IFA INTERNATIONAL

IFA INTERNATIONAL 01

INNOVATION FOR ARCHITECTURE

by ETERNO IVICA socio ANIT

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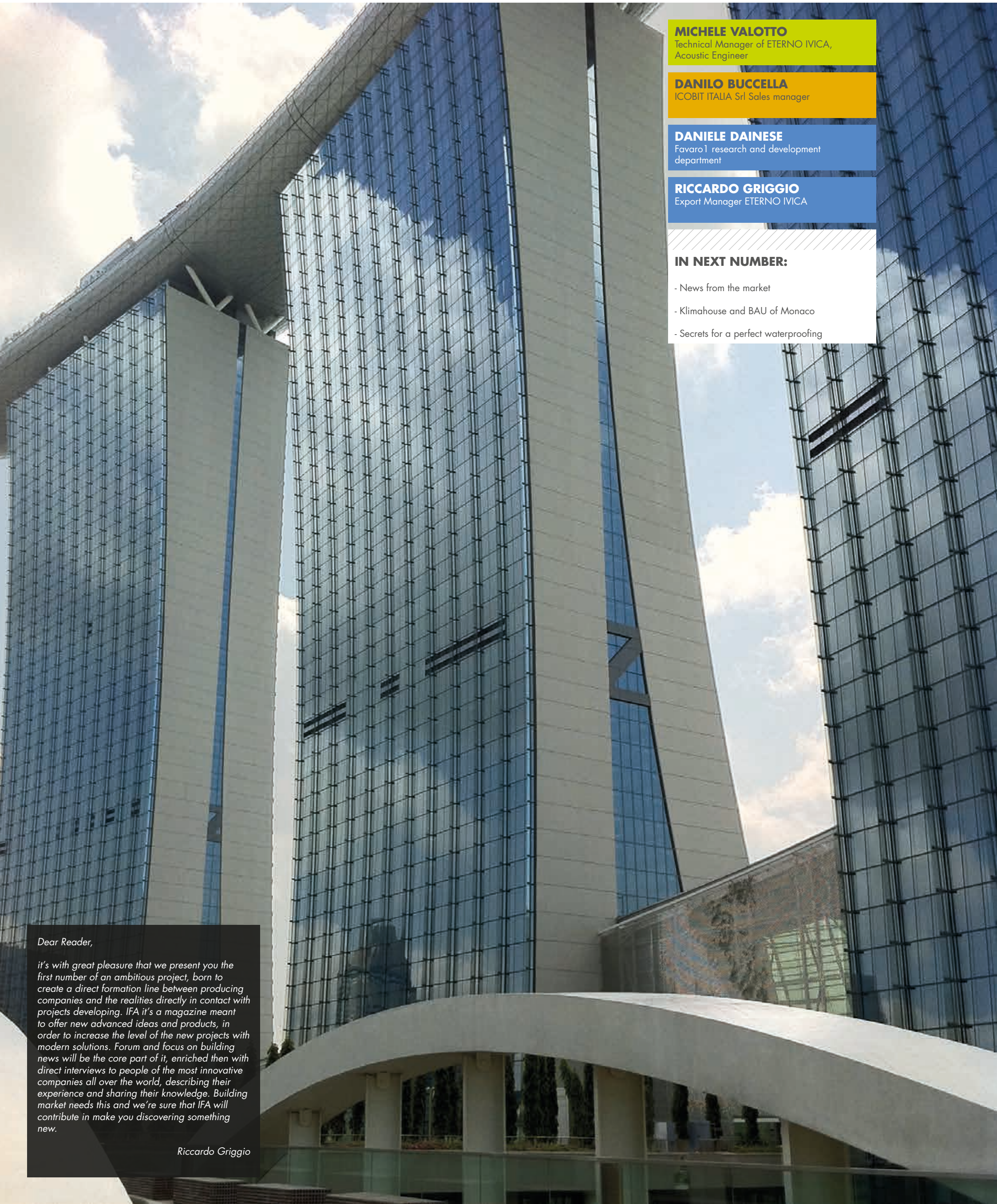


IN NEXT NUMBER:

- News from the market
- Klimahouse and BAU of Monaco
- Secrets for a perfect waterproofing

Dear Reader,

it's with great pleasure that we present you the first number of an ambitious project, born to create a direct formation line between producing companies and the realities directly in contact with projects developing. IFA it's a magazine meant to offer new advanced ideas and products, in order to increase the level of the new projects with modern solutions. Forum and focus on building news will be the core part of it, enriched then with direct interviews to people of the most innovative companies all over the world, describing their experience and sharing their knowledge. Building market needs this and we're sure that IFA will contribute in make you discovering something new.

Riccardo Griggio

ING. MICHELE VALOTTO
Technical Manager of ETERNO IVICA, Acoustic Engineer

SILENCE ENGINEERING

The already vast and consolidated experience accrued over the last decade, on achievable results within the limits set by the known *Prime Ministerial Decree 5/45/1997 "Determination of passive building requirements"* is demonstrating how designing with the sole intent of meeting mandatory regulations is no longer sufficient.

In fact, the cited regulation does not actually guarantee comfort sound insulation, as is always more evident in circumstances where simply meeting *Prime Ministerial Decree 5/12/1997* produces ferocious complaints from real estate buyers, at times with legal repercussions pending for more than a decade.

The inadequacy of the sound insulation foreseen by Italian regulations is also proven by the comparison between the limits set by various European regulations (see table 1 indicating minimum sound insulation recalculated to the apparent sound insulation power R'_w expressed in dB).

As known, meeting the limits set for *Class I in UNI 11367* technical regulation *"Real estate unit sound classification"* (July 2010) is now technically and easily achievable, Class I requires sound insulation commonly considered of good comfort, as is daily confirmed by real estate buyers for which sound measurements during work provide the results foreseen by UNI 11367. Table 2 summarises the limits set for Class I.

As for the L'_{nw} floor sound pressure level, the L'_{nw}=53 dB value can be reached and amply improved with the usual construction techniques, meaning with concrete and masonry or composite floor slabs, provided that adequate impact sound insulation products, suitably laboratory certified, are used.

The designer must include products in the design phase laboratory certified not only for the well-known and mandatory *"dynamic rigidity"* parameters, but also for *"compressibility"* and *"creep"* parameters. In fact, it has been widely demonstrated by sound measurements during work that the best impact sound insulation is characterised by the optimal compromise between these three parameters. The correct numeric values for the cited parameters are readily available in technical publications.

Figure 3 shows the construction details of a floor for which the test during work provided a significant L'_{nw} = 44 dB result, much better than the L'_{nw} = 53 dB set for Class 1. The result was achieved in a building constructed in Sovizzo (VI) with façade and partition walls, without false ceilings or drywalls.

The sound impact insulation used (made of 10 mm thick rubber latex) provides an excellent ratio between *"dynamic rigidity"*, *"compressibility"* and *"creep"*, guaranteeing floor stability in time and, thus, the maintenance of the measured results in time.

Contrarily, concerning the apparent sound insulation power, the R'_w = 56 dB power, to be considered almost at the upper limits of the performance achievable with usual Italian brick construction techniques.

In fact, numerous sound tests conducted during work on layered brick walls with significant thickness (an example is provided in figure 4) provided actually significant results, but still between R'_w = 57 dB and R'_w = 58 dB. Since meeting values R'_w = 56 dB and L'_{nw}= 53 dB during work should be required of the Contractor at the beginning of the construction process, during the design phase. A suitable security margin must be foreseen on the expected results, to avoid obvious claims in the inspection phase.

Faced with these considerations and remembering that the tolerance on sound measurements during work are at least ± 2 dB, in ordinary constructions and in the intent to achieve excellent performance, it is clear that there are ample security margins on achieving the L'_{nw} sound impact insulation result level, but narrow security margins concerning the R'_w apparent sound insulation power.

Country	In line buildings	Town houses
Italy	50	50
Germany	53	57
Holland	52	55
Norway	52	55
Sweden	52	55
Finland	52	55
Denmark	52	55
UK	51-54	51-54
France	54-57	54-57
Austria	54-57	59-62
Iceland	52	55

Table 1

Façade normalized acoustic insulation $D_{2m,nT,w}$ [dB]	Apparent reduction index of vertical and horizontal partitions between rooms of different properties R'_w [dB]	Normalized sound impact insulation pressure level between different real estate units L'_{nw} [dB]	Correct sound level emitted by continuously operating systems L_{ic} [dB(A)]	Accepted correct sound level of discontinuous operating systems L_{id} [dB(A)]
≥ 43	≥ 56	≤ 53	≤ 25	≤ 30

Table 2

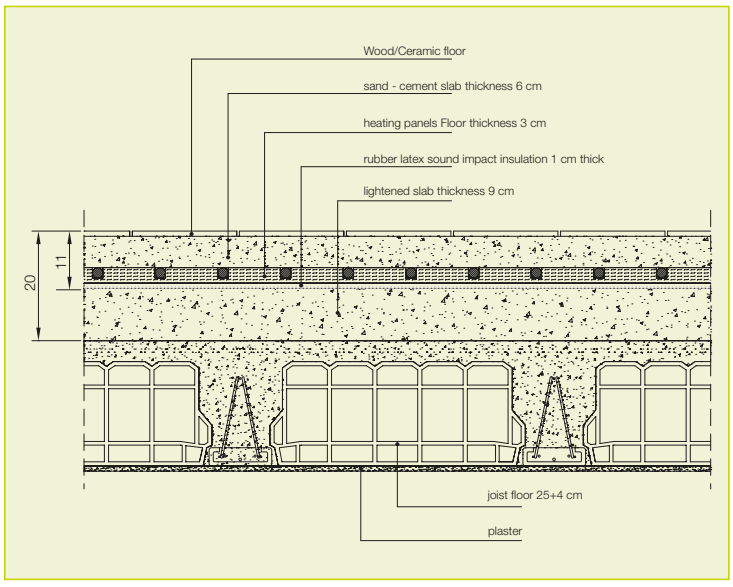


Figure 1

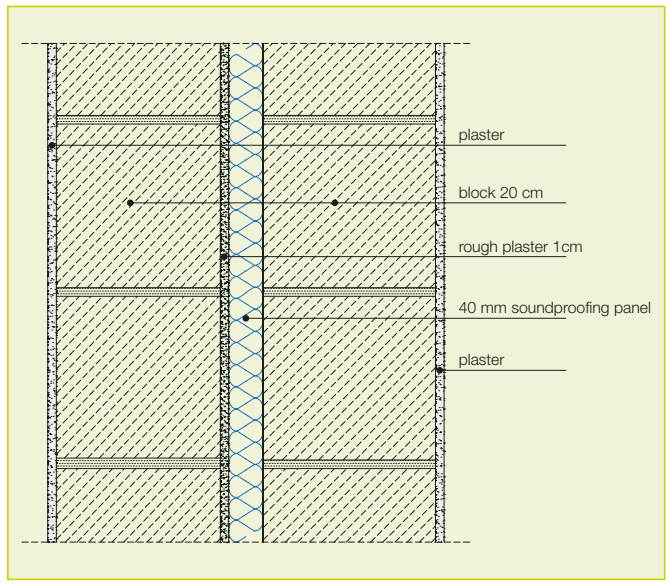


Figure 2

There is a niche construction system, but still widely tested during work for over a decade, that can achieve results significantly better than those set by UNI 11367 Class 1, guaranteeing enormous security margins in the design phase even compared to very high sound insulation values.

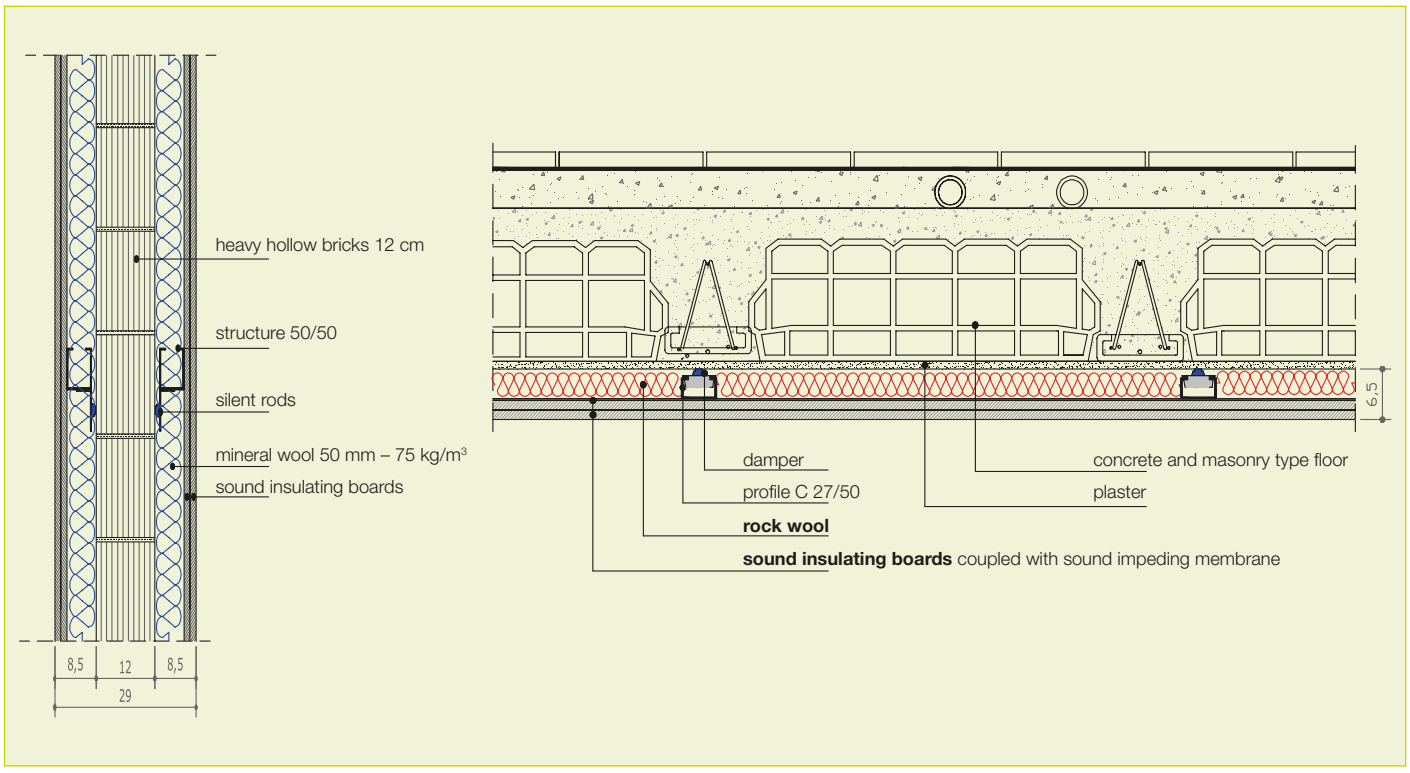
It is a mixed construction system, meaning that it uses concrete and masonry floors and brick walls associated with soundproof drywalls and false ceilings (meaning high density drywall slabs coupled with sound impeding mass membrane). The creation of the floor and brick wall lining and intrados (partition walls between units and the façade), as well as the use of internal drywall beams, (almost) cancels out the transmission of creeping, both concerning sound impact and the apparent sound insulation power. Some graphic representations are found in figure 3.

The typical values repeatedly measured during work for this type of construction are found in table 3. As known, these results are much better than those set by Class I.

Apparent reduction index of vertical and horizontal partitions between rooms of different properties R'_w [dB]	Normalized sound impact insulation pressure level between different real estate units L'_{nw} [dB]	Correct sound level emitted by continuously operating systems L_{ic} [dB(A)]
65	42	22

Table 3

Figure 3



Given the economic considerations that at times depend on the particular design work site, the mixed construction type can always be adopted provided that, during the design phase, a suitable floor slab is foreseen to guarantee the minimum zoning height for residential units.

The mixed construction type is efficiently and widely applicable in the sound reclamation of existent buildings, both residential and industrial or public establishments. In the first case, to increase the sound insulation of existent flats, especially concerning neighbouring noise. In the second case, to reduce sound emissions to the surrounding environments by noisy activities. The latter is always the more popular case for disturbing public establishments (bars, discos, restaurants, pubs) next to residential units, sanctioned by ARPA for having exceeded emission limits.

Should it be proven that limits are exceeded, in addition to the town fine, the business owners must immediately reduce emissions to bordering units or risk suspension. Should exceeding the limit be due to aerial noise produced by customer voices or music amplifiers, the only possible intervention is suitably designed sound insulation drywall lining.

The mixed system applied to existent buildings is an excellent solution from the construction standpoint since it can be quickly installed with high site cleanliness, since almost surgical drywall applications and without heavy duty, noisy and disturbing work typical of construction.

ACOUSTICS
CASE HISTORY

ACUSTICA

HOW TO RESOLVE NOISE DISTURBANCE

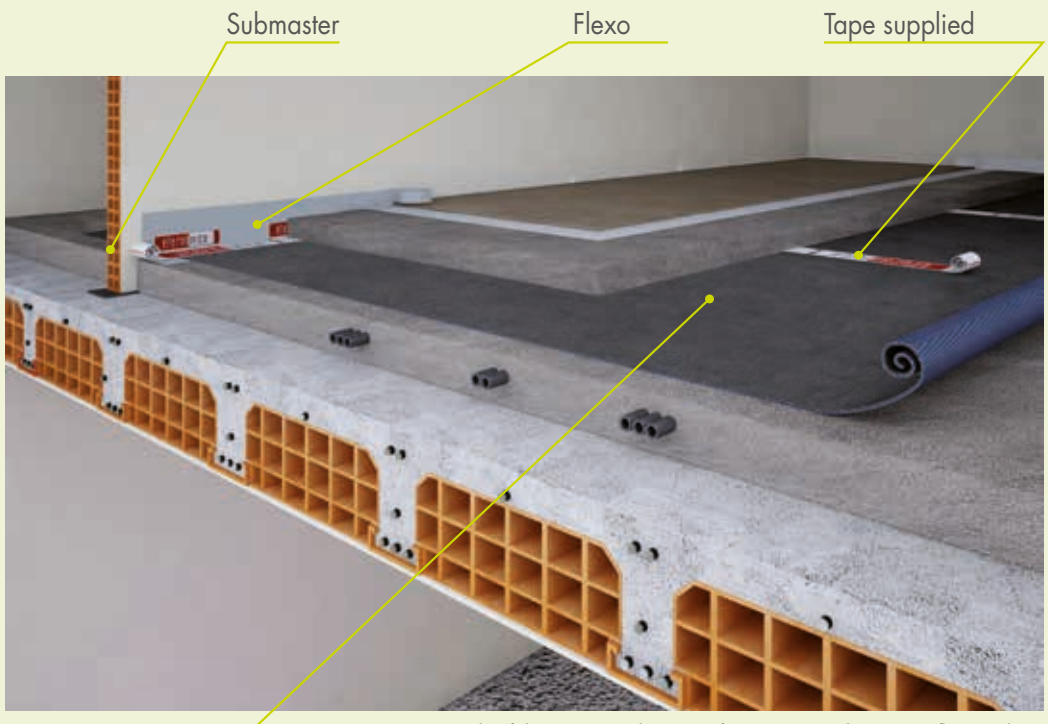
DYNAMIC DPCM
HIGH ELASTICITY AND PUNTIFORM SUPPORT, THE CHARACTERISTICS THAT ALLOW DPCM TO HIGHLY REDUCE IMPACT SOUND IN FLOORS

Dynamic DPCM is a centrifuged rubber latex under-screed impact sound insulation mat, fitted with a wholly waterproof membrane, developed to obtain a better balance between dynamic stiffness, compressibility and creep. Particularly suitable for applications on floors without underfloor heating and with limited thickness screed.

LAYING INSTRUCTIONS

The vertical wall and the screed must be isolated so the "L" Flexo perimeter strip must be laid along the whole perimeter of the room, thresholds of doors and French doors included. The whole floor space must be covered by the sound insulation mantle, without leaving any empty space. The sheets must be taped side by side using the tape supplied. Laying dividing screed at least 6 cm deep is recommended.

20+4cm thick concrete and masonry floor, 8cm-thick lightweight screed, DYNAMIC DPCM impact sound insulation, 6cm-thick sand-concrete screed and finishing floor.



Example of the correct realization of a concrete and masonry floor without underfloor heating.

APPLICATION EXAMPLE: 20+4 CONCRETE AND MASONRY FLOOR

Impact sound insulation	Sound impact level L'nw (on site value)	Apparent sound reduction index R'w (working value)
Dynamic DPCM	53 dB (ceramic) 50 dB (wood)	54 dB

The values stated can be affected by the characteristics of the structure.

The "creep test" allows to check and measure the permanent deformation of a material for 7 years under a constant load of 200 kg/m2 (screed + floor). It is an often overlooked but fundamental value to understand how unchanged the acoustic result obtained will remain through time. Dynamic DPCM has a 5% creep, a superb result if you consider that the creep of recycled rubber is over 50%.

CODE	SHAPE	DIMENSIONS	THICKNESS	WEIGHT	RIGIDITY DYNAMIC	CREEP	COMPRESSIBILITY	HEAT CONDUCTION
L010021108	roll	1.37 m (width) x 8 m (length) equal to 10.96 m^2/roll	8 mm	3,5 Kg/m^2 equal to 38,36 kg/roll	s' = 27 MN/m^3	x_{t_7years} = 0,35 mm (ε_{t_7years} = 5%)	c = 1,35 mm (c = 17%)	λ = 0,08 W/mK

BAU 2015

eternoivica

FROM 19 - 24 JANUARY 2015 - MUNICH
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PAV. A4 - STAND 525

WATERPROOFING NEWS

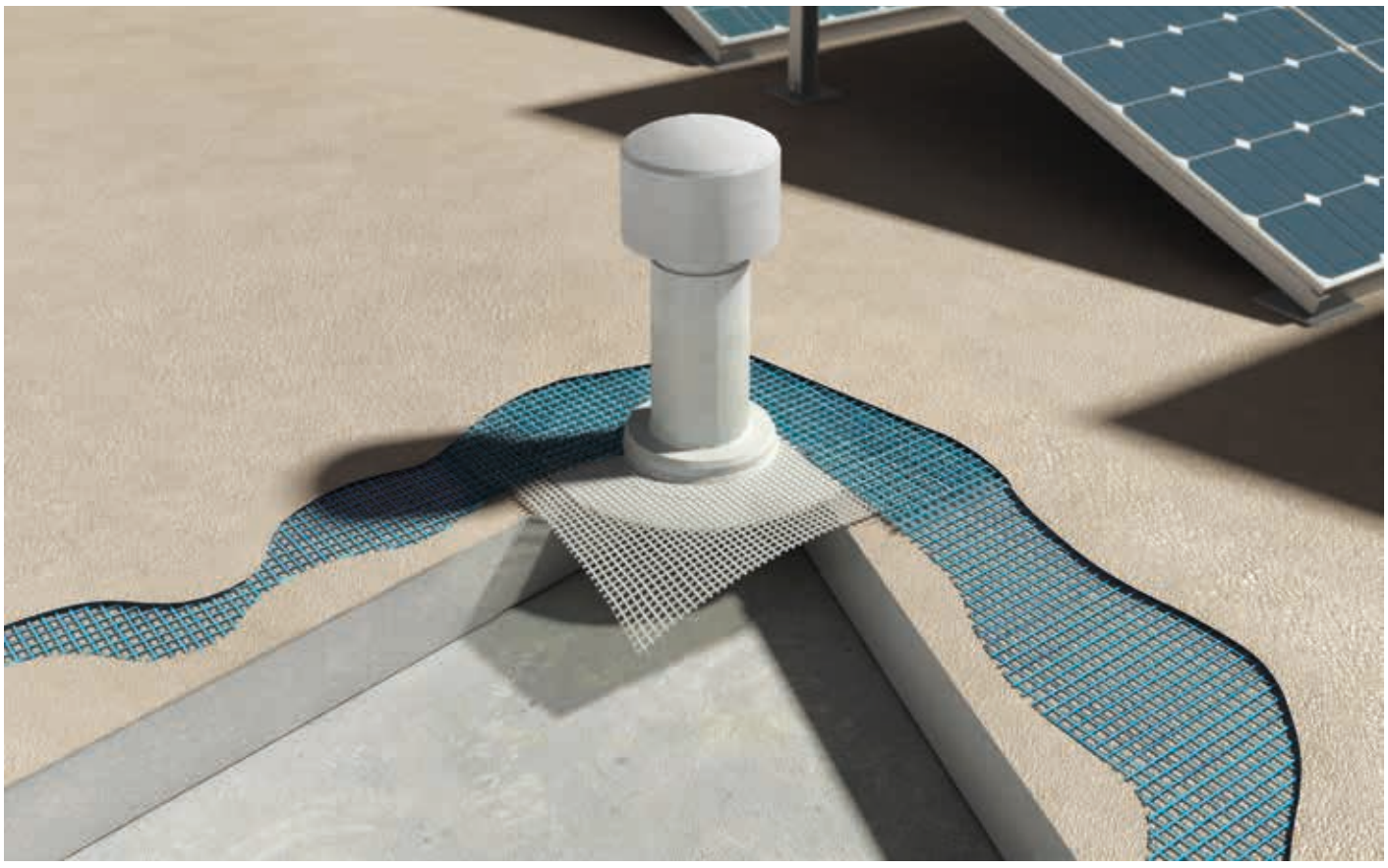
NEW LIQUID AIR VENT

The vent pipe Liquid, unique in its kind, is the final point of a successful range of high technology products, designed and manufactured to fill the gap between the waterproofing liquid membranes, and the elements responsible for water runoff.
A unique product that captures the true essence of the world of cementitious bi-component and liquid membranes, that solve the problem of compatibility between liquid layer and plastic accessory, and that eliminates the problem of condensation in the waterproofed area.

Description:
Certified 160g glass fiber mesh or non-woven textile-non-textile sheet, are industrially fused to the flange entirely made of grey polypropylene (PP).
This complete adhesion creates a between accessory and reinforcing element, in this way are averted detachments to incompatibility between the liquid impermeable layer and the plastic of the exhaling.

Installation:
LThe vent pipe Liquid will be installed in the roof in direct contact with the laying surface, taking care to incorporate the fiberglass mesh or the textile-non-textile between the two layers of waterproofing, while in the case of single lay waterproofing the accessory will be adherent to the concrete floor directly. In both cases, the circular plastic area adherent to the laying surface must not be in any way waterproofed on its lower part: this will allow the passage of the moisture into the vent pipe, also thanks to the knurled plastic surface.
Once installed, the vent pipe will act as a "chimney" for any condensation that may form between the waterproofing and building, preventing the formation of dangerous pockets of condensation, potentially cracking points due to thermal shocks to which the covering is subjected.

Conclusions:
This important innovation in the field of liquid waterproofing is yet another proof that the technical staff of Eterno Ivica supports the installer mostly on the critical points of the waterproofing, because the details make the difference but the difference is not a detail.



INTERVIEW

DANILO BUCCELLA
ICOBIT ITALIA Srl Sales manager
Chieti Scalo (CH) www.icobit.com

We met Danilo Buccella, Icobit Italia Srl Sales manager, to ask him to provide us with an overview of the company, production, quality level and market share that has always characterised it.

What is Icobit's position in the waterproofing sector?
It has always stood out in the liquid waterproofing sector with innovative, low environmental impact solutions, privileging installation simplicity while ensuring maximum product performance. All this has allowed Icobit to become, in its thirty year career, a point of reference in the liquid waterproofing market.
What are the main features or your solutions/products?
We have always preferred to design and develop high performance solutions with the maximum innovative content for a constantly and rapidly changing waterproofing market, offering profound changes. The emergence of new sector players, users constant request for higher and better performance, the numerous new fields of functional use to ensure living comfort, were the main drivers behind our Icobit solution designs to meet these changes. The final goal is, and always has been, to ensure greater wellbeing and health to the buildings in which we live.

Why is Icobit defined as an innovative company?
For those who do not remember, Icobit was the first to innovate with its acrylic emulsions resistant to water stagnation, the first to design and distribute under floor acrylic systems on the market without the use of reinforcements, the first to formulate liquid membranes to boost energy savings and, last but not least, the first to receive EC European approval for one of its innovative mono-component acrylic formulas.

CASE HISTORY

CEMENT-ASBESTOS ROOF RECLAMATION WORK

Reclamation, specifically for a cement-asbestos roof "visible" on the extrados, must meet **Health Ministry Decree 20/08/1999** that provides all the instructions regarding the preparation of the support, type and performance features of encapsulated linings.
Encapsulation defined as "TYPE A" includes the initial application of a product defined as penetrating encapsulating that blocks the asbestos fibre in the support matrix (that must be previously cleaned and prepared according to suitable techniques.
After drying, a dual layer of ICOPER lining is applied in contrasting colours to provide an "encapsulating cover" effect for a final thickness of 350 micron (0.35 mm).

FLOORING
INTERVIEW

DANIELE DAINESE
Favaro1 research and development department
Zero Branco (TV) - www.favaro1.com

FAVARO1®
ARCHITECTURAL SURFACES

Favaro1 is one of the leading floor screed and slab manufacturers able to support structural development in view of trade openings to new markets. Founded in 1958, in these many years of success and achieved goals, Favaro1 has improved the quality of its products, sales and distribution organisations, human resources and factory floors.

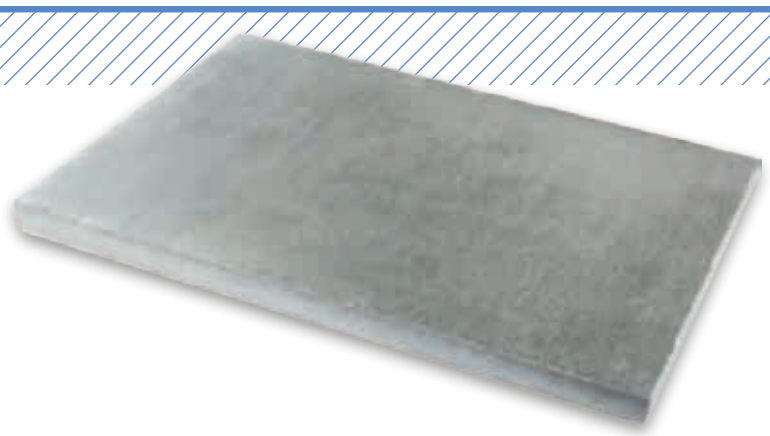
Daniele Dainese, from the R&D department, illustrates the strengths of a great business venture and how the company is able to meet new challenges to achieve increasingly more ambitious goals.

What is Favaro1's position in the flooring sector?
We are a company that dedicates continuous research to the flooring product sector to be able to ensure excellent resistance, durability, waterproofing, water-oil repellent and reduced maintenance properties without compromising the aesthetic aspect of our products.
We actively work with the best and leading raw material suppliers to provide positive feedback to these companies.

What are the main features or your solutions/products?
Continuous product controls guarantee excellent quality according to current standards.
We are attentive to designers' needs and attempt to implement specific production processes to meet their requests.
An equipped laboratory allows us to experiment with new materials to find solutions to the submitted problems.

Why is Favaro1 defined as an innovative company?
Favaro1 is always attentive to new emerging markets, experimenting new materials in its research and development laboratory.
Continuous training for its employees and attention to their ideas on new products or business improvements, ensure excellent management quality and make **Favaro1** a modern company with a positive future outlook.
Production process automation, sustainability through actions that aim to manage the environmental balance and close the ecological cycle (recycling, reclamation and full reuse of scraps and production water) and the use of environmentally friendly modern materials, such a photo catalyst cements, allow our company to keep up with the times.

CASE HISTORY



THE PURE AND UNIQUE ESSENCE OF MATERIA

Favaro1 is a leader in the design and production of concrete flooring with several decades of experience in this sector.
We are a company attentive to environmental problems thanks to the improvement is production sustainability through the use of renewable sources, we have consolidated know-how with technical solutions to meet a myriad of problems, we are able to develop new products to meet customer specifications and we can guarantee excellent product quality thanks to our accurate internal audit system.
The key feature that distinguishes **Favaro1** is the continuous research on new materials and technical solutions that can guarantee new products in line with the times.
The partnership with Eterno Ivica was established to resolve some contractor requests for a construction site in Gardone Riviera: we had to level a surface starting from an irregular foundation, lay pipes and guarantee quick installation times but, overall, ensure an aesthetically pleasing floor.
The solution we found for this project was our **VIA VENETO®** brand selecting **MATERIA**.

Materia is a simple weave and primary coloured product, its dimensions are 60 x 40 cm with 3.8 cm thickness.
The key features of this product are: the use of materials selected from certified quarries, bending resistance with transit capacity if lain on a concrete slab, maximum non-slip values (DIN 51130 R13), water repellent properties thanks to the use of a special finish that helps to preserve the surface and keep it clean in time, limiting the effects of maintenance, excellent weather resistance.
The type of chosen installation was floating, using **Eterno Ivica** adjustable supports to permit: an even surface without weighing it down with the screed, avoiding ground breaking work for conduit installations, guaranteeing maximum under foundation inspection capability, permitting excellent dilation absorption due to temperature changes and structural movements, permitting heat insulation thanks to the gap between the floor and under foundation, guaranteeing a lightweight structure without burdening floor sturdiness and permitting water conveyance through grooves. An added value provided by **Eterno Ivica** supports was sound insulation.

Materia was an ideal product for floating floors, guaranteeing absolutely pleasing aesthetics.

Materia is unique thanks to its primary structure designed in "grey" and "white". Materia is appropriate for elegant settings preferred by sector technicians due to its practicality, pure beauty and accurate structure. **Materia** is also suited for installation on support and is also enhanced by a special water repellent treatment that helps to preserve the surface and keep it clean in time. In fact, where Protective stones is applied, wine, water, coffee stains, etc., if immediately removed, can be eliminated before they penetrate into the product.

CASE HISTORY

SPECIAL CLIP

VERTICAL EDGE CLIP: safe innovation to "end in style"

Designed to solve a problem shared by many outdoor floors, meaning edge plugs when there is no perimeter wall, the vertical edge clip is an innovative system that can easily and elegantly close the perimeter space created on above ground floors. A solution made up of two special stainless steel clips that, placed over the head and under the base of the Eterno Ivica support, create a housing with the clamps that hold the floor edge at the space to be plugged, thus avoiding horizontal tile slipping thanks to the lock at the end of the floor edge clip.

TILE EDGE CLIP: the ideal combination between aesthetics and practicality

Designed by Eterno Ivica to avoid contact between tiles and the perimeter wall in outdoor or above ground floors, the tile edge clip, fully made of stainless steel, is equipped with shock absorber for longitudinal and cross dilations and a safety hook to provide a linear and elegant perimeter line while stabilising the floor.

Head vertical edge clip

Base vertical edge clip

Tile edge clip

RICCARDO GRIGGIO
Export Manager ETERNO IVICA

MORE THAN 40.000 ITALIAN PEDESTALS FOR SINGAPORE

Marina Bay Sands is an integrated resort fronting **Marina Bay in Singapore**.
Developed by Las Vegas Sands, it is the world's most expensive building, at US$ 4.7 billion, including the cost of the prime land.
The iconic design has transformed Singapore's skyline and tourism landscape since it opened on 27 April 2010.
The complex represents a never-before-seen example of architecture and somewhat resembles a giant surfboard floating on three skyscrapers, most of which are taken up by a hotel.
The hotel boasts a total of 2,560 rooms and the Sands Expo and Convention Centre has more than 120,000 square metres of meeting space, making it one of the largest and most flexible locations in Asia.
The Sands Expo and Convention Centre has five floors of exhibition and convention space, with up to 2,000 exhibition booths and 250 meeting rooms. It has hosted events ranging from banquets, theater-style conventions, to exhibitions and roadshows.
A casino with 500 tables and 1,600 slot machines was another must.
Spanning 15,000 square meters over four levels of gaming, the casino features over 600 gaming tables and 1,500 slot machines along with two noodle bars.
No fewer than **40,000 Eterno self levelling pedestals** were used for the construction of the external area around the Sands Expo and Convention Centre.
Eterno Ivica Pedestals are a sustainable product, as it's produced from recycled polypropylene.
They are adjustable in height from 25 to 550 mm and thanks to their flexibility, they allow a fast and efficient installation. Pedestals can be used combined with concrete or ceramic tiles, granite or marble, and also with decking.
This project is a great reference for Eterno Ivica, that after more than 20 years of experience in the European market, now expands its brand in Asia with such a prestigious application.

INTERVIEW

We met Riccardo Griggio, Export Manager of Eterno Ivica, who has followed the project right from the start until the final application, to ask him to explain us the most important features of an intervention as complex and challenging as this.

Which big construction advantages has Marina Bay Sands?

One big advantage of an elevated system is its **flexibility**. A big range of highness can be easily compensated, **from 25 to 550 mm**, and in Marina Bay Sands this was a very important point. The fact that pedestals can be combined with different materials is a second advantage.
All around the Casino area, both decking and stone tiles has been installed, and having one single understructure adaptable to these two different materials just changing the head of the pedestals made things easier for the site.

How come was chosen an italian contractor for Marina Bay Sands?

Eterno Ivica has a long tradition in production of pedestals for elevated floors, and the several references we had all over the world helped a lot in convincing Singapore market that our pedestals were the right product for the site.
We're a company that is always improving: year by year we try to increase level of quality of our products, mostly listening to our customers and adapting our pedestals to their needs.
We do not only sell a pedestal, we are always looking to provide a complete system and the right solution for the final easiest application.
Then from a technical point of view, **Eterno** pedestals are mostly providing a big advantage in application. If we compare our pedestals to all other products in the market, our customers are saving approximately 30% time of application, thanks to our exclusive self levelling system for authomatic slope regulation up to 5%.
Furthermore, an accessory like our regulation key, makes the job easier than ever, allowing the regulation of the pedestal even with tiles on top.

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