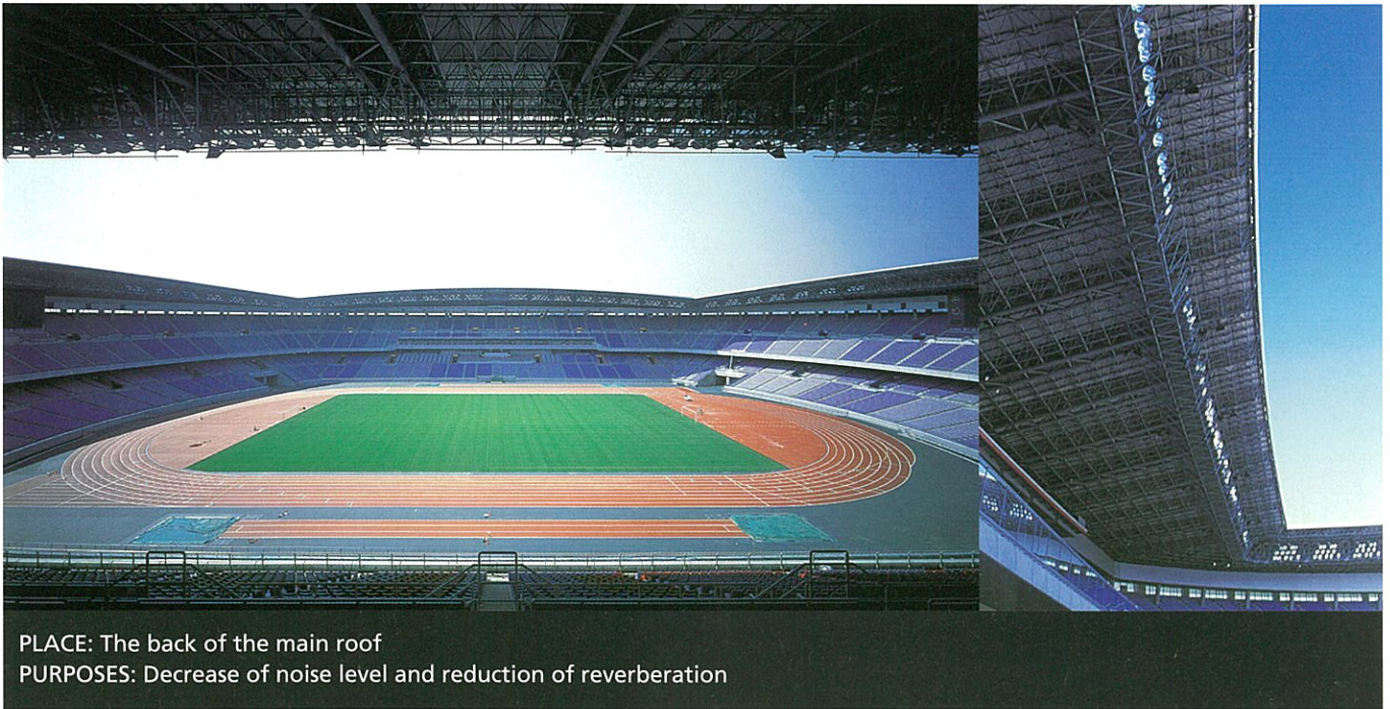
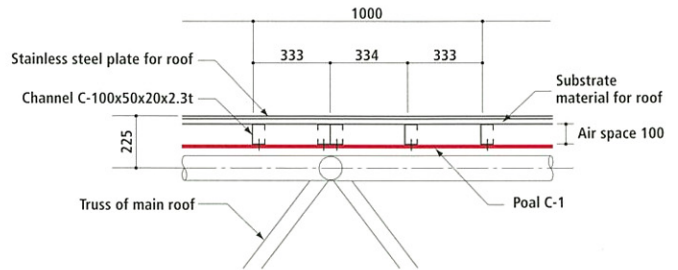


## EXAMPLES OF OUTDOOR USE

Poal is composed of non-woven aluminum fibers sandwiched between aluminum expanded metals and it shows good properties under the strict conditions such as outdoor use because of its excellent anti-corrosion and drainage characteristics.

## Stadium

Poal's light weight allows it to be used under the roof deck of a stadium where it produces a more comfortable environment by decreasing noise level and reducing reverberation.



PLACE: The back of the main roof  
PURPOSES: Decrease of noise level and reduction of reverberation

## Cooling Towers / Outdoor Units of Air Conditioning Systems



**CT-**  
冷却  
**COOLING TOWERS**  
PLACE: Noise barriers and noise reducers on the top of noise barrier  
PURPOSES: Decrease of noise level



# Expressway

Poal has excellent drainage and no lowering in sound absorption efficiency due to rainfall, therefore it is used widely as the sound absorptive material for the expressway.



PLACE: The back of the expressway  
PURPOSES: Decrease of the traffic noise generated between the back of the expressway and the expressway.



PLACE: Noise reducers on the top of noise barriers of the expressway.  
PURPOSES: Decrease of the traffic noise generated on the expressway.

## The Others of Outdoor Use

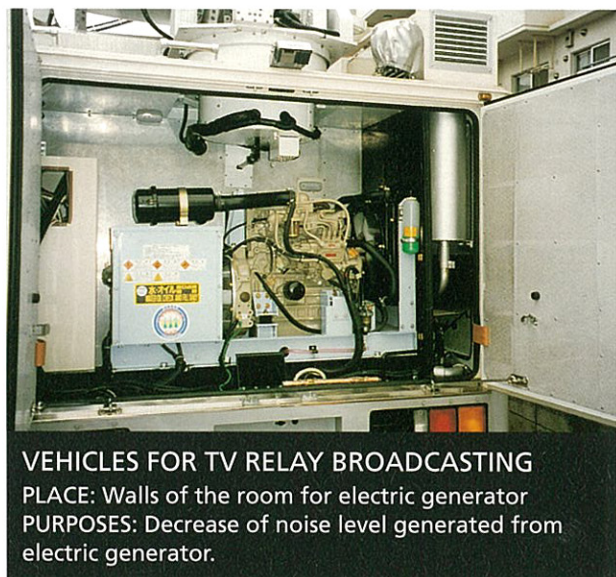
- PURPOSES: Decrease of noise level
- Noise barriers along a railway line
- Vehicles (railway)
- Factory (outdoor noise barriers)
- Race tracks (noise barriers)

- Tunnels for expressway
- Car washing machine (noise barriers)
- Ventilating ducts (tunnel, subway)
- Varieties of silencers and so forth.

## THE OTHERS

Poal is non-flammable material, therefore it can be used at the high temperature atmosphere such as the room for electric generator.

- Engine rooms of railway vehicles
- Engine rooms of vessel
- Operation rooms for varieties of machines
- Power plants
- Compressors for cooling devices
- Dishwashers and so forth.



VEHICLES FOR TV RELAY BROADCASTING  
PLACE: Walls of the room for electric generator  
PURPOSES: Decrease of noise level generated from electric generator.

## CAUTION!

**CAUTION OF HANDLING OF POAL SHEETS :** Poal is the porous material, so the following attentions are needed to prevent the generation of stains and change of color.

1. Before fixing Poal to the objects, water such as rain should be kept away from the bundle of Poal and chose the storage and storage method.
  2. If there is a possibility above, a clear coating or a color coating should be adopted on the one side of Poal surface before packing in order to prevent the generation of water-stain on the surface of Poal.  
Water-stain does not affect the strength and the weather resistance of Poal. It only changes the surface color of Poal.
  3. When the Poal is fixed or stored with other material that reacts with water and it's an effluent shows a color, Poal might be changed color by the dropped water or the moisture.
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