

Bellotti s.p.a.

Via S. Francesco, 1
22072 Cermenate (CO) Italy
T +39 031777222
F +39 031771148
www.bellottispa.com
transport@bellottispa.com



Railway

Since 1927 Bellotti has been active in the transformation of wood in the domestic and international markets, manufacturing products with high content of innovation, quality and paying special attention to the customers care. Understanding the needs of the market is, for Bellotti, the winning strategy to be proactive and dynamic towards its Customers, offering customized solutions for each project.

In the Rail market, Bellotti has structured a special organization, increasing its own know-how with the development of special internal departments. Moreover, Bellotti has strengthened its capabilities of design and integration thanks to the partnerships with various companies very experienced in railway market, such as: Angst+Pfister, SBF and many others. all this to implement specifically:



- **Product Strategies**
- **Product Innovation**
- **Product Design**
- **Business development**
- **Marketing and Sales**
- **Project Management**
- **Innovative cores in cork or rubber cork or equivalent**
- **Innovative and natural floor covering rubbers**
- **Innovative subfloor antivibration materials, systems and/or devices**
- **Green cores for woodless floor panels**
- **Quick installation and levelling systems for floor panels and/or floor systems**
- **Quick installation of led lights in any position of the floor**



Rail Engineering

Our certifications:

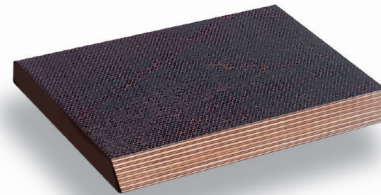


Lariphon® Eco EN

Is a composite panel with skins in external Birch Plywood and a special rubber-cork core which is suited to very high performance acoustic insulation (up to 34dB). The LARIPHON ECO EN are particularly suitable for projects which require high durability over long periods of time, combined with great mechanical and sound insulation performances guaranteed by high density core (up to 950 kg/m³). LARIPHON ECO EN is EN 45545 and NF F 16101 compliant (class "F").

Lariphon® Eco Light

Is a composite panel with Birch external faces and a special low density cork core with high acoustic insulation performances. The new LARIPHON® ECO LIGHT combines impressive weight savings and high acoustic insulation levels, still performing at the same high level of mechanical characteristics as all the Bellotti railway products. LARIPHON® ECO LIGHT can be integrated into all the Bellotti rail projects, from Metros to High Speed Trains. LARIPHON ECO LIGHT is EN 45545 compliant.



Carply® RA

Is a plywood panel with phenolic bonding made exclusively with Birch wood. CARPLY RA panel offers superior mechanical performances, suitable for projects which require high durability over long periods of time. CARPLY RA is EN 45545 and NF F 16101 compliant (class "F").

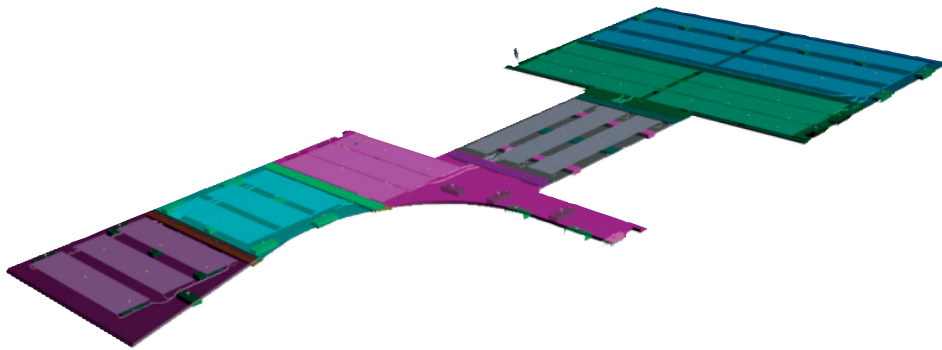
All products are covered with a resin (smooth and knurled finish side) which increases the performances of hardness, impermeability and durability of wood and it represents also a surplus for fire resistant characteristics; the non hygroscopic varnish, used to protect edges, is also applied for humidity protection.

Be-WARM

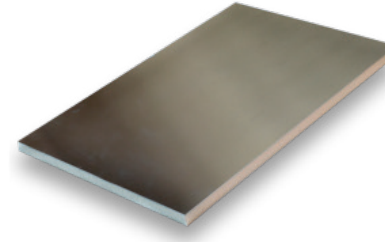
Be WARM is a heated floor system, which can be cut and worked after production, still retaining its heating and mechanical features. It also guarantees a uniform heating distribution all over the floor surface. Based on a sandwich technology, Be Warm is an elegant solution for the floor heating problem, which increases energy savings, ensuring simplicity of installation. Due to its advanced technological design, Be Warm is superior to the conventional heating systems, and guarantees a comfortable climate for all passengers. Be Warm can maintain its performances even if the panels are locally damaged.

Technical performance:

- Power supply: customizable in VDC or VAC (typically 220 V or 400 V);
- Thermal output: customizable up to 800 W/m² (typically 300 W/m²);
- Mechanical resistance: same of the original Bellotti unheated panel in which it is installed.
- Operating environment: all the typical railway environmental conditions (i.e. $-40^{\circ}\text{C} < T < +80^{\circ}\text{C}$; RH up to 100%).



Be-NEXT



Following market trends, Bellotti opens to new product lines, such as wood-less floors made by plastic, metals or their combination, capables to provide:

- Fire proof, sandwich panels contain a foam core and have a covering layer made of aluminum
- The lightweight sandwich structure is rigid. The insulating foam core minimizes the downward thermal flow and energy losses
- Higher stiffness
- Structural and functionally integrated composite systems

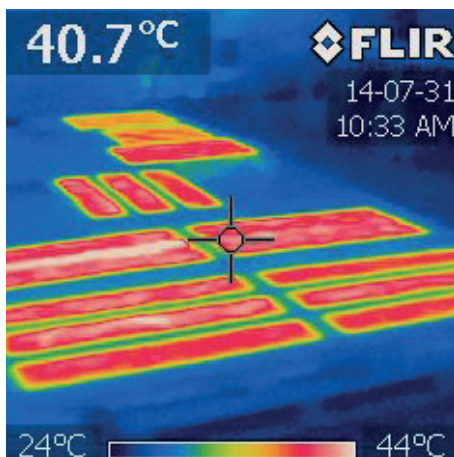
Technical performance:

- Fire proof, sandwich panels containing a foam core
- Lightweight sandwich structure
- The insulating foam core minimizes the downward thermal flow and energy losses
- Higher stiffness

Be-LUXE

Bellotti integrates more features into their floor panels.

One of them is Be LUXE: a re-positionable LED system, giving full freedom in lighting and signalling on the floor.



Be-FLOOR

Bellotti is an OEM partner in the design, manufacture and installation of floor systems, complete of:

Dedicated and specialised floor core selection

Anti-vibration systems

Covering rubber

Heating (when required),

allowing its Customers to get a fully integrated and ready-to-be-installed products in order to obtain:

- Full modularity
- Lower weight
- Improved sound absorption
- Improved vibration tuning and absorption
- Modular Heating (when required)
- Improved fire and smoke resistance
- Full integration with the floor rubber cover
- Faster assembly times
- Pre designed recycling and sustainability features, in accordance to the end user regulations.

All these features can be combined together depending on each specific project requirement. In addition, Bellotti can provide the prefitting of its floor systems. This way offering complete turn-key, installed rail floor.

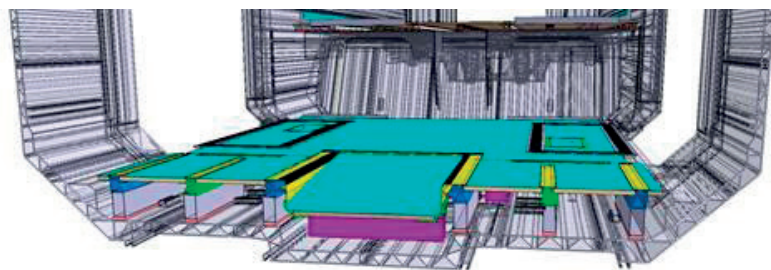


Hitachi ETR 1000

Typical Projects:

Bellotti has been awarded the most important High Speed Italian train project, as direct supplier of engineering and manufacturing for the complete floor system. As an example:

Subproduct supplied	% of total value
Panels	20%
Insulation	10%
Dampers	40%
Installation on vehicle	30%



Typical cross section of a complete railway flooring system- Be-FLOOR.

Main References List

Project	Type Of Vehicle	Location	Product
Smart Rock	DMU, EMU	Italy	Carply RA
Taipei Sanying	LRV Metro	Taiwan	Lariphon ECO
Smart Coradia	DMU, EMU	Netherlands	Carply RA
Smart Coradia	DMU, EMU	Italy	Carply RA
X'Trapolis Mega	DMU, EMU	South Africa	Lariphon ECO EN
Kochi	LRV Metro	India	Lariphon ECO EN
Lucknow	LRV Metro	India	Lariphon ECO EN
Sidney	LRV Metro	Australia	Lariphon ECO EN
RGV 3UFC	HST	France	Okoumé
Lima	LRV Metro	Perù	Lariphon ECO BeFLOOR
Vivalto	DMU, EMU	Denmark	Lariphon ECO
Taipei	LRV Metro	Taiwan	Lariphon ECO BeFLOOR
Coradia Meridien	DMU, EMU	Italy	Carply RA, Carply RA BeWARM
Expo - Leonardo	LRV Metro	Italy	Lariphon ECO BeFLOOR
Copenaghen	LRV Metro	Denmark	Lariphon ECO BeFLOOR
Zefiro V300 - ETR1000	HST	Italy	Lariphon ECO BeFLOOR
Pendolino SBB	HST	Switzerland	Lariphon
NTV	HST	Italy	Lariphon
Fortaleza	LRV	Brazil	Lariphon ECO
Riyadh	LRV	Saudi Arabia	Lariphon ECO
Melbourne X'trapolis	LRV	Australia	Carply RA
Los Angeles	LRV Metro	USA	Okoumé
Madrid	LRV Metro	Spain	Okoumé (fire class M1 F1)
CTR Minuetto	DMU, EMU	Italy	Carply RA
E464	DMU	Italy	Lariphon
ETR 460, 480 Pendolino	HST	Italy	Lariphon
IC4 - IC2	DMU, EMU	Denmark	Lariphon, Lariphon ECO
ETR 500	HST	Italy	Lariphon Okoumé
ETR480 Pendolino	HST	Czech Republic	Lariphon