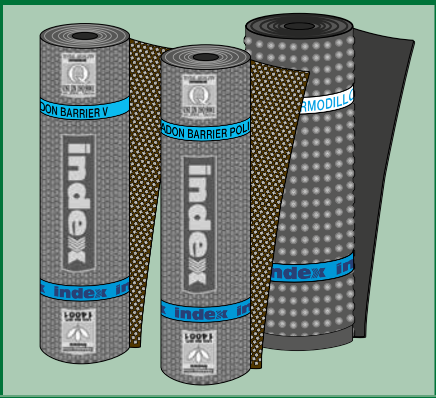


RADON BARRIER POLYESTER
RADON BARRIER/V
RADON BARRIER ARMODILLO POLYESTER

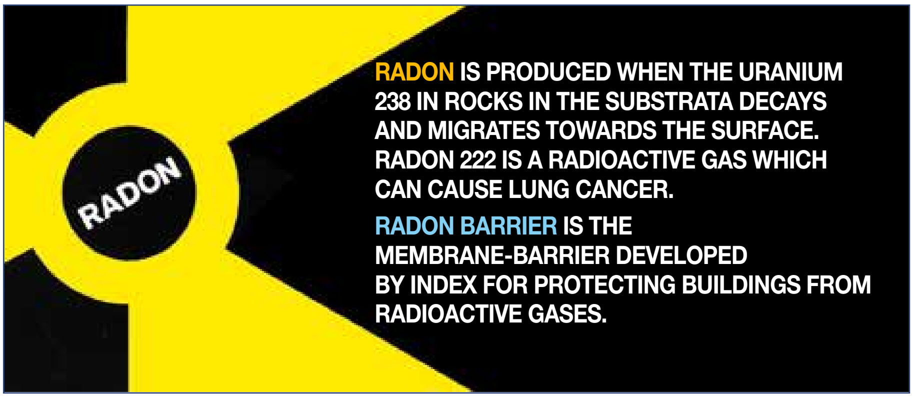
MULTIFUNCTIONAL ELASTOPLASTOMERIC DISTILLED POLYMER-BITUMEN ANTI-RADON WATERPROOFING MEMBRANES FOR PROTECTION OF BUILDINGS FOUNDATIONS FOR RADIOACTIVE EMISSIONS FROM THE SUBSTRATA

GRANTS *LEED* CREDITS

1 PROBLEMA

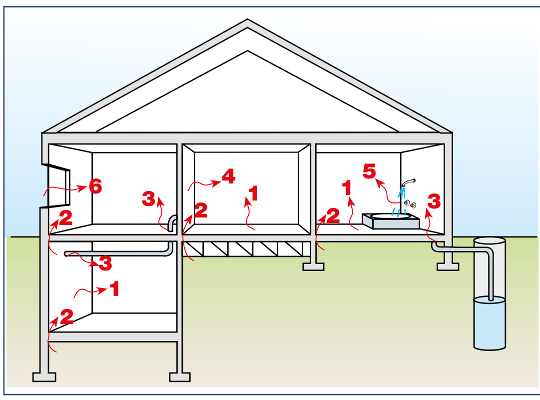
HOW TO PROTECT NEW OR OLD BUILDINGS FROM RADIOACTIVE RADON GAS

RADON is produced when the uranium 238 in rocks in the substrata decays and migrates towards the surface.
There are three such isotopes: RADON 219 and RADON 220, which are held to be less dangerous as they are present in lower concentrations and have a very short half-life, the first 4 seconds and the second roughly 1 minute; the third isotope is RADON 222.
RADON 222 has a half-life of 3.8 days and this means that it can radiate, penetrate into buildings or dissolve in water.
Even construction materials can radiate RADON directly if they contain small quantities of Uranium.



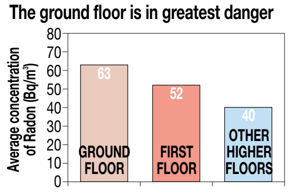
In Sweden, in the 1960s, aluminium stone with high levels of Uranium was used to produce cement and this has created a great number of problems, as with some granite materials, used as indoor coverings and the tufaceous construction materials from central Italy which can all be sources of radiation.
The presence of RADON in houses can come from various sources:

- Outdoor air: the RADON that radiates from the substrata, in most cases, is diluted in the air without causing any great danger. In some cases however, due to a combination of situations (narrow valleys and thermal inversion phenomena that prevent the air change), there is the possibility that the contribution of the outdoor air to this pollution is notable.
- The above-mentioned building materials.
- Tap water: water in the substrata can become charged with RADON 222, which is then radiated into the environment when the water is used. However, with the exception of the case of homes with private wells situated in areas with particularly high concentrations of RADON, this seems to be a secondary source of pollution, as ingestion is not as dangerous as inhalation. In any case, studies are being carried out on the actual dangers presented by polluted water.
- The substrata: this is the primary source of RADON pollution. The amount of RADON radiation depends on the quantity of Uranium in the substrata and on the possibilities for this radiation to migrate outward depending on the porosity and the amount of cracks of the substrata. When RADON 222 reaches the surface, it penetrates into cellars and in air spaces, more easily along joints, cracks and pipe passages. The concentration of RADON in the home depends on the air exchange in the environment and certainly heat insulation techniques do not help in this. It also seems that extraction fans that cause air pressure drops in rooms tend to increase the flow of RADON.



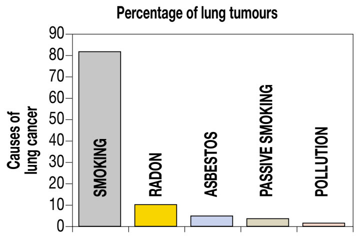
LEGENDA
1. Cracks
2. Joint between walls and floors
3. Points of penetration for pipes
4. Radiation from buildings materials
5. Radiation from tap water
6. Outdoor air

The ground floor is in greatest danger



The process of RADON pollution and associated pathologies

RADON is an inert, tasteless, colourless and odourless gas, but it is also radioactive and it can cause lung cancer if it is breathed in. According to an American study, RADON is believed to be the second cause of lung cancer, second only to cigarette smoking, and in the United States alone, RADON causes 19 000 deaths.



In Italy, recent national inquiries attribute 10% of lung cancer deaths to RADON, while 80% are caused by cigarette smoking and only the remaining 10% to other causes. It is estimated that 3000 deaths per year can be attributed to RADON. Surprisingly RADON is a dangerous cause of cancer which is ignored by the current laws in force, in favour of simple "recommendations".

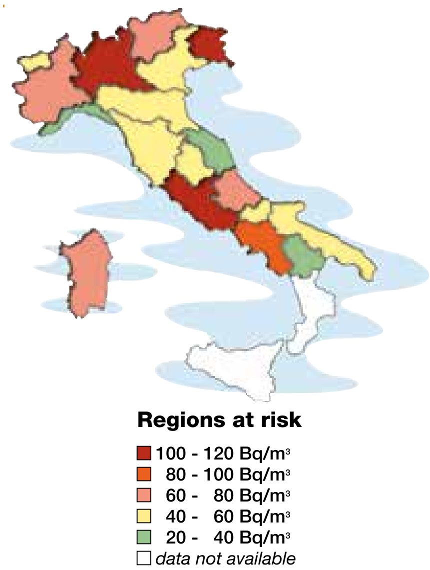
It is not exactly the radioactivity of the gas which is the main cause of the cancer, but rather the effect of the by-products that are formed due to the spontaneous decay of the RADON with its periodical transformation every 3.8 days. Every 3.8 days, spontaneously, the concentration of gas is halved but at the same time, it releases powdery, radioactive, nongaseous materials that deposit on the furnishings in the home and in the lungs. The transformation chain of RADON 222 consists of two phases:

- The first leads to the formation of Lead 210, a radioactive isotope with a half-life of 22 years;
- The second leads to the formation of Lead 206 which is stable.

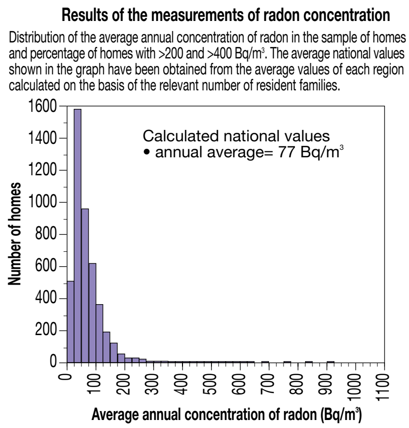
The most dangerous by-products are those of the first phase with a short half-life, a few seconds or minutes. In fact, these are solid particle materials, not gaseous like RADON and they build up in the lungs and inside the home.

National and international inquiries

In recent years a series of inquiries have been carried out in various countries with the aim of drawing up a map of the territories and existing homes at risk from RADON. Principally two sampling techniques have been used to measure the concentration of RADON in the homes: one called "active" which is based on the forced sampling of the gas through pumps; the other, called "passive", in which the gas enters in the measuring system by diffusion and the alpha radiation of the RADON and its by-products leaves traces on sensitive films. Passive gamma radiation detectors are used to measure the contribution of the radiation emitted by building materials. The first is used for instantaneous measurements and provides indications on the variability of the phenomenon during the day. In the second case, however, average data is obtained regarding the concentration relevant to a period of measurement which can even last for as long as a year. The second method of measurement has been used in Italy for 5,000 sample cases in an inquiry carried out in the 1990s by the ANPA (National Agency for Environmental Protection – ex ENEA/DISP) and by the ISS (Higher Institute of Health) in collaboration with 17 Regions and two Autonomous Provinces.



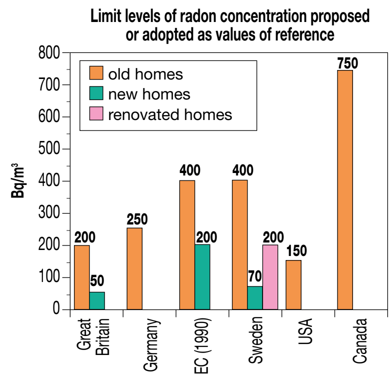
The radioactivity of RADON and of the by-products of its decay is expressed in Bq/m³ (Bq = becquerels, number of decays per second per m³ of air).
The results of the national inquiry are shown in the following graph.



The data available on a global scale is supplied by the United States and countries in the EU, while there is very little information from other countries. The scientific committee of the United Nations which studies the effects of atomic radiation, on the basis of the available information, has indicated a concentration of 40 Bq/m³ as an average global calculated value for homes, but it is hoped that the inquiry will be expanded to include those areas of the planet on which no information is available today.
The value of 77 Bq/m³ measured in Italy can be considered as an average/high value with respect to the global situation.
The various organisations studying RADON are concentrating more and more on the definition of the limit values to be considered dangerous and therefore to take steps to prevent this pollution.
Actually, during the measurement campaigns, many cases have been found where the concentrations are higher than those recommended by the ICRP (International Commission on Radiological Protection) which indicate a maximum level of 600 Bq/m³ for existing homes.
The concentration of RADON measured in the canteen food store of the Chamber of Deputies is 800 Bq/m³ and there are many cases in which homes have concentrations of over 1000 Bq/m³.
In the Veneto region, 4% of the homes tested were over 600 Bq/m³; the zones with the highest concentrations are those in the Belluno area and in the Colli Euganei hills near Padua. In one home in Torreglia 3 000 Bq/m³ was measured and 1 800 Bq/m³ in a home in Vo' Euganeo.

Regulations and standards in industrialised countries

In all the countries where regulations and standards on RADON in homes have been adopted (generally in the form of recommendations), levels of concentration above which action should be taken to decrease the levels of RADON indoors have been indicated. These levels are established allowing for existing situations, and thus for the levels of concentration measured in the various countries, following a detailed assessment of the economic costs that corrective actions could entail for the nation. In some cases, the continuing inquiries and further knowledge of the concentrations of RADON indoors have made it possible to diminish the proposed levels of reference after some years. However, we should remember that the levels of reference do not indicate a safe threshold and are just a compromise between politics and health.
In all of the countries where regulations are in force, the economic costs for making the home safe are at the building owner's expense; only in some countries does the government offer incentives (subsidised loans, etc.) and sometimes, in extreme cases, direct financial aid. The levels of reference chosen in some countries are shown in the following table. This table also shows the value proposed in the EU Recommendation of 1990; for new homes different values have been proposed (EU Recommendation) or adopted (for example in Sweden). The reason is simply a practical one, as a result of the more effective solutions adopted in the planning phase with respect to the steps that have to be taken in existing buildings. The EU Commission has recommended a level equal to 200 Bq/m3 for new homes. Finally, we should also bear in mind that in some countries levels of reference on the concentration of RADON have been adopted also regarding workplaces (Great Britain), or some public buildings, such as schools (USA).



RADON BARRIER POLYESTER
RADON BARRIER/V

CATEGORY	CHARACTERISTICS			ENVIRONRMENTAL							METHOD OF USE	
EP S			Reazione al fuoco		ASBESTOS FREE	TAR FREE	CHLORINE FREE					
SPECIAL ELASTOPLASTOMERIC FOR SPECIFIC USES	WATERPROOF	RADON BARRIER	REACTION TO FIRE	ECO GREEN	ASBESTOS FREE	TAR FREE	CHLORINE FREE	RECYCLABLE	NON DANGEROUS WASTE	EXHAUSTED OIL FREE	TORCH APPLICATION	HOT AIR APPLICATION

PROTECTING NEW BUILDINGS

2 SOLUTION

RADON BARRIER (RADON ADVANCED BARRIER) is made of a special elastoplastomeric compound based on distilled bitumen, plastomers and elastomers. It is extremely compact, without free volumes and thus impermeable to gases.
The reinforcement of the **RADON BARRIER POLYESTER** membrane consists of an elastic, puncture-resistant, "non-woven" polyester fabric.
The reinforcement in **RADON BARRIER/V** consists of rot-proof fibreglass mat coupled with aluminium foil that forms another barrier that is practically impossible for the RADON to penetrate.
The upper face of the membrane is coated with serigraphed talc, which makes it possible to quickly unroll the rolls. The underside of the membrane is coated with Flamina, a plastic film that melts when torched and which is embossed with squares to allow the optimal retraction of the film and indicates the correct bonding temperature.
Barrier continuity is obtained by torch-welding membrane overlaps. **RADON BARRIER POLYESTER**'s permeability to RADON is adequate for almost all applications because the partial pressure of RADON is generally just a few thousandths of a bar. Special situations may require the use of **RADON BARRIER/V**, which has such a low permeability to RADON that it can be considered a total barrier.

APPLICATION FIELDS

RADON BARRIER membranes are used to cover vertical and horizontal elements of new buildings that are in contact with the ground. On wet ground or near the water-bearing stratum, **RADON BARRIER** membranes are also used as the first layer of a waterproofing system consisting of two membrane layers.
For further information, please consult the INDEX publication "Technical Specifications no. 5 - Foundations".

CE

INTENDED USE OF "CE" MARKING SPECIFIED ACCORDING TO THE AISPEC-MBP GUIDLINES

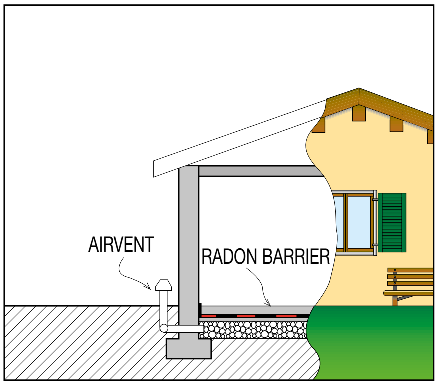
EN 13969 - BITUMEN DAMP PROOF SHEET INCLUDING BITUMEN BASEMENT TANKING SHEETS

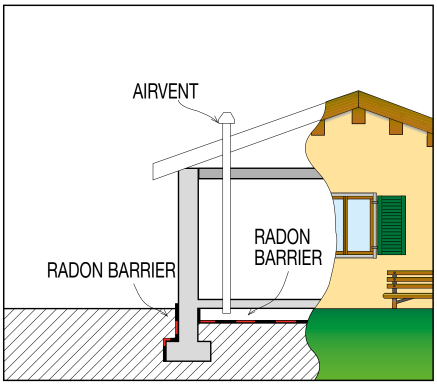
- **Membranes for foundations**

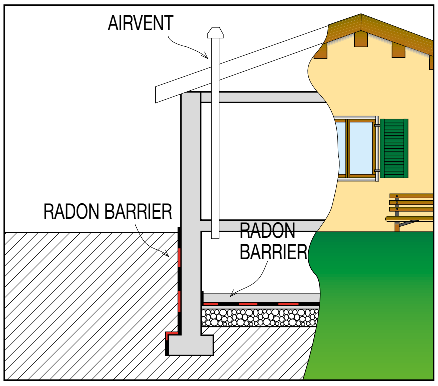
- RADON BARRIER POLYESTER
- RADON BARRIER/V

ADVANTAGES

- **RADON BARRIER membranes are multifunctional, providing protection from both RADON and water.**
- **Unlike other systems, unbroken protection is provided because the overlaps can be welded.**
- **Compared to other sheets, they are strong, resistant, and extra-thick and thus resist puncturing.**







CERTIFICATION

Certification
CSI
n. 038/CF/P97
n. 053/CF/P97

CSI

RADON BARRIER ARMODILLO POLYESTER

CATEGORY	CHARACTERISTICS			ENVIRONMENTAL							METHOD OF USE		
SPECIAL ELASTOPLASTOMERIC FOR SPECIFIC USES	WATERPROOF	RADON BARRIER	REACTION TO FIRE	ECO GREEN	ASBESTOS FREE	TAR FREE	CHLORINE FREE	RECYCLABLE	NON DANGEROUS WASTE	EXHAUSTED OIL FREE	TORCH APPLICATION	HOT AIR APPLICATION	NAILING

REFURBISHMENT EXISTING HOMES

2 SOLUTION

This is a more complex operation than the previous one and its success depends on the meticulousness with which the problem is confronted. In general, the work is localised at the underground walls of the building and therefore the penetration of gas along the piping and at the points where pipes enter the building will be suitably sealed; the same goes for cracks and joining lines between walls and floor. The rooms invaded by the gas are then completely covered with **RADON BARRIER ARMODILLO POLYESTER**, on which the walls and floors will then be redone, creating a room within a room but the two are completely insulated from each other. **RADON BARRIER ARMODILLO POLYESTER** is Index's embossed membrane which is used to create an air space between the old room and the new refurbished room. The air space, suitably ventilated, can be connected with the outside where the gas can escape without any danger. Contrary to other simpler refurbishing systems, the overlaps of **RADON BARRIER ARMODILLO POLYESTER** can be welded, thus offering the maximum protection and safety. **RADON BARRIER ARMODILLO POLYESTER** is impenetrable to gases, including radioactive ones; it is also resistant and elastic and easily adapts to various geometries.
RADON BARRIER ARMODILLO POLYESTER is the INDEX membrane with integrated functions of draining water and radioactive telluric gases.

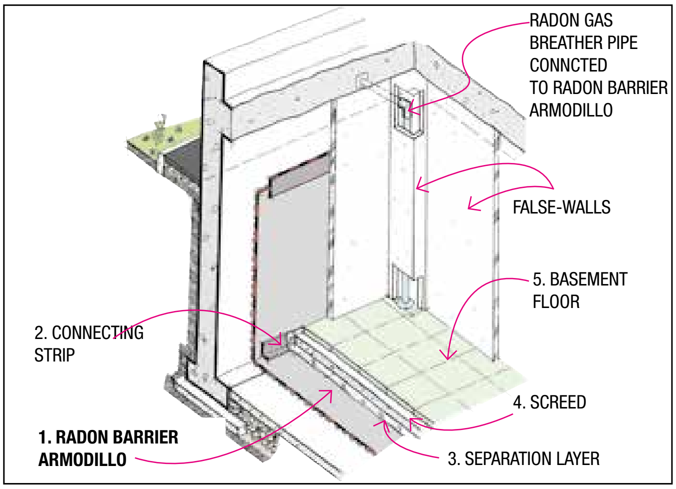
Its certified resistance to the passage of gas makes it a practically impenetrable barrier.
RADON BARRIER ARMODILLO POLYESTER is composed of distilled bitumen selected for industrial use, with a high content of elastomeric and plastomeric polymer additives to obtain a phase inversion compound whose continuous phase is formed by polymers in which the bitumen is dispersed.
The mixture is reinforced by "non-woven" polyester fabric that is resistant to puncturing and tearing and features high ultimate elongation to breakage.
The upper face of the membrane is armoured with highly resistant and elastic polymer bitumen plates, which protect it from puncturing and at the same time create a network of intercommunicating channels through which the moisture and radioactive gas are dispersed.

APPLICATION FIELDS

It's used for refurbishing, from the inside, existing cellars and underground rooms invaded by the radioactive gas RADON.

"DRY-IN" SYSTEM

The refurbishment will be carried out using the "DRY-IN" system. **RADON BARRIER ARMODILLO POLYESTER** is laid with the embossed face towards the surface to be painted or tiled, paying attention to overlap the sheets along the non-embossed edges. At the heads, the sheets are laid without overlapping.
On the floor, it is sufficient to spread the sheets dry, torching them only at the foot of the walls on an area 20÷30 cm wide. On walls, **RADON BARRIER ARMODILLO POLYESTER** is fixed by torching the plates of the armoured face.



INTENDED USE OF "CE" MARKING SPECIFIED ACCORDING TO THE AISPEC-MBP GUIDLINES

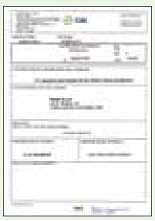
EN 13969 - BITUMEN DAMP PROOF SHEET INCLUDING BITUMEN BASEMENT TANKING SHEETS
- **Membranes for foundations**
- RADON BARRIER ARMODILLO POLYESTER

The lateral overlaps are torch welded, while the head joints are sealed with 14 cm strips of **RADON BARRIER POLYESTER** torch welded along the joining line between the sheets.
The union between the wall and the floor is made using 20 cm strips of **RADON BARRIER POLYESTER** as is the union with any emerging body or piping.
The head of the sheets on the walls can be sealed with a strip of **RADON BARRIER POLYESTER** torch bonded.
The draining chamber created between the surfaces and **RADON BARRIER ARMODILLO POLYESTER** is connected to one or more ventilation holes made on the part of the wall just above grade level or, if the wall is completely below grade, a breather pipe with natural or forced suction is connected to the **RADON BARRIER ARMODILLO POLYESTER** sheet by means of EPDM rubber boots.

ADVANTAGES

- **RADON BARRIER ARMODILLO is a multifunctional membrane that protects from both RADON and water, at the same time forming a drainage layer to drain both the radioactive gas and the humidity.**
- **Unlike other systems, unbroken protection is provided because the overlaps can be welded.**
- **Compared to other membranes, it is strong, resistant, and extra-thick and thus better resists puncturing.**

CERTIFICATION



Certification
CSI
n. 042A/LCF/EDI/03

CSI

Techniques for reducing the concentration of RADON coming from the substrata

La Any policy for reducing the risk of cancer caused by RADON must surely derive from a detailed series of territorial inquiries, with the aim of identifying the areas at risk.
In Great Britain a detailed survey has already been carried out, mapping the territory in areas of 5 km2.
Furthermore, it is also necessary to identify the technologies of intervention on existing homes or for prevention for homes to be built which are best suited to national building techniques, not always the same in different countries.
The diagnostic and treatment techniques are already a consolidated reality in some countries.
In the United States of America there are over 1000 specialised companies recognised by the EPA (Environment Protection Agency).
The type of intervention may be:

- Refurbishment of existing homes;
- Prevention in the planning phase of a new building.

In the first case the techniques can be costly and less effective and therefore the public authorities have recommended a higher level of concentration (CE: 400 Bq/m^3).
In the case of new homes things are simpler and this is shown by the level recommended by the EU, 200 Bq/m^3.

Prevention in new homes

This case is simpler and less costly than intervening on existing buildings because it almost always coincides with the measures taken to stop rising damp or infiltrations of water from the water table already envisaged in the project.
The American EPA considers that, if it is difficult to waterproof the walls in contact with the ground of an existing building, **in the case of new buildings this must be one of the basic principles for all forms of prevention in the zones at risk as it involves a modest expense**.
The EPA also suggests another precautionary measure that prevents risks from RADON if the waterproofing work has not been done correctly or cracks appear in time due to unforeseen causes.
This technique involves inserting pipes in the building during construction, therefore at a modest expense, through which the gas can be removed by suction if the need arises due to imperfections in the waterproofing layer.

The choice of the membrane

Waterproofing layers are subject to stress and can be punctured during installation or when they are covered with earth. During installation the membranes are mainly subject to the risk of static puncture and while they are being covered with earth they are subject to abrasion and tensile stress.
Waterproofing coverings are subject to the attack of aggressive chemical agents in polluted water tables, humic acid, microorganisms and fertilisers in the soil.
Finally, in the case of earthquakes, the layer is put under stress also by the differential movements between the layers of concrete in which it is installed (see Specifications no 5 bis).
In order to resist the stress taken into consideration, the waterproofing layer should be as follows.

- **Fully bonded to the structure to protect,** to reduce the passage of water and gas to a minimum in the case of accidental perforation and to resist the forces parallel to the layer deriving from differential movements.
- **Thick**: in order to match the creases in the substrate and, in the case of an earthquake, to resist the abrasive action of the granules rubbed off the concrete.
- **Reinforced** with elastic reinforcing elements which are very strong and resistant to stress and which must be thick enough to produce a waterproofing layer with uniform mechanical behaviour.
- **Resistant to accidental puncturing** on site.
- **Resistant to chemical and biological agents** present in the soil.
- **Resistant to roots throughout the thickness**, overlaps included.
- **Applicable in single or multiple layers**, with the membranes adhering to each other so as to modulate the resistance of the sealing elements.
- **Have a friction coefficient** with the concrete sufficient to avoid excessive traversing during severe seismic shocks and not prone to slipping in less severe shocks..
- It must be **sufficiently compact**, without any free volumes and therefore **impermeable to RADON gas**.

RADON BARRIER

RADON BARRIER is the barrier-membrane developed by INDEX to protect buildings from radioactive RADON gas. It is produced in two versions with different types of reinforcement.

Refurbishment of an existing home

It is not possible to free a home from RADON entirely. Only in a sealed house with air filtering systems would it be possible to not be exposed at all to the risks connected to the presence of this pollutant.
However, exposure can be reduced by decreasing the concentration of RADON inside the home using special remedial techniques.
It is important to remind smokers that giving up smoking remains the most effective action for reducing the risk of lung cancer.
Numerous factors are involved in choosing the remedial system: the structure of the building, the type of substrata, the installation and maintenance costs, and the lifestyle habits of the inhabitants themselves.
The main points are:

- a home in which the level of RADON, measured over the span of one year, is greater than the reference value of 200 Bequerels per cubic metre should be remedied;
- to decrease the concentration of RADON inside the home, it is necessary to limit the entry of the gas from the ground;
- to obstruct the entry of RADON, techniques for natural or artificial ventilation of the guard space can be applied; techniques are also available for sealing all the access points of RADON (cracks, fissures, plumbing).

Sealing can also be total, i.e. involving all the surfaces using impermeable membranes. This solution is particularly advisable in the case of renovation works in which new floors will be laid.

RADON BARRIER ARMODILLO

INDEX has developed a new refurbishment system called DRY-IN, which carries out at the same time:

- sealing
- ventilation.

It is based on the new embossed membrane **RADON BARRIER ARMODILLO POLYESTER**, which is able to seal as well as to disperse the radioactive gas to the outside by creating an air space.

Publications of the American Environment Agency on how to protect home from RADON

The Lombardy Region recently suffered a problem of exposure to RADON gas in buildings, because surveys developed over the past twenty years have revealed that Lombardy, together with Lazio, is one of the regions mostly affected by the problem. With the aim to reduce the concentration of this dangerous gas, the Lombardy Region has laid down guidelines that are to be implemented for both new buildings and for renovations or similar projects; they should also be added to the Municipal Building Regulations within 3 years from the issue date of the official memorandum.

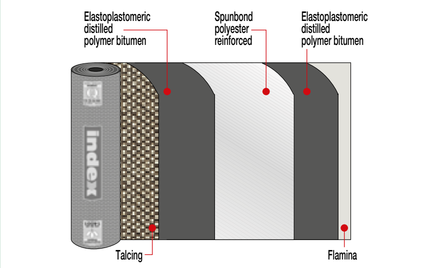
TECHNICAL CHARACTERISTICS

	Standard	T	RADON BARRIER POLYESTER	RADON BARRIER/V	RADON BARRIER ARMODILLO POLYESTER
Reinforcement			"Non-woven" Spunbond polyester	Fibreglass and aluminium foil	"Non-woven" Spunbond polyester
Thickness	EN 1849-1	±0,2	4 mm	4 mm	–
Mass per unit area	EN 1849-1	±10%	–	–	5 kg/m²
Roll size	EN 1848-1	–1%	1×10 m	1×10 m	1×7.5 m
Watertightness • after ageing	EN 1928 – B EN 1926-1928	≥ ≥	60 kPa 60 kPa	60 kPa 60 kPa	60 kPa 60 kPa
Shear resistance L/T	EN 12317-1	–20%	600/300 N/50 mm	450/300 N/50 mm	NPD
Maximum tensile force L/T	EN 12311-1	–20%	700/500 N/50 mm	450/350 N/50 mm	700/500 N/50 mm
Elongation L/T	EN 12311-1	–15% V.A.	40/45%	3/3%	40/45%
Resistance to impact	EN 12691 – A		1 250 mm	700 mm	1250 mm
Resistance to static loading	EN 12730 - A EN 12730 - B		15 kg 25 kg	5 kg –	15 kg 25 kg
Resistance to tearing (nail shank) L/T	EN 12310-1	–30%	160/200 N	70/70 N	160/200 N
Flexibility to low temperature	EN 1109	≤	–10°C	–10°C	NPD
Resistance factor to steam penetration	EN 1931		μ = 100000	μ = 1500000	μ = 100000
Reaction to fire Euroclass	EN 13501-1		E	E	E
External fire performance	EN 13501-5		F roof	F roof	F roof
Characteristics about protection against RADON gas					
Permeability to RADON (*)			< 10 cm³/m²x24 hxatm Impermeable to RADON gas	<<0.1 cm³/m²x24 hxatm Impermeable to RADON gas	< 10 cm³/m²x24 hxatm < 5 cm³/m²x24 hxatm Impermeable to RADON gas
Radon Transmittance (m/s)			$< 1.2\times10^{-10}$	$<< 1.2\times10^{-12}$	$< 1.2\times10^{-10}$
Radon permeability (m²/s)			$< 4.8\times10^{-13}$	$<< 4.6\times10^{-15}$	$< 3.4\times10^{-13}$
Thermal specifications					
Thermal conductivity			0.2 W/mK	0.2 W/mK	0.2 W/mK
Heat capacity			5.20 KJ/K·m²	5.20 KJ/K·m²	6.50 KJ/K·m²

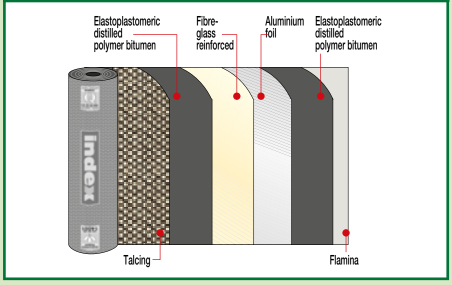
(*) This value is certified by the CSI laboratory in comparison with noble gases.

COMPOSITION OF THE MEMBRANE

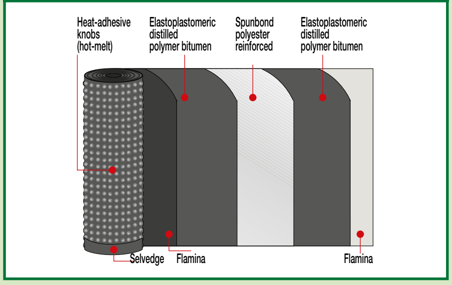
RADON BARRIER POLYESTER



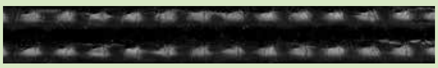
RADON BARRIER/V



RADON BARRIER ARMODILLO POLYESTER



PRODUCT FINISHING



EMBOSSING FLAMINA. The embossing on the lower surfaces of the membranes finished with Flamina film makes it possible to lay the product precisely and quickly; forming a smooth surface when melted with the torch. It indicates the correct melting temperature and lets the film retract faster. The embossing also enables optimal vapour diffusion; in spot bonded and loose laid installation, in the points where it remains intact, preventing blisters and swelling.

TALC SURFACING. The talcing of the top face is carried out with a technique which evenly spreads the very thin talc over the top surface with a special pattern, preventing accumulation or zones without talc. This new system allow a quick unroll and gives the surface a pleasant aspect, which enable to torch it faster if compared to the other coarser mineral finishes.

INDENTATED FLAMINA.

The figures shown are average indicative figures relevant to current production and may be changed or updated by INDEX at any time without previous warning. The advice and technical information provided, is what results from our best knowledge regarding the properties and the use of the product. Considering the numerous possible uses and the possible interference of conditions or elements beyond our control, we assume no responsibility regarding the results which are obtained. The purchasers, of their own accord and under their own responsibility, must establish the suitability of the product for the envisaged use.

• FOR ANY FURTHER INFORMATION OR ADVICE ON PARTICULAR APPLICATIONS, CONTACT OUR TECHNICAL OFFICE • IN ORDER TO CORRECTLY USE OUR PRODUCTS, REFER TO INDEX TECHNICAL SPECIFICATIONS •

index
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